

# **PORTLAND PLAN**

## **Comprehensive Plan Evaluation**

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*An introductory research paper to assist in the Portland Plan Work Program development*

### ***INFRASTRUCTURE Technical Working Group***

**> DRAFT REPORT <**

March 25, 2008



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# Table of Contents

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<b>Introduction</b> .....	<b>1</b>
<b>The Citywide Systems Plan</b> .....	<b>3</b>
<b>Key Trends and Issues</b> .....	<b>3</b>
Climate Change and Energy .....	3
Population Shifts.....	8
Regional Growth.....	9
Growing Diversity .....	9
World Economy .....	10
Growing Equity Gap .....	11
Rising Infrastructure Deficit.....	12
<b>Infrastructure Systems</b> .....	<b>13</b>
Other Service Providers .....	13
Resolution A—the Multnomah County Connection.....	14
Key Infrastructure Challenges and Opportunities.....	14
Transportation.....	15
Environmental Services – Sewer and Stormwater .....	17
Parks.....	19
Water.....	20
Civic Facilities.....	22
Affordable Housing.....	23
<b>The Policy Framework</b> .....	<b>25</b>
State Planning Requirements.....	25
Regional Plans and Requirements .....	25
Portland’s Comprehensive Plan .....	26
Public Facilities Plan .....	26
Why Update? .....	27
Policy Gaps.....	27
Existing Policies.....	28
Other Plans and Policies .....	32



## Introduction

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Portland has a long and successful tradition of shaping its future through thoughtful planning. Much of what the community values about Portland is, at least in part, the legacy of the 1972 Downtown Plan, the 1980 Comprehensive Plan and the 1988 Central City Plan. However, these plans, which were intended to guide the city's growth over a 20-year period, are largely outdated. They no longer adequately prepare the community for the challenges and opportunities that lie ahead or provide guidance regarding how and where to make the next round of major investments in infrastructure and programs.

On November 13, 2007, the City received a letter from the state Department of Land Conservation and Development (DLCD) directing Portland to undertake Periodic Review of its Comprehensive Plan. The DLCD letter calls on Portland to evaluate the comprehensive plan provisions on economic development, housing, public facilities, transportation and urbanization to determine whether they are consistent with state law. The City will also evaluate supporting documents (e.g., forecasts, inventories, analyses and facilities plans) and implementing regulations (e.g., zoning). If the plan, supporting information or regulations are deficient, the City must prepare a Work Program to bring them into compliance with state law, and include a public outreach strategy that effectively involves the community in the planning effort.

Merely updating the comprehensive plan per state law will not provide the City with the coordinated, comprehensive guidance document needed to prepare for the opportunities and challenges that the community will likely face (e.g., global warming, a changing economy and projected population and job growth) or achieve the community's aspirations for the future.

Consequently, the City has launched a planning process to prepare a new over-arching plan for the City of Portland, the "Portland Plan." The Portland Plan will satisfy the state's Periodic Review requirements and address other issues and opportunities to prudently guide the City's physical, economic, social, and cultural development in a manner that meets community needs and aspirations.

To evaluate the current Comprehensive Plan and scope the Portland Plan, the City formed six Technical Working Groups (TWGs) to address the following topics: Economic Development, Environment, Housing, Infrastructure, Sustainability and Urban Form. Each topic had its own approach. Some existing committees, such as the Citywide Asset Managers Group that prepares the annual City Asset Report, were tapped to participate on the TWG. The groups began meeting in October 2007 and completed their discussions in February 2008. The number of meetings varied widely by topics. Generally, groups met at least monthly.

The TWGs were composed of staff from the Planning, Environmental Services, Housing and Community Development, Office of Sustainable Development and Transportation bureaus. In addition, staff from Parks and Recreation, Building and Development Services, Management and Finance, Water Bureau, Portland Development Commission, Port of Portland and the Housing Authority participated.

A transportation expert served on several TWGs because transportation concerns are woven into all the other topics. Transportation is also specifically addressed in the Comprehensive Plan Evaluation Report. This separate report summarizes the individual TWG reports.

Additional input was also considered from the Portland-Multnomah Food Policy Council, community health advocates, Portland Peak Oil Task Force, ReCode Portland, a project facilitated through Tryon Life Community Farm to promote regulations that support grassroots sustainability, and visionPDX. This input loop will be continued in future community meetings and at public hearings before the Planning Commission and City Council.

The TWGs were asked to examine at the Comprehensive Plan, other plans and regulations to help define the initial focus issues and identify the known goals, policies, needs, challenges and opportunities that the Portland Plan should address. Specifically, the TWGs were asked to do the following:

1. Summarize and assess the existing policy frameworks, including the Comprehensive Plan, 1988 Central City Plan, and other current policy statements to identify the following:
  - a. Which policies remain relevant,
  - b. Which do not, and
  - c. What is missing.
2. Prepare draft assessments of conditions and trends that they believe are most relevant and critical to understanding the issues to be addressed by the Portland Plan.
3. Identify additional research or analysis that should be undertaken to develop the policies for the Portland Plan and the Central Portland Plan.
4. Suggest particular planning projects for the Work Program, the complete list of planning projects/tasks that will need to be done, and set forward any specific staff or resources needed to accomplish those projects.

Some groups also responded to a draft "Suggested Approach" to the Portland Plan process that offered "5 Framing Ideas" that represent the big issues facing the community including: (1) Global Climate Change, (2) World Economy, (3) Affordable Living, (4) Investment in Green Infrastructure and (5) Character of Place. Over time, these five ideas evolved and included other ideas. Each TWG considered the ideas that seemed most relevant to their topic.

As the TWGs held discussions on the topics listed above, they were asked to always consider the community values expressed in visionPDX: community connectedness and distinctiveness; equity and accessibility; sustainability, accountability and leadership; inclusion and diversity; innovation and creativity; and safety.

This report is the TWG's summary of their group discussions. It is intended to help to start a citywide conversation on the issues, challenges and opportunities. It is hoped that individuals and groups will add to the conversation started by these reports.

It provides an overview of some key infrastructure issues in need of additional study but is not intended to detail the full array of infrastructure issues faced by the City of Portland. The Portland Plan, and the Citywide Systems Plan specifically, will depend on and refer to the multitude of research and planning completed by the City's infrastructure bureaus.

The Citywide Systems Team, with seven City bureaus, served as the Infrastructure working group. It prepared this report, with guidance from the Bureau of Planning.



## The Citywide Systems Plan

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The Citywide Systems Plan, an element of the Portland Plan, will be a coordinated 20-year plan for the City of Portland's municipal infrastructure systems, including transportation, water, stormwater, sewer, parks, and publicly owned and/or financed buildings and facilities. The CSP will attempt to go beyond the state planning requirements to incorporate a more coordinated and comprehensive look at the City's infrastructure based on community values and best practices. The plan will update the 1989 Public Facilities Plan and will serve as a long-range, coordinated plan to guide future public infrastructure investments.

The State of Oregon's Growth Management Act requires cities and counties to complete public facilities plans for infrastructure needed to support designated land uses. To meet this mandate, the Citywide Systems Plan will include:

1. An inventory and general assessment of the condition of significant public facility systems;
2. Current service, condition, and capacity deficiencies in major infrastructure systems, based on applicable standards.
3. Lists and maps of significant public facility projects,
4. Estimates of when and where each project will be needed, and rough cost estimates for each project.
5. An assessment of the financial capacity of the City to complete needed infrastructure improvements and a discussion of existing and potential funding mechanisms. '

The Department of Land Conservation and Development evaluates public facilities plans for inclusion of required elements; whether the plan contains all agreements (urban growth management, any special districts, or state agency coordination); and whether the public facilities plan is consistent with the acknowledged comprehensive plan, the Metro Functional Plan, and statewide planning goals.

In addition to meeting state requirements, the Citywide Systems Plan is also designed to respond to regional planning frameworks, community needs, desired urban form, economic development goals, and financial and resource realities.

## Key Trends and Issues

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This section provides a high level discussion of some of the major trends that will impact the City of Portland and its infrastructure systems over the next twenty years. The discussion is intended to provide limited background information to help begin conversations around infrastructure services and priorities.

### ***Climate Change and Energy***

The City's infrastructure decisions can help lessen the impacts of global warming and peak oil while preserving natural resources, growing the economy, and improving the quality of life for Portland's residents. The potential short and long-term impacts of global warming and peak oil necessitate a continued and dramatic shift away from oil and natural gas based products. This shift will allow Portland to do its part in reducing green house gas levels and global climate change, while preparing the City to absorb future oil shortages and price increases. Improvements to transportation systems, green infrastructure, and energy

efficiency offer many potential strategies for limiting reliance on oil, reducing greenhouse gas emissions and adapting to climate changes. As the city grows and the challenges of climate change and peak oil become more evident, how the City deals with these challenges will have a key impact on economic development, affordability, environmental health, and quality of life in Portland.

## **Global Climate Change**

*Global climate change will impact Portland and the surrounding region.* Increasing emissions of greenhouse gases, primarily from the burning and use of oil, natural gas, and coal, are affecting climate throughout the world and in the Pacific Northwest. Over the next few decades, Portland will likely see impacts of climate changes, ranging from warmer temperatures to increased weather variation and changes in plant diversity. While these changes could significantly impact quality of life in the Portland area, Portlanders also have the ability to reduce these impacts by lowering greenhouse gas emissions and adapting to inevitable changes. The next twenty years, the timeframe of the Citywide Systems Plan, represent a key period in the future of global climate health – during this time the world will begin to experience a greater degree of environmental impacts, but this window may also be our most promising opportunity to change the climate trajectory.

The following discussion identifies possible impacts of climate change on the City's infrastructure.

**Water and Stormwater:** In the Pacific Northwest, global warming will likely mean warmer average temperatures, wetter winters with more rain and less snow, and drier, hotter summers. This will result in higher winter runoff and less rain in the summer.<sup>1</sup> Scientists also predict that rain events will become more variable, possibly producing greater amounts of rain in any given storm. These changes could impact the City's water, stormwater, and combined sewer systems.

Reduced summer rainfall and lower snow pack levels may mean that less water is available for human, agricultural and wildlife needs, particularly during summer months.<sup>2</sup> Water may become less reliable and quality may decline as temperatures rise and stream and reservoir levels decline. In addition, total water needs may increase as temperatures rise, resulting in a need to tap groundwater sources for longer periods during the summer. These shifts suggest the need for additional summer peak season water conservation strategies, continued monitoring of the intensity of rainfall events and their impacts on Bull Run water quality, as well as careful management of the City's two water systems to meet future needs.

Shifts in rain and snow patterns could also stress the City's stormwater systems. Higher winter precipitation, stronger storms, and higher temperatures will mean more rainfall in Portland's watersheds, particularly during winter months.<sup>3</sup> The City's current stormwater system is insufficient to handle many of today's storms, resulting in combined sewer overflows into the Willamette River and flooding in some areas of the city. The City is currently working to improve stormwater infrastructure to prevent these problems, through projects like the Big Pipe and Green Streets, but climate change will place additional stress on stormwater systems.

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<sup>1</sup> Mote, Phillip et al. "Preparing for Climate Change: The Water, Salmon, and Forests of the Pacific Northwest." *Climatic Change*, Springer. Vol. 61: No 1-2, pp 45-88. November 2003.

<sup>2</sup> City of Portland and Multnomah County. *Local Action Plan on Global Warming*. April 2001.

<sup>3</sup> City of Portland and Multnomah County, 2001.

Rainfall also brings additional landslide risks, as strong and persistent storms weaken slopes and soil. Landslides represent a risk to residents, businesses, natural environments and the City's infrastructure systems.

**Forests and Natural Ecosystems:** Shifts in temperature and precipitation could also stress forests and natural ecosystems in the Portland area. With warmer temperatures and longer periods without rain, Portland's natural areas could see a die off of some plant and animal species unable to survive in warmer, drier conditions, while species more suited to a changing climate, including some invasive species, could become more prolific. As stream levels decline in summer months and temperatures rise, certain species, like salmon, may not be able to survive. Not only will climate change favor certain plant and animal species over others, it may also bring changes in disease and pest patterns, further stressing native species. Warmer, drier summers may also bring increased risk of significant forest fires in Portland's parks and natural areas, posing risk to the environment and nearby residents.

**Transportation:** Shifting transportation patterns is one significant way to reduce the City's greenhouse gas emissions. Transportation is the primary source of CO<sub>2</sub> from fossil fuels in the Northwest, amounting to 53 percent of total emissions.<sup>4</sup> Traditional transportation systems, centered on gasoline vehicles as the primary transportation mode, do little to curb these emissions. According to a recent study, adding just one mile of new highway lane can increase carbon dioxide emissions by more than 100,000 tons over 50 years.<sup>5</sup> Portland's has made large investments in alternative transportation, including walking, biking, and transit, which has translated into great gains in the use of these more climate-friendly modes. In fact, the City has seen a 90 percent increase in transit usage and a 410 percent increase in central city biking since the early 1990s.<sup>6</sup> However, non-auto trips represent a fraction, less than 18 percent, of commute travel in Portland.<sup>7</sup> While this level of alternative commuting is significant, particularly compared to levels in other U.S. cities, there is room for improvement. Continuing to invest in alternative transportation networks; limiting road capacity increases; creating disincentives to driving; and encouraging land use that allows people to live close enough to work, school, and services to be able to walk, bike or take transit can significantly reduce Portland's contribution to climate change.

**Energy Efficiency:** Energy production is one of the largest sources of greenhouse gas emissions, amounting to 17 percent of total emissions from fossil fuels in the Northwest.<sup>8</sup> Reducing the City's demand for energy would reduce greenhouse gas emissions. Although most of the power produced in the Pacific Northwest is from cleaner hydro- and wind power, the nation's energy system is based on regional and national grids. Energy consumed in Portland may actually be generated by coal or natural gas burning plants, which emit large amounts of greenhouse gases, in other parts of the country.<sup>9</sup> By installing alternative energy systems locally, to directly power infrastructure facilities, and by reducing the

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<sup>4</sup> Sightline Institute. "CO<sub>2</sub> Emissions from Fossil Fuels by Sector." 2007. Online. <http://www.sightline.org/maps/charts/Climate-EmBySector>

<sup>5</sup> Williams-Derry, Clark. "Increases in Greenhouse-gas Emissions from Highway Widening Projects." 2007. Sightline Institute. [http://www.sightline.org/research/energy/res\\_pubs/analysis-ghg-roads](http://www.sightline.org/research/energy/res_pubs/analysis-ghg-roads)

<sup>6</sup> Van Fleet, Toby. "County's Emissions Almost at '90 Levels." *The Portland Tribune*, November 2, 2007.

<sup>7</sup> City of Portland. *Service Efforts and Accomplishments: 2005-2006*. December 2006.

<sup>8</sup> Sightline Institute. "CO<sub>2</sub> Emissions from Fossil Fuels by Sector." 2007. Online. <http://www.sightline.org/maps/charts/Climate-EmBySector>

<sup>9</sup> Perin, Christopher. et al. *Generating Electric Power in the Pacific Northwest: Implications of Alternative Technologies*. Santa Monica, CA: Rand Science and Technology, 2002.

energy demands of building, operating, and maintaining infrastructure systems, the City can reduce overall energy needs and greenhouse gas emissions.

**Green Infrastructure:** The environmental challenges of global climate change may stress the City's ability to provide traditional infrastructure services while maintaining environmental and community health. Green infrastructure, which uses natural processes, systems, or features to provide traditional infrastructure services, offers an opportunity to protect environmental quality, reduce long-term costs, improve services provision, and advance sustainability. Municipal green infrastructure is being recognized by cities across the country for its role in protecting both environmental and community health and for providing infrastructure services. There are two types of green infrastructure:

- 1) Natural networks of streams, rivers, and open spaces that naturally manage stormwater, provide habitat, improve air and water quality, reduce flooding risk, and provide areas for human recreation and respite and
- 2) Engineered facilities, such as green street treatments or eco-roofs, which use natural processes in an infrastructure setting.

The City of Portland currently employs and benefits from both natural and engineered green infrastructure. In practice, green infrastructure allows rainfall to infiltrate into the ground, keeping polluted stormwater out of rivers and streams and helping ensure adequate groundwater recharge – essential for the health of our rivers. The trees and other vegetation common to green infrastructure facilities and systems can help absorb CO<sub>2</sub> and reduce certain types of air pollution; reduce ambient temperature, which can lower energy needs to cool buildings and water needed to irrigate plants; and offer habitat to wildlife. Green infrastructure is often a more cost effective long-term solution to additional infrastructure needs, as the benefits of improvements like trees, natural areas, and rain gardens increase over time. Finally, green infrastructure can help make a traditionally 'invisible' stormwater system more visible by bringing stormwater management to ground level, encouraging people to consider stormwater issues and enhancing character of place.

**Further Questions:** More research is needed to paint a clearer picture of the impacts of climate change on Portland's infrastructure systems and services. The following questions should be considered further in the Portland Plan process:

1. How will short term (less than 20 years) climate changes impact water availability and to what extent are current water systems able to adapt to these changes?
2. How will changes in precipitation patterns impact stormwater management needs? Are current systems capable of handling increased loads? What is the potential of green infrastructure to mitigate additional capacity needs?
3. What innovative funding strategies are available to support infrastructure services if conservation causes a further reduction in gas tax and water/sewer rate revenues?
4. What opportunities exist to employ green infrastructure to address stormwater needs?

## **Peak Oil**

*Higher oil and natural gas prices are likely here to stay. As oil and natural gas supply decline and are no longer able to meet world demands, prices for oil, gas, and many products and services will rise. " In the past few years, powerful evidence has emerged that ... suggests that global production of both oil and natural gas is likely to reach its historic*

peak soon. This phenomenon is referred to as 'peak oil'.<sup>10</sup> Based on the findings of the Portland Peak Oil Task Force, a citizen group formed in 2006 to examine the potential economic and social consequences of peak oil, the primary impacts will be changes in transportation demand, increased energy and material costs, and shifts in growth patterns. Much of the discussion below focuses on the impacts outlined in the task force's final report, entitled "Descending the Oil Peak: Navigating the Transition for Oil and Natural Gas".

**Transportation and Land Use:** Since transportation accounts for about 85 percent of all petroleum use, the impacts of peak oil on the transportation system could be deep and far-reaching.<sup>11</sup> Increased oil and petroleum costs will heighten pressure to switch to less fuel-intensive forms of transportation, including walking, biking, transit, and highly efficient vehicles. This will lead to a reduced demand for road capacity and parking and pressure to complete pedestrian, bike, and transit networks. Shifts in transportation preferences may also impact where people chose to live – as the cost of driving increases, people will likely move closer to centers and transit routes, resulting in opportunities for infrastructure efficiencies. Reducing vehicle use also represents large economic savings for residents and the city as a whole. Portland area residents currently drive about 20 percent fewer miles per day, on average, than most people living in U.S. cities. As a result, they spend less on cars and gasoline, saving \$2.6 billion a year, approximately three percent of the regions annual economic output.<sup>12</sup>

**Freight Movement:** With rising oil costs, it will become not only more expensive to move people but also to move goods and food. Freight networks, currently heavily dependent on truck and rail travel, may shift to more fuel-efficient rail and cargo ship. With these shifts, Portland will likely benefit from its location as a major west-coast port near major rail lines, increasing the need for multimodal transportation connections.

**City Operations:** The construction, operation, and maintenance of the City's infrastructure systems rely heavily on oil and petroleum-based products – gas to run vehicles and machinery; natural gas for heat and electricity; and many petroleum-based materials, including asphalt, plastics, solvents, and polyvinyl chloride (PVC). As costs for these materials rise, in response to increasing oil and petroleum prices, the overall cost to construct and maintain the City's infrastructure will rise as well. This increased cost could require the City to explore alternatives, reduce services, or pass the increased costs of doing business onto residents.

As people reduce vehicle trips and fuel use, in response to rising gas prices, gas tax and parking revenues will decline. This revenue reduction, coupled with rising costs, may stress the City's ability to maintain streets and transportation infrastructure.

**Further Questions:** More research is needed to quantify the potential impacts of peak oil on Portland's infrastructure systems and services. The following questions should be considered further in the Portland Plan process:

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<sup>10</sup> City of Portland Peak Oil Task Force. *Descending the Oil Peak: Navigating the Transition for Oil and Natural Gas*. March 2007.

<sup>11</sup> City of Portland Peak Oil Task Force. March 2007.

<sup>12</sup> Cortright, Joe. *Portland's Green Dividend*. *CEOs for Cities*. July 2007. <http://www.ceosforcities.org>

1. How will increases in fuel costs translate into transportation mode shifts?
2. To what degree will rising fuel and material costs impact the capital, operating, and maintenance costs of providing infrastructure services?
3. What additional or enhanced transportation demand management strategies, incentives, and disincentives could be employed to reduce per capita vehicle miles traveled (VMT)?

## **Population Shifts**

### **Population Growth**

Portland's population will grow by nearly 30 percent between 2005 and 2030, bringing close to 160,000 new residents to the city.<sup>13</sup> These residents may be the children of people already living here, or may be people who move here from other areas of Oregon, the United States, or the world. Population growth will increase and change infrastructure needs. New residents may require new or updated roads, sewers, water lines, and parks. Population growth also means more people will be using existing infrastructure systems, increasing wear and tear and maintenance needs. But growth also means that there will be more people and more businesses to help support the costs of building and maintaining the City's infrastructure.

Since the City of Portland cannot expand its boundaries significantly, an increase in residents will mean a corresponding increase in density. Accommodating growth will likely mean more multi-family units and smaller lot sizes, particularly around growth centers and corridors and in areas with higher infill potential. New housing growth over the past decade has been concentrated in eastern neighborhoods and in the central city, a trend that is likely to continue.<sup>14</sup> An increase in density offers the potential for more efficient use of infrastructure capacity, if growth is planned appropriately and infrastructure needs taken into account.

**Transportation:** More residents will mean more people who need to get into and around the City everyday. This additional demand could stress the City's existing transportation system, increasing congestion and wear and tear on roadways. According to Metro's Joint Policy Advisory Committee on Transportation, the Portland metropolitan area will need to spend at least \$22 billion on transportation improvements by 2035, over twice the \$9 billion in spending currently anticipated.<sup>15</sup> Accommodating as much of existing and new transportation demand through alternative modes, like walking, biking, and transit will reduce the need for and cost of additional roadway capacity and maintenance.

**Parks:** As lot sizes decline and more people live in homes without significant outdoor space, parks will play an increasing role as residents' 'backyards' – offering a place to recreate, gain respite from urban density, and enjoy nature. However, population growth will reduce the amount of land available for parks and may increase the cost of those parcels that do remain. A strong strategy for acquiring and protecting parks and open space will be critical to maintaining quality of life, particularly in newly developing areas or areas experiencing large increases in density.

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<sup>13</sup> Metro. "MetroScope Generation 2.3 – Year 2030 TAZ Allocation." 2007. Online. <http://www.metro-region.org/index.cfm/go/by.web/id=24905>

<sup>14</sup> Coalition for a Livable Future. *Regional Equity Atlas*. 2007.

<sup>15</sup> Rivera, Dylan. "We're in Trouble, Traffic Panel Says." *The Oregonian*. December 14, 2007.

**Water and Stormwater:** Increases in density may have varied impacts on water needs. While population increases will mean more people need water, the per capita need may decrease due to less outdoor landscaping and therefore lower irrigation needs, conservation practices, and the improved efficiency of new construction. The water distribution system within Portland's retail service area and the City's two main water supplies are adequate to serve future needs of infill and redevelopment. Stormwater needs will likely increase since each new parcel of land developed traditionally will increase the amount of impervious surface in the City, increasing stormwater runoff and treatment needs.

**Civic Facilities:** Population growth may also result in a need for additional or enhanced police, fire, and emergency services capabilities.

## Regional Growth

Not only is the City of Portland expected to grow, but the region as a whole will continue to grow as well. Historically, the metropolitan region has grown at a faster rate than areas within the City of Portland, and this trend is expected to continue. The metropolitan region, outside the City of Portland, is expected to grow by over half a million people between 2005 and 2030, increasing the population of these areas by 50 percent. This regional growth will result in more people using Portland's infrastructure as they commute, work, or enter the City to play or shop. It may mean new challenges for the Water Bureau, which provides water services to many of these communities. Regional growth will also challenge the City's ability to meet the needs of growth while maintaining high quality infrastructure systems, which is key to attracting residents and businesses that might otherwise choose to live or do business in other communities.

## Growing Diversity

Over the next twenty years, Portland will continue to become more ethnically and racially diverse, welcome new residents from other areas of the country and the world, and be composed of households of different ages, sizes, and types. The City will likely continue to see new residents of Hispanic, Asian, and Eastern European descent, which represent some of the fastest growing populations in the metro area. The number of households will continue to grow as population grows, but household size will continue to fall and families will represent a smaller percentage of overall households. The city will also experience a sharp and steady increase in senior populations between 2010 and 2030.<sup>16</sup>

Growing diversity and shifts in population and household makeup will bring corresponding changes in the values and needs of the community, and therefore changes in the types of transportation, water, park, and civic facilities needed. These changes may require the City to modify existing infrastructure practices or design systems that can anticipate and adapt to changing needs. Some examples of possible changes include:

- Older residents, families with children and residents without a lot of disposable income may particularly appreciate being able to walk, bike, or take transit in their neighborhoods and to destinations throughout the City.
- Dispersal of people, jobs, and services throughout the region could result in more dispersed travel patterns – makes traditional forms of fixed-route transit service less cost-effective.<sup>17</sup>
- Parks may experience shifts in use patterns and in the need for special facilities.

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<sup>16</sup> Portland State University. *Metropolitan Briefing Book*. 2007

<sup>17</sup> Dill, Jennifer. "Getting from Here to There in the Region." *Metropolitan Briefing Book*. Institute of Portland Metropolitan Studies. 2007.

**Further Questions:**

1. How will population growth and shifts manifest through increases in density? What is the capacity of existing systems to meet the needs of growth and what additional or improved infrastructure services will be needed?
2. How will increased population diversity impact infrastructure needs? How can the City's infrastructure be designed to be more adaptable to changing needs?

***World Economy***

Infrastructure can be an important component of a successful economic development strategy, or a key barrier to competitiveness and sustainability. Planning efforts for economic development should consider the opportunities of existing infrastructure capacity, challenges of deficiencies, and strategies to finance priority improvements. Economic development also offers potential opportunities to fund infrastructure improvements through public/private partnerships and other financing mechanisms.

**Competitiveness:** The growth of global markets means Portland must continue to provide sufficient, high quality industrial land and necessary infrastructure to be competitive, attract, and keep businesses. To accomplish this, the City strives to provide adequate industrial lands, with associated infrastructure services, and keep utility and infrastructure costs competitive. In the coming decades, the City may see a continued shift in primary industries, as the importance of high-tech and creative industries grows. These businesses may require different types and degrees of infrastructure services.

Quality of life improvements, such as alternative transportation systems, parks and open spaces, and trails, will be key to attracting and keeping a quality workforce. The City must also protect its viable industrial areas and harbor, which may require infrastructure improvements geared toward the types of industries in these areas. Infrastructure improvements will also be needed to allow economic development of new areas or more intense development of existing commercial and industrial zones. More research is needed to determine the types of improvements needed and the extent to which the City can finance and complete these improvements.

**Transportation and Freight Movement:** Many local industries and businesses rely on reliable and efficient transportation systems, particularly for freight travel. Portland's transportation system is also critical to the regional economy, as it provides connections to major markets within the City, access to major rail and cargo routes, and is a key link in the interstate highway system.

Congestion can impede freight movement, cause delays to businesses and commuters, and increase the cost of doing business in Portland. Congestion in Portland increased 461 percent between 1982 and 2003, despite only a 150 percent increase in vehicle travel. In general, as roadways reach capacity, small increases in the number of vehicles result in large increases in delays.<sup>18</sup> However, while small increases in volume can have drastic impacts on congestion, small decreases can also reduce congestion significantly. Successful travel reduction strategies, such as providing affordable, reliable and connected alternative transportation systems can improve freight movement, reduce commute times, and help attract and keep a quality workforce in Portland. The *Freight Master Plan*, completed by the

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<sup>18</sup> Dill, 2007.



Portland Office of Transportation and adopted in 2006, details policies, strategies, and desired improvements to improve freight management and movement in the City.

**Further Questions:**

1. What extent of infrastructure development and improvement is needed to encourage desired economic development? What is the City's capacity to complete these improvements? Are there priority economic growth areas with existing infrastructure capacity?
2. How should the City balance infrastructure improvements needed to promote economic development with protecting equity and access to opportunity?

**Growing Equity Gap**

Rising housing and stagnant income gains for many sectors of the community are leading to a growing equity gap among Portland's residents. The median price of a single-family home in the Portland metropolitan area rose an average of 5 percent annually between 1990 and 2004.<sup>19</sup> However, per capita personal income grew by only half a percent per year, only one tenth of the growth in housing prices.<sup>20</sup>

This has caused a significant reduction in housing affordability, particularly in inner east neighborhoods – neighborhoods with a high degree of access to transportation options, schools, parks, and other services. As these inner neighborhoods became less affordable, low income households have moved to relatively less expensive housing in outer neighborhoods.<sup>21</sup> However, these neighborhoods tend to have fewer services nearby and poorer transit access – meaning households must drive to meet their daily needs. This increased need to drive, coupled with increasing gas prices, can increase a household's transportation cost dramatically, and may limit or even eliminate the gains from lower housing costs.

Designing growth strategies and transportation systems that provide affordable access to work, school, shopping, parks, and other services can help promote affordable living for all Portland households. However, Portland is made up of different neighborhood types, each with different topographic, community, and environmental characteristics. Achieving accessibility and equity will require a diverse strategy to address housing choices, transportation options, land use, infrastructure and community services, that recognizes these differences between neighborhoods.

As an example, meeting residents' needs and promoting access to opportunity may mean adjusting park and street service and design standards to better match community needs:

- Currently, only 75 percent of the city's residents live within a 1/2 mile of a park.<sup>22</sup> However, acquiring additional large neighborhood and community parks as the population grows, particularly in underserved areas, may be challenging. Meeting

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<sup>19</sup> Metro. "Single Family Home Sales Prices, Portland Metropolitan Region, 1960 – 2003." 2008. <http://www.metro-region.org/index.cfm/go/by.web/id=24905>

<sup>20</sup> Metro. "Per Capita Personal Income – 1970-2030." 2008. <http://www.metro-region.org/index.cfm/go/by.web/id=24905>

<sup>21</sup> Coalition for a Livable Future. *Regional Equity Atlas*. 2007.

<sup>22</sup> City of Portland, 2006.

park needs over time may mean revisiting how and where parks are provided, to give all residents access to sufficient parks and natural areas.

- Providing accessible transportation options means improving pedestrian, bike, and transit services. However, many areas of the city, particularly in the Southwest and Outer East, lack complete sidewalk networks. Current standards require that sidewalk improvements include sidewalks on both sides of a street – an objective that is difficult to meet in all areas, particularly with current funding levels. Reassessing pedestrian access objectives and better aligning these goals with standards may allow the opportunity to improve pedestrian access in many areas of the City.

**Further Questions:**

1. What is infrastructure equity? Should services be provided at a consistent level citywide?
2. What is the appropriate level of investment in resolving service deficiencies, maintaining existing assets, and improving facilities and services?
3. What infrastructure improvements should be prioritized to improve access to opportunity?

***Rising Infrastructure Deficit***

Providing, operating and maintaining the City’s infrastructure will become increasingly important as current systems age and the City’s population grows. However, there is currently a large infrastructure maintenance deficit, due largely to the age of many systems, chronic underinvestment in preventative maintenance and capital repair, increases in the costs of maintaining systems, and the lack of revenue to allow more sustainable investment levels.

**Asset Management:** *Providing desired infrastructure services in a cost-effective manner.* In 2003, the City of Portland began coordinated asset management of its infrastructure systems. Asset management involves assessing the condition and performance of assets to better inform capital decisions.

Each year, the City Asset Managers Group issues a citywide asset status and conditions report. According to this report, over 10 percent of the City’s \$21 billion in infrastructure assets are in poor or very poor condition.<sup>23</sup> Improving the condition of these assets and keeping pace with ongoing infrastructure repair needs would require spending over \$100 million more per year than what the City’s currently spends. Under-funding asset management means that often only very critical projects are completed, leaving little funding for preventative maintenance and repairs. Adequately funding the City’s infrastructure may require pursuing innovative revenue sources, raising existing taxes and fees, or modifying service standards.

The City is also undertaking a risk management analysis, to help identify strategic investments that will cost-effectively reduce the likelihood of asset failure. These actions should increase the City’s ability to meet community needs.

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<sup>23</sup> City of Portland. *Asset Status and Conditions Report*. 2007. Note: This figure does not include street and sidewalk condition.

**Cost Increases:** *The costs of providing and maintaining the City's infrastructure have risen dramatically.* Costs for construction materials have doubled since 2001, accounting for inflation, according to the construction cost index.<sup>24</sup> Material prices have risen partially because of higher crude oil prices, which have driven up the costs of petroleum-based products and costs of shipping goods. Construction materials and fuel are also tied to global markets, leading to the potential for reduced supply and increased price volatility. For example, the costs of steel, copper, and concrete have increased largely due to shortages caused by rising overseas demand. These increased costs can lead to the scaling back of projects or to fewer projects being completed.

Recent land appreciation may also threaten the City's ability to purchase parks, open space, and other properties. This is particularly true in cases where primary funding sources, such as system development charges, are tied to assessed values, which have not increased as rapidly as market values.

**Regulatory Compliance:** *The City's infrastructure will need to adapt to effectively protect community and environmental health.* In addition to meeting maintenance and repair needs, the City must also comply with a variety of federal and state regulations, primarily related to service provision, public health, and environmental quality. These regulations often mean involved and costly changes to the City's infrastructure, but generally do not bring associated funding; usually meaning other maintenance, repair, and improvement projects must be put on hold. The City has been making progress on complying with a number of known mandates, including water quality standards, accessibility improvements, and combined sewer overflow restrictions, due to significant investment. Other mandates will require additional resources – the City currently lacks funding to upgrade a number of buildings and bridges that do not meet seismic standards; to comply with the EPA's Long Term Enhancement 2 Act (LT2), requiring treatment of the City's potable water and covering of open reservoirs; and to complete the City's Superfund requirement. These, and potential future regulations, could further strain the City's ability to finance infrastructure provision.

**Further Questions:**

1. What is the city's commitment to asset management (collecting risk data, applying full cost accounting, evaluating projects across infrastructure systems)?
2. What are the community's service level priorities? How will bureaus engage the community on alternative service levels and willingness to pay?

## **Infrastructure Systems**

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The City of Portland provides and maintains water, sewer, transportation, parks and civic assets as well as supporting voluntary affordable housing production to serve the needs of the City. This section provides an overview of the City's infrastructure systems, their capital planning efforts, and the major challenges and opportunities they face.

### **Other Service Providers**

Portland partners with a wide variety of agencies and organizations to provide the City with infrastructure services, including:

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<sup>24</sup> Engineering News Record, Construction Cost Index.

- Multnomah County, which manages and maintains six Willamette River bridges and over 20 smaller bridges elsewhere in the county, and provides human and justice services.
- Metro, the regional government, which manages regional parks and natural areas, the zoo, solid waste disposal contracts, and regional planning services.
- Special service districts for drainage and water;
- State and county transportation departments;
- Tri-Met, which operates the regional transit system;
- Five school districts;
- The Port of Portland, which operates several marine terminals and four airports (including Portland International).
- Two railroads and Amtrak, which move goods and people, respectively.
- Portland General Electric, Pacific Power, and NW Natural, which provide electric and natural gas to Portland residents and businesses; and
- The telecommunications industry providing telephone and internet services to the Portland area.

### ***Resolution A—the Multnomah County Connection***

In 1983, the City of Portland and Multnomah County agreed to divide service responsibilities, to reduce duplication and overlap of functions. This agreement, referred to as “Resolution A”, said that Portland would provide “city-level services” (transportation, parks, water, sewer, police, and fire) and Multnomah County would specialize in state-mandated county roles and countywide human and justice services (corrections, social services, assessment, taxation and libraries). Resolution A had two direct effects on Portland’s capital program. First, Portland received 391 miles of roads and maintenance responsibility from Multnomah County. Second, Portland received all county parks within Portland city limits. In exchange, the county assumed responsibility for social services of all kinds.

### ***Infrastructure Systems***

The City of Portland provides and maintains infrastructure systems that supply water, sewer, transportation, parks and civic services as well as supporting affordable housing production. The City’s asset base has expanded significantly over the last 100 years. In 1903, the City’s assets were worth \$8.7 million, the equivalent of approximately \$200 million in 2007 dollars. Valued at \$21.5 billion in 2007, the value of the City’s capital asset base has increased over ten thousand percent over the past century. The City’s infrastructure systems vary in service area, capacity to accommodate growth, replacement value, and condition.

### ***Key Infrastructure Challenges and Opportunities***

**Effectively managing the City’s Infrastructure Systems:** Investments are needed to maintain or replace existing aging assets, satisfy mandates, and address growth needs. Some infrastructure costs have risen sharply (including fuel and materials), while some revenue sources have been flat. To maintain a high level of infrastructure services, the City will need to identify strategic investments, consider full long-term costs of improvements,

pursue innovative funding sources and partnerships, and work with the community to make tough choices on funding priorities.

Asset management is a tool to identify the most cost-effective way to protect existing assets, provide community services, and safeguard public health. The City is currently improving asset management practices, but continued improvement in the process, data, monitoring, and evaluation is needed to ensure asset management practices accurately inform strategic decision-making.

**Setting Appropriate Service Levels:** Meeting residents' needs and promoting accessibility and equity may mean adjusting some service and design standards to better match community goals. As the City grows and evolves, other standards may need to be revised to remain consistent with community needs and resources.

**Adapting to Climate Change and Energy Trends:** Global warming and peak oil may drive a dramatic shift away from oil and natural gas based products and towards more sustainable solutions. This shift will have profound impacts on how the City plans, designs, and builds infrastructure systems.

**Complying with Regulatory Mandates:** In addition to meeting maintenance and repair needs, the City must also comply with a variety of federal and state regulations, primarily related to service provision, public health, and environmental quality. These regulations often require involved and costly changes to the City's infrastructure, but generally do not bring associated funding; usually meaning other maintenance, repair, and improvement projects must be put on hold, or additional funding allocated.

**Responding to Emerging Community Needs:** Over the next twenty years, Portland will continue to grow, become more ethnically and racially diverse, and be composed of households of different ages, sizes, and types. These shifts will bring changes to the types of transportation, water, stormwater and sewer, park, and civic facilities needed and the ways people use and value these infrastructure services. To respond to these shifts, the City will need to identify, plan for, and adapt to emerging and unmet needs.

**Advancing Stewardship:** The Portland Plan presents an opportunity to identify strategies to enhance the City's and the community's stewardship of infrastructure systems and fiscal, environmental, and community resources.

**Complimenting Community Goals:** Infrastructure can play a key role in fostering public and environmental health, economic prosperity, and community cohesion. Through the Portland Plan, the City has an opportunity to examine its infrastructure priorities in light of the community values and priorities expressed in VisionPDX.

## ***Transportation***

**Mission:** The Portland Office of Transportation is the steward of the City's transportation system, and a community partner in shaping a livable city. We plan, build, manage, maintain and advocate for an effective and safe transportation system that provides access and mobility.

**System:** Portland's transportation system, valued at approximately \$8.1 billion, includes 3,949 lane miles of roads, 157 bridges, 992 traffic signals, eight million square yards of sidewalks, 37,352 improved corners, and over 53,000 street lights. The City's transportation

system does not include freeways, state highways managed by ODOT, port facilities managed by the Port of Portland, or the region's transit system.

**Revenue Sources:** General Transportation Revenue (GTR), composed of state gas tax, vehicle registration fee, and local parking fee revenues is the primary source of Transportation funding. GTR is Transportation's discretionary revenue and is distinguished by the City's ability to decide when and how it should be allocated.

Other significant revenue sources that fund PDOT's capital projects include system development charges, permit engineering fees, local improvement districts, Port of Portland contributions, Tri-Met grants, and Federal TEA-21. Other sources of revenue include the Oregon Transportation Investment Act (OTIA) and Metro Transportation Improvement Program. These funding sources typically have specific purposes that limit eligible projects and usually require local matching resources. The Office of Transportation also receives substantial funding from the Portland Development Commission for projects that help meet transportation goals and help implement Metro 2040 goals for housing, jobs, and revitalization.

**Planning Efforts:**

- *Transportation System Plan (ongoing)* – The Transportation System Plan (TSP) is the long-range plan to guide transportation investments in Portland. The TSP meets State and regional planning requirements and addresses local transportation needs for cost-effective street, transit, freight, bicycle, and pedestrian improvements. The TSP is currently being updated, with completion scheduled for 2009, and will serve as the updated transportation element to meet state requirements.
- *Central City Transportation Management Plan (ongoing)* – The CCTMP is the principal planning document guiding transportation policies in the Central City. PDOT is planning to update the CCTMP to complete the refinement plan required by the Transportation System Plan.
- *Freight Master Plan (2006)* – The Freight Master Plan serves as a guide for the City's freight mobility activities. Through freight policies, operational strategies, and system improvements, the plan provides a road map for how Portland manages freight and delivery movement today and into the future.
- *Bicycle Master Plan (ongoing)* – The Portland Bicycle Master Plan (BMP) provides a blueprint for making bicycling and walking an integral part of daily life in Portland. An update to the Bicycle Master Plan is scheduled for completion in 2008.
- *Pedestrian Master Plan (1998)* – The Pedestrian Master Plan was adopted in 1998 and is a guide to pedestrian policies, projects and priorities for the City. Portions of the pedestrian master plan will be incorporated in the updated Transportation System Plan.
- *Streetcar System Plan (ongoing)* – The Streetcar System Plan (SSP) is a big picture look at the City of Portland's transportation network and how streetcars can fit into this network in the future. The goal of the SSP is to identify an interconnected citywide system of streetcar corridors integrated with the City's transportation and land use network.

### **Challenges and Opportunities:**

- *Maintaining Existing Infrastructure* – The City of Portland has a stated goal to operate and maintain an effective and safe transportation system to protect residents’ quality of life and the health of the city’s economy. While transportation safety has improved – both auto and pedestrian injuries have declined in the past 5 years and residents’ rating of road safety has improved – maintaining the City’s nearly \$8 billion transportation system remains a challenge.<sup>25</sup> PDOT estimates that an additional investment of \$19 to \$26 million per year is required to halt the decline in system condition. An estimated investment of \$28 to \$36 million would be required annually to maintain the system at sustainable levels.
- *Repair and Maintenance Needs* – The five most critical elements of the transportation system are streets, the streetlight system, traffic signals, bridges, and sidewalks. Each of these areas presents pressing needs requiring significantly greater resources to protect the public’s investment. The number of street miles treated annually declined from 100 percent in 1996 to approximately 60 percent in 2006.<sup>26</sup> The street paving backlog has reached nearly 600 miles, more than twice the target of 250 miles needed for efficient paving program management. As of July 2006, the maintenance liability of the City’s streets amounted to over \$10 million per year (updated information will not be available until 2009 due to updates to the Pavement Management System).<sup>27</sup> As of July 2005, 22 percent of bridges were in poor condition, with 31 bridges weight restricted. Over 26,000 sidewalk corners need ramps to comply with ADA standards.
- *Flat Revenues* – Transportation’s maintenance liability has continued to increase faster than revenues. The primary source of PDOT’s discretionary operating revenue, the State Highway Trust Fund, is not indexed to inflation and has not been increased by the Oregon Legislature since 1993. The result is a continuing loss of general transportation revenue purchasing power, which is projected to continue over the next five years.

## ***Environmental Services – Sewer and Stormwater***

**Mission:** The Bureau of Environmental Services serves the Portland community by protecting public health, water quality and the environment. We protect the quality of surface and ground waters and conduct activities that promote healthy ecosystem in our watersheds. We provide sewage and stormwater collection and treatment services to accommodate Portland’s current and future needs.

**System:** The Bureau of Environmental Services provides sewage and stormwater collection and treatment services to accommodate Portland's current and future needs. It serves 555,000 people, numerous commercial and industrial facilities, and six wholesale contract customers. The existing sewer system consists of a network of 1,443 miles of separated storm and sanitary sewers and 878 miles of combined sewer lines that carry both stormwater runoff and sanitary waste. One hundred pumping stations and two wastewater treatment plants, which have a combined secondary treatment capacity of 108 million gallons per day, serve the sewer system. The replacement value of BES capital assets is \$5.0 billion.

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<sup>25</sup> City of Portland, 2006.

<sup>26</sup> City of Portland, 2006.

<sup>27</sup> City of Portland, 2006.

**Revenue Sources:** The Bureau funds its operation, maintenance, capital expenditures primarily from revenues from rates, proceeds from revenue bonds, and system development charges (minor revenue sources include grants and wholesale service contracts).

**Planning Efforts:**

- *BES System Plan Update Project (ongoing)* – The BES System Plan is an update of the 1999 Public Facilities Plan. The Plan will integrate traditional infrastructure with green infrastructure, and will identify wastewater and stormwater collection and treatment needs for the bureau over the next 20 years. The Plan will be developed with an asset management context that will consider risk, life-cycle costs, and service levels in the development and prioritization of recommended system improvements. The Plan is due to be completed in December 2008.
- *Portland Watershed Management Plan (2005)* – This Plan sets a direction for improving watershed health through the protection and restoration of green infrastructure and habitat.
- *Public Facilities Plan (1999)* – This plan identifies major wastewater and stormwater facility needs through the year 2015. The 1999 plan updates BES’ first PFP released in 1987.

**Challenges and Opportunities:**

- *Maintaining Existing Infrastructure* – For 2007, BES estimates an annual funding gap of \$7 million, including \$1 million in sanitary sewers and \$2 million each for combined sewers, stormwater, and wastewater treatment and pumping. As they are completed, new combined sewer overflow facilities will also add to operations, treatment and maintenance needs. However, the long-term financial forecast anticipates significant increases in the capital maintenance budget beyond completion of the CSO program to address additional capital needs.
- *Aging Infrastructure* – More than 30 percent of the collection system is over 80 years old, and maintenance needs are anticipated to increase significantly in the near future. The bureau has committed repairing structurally deficient portions of the sewer collection system through the sewer rehabilitation program.
- *Regulatory Compliance* – Meeting current regulatory requirements presents additional challenges. Mandates currently affecting the City’s water system include:
  - National Pollutant Discharge Elimination System (NPDES) permits for Wastewater Treatment Plants and Municipal Stormwater: Compliance with the City’s Municipal Separate Storm Sewer System Permit, requiring the implementation of a stormwater management program to reduce pollutant discharges and Oregon Department of Environmental Quality (ODEQ) permits relative to wastewater discharge requirements.
  - Combined Sewer Overflow (CSO) Program: Twenty year, \$2 billion program to control CSOs by 2011.
  - Willamette Basin Total Maximum Daily Load (TMDL): Compliance with the Clean Water Act and ODEQ order covering water quality standards for mercury, temperature and bacteria in the Johnson Creek, Columbia Slough and Tryon Creek subbasins.



- Tualatin River Total Maximum Daily Load: Compliance with TMDLs for Fanno Creek for phosphorus, bacteria, dissolved oxygen, and temperature.
- Endangered Species Act Requirements: Requires additional permits and costs associated with constructing and operating facilities in order to be protective of fisheries habitat.
- *Emerging Issues and Requirements –*
  - *Sanitary Sewer Overflow (SSO) program:* Developing regulations directed towards the control of SSOs through an approved Capacity, Management, Operations, and Maintenance (CMOM) Program Plan.
  - *Portland Harbor Cleanup:* requiring cleanup of the lower Willamette River “Superfund” site; cost is unknown at this time.
  - *Underground Injection Control (UIC) Rules:* requiring the City to address non-complying stormwater sumps; cost unknown at this time.

## **Parks**

**Mission:** Portland Parks & Recreation contributes to the City’s vitality by:

- 1) Establishing and safeguarding the parks, natural resources, and urban forest that are the soul of the City, ensuring that green spaces are accessible to all;
- 2) Developing and maintaining excellent facilities and places for public recreation, building community through play and relaxation, gathering and solitude; and
- 3) Providing and coordinating recreation services and programs that contribute to the health and well being of residents of all ages and abilities.

**System:** Portland Parks & Recreation (PP&R) manages over 7,000 acres of natural areas and over 3,200 acres of developed parks - about 10 percent of Portland’s land base. There are 180 developed parks, 47 habitat parks, five golf courses, seven botanical gardens, an arboretum and a raceway. PP&R also manages over a million square feet of buildings including 13 swimming pools, 12 community centers, numerous shelters, restrooms and stadiums and one historic mansion. Recreation facilities include 177 miles of trails, 142 playgrounds, over 300 sports fields, 30 community gardens and more than 100 tennis courts.

**Revenue Sources:** The General Fund provides 44 percent of PP&R funding. Other sources include program fees, system development charges, the 2002 Parks Levy, interagency agreements and grants. The Golf program and Portland International Raceway are self-sustaining.

**Planning Efforts:** In July 2001, City Council adopted the *Parks 2020 Vision* and its vision statement, guiding principles, overview of parks assets, future needs and strategies for realizing the vision. PP&R staff is implementing this vision by developing parks in under-served areas, reassessing land acquisition and program needs, and building partnerships to make needed improvements. Parks is now forging a new strategic direction, revising its park system plan and developing a new service and asset management strategy.

**Challenges and Opportunities:** Although the number of developed parks has increased significantly over the past 10 years, only about 40 percent of parks and recreation facilities are in good or very good condition. Parks has identified a need for an additional \$8.1 million annually to address needed improvements. City Council has committed to providing

\$0.8 million annually to address some urgent needs and is working with Parks to address the remaining needs on an ongoing basis. Parks is continuing to explore ways to develop more sustainable revenue sources.

Additional challenges are to:

- Address maintenance backlog of existing facilities, estimated at \$9.9 million over the next 5 years.
- Protect the City's green infrastructure as the population grows.
- Provide parks and facilities in under-served areas.
- Meet increasing needs for parks, open spaces and recreation facilities.
- Strengthen and establish policies and processes to improve efficiency and the ability to provide world-class parks and recreation facilities.

## **Water**

**Mission:** The mission of the Portland Water Bureau is to provide reliable water service to customers in the quantities they desire and at a quality level that meets or exceeds both customer and regulatory standards; to provide the highest value to customers through excellent business, management, and operational practices, and appropriate application of innovation and technology; to be responsible stewards of the public's water infrastructure, fiscal and natural resources; and to provide the citizens and the City Council with a water system that supports their community objectives and overall vision for the City of Portland.

**System:** The City of Portland is the largest supplier of domestic water in Oregon, serving over 800,000 people and providing about 100 million gallons of water per day, or about 36 billion gallons per year. About 60 percent of the water is delivered to customers within City limits. The remaining 40 percent is sold to customers in 19 surrounding cities and special water districts. Water is supplied from the Bull Run watershed and the Columbia South Shore wellfield through over 2,000 miles of pipes. The water system is currently valued at about \$5.3 billion.

**Revenue Sources:** The Water Bureau's primary revenue sources include system development charges, water usage charges, and bonds.

### **Planning Efforts:**

- *Distribution Master Plan (2007)* – In June 2007, the Water Bureau issued its *Distribution System Master Plan*, which identifies improvement needs for the water distribution system through the year 2030. The plan focuses on the major distribution system components: pipelines, tanks and pump stations. The plan provides a comprehensive look at the distribution system and addresses hydraulic, operational, and water quality issues to maintain reliable service in the future.
- *Infrastructure Master Plan (2000)* – In October 2000, the Water Bureau issued a strategy report, the *Infrastructure Master Plan*. According to this plan, several external drivers will affect the Water Bureau's long-term capital investment strategy. Those drivers include:
  - Aging infrastructure. Replacing or rehabilitating key system components;
  - Vulnerability. Protecting public health and safety by ensuring that key components of the system withstand most human-caused or natural disasters;

- Regulations. Evolving drinking water regulations, especially those anticipated to affect source water treatment and the distribution system;
  - Growth. Growing water demand both in the service area and other needs;
  - Endangered Species Act. New environmental management requirements including threatened and endangered species affected by operation of the water system;
  - Bull Run Management. Reduced federal funding for Bull Run Watershed management and a potential shift of responsibilities for federal lands to the Bureau, particularly road maintenance in the short term; and
  - Security. Increased protection for the Bureau's more than 80 critical facilities, including dams, reservoirs, water supply pipelines, pump stations, and operations yards.
- *Water Management and Conservation Plan (ongoing)* – The *Water Management and Conservation Plan* presents a strategic approach to effective management and water conservation for the entire Portland water system. Completion and adoption are planned for 2008.
  - *Habitat Conservation Plan (ongoing)* – A *Habitat Conservation Plan (HCP)* is a tool provided under the Endangered Species Act (ESA) to protect the habitat where threatened and endangered species live. The City of Portland's Bull Run water supply *Habitat Conservation Plan* describes actions the City will take to improve habitat conditions in the Bull Run watershed and throughout the Sandy River Basin to contribute to the recovery of native fish populations.
  - *Systemwide Asset Management Plan (ongoing)* – The *Systemwide Asset Management Plan* will be an integrated asset management plan for the City's water supply and distribution systems.

**Challenges and Opportunities:**

- *Declining Water Demand* – Total water demand for the Portland system has fallen over the last few years, as retail and wholesale customers buy less water. Due to a number of factors, including revised wholesale contracts, changed land use patterns, indoor and outdoor water conservation/efficiency measures, and economic factors, retail demand is down 6 percent, and wholesale demand is down 20 percent since the early 1990s. Water demand forecasts developed by the Water Bureau anticipate that while per capita water demands will continue to decline somewhat over time, the overall demands on the Portland water system will increase. The status of continued wholesale water sales is not known at this time, but the Bureau anticipates continuing to sell surplus supplies while requiring conservation and curtailment plans by wholesale customers.
- *Aging Infrastructure* – Many water system facilities are nearing the end of their useful lives. Half of the 2,000 miles of distribution mains are older than 50 years. Open reservoirs are 79 to 100 years old. Transmission conduits are 50 to 92 years old. Dams and reservoirs are 42 to 75 years old.
- *Maintaining Existing Infrastructure* – The Water Bureau faces new costs to maintain and replace aging infrastructure, respond to security and vulnerability issues, and comply with regulatory requirements. In the meantime, there is pressure to hold down rate increases. For 2007, the Water Bureau estimates a \$15 million annual funding gap,

primarily in the replacement of assets in poor condition, including distribution system components, transmission conduits and the Interstate maintenance facility.

- *Complying with Regulatory Mandates* – Following a recent court decision, the Water Bureau has new unfunded requirements related to replacing terminal storage reservoirs and treating the water supply system (LT2 ruling). It may cost an additional \$20 million to \$50 million per year to fulfill LT2 requirements. Obligations resulting from this ruling may include replacing uncovered finished storage reservoirs at Mt. Tabor and Washington Park, and treatment of the Bull Run supply.
- *Climate Change* – In January 2002, the Water Bureau completed a report on the impacts of climate change on the Portland water system, in conjunction with the University of Washington. The Bureau is continuing to study the issue of climate change and to establish both adaptation and mitigation strategies to deal with this issue. The ability of Portland's two water systems to meet future demands, as well as the need for conservation and efficiency programs, will be important considerations as climate change impacts become clearer.
- *Significant Levels of Investment* – Over the next 5 years, the Water Bureau expects to invest over \$264 million on water-related capital improvements, primarily on the Distribution Program (57 percent).

## **Civic Facilities**

Civic Facilities are constructed and managed by the Office of Management and Finance – Facilities Services, and the Bureau of Technology Services.

**Mission:** Office of Management and Finance - Facilities Services: To be leaders in the planning, constructing, redeveloping, and operation of public facilities that are efficient, cost-effective, and well maintained. We are committed to building and maintaining buildings that contribute to Portland's civic character and make Portland a better place to live and work.

**Bureau of Technology Services:** The Bureau of Technology Services is responsible for management, policy setting, strategic planning and leadership in the use of computer, radio, and telecommunications technologies, to support the delivery of effective government services.

**System:** Facilities Services: Facilities Services is responsible for the construction and operation of many of the City's buildings, including City Hall, the Portland Building, Police facilities, the Record Center, the Portland Communications Center, and the City's seven downtown parking garages. The Division also contracts for building maintenance services with the City's Utility Bureaus and therefore is responsible for the Water Pollution Control lab, Water Bureau Interstate Building and the Kerby Maintenance Building. Facilities Services also includes the Spectator Facilities Program which manages the Memorial Coliseum, PGE Park, and parking at the Rose Garden.

In total, the program has some responsibility for 70 buildings totaling 3 million square feet, approximately two-thirds of the total City-owned building inventory. While the bureaus of Parks & Recreation and Fire & Rescue operate their own buildings, facility managers from all three organizations meet often to develop joint strategies for building operation (such as energy savings and sustainable building practices).

Technology Services: The Technology Services Fund operates and maintains the City's telecommunications, radios, 800 MHz radio system, and other electronic systems such as 911 dispatch, sirens, radar guns, and video systems. The fund operates and maintains corporate applications and bureau specific applications, computer and networking hardware and software, and other technology systems. These systems provide service to all City bureaus and agencies as well as to a growing number of other jurisdictions in the metropolitan area.

**Revenue Sources:** Facilities Services and Technology Services are working capital funds. This means annual revenues are derived only from customers based on the facilities services they "buy" from the program. These customers are city bureaus or outside agencies.

**Challenges and Opportunities:**

- *Insufficient Revenues* – Major maintenance for most of these civic assets is collected from rental rates or net income. The rate of revenues is insufficient to support industry standards for level of reinvestment in these structures.
- *Declining Condition of Assets* – Union Station is considered to be in very poor condition and requires significant investment.
- *Obsolescence of Technology* – The City must update technology systems to ensure hardware and software systems do not become obsolete or ineffective. The 800 MHz public safety radio system, Computer-aided dispatch system, and Police data system are approaching the end of their useful lives and need to be replaced before they are technically obsolete.
- *Major Capital Needs* – The City has identified the need for new additional facilities, including a Police training facility and emergency coordination center.

***Affordable Housing***

Affordable Housing is provided through efforts and funding from the Portland Development Commission (PDC) and the Bureau of Housing and Community Development (BHCD).

**Mission:** PDC: "To bring together resources to achieve Portland's vision of a diverse, sustainable community with healthy neighborhoods, a vibrant central city, a strong regional economy and quality jobs and housing for all."

BHCD: To make Portland a more livable city for all by bringing low-income people and community resources together.

All of the local City and urban renewal resources are administered directly or by contract by PDC's Housing Department. PDC's Asset Management section manages compliance with long-term affordability agreements and overall portfolio management, planning and preservation. These efforts support the agencies' missions and goals by 1) providing access to a wide range of housing opportunities; 2) providing financial assistance and incentives to help meet a diverse set of housing policies and goals; and 3) responding to neighborhoods unique business, development, transportation and livability needs.

**System:** PDC delivers financial assistance to individuals and developers of affordable housing to meet the existing and emerging needs through a variety of programs. The Housing Department addresses the need for homeownership and repairs, as well as the need to develop, preserve, and rehabilitate the affordable rental inventory.

**Revenue Sources:** Major funding sources include:

- Federal: Home Investment Partnership Act (HOME), Community Development Block Grant
- State: Low Income Housing Tax Credits (administered by the State of Oregon)
- Local: Housing Investment Fund, Housing Opportunity General Obligation Bond, Urban Renewal Tax Increment Financing

**Planning Efforts:** The Portland Development Commission's planning process is linked to Urban Renewal Area Strategy Plans, which incorporate components of growth management. The need for Affordable Housing is examined and incorporated in each URA/neighborhood accordingly. The Plans are developed via a collaborative public participation process and integrate neighborhood comments, concerns, and input. PDC and BHCD directly collaborate in planning and allocation of local non-TIF and federal funds to ensure an appropriate portfolio of affordable housing is maintained. This year, the two agencies will also develop an Affordable Housing Preservation Strategy that includes a process for prioritizing projects and investments, as well as a funding strategy that includes local, State, foundation, and private financing.

**Challenges and Opportunities:**

- *Diminishing Sources of Funding* – Many of the investment demands for housing preservation are in the Downtown core where the City has invested significantly in the development of affordable housing. With the expiration of the Downtown Waterfront and South Park Blocks urban renewal areas, the primary source of funding for preserving this housing will no longer be available. It will be critical for the City to identify additional sources of funding to ensure the portfolio can be maintained.

The federal funding allocation for the City of Portland has been declining. Portland's portfolio of affordable housing is also serving lower income households than before which means buildings are generating fewer revenues from rent. The result is a decreased ability to leverage private financing in projects and a greater demand on local gap financing, decreased ability to make necessary repairs as they arise (increasing deferred maintenance), and increased demand for financing restructuring and rehabilitation.

- *Rising Costs to Develop and Rehabilitate* – Resources are declining and the cost to renovate and develop new affordable housing has increased significantly. This has resulted in greater demands for local gap financing and a much higher per/unit costs to preserve the portfolio over the long term. In addition, the cost to operate housing has increased significantly due to utility expenses, project management expenses and expense related to delivering social housing with supportive services.
- *Funding Gap* – PDC reports a \$10 million unmet funding need for 2007, for affordable housing (defined as multi-family housing units with direct City leveraged financing and a regulatory agreement with PDC). This need is actually the demand from PDC's borrowers to manage and maintain affordable housing projects.

## The Policy Framework

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The *Citywide Systems Plan* responds to state, regional, and local growth management and infrastructure planning requirements as well as community objectives. An update of the *1989 Public Facilities Plan* is necessary to meet these planning requirements and accurately reflect community values and goals.

### **State Planning Requirements**

By state law, Oregon cities must develop and implement a public facilities plan (PFP). At a minimum, the PFP must describe transportation, water, and sewer facilities needed to support the land uses designated in the acknowledged comprehensive plan. Public facilities plans typically have a 20-year time horizon, and help to identify capital improvement projects (5-year horizon) and capital budgets (1 or 2 year horizon).

State requirements for public facilities plans are found in Oregon Statute 197 and Oregon Administrative Rule 660. According to the state requirements, Portland's PFP must include these seven items:

- 1) An inventory and general assessment of the conditions of all of the significant public facility systems which support the land uses in the acknowledged comprehensive plan;
- 2) A list of significant public facilities, which are to support the land uses designated in the acknowledged comprehensive plan;
- 3) Rough cost estimates of each public facility project;
- 4) A map or written description of each public facility project's general location or service area;
- 5) Policy statements or urban growth management agreements identifying the provider of each public facility system;
- 6) An estimate of when each facility will be needed; and
- 7) A discussion of funding mechanisms and the ability of them to fund the development of the projects.

When completed, the Department of Land Conservation and Development will evaluate the City's public facilities plan for:

- Required items (see list of seven items, above);
- Whether the plan contains all agreements (urban growth management, any special districts, or state agency coordination); and
- Whether the PFP is consistent with the acknowledged comprehensive plan, Metro's functional plan, and statewide planning goals.

### **Regional Plans and Requirements**

In addition to complying with state planning requirements, many infrastructure systems also look to Metro, the area's regional government, for planning guidance. The following plans have major impacts on planning for the City's infrastructure:

- *2040 Growth Concept* and the *Urban Growth Management Functional Plan* – The 2040 Growth Concept, adopted by the Metro Council, provides a long-range plan for the future growth and development of the Portland metropolitan region. It is based on a set of shared regional values, including: thriving neighborhoods and communities, abundant economic opportunity, clean air and water, protecting streams and rivers, preserving farms and forestland, access to nature, and a sense of place. The functional plan provides tools that help meet goals in the 2040 Growth Concept.
- *Regional Transportation Plan* – Metro is currently updating the Regional Transportation Plan (RTP) to shape future planning to protect the livability of our communities and sustain our region's well-being and economic prosperity. A goal of this update is to better advance regional policies, public priorities and local efforts to implement the 2040 Growth Concept to keep this region a great place to live and work for everyone.<sup>28</sup>
- *Connecting Green* – *Connecting Green* will provide a vision, objectives, and plan for an “exceptional, multi-jurisdictional, interconnected system of neighborhood, community and regional parks, natural areas, trails, open spaces and recreation opportunities” in the Portland metropolitan region. It is an update to Metro’s *Greenspaces Master Plan*.

## ***Portland’s Comprehensive Plan***

Since the Comprehensive Plan's adoption in October 1980, all of City Goal 6 (Transportation) and parts of City Goal 11 (Public Facilities) have been amended. The Transportation Goal received major revisions in 1992, 1996 and 2002. In October 2004, the Transportation System Plan received a technical update. The Public Facilities Goal was amended with an urban services study (1983), and two transportation policy updates (1996 and 2002). Further amendments, as discussed in the “Public Facilities Plan”, “Policy Gaps” and “Existing Policies” sections below, would help bring the Comprehensive Plan in line with current goals and practices.

### **Public Facilities Plan**

The City of Portland plans for capital improvements, repair, and replacements on a number of time scales. The long-range perspective seeks to integrate a bundle of capital assets, or systems, over a 20-year horizon. The annual capital planning process is linked to the City’s budget process, and also involves preparing a five-year financial forecast.

In April 1989, City Council adopted the current Public Facilities Plan. The Public Facilities Plan (PFP) is a long-range plan for capital improvements and is a support document to a comprehensive plan. Some elements of a PFP must be adopted as part of the City’s comprehensive plan. These elements are: a) a list of significant projects; b) a map or written description of the PFP project locations or service areas; and c) policies or urban growth management agreement(s) designating the provider of each public facility system. The PFP consists of six service bureau plan elements (transportation, water, combined sewer, sanitary, wastewater treatment, and drainage), plus a list of significant projects.

For this update, the City of Portland has chosen to undertake a Citywide Systems Plan, which serves the same long-range purpose as a PFP. The term PFP is found in state administrative rule, Portland’s first plan cycle, and planning literature generally. A Citywide

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<sup>28</sup> Metro. “2035 Regional Transportation System Plan Update”. <http://www.metro-region.org/index.cfm/go/by.web/id=25038>



Systems Plan offers is a more holistic concept of manmade and natural assets working together to deliver public services. It will need to meet the basic state requirements for public facilities plans, listed above. In addition, the City is interested in capital systems planning beyond the state mandate—to include such assets as the parks system and “civic” facilities, and program features such as asset management, sustainability, and placemaking.

## Why Update?

With the exception of transportation, the *1989 Public Facilities Plan* and the list of significant projects intended to implement the plan are outdated. Bureaus have completed a number of facilities plans that have not been included in a citywide public facilities plan. The *Citywide Systems Plan* brings an opportunity to incorporate these updated plans, improve coordination between infrastructure planning efforts, and consider the community’s infrastructure priorities in a consistent and applied fashion.

There is a critical need to update the *1989 Public Facilities Plan*, as there have been a number of significant changes in the internal and external conditions surrounding local capital planning, such as:

- The City of Portland has grown significantly, adding over 75,000 residents.
- The planning area for the City of Portland has also changed significantly, with the annexation of the Pleasant Valley area. A public facilities plan for Pleasant Valley was completed but has not been integrated into a citywide public facilities plan.
- Metro completed the Region 2040 Growth Concept and Urban Growth Management Functional Plan, which provides long term guidance for future growth and development.
- City priorities have shifted and now include the need to address aging infrastructure; to incorporate sustainable development, protection of natural systems, and green infrastructure; to focus growth in centers and corridors; and to foster inter-bureau collaboration.
- Analytical tools and technology are vastly different - Metro now provides a centralized data resource; the City has a demographer on staff; GIS, computer modeling, and other technologies allow analysis and exploration of data in new ways; and the City now tracks capital projects and budgets in a single database.

## Policy Gaps

In reviewing the current *Portland Comprehensive Plan*, the infrastructure bureaus identified a number of new policy areas and key gaps in the current policy framework, representing shifts in thinking, community values, and best practices. The City has developed policies related to many of these topics, yet none have been fully integrated in the *Comprehensive Plan*. These areas may require further study, analysis, and community consultation before final policies are recommended.

- **Asset and risk management:** Asset and risk management help ensure the City’s efficient delivery of services with assets that are cost-effective, well maintained, accessible, energy efficient and safe. The City’s current whole-of-city practice of asset management is not reflected in the *Comprehensive Plan*. The City is also exploring development of a risk management policy for infrastructure assets.
- **Watershed Planning:** Watershed planning encourages the management, restoration, and protection of watersheds to improve water quality and reduce stormwater runoff. Current policies in Goal 8: Environment does not reflect the City’s current practices and

policies regarding watershed planning and stormwater management. Portland's Watershed Management Plan, *Actions for Watershed Health*, provides additional guidance and policies on watershed management. Policies should also reflect the Habitat Conservation Plan for the Bull Run watershed (underway, adoption expected in 2008).

- **Transportation Options:** Safe and accessible transportation options, including walking, biking, and transit, can play a significant role in improving equity, environmental quality, and community health. The Comprehensive Plan should be revised to reflect the desired role of transportation options in the City's overall transportation network. Revisions should reflect current practices, policies and programs, and the recommendations of modal plans, the Peak Oil Report, and the Local Action Plan on Global Warming.
- **Green Infrastructure:** Environmental challenges, such as global climate change, pollution, and habitat loss, complicate the City of Portland's ability to provide traditional infrastructure services while maintaining environmental and community health. Green Infrastructure, which uses natural processes, systems, or features to provide traditional infrastructure services, offers an opportunity to protect environmental quality, reduce long term costs, improve service provision and quality of life, and advance sustainability. Green infrastructure can include both natural components, such as natural areas, open space, and parks; trees; and other natural systems; and engineered components, like green streets and other stormwater management facilities. The Comprehensive Plan should more explicitly and comprehensively consider the ecological and community contributions of green infrastructure, as well as current priorities, policies and practices. The City's Open Space land use designation should also be reviewed for possible updates.

## Existing Policies

### Goal 2: Urban Development

- *2.6 Open Space:* Does not reflect value of open space for recreation & visual relief; Does loop trail refer to 40-Mile Loop?
- *2.7 Willamette River Greenway Plan:* The Willamette River Greenway Plan should be updated to reflect current realities in property acquisition and implementation.
- *2.12 Transit Corridors:* This policy may need to be updated, particularly in light of Streetcar Plan and Primary Transit Index work. Might want to be more specific as it relates to type of transit.
- *2.13 Auto-Oriented Commercial Development:* May need to be updated to reflect recent Metro and 2040-New Look work.
- *2.24 Terwilliger Parkway Corridor Plan:* The Terwilliger Parkway Corridor Plan should be updated to reflect current redevelopment and infill potential and to better reflect community values.

### Goal 3: Neighborhoods

This goal should include a discussion of the role of Portland Parks and Recreation in the neighborhood planning process, whose involvement is necessary to ensure adequate and accessible open space.

### Goal 4: Housing

Housing policy should reflect implications of CCTMP and Central City Plan updates.

- *4.15 Regulatory Costs and Fees:* All current transportation SDC fee structures have an affordable housing exemption. Future updates may consider option of a sliding scale rather than full exemption.

### **Goal 5: Economic Development**

This goal lacks a mention of the role of parks and recreation in spurring economic development and providing quality of life improvements necessary to attract and maintain a quality workforce. The goal may also need to be updated to reflect changes to CCTMP and the Central City Plan.

- *5.1 Urban Development and Revitalization:* The reference to conservation & quality of life needs to be reflected in general policies with more explicit consideration of ecological services, connections to nature, and impacts on health.
- *5.5 Infrastructure Development:* Objectives related to using public and private partnerships to spur economic development have not been well implemented with regards to parks.
- *5.10 Columbia South Shore:* Implementation gaps exist in desired recreation facilities (Objective E).

### **Goal 6: Transportation**

The entirety of Goal 6 will be reviewed as part of Transportation System Plan update. An update may include discussion of the increased emphasis on safety in how PDOT operates and prioritizes projects; the increased emphasis on bikes as a mode of transportation; and motor vehicle diversion for bike boulevards.

- *6.4 Classification Descriptions:* There could be changes to all classifications in the TSP update.
- *6.6 Transit Classification Descriptions:* Might need to be updated based on Streetcar Plan and Primary Transit Index work.
- *6.7 Bicycle Classification Descriptions:* Could be changes with Bike Master Plan.
- *6.8 Pedestrian Classification Descriptions:* Could be additions and/or changes with TSP update. May consider adding trails.
- *6.11 Street Design Classification Descriptions:* Classification descriptions may be modified to be more prescriptive, will be discussed in the TSP update process.
- *6.18 Adequacy of Transportation Facilities:* Need to update and change LOS for land use reviews.
- *6.20 Connectivity:* Needs further review for possible changes.
- *6.23 Bicycle Transportation:* Possible changes with Bike Master Plan
- *6.24 Public Transportation:* Possible changes with Streetcar and Primary Transit Index work
- *6.28 Travel Management:* Needs update (see sustainability assessment for further details).
- *6.33 Congestion Pricing:* Needs update (see sustainability assessment for further details).
- *6.34 North Transportation District:* Objectives for all transportation districts could change with update of TSP as projects are completed and priorities shift within each district. Objectives should be included for all transportation districts.

- *6.41 Central City Transportation District:* Policy will be reviewed and updated as part of the Central City Plan.

**Goal 7: Energy**

The entire policy is out of date. The goal, policies, and objectives should be updated to reflect current goals, policies, targets, and practices.

**Goal 8: Environment**

Entire policy should be updated. Additional policy related to green infrastructure and watershed planning should be included.

- *8.2 Central City Transportation Management Plan:* Out-of-date – CCTMP is becoming part of the Central City Plan. The environmental mandate is no longer the primary reason for CCTMP, although many environmental issues related to the central city and compact urban form still exist. There are other environmental issues that need to be addressed in policy.
- *8.3 Air Quality Maintenance Strategies:* Out-of-date, should be reviewed further.
- *8.4 Ride Sharing, Bicycling, Walking, and Transit:* This policy is out-of-date and should be modified to reflect new information and programs.
- *8.5 Interagency Cooperation: Water Quality:* Small issues (terminology, etc) but relevant overall. Policy is implemented inconsistently.
- *8.7 Land Use and Capital Improvements Coordination:* Small issues but relevant overall.
- *8.8 Groundwater Protection:* Needs to be updated to reflect current program.
- *8.9 Open Space:* Implementation does not match intent – need to designate and protect open spaces.
- *8.11 Special Areas:* Small issues but relevant overall. Should include Tyron Creek Watershed.
- *8.14 Natural Resources:* As part of the Portland Plan we should consider whether and how to measure impacts. If impacts are measured, should projects be put on hold or stopped if natural resources are impacted to a specific degree?
- *8.15 Wetlands/Riparian/Water Bodies Protection:* The Portland Plan should consider whether and how to measure impacts of infrastructure projects. If impacts are measured, should projects be put on hold or stopped if natural resources are impacted to a specific degree?
- *8.16 Uplands Protection:* The Portland Plan should consider whether and how to measure impacts of infrastructure projects. If impacts are measured, should projects be put on hold or stopped if natural resources are impacted to a specific degree?
- *8.17 Wildlife:* The Portland Plan should consider whether and how to measure impacts of infrastructure projects. If impacts are measured, should projects be put on hold or stopped if natural resources are impacted to a specific degree?
- *8.18 Natural Resources Management Plans:* The Portland Plan should consider whether and how to measure impacts of infrastructure projects. If impacts are measured, should projects be put on hold or stopped if natural resources are impacted to a specific degree?

**Goal 10: Plan Review**

- *10.4 Comprehensive Plan Map:* Open Space designation should be reviewed.

**Goal 11: Public Facilities**

- *11.1 Service Responsibility:* Some relevant areas, but serious gaps exist. Current implementation may not match goal intent for all infrastructure systems.

**Public Right of Ways**

Entire policy should be updated to reflect "green streets" and new technologies and goals. TSP update will also review this policy section.

- *11.10 Street Design and Right-of-Way Improvements:* Policy discussion is needed around street design policies, particularly the need for sidewalks on each side policy, and the desire to reflect neighborhood character.
- *11.11 Street Plans:* Discussion needed - could/should there be a way to modify a local street plan without a comprehensive plan review or modification? Are there other ways to do street plans?

**Water Service**

Should be updated to reflect the goal of establishing emergency interconnections with outside users.

- *11.27 Alternate Source:* Small issues but relevant overall. Policy is implemented inconsistently.
- *11.29 Storage:* Policy has been changed – this policy, as currently written, is no longer relevant and should be removed.
- *11.30 Fire Protection:* Policy needs complete overhaul. Current implementation may not match goal intent.
- *11.32 Outside User Contracts:* Small issues but relevant overall. Policy is implemented inconsistently.
- *11.34 Outside User Storage:* Some relevant areas, but serious gaps exist. Current implementation may not match goal intent.
- *11.36 Water Pressure:* Policy needs complete overhaul. Current implementation may not match goal intent.

**Parks and Recreation**

This section does not comprehensively reflect current thinking, policies, or practices, and should be revised and integrated into a more complete policy section on parks, recreation, and open space.

**Public Safety**

*(Still under review)*

**Schools**

- *11.57 Safety:* Could include additional language related to Safe Routes to School.

**Goal 12: Urban Design**

The CCTMP and Central City Plan should be part of urban design policy. Currently, the pedestrian mode is called out as critical to urban design and Portland's character. The policy may need to be updated to reflect the urban design impacts of streetcar, bike, and transit modes.

- *12.1 Portland's Character:* May want to update Objective C to reflect placemaking potential of green infrastructure.

## **Other Plans and Policies**

The Citywide Systems Plan will draw from other plans and policies created and adopted by the City's infrastructure bureaus. A partial list of these plans can be found below. A number of these plans will be updated within the timeframe of the Portland Plan, these plans are noted with an asterisk (\*).

### ***General***

Public Facilities Plan Summary Document\*  
Pleasant Valley Plan District\*  
Pleasant Valley Public Facilities Plan\*  
Citywide Asset Status & Conditions Report\*  
Urban Services Policy  
Urban Services Program  
Lower Columbia River Steelhead Recovery Program  
Utility Relocation Costs, Final Procedures for Allocation & Present Value Calculations

### ***Transportation***

Regional Transportation Plan\*  
Public Facilities Plan—Transportation Element\*  
Transportation System Plan\*  
Primary Transit Corridor Plan\*  
Central City Transportation Management Plan\*  
Bicycle Master Plan\*  
Freight Master Plan  
Pedestrian Master Plan  
Design Standards for Public Streets  
Pavement Maintenance Policy & Practice  
Southwest Urban Trails Plan

### ***Bureau of Environmental Services***

Public Facilities Plan—Sanitary Sewer Element\*  
Public Facilities Plan— Combined Sewer Element\*  
Public Facilities Plan— Drainage Element\*  
Public Facilities Plan—Wastewater Treatment Element\*  
Public Facilities Plan\*  
Actions for Watershed Health: 2005 Portland Watershed Management Plan  
Stormwater Management Manual  
Combined Sewer Overflow (CSO) Facilities Plan  
Green Streets Policy  
Habitat Conservation Plan  
Water Management and Conservation Plan  
System Plan\*

### ***Office of Management and Finance***

Public Facilities Plan—Fire, Rescue and Emergency Services\*  
Public Facilities Plan—Police\*  
Public Facilities Plan—General Services\*

**Parks**

Metro Greenspaces Master Plan\*  
Public Facilities Plan—Parks and Recreation\*  
Parks 2020 Vision  
Strategic Management Plan  
Capital Investment Strategy  
Developed Parks Strategy\*  
Service Delivery Strategy  
Natural Areas Acquisition Strategy  
Recreational Trails Strategy  
Urban Forestry Management Plan  
Parks & Recreation Total Asset Management Plan  
Cultural and Historical Asset Plan  
Parks & Recreation Asset Disposal Plan  
Individual Park Master Plans  
Parks System Development Charge Regulations  
PP&R Public Involvement Procedures  
Salmon Safe Certification

**Water**

Public Facilities Plan—Water Element\*  
Distribution System Master Plan  
Infrastructure Master Plan  
Portland Water Bureau Asset Management Plans  
Operations & Maintenance Manuals  
System and Security Vulnerability Assessments  
Consequence and Likelihood of Failure and Effectiveness Measures (CLEM)  
Systemwide Asset Management Plan\*  
Water Management and Conservation Plan\*  
Habitat Conservation Plan\*

**Affordable Housing**

Portland Development Commission; 2008-2012 Strategic Plan  
Borrower's Asset Management Guidelines  
Central Eastside Urban Renewal Area Housing Strategy  
Downtown Target Area Housing Implementation Strategy – FY 2001-2006  
Gateway Housing Strategy  
Housing Implementation Strategy Consolidated Report FY 2002/03  
Interstate Housing Strategy  
Lents Town Center Housing Strategy  
Lloyd District Housing Strategy  
North Macadam URA Housing Development Strategy (South Waterfront)  
River District Housing Implementation Strategy Annual Report 2007  
Tax Increment Financing (TIF) Affordable Housing Policy  
Tax Increment Financing (TIF) Set-Aside for Affordable Housing  
Tax Increment Financing for Affordable Housing – Income Guidelines