METRO

# Regional Infrastructure Analysis

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# The challenge:

- One million more people in 30 years in our 7-county region
- Where will these people live?
- How will we provide the needed new infrastructure and maintain what already exists?
- Closing the funding gap

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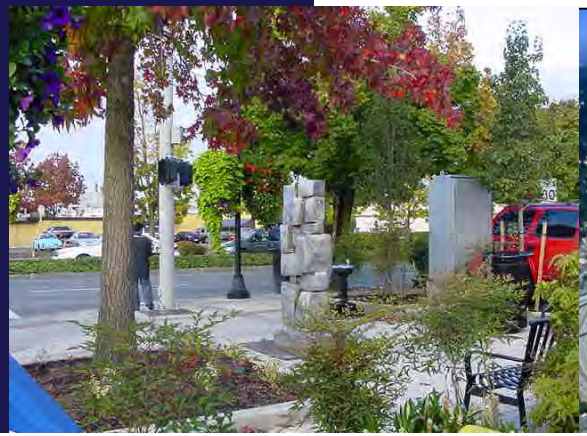
## Not just a local problem

- U.S. population to increase 33% by 2035
- Federal share of infrastructure investment has been declining since 1975
- Scarcity of, and competition for, resources
- Changing climate & increasing fuel costs
- We need to make decisions differently than we have in the past



## Our region

- Most of the growth we are expecting will occur in existing communities
- Over the past ten years we have learned how difficult it is to expand services to urbanizing areas
- The types of investments we make will shape our communities
- The challenge is to invest wisely and enhance our communities

# Infrastructure Needs

- Vibrant communities require a range of infrastructure types
- We set out to learn more about the infrastructure challenges for:
  - **Pipes, pavement and wires:** transportation, transit, sewer, water, stormwater, and energy
  - **Spaces and structures:** urban parks and greenspaces, parking, schools, civic buildings and facilities (including police and fire stations, libraries)

**What have we learned so far?**

## Transportation

- 75% of annual budgets spent on maintenance, preservation and operation of **existing** infrastructure
- Biggest infrastructure needs are for transportation, RTP shows gap of over $7 billion

## Sanitary sewer

- No reliable funding streams for construction and maintenance
- Up-front capital is needed in the urbanizing areas
- Reuse of water is the future – membrane technologies
- Clackamas County has immediate needs to address Kellogg Treatment Plant and Damascus
  - $1 billion vs. $580 million
- Changing regulatory framework will increase costs for sanitary sewer, stormwater and water provision

## Water

- Conservation efforts have reduced per capita demand
- More compact development uses less water
- However, demand is still expected to increase beyond existing supply
- Enough water – but source development and transmission to user will be the challenges
- Institutional challenges – numerous water providers

## Energy

- Technological advances will change our energy infrastructure needs and supply options
- Demand management will save money
- Coordination with other service providers can increase efficiencies and result in savings
- If nothing changes, projections indicate two to three new 400 MW power plants needed

## Parks and open spaces

- As we urbanize, park land becomes more valuable in our communities
- May need over 5,000 acres of new urban parks and over 8,000 acres of open space
- Opportunities for co-locating parks with other facilities

## Schools

- More children = more demand for school capacity
- 80-225 new schools by 2035
- Some existing schools will be closed
- Land is expensive, competition with other uses is increasing
- Quality of schools affects the value of land
- Can we be creative about building design, reuse of facilities, and collaboration to meet this need?

# Civic buildings and urban amenities

- Civic buildings can serve as community focal points and gathering places
- Challenging to fund, not typically paid for by utility rates
- Urban amenities such as plazas and streetscapes are critical to support redevelopment, yet funds are scarce

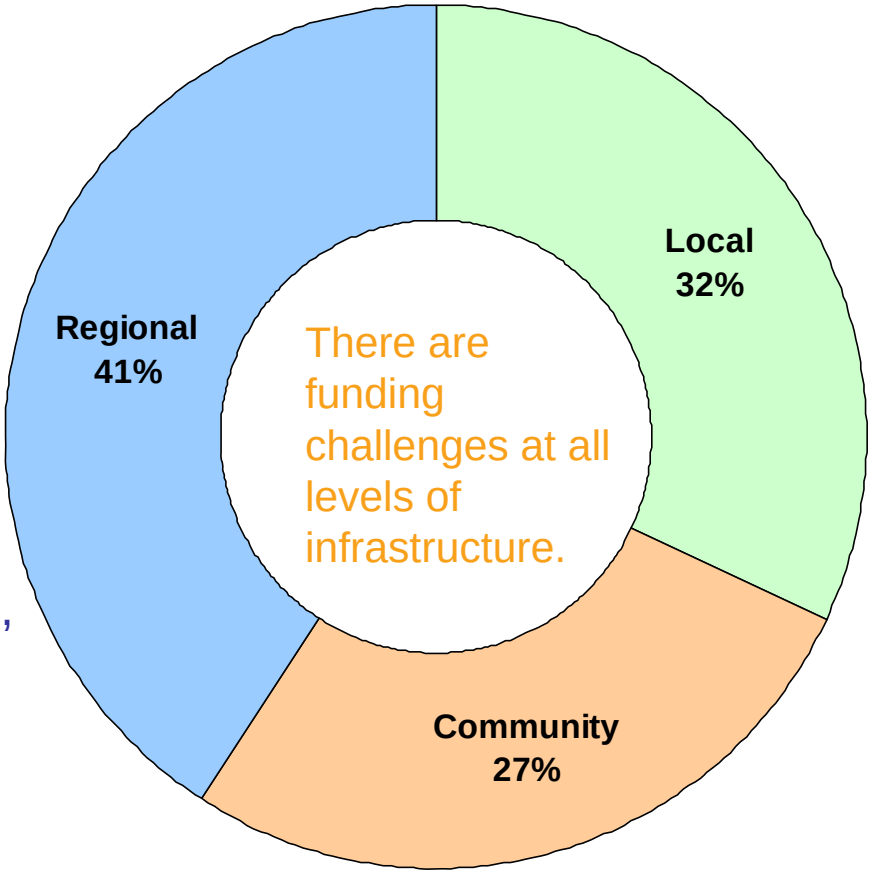
# Infrastructure costs and funding

- What is a good estimate of the costs to upgrade existing, and provide new, infrastructure to support vibrant communities?

# Infrastructure Costs and Funding

## Three levels of infrastructure

- Local (water, sewer, storm drains, local transportation and parks)
- Community (water and sewer transmission and treatment, collector/arterial transportation, safety, parks and schools)
- Regional (transit, bridges, state/interstate transport, marine, air, rail)




Capital costs to 2035: about $41 billion or $40K per person

# Funding/financing gap: at least 50%

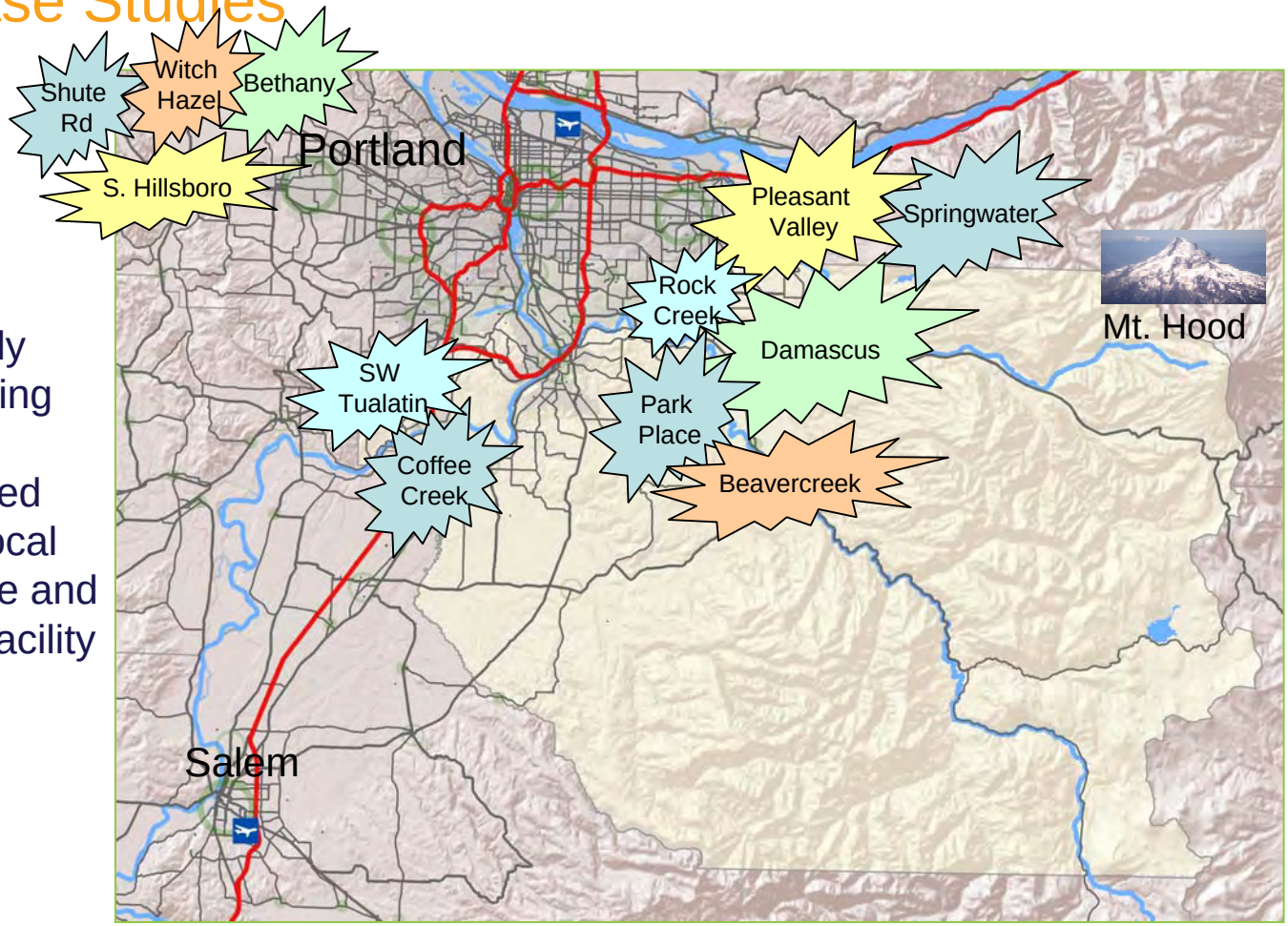
- At least a $7 billion gap for transportation
- New capacity improvements for water and sewer have been funded with user fees and state loans and grants
  - Up-front capital is a major problem for urbanizing areas
  - Equity issue – how costs are distributed to accommodate regional growth
- Funding for transit, parks, schools and urban amenities is lacking, dependent on voter approval
- Challenges for both rate-based and non-rate paying infrastructure provision
- Trend: shifting burden to local governments as state and federal money declines

How can we invest in infrastructure to get the greatest return?

# Comparative Costs

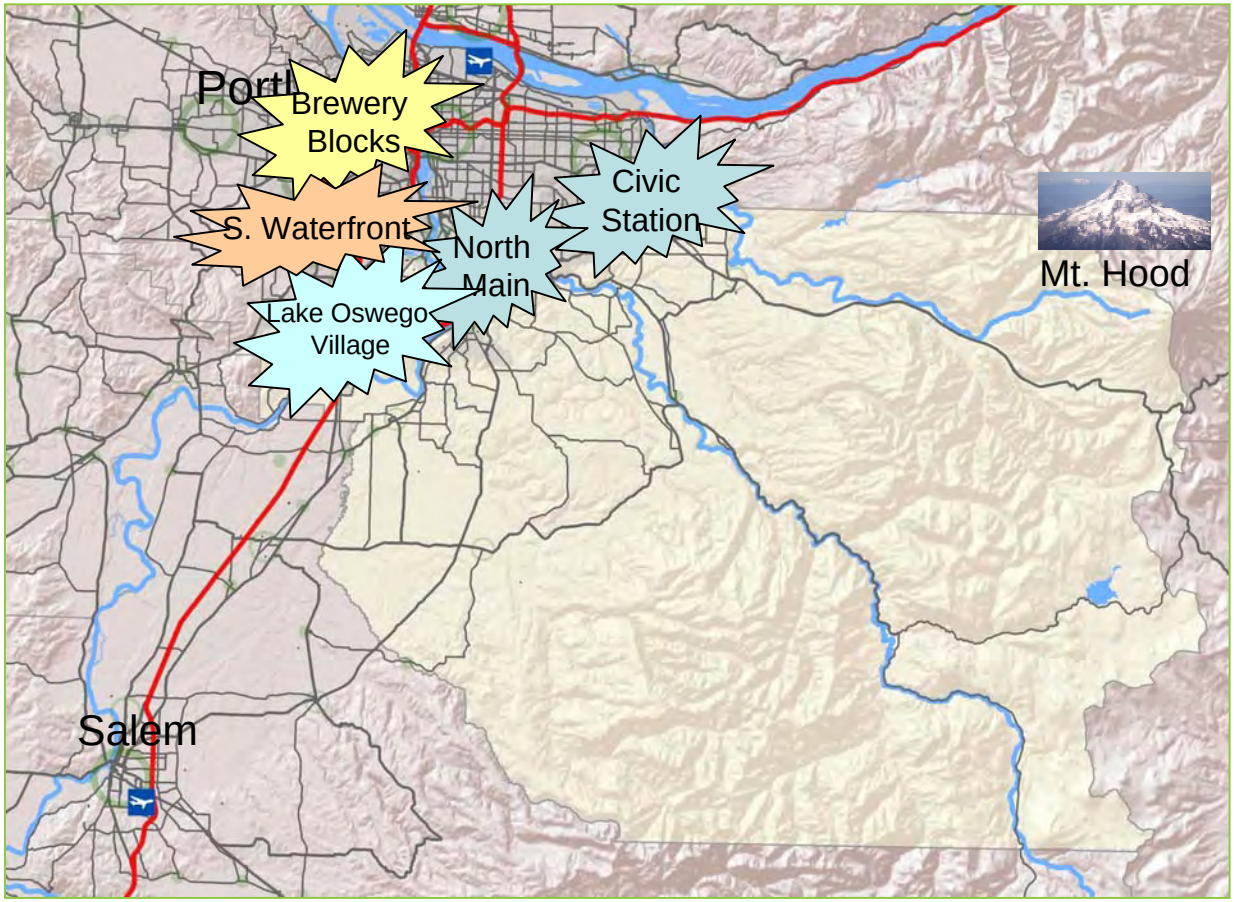
## Case Studies

12 newly urbanizing areas evaluated using local land use and public facility plans.



## Case Studies

Five urban areas evaluated using locally adopted land use and public facility plans or completed projects.



# Analyzing infrastructure costs

## Equivalent Dwelling Unit (EDU)

One EDU

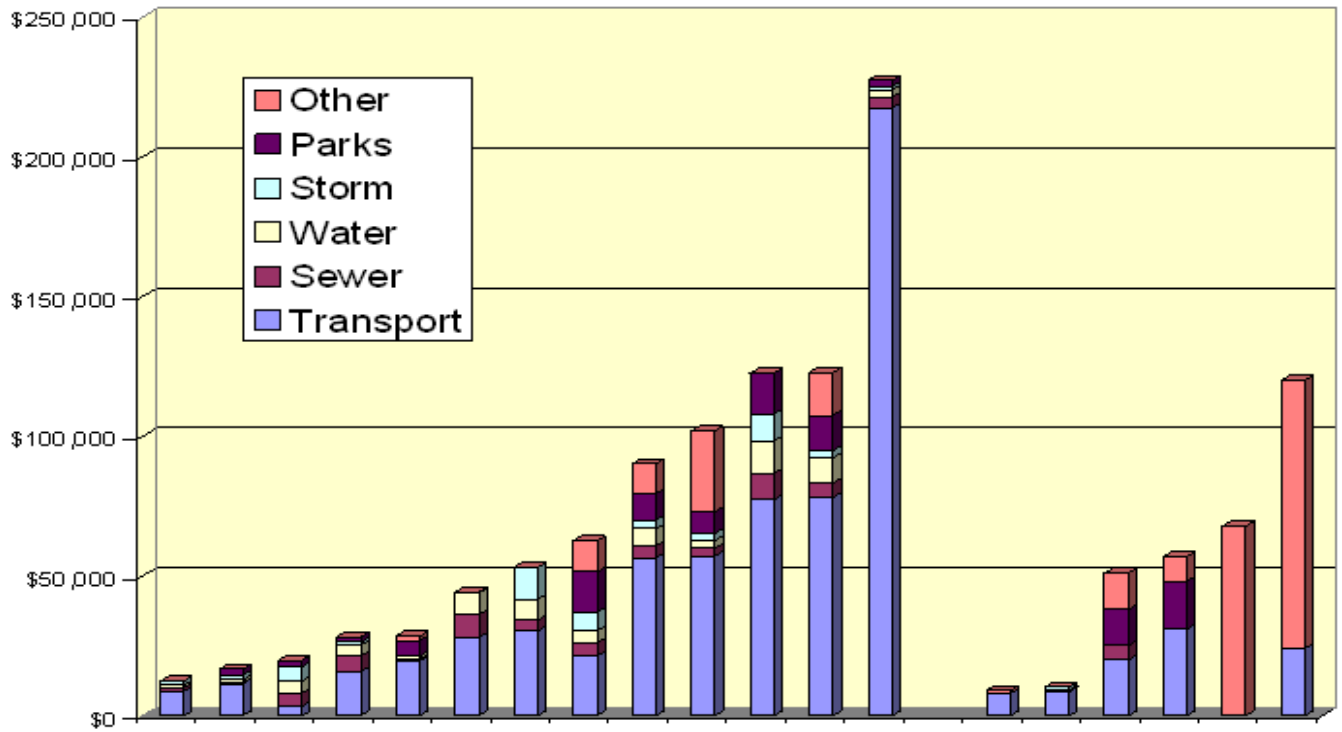
= one household
(2.5 residents)

= five jobs

One household has about the same amount of infrastructure demand as 5 jobs.

# Comparative Costs

## Local/Community Infrastructure Cost Per EDU




Newly urbanizing areas

Urban areas

## Newly urbanizing and urban area costs

- Average capital cost per EDU
  - Urbanizing areas: $90K
  - Urban redevelopment areas: $51K
- Urban redevelopment areas are more expensive per acre, but more dense
- Wide variation from project to project
  - Some urbanizing locations are less expensive
  - High public costs are acceptable in some urban locations, less so in others
- Regional costs are not included
  - VMT is higher in areas that are less dense and farther from jobs

## Conditions that impact infrastructure cost

- Topography
- Proximity to existing facilities
- Density of development
- Urban amenities
- Major upgrades
- Mix of land uses

## Who pays and when

- Urban development has a lower marginal cost until system capacity is reached and the system has to be upgraded
- Urbanizing areas need up-front capital to get basic services

## Timing of costs

- Some facilities can be phased in as needed
- Public spaces and structures need to be put in place up-front to create vibrant communities
- Redevelopment is expensive when infrastructure must be replaced – but upgrades will be necessary regardless of new growth due to facility life-cycle costs

# What is our capacity to meet our needs?

- Gap between needs and funding (locally and regionally)
- Existing funding sources have not been sufficient in urban or urbanizing areas to get the right infrastructure in place at the right time

# What can we do?

- There are opportunities to change how we prioritize our investments and fund infrastructure
  - Support investment
  - Efficiency
  - Innovation – planning and design
  - Demand management and peak shaving
  - Partnerships and collaboration – only by working together can we hope to achieve success
  - Leadership (Are you ready?)