ASCE Oregon Testimony Before Senate Committee on Transportation on behalf of HB 2345- West Coast Infrastructure Exchange

The testimony of ASCE Oregon President, Christian F. Steinbrecher, P.E.:

A nation and its prosperity depend on infrastructure. The cornerstone of a great economy is infrastructure. It moves people, goods and ideas. It makes possible a state's accomplishments. Throughout history the greatest nations have made the investment in first class infrastructure.

Infrastructure that does not meet the needs of Oregonians jeopardizes our Oregon's future prosperity. Oregon needs to reinvest and renew its infrastructure. When there is a catastrophic failure that results in lost lives and property, infrastructure issues make the headlines. The public then realizes the need for strong and properly maintained infrastructure.

Our daily lives are greatly impacted by the state of the nations and Oregon's crumbling infrastructure.

Recent studies have shown that travel under congested conditions has increased by more than 25% since 1995. Investing in infrastructure creates jobs and stimulates the economy. Every billion dollars invested in infrastructure supports 35,000 jobs. Oregon needs to establish a comprehensive, longterm infrastructure plan, as opposed to the current "patch and pray" method. Federal funding is no longer available in amounts necessary to fix our crumbling infrastructure.

State and local governments must be part of the solution. When a halfcent tax increase for transportation improvements are voted down, other costs increase. However, the solution involves more than money. It takes sound technology, wise community planning, and involved citizens willing to partner with the government and the private sector to make real changes.

There is an emerging awareness of a need to change transportation behavior. Cities and communities must be better planned to reduce dependence on personal vehicles for errands and work commutes. Businesses can encourage more flexible schedules and telecommuting.

Solutions to ease the increasing demands on infrastructure systems and to improve

conditions, capacity and safety are multifaceted. It is not always necessary to build more roads, landfills or airports. The price tag to replace and maintain our infrastructure systems is rising. Ways to reduce overall costs must be developed and implemented. Innovative building and construction methods and materials must be considered.

Investing in research and development will help facilitate the state's ability to come up with more cost-effective solutions.

After an extensive two-year effort Oregon ASCE completed its review of Oregon's infrastructure – a report that focuses on Oregon and its unique challenges. This effort is in addition to the effort made by our national organization.

Contacting over 120 engineers, public works officials and industry experts in Oregon, as well as extensively researching available data that focused on Oregon, the Oregon Section of the American Society of Civil Engineers has looked at Oregon's Infrastructure; and gives Oregon a C–.

Oregon ASCE examined aviation, bridges, dams and levees, drinking water and wastewater, energy, navigable waterways, rail, roadways, solid waste, and transit. This Oregon Report Card followed the structure set by the Report Card for America's Infrastructure developed by the ASCE national organization.

The committee collected information from numerous jurisdictions in Oregon, extensively researched publicly available data, and analyzed this material. Oregon's infrastructure shows success in areas such as navigable waterways and solid-waste. Other areas such as aviation are in need of substantial upgrade. And areas such as county roads have dramatic funding shortfalls.

Solutions to improve Oregon's Infrastructure must take into account the diversity that exists in Oregon in terms of land size, population density and economic base.

One size does not fit all.

We are the 9th largest state in the country. If Harney County with a population of 7,705 and an area of 10,228 square miles were a state there would be six other states in the US there that would be smaller. Western Oregon has 31% of the land mass but 87 % of the population. Economically we are 1/10 the size of California and 1/3 the size of our neighbor to the north.

We have 100,000 mi of river, 6,200 lakes, 360 coast line miles, 96 airports, 74,500 miles of roads, 7,212 bridges, 1,039 dams, 680 miles of navigable waterways and 2,400 miles of railroads.

There is a myth in Oregon, and that myth is that the pioneers were rugged individualists. But history tells us that was not the case at all.

They were a cooperative people who understood the need to get together help each

other out. One family could not bring in the crops or raise the barns that were necessary to survive. So Oregonians got together and helped this family harvest the crops and that family to raise the barn.

That's the attitude we need for next century. That Oregonians must come together and as a group pitch in and rebuild the next generation infrastructure.

The infrastructure that we rely on was constructed in the timeframe from 1945 to 1985. During this time this country was the greatest economic power on the globe, there was no Chinese economy, there was no Asian economy, and the European economy had been smashed by the war.

As a result we were the wealthiest country on the face of the earth. With this wealth we financed this great infrastructure. While we're still the greatest country in the world, there's a lot of competition. The money that was available to build that infrastructure is no longer available.

As individual states we must take the initiative to rebuild our own infrastructure and not wait for federal government to step in.

ASCE Oregon made the following recommendations:

1) Wring more efficiency out of existing infrastructure corridors - With a limited ability to increase the footprint of the infrastructure, more efficient use must be made of the existing land. This requires the application of the latest in technology such as intelligent vehicle and highway systems to increase the use density, intelligent grids as well as reconstruction to the most efficient configurations.

2) Increase Multimodal Corridors - Investigate increased multi modal use for existing corridors such as the combination of rail, highway, electrical transmission and gas transmission within urban corridors.

3) Give Sustainability More Weight in Project Pro Formas - Promote sustainable solutions for infrastructure rehabilitation. Apply sustainable practices to construction.

4) Increase the recognition of the impact of infrastructure configuration on public health.

5) Raise Means and Methods Efficiency - Invest additional resources in research and development for more efficient rehabilitation methodologies; such as next generation full depth reclamation of existing roadways.

6) Reduce Per Capita Use of Infrastructure - Land-use patterns and infrastructure should promote reduced per-capita use of infrastructure. The trip not taken or the therm not used is the lowest cost solution.

7) Emphasize Low Cost Rehab vs High Cost Replacement - Increase development of infrastructure inventory management systems and programs to take advantage of lower

cost rehabilitation versus high cost replacement.

8) Develop Innovative Financing - Continue to explore and develop innovative infrastructure financing and funding. Incorporate the value of the land taken by the infrastructure as a financial asset available for leverage. Increase leadership at all levels of government. Increase research in cost and schedule management to provide greater confidence in budgets and delivery dates.

9) Implement Systems Approach to Rehabilitation Assess infrastructure rehabilitation in a systematic approach by putting projects in a system context. Consider infrastructure systems as a whole, rather than on a project by project basis.

In short we need new ideas and new thinking, not just slavishly rebuilding the old. Oregonians must construct the new infrastructure that will propel Oregon into the forefront in the 21st Century.

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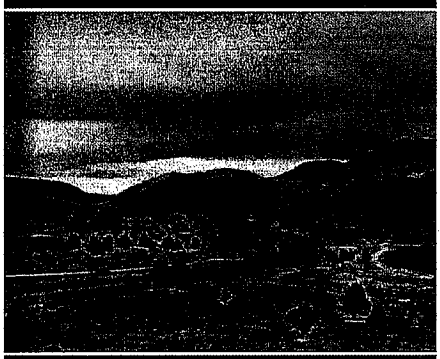
ASCE
OREGON SECTION

Oregon's Infrastructure Report Card

Oregon Section Infrastructure Review Committee

October 26, 2010



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October 26, 2010

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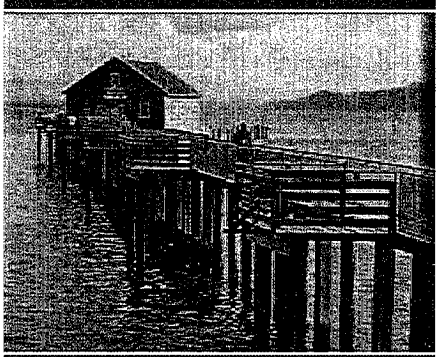

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Executive Summary

After an extensive two-year effort Oregon's civil engineers have completed their review of Oregon's infrastructure. Contacting over 120 engineers, public works officials and industry experts, as well as extensively researching available data, the Oregon Section of the American Society of Civil Engineers has looked at Oregon's Infrastructure; and gives Oregon a C–. The Oregon Infrastructure Report Card, developed by a committee of members from the Oregon Section of the American Society of Civil Engineers (ASCE), examined: aviation, bridges, dams and levees, drinking water and wastewater, energy, navigable waterways, rail, roadways, solid waste, and transit. This Report Card followed the structure set by the Report Card for America's Infrastructure developed by ASCE (national organization). The committee collected information from numerous jurisdictions in Oregon, extensively researched publicly available data, and analyzed this material.

Oregon's Overall Grade: C–

Oregon's infrastructure shows success in areas such as navigable waterways and solid-waste. Other areas such as aviation are in need of substantial upgrade. Areas such as some county roads have dramatic funding shortfalls.

Recommended Solutions to Improve Oregon's Infrastructure:

Wring more efficiency out of existing infrastructure corridors

With a limited ability to increase the footprint of the infrastructure, more efficient use must be made of the existing land. This requires the application of the latest in technology such as intelligent vehicle and highway systems to increase the use density, intelligent grids as well as reconstruction to the most efficient configurations.

Increase Multimodal Corridors

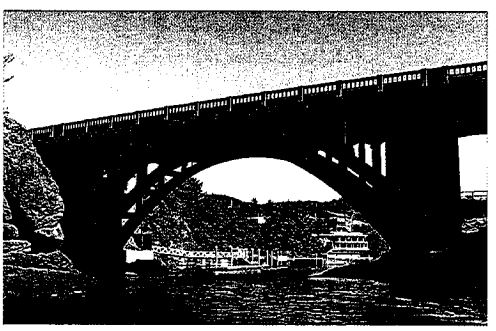
Investigate increased multi modal use for existing corridors such as the combination of rail, highway, electrical transmission and gas transmission within urban corridors.

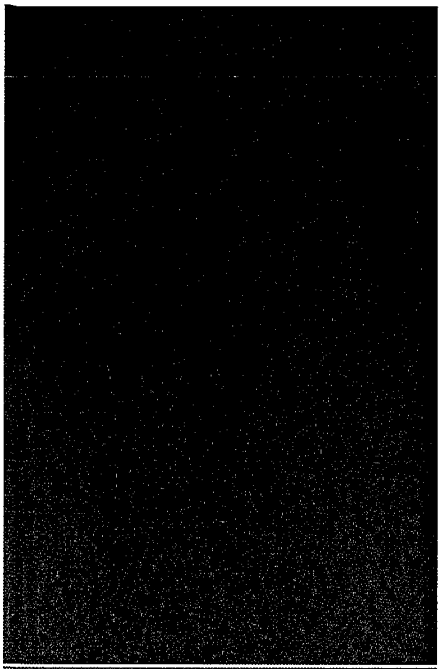
Give Sustainability More Weight in Project Pro Formas

Promote sustainable solutions for infrastructure rehabilitation. Apply sustainable practices to construction. Increase the recognition of the impact of infrastructure configuration on public health.

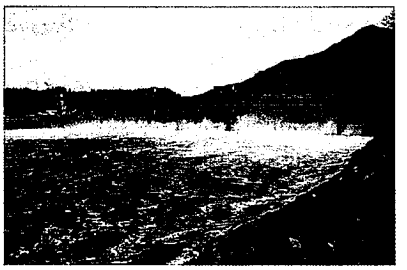
Raise Means and Methods Efficiency

Invest additional resources in research and development for more efficient rehabilitation methodologies; such as next generation full depth reclamation of existing roadways.





Reduce Per Capita Use of Infrastructure



Land-use patterns and infrastructure should promote reduced per-capita use of infrastructure. The trip not taken or the therm not used is the lowest cost solution.

Emphasize Low Cost Rehab vs High Cost Replacement

Increase development of infrastructure inventory management systems and programs to take advantage of lower cost rehabilitation versus high cost replacement.

Develop Innovative Financing

Continue to explore and develop innovative infrastructure financing and funding. Incorporate the value of the land taken by the infrastructure has a financial asset available for leverage. Increase leadership at all levels of government. Increase research in cost and schedule management to provide greater confidence in budgets and delivery dates.

Implement Systems Approach to Rehabilitation

Assess infrastructure rehabilitation in a systematic approach by putting projects in a system context. Consider infrastructure systems as a whole, rather than on a project by project basis. Use system context to shape the design.

Aviation: D

Oregon's aviation system is experiencing a number of shortcomings. While the committee recognizes the high-quality and substantial investment by the Port of Portland in its facilities, the balance of the state's 96 airports do not realize the same level of investment. Using standards developed by the Oregon Department of Aviation, Category 1 airports (those offering some scheduled airline service excluding Portland International Airport) are 29% are deficient in runway length, 57% in taxiways, 14% in visual approach aids and 14% in taxiway lighting. 50% of Category 2 airports (those urban airports supporting general aviation aircraft and corporate activity) were deficient in approach type and taxiway lighting. Funding is limited to user consumption fees and taxes.

Bridges and Roads: C–

23% of the state's bridges are either structurally deficient or functionally obsolete. With existing funding mechanisms, Oregon's bridges will become structurally deficient at a rate of 25 per year by the year 2018. In 2008, 85% of state highways were rated in fair or better condition, which was 2% less than in 2006. The percentage of state highways in good to very good condition dropped 11% since 2006, and the percentage of pavements in fair condition has increased from 15% to 24%. Some local and county roads are facing excessive shortfalls. For example, Tillamook County has a failing Pavement Condition Index (48) and a paving budget of $250,000 for 300 miles of paved roadway. Federal agencies are closing roads and reducing maintenance. While Oregon Department of Transportation has done exemplary work pursuant to the

Oregon Transportation Investment Act, and the American Recovery and Reinvestment Act (ARRA), these programs are one time measures and do not put in place a permanent funding mechanisms necessary for the ongoing needs of Oregon's bridges and roads.

Dams and Levees: C

Oregon has 1,039 dams, of which 325 are classified as high or significant hazard (31.3%). The State of Oregon has budgeted approximately $244,000 for dam safety. While dam conditions are generally good in the state, there is a lack of safety assessments for many of the irrigation structures in the state. However, recently water storage has been reduced at 11 Willamette Valley dams until their spillway gates are repaired or replaced The committee recognizes the work performed by the Dam Safety Program in the Oregon Water Resources Department (OWRD) and the U.S. Army Corps of Engineers (USACE) inventorying and inspecting dams; however, levees and other water retention structures are not overseen by the Dam Safety Program or USACE.

Drinking Water and Wastewater: D

Oregon's water and wastewater infrastructure currently faces needs exceeding $4.4 billion. These systems are primarily funded through rate-based collections and revolving funds. Of the almost 2,000 groundwater public drinking water sources, two-thirds are considered to be sensitive groundwater sources and just less than half are identified as highly sensitive per Oregon Department of Environmental Quality (DEQ) requirements. More than 1 million Oregonians, or approximately 35% of the state's population, use septic systems.

Energy: C

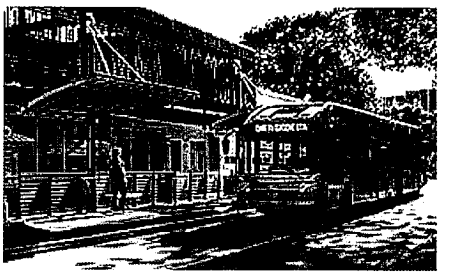
The significant issues facing Oregon's energy infrastructure are age, capacity and safety. For example, 93% of the country's pipelines are more than 30 years old—some are even approaching 70 years old. The oldest and largest hydroelectric dam in Oregon, Bonneville, was first started in 1938. A large number of electrical transmission tower structures are reaching an age when the effects of atmospheric corrosion of the above-ground portions is now requiring significant increases in maintenance in order to safely remain in service. Oregon's hydroelectric system faces operational limitations brought on by need to manage the fish habitat. The State's permitting process creates long lead times in constructing new projects. While the committee recognizes the state's leadership in renewable energy and conservation, all future needs cannot be met by these measures alone.

Navigable Waterways: B–

There currently is sufficient capacity in the state's waterway system. Funding for navigable waterways is sufficient, although some of the tax revenue realized from these waterways is used for other purposes. The locks were constructed largely between the 1940's and 1960's and need to be refurbished and replaced. The jetties into the Pacific Ocean are approaching 100 years and need substantial refurbishment. USACE has already initiated some of this work is currently underway by USACE. Furthermore, recreational marinas and shallow draft port districts are threatened by increased silt deposits and insufficient funds for removal.

Rail: C

Substantial capital investments are made by the Class One railroads in their systems in Oregon. However, Oregon currently faces a relatively low quality of rail service provided by those railroads other than the Class One railroads. Forty percent (40%) of track operated by short-line railroads is classified as excepted, allowing speeds of only 10 mph. An assessment of the 332 short-line railroad bridges revealed that 21% are in good condition, 50% are in fair condition and 29% are in poor condition. Aside from the Class One railroads, funding for railroad service is based on freight tariffs and one time infusions of capital such as Tiger Grants – which is insufficient to rehabilitate shortline railroads to any significant extent.



Solid Waste: B

Oregon has a progressive attitude toward solid waste as evidenced by its recycling efforts and its landmark bottle bill. Solid waste has reasonable funding. Oregon has sufficient landfill capacity for many years to come. In fact, land filling solid waste is an Oregon export. 37% of the total amount of solid waste being placed in Oregon landfills is from outside the state. Solid waste management is a fee-based service that pays for itself.

Transit: C–

Oregon's locally operated public transportation system has more than 300 transportation providers. The transit agencies in Portland, Salem and Eugene have substantial systems, while Oregonians who live in non-metropolitan areas have limited access to transit. Funding sources are fragmented including such diverse sources as federal government, property taxes, fares, Business Energy Tax Credit, contributions from universities, group pass programs, federal grants and subsidies, donations, employer taxes, user fees, self-employment taxes, payroll taxes and state grants. This funding structure requires cuts in transit when the economy is down – just when transit services are needed the most. Finally, there is no significant intercity passenger rail service between Oregon cities aside from the Portland-Eugene corridor.

National Infrastructure[ii]

A nation and its prosperity depend on infrastructure. The cornerstone of a great economy is the national infrastructure. It moves people, goods and ideas. It makes possible a nation's accomplishments. Throughout history the greatest nations have made the investment in first class infrastructure.

Infrastructure that does not meet the needs of Americans jeopardizes our nation's future prosperity and national security. The United States needs to reinvest and renew its infrastructure.

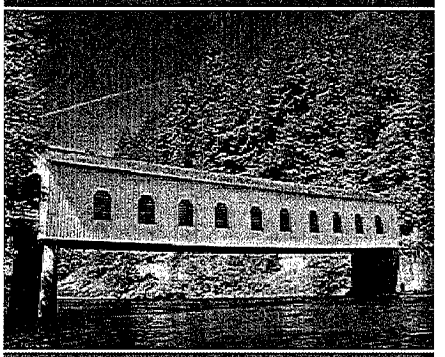
When there is a catastrophic failure that results in lost lives and property, infrastructure issues make the headlines. The public then realizes the need for strong and properly maintained infrastructure. Our daily lives are greatly impacted by the state of the nation's crumbling infrastructure. Recent studies have shown that travel under congested conditions has increased by more than 25% since 1995. Investing in infrastructure creates jobs and stimulates the economy. Every billion dollars invested in highway infrastructure supports 35,000 jobs.

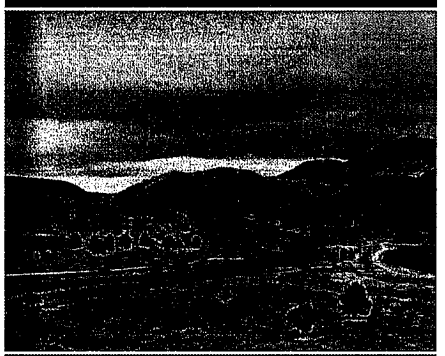
The nation needs to establish a comprehensive, long-term infrastructure plan, as opposed to the current "patch and pray" method. Federal funding alone won't fix our crumbling infrastructure. State and local governments must be part of the solution. When a half-cent tax increase for transportation improvements are voted down, other costs increase.

- Roads, drinking water systems and dams are simply too old. Like everything, infrastructure has a lifespan.
- For every dollar spent on highway maintenance and repairs, up to 12 dollars can be saved on the cost of major reconstruction or rehabilitation. Maintenance, however, cannot make an obsolete facility meet today's needs?[iii]
- In many places, aging systems and overburdened infrastructure must deal with the impact of natural disasters such as earthquakes and hurricanes.

However, the solution involves more than money. It takes sound technology, wise community planning, and involved citizens willing to partner with the government and private sector to make real changes. There is an emerging awareness of a need to change transportation behavior. Cities and communities must be better planned to reduce dependence on personal vehicles for errands and work commutes. Businesses can encourage more flexible schedules and telecommuting.

Solutions to ease the increasing demands on infrastructure systems and to improve conditions, capacity and safety are multifaceted. It is not always necessary to build more roads, landfills or airports. The price tag to replace and maintain our infrastructure systems is rising. Ways to reduce overall costs must be developed and implemented. Innovative building and construction methods and materials must be considered. Investing in research and development will help facilitate the nation's ability to come up with more cost-effective solutions.





Oregon's Infrastructure

Oregon currently has nearly 3.8 million citizens, ranking the state 27th in the U.S.[iv] The bulk of the population lives in the Willamette Valley. The most populous counties are Multnomah, Washington, Clackamas, Lane and Marion, accounting for more than 2.1 million residents.[v] The state encompasses 98,386 square miles, ranking it ninth in the U.S.[vi] It has more than 100,000 miles of rivers, 6,200 lakes and approximately 360 coastal miles.[vii] Its 2008 Gross Domestic Product (GDP) was $161.6 billion, ranking the state 26th in the U.S.[viii] In addition, the state ranked 38th in the nation in terms of per capita power consumption.[ix]

This is in contrast to California, which has a population of nearly 37 million, 163,969 square miles of land and a GDP of $1.812 trillion, the highest state GDP. Meanwhile, Washington State has a population of more than 6.6 million, 71,342 square miles of land and a GDP of $311 billion.[x]

Oregon is a geographically diverse state. Western Oregon encompasses 31% of the land area, but is home to 87% of the population.[xi] Meanwhile, central and eastern Oregon encompass 69% of the land area and 13% of the population. The largest county, Harney, has a population of 7,705 with an area of 10,228 square miles, while the smallest county, Multnomah, has a population of 717,880 and an area of 465 square miles.[xii]

Oregon's infrastructure consists of:

- *74,500 miles of public roads*[xiii]
- *6,664 bridges*[xiv]
- *2,400 miles of railroad*[xv]
- *97 public use airports*[xvi]
- *1,364 dams*[xvii]
- *360 wastewater treatment plants*[xviii]
- *3,626 drinking water systems*[xix]
- *530 solid waste transfer or disposal sites*
- *47 electricity providers*[xx]

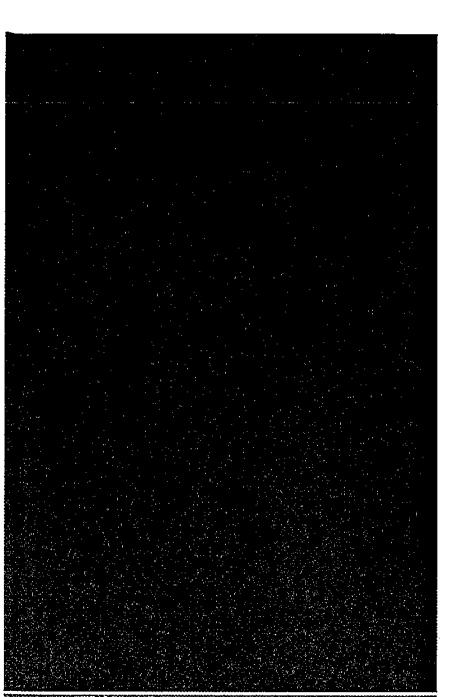
Oregon's economy can be described in several ways.

Tonnage of Goods Moved – The top five categories of goods moved through Oregon in terms of tonnage are clay, concrete, glass or stone; farm products; petroleum or coal products; logs, lumber and wood products; and food and related products.[xxi]

Value of Goods Moved – The top five categories of goods moved through Oregon in terms of value are machinery, electrical equipment, miscellaneous freight (high-tech products and related), food and related products, and transportation equipment.[xxii]

Employment – The top five fields of employment in Oregon are food services, administrative and support services, professional and technical services, specialty trade contractors, and health care.[xxiii]

Oregon is facing significant challenges in maintaining, preserving and providing adequate infrastructure to meet the needs of the current and future population. The state is projected to grow to an estimated population of 4.38 million by 2015. By 2020, Oregon's estimated population will increase to 4.63 million, and by 2040 it will increase to 5.5 million. The need for additional infrastructure funding is key to accommodating the expected population growth.



Oregon's infrastructure needs to meet several significant needs. The first is to ensure that Oregon residents have access to those services that are provided on a collective basis and provide for a safe and healthy environment. The second is to ensure that Oregon has a transportation infrastructure that supports and promotes our economy. The third is to support the lifestyle choices that Oregonians have made.

This study looked at the following:

- What infrastructure is needed to serve existing residents and is this infrastructure currently available?
- Will the existing infrastructure accommodate future growth?
- What will it cost to provide additional infrastructure to support future needs?
- Is funding/financing available for future growth, and if not, how large is the shortfall?

The ASCE Oregon Section believes that a well-maintained and adequate infrastructure is key to:

- A vibrant economy that generates jobs and business opportunities;
- The protection of farms, forests, rivers, streams and natural areas; and
- The maintenance of Oregon's quality of life.

Funding infrastructure

People moving to the region cite a strong and diverse economy, high quality of life, abundant public amenities and superior environmental quality as reasons for choosing the region. Within the next 30 years, one million more people will live in the seven-county Portland metropolitan area. The statewide population is expected to increase to approximately 5.5 million people.

However, as regional communities strive to create vibrant places to live, work and play, they face significant challenges regarding how they can effectively maintain, preserve and expand public infrastructure.

The livability of Oregon's communities depends on reliable public services. However, infrastructure systems are fraught with investment and maintenance shortfalls, uneven funding systems and multi-layered jurisdictional oversight and regulation. In addition to the need to address aging infrastructure conditions and the upgrades needed to meet new environmental and emergency preparedness standards, the increasing population and employment base will put additional demands on roadway, transit, water, sewer, parks, schools and energy systems.

Traditional funding sources are expected to cover only part of the needs. State initiatives have limited local revenue streams. Funding infrastructure with user fees or rate-payment systems has been widely accepted by utilities but not by transportation systems. Thus, non-rate-based infrastructure funding mechanisms are subject to inconsistencies of voter-approved bonds. Systems development charges continue to be controversial.

Rate-based funding of infrastructure

Rate-based funding has worked well for water, sewer, electricity and natural gas. These infrastructure systems tend to be stable and predictable because rates can be increased to cover additional costs. However, obtaining large amounts of up-front capital to make major

improvements or expand capacity still are significant challenges. Voters have voiced their objections when rates are significantly increased.

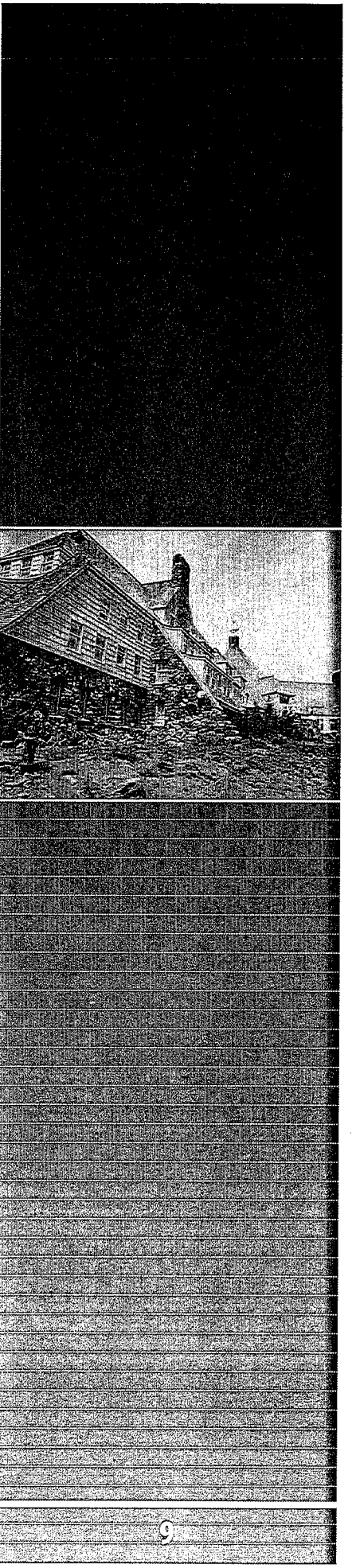
Non-rate-based infrastructure, such as transportation, generally does not have significant and stable sources for maintenance and operations and is subject to local budgetary constraints and acceptance by voters.

Gaining public acceptance of funding strategies for non-rate-based infrastructure has been difficult. Tolling, while having been a significant part of Oregon's past infrastructure development, is currently gaining little traction. In terms of gas tax revenue, however, Oregon is net positive. It receives approximately $1.07 for every $1 that it sends out. Taxes based on Vehicle Miles Traveled have been tested in Oregon but find a lukewarm reception in Central and Eastern Oregon. Without adjustments for the mobility needs in the vast areas of rural Oregon, Oregonians living in those areas are at a disadvantage.

Oregon funding shortages

Oregon faces the following:

- *Declining state allocations from the Federal Highway Trust Fund which is being depleted and is only being replenished by continuing resolutions from Congress; not permanent funding sources.*
- *Lack of ongoing, reliable sources of revenue;*
- *Funds diverted to unanticipated and/or emergency repairs;*
- *Rising construction costs;*
- *Small-scale and fragmented development not allowing economies of scale;*
- *Low tax bases due to limited population size or low household incomes and/or voter reluctance to approve higher taxes;*
- *Lack of public support and/or political will; and*
- *Competitive nature of funding sources based on geography.*



Funding recommendations

With an understanding of the challenges facing the state, potential solutions to regional infrastructure needs must be identified and the level of public investment in each solution must be determined. Each region must look for coordination among local jurisdictions to effectively identify and address the highest priorities. Leadership from elected officials and the private sector, as well as community engagement efforts, will be needed to raise public awareness of infrastructure needs and issues, and garner support for solutions. The following should be considered to address Oregon's funding shortages:

- Efficient Service Delivery – Explore ways to provide services more efficiently, decrease costs, conserve resources and maximize current infrastructure investments.
- Demand Management – Examine the need for infrastructure from conservation and land development perspectives to optimize the need for major capacity investments. Components of demand management include focusing growth to use existing capacity first, educating the public on conservation strategies, and providing incentives to level demand.

- Innovative Planning and Design – Research and implement innovative approaches to infrastructure planning and design. Plan for emerging technologies with the potential to improve service delivery.
- New Funding from all stakeholders – Evaluate and pursue new funding sources to leverage state and federal investments. Identify and remove existing barriers to public and private investment.
- Funding should come from direct revenues such as gas taxes and user fees as opposed to financing and should be increased. Financing in the form of debt ultimately makes systems more expensive, burdens later generations and does not bring any new money into the system.

The Oregon Infrastructure Report Card

Aviation

Oregon Grade: D National Grade: D

Background[xxiv]

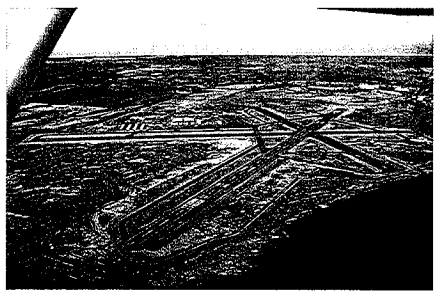
Oregon has 97 public use airports. Eight are category I airports, offering some levels of scheduled commercial airline service; 10 are category II airports, which are urban airports supporting general aviation aircraft and corporate activity; 13 are category III airports, which are regional general aviation airports supporting twin- and single-engine aircraft with occasional business jets; 27 are category IV local general aviation airports, which primarily support single-engine general aviation aircraft; and 39 are category V airports, which are remote access emergency service airports.

Oregon's aviation infrastructure includes more than 2 million operations (aircraft taking off or landing), 7.6 million passenger enplanements and 4,875 Oregon-based aircraft. Aviation contributes more than 191,500 jobs to the state, paying an aggregate of $6.6 billion in wages and accounting for $23.7 billion in total business activity.

The majority of Oregonians live within a two-hour drive of a commercial service airport and a 30-minute drive of a general aviation airport. Economic activity dependent on the state's aviation infrastructure includes airline passengers, overnight mail, air cargo, air ambulance, forest fire suppression, crop spraying, military use and other aviation-related businesses.

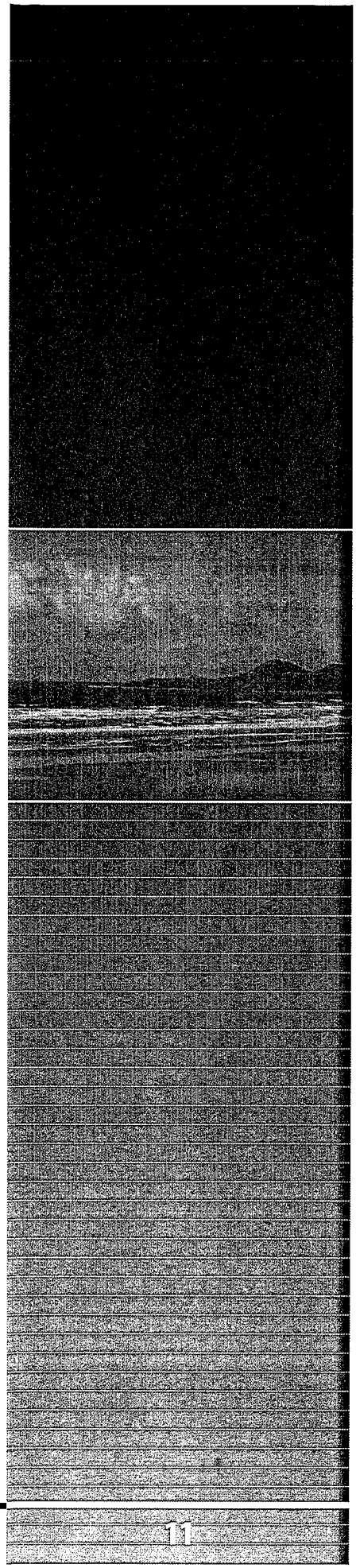
Funding

Oregon's airport infrastructure is funded by a wide variety of sources. Locally owned airports use local funds and airport general revenues to finance operations, along with some state revenues. State-owned airports are funded by user fees, such as aviation fuel taxes, aircraft registrations, and leases and agreements. Connect Oregon also partially funds state-owned airports.



Connect Oregon is a phased transportation program that provides funds for rail, public transit, air and marine/ports projects is underway. It was passed by the 2009 Legislature and signed by Governor Kulongoski as part of House Bill 2001, the Jobs and Transportation Act of 2009.[xxv] Connect Oregon III is a lottery bond-based initiative providing $100 million to improve Oregon's transportation system through multimodal investments, other than highway.

The Federal Aviation Agency provides air traffic and navigation control, flight planning and other safety services for aviation and airports. The FAA's programs are funded by fuel, freight, ticket and departure taxes.



Summary

The Oregon Aviation Plan released in 2007, evaluated airport service deficiencies based on standards that were developed for the plan. The standards are extensive and reflect the specific needs of Oregon with regard to aviation and include the following key areas: user accessibility criteria, development criteria, economic support criteria and safety criteria. Although some individual airports, such as Portland International Airport, are not deficient in any key areas, the study indicates that all categories of airports are deficient in some manner. Some airports are significantly deficient in certain areas such as airfield lighting, weather reporting systems, air accessibility and others.

- Of all category 1 airports (excluding Portland International Airport,) 29% are deficient in runway length, 57% in taxiways, 14% in visual approach aids and 14% in taxiway lighting.
- Of all Category II airports, more than 50% were deficient in approach type and taxiway lighting.
- Of all categories III airports, 40% were deficient in approach type and 100% deficient in taxiway lighting. Furthermore, they were deficient in both runway length and runway width.
- Of all category IV airports, 96% are deficient in taxiway lighting. In addition, they were significantly deficient in runway length, runway width and taxiways.
- Category V airports, despite their objective of serving emergency services, were significantly deficient in runway length and runway width and somewhat deficient in pavement types.[xxvi]

Solutions

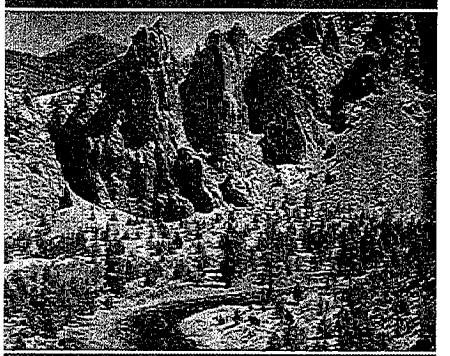
- Improve airport facility conditions to meet minimum standards
- Closely monitor funding generated by Connect Oregon to determine how much the aviation conditions are improved

Bridges and Roads
Oregon Grade: C National Grade: D–

Background – Bridges

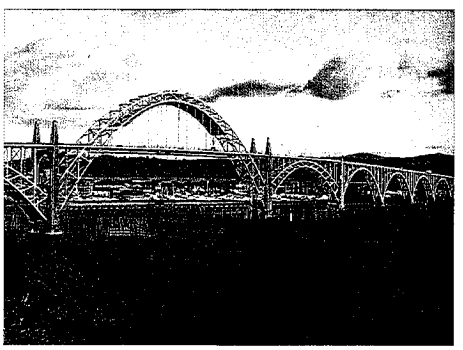
Oregon's bridges range from six-lane interstate bridges to wooden bridges carrying single-lane roads. Thirty-four percent of Oregon's state-owned bridges are 50 years old or older.[xxix] Average bridge life expectancy can vary from 30 years for a timber bridge in the coastal environment to 125 years for pre-stressed concrete bridges in dry environments built to current design standards.[xxx] Three percent of Oregon's state-owned bridges are made of timber, 15% are made of steel, 44% are made of reinforced concrete, and 38% are made of pre-stressed concrete.[xxxi] In 2009, 23% of Oregon's bridges were deemed to be structurally deficient or functionally obsolete.[xxxii] Structurally deficient are those bridges that do not meet today's loads and structural requirements including seismic capacity. Functionally obsolete structures are those that do not meet today's roadways standards for safety and capacity.

Oregon's bridge infrastructure consists of 2,681 interstate and state-owned bridges, and 3,983 city-or county-owned bridges.[xxvii] There are an additional 1,548 bridges owned by Federal and other jurisdictions for a total of 7,212 bridges in the state.[xxviii]



Bridges, like all elements of infrastructure, age and eventually require replacement. It is estimated that approximately $373 million will be required annually between 2011 and 2026 to maintain only Oregon's state-owned bridges.[xxxiii] In 2008, there were a total of 179 structurally deficient state bridges. In 2009 this number had decreased to 135 primarily due to the OTIA program, an act passed by the Oregon legislature to finance modernization projects, bridge replacement and repair and roadway repaving. The OTIA program has improved the situation. A substantial number of bridges have been rehabilitated or replaced – although this applies largely to state-owned bridges. Some city and county bridges have also been improved by OTIA.

However, a large number of bridges not included in the OTIA program projects are one point away from being categorized as poor or deficient and, at current funding level will become structurally deficient within the next 10 years.[xxxiv] Continued physical deterioration of the bridge inventory, combined with deferred maintenance, will keep overall conditions from improving beyond 2014.[xxxv] Bridge conditions are then expected to begin to decline gradually and at an increasing rate, eventually surpassing the pre-OTIA deficiency levels within 10 years. Unless additional financing is provided to replace the OTIA money, after 2018, bridges will become structurally deficient at a rate of 25 per year for the following 10 years.[xxxvi]



Background – Roadways

Oregon's roadway infrastructure is critical to the economic health of the state. The roadway system allows for freight and personal mobility throughout the state and beyond. The size and relatively low population density of Oregon make roadway infrastructure the principal

form of transportation. Oregon has more than 1.5 million vehicles registered in the state and Oregonians travel an average of 8,830 miles per person annually.[xxxvii] Congestion in Portland is 32nd among the country's 50 largest urban areas.[xxxviii]

Oregon has a total of 74,493 miles of roadway that breaks down as follows:

- *10,799 miles of roadway within city jurisdictions;*
- *26,737 miles of roadway within county jurisdictions;*
- *6,388 miles of local access roadway;*
- *8,049 miles within the Oregon Department of Transportation's (ODOT) jurisdiction;*
- *614 miles within other state agency jurisdictions;*
- *5,512 miles within U.S. Forest Service jurisdiction;*
- *14,962 miles within the Bureau of Land Management's jurisdiction; and*
- *1,432 miles within other federal agency jurisdictions, such as the U.S. Army Corps of Engineers, Bureau of Indian Affairs, the U.S. military and the National Park Service.*[xxxix]

The state highway network is comprised of approximately 5% concrete-surfaced roadways and 95% asphalt-surfaced roadways. Concrete pavement typically needs resurfacing or replacement after 30 to 50 years of service, while asphalt pavements need resurfacing at much shorter intervals—typically every eight to 12 years in high to moderate traffic zones or 12 to 15 years in low traffic zones. Seal coat treatments can sometimes extend the resurfacing interval to 20 years or more on some low and moderate traffic roads.[xl]

Roadway conditions on State-owned highways have declined since 2006. In 2008, 85% of roads were rated in fair or better condition, which was 2% less than in 2006. More significantly, the percentage of highways in good to very good condition dropped 11% since 2006, while the percentage of pavements in fair condition has increased from 15% to 24%. ODOT is facing steep price increases for paving materials and highway construction, which has lead to sharp reductions in the number miles of roadway being repaved. As a result, it is expected that about half of pavements currently in fair condition will deteriorate to poor condition over the next few years. This downward trend will continue as current funding levels do not provide for the maintenance necessary to meet demand.[xli]

Some jurisdictions, such as Clatsop County and the City of Keizer, are adequately financed. Other jurisdictions, such as Marion and Tillamook counties, are experiencing severe deficits and will not be in a position to maintain their roadways in their present condition.[xlii]

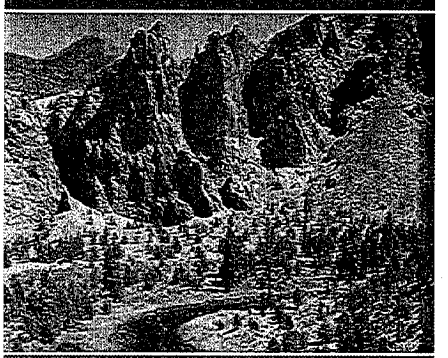
The U.S. Department of Agriculture, Forest Service roads, which were constructed primarily for timber harvests and recreation, are being downgraded or decommissioned.[xliii] The U.S. Department of Interior's roads, which were constructed for commodity extraction, recreation, administrative maintenance and land management, are either being decommissioned or maintained and expanded as individual districts determine needs.[xliv]

Funding

Current state and local transportation resources for operations, maintenance and expansion of the system are limited. Oregon ranks last compared with other western states in the total amount auto taxes collected, yet it is the 27th largest state in the nation. ODOT, cities and counties devote nearly three quarters of local annual transportation and public utility capital improvement budgets to maintenance, preservation and operation of existing transportation infrastructure. The result is that little funding is available to address new capital facility needs.

Roadways in Oregon are funded through gas tax receipts on the sale of motor vehicle fuel, through a weight mile tax on commercial trucks, driver and vehicle license fees, transportation licenses, service fees and charges, and special bond measures, such as OTIA. A limited number of local jurisdictions provide additional funding through public works bonds and dedicated taxes. The Forest Service Safety Net Payments and its successor, the Secure Rural Schools and Community Self Determination Act, have provided significant sums to Oregon counties for roadway maintenance and repair. The expiration of the Secure Rural Schools and Community Self Determination Act in September, 2011 is expected to have a significant impact on the county road systems.

The Oregon Legislature and the Governor approved the Jobs and Transportation Act (2009) to provide Oregonians with better roads, more transportation options and improved safety throughout the transportation system. The act increases Department of Motor Vehicle (DMV) fees for vehicle titles, passenger vehicle registrations, new or replacement license plates, identification cards, trip permits and custom plates. A handful of new fees that apply to commercial and farm vehicles took effect January 1, 2010. Fees for driver licenses are not currently planned to increase.



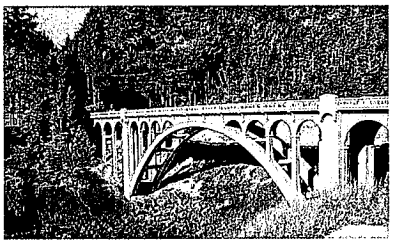
Fuel costs continue to increase and gas tax revenues are expected to decrease as cars become more fuel-efficient. The State gas tax has not increased since 1993 and gas tax revenues have lost significant purchasing power due to inflation and dramatic increases in material costs.

The new DMV fees are part of a transportation funding package that supports:

- A sustained $300 million per year for road repair and improvement focusing on Oregon cities and counties.
- A series of 37 major state highway construction projects.
- Support for Amtrak Cascades train service, roadside rest areas, urban trails and bicycle paths, and public transportation for seniors and people with disabilities.

The act also creates a new category of vehicles in Oregon – medium-speed electric vehicles – once such passenger vehicles are manufactured to meet U.S. Department of Transportation passenger vehicle safety standards. These vehicles will be allowed only on roads with speed limits of 45 mph or lower.

In addition, funding from the American Recovery and Reinvestment Act (ARRA) has been used to supplement traditional road and street funding. ARRA's transportation funding has invested resources in improving the state's transportation that would not have normally been available.



ODOT has more than 200 projects funded in part through ARRA. As of the end of September 2010, 108 projects were complete and 53 were under construction. More than $201.1 million has been spent meaning the State has paid out money for work performed and money has made its way to contractors, suppliers and workers.

Taxes based on Vehicle Miles Traveled have been tested in Oregon, but find a lukewarm reception in rural Oregon. Without adjustments for the mobility needs in the vast areas of rural Oregon, Oregonians living in those areas will be at a disadvantage.

Solutions

- Develop funding sources appropriate to 21st century values and technologies; and account for Oregon's unique and variable conditions. Included in the analysis of funding sources that does not disadvantage any one part of the state over another. The funding source must recognize the fixed nature of the roadway system maintenance and replacement costs. Examine the use of public-private partnerships to fund and improve the highway system.
- Increase the priority placed on maintenance of the existing infrastructure, including preservation of existing bridges, city streets, county roads and State highways. Examine ways to reduce maintenance costs including use of outside contractors. Examine and research ways to extend the useful life of these facilities through maintenance strategies, materials selection, drainage and structural enhancements, and other means.
- Increase research and development (R&D) of new construction and maintenance techniques, including automated roadway condition assessment systems to reduce maintenance costs. The R&D effort should emphasize sustainable and low environmental impact solutions.

Examine a Self-Help Coalition of Counties to self-finance county roadways and city and streets.

- In high congestion areas, implement demand management measures such as telework, non-peak travel times, increased transit efficiency, low congestion tolling discounts, alternative modes (walking, biking).
- Implement targeted investment analysis methods such as Practical Design to increase the impact of project development and selection.
- Closely monitor funding generated by the Jobs and Transportation Act (2009) to determine how much the roadway and bridge conditions are improved using this new funding revenue.
- Adopt capacity management techniques that rely on incentives to maximize the efficiency existing facilities and avoid disincentives or penalties.
- Increase the efficiency of existing infrastructure through the use of Intelligent Highway Systems, automated incident detection and management, advanced signal control and similar initiatives.

Dams and Levees
Oregon Grade: C National Grade: D

Background

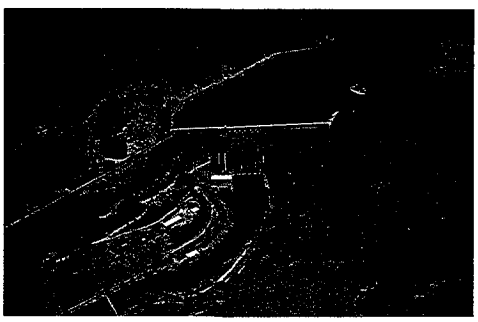
Dams and levees provide essential benefits, including drinking water, power generation, flood protection, irrigation and recreation. They may be publicly owned and operated by federal agencies, states, cities and municipalities or privately owned and operated by businesses and corporations. Typically earth embankments or concrete structures, dams can reach heights in the hundreds of feet and can store billions of gallons of water.

Oregon has 1,039 dams, of which 325 are classified as high or significant hazard.[xlv] This inventory includes all dams; from the major hydro plants on the Columbia, such as Bonneville Dam, to the dams being constructed to support a vineyard. Emergency action plans are required for high hazard dams. These plans include a dam failure or breach analysis and a downstream inundation maps. The plans also may call for monitoring and warning systems with notification charts and evacuation procedures. Dams are operated by federal agencies such as the USACE and the BLM, private owners, such as utilities and private developments, also maintain and operate dams. Recently water storage has been reduced at 11 Willamette Valley dams until their spillway gates are repaired or replaced.[xlvi]

A dam's hazard potential is classified on the basis of the anticipated consequences of failure, not the condition of the dam. The classifications include high hazard potential, indicating an anticipated loss of life in the case of failure; significant hazard potential, indicating anticipated damage to buildings and important infrastructure in the case of failure; and low hazard potential, indicating anticipated loss of the dam or damage to the floodplain, but no expected loss of life, in the case of failure.

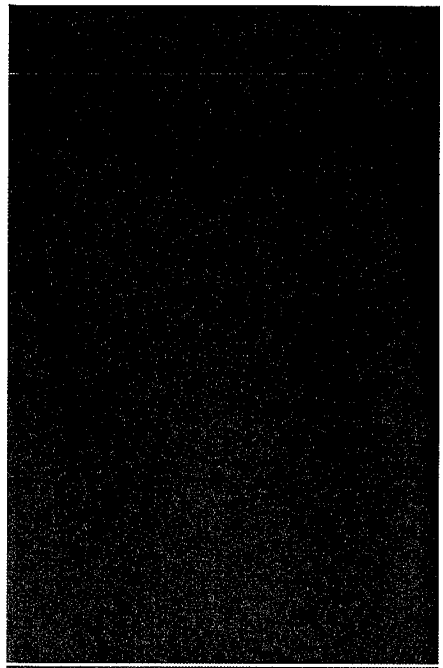
Irrigation districts are significant owners and operators of levee systems in Oregon. However, there is no centralized inventory or inspection of levees. Levees are maintained and operated by individual drainage districts and owners. Drainage districts report that their levee systems are fully built out and may be reduced as development encroaches upon agricultural uses. Levee systems on the Columbia River are an important flood protection measure for the Portland metropolitan area.

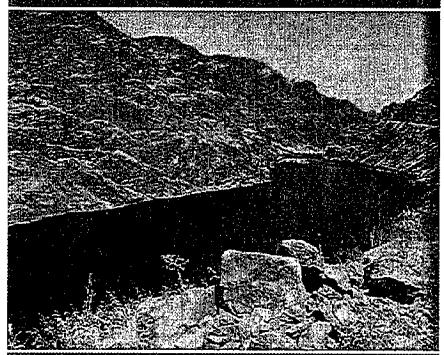
Without comprehensive information on the conditions and location of levees it is difficult to evaluate the state outlook on levees. The state must work with the USACE to undertake a comprehensive inventory of the levee system.



Funding

Dams under federal jurisdiction are financed by appropriations through the owning entities, such as the BLM or USACE. USACE indicated that funding was constrained with projects being prioritized and only the most critical projects being funded.[xlvii] Irrigation districts charge for their water and assess maintenance fees. Other drainage districts





report similar funding levels with some indicating that funding was sufficient only for regular maintenance.[xlviii]

Summary

While dams and levees provide tremendous benefits, they also represent one of the greatest risks to public safety, local and regional economies and the environment. Historically, some of the largest disasters in the country have resulted from dam failures. In order to provide safe and continued service, dams require ongoing maintenance, monitoring, frequent safety inspections and rehabilitation.

Aging dams and levees often require major rehabilitation to ensure their safety. Downstream development below dams is significantly increasing, and continuing scientific research of dam failure mechanisms, such as earthquakes and major flood events, frequently demand upgrades to dams constructed long before these advances were realized. Many state dam safety programs do not have sufficient funding or staff to effectively regulate dams under their authority, much less levees. State programs regulate 95% of the 79,000 dams in the United States, while federal agencies own or regulate only 5% of the nation's dams.[xlvix]

The state of Oregon has budgeted approximately $244,000[l] for dam safety.

The dam safety program has identified six dams that require remediation because of hydraulic or structural deficiencies. Given the decentralized responsibility for levee maintenance there is no way to evaluate the sufficiency of these facilities. The dam safety program does not include any review of levees.

Solutions

- Increase the budget for Oregon's dam safety program to develop a comprehensive inventory including conditions information of the state's levee system.
- Increase state funds for dam and levee remediation
- Increase federal funding levels to insure that items can be resolved before they reach the critical level.

Drinking Water and Wastewater
Oregon Grade: D National Grade: D–

Drinking Water Background

Oregon's drinking water sources may not be located within close proximity to where it is needed. Projected population growth will increase demand. Source development and distribution of water to new users are challenges. Water conservation, reuse and non-potable use may become increasingly important to reduce demand and minimize the need to upgrade systems. Securing up-front capital represents the largest hurdle to meeting new capacity demands.

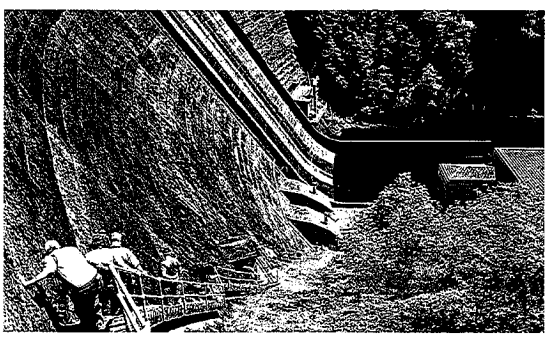
Oregon has 882 community water systems that serve an estimated 3 million Oregonians. In addition, 346 systems are considered nontransient noncommunity water systems consisting of schools or workplaces with independent water supply systems. The remaining 1,471 systems are transient noncommunity water systems, such as campgrounds, parks or restaurants, with their own independent water supply systems. An additional 921 privately owned very small water systems, those supplying four to 14 homes or 10 to 24 people each, are subject to state water standards under the Oregon Drinking Water Quality Act.

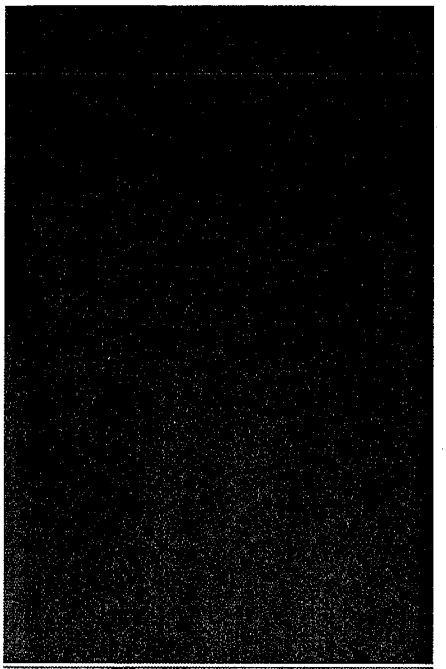
Drinking water systems provide a critical public health function and are essential to life, economic development and growth. Disruptions in service can hinder disaster response and recovery efforts, expose the public to waterborne contaminants, and cause damage to roadways, structures and other infrastructure, endangering lives and resulting in significant financial losses. Recent examples of water main breaks and sewer sinkholes have illustrated this risk. Water supplies are also critical to fire suppression.

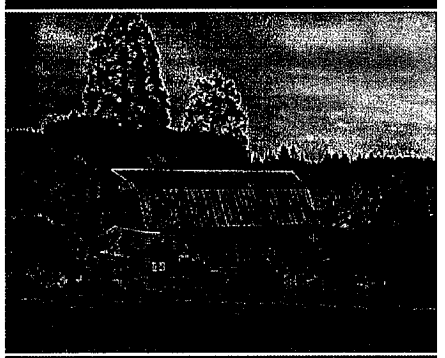
There are an estimated 2,699 public water systems in Oregon that are subject to regulation under the federal Safe Drinking Water Act.

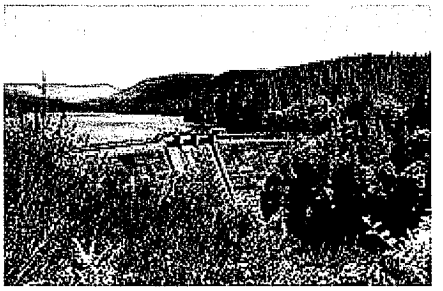
An estimated 600,000 Oregonians get their drinking water from individual domestic wells not covered by either state or federal drinking water standards. According to the Oregon Water Resources Department (OWRD), there are currently 205,000 operating domestic wells in the state. This estimation includes only licensed wells and does not include most wells installed before 1955 when licensing started. OWRD estimates that there are another 150,000 unlicensed wells. In total, there are approximately 350,000 domestic private wells in use in Oregon.

Of the almost 2,000 groundwater public drinking water sources, two-thirds are considered to be sensitive groundwater sources and just less than half are identified as highly sensitive based on the characteristics of the well or spring and of the aquifer that serves the well or spring.[lii] Domestic drinking water supply wells are not routinely tested for water quality, but state law requires testing at the time of a real estate transaction.[liii]









Drinking water systems require individual components to bring water to the customers. Each of these components has a fixed design life. Reservoirs and dams have a life of 50 to 80 years, mechanical and electrical pumping stations have an expected life of 25 years, and the mechanical and electrical components in treatment plants can be expected to have a life of 15 to 25 years. Over time, these components wear out and must be replaced.

Between 1950 and 2000, the national average per-capita usage of water per person per day increased from 149 gallons to 179 gallons. While specific numbers are not available for Oregon, it is anticipated that per capita use in Oregon increased as well.[liv]

Background Wastewater Treatment and Collection

Stormwater and wastewater systems are aging throughout the state, particularly in the dense metropolitan areas. Many systems are more than 100 years old. Increasing permitting requirements for treatment and discharge result in significant additional compliance costs. Sewer providers often issue bonds secured by existing and future rate increases, providing revenue for incremental construction. Determining locations for new sewer facilities is increasingly difficult in light of community compatibility issues and local, state and federal environmental regulations.

Stormwater providers share many of the same challenges to implementing capital improvements faced by sewer providers, especially securing reliable funding for long-term maintenance.

There are an estimated 215 centralized wastewater collection/treatment systems. However, more than 1 million Oregonians, or approximately 35% of the state's population, use on-site sewage systems, also known as septic systems.

Funding

Funding for these activities is largely facilitated through federal funding provided to the state either under the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund. The Oregon Economic and Community Development Department's (OECDD) Water/Wastewater Fund Program provides significant funding to communities seeking financing for projects to correct compliance issues. Additional funding is provided by utility charges.

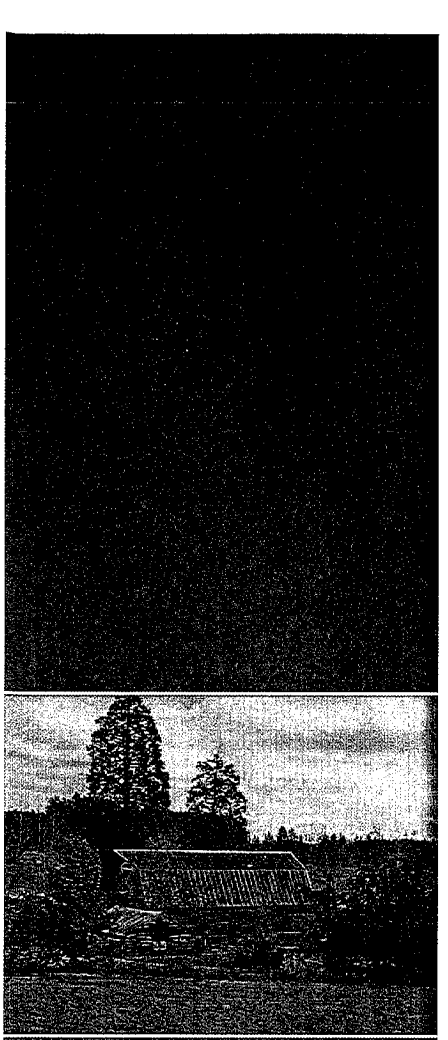
Summary

The combined total project cost to meet Oregon's water and wastewater infrastructure improvement needs exceeds $4.48 billion. Of this total cost, more than one–third, or $1.58 billion, is attributed to costs associated with repairing or replacing antiquated systems and facilities, and complying with state and federal regulatory standards. The remaining estimated $2.9 billion represents total costs necessary to address projects arising from development, population growth and immediate job creation/retention pressures.

Of the estimated $1.58 billion needed to repair or replace antiquated systems and facilities and/or comply with state and federal regulatory standards, approximately $1.1 billion is needed for wastewater infrastructure improvements and nearly $500 million is needed for drinking water infrastructure improvements. Of the estimated total project costs, 80%, or $868 million, is needed for wastewater system improvements by 2010—77% of the $868 million is needed for systems to meet or remain in compliance with state and federal regulations. For drinking water system improvements, $223 million is needed by 2010—75% of the $223 million is needed to either replace or repair antiquated systems and facilities.

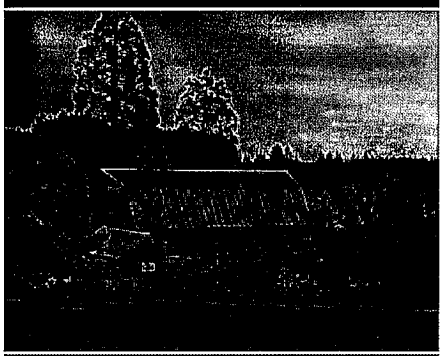
In addition, the estimated outside financing need—financing beyond local revenues set aside by the system for infrastructure improvements—is substantial. A total of $829 million will be needed for wastewater system improvements and $369 million will be needed for drinking water system improvements specific to the repair and replacement of antiquated systems and facilities, and for compliance with state and federal regulations. The outside financing need of communities represents an estimated $1.23 billion gap between what communities have in local revenues to finance themselves and the total cost of the improvements. Most notable, this gap represents one-third of the total estimated cost of water and wastewater infrastructure improvements since the additional costs of growth on water and wastewater systems were not included in this analysis.

For many of Oregon's small- to medium-sized communities struggling to afford water and wastewater infrastructure improvements, especially those located outside of the Portland, Salem, Bend, Eugene and Medford/Ashland metropolitan areas, the impact on the economic competitiveness of each community is enormous.[lvi]



Solutions

- Initiate an extensive public information campaign to raise public awareness of shortcomings and create support for increasing user rates.
- Increase the research and development of sustainable and non-structural solutions to stormwater issues



Energy
Oregon Grade: C National Grade: D+

Background

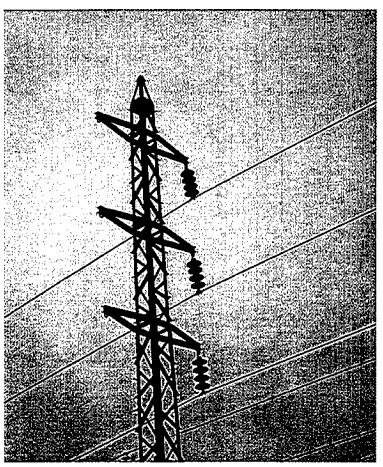
Oregon's energy needs consist of electricity, natural gas and petroleum. As the population grows, the total amount of energy needed will increase correspondingly. However, the siting of energy infrastructure in communities continues to be difficult for utility companies. Energy conservation and Demand Side Management efforts can reduce demand for electricity, but will not entirely eliminate the need for new facilities. The integration of energy production with transmission systems will continue to be a challenge. Increased coordination in the planning and installation of infrastructure could result in cost savings, such as placing new energy and utility transmission systems within existing and planned transportation corridors. However, increasing demand for access to rights-of-way and denser development patterns make it difficult and more expensive to locate and relocate facilities. Local development code requirements often aggravate these problems.

Emerging energy sources face difficulties. Solar panels are often subject to development and design codes that restrict their application. The public continues to express concerns about the location of liquefied natural gas (LNG) transmission. In addition, wind generation facilities have a significant visual impact on the landscape and require balancing resources.

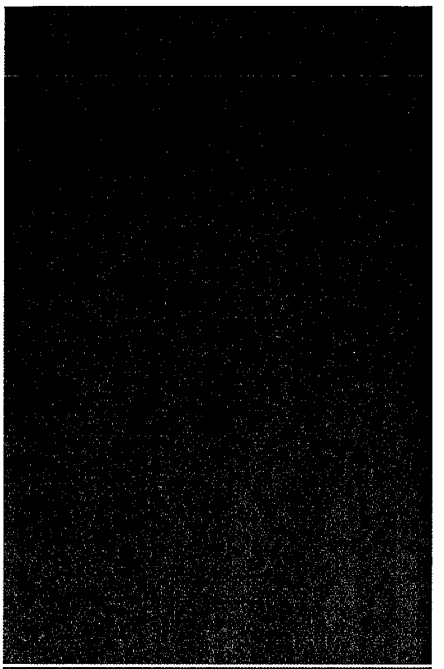
In December 2008, Oregon's only petroleum refinery, located in the Portland area, was shut down. Currently, the state receives petroleum from Washington state and California.

Oregon receives its natural gas supply by pipeline from Canada and the Rocky Mountain states. Natural gas is primarily used for electricity generation in the state, with the industrial and residential sectors as the next largest consumers. More than one-third of Oregon households use natural gas as their primary energy source for home heating. A liquefied natural gas (LNG) import facility has been approved by the Federal Energy Regulatory Commission along Oregon's northwest coast in Bradwood. Two additional LNG import facilities have been proposed along Oregon's north and south coast to help meet natural gas demand in the Pacific Northwest, northern California and northern Nevada regions.

There are 16 pipeline companies in Oregon operating approximately 14,800 miles of pipelines. These pipelines carry energy products to population centers and deliver natural gas to businesses and households. The energy products carried in pipelines heat homes and schools, power the state's industrial base and enable daily commutes.[lvii]

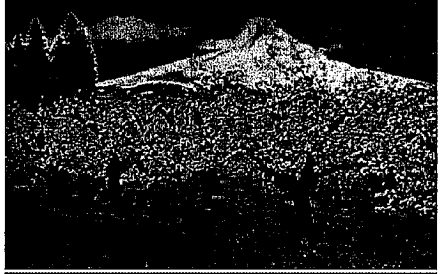


Hydroelectric power dominates the electricity market in Oregon, providing nearly two-thirds of the power generated in the state, while natural gas-fired power plants supply about one-quarter of the electricity market. The Boardman plant in the north central part of the state is Oregon's lone coal plant. Oregon also imports electricity from coal-fired plants in Utah, Wyoming, and Montana.



Oregon has few conventional energy resources, but is rich in renewable energy potential. The Columbia River in the north and several smaller waterways flowing from the Cascade Mountains give Oregon some of the highest hydroelectric power potential in the United States. Oregon produces 13.9% of the nation's net electricity generation of hydroelectric power. In addition, much of the state has considerable wind power potential. The state has promising sites for geothermal energy development, with the potential for generating as much as 2,200 megawatts of electric power. The state also has a substantial electric generation opportunities off of the Oregon Coast with wave energy.

Oregon's total energy consumption places it 32nd[lviii] among all other states. The transportation sector is the leading energy-consuming sector in Oregon, followed closely by the industrial and residential sectors.



Oregon's Main Grid Transmission facilities are part of the Western Interconnection, which stretches from Western Canada south to Baja and from the west coast east to the Great Plains. All electric utilities in the Western Interconnection are electrically tied together during system normal conditions. Within Oregon, the Pacific Intertie allows large amounts of power to be transmitted between the Pacific Northwest and the Pacific Southwest. The Pacific Intertie consists of three 500 kV AC lines and one 800 kV DC line. Although the Pacific Intertie was originally designed to transmit electricity south during California's peak summer demand season, flow is sometimes reversed overnight and occasionally during periods of reduced hydroelectric generation in the Northwest.

Oregon utilizes several renewable energy sources and is one of the leading hydroelectric power producers in the country. The state is a major producer of wind energy, generating approximately 4% of the nation's total. Oregon also generates electricity from wood and wood waste, and produces smaller amounts of electricity from landfill gas. In June 2007, Oregon adopted a renewable energy portfolio standard requiring the state's largest utilities to meet 25% of their electric load with new renewable energy sources by 2025.[lix]

In 2008, electric power net generation totaled nearly 59 million megawatts. Of that, 6.9% was produced by coal, 29.6% by natural gas, and 57.6% by hydroelectric and 5.8% by other renewable sources.

There are a total of 47 electricity providers in Oregon. The state ranks 30th in the country in terms of net summer electric generation capacity and between 40th and 48th in terms of emissions in categories such as sulfur dioxide, nitrogen oxide and carbon dioxide. The retail price of power varies from between 3.42 cents per kilowatt hours (kWh) for federal service providers to 7.76 cents per kWh for investor-owned utilities.[lx]

Funding

Energy infrastructure is funded almost entirely out of the tariffs and rates charged for consumption. That includes electric rates, gas rates and the price of petroleum products.

Summary

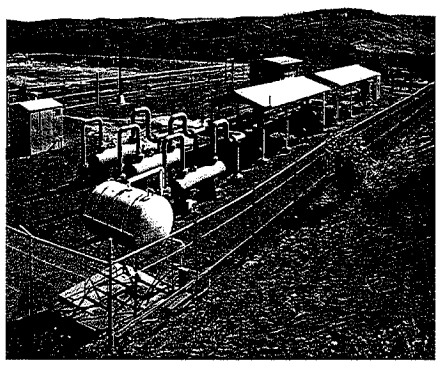
Energy infrastructure operates very differently than other types of infrastructure. Energy is a regional resource that is managed on a regional basis under federal jurisdiction. Major energy transmission systems, such as those owned by BPA, PacifiCorp and Williams Gas Transmission Lines, operate a network of pipelines and transmission lines that service the region, including Washington, Oregon, Idaho, Montana and British Columbia. Decisions made on a regional basis affect Oregon's energy sources and distribution systems.

As the region and Oregon's economy and populations continue to grow, there is increased consumption of energy. Electricity generated in the state is a substantial export.

The significant issues facing Oregon's energy infrastructure are age, capacity safety and reliability. For example, 93% of the country's pipelines are more than 30 years old—some are approaching 70 years old.[lxi] As materials age, they are more subject to corrosion, one of the leading factors in pipeline failures.[lxii]

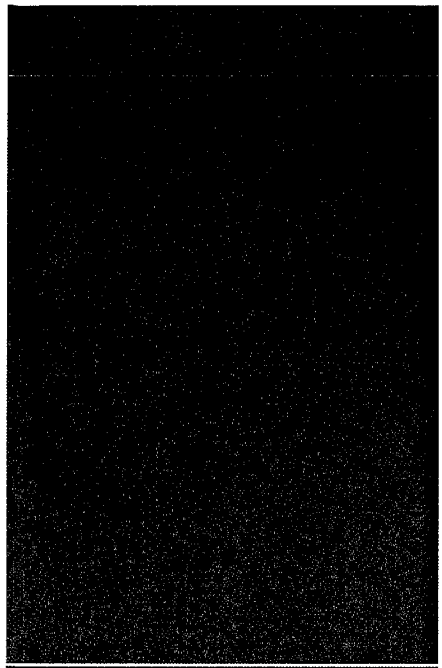
The oldest and largest hydroelectric dam in Oregon, Bonneville, was first started in 1938.[lxiii] A large number of electrical transmission tower structures are reaching an age when the effects of atmospheric corrosion of the above-ground portions is now requiring significant increases in maintenance in order to safely remain in service. There is a need to develop a comprehensive evaluation and remediation strategy that will allow transmission utility engineers to make the most efficient use of their available funds.[lxiv]

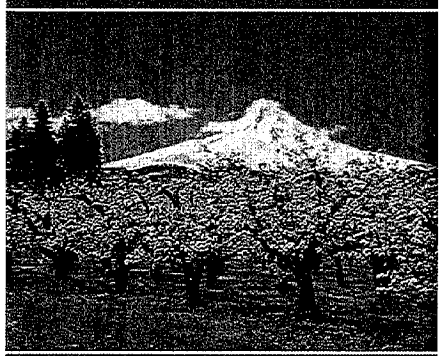
Age also impacts safety and efficiency. With some of these infrastructure elements approaching 70 years in age, much has been learned with regard to protecting materials from corrosion and how to better use the infrastructure, in turn making it more efficient.



The capacity of the infrastructure is limited not only by physical constraints, but also by the heightened awareness of its impact on the environment. For example, the ability of the region's hydroelectric power plants to generate electricity is limited to an extent by the impact to the salmon population in the Columbia River. The Bonneville Power Authority has predicted increasing deficits in its ability to provide energy in order to comply with federal regulations regarding issues such as salmon migration.[lxv]

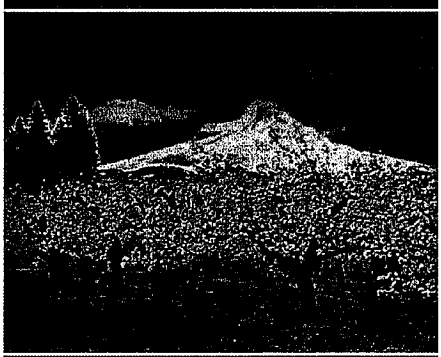
The power transmission system is now being used in a manner for which it was not originally intended. The original intention was to bring power from hydroelectric plants to the major population centers. The transmission system is now being used to balance energy from renewable resources. This means that power doesn't flow in just one direction, but may flow in different directions at different times. In addition, renewable energy sources are located in areas not currently served by major transmission systems. The deregulation of power in California has put significant demands on the system.[lxvi] The system also struggles from a lack of any significant investment in transmission infrastructure in the past 30 years.





The Pacific Northwest is situated between two prolific gas production areas – the Western Canadian Sedimentary Basin and the Rockies. The recent economic downturn has slowed demand growth in the short term. However, mandated reductions in carbon emissions and newly enacted energy laws provide incentives to boost energy efficiency and a switch to more environmentally friendly fuels and energy sources. Natural gas is a clean, efficient and abundant source of energy and accounts for 54% of total non-transportation related energy consumed in the region. The environmental mandates and consumer demand will likely increase the region's reliance on natural gas, challenging delivery systems to keep pace.[lxviii]

Global climate change may also impact the ability of the northwest power system to provide sufficient power for the Pacific Northwest and traditional customers in the Southwest. Levels at Lake Mead, which provides significant power to the southwest, have fallen to a level beyond which the facility may be able to generate electricity.[lxvii] Climate change and the drawdown for drinking water and other uses have changed the operating parameters for the dam.



Solutions

- Maintain and expand power generation and transmission infrastructure to meet increased demand projections
- The strategic importance of the electric transmission grid throughout the United States for both the national economy and homeland defense requires greater federal involvement to ensure the appropriate capital investment is made in the transmission infrastructure.
- Transmission permitting processes need to be improved by providing the FERC with the same powers as it has for natural gas pipelines.
- Construct adequate transmission systems with 20-year planning horizons to improve connections to renewable energy sources now and well into the future.

Navigable Waterways
Oregon Grade: B National Grade: D–

Background

There are 680 miles of navigable inland waterways in Oregon, having channels with a controlling depth of nine feet or greater.[lxix] The Columbia River comprises 310 miles of that total.[lxx] The infrastructure that supports the Columbia River Waterway is beginning to age. The locks were constructed largely between the 1940s and 1960s and need to be refurbished and replaced. The jetties into the Pacific Ocean are approaching 100 years and need substantial refurbishment.

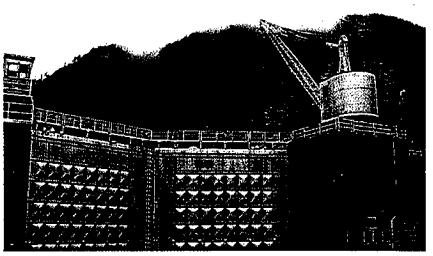
Other inland waterways include the Willamette River and channels to and from the 12 major coastal harbors in Oregon—the Columbia River mouth, Nehalem Bay, Tillamook Bay, Depoe Bay, Yaquina Bay, Umpqua River, Siuslaw River, Coos Bay, Port Orford, Rogue River, Chetco River and Coquille River.[lxxi]

Traffic on the Columbia River consists of wheat for export to the Pacific Rim, import of manufactured goods and petroleum products for distribution through inland Washington, Idaho and Oregon.[lxxv] The Port of Portland on the Columbia River is the 29th largest port in the country, handling 14.1 million short tons of freight in 2008.[lxxvi] The coastal harbors support a fishing fleet, as well as some freight through the ports of Siuslaw, Umqua, Coos Bay and Newport.[lxxvi] Last year the National Oceanic and Atmospheric Administration relocated its home port to Newport.

The navigable waterway system supports an import/ export freight economy with a cargo value in excess of $17 billion,[lxxii] an inland freight distribution system with an annual cargo value in excess of $2 billion annually, and fisheries with a value in excess of $105 million.[lxxiii] [lxxiv]

Funding

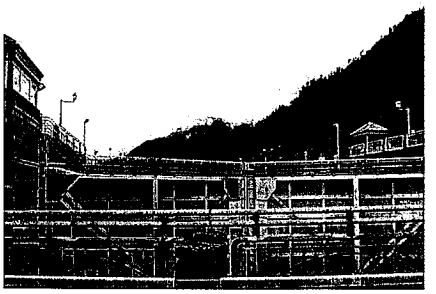
Navigable waterways are funded by a harbor maintenance tax on imported cargo and by a tax on diesel fuel used by towboats. The harbor maintenance fund is a national tax that goes to the general treasury. But only a portion comes back to Oregon for maintenance projects. Ports and their operations are financed by operating revenues, service revenues, property tax assessments, container revenues, rental and concession revenues and land sale proceeds.



Summary

The capacity of the inland waterway system is more than sufficient to handle projected trade. Challenges facing Oregon's navigable waterways include ensuring that the Columbia River's jetties at the river mouth are maintained and that channel deepening projects are completed. The lock system through the dams requires ongoing maintenance. The jetties along the Pacific Ocean are reaching the end of their initial life cycles. This work is financed by congressional appropriations.

Individual port districts, such as the Port of Portland, maintain their facilities through revenues obtained from container, grain, mineral and petroleum products.



Recreational marinas and shallow draft port districts are threatened by increased silt deposits and insufficient revenues for removal. For example, the Port of Hood River no longer has access to its Nichols boat basin for potential shipbuilding activities due to siltation from the Hood River.[lxxviii]

Solutions

- Continued maintenance and replacement of aging lock equipment and Pacific Ocean jetties. All funds collected for waterway maintenance should be dedicated to these refurbishments.
- Support recreational boating and commercial fisheries by dredging ports and harbors.

Rail
Grade: C National Grade: C–

Background

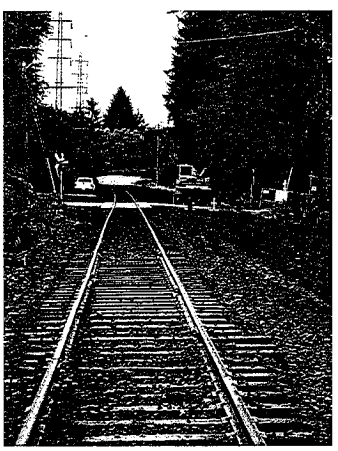
Oregon's rail infrastructure is critical to its economic health. Oregon has approximately 2,400 miles of railroad track, which are owned or operated by 23 railroad companies. These companies are comprised of two Class I carriers (those with revenues in excess of $346.8m (2006 dollars)) and short-line railroads (those with less than $40m in annual revenues).[lxxix]

In August 2010, ODOT, in response to direction given by the 2007 Oregon Legislature, released its Oregon Rail Study. This study concluded that Oregon's Class I one railroads, the Burlington Northern Santa Fe Railroad and the Union Pacific Railroad, are financially sound and well positioned to recover from the recession as shipping volumes returns to prerecession levels. While traffic is low, these two railroads have continued to invest billions of dollars in maintenance programs. The main lines are in good condition and, where passenger trains are hosted, allow for speeds of up to 79 mph. The railroads' futures are potentially constrained by capacity issues, but not condition issues.

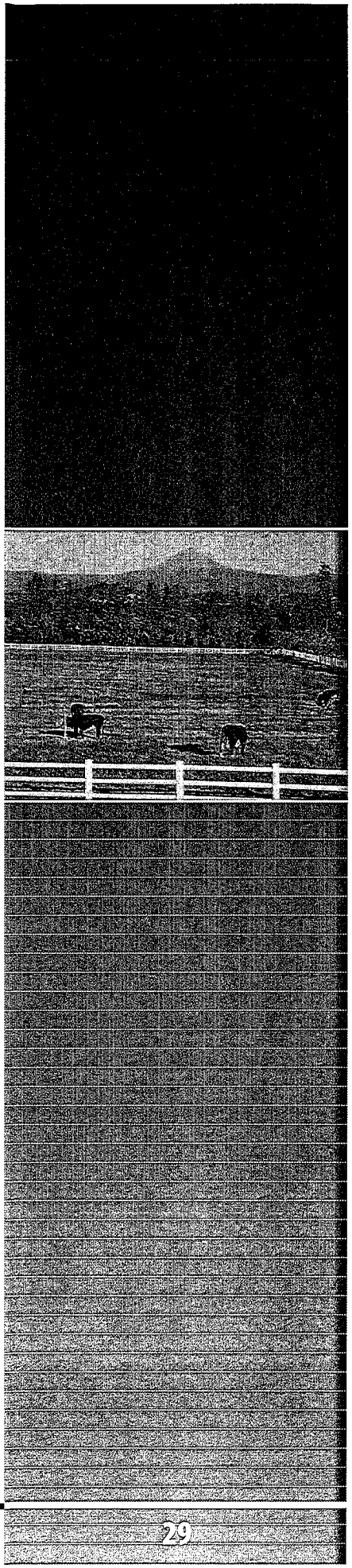
Short-line railroads, which are the sections of track not operated by the Class I railroads, connect small communities and shippers to the national rail system. Oregon's short-line railroads have available capacity, but the capital intensive nature of the business, combined with deferred infrastructure maintenance and the recent market declines, present multiple challenges. Forty percent of track operated by short-line railroads is classified as excepted, allowing speeds of only 10 mph. Upgrades, such as easing curvature and improving track structure, would be needed to allow faster speeds. Estimates to upgrade Oregon's entire low-density network for 40 mph freight operation range between $150 million and $600 million, or $500,000 to $2 million per mile of short-line track.

Eighty percent of Oregon's 2,400 miles of railroad track are operated by five railroads: Burlington Santa Fe, and Union Pacific Railroad, Portland and Western Railroad, Central Oregon & Pacific Railroad, and Coos Bay Rail Link. Of the 2,400 miles of railroad track, 1,274 miles are operated by short-line railroads.

An assessment of the 332 short-line railroad bridges revealed that 21% are in good condition, 50% are in fair condition and 29% are in poor condition. It would cost approximately $142 million to upgrade all these bridges to a 20-year life expectancy and handle heavier loads at 25 miles per hour. Replacing all 332 bridges would cost approximately $1.4 billion. Of the 24 short-line railroad tunnels studied, 11 require rehabilitation to extend their lives by 20 years. All of them require updating to allow for double-stacked railroad cars.



Passenger rail service in Oregon is provided by Amtrak in the Portland-Eugene Corridor. In addition, there is commuter rail between Beaverton and Wilsonville. These rail services compete for track space with freight. This combination creates challenges as the need for precision scheduling required by passenger rail may conflict with the requirements necessary for bulk freight movement.



Passenger rail transit time in the Portland-Eugene Corridor will lengthen to more than three hours per day by 2030. The numbers of riders will rise as the population increases even with no improvements to the line after 2010. However, with improvements and an increase in service frequency, intercity passenger ridership could double by 2030. The current average speed on the Portland-Eugene corridor for the two Amtrak Cascade and Coast Starlight routes is 42 mph and on-time performance is 68%. Improving on these statics is challenged by Oregon's geography, subscription and density. The estimate for cost improvements to reduce travel times to be competitive with car travel is approximately $2.9 billion.[lxxx]

Funding

The primary source of funding for railroads is from tariffs levied on freight transported. With the Staggers Act tariffs have been deregulated. Additional funding comes from one time legislative appropriations such as the ARRA, Connect Oregon, OTIA and similar.

Summary

The freight rail system run by the Class I railroads in Oregon is well developed and reasonably well maintained. With recent investments bottleneck issues have been limited to the Vancouver–Portland connection. The system does, however, have access issues. Outside the Willamette Valley, many areas are largely dependent on trucking or short-line railroads to move their goods. The short-line railroads lack in capital investment for their infrastructure. The low traffic volumes fail to generate the revenues necessary to make any substantial investments without any kind of additional funding. The continued economic prosperity of eastern Oregon depends on the availability of a variety of transportation options. Passenger rail service is limited and infrequent, and its inability to achieve reasonable schedule predictability keeps it from being a significant option for Oregon's passenger transportation system.

While there are some bright spots in the short-line railroads, such as the Portland and Western Railroads, the majority of the service is low speed and infrequent.

Solutions

- Focused assessment of improvements to shortline railroads to prioritize and maximize rural economic development by increasing access to railroad freight service in areas with economic development potential.
- Continue to monitor and improve passenger rail service in the Eugene – Portland corridor including increasing speed and providing service to potential high subscription areas such as Corvallis.

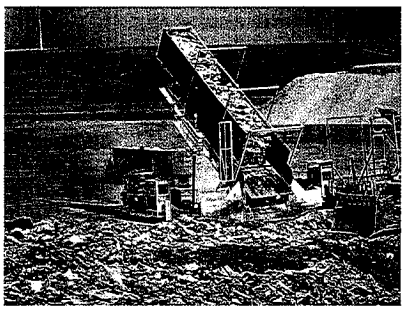
Solid Waste
Oregon Grade: B National Grade: C+

Background

Oregon has been a leader in the management of solid waste since 1971 when it passed the nation's first deposit bottle bill to combat litter, conserve natural resources and reduce solid waste.[lxxxi]

Oregon has established a solid waste management program with the following objectives:

- Waste reduction
- Reuse
- Recycle
- Compost
- Energy recovery
- Safe disposal.[lxxxii]



The solid waste management program establishes goals which vary by regional needs and resources for the reduction of total waste and the net use of landfill for disposal. Oregon tracks overall solid waste generation, disposal; and recovery (which includes recycling, composting and limited energy recovery).

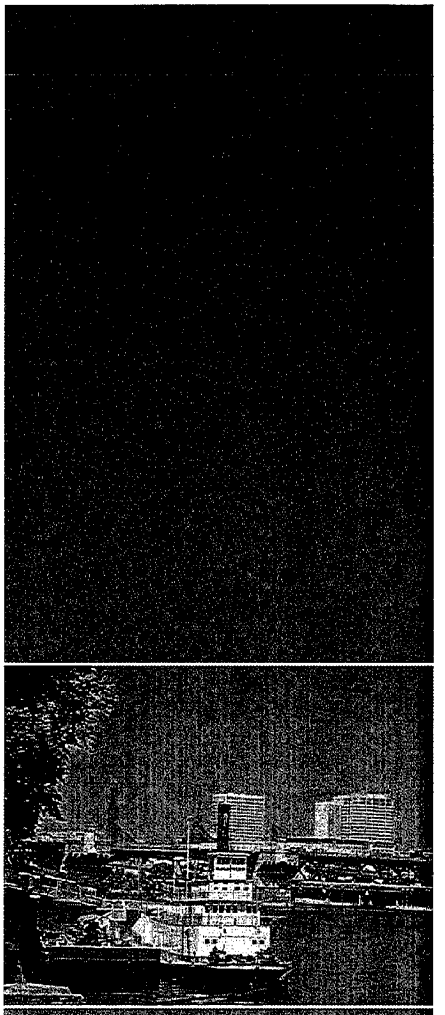
Grade

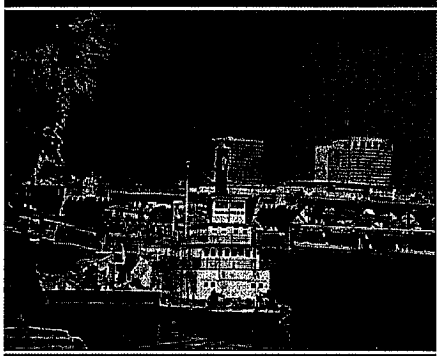
Oregon has established both waste reduction and waste recovery goals. In 2008, Oregon met its goal of not exceeding the amount of per capita waste generated in 2005 and reducing total waste generation throughout the state. In 2007 the state experienced its first net decrease in per capita and total waste generation. While these figures are impacted by the current economic conditions, (Oregonians tend to buy and discard less during recessions) the results are welcome news to Oregonians and will better position our state for improved solid waste management as economic conditions improve.

Oregon has sufficient landfill capacity for many years to come. In fact, land filling solid waste is an Oregon export. Thirty-seven percent of the total amount of solid waste land filled is from outside the state. Oregon exports only 1.4% of its solid waste. Solid waste management is a fee-based service that pays for itself.

There is still opportunity for more progress toward the state's solid waste goal of the reduction of landfill material. The benefits include improving the environment and reducing greenhouse gas production by the reducing the demand for raw materials. Several statewide programs are in place to reduce waste, increase recycling and reduce product life-cycle costs.

In the product stewardship program industry takes a lead in the management of their manufactured products, including costs of disposal. This program currently includes carpet, containers, electronics, mercury, and paint. The electronics recycling program, introduced in 2007, requires recycling of electronics by the public. Program costs are borne by the manufacturers and include initiatives to reduce packaging. The beneficial use program converts waste to a different product similar to recycling. It is also receiving attention but needs increased funding to implement.

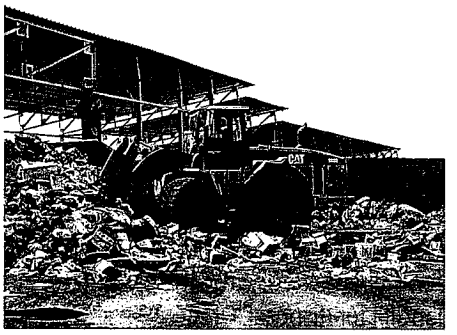




These programs offer the means to attain the statewide goals of no net increase in solid waste generation from 2005 levels and 50% diversion from the waste stream. New standards, education programs and regulation will promote increased product stewardship, particularly for hazardous materials such as pharmaceuticals and florescent lights. This should result in more uniform attainment of the statewide goals and continued reduction of per capita waste production.

Solutions

- Continue to encourage and expand recycling programs
- Address the growing levels of waste electronics which may contain hazardous materials in landfills
- Encourage the increased use of waste to energy programs to reduce the amount of greenhouse gases released from waste sites.



Transit
Oregon Grade: C– National Grade: D

Background

Oregon's locally operated public transportation system has more than 300 transportation providers, including mass transit districts, transportation districts, and city and county providers. Many are small private non-profits serving seniors and persons with disabilities (SPDs). The state's largest provider is TriMet, whose district boundaries cover most of Portland and the adjacent metropolitan areas of Washington, Multnomah and Clackamas counties.

Generally, larger urban areas have more comprehensive, fixed-route public transportation services, while small, rural providers may have on-demand service. In 2005, Oregonians took 111.7 million rides in urban transit districts and 5.6 million rides in rural areas. SPDs took 3.6 million van or volunteer trips, and total trips provided averaged more than 32 rides per Oregonian.[lxxxiii]

Intercity transit and bus transportation is provided by many of the local transit districts. For example, the Salem Keizer Transit District provides service to Wilsonville and TriMet's West Side Express provides commuter rail service between Portland and Wilsonville. Amtrak provides intercity rail transportation between Portland and Eugene. This rail transportation is augmented by Amtrak's Thruway bus service.[lxxxiv] Private sector transportation is provided by Greyhound Lines, which provides bus service to approximately 50 cities in Oregon.[lxxxv]

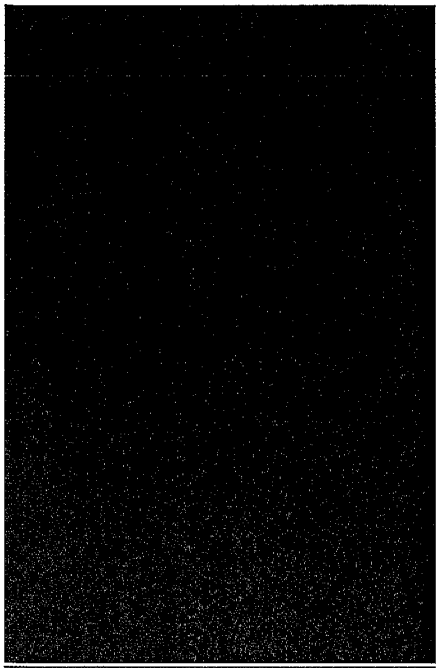
At the start of the 20th century, Oregon had one of the best rail passenger systems in the country to support its economic growth. By 1920 there were 64 trains operated daily by one line alone, the Oregon Electric.[lxxxviii]

Funding

Payroll taxes have provided the primary source of revenue for transit operations and for routine expenditures such as fleet upgrades, vehicle purchases and replacements. Unlike the gas tax, payroll tax revenues fluctuate as the region's economy grows and contracts and wages rise and fall. Under its present statutory limitation, the payroll tax may be insufficient to support system expansions in regional areas needed to serve a rapidly growing ridership.[lxxxvi] Under its present statutory limitation, the payroll tax may be insufficient to support system expansions in regional areas needed to serve a rapidly growing ridership.[lxxxix]

Funding for Oregon's transit systems comes from a variety of sources. Funding sources include the federal government, property taxes, fares, the state's Business Energy Tax Credit program, contributions from universities, group pass programs, federal grants and subsidies, donations, employer taxes, user fees, self-employment taxes, payroll taxes and state grants.[lxxxvii]

With the advent of the automobile, passenger rail systems were no longer the primary means of transportation for Oregonians. Today's passenger transit system is fragmented and lacks significant overall coordination. The necessity of a transit system as an alternative



to automotive transport is essential. The cost of car ownership is stretching the resources of low-income Oregonians.

However, there are some bright spots in Oregon's transit system, including Portland's TriMet, Salem-Keizer's Cherriot System and the Lane County Transportation District. These systems have delivered reliable transit to their customers. The passenger rail system is infrequent and has a low on-time performance rating. Intercity bus traffic by private carriers is reasonably priced and has adequate schedules, but does not service all of Oregon's towns.

Solutions

- Coordinate the available passenger transit service throughout Oregon through public outreach including state wide system maps showing all resources.
- Investigate and implement additional transit funding which is not dependent on employment and is independent of roadway funding.
- Focus resources on those corridors that show a high level of receptivity to transit use.
- Increase the funding for ODOT's public transit division
- Improve access to transit for all Oregonians, especially the elderly and disabled
- Encourage Transit development in those areas with the greatest economic development potential.
- Encourage telework and non-peak travel times to reduce congestion.

The ability to increase the size of the roadway infrastructure will be limited in the 21st century. Land is no longer as available as it has been in past years, nor is funding. Oregon can no longer build its way out of congestion. Transit increases the efficiency of the existing roadway network by increasing the density of movements, thus creating additional capacity in the roadway network.

Conclusion

Historically, Oregon has been a state based on natural resources extraction. To support this economic base, a strong physical infrastructure of roads, bridges, railroads, water supply, wastewater and electrical transmission systems has been essential.

Oregon faces a crossroads in its future. The economic base of the past is no longer supporting Oregon. The investment made by the postwar generation in Oregon's infrastructure is now reaching the end of its useful life. Roads, bridges, power lines, water systems and wastewater treatment plants all have finite lives. They are superseded by more modern and sophisticated systems that have been developed since they were originally constructed.

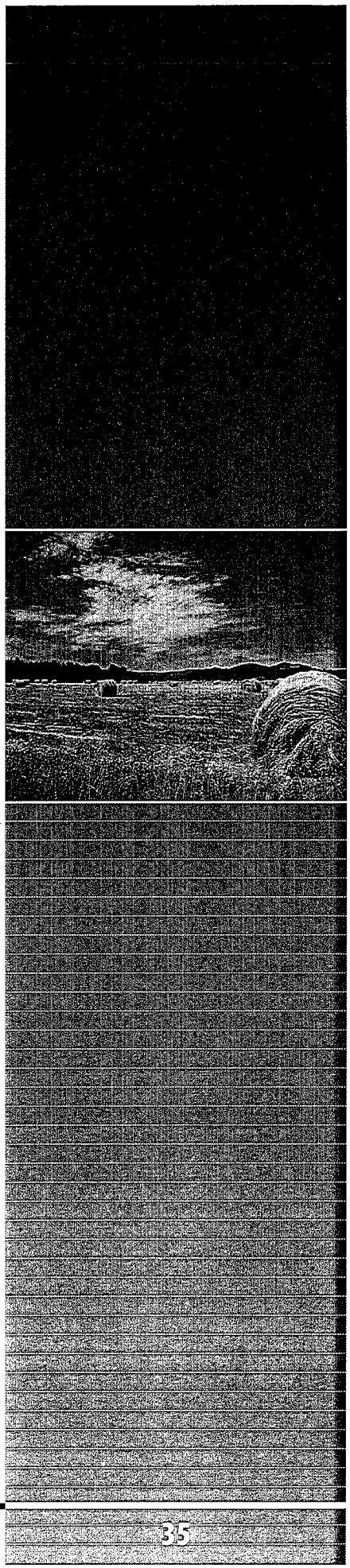
Infrastructure developments and improvements are carried out by both private sector and public agencies. Private-sector infrastructure responds to economic needs. They are, however, required to meet public goals and objectives for planning and conditions of use and permits. Pipelines, power plants and electrical distribution systems are planned where the economic model indicates a need and public policy allows. Public agencies carry out major infrastructure improvements as directed by the will of its political leaders.

The demographics of Oregon have changed substantially in the last several decades as the quality of life attracted large numbers of people from other parts of the country. There is the perception that Oregon is moving from a resource-based economy to an information-based economy. However, resource-based economic activities are still significant in Oregon's economy. The top economic activities in the state are natural resource-based activities. A resource extraction-based economy is highly dependent on infrastructure to extract the resources and bring them to market.

Oregon's infrastructure is aging. The infrastructure systems are underfinanced and there are no additional funding mechanisms on the horizon that will provide a significant financial infusion for renewal. County roadway systems in Oregon are generally in poor shape and are dependent on local support for improvements. Bridges show short-term improvement; however, barring any additional funding, they will show significant degradation in the long-term. Drinking water and wastewater systems have significant deficits in their needs.

Conservation has a significant role in infrastructure renewal. All infrastructure systems are impacted by the level of usage. Through conservation measures, the increase in use can be reduced. Conservation can reduce demand, but in and of itself, will not eliminate the need to renew outdated and antiquated systems.

Oregonians need to be proactive and fund infrastructure to allow for its systemic renewal and replacement, instead of waiting to react to catastrophic failures, such as the I-35W bridge collapse in Minnesota in August 2007. This approach requires a collective will and agreement on funding mechanisms that are independent of federal assistance.



Sustainable approaches to infrastructure renewal are critical to ensuring that the rehabilitated infrastructure meets 21st century expectations and needs. To help achieve public support, sustainability must be a significant component in infrastructure renewal.

Inaction is also action. The inability to develop a coherent and cohesive policy and funding mechanism to support infrastructure is reflective of the desires of the population. The result of this attitude could be infrastructure that, while in most cases is adequate for current demands, is not first or world class. This sufficiency approach puts Oregon at a disadvantage in the global and national marketplace. Is this where Oregonians want Oregon to be?

Recommendations

Recommended Solutions to Improve Oregon's Infrastructure:

Wring more efficiency out of existing infrastructure corridors

With a limited ability to increase the footprint of the infrastructure, more efficient use must be made of the existing land. This requires the application of the latest in technology such as intelligent vehicle and highway systems to increase the use density, intelligent grids as well as reconstruction to the most efficient configurations.

Increase Multimodal Corridors

Investigate increased multi modal use for existing corridors such as the combination of rail, highway, electrical transmission and gas transmission within urban corridors.

Give Sustainability More Weight in Project Pro Formas

Promote sustainable solutions for infrastructure rehabilitation. Apply sustainable practices to construction. Increase the recognition of the impact of infrastructure configuration on public health.

Raise Means and Methods Efficiency

Invest additional resources in research and development for more efficient rehabilitation methodologies; such as next generation full depth reclamation of existing roadways.

Reduce Per Capita Use of Infrastructure

Land-use patterns and infrastructure should promote reduced per-capita use of infrastructure. The trip not taken or the therm not used is the lowest cost solution.

Emphasize Low Cost Rehab vs High Cost Replacement

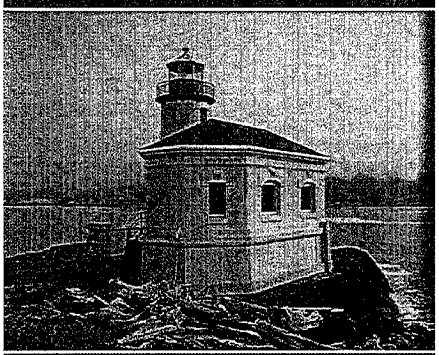
Increase development of infrastructure inventory management systems and programs to take advantage of lower cost rehabilitation versus high cost replacement.

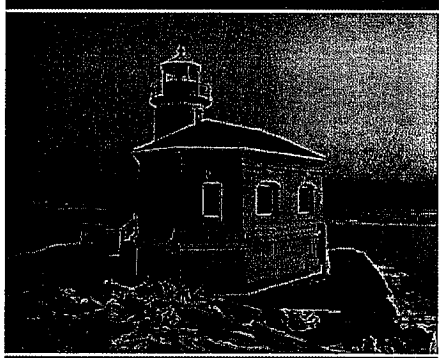
Develop Innovative Financing

Continue to explore and develop innovative infrastructure financing and funding. Incorporate the value of the land taken by the infrastructure has a financial asset available for leverage. Increase leadership at all levels of government. Increase research in cost and schedule management to provide greater confidence in budgets and delivery dates.

Implement Systems Approach to Rehabilitation

Assess infrastructure rehabilitation in a systematic approach by putting projects in a system context. Consider infrastructure systems as a whole, rather than on a project by project basis. Use system context to shape the design.





Appendix 1

Data Assembly

The Infrastructure Report Card Committee determined that the following were the primary, general issues of concern for each of the infrastructure types to be assessed in the study:

- The physical condition of the structure or system;
- The capacity of that structure or system, in terms of its ability to serve the existing population and projected future demand;
- Specific data regarding funding for the maintenance, expansion and/or replacement of that structure or system; and
- A review of the funding available to expand the particular system in support of the expected increase in Oregon's population.

Questionnaires were generated which asked for responses to these concerns. The questionnaire was sent to 36 counties and 64 cities. Additional contacts include the Oregon Department of Transportation, the Oregon Department of Aviation, the Port of Portland, the Northwest Water Ways Association, the U.S. Army Corps of Engineers and others (see Appendix 11 to this report).

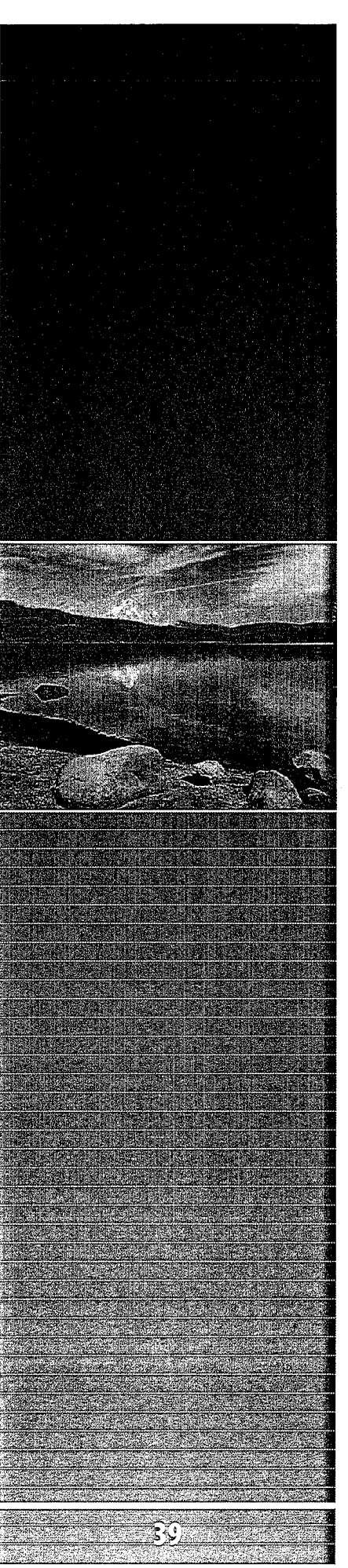
Grading

The grading methodology was a multi-step process. In the first step an evaluation was made based primarily on the significant metrics within a jurisdiction for a given type of infrastructure. Grades were assigned as follows:

Grade	Criteria
A	0% (no deficit in funding)
B	< 50% funding deficit
C	< 100% funding deficit
D	>100% funding deficit

Following this quantitative approach, a second step consisting of a qualitative adjustment was made. These broader needs were defined as ensuring that Oregon's economy has the ability to prosper and grow. Individual sections contain discussions supporting this analysis.

The grades that are assigned are an assessment of the infrastructure element as a whole, including the public's support. They are not an evaluation of individual agencies, firms or business units. Individual firms or agencies may be insufficiently staffed or funded and cannot provide the upgrades or maintenance that their particular infrastructure elements require. Rather the grade is an evaluation of the particular infrastructure element itself, the funding systems that support it, and the public's support for maintenance and upgrades.

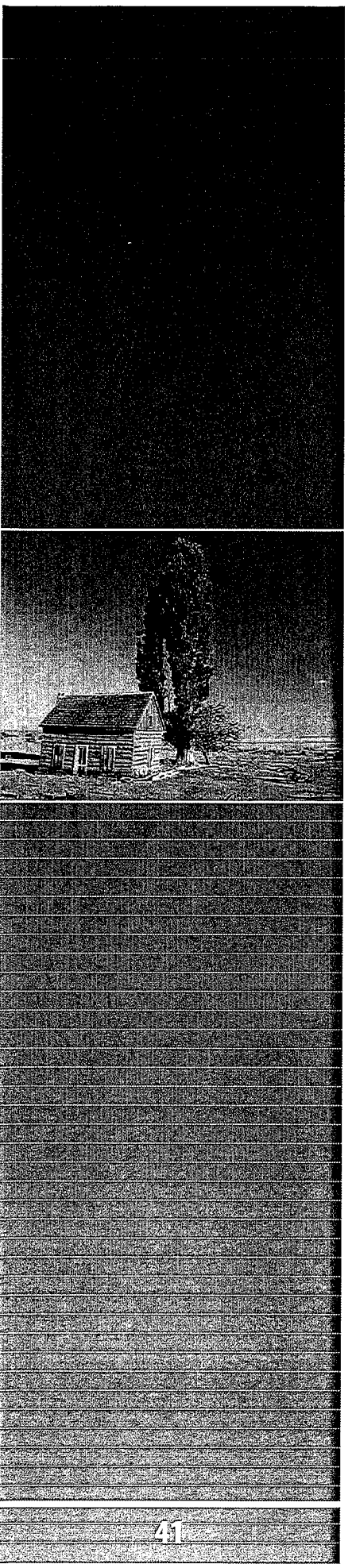


Appendix 2

Roads questionnaire

The following is the list of questions that were submitted to highway and bridge departments contacted for this project:

1. What is the total length of roadways in your jurisdiction?
2. As a whole, what is the condition of these roads? (good, fair, etc.)
3. What is your jurisdiction's current funding for road programs?
4. What are your projected funding needs?
5. What is your projected growth over the next five years, ten years and 15 years?
6. As a whole, what is the average level of service (LOS) of roads in your jurisdiction?



Appendix 3

Road Budget Data

The following information was collected from highway and bridge departments in the listed cities and counties.

Cities:

City	Annual Funding ($)	Annual Additional Funding Needed ($)	Deficit ($)	Deficit (%)	Length (miles)	Expected Annual Population Increase (%)	Level of Service (A - F)	Condition	Grade (assigned per Appendix 1)
Baker	$1,545,711	$1,595,711	$50,000	3%	70	1-2%	fair	Good	B
Brookings	$648,000	$2,450,000	$1,802,000	278%	37.3	1%		Very good	D
Burns		$700,000			39.1	0		Poor to Fair	
Coos Bay	$155,000	$500,000	$345,000	223%	167,16	0.67%	A	Fair	D
Coquille	$185,000	$8,666,000	$8,481,000	4584%	31	1%	50% poor or worse	fair to poor	D
Corvallis	$3,411,000	$5,570,000	$2,159,000	63%	180	1%	C	72 on a 100 scale	C
Dallas	$850,000	$1,150,000	$300,000	35%	54	2%	B	PCR 70 per MTC	B
Eugene	$7,100,000	$9,500,000	2400000	34%	533	2%	Arterials, collectors fair to good; local streets fair	fair	B
Florence	$483,784	$220,000	($263,784)	-55%	75		C-B, 70%	fair to good	A
Gresham	$16,760,595	$45,000,000	$28,239,405	168%	800	3%	PCI of 64; fair	fair	D
Hermiston	$100,000	$1,000,000	$900,000	900%	60	4%	Fair	fair	D
Jordan Valley		$100,000			1	none	N/A, it is an ODOT ROW	fair	
Keizer	$2,548,500	$2,548,500	$0	0%	126	small	D	good	A
Klamath Falls	$11,121,050	$80,000,000	$68,878,950	619%	160	1-2%	B	poor	D
Lake Oswego	$871,000	$2,339,000	$1,468,000	169%	180	0.50%	C	fair	D
Medford	$9,000,000	$10,000,000	$1,000,000	11%	587	3%	D	fair	B
Oregon City	$1,510,528	$1,510,528	$0	0%	136.2	2%	PCI of 65	fair to good	A
Sherwood	$725,000	$4,300,000	$3,575,000	493%	50	3%		PCI of 77	D
Silverton	$600,000	$750,000	$150,000	25%	29		C	fair	B
Tualatin	$5,816,214	$4,064,259	($1,751,955)	-30%	77	3%	PM Peak hour overall level of service is D	PCI of 95	A
West Linn	$3,487,000	$1,261,500	($2,225,500)	-64%	214	small	C	good	A
Woodburn	$1,820,000	$7,400,000	$5,580,000	307%	60	3%	B-C major intersections, F for Woodburn one intersection	fair to poor	D

Counties:

County	Annual Funding ($)	Annual Additional Funding Needed ($)	Shortage ($)	Shortage (%)	Length (miles)	Expected Annual Population Increase (%)	Level of Service	Condition	Grade Assigned
Baker	$2,000,000	$6,000,000	$4,000,000	200%	900	very little	poor	fair to poor	D
Benton	$2,670,000	$10,475,400	$7,805,400	292%	460		poor/ave		D
Clackamas	$11,300,000	$96,333,230	$85,033,230	753%	1423	8%	Rural-A/B; Urban-C/D; some intersections E/F.	fair	D
Clatsop	$5,954,500	$5,980,400	$25,900	0%	248	6-8%	A/B	good, PCI 74	A
Curry	$4,400,000	$5,500,000	$1,100,000	25%	227	0	A	Good	B
Grant			0		13.5	1-2%		50% fair, 50% poor	
Grant			0		490	0	min	good	
Harney	$2,400,000	$4,000,000	$1,600,000	67%	900		fair	fair	C
Lane	$22,000,000	$23,000,000	$1,000,000	5%	1432		A	Good	B
Lincoln	$27,869,279	$27,869,279	0	0%	334.8			good	A
Marion	$16,500,000	$35,000,000	$18,500,000	112%	1110	2%	900 ADT	fair	D
Multnomah	$7,000,000	$12,000,000	$5,000,000	71%	300	0	B-C	fair	C
Sherman			0		484			fair to poor	
Tillamook	$4,000,000	$5,440,938	1440938	36%	287			Ave PCI 45 for paved roads	B
Umatilla	$4,450,000	$6,500,000	$2,050,000	46%	1726	3%	D	fair	B
Wasco	$2,024,518	$3,933,490	$1,908,972	94%	697	0	will depend on future federal funding	good	C
Washington	$9,337,552	$9,337,552	$0	0%	1279	3%	Prioritize work by functional class, not LOS	good	A

Appendix 4

Oregon's Bridges

Oregon's bridges have been well surveyed by the Oregon Department of Transportation (ODOT). This information was summarized and published in November 2009.[xc]

State and Interstate Bridges

Total	Total Functionally Obsolete	%	Total Structurally Deficient	%	Total Structurally Deficient and Functionally Obsolete	%
2,681	596	22%	135	5%	731	27%

City and County Bridges

Total	Total Functionally Obsolete	%	Total Structurally Deficient	%	Total Structurally Deficient & Functionally Obsolete	%
3,983	510	13%	295	7%	805	20%

The average deficiency rate for the state is between 73% and 80%; the grade is C.

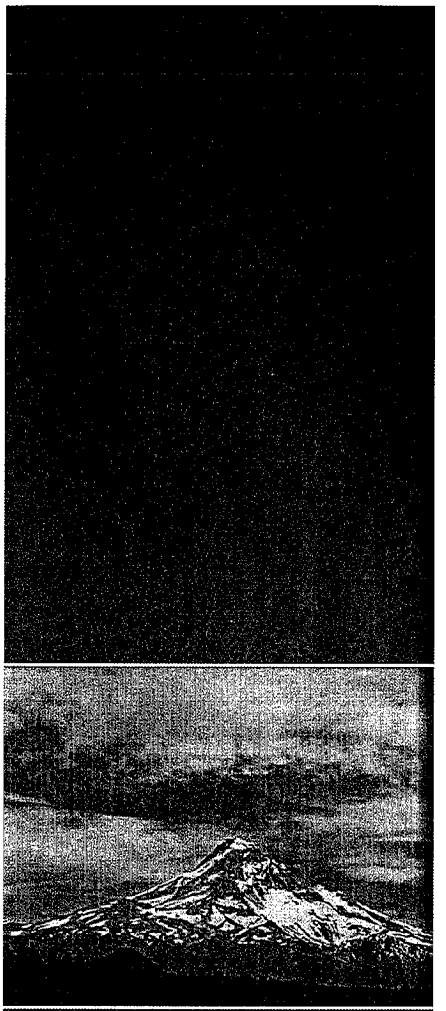
Grading Basis: 90% – 100% – A

80% – 89% – B

70% – 79% – C

60% – 69% – D

< 60% – Failing



Appendix 5

Water Infrastructure Questionnaire on Dams

The following questions were submitted to cities and counties that have dams within their jurisdictions:

1. Who are the controlling parties/owners and operators of the dams in your district?
2. What is the purpose/function of each dam?
3. Do dams meet existing design standards? If not, please quantify the deficiencies.
4. What is the design flood (if known)? Can the spillways pass their design floods safely?
5. Is there an Emergency Action Plan in place? When was it last updated?
6. Are adequate funds available for licensing and certification of existing dams? If not, please quantify the deficiencies.
7. Are adequate funds available for necessary upgrades to existing dams? If not, please quantify the deficiencies.
8. Are adequate funds available for operation and maintenance? If not, please quantify the deficiencies.
9. Is there a need for additional dams in the future in your jurisdiction? If so, is there adequate funding for such infrastructure? If not, please quantify the deficiencies.
10. Will there be need for dam removal in the near future? If so, are funds available for dam removal? If not, please quantify the deficiencies.
11. If dams are used for hydropower, what is the existing licensing status?
12. Are adequate funds available for fish and wildlife enhancement (i.e. fish ladders, etc.). If not, please quantify the deficiencies.

Grading

The following grading system was developed in order to grade each city or county based on its responses to the questionnaire.

Grade: A

Question 3 – Yes; Question 5 – Yes; Questions 6, 7, 8, 12 – Yes

Questions 9 & 10 – No; or Yes and funding is available and/or projects are underway

Grade: B

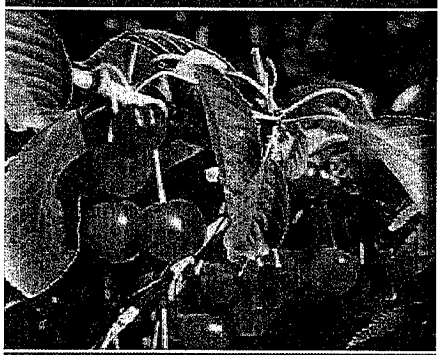
Question 3 – Yes; Question 5 – Yes; Questions 6, 7, 8, 12 – Mostly yes

Questions 9 & 10 – No; or Yes and funding is available and/or projects are underway

Grade: C

Question 3 – Yes; Question 5 – Yes; Questions 6, 7, 8, 12 – Mostly no

Questions 9 & 10 – No; or Yes and funding is available and/or projects are underway



Or:

Question 3 – Yes; Question 5 – No; Q6, 7, 8, 12 – Mostly no

Questions 9 & 10 –Yes but funding is not available

Grade: D

Question 3 – No; Question 5 – No; Questions 6, 7, 8, 12 – Mostly no

Questions 9 & 10 – Yes but funding is not available

Results

The following table provides the results of the grading process by ASCE Oregon IRC committee for jurisdictions with dams:

Baker	City	B
Brookings	City	C
Coquille	City	C
Corvallis	City	B
Dallas	City	B
Silverton	City	D
Skipanon	Water Control District	C
Baker	County	Did not provide answers
Harney	County	Did not provide answers
Lane	County	Did not provide answers
Lincoln	County	B
Marion	County	Did not provide answers
Multnomah	County	Did not provide answers
Sherman	County	Did not provide answers
Tillamook	County	Did not provide answers
Umatilla	County	Did not provide answers

Grading Summary

Grade Received	Number of Cities	Number of Counties/Districts	Total
A	0	0	0
B	3	1	4
C	2	1	3
D	1	0	1
No answers	0	8	8

Appendix 6

Water Infrastructure Questionnaire on Levees

The following questions were submitted to cities and counties which have levees within their jurisdictions:

1. Who are the controlling parties/owners and operators?
2. What are the levels of protection (return interval storm), if known?
3. Do the existing levees meet FEMA and USACE current design guidelines? If not, please quantify the deficiencies.
4. Are adequate funds available for certification of existing levees? If not, please quantify the deficiencies.
5. Are adequate funds available for necessary upgrades to existing levees? If not, please quantify the deficiencies.
6. Are adequate funds available for operation and maintenance? If not, please quantify the deficiencies.
7. Is there a need for additional levees or flood protection works in the future? If so, is there adequate funding for such infrastructure? If not, please quantify the deficiencies.

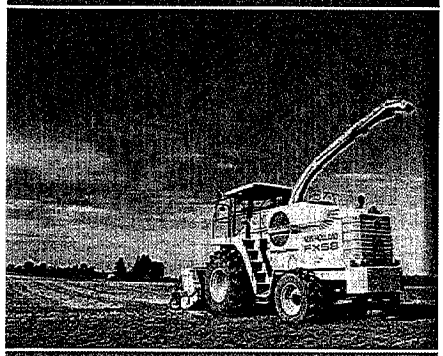
Grading and Results

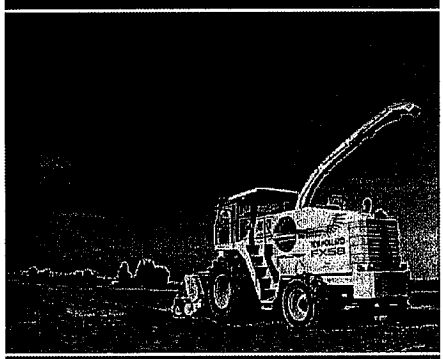
The levee questionnaire had a low response rate. The jurisdictions which did respond were graded on a more subjective basis as noted below.

The city of Keizer received an "A" because the city says that its current levee system is certified by the USACE, adequate funding is available for maintenance, and there is no projected need for additional levees.

The Multnomah County Drainage District received a "C". Their levee system meets FEMA and USACE standards and funding is available for regular maintenance, but there is a need for two significant repair and upgrade projects, for which there is no funding available at this time.

The Skipanon Water Control District received a "D". The Skipanon levee system does not meet FEMA design standards, and funds are not available for certification or for upgrades to the levee system. Funding is available for regular maintenance, but there is a need for additional levee construction and improvements, for which funding would only be available through grant programs.





Appendix 7

Water Infrastructure Questionnaire on Wastewater Treatment

The following questions were submitted to cities and counties regarding their wastewater collection and treatment systems:

1. Does the treatment meet state and federal standards? If not, by how much is the treatment deficient?
2. Are demands able to be met under existing capacities? If not, by how much is the existing capacity deficient?
3. What is the quality of transmission of distribution (on a scale of 1 to 5, 5 being excellent)?

The following grading system was developed in order to grade each city or county based on its responses to the questionnaire.

Grading

Grade: A

Question 1 – Yes; Question 2 – Yes; Question 3 – Rating of 3 or better

Grade: B

Question 1 – Yes; or No, but measures are being taken to bring treatment up to state/federal standards;

Question 2 – Yes; or No, but measures are being taken to increase treatment to meet the demand;

Question 3 – Rating of 3 or better

Or:

Question 1 – Yes; Question 2 – Yes; Question 3 – rating less than 3

Grade: C

Question 1 – No; Question 2 – No; Question 3 – Rating of 3 or better

Or:

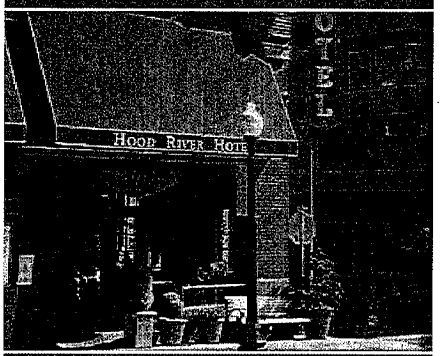
Question 1 – Yes; or No, but measures are being taken to bring treatment up to state/federal standards;

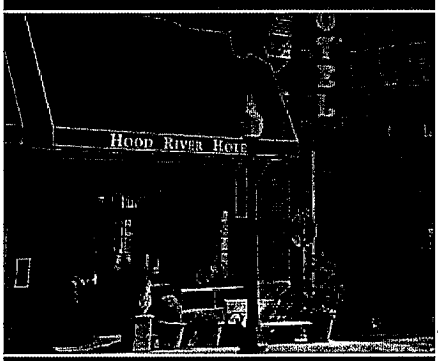
Question 2 – Yes; or No, but measures are being taken to increase treatment to meet the demand;

Question 3 – Rating less than 3

Grade: D

Question 1 – No; Question 2 – No; Question 3 – Rating less than 3





Results

The following table provides the results of the grading process by ASCE Oregon IRC committee for city and county wastewater infrastructure.

Baker	City	B
Brookings	City	A
Burns	City	A
Coos Bay	City	C
Coquille	City	C
Corvallis	City	A
Dallas	City	C
Eugene	City	A
Florence	City	B
Gresham	City	A
Hermiston	City	A
Jordan Valley	City	A
Klamath	City	B
Lake Oswego	City	B
Medford	City	A
Oregon City	City	B
Silverton	City	C
Tualatin	City	A
Woodburn	City	C
Baker	County	Did not provide answers
Benton	County	B
Clatsop	County	A
Grant	County	B
Harney	County	Did not provide answers
Lane	County	Did not provide answers
Marion	County	Did not provide answers
Multnomah	County	Did not provide answers
Sherman	County	Did not provide answers
Tillamook	County	Did not provide answers
Umatilla	County	Did not provide answers

Grading Summary

Grade Received	Number of Cities	Number of Counties	Total
A	9	1	10
B	5	2	7
C	5	0	5
D	0	0	0
No answers	0	8	8

Appendix 8

Water Infrastructure Questionnaire on Drinking Water Supply & Distribution

The following questions were submitted to cities and counties regarding their drinking water supply and distribution systems:

1. Does water supply meet state and federal standards? (quality)
2. Is it possible to meet the city's water demands (quantity) under existing capacities? If not, by how much is the existing capacity deficient?
3. What is the quality of transmission and distribution (on a scale of 1 to 5, 5 being excellent).
4. Is there currently a need for more storage? If so, will the city be able to meet these needs in the future? If not, by how much is the city's water supply system projected to be deficient?

Grading

The following grading system was developed in order to grade each city or county based on its responses to the questionnaire.

Grade: A

Question 1 – yes; Question 2 – yes; Question 3 – rating of 3 or better;

Question 4 – No additional storage needed currently or foreseen for future, or need more storage and will be able to provide it (or are in the process of upgrading facilities to meet that need.)

Grade: B

Question 1 – yes; Question 2 – yes; Question 3 – rating of 3 or better;

Q4 – Currently need additional storage capacity and anticipate future need for additional capacity; uncertainty as to whether additional capacity can be provided.

Grade: C

Question 1 – yes; Question 2 – no; Question 3 – rating less than 3;

Q4 – Additional storage capacity needed; foresee difficulty in providing it.

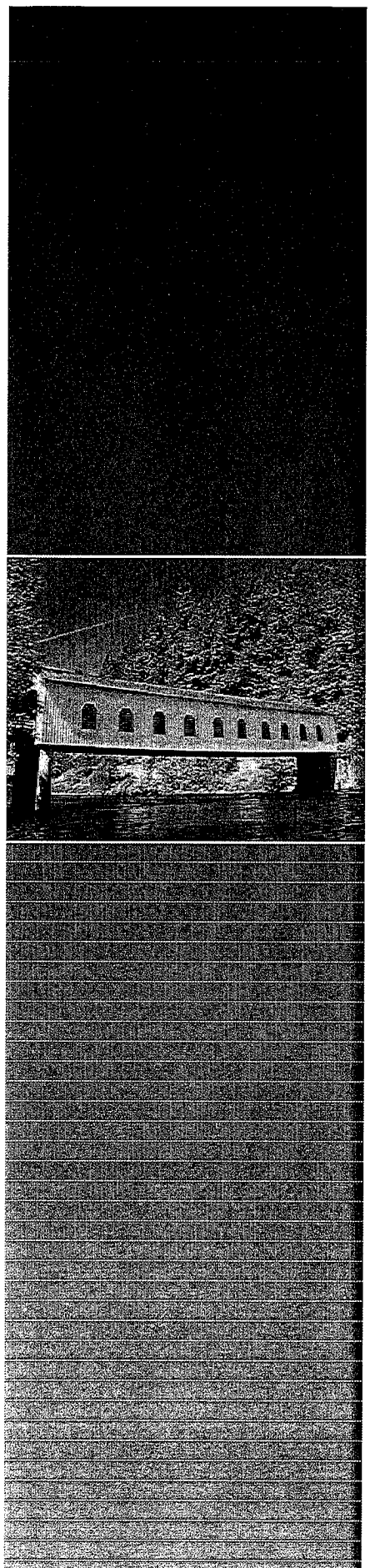
Grade: D

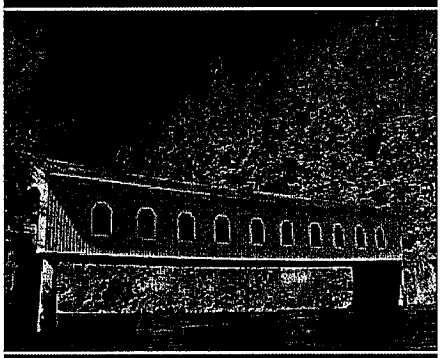
Question 1 – No; Question 2 – No; Question 3 – rating less than 3;

Q4 – Additional storage capacity needed; foresee difficulty in providing it.

Results

The following table provides the results of the grading process for by ASCE Oregon IRC committee city and county water supply infrastructure.





Baker	City	A
Brookings	City	B
Burns	City	A
Coquille	City	B
Corvallis	City	A
Dallas	City	A
Eugene	City	Did not provide answers
Florence	City	A
Gresham	City	A
Hermiston	City	B
Jordan Valley	City	A
Keizer	City	C
Klamath	City	C
Lake Oswego	City	C
Oregon City	City	B
Portland	City	A
Sherwood	City	A
Silverton	City	A
Tualatin	City	A
West Linn	City	A
Woodburn	City	A
Baker	County	Did not provide answers
Benton	County	A
Grant	County	A
Harney	County	Did not provide answers
Lane	County	Did not provide answers
Marion	County	Did not provide answers
Multnomah	County	Did not provide answers
Sherman	County	Did not provide answers
Tillamook	County	Did not provide answers
Umatilla	County	Did not provide answers

Grading Summary

Grade received	Number of cities	Number of counties	Total
A	13	2	15
B	4	0	4
C	3	0	3
D	0	0	0
No answers	1	8	9

Appendix 9

Solid Waste Scoring

In 2008, nearly 500 activities (local government, industry and business) submitted surveys to the Oregon Department of Environmental Quality (DEQ) which report how much solid waste was collected, generated, sorted, reused, recycled, composted or converted by energy recovery for each of the reporting entities. An annual report from this data is then prepared which is the basis for evaluation of the success of the state's Solid Waste Program. The following questions were developed and researched:

1. What is the capacity of the present solid waste system in Oregon?
2. Is sufficient capacity for future growth?
3. Is the condition of the operating sites within applicable regulatory requirements?
4. Is there sufficient funding for the solid waste system?

Grading

The following grading system was developed based researched responses to the above questions.

Grade: A

Question 1 – yes; Question 2 – yes; Question 3 – yes;

Question 4 – More than sufficient

Grade: B

Question 1 – yes; Question 2 – yes; Question 3 – yes;

Q4 – Marginal; close to meeting standards and improving

Grade: C

Question 1 – yes; Question 2 – no; Question 3 – no; shortfalls;

Q4 – Insufficient

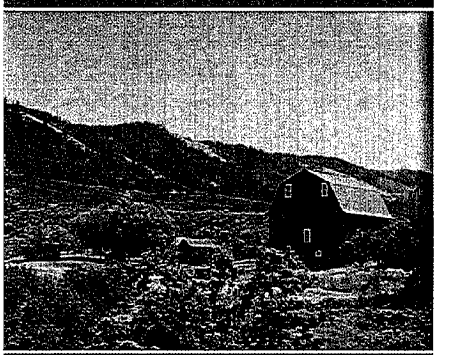
Grade: D

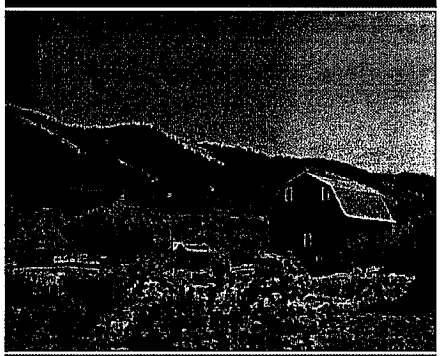
Question 1 – no; Question 2 – no; Question 3 – no; significant shortfalls;

Q4 – Grossly insufficient

Results

Q1 – Yes – Per state report there is excess capacity for "many years" which allows Oregon to generate revenue and allow the import of out of state waste for disposal in landfills. Assumed landfill only – other capacity issues may exist. Energy Recapture, recycling consumption capacity (only so much can be used). Solid waste management effects the environment and is a duty and responsibility of all Oregonians. Currently Oregon has excellent environmental awareness and strong efforts to comply with all solid waste goals. However several waste sheds have fallen short of their goals and more effort is required.





The impact of failing to meet our goals will mean our air and water quality goals will also not be met with the resulting negative impact on public safety.

DEQ has a very active HHW program, including grant monies to help build local collection facilities. Many local areas have healthy HHW programs. The collection facilities and collection event are attended. The amount collected represents a sizable tonnage that is now correctly handled.

Q2 – Yes – Oregon has the landfill capacity for "many years", quantification of this was not found. Future needs should reduce with education and compliance measures. Oregon goals for solid waste reduction and recovery are not uniform throughout the state and on the average waste generation appear to slightly exceed the national average. Overall our per capita generation is on par with the rest of the US and is below European standards (we produce more waste). As a contributor to global warming, any lost opportunity to reduce waste and increase waste recovery has a negative impact on our environment and long term is a hazard to health and safety. Household disposal of hazardous waste is identified as an ongoing issue negatively impacting our water supply and the ecosystem. In spite of education programs to reduce the risk, disposal of prohibited substances into the toilet continues to be a problem with long term impacts.

Q3 – Marginal – Currently operating sites are in compliance with "condition" requirements as to liners, caps, and infrastructure serviceability. 15 of 35 sites are not meeting state mandated waste recovery goals, overall the state is did not to meet the 2009 waste recovery goal of 50% (48.4% but still improving).

There are numerous hazardous sites which cannot be assigned an owner for mandated cleanup. These sites are covered under an "orphan site" program of DEQ. Hazardous sites are not included in general solid waste category but should be covered under hazardous waste. Most solid waste facilities are operated by permit, receive inspections, submit reports and must comply with ORS and OAR guidance. In the absence of information to the contrary, satisfactory O&M is assumed.

Q4 – Yes for solid waste, No Hazardous Waste – Specific data not found but program is fee based designed to meet current and future needs, both public and private entities participate in solid waste management industry. Waste management is a fee based utility is paying its way. Hazardous Waste Disposal is seriously underfunded at all levels as demonstrated by lack of progress on superfund sites and the growing number of orphan sites in Oregon.

Appendix 10

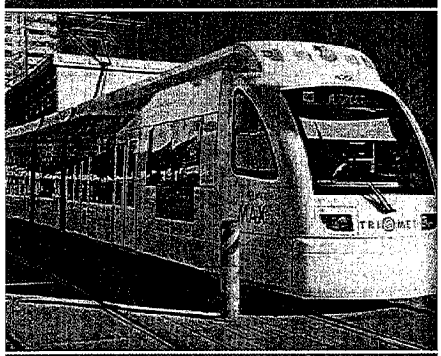
ASCE Infrastructure Report Card Transit research

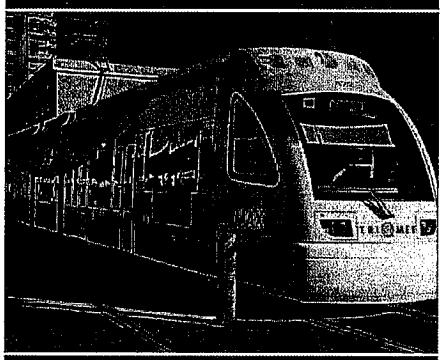
Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
KLAMATH FALLS	X			Bus	Basin Transit Service Transportation District www.basintransit.com/ 541-883-2877
Statistics	System description: 8 vehicles on 5 fixed routes; 5 vehicles on 3 para-transit routes; 1 trolley for historical tour in summer; in 2009, served 406,483 customers over a 37 square mile area. System condition: very good due to outstanding maintenance and early replacement of buses using federal stimulus funds. Capacity for current demand: Adequate. Sufficiency of budget for current operation: Sufficient.				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants				
Expanding?	Growth is forecast at 3% per year.				
Funding for Expansion?	Insufficient due to decline in funding sources.				

Grade: Current – B, Future – C
Source: website; Dan Schwanz, Hood River County Transportation District, via e-mail

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
HOOD RIVER COUNTY	X				Columbia Area Transit http://community.gorge.net/hrctd/ 541-386-4202
Statistics	System description: 9 vehicles; mainly 'dial-a-ride' within the county; 5 day/week service to The Dalles; 1 day/week service to PDX; 31,898 one-way rides in FY 09. System condition: Until recently, a 'D'; now pretty good since obtaining 4 new vehicles with ARRA funding. Capacity for current demand: need more funding to expand service. Sufficiency of budget for current operation: sufficient for vehicle maintenance; uncertain of costs in new maintenance facility.				
Current Funding Sources	Grants, mainly.				
Expanding?	No growth forecast is available.				
Funding for Expansion?	Uncertain since current funding is mainly from grants.				

Grade: Current – B, Future – C
Source: website; Dan Schwanz, Hood River County Transportation District, via e-mail





Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
GRANT COUNTY	X			Bus	Grant County Transportation District 541-575-2370
Statistics	System description: 4 vehicles; one fixed route to Bend 3 days per week; dial-a-ride 4 days per week System condition: Good; two new, two 4-years old Capacity for current demand: OK Sufficiency of budget for current operation: OK, but completely dependent on state and federal grants save for a small user fee.				
Current Funding Sources	User Fees, State Grants, Federal Grants.				
Expanding?	No growth anticipated until economy turns around.				
Funding for Expansion?	Dependent on state and federal grants.				

Grade: Current – B, Future – C
Source: Employee, Grant County Transportation District, via phone

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
EUGENE-SPRINGFIELD	X			Bus	Lane Transit District www.ltd.org/ 541-687-5555
Statistics	System description: 4,000,000 miles driven last year. System condition: Fleet and facilities are in fine shape; 5 new articulated buses are on order; Capacity for current demand: ridership is down 3% this year; system short on operational funds, resulting in a 20% service reduction (after 5 years of increasing service); $6M shortfall now and into the future Sufficiency of budget for current operation: less than adequate considering cuts				
Current Funding Sources	User Fees, Payroll Taxes, Self-employment Taxes, State Grants, Federal Grants				
Expanding?	Long range study of needs is currently underway				
Funding for Expansion?	Dependent on state and federal grants.				

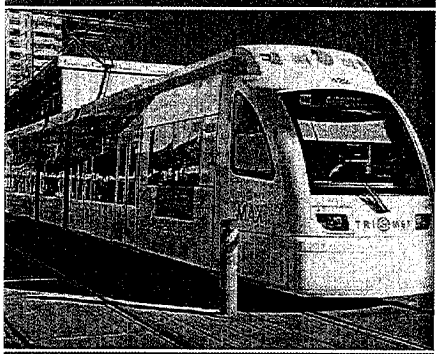
Grade: Current – B, Future – C
Source: website; Andy Vobora, Lane Transit District, via phone

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
LINCOLN COUNTY	X			Bus	Lincoln County Transportation District www.co.lincoln.or.us/transit/index.html 541-265-4900
Statistics	System description: 19 vehicles, most brand new or slightly used, with some older, serving 230,000 riders over a total of 326,000 miles in the last year. System condition: Quite good, thanks to grants. Capacity for current demand: Good. Sufficiency of budget for current operation: Adequate				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants?				
Expanding?	Will need to grow to handle growth associated with NOAA's arrival.				
Funding for Expansion?					

Grade: Current – B, Future – C
Source: website; Employee, Lincoln County Transportation District, via phone

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
ROGUE VALLEY	X			Bus	Rogue Valley Transportation District www.rvtd.org/ 541-779-5821
Statistics	System description: 23 vehicles; 111 miles of route; 1.2 million passengers per year. System condition: 'B' or 'good' for buses, buildings; 'D' or 'inadequate in terms of services to the community. Capacity for current demand: insufficient, due to lack of capacity (85% of seats are full at any given time). Sufficiency of budget for current operation: adequate for maintenance and minor purchases; inadequate for large purchases like vehicles. Sufficiency of budget for current operation: adequate for maintenance and minor purchases; inadequate for large purchases like vehicles.				
Current Funding Sources	User Fees (15%), Property Taxes, State Grants, Federal Grants				
Expanding?	No growth forecast is available.				
Funding for Expansion?	Insufficient.				

Grade: Current – C, Future – D
Source: website; Paige Townsend, Rogue Valley Transportation District, via e-mail



Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
SALEM AREA	X			Bus	Salem-Keizer Transit www.cherriots.org/ 503-588-2424
Statistics	System description: 161,656 fixed-route hours proposed for FY 10-11; over 5 million riders in 2003 System condition: Unknown Sufficiency of budget for current operation: Unknown Connections to Wilsonville				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants				
Expanding?	Yes according to FY 10-11 budget message; Strategic Plan dates to 2004.				
Funding for Expansion?	Uncertain				

Grade: Current – B, Future – B
Source: website

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
SOUTH CLACKAMAS COUNTY	X			Bus	South Clackamas Transportation District www.southclackamastransportation.com 503-632-7000
Statistics	System description: 6 buses; 1 city route and 3 rural deviated fixed routes serving 100 sq mi; no para-transit; System condition: Very good; 2 buses new in 2008; 2 buses new in 2010; 1 on order Capacity for current demand: Adequate Sufficiency of budget for current operation: Yes, thanks to ODOT grants obtained through TriMet.				
Current Funding Sources	User Fees, Payroll Taxes, Self-employment Taxes, State Grants, Federal Grants				
Expanding?	In process of planning and constructing Park & Ride supported by stimulus funding.				
Funding for Expansion?	Uncertain since heavily dependent on grants; office space is needed next.				

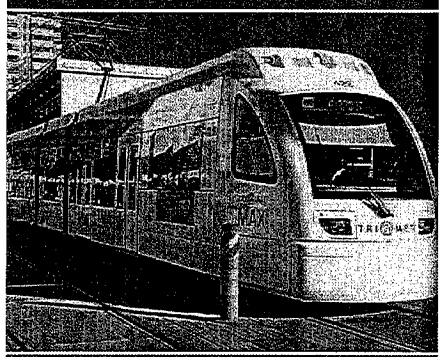
Grade: Current – B, Future – C
Source: website; Manager, South Clackamas Transportation District

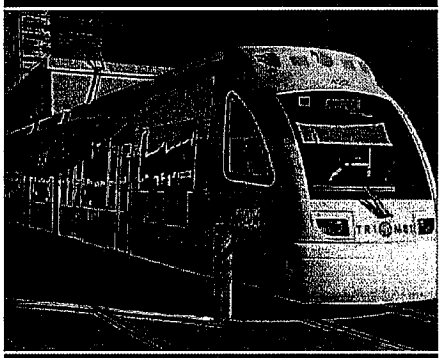
Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
CLATSOP COUNTY	X			Bus	Sunset Empire Transportation District www.ridethebus.org/ 503-861-7433
Statistics	System description: Serves all of Clatsop County providing about 468,000 rides per year on 11 fixed routes with 32 buses, plus dial-a-ride buses. System condition: Excellent. Capacity for current demand: Expansion to later hours daily, plus Sunday service, is needed. Sufficiency of budget for current operation: System has outgrown the current maintenance facility and there is a need to expand. Equipment is adequate, but there is insufficient funding to replace buses at the end of useful life (as determined by FTA standards).				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants				
Expanding?	Ridership is currently increasing an average of 16% per month, requiring mid-sized buses vs. small buses as in the past. Average annual growth has been 20% each year over the past 5 years.				
Funding for Expansion?	Funding is needed for expansion and a serial levy may be sought in the next three years.				

Grade: Current – B, Future – C
Source: website; Cindy Howe, Sunset Empire Transportation District, via phone

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
TILLAMOOK COUNTY	X			Bus	Tillamook County Transportation District www.tillamookbus.com/ 503-815-8283
Statistics	System description: deviated fixed route, dial-a-ride, and Tillamook-Portland System condition: Unknown Capacity for current demand: Unknown Sufficiency of budget for current operation: Unknown				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants, Timber Tax				
Expanding?	Unknown				
Funding for Expansion?	Unknown				

Grade: Current – C, Future – C
Source: website;





Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
PORTLAND METRO AREA	X			Bus	TriMet www.trimet.org/ 503-238-7433
Statistics	System description: As of the end of FY 2010, 615 buses serve 81 routes and seasonal shuttles, including 12 frequent service lines running every 15 minutes or less, seven days per week. MAX, the light rail system, includes 84 stations along 52 miles. WES, the commuter rail system between Wilsonville and Beaverton, operates along 1.47 miles of track and runs at about 30 minute intervals in the morning and evening commuter periods. Passenger boarding totaled 99.4 million in FY 2010. The needs of eligible elderly and disabled individuals are met with 267 lift vehicles, providing door-to-door services. Annually, nearly 11 million rides on fixed route buses and 1.07 million rides on lift buses. System condition: Bus condition: D; Rail condition: A OR B. Capacity for current demand: TriMet is cutting services due to the recession, so capacity has been reduced. Sufficiency of budget for current operation: In sufficient for adequate maintenance and replacement. With new revenues, TriMet hopes to catch up over the next 20 years.				
Current Funding Sources	User Fees (21%), Payroll, Self-employment and Other Taxes (55%), State/Federal Grants, and Other Sources (24%)				
Expanding?	There is a 5-year Transit Investment Plan (TIP) to increase service area and improve existing infrastructure, plus a 20 year forecast.				
Funding for Expansion?	Have authority to increase payroll tax for 10 years, but won't be able to do so until economy recovers.				

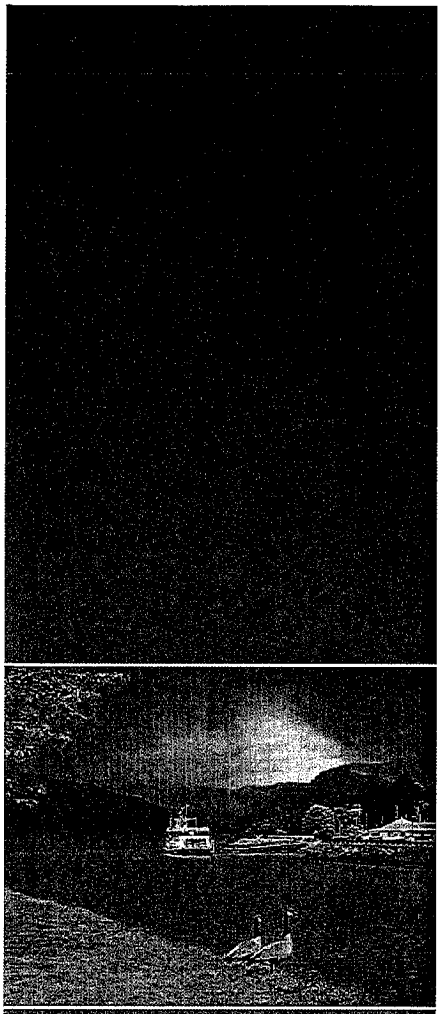
Grade: Current – C, Future – D
Source: website; Eric Hesse, TriMet, via e-mail

Transit Area	Bus Service	Light Rail	Streetcar	Fixed Route Service	Transit Provider
CORVALLIS	X			Bus	Corvallis Transit System
Statistics	System description: deviated fixed route, dial-a-ride, 9 vehicles, connection to Philomath System condition: Good Capacity for current demand: Unknown Sufficiency of budget for current operation: Marginal				
Current Funding Sources	User Fees, Property Taxes, State Grants, Federal Grants, Timber Tax				
Expanding?	Unknown				
Funding for Expansion?	Unknown				

Grade: Current – B , Future – B

Appendix 11: Contacts List

- Aaron Myton, ODOT
- Adele Payden, City of Jordan Valley
- Alex McIntyre, City of Lake Oswego
- Andrew Jansky, PE, Flowing Solutions
- Andy Vobora, Lane County Transit District
- Barry Norris, Oregon Dam Safety Program
- Betsy Imholt, ODOT
- Bill Morgan, Lane County
- Bob Eaton, Multnomah Drainage District
- Bob Rich, Shaver Transportation
- Cam Gilmour, Clackamas County
- Charles Maggio, Multnomah County
- Christopher Godell, PE. D.WRE, WEST Consultants
- Cindy Howe, Sunset Empire Transportation District
- Claudia Harris, City of Tualatin
- Cory Crebbin, City of Medford
- Craig Sheldon, City of Sherwood
- Dan Brown, City of Woodburn
- Dan Crumley, Curry County
- Dan Schwartz, Hood River County Transportation District
- Dan Shepherd, Grants Pass Irrigation District
- Daniel Boss, City of Tualatin,
- Darren Hippenstiel PE, CH2MHill
- Darrin Griffin, Port of Portland
- Dave Green, CH2MHill
- Dave Holland, Grant County
- Dave Leland, Oregon Department of Human Services, Drinking Water Program
- Dave Ringeisen, ODOT
- Dave Rouse, City of Gresham
- David Cullens, City of Burns
- Dean Guess, Hood River County
- Dean Stephens, Benton County
- Denis Maudree, ODOT
- Dennis Wright, City of West Linn
- Diane Gissel, Clackamas County
- Doug Hedlund, Oregon Department of Aviation
- Doug Tindal, PE, ODOT
- Dulcy Mahar, Bonneville Power Adminsitration
- Ed Butts, 4B Engineering
- Ed Wegner, Clatsop County
- Elizabeth Hunt, PE, ODOT
- Eric Burnett, Port of Portland
- Eric Hesse, TriMet
- Frank Sherkow, PE, Oregon State University
- Fred Braun, City of Dallas
- Gene Green, City of West Linn
- Gene Tupper, PE GE, Geotechnical Resources Inc.
- Glenn Venselow, Pacific Northwest Waterways Association
- Greg Miller, Washington County
- Greg Weston, PE, David Evans and Associates
- Hal Phillips, Umatilla County
- Ian Cannon, Multnomah County
- Irina Leschuck, D&L Engineering
- Janet Gillespie, Oregon Association of Clean Water Agencies
- Jeff Leighton, City of Portland Water Bureau
- Jeff Olson, Quincy Engineering
- Jennifer Kimble, ODOT
- Jim Hossley, City of Coos Bay
- Jim Mitchell, City of Corvallis
- Jimmy Whynot, City of West Linn



- Joe Rutledge, Tualatin Valley Irrigation District
- Joel Conder, Marion County
- Joel Komarek, City of Lake Oswego
- John Bushard, City of Troutdale
- John Higgins, City of Coquille
- Karen Westphalen PE, Ukiah Engineering
- Kathy Farnsworth, Quincy Engineering
- Kathy Nelson, PE, ODOT
- Ken Helgerson, Baker County
- Kerry Landers, Harney County
- Kevin Mulcaster, Mead and Hunt
- Kevin Thelin, PE, Murray Smith and Associates
- Ki Bealy, Mead and Hunt
- Kurt Corey, City of Eugene
- Leslie Bahls, Pacific Corps
- Liane Welch PE, Tillamook County Public Works
- Maggie Langlas, United States Department of the Interior, Bureau of Land Management
- Mark Coles, Sherman County
- Mark Hensley, Grant County
- Mark Johnson, Lane Transit District
- Mark Willrett, City of Klamath Falls
- Martha Richmond, Port of Portland
- Marty Matherly, Wasco County
- Matt Mumford, Tillamook County Transit District
- Melissa High, Special Districts Association of Oregon
- Michael McKillip, City of Tualatin
- Michael Monical, Monical Engineering
- Michael Ward, ODOT, Public Transit Division
- Michelle Owen, City of Baker City
- Mike Cardwell, City of West Linn
- Mike Hansen, Salem Keizer Transit
- Mike McElwee, Port of Hood River
- Mike Miller, City of Florence
- Mitch Swecker, Oregon Department of Aviation
- Mitzi Brown, Lincoln County Public Works
- Nadine Hurtado, ODFW, Fish Division
- Nancy Kraushaar, City of Oregon City
- Nicole Messenger, City of Roseburg
- Paige Townsend, Rogue Valley Transportation District
- Pat Napolitano, City of Hermiston
- Pat Ryan, Washington County
- Paul Capell, David Evans and Associates.
- Rich Arnold, ODOT
- Rich Barstad, City of Silverton
- Rick Waters, Oregon Department of Environmental Quality
- Rob Kissler, City of Keizer
- Robin McArtur, METRO
- Roger Irvin, Benton County
- Ron Ash, Clatsop County
- Ron Higbee, URS
- Ron Sivey, City of Hermiston
- Sam Foxworthy, City of West Linn
- Scott Huff, Portland Community College
- Scott McMahon P.E., Berger ABAM
- Sissy Martin, United States Department of Agriculture, US Forest Service
- Stephonee Freeman, Lane County
- Steve Leep, ODOT
- Steve Rogers, City of Corvallis
- Steve Schreiber, Port of Portland
- Sugie Joseph, Port of Portland
- Tim Shell, PE,SE, kpff
- Tony Fields, Oregon Department of Human Services, Drinking Water Program
- Walt Bartel, PE, David Evans and Assoc.

End Notes

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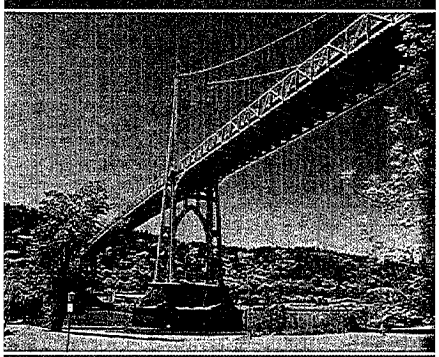

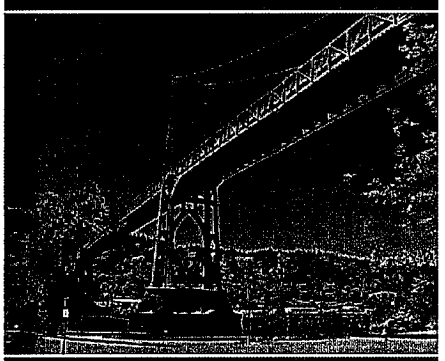

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