

# Chapter 4

## Infrastructure and Service Delivery

### Urban Service Provision

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The City of Portland is the primary provider of infrastructure facilities and services, including transportation, water, sanitary sewer, stormwater, civic facilities, and parks and recreation, within the Portland urban services boundary (USB). The urban service area largely corresponds to areas within the city limits of Portland, but also includes additional unincorporated areas (see Figure 4.1 and the City's Comprehensive Plan Map).

The City of Portland partners with a variety of agencies and organizations to provide infrastructure services within the Portland urban service boundary, see below. While not explicitly discussed in this report, the capacity of these partner agencies to provide necessary services affects the City of Portland's service capabilities and demands. As part of the Comprehensive Plan Update, the City of Portland has or should establish intergovernmental service agreements with agency partners that provide urban services within the Portland Urban Service Boundary, in accordance with Oregon Revised Statute 195 and 197. These service partners are noted with an asterisk (\*) below.

In some cases, the City of Portland provides infrastructure services to areas outside of the City of Portland urban services boundary, through service contracts with neighboring jurisdictions.

### Service Responsibilities

The City of Portland provides the following public facilities and services within Portland:

#### Transportation

The City of Portland manages and/or regulates public rights-of-way and manages and maintains a variety of transportation facilities. Transportation facilities and services are also provided by a variety of other public agencies:

- Multnomah County\* manages and maintains six Willamette River bridges.
- The Oregon State Department of Transportation\* manages the State highway system, including the Marquam, Fremont, Interstate and Glenn Jackson bridges.
- TriMet\* provides and operates the regional transit system, including the Tilikum Crossing bridge, with the exception of the Portland Streetcar which is owned by the City of Portland, operated with assistance from Portland Streetcar Inc, and funded in partnership with TriMet; and the Portland Aerial Tram, which is owned by the City and operated in partnership with the Oregon Health Sciences University (OHSU).
- The Port of Portland\*, a regional agency, operates several marine terminals and the Portland International Airport.

- The BNSF Railway, Union Pacific Railroad, Portland and Western Railroad, Portland Terminal Railroad, Peninsula Terminal Railroad, and Amtrak move goods and people by rail.

### **Sanitary sewer, stormwater, and flood management**

The City of Portland is the primary provider of sanitary sewers, wastewater treatment, stormwater management and conveyance, and flood management except as follows:

- Washington County's Clean Water Services\*, the Port of Portland, and the Oregon Department of Transportation provide stormwater management and conveyance to some areas of Portland.
- Gresham, Milwaukie, Clackamas County Service District #1, and Clean Water Services provide conveyance and treatment of sewage in some areas of Portland.
- The Multnomah County Drainage District No 1\*, Peninsula Drainage District No 1\*, and Peninsula Drainage District No 2\* provide stormwater management and conveyance services and flood mitigation and control in much of the Columbia Corridor. New agreements are in negotiations.
- Management of stormwater on private property has an impact on the amount and quality of stormwater entering public stormwater systems.
- The East and West Multnomah Soil and Water Conservation Districts, governmental agencies, provide technical, financial and educational assistance to support efforts to conserve and restore natural resources within their districts.
- Non-governmental associations, such as Watershed Councils and Friends groups, steward and support the protection, restoration and enhancement of the city's watersheds.

### **Water supply and distribution**

The City of Portland is the primary provider of water supply and distribution, except in areas where service is provided under agreement with water districts, see below. Except as noted below, these water districts are wholesale customers of the Portland Water Bureau and therefore rely, to some degree, on the water supply, transmission, and storage infrastructure of the City of Portland.

- The Rockwood People's Utility District\* provides water infrastructure and services to some areas of east Portland.
- The Burlington\*, Tualatin Valley\*, Valley View\*, West Slope\*, Palatine Hill\*, and Alto Park\* Water Districts and the Lorna Water Company provide water service to primarily unincorporated areas within the Portland urban service boundary to the west, southwest, and northwest of Portland.
- The Clackamas River Water District\* and Sunrise Water Authority\* provide water services to unincorporated areas within Portland's urban service boundary to the south of Portland. These water districts operate in partnership with each other through a cooperative agreement and use the Clackamas River as their main water supply source.

### **Parks and recreation**

The City of Portland is the primary provider of public parks, recreational facilities, and natural areas. The City also manages Portland's urban forest, including regulation of street trees, public trees, and some

private trees, and development and implementation of strategies, education programs, and best management practices. Partners include:

- Oregon State Parks owns and operates Tryon Creek State Natural Area.
- Metro, the regional government, manages regional parks and natural areas, a number of spectator facilities, and the Oregon Zoo.
- Other non-governmental providers, such as the Audubon Society, own and maintain natural areas and public open spaces in Portland.
- Non-profit associations, “friends” groups, councils, and volunteer organizations help steward and support the City’s parks, natural areas, trails, facilities, and arts and recreation programs.

### **Green infrastructure**

The City of Portland protects, restores, constructs and manages a variety of green infrastructure assets, such as trees, natural areas, ecoroofs, green street facilities, wetlands, and natural waterways. Other governmental agencies, nonprofit organizations and private entities also play a large role in the protection and stewardship of these resources.

Within the City government, responsibility for green infrastructure assets is divided among various City bureaus, including the Bureau of Environmental Services, Portland Parks & Recreation, the Bureau of Transportation, Portland Water Bureau, and Office of Management and Finance. Bureaus make capital and programmatic investments, and maintain diverse partnerships, to support management of the city’s green infrastructure. In addition, because green infrastructure provides multiple infrastructure services and functions, planning, acquisition, development, restoration, and long-term management of green infrastructure assets may be provided by individual bureaus or through cross-bureau partnerships.

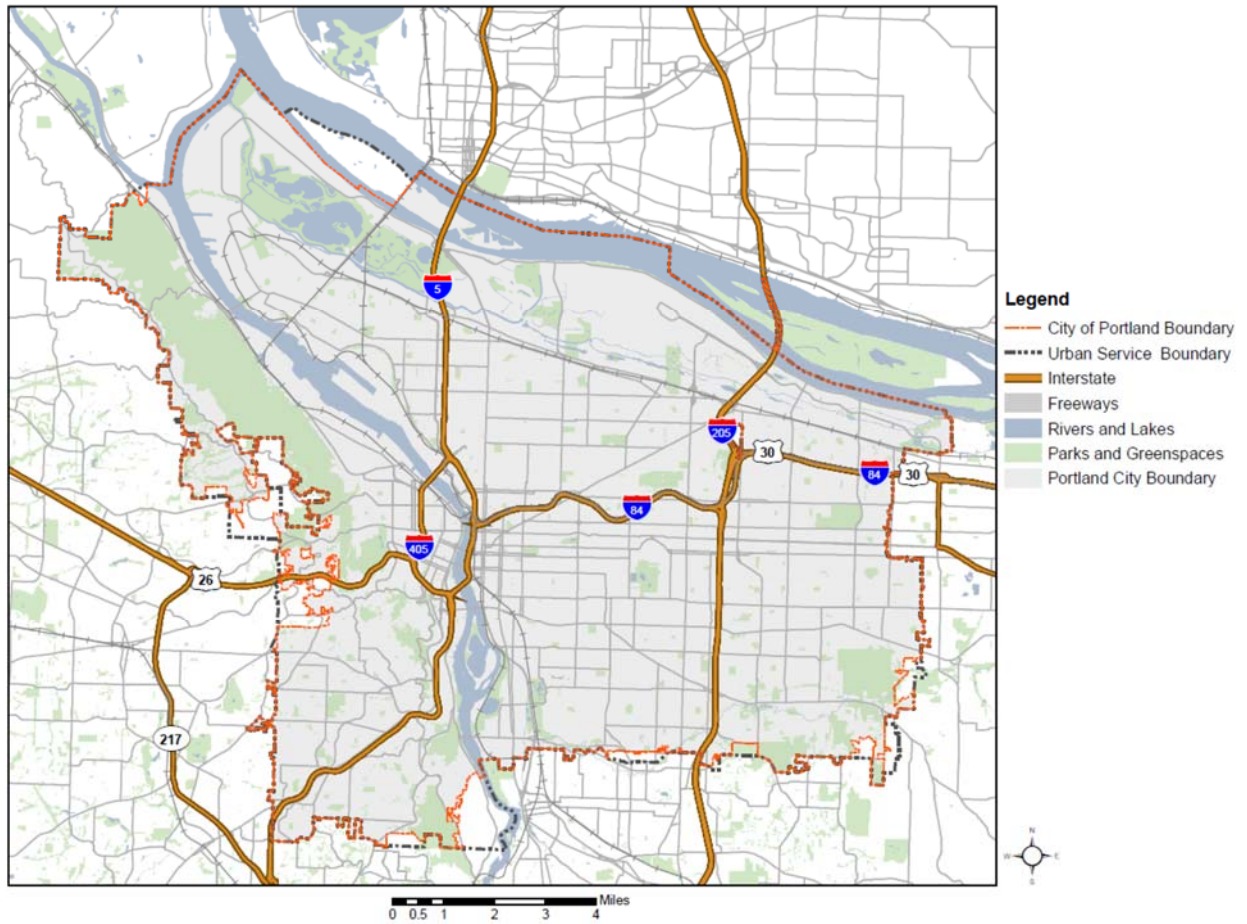
### **Public safety**

Public safety and emergency services, including police, fire, and emergency management, are provided primarily by the City of Portland. Portland Fire & Rescue and the Portland Police Bureau participate in mutual aid agreements with all fire agencies bordering the City of Portland. The goal of mutual aid is to lend or receive fire protection and emergency medical services assistance across jurisdictional boundaries. The City also operates the regional 9-1-1 center and related systems. In addition, the Port of Portland provides police, fire, and rescue services for the Portland International Airport.

### **Solid waste, composting and recycling**

The City of Portland regulates the collection and hauling of solid waste, compost, and recycling. Metro is the regional solid waste authority, charged with ensuring that the region’s solid waste is managed in a manner that protects public health and safety and safeguards the environment. Metro regulates facilities and operates transfer stations; private companies collect, transfer, process, and dispose of solid waste, compost, and recycling. The City partners with Metro and supports Metro’s work to ensure sound landfill management.





Figure 4.1. Portland's Urban Service Boundary and City Limits



## Citywide inventory

The City of Portland provides and maintains infrastructure systems that supply water, sewer, transportation, parks and civic services. These infrastructure systems represent a significant investment and have a current replacement value of more than \$31 billion.<sup>14</sup> Tables 4.1 and 4.2 summarize of the City’s infrastructure inventory, including the status, value, and condition of assets. These tables only include assets owned and/or managed by the City of Portland and do not reflect assets owned by partner agencies or by private property owners (e.g. private trees). Assets owned by partner agencies and private entities contribute to the overall provision of public services in the City of Portland but are not a component of this Plan.

Table 4.1 Summary of the City of Portland’s Infrastructure Systems (2013)

<b>Transportation</b>	<ul style="list-style-type: none"> <li>4,842 lane miles of roads</li> <li>160 bridges</li> <li>1,072 traffic signals</li> <li>8.8 million square yards of sidewalks</li> <li>37,813 improved corners</li> <li>55,389 street lights</li> </ul>		
<b>Environmental Services</b>	<ul style="list-style-type: none"> <li>1,454 miles of separated storm and sanitary sewer pipes</li> <li>885 miles of combined sewer pipes</li> <li>97 pumping stations</li> <li>2 wastewater treatment plants</li> <li>47,779 storm and sanitary sewer access structures</li> <li>1,900 green stormwater facilities (green streets, ponds, and swales)</li> <li>885,312 feet of culverts and ditches</li> <li>8,587 underground injection control facilities (UICs) and sedimentation manholes</li> </ul>		
<b>Water</b>	<ul style="list-style-type: none"> <li>Bull Run watershed</li> <li>Columbia South Shore wellfield</li> <li>238 million gallons finished storage</li> <li>75 miles of conduits</li> <li>49 miles of transmission mains</li> <li>2,200 miles of pipes</li> <li>1,600 culverts</li> <li>2 dams</li> </ul>	<ul style="list-style-type: none"> <li>33 wells</li> <li>184,000 service lines</li> <li>44,000 valves</li> <li>184,800 meters</li> <li>14,200 hydrants</li> <li>38 pump stations</li> <li>70 storage tanks</li> </ul>	
<b>Parks &amp; recreation</b>	<ul style="list-style-type: none"> <li>11,546 acres of parkland and natural areas</li> <li>5 golf courses</li> <li>8 botanical / public gardens</li> <li>1 motorsports raceway</li> <li>4 stadiums</li> <li>13 pools</li> <li>14 community and arts centers</li> </ul>	<ul style="list-style-type: none"> <li>155 miles of regional trails</li> <li>129 playgrounds</li> <li>232 sports fields</li> <li>48 community gardens</li> <li>124 tennis courts</li> <li>5 skate parks</li> <li>33 dog off leash areas</li> </ul>	
<b>Other facilities &amp; systems</b>	<p>Facilities:</p> <ul style="list-style-type: none"> <li>8 Police precincts and facilities</li> <li>8 office, PDC facilities, and other buildings</li> <li>5 spectator and performing arts facilities</li> </ul>	<p>Technology:</p> <ul style="list-style-type: none"> <li>Communications networks</li> <li>Production Services</li> <li>Strategic technology</li> </ul>	

<sup>14</sup> City of Portland, “2013 City Assets Report”.



32 fire stations and facilities

Electronic equipment and software

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Table 4.2 City of Portland’s Infrastructure: Inventory, Value, and Condition (2013)

Capital Asset Class	Description	Replacement Value		Current Condition (in %)						Confidence
		\$ million	Confidence	Very Good	Good	Fair	Poor	Very Poor	TBD	
<b>Transportation</b>		<b>\$8,066.8</b>								
Arterial & collector streets	1,871 lane miles	\$2,451.0	Moderate	18	21	21	32	8	0	High
Local streets	2,971 lane miles	\$2,304.8	Moderate	12	19	22	36	11	0	High
Sidewalk system										
sidewalks	8,833,812 sq. yds	\$1,113.1	High	10	25	30	25	10	0	Moderate
curbs	3,260 centerline miles	\$533.6	Moderate	12	50	16	12	10	0	Moderate
corners	37,813 corners	\$158.5	High	10	18	17	28	27	0	High
Structures (bridges only)	160 bridges	\$378.5	Optimal	6	42	33	18	1	0	Optimal
Traffic signals (hardware only)	1,072 traffic signals	\$275.3	Moderate	15	16	23	23	23	0	Moderate
Street lights	55,389 street lights	\$194.3	Low	4	12	39	30	15	0	Low
Support facilities	various buildings	\$6.9	None to Low	condition ranges from poor to very good						None to Moderate
Other transportation assets	Streetcar, aerial tram, signal controllers, traffic calming devices, street signs, pavement markings, meters, retaining walls, stairways, guardrails, harbor wall.	\$650.8	Low to Optimal	condition range from poor to very good or tbd						Low to Optimal
<b>Environmental Services</b>		<b>\$12,517.1</b>								
Combined sewers	885 mi. of pipe & access	\$5,018.8	High	52	18	12	12	6	0	High
Sanitary sewers	1000 mi. of pipe & access	\$4,104.4	High	72	20	6	2	0	0	High
Stormwater system	454 mi. of pipe; 1900 green stormwater facilities	\$1,946.7	Moderate	27	29	15	22	7	0	High
Wastewater treatment	2 treatment plants & 97 pump stations	\$2,168.0	Moderate	20	20	30	20	10	0	Low

Capital Asset Class	Description	Replacement Value		Current Condition (in %)						
		\$ million	Confidence	Very Good	Good	Fair	Poor	Very Poor	TBD	Confidence
<b>Water</b>		<b>\$5,472.0</b>								
Supply	126 miles of roads, 1609 culverts, 12 bridges, 1 200-ft high concrete dam, 1 110-ft high earth dam, ASR wells, 33 well sites with drilled wells, pumps and motors, monitoring wells, 1 groundwater pump station, treatment facility, tank, and collection mains to bring water from wells to pump station	\$826.1	Moderate	4	54	39	3	0	0	Moderate
Transmission	75 miles of large diameter conduits, with various supports, 9 conduit trestles 7 river crossings, 49 miles of large diameter transmission mains	\$1,202.4	Moderate	6	43	44	8	0	0	Moderate
Terminal storage	238 million gallons finished water storage, interconnecting piping, post-storage treatment facilities, and microhydro facility.	\$786.9	Moderate	0	2	24	74	0	0	High
Distribution	2200 miles of distribution pipes, 184,000 service lines, 44,000 system valves, 6800 large meters, 178,000 small meters, 14,200 hydrants, 24,000 backflow devices, 38 pump stations, 70 storage tanks	\$4,176.3	High	14	47	31	6	2	0	High
Support facilities	13 support buildings, SCADA, vehicles, construction equipment, lab equipment, computers, and infrastructure components in inventory	\$105.0	High	24	17	10	16	32	0	Moderate



Capital Asset Class	Description	Replacement Value		Current Condition (in %)						Confidence
		\$ million	Confidence	Very Good	Good	Fair	Poor	Very Poor	TBD	
<b>Parks and Recreation</b>		<b>\$984.3</b>								
<b>amenities</b>				--	--	--	--	--	--	--
furnishings in developed parks	decorative elements and furnishings: memorials, plaques, display fountains, benches, tables, drinking fountains in developed parks and natural areas	\$17.60	Low	10	38	37	9	2	4	Moderate
furnishings in natural areas				0	0	0	0	0	100	TBD
decorative elements				0	0	0	0	0	100	TBD
buildings and pools	community and arts centers, pools indoors and outdoors, restrooms, maintenance and utility buildings	\$268.50	High	--	--	--	--	--	--	--
major buildings				61	9	26	0	4	0	High
minor buildings				42	19	29	6	3	0	High
recreation features				--	--	--	--	--	--	--
gathering places				0	0	0	0	0	100	TBD
marine	gathering places, play areas, sports fields and courts, water play areas, docks and boat ramps	\$228.60	Low	71	0	6	23	0	0	High
off-leash areas				0	0	0	0	0	100	TBD
play areas				3	38	52	5	2	0	High
sports courts and fields				39	24	15	19	3	0	Low
water play				0	0	0	0	0	100	TBD
built infrastructure	circulation systems such as trails, walks, roads and parking lots; utilities	\$63.80	Low	--	--	--	--	--	--	--
circulation				0	41	40	18	0	0	Moderate
utilities				0	0	0	0	0	100	TBD
green infrastructure	natural areas, gardens, turf, flower and shrub beds, trees	\$405.8	Low	--	--	--	--	--	--	--
natural areas				50	31	6	12	1	0	Moderate
developed areas				10	34	45	7	4	0	Low

Capital Asset Class	Description	Replacement Value		Current Condition (in %)						
		\$ million	Confidence	Very Good	Good	Fair	Poor	Very Poor	TBD	Confidence
<b>Civic</b>		<b>\$1,318.5</b>								
<b>Facilities (buildings, structures)</b>										
Office buildings	Portland Building, 1900 Building, City Hall	\$172.3	High	0	38	62	0	0	0	High
Other buildings	Archives and Records Center, Kerby Garage, and Portland Communications Center	\$69.3	High	0	68	32	0	0	0	High
PDC facilities	Train station and related buildings and Centennial Mills	\$48.7	Moderate	0	0	80	20	0	0	High
Spectator facilities	Memorial Coliseum, Rose Quarter parking garages, and Providence Park	\$529.6	Moderate	0	37		63	0	0	High
Performing Arts facilities *	Five stages in three buildings (Arlene Schnitzer Concert Hall, Keller Auditorium, and Antoinette Hatfield Hall)	\$111.2	Moderate	tbd	tbd	tbd	tbd	Tbd	0	TBD
Fire facilities	30 stations, administration building and support facility	\$96.8	High	0	98	0	2	0	0	High
Police facilities	Four precincts, Justice Center, property warehouse, equestrian division, and vehicle storage lot	\$108.8	High	0	100	0	0	0	0	High
<b>Technology Services</b>										
BTS Communications	Data networks, WiFi network, 800 MHz radio system	\$70.8	Moderate	0	97	3	0	0	0	High
BTS Production Services	Storage area network, core servers, email system	\$2.8	Moderate	0	77	23	0	0	0	High
BTS Strategic technology	Large corporate applications owned and managed by BTS such as GIS	\$6.2	Moderate	0	84	16	0	0	0	High
Electronic equipment and software-other bureaus	Video systems, electronic equipment, Office Suite software, bureaus' PC's and laptops	\$8.2	Moderate	0	100	0	0	0	0	High
Strategic technology-other bureaus	Large corporate applications such as TRACS, CAD, PPDS, CIS, and EBS	\$93.8	Moderate	0	88	12	0	0	0	High

\* OMF is beginning to work with Metro/MERC on the status of performing arts facilities.

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## Infrastructure Coordination

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Providing effective and efficient public facilities and services requires coordination across various City bureaus and offices. This coordination ranges from planning and asset management to long-range financing, annual budgeting, construction, and development review.

### Coordinated Facilities and Services

In support of the City's overall mission, individual bureaus maintain distinct, but often complementary, missions and partner in multi-purpose facilities. A few examples include:

- The Bureau of Environmental Services and Portland Parks & Recreation share an interest in the protection, restoration, and enhancement of the city's green infrastructure, including the urban forest – as it provides stormwater, recreation, and natural resource value and services.
- Portland Parks & Recreation and the Bureau of Transportation cooperatively plan for and manage the City's trail systems and play a role in the provision of an interconnected, multi-modal transportation and recreation system.
- The Bureau of Environmental Services and Bureau of Transportation partner on right-of-way and street improvements to manage stormwater, including green streets.
- The Portland Water Bureau and Portland Parks & Recreation operate co-located facilities at places like Powell Butte Park, home to the City's largest water reservoir, and at the City's hydroparks.
- The Portland Police Bureau, Portland Fire & Rescue (PF&R), and the Office of Management and Finance, including the Bureau of Internal Business Services (BIBS) and the Bureau of Technology Services (BTS), provide buildings, facilities, technology, vehicles and apparatus that directly support the work of the Bureau of Environmental Services, Portland Water Bureau, Portland Bureau of Transportation and Portland Parks & Recreation.

### Asset management

The City of Portland has asset management programs in the five major infrastructure bureaus – the Bureau of Transportation, Bureau of Environmental Services, Portland Water Bureau, Portland Parks & Recreation, and the Office of Management and Finance. While each bureau's asset management activities differ based on the needs of their unique systems, they coordinate with each other on a one-on-one basis and through the City Asset Managers Group (CAMG). The CAMG is a cross-bureau effort to establish best practices and continually improve performance-based information available to the public, bureaus, and city leaders. This information guides choices in the types and levels of service desired. The CAMG produces an annual City Assets Report that provides information on the value, condition, and funding needs for the City's assets. The information contained in this report helps decision-makers make more informed decisions in the annual budget process. More information on asset management can be found in Chapter 2.

## Annual City Budget<sup>15</sup>

Every year, City bureaus participate in the annual budget process, which sets appropriation levels for operations and capital projects for the following fiscal year. The budget process is governed by Oregon's Local Budget Law, Chapter 294 of the Oregon Revised Statutes, which provides standard procedures for preparing, presenting, and administering local budgets, and ensures citizen involvement in budget preparation.

Budgeting in Oregon is an effort shared by citizens and elected and appointed officials. Citizens involved in the budget process work to ensure the services they require and want are adequately funded. City officials are responsible for building a budget that reflects the public interest and is structurally correct.

### Budget Process

There are four primary steps in the creation of each year's budget – preparation of a proposed budget, approval, adoption, and amendment.

- **Preparing the Proposed Budget:** Acting as the Budget Officer, the Budget Director is responsible for overseeing the preparation of the Mayor's Proposed Budget for presentation to the City Council, sitting as the Budget Committee. The Proposed Budget is the culmination of an extensive process of budget development, analysis, and revision. Bureaus prepare Requested Budgets in accordance with direction given by the Mayor. These are submitted to the City Budget Office, which then analyzes the requests.
- **Approving the Budget:** In accordance with Local Budget Law, the City Council convenes to consider the Proposed Budget. The public is encouraged to attend and provide testimony on the Proposed Budget. The City Budget Office then summarizes the changes from the Mayor's Proposed Budget to the Approved Budget. This information and copies of the Proposed Budget are sent to the Tax Supervising & Conservation Commission for review, analysis, and certification.
- **Adopting the Budget:** City Council votes to officially adopt the budget before the start of the new fiscal year. Changes between the time the budget is approved and final adoption are limited to technical adjustments and other amendments defined by Local Budget Law.
- **Amending the Budget:** Changes after budget adoption are completed through the budget monitoring process (BMP), which also includes a supplemental budget. During the BMP, bureaus can request to transfer appropriation. In supplemental budgets, bureaus may ask to increase appropriation. The BMP and supplemental budgets provide Council the opportunity to change the budget three times a year.

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<sup>15</sup> This section was adapted from the 2013-2014 City of Portland Annual Budget. The full description of the budget process can be found in Volume 1: Citywide Summaries and Bureau Budgets, pages 34-37.

## Public Involvement Process

The City engages in a proactive public outreach effort as part of the budget process through:

**Bureau Budget Advisory Committees:** Bureau-specific Budget Advisory Committees, made up of City staff, community members, and technical experts, review the specific bureau's draft budget request, weigh in on the program and service rankings, and provide input on proposed reductions.

**Community Budget Advisors:** Five appointed community volunteers convene with City Council for work sessions to review decision packages.

**Community Hearings:** In advance of the Adopted Budget, the City holds community hearings where Portlanders provide input. The feedback Portlanders provide helps Council prioritize services.

**Portland Utility Board (PUB):** The PUB is an appointed body of nine community members who provide independent and representative review of water, sewer, and stormwater financial plans, budgets, and rates. The PUB serves as the Budget Advisory Committee for both the Water Bureau and Bureau of Environmental Services, meets year-round, and oversees financial plans, capital improvements, annual budget development, and rate setting of the City's water, sewer, and stormwater services. They report directly to City Council.

**Citizens' Utility Board:** The Citizens' Utility Board of Oregon is a nonprofit organization that provides outside independent review of the Portland Water Bureau and the Bureau of Environmental Services on behalf of residential ratepayers.

**Direct Public Testimony:** Community members may directly contact the Mayor and Commissioners with input for the budget. In addition to participating in the budget advisory committees, PURB, and community budget forums described above, community members can also personally testify on bureau budget requests at annual budget hearings, at the Tax Supervising and Conservation Commission hearing, and at the adopted budget hearing.

## Development review

Building permits are reviewed by multiple City bureaus, including the infrastructure bureaus discussed in this report. The bureaus consider potential impacts of proposed development on infrastructure levels of service, and may require improvements to infrastructure before a land use permit is issued. Bureaus also review requests for most land use adjustments, such as conditional uses and land divisions. In these instances, they may require improvements – such as building streets, sidewalks, sewer and water lines or planting trees – as a condition of approval. In some instances, system development charges (SDCs) are assessed instead of or in addition to requiring improvements to infrastructure. The SDCs are assessed based on the potential impact of the proposed development.

## Annexation<sup>16</sup>

The City of Portland is the primary infrastructure provider within the City of Portland's limits of incorporation. Annexation is the process of changing municipal boundaries to bring in adjacent unincorporated areas into an existing city, typically to provide urban services not presently available. Either a city or property owner may initiate annexation.

The City of Portland has adopted an urban service boundary (USB) that establishes the area for which it intends to provide urban services at some point in the future. Portland's urban service boundary was adopted in cooperation with surrounding jurisdictions. Property owners within Portland's urban services boundary may apply to the City of Portland to annex in order to receive urban level services, such as connection to City sewer and water systems. In these areas, the City plans for eventual service provision to urban service standards upon annexation of these properties into the City of Portland.

The cities of Portland and Gresham annexed virtually all adjacent unincorporated areas of Multnomah County in the late 1980s and early 1990s to provide sewers and other urban services to this developing area. The City is not currently pursuing any large-scale annexations of nearby unincorporated areas; property owners initiate most small-scale annexations.

## Utility Coordination

When utilities need to access pipes and other facilities below roadways for maintenance or replacement work, they must cut through and then patch the pavement. This can cause travel delays and community impacts during construction and can affect the quality, integrity and appearance of the pavement surface. The City of Portland aims to manage the pavement degradation and travel and community impacts of pavement cuts for utility work by coordinating capital projects and through a 5-year moratorium on new pavement surfaces. The moratorium limits new cuts on new pavement surfaces, including overlays, inlays, reconstruction, and new construction of at least a half street or greater.

## Levels of Service

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Levels of service establish a framework for characterizing system deficiencies, developing and evaluating alternative solutions, and selecting recommended improvements.

### Water System

The Portland Water Bureau has established the following levels of service for the water system:

- 100% compliance with state and federal water quality regulations.
- No more than 5% of customers out of water for more than 8 hours a year.
- No customer out of water more than 3 times per year.

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<sup>16</sup> Adapted from City of Portland, "Annexation", accessed on July 15, 2013 at <http://www.portlandoregon.gov/bps/article/363163>.

- At least one working hydrant within 500 feet of service connection.
- Maintain minimum pressure of 20 pounds per square inch (psi) during normal demands.

The Portland Water Bureau also maintains a variety of other customer service, financial health, infrastructure management, workforce, and sustainability service levels.

### **Wastewater Collection System**

- The Bureau of Environmental Services has established the following levels of service for the wastewater collection system:
- Provide sewage service to support development consistent with the Comprehensive Plan where feasible.
- Customers properly connect and maintain sewer connections per City standards.
- In the combined sewer area, convey combined sewage to prevent releases to buildings or streets up to a 25-year storm frequency (a storm with a 4% chance of happening in any year).
- Prevent combined sewer overflows to frequencies established by the NPDES permit.
- Public sanitary/combined conveyance facilities are maintained in accordance with standards.
- In the separated sewer area, sewage releases to surface waters (SSOs) are prevented for storm events up to a 5-year frequency (a storm with a 20% chance of happening in any year).

### **Wastewater Treatment System**

- The Bureau of Environmental Services has established the following levels of service for the wastewater treatment system:
- Treatment plants are in compliance with NPDES effluent limits.
- 100% of biosolids are beneficially re-used.
- 90% of methane is beneficially re-used.

### **Stormwater System**

The Bureau of Environmental Services is in the process of developing a comprehensive system plan for stormwater, including levels of service. In the interim, the Bureau has established the following service categories and related performance indicators for the stormwater system:

- Protect public health and safety and property:
  - In the separated area, sewage releases to surface water are prevented for storm events up to a 5-year frequency. In the combined sewer area, prevent releases to buildings or streets up to a 25-year storm frequency.
  - Limit risk claims due to City stormwater.
  - Design and manage infrastructure to limit nuisance flood events.
  - In the UIC area, facilities are managed to effectively reduce pollution to the groundwater.
- Protect biological communities and improve ecological function:
  - Address water quality and quantity consistent with requirements of the Endangered

Species Act.

- Mitigate contamination of surface water and sediments through use of pollution reduction facilities.
- Minimize disruption to the hydrologic cycle by managing impervious area and through flow attenuation.
- Support community needs:
  - Address deficiencies that impede community improvements. Increased impervious surface area – whether public or private – requires an approvable discharge point for stormwater conveyance.

### Parks & Recreation System

- Provide a developed park or natural area within ½ mile from every household
- Provide a full-service community center within 3 miles of every household

Per Vision 2020, PP&R also seeks to build out the recreational trail system. More asset-specific service goals are outlined in Technical Papers, and as Bureau Performance Measures, identified in the Portland Parks & Recreation Strategic Plan. As Portland Parks & Recreation continues development of its new System Plan, it will continue refinement of recreational feature levels of service.

## Citywide Investment Strategy Summary

The Citywide Systems Plan contains a capital Investment Strategy, including over \$5.1 billion in projects, for the Bureau of Environmental Services, Portland Water Bureau, and Bureau of Transportation. For full information, see Chapters 6 through 8 and Appendix A. The projects and programs included in the Investment Strategy are intended to maintain existing assets, comply with regulatory mandates, and provide key levels of service to existing and future residents and businesses. The Investment Strategy is the basis for the Comprehensive Plan's List of Significant Projects, which identifies new facilities necessary to accommodate the residential and employment uses anticipated in the Comprehensive Plan.

Investment in the City's capital assets may utilize existing financial resources or may include issuance of long-term debt. A decision to issue debt as part of a capital investment strategy will include analysis of available resources to support full repayment of the debt, including whether repayment revenues are program-specific or City general funds. Recommendations regarding use of debt are centralized via the City's Debt Management program in the Office of Management and Finance, Public Finance & Treasury Division. Debt issuance must be authorized by City Council, and is conducted in conformance with the City's Debt Policy (FIN-2.12) and nationally recognized best practices.

Table 4.3 Investment Strategy Summary

Bureau	Estimated Investment Strategy Total* (2013-2033)
Environmental Services	\$1,731,749,000
Water	\$1,567,070,000
Transportation	\$1,857,036,516
<b>TOTAL</b>	<b>\$5,155,955,516</b>



\* Includes financially-constrained total

Though not required by State public facility planning statutes and rules, the Citywide Systems Plan also includes discussions of long-term investment and financial considerations for parks and recreation facilities (see Chapter 9) and other essential facilities and systems (see Chapter 10). The Plan does not provide detailed investment strategies for these systems.

## System Summaries

### Bureau of Environmental Services

The Bureau of Environmental Services focuses efforts on comprehensive, multi-purpose solutions across four program areas of the Investment Strategy – wastewater treatment, collection system maintenance and reliability, system development, and surface water (stormwater and watershed) management. These investments are driven by regulatory mandates, system risk (condition and capacity), and system plans including watershed planning and monitoring. The bureau anticipates nearly \$2 billion in investment in these programs over the next 20 years – see Table 4.4, Chapter 6 and Appendix A for more information on anticipated investments. Additional investment in ongoing operations and maintenance, green infrastructure programs, and other non-capital investments to meet stormwater, sewer, and watershed health system needs are not included here.

Table 4.4 Environmental Services Investment Strategy Summary

Program	FY 2013-2018	FY 2018-33
Wastewater Treatment	\$109,671,000	\$305,964,000
Collection System	\$328,896,000	\$702,800,000
System Development	\$23,462,000	\$60,000,000
Surface Water Management	\$73,441,000	\$127,515,000
<b>TOTAL</b>	<b>\$535,470,000</b>	<b>\$1,196,279,000</b>

### Portland Water Bureau

The Portland Water Bureau's Investment Strategy for the Citywide System Plan is divided into seven (7) primary programs: supply, transmission and terminal storage, distribution, treatment, regulatory compliance, customer service, and support. The Water Bureau anticipates over \$1.5 billion in new investment in these programs over the next 20 years – see Table 4.5, Chapter 7 and Appendix A. The Bureau's Investment Strategy provides greater detail on anticipated water projects and investments.

Table 4.5 Portland Water Bureau Investment Strategy Summary

Program	FY 2013-2018	FY 2018-33
Supply	\$14,291,000	\$88,500,000
Transmission and Terminal Storage	\$191,170,000	\$242,000,000
Distribution	\$244,197,288	\$461,650,000
Treatment	\$2,500,000	\$150,000,000
Regulatory Compliance	\$25,504,000	\$30,000,000
Customer Service	\$3,057,000	\$53,700,000

<b>Adopted Plan</b>	<b>June 2016</b>	<b>Citywide Systems Plan</b>
Support	\$10,000,000	\$50,500,000
<b>TOTAL</b>	<b>\$490,719,288</b>	<b>\$1,076,350,000</b>

### **Bureau of Transportation**

The Transportation System Plan (TSP) identifies projects and programs necessary to meet the mobility and access needs of Portland over the next twenty years. The Transportation System Plan is being updated to reflect the Comprehensive Plan Update and the update of the Regional Transportation Plan. The TSP serves as the transportation component of the Citywide Systems Plan. For reference, the TSP's project list is included in Appendix A.

### **Portland Parks & Recreation**

Portland Parks & Recreation has identified many infrastructure needs over the next 20 years to meet the level of service goals outlined in the Parks 2020 Vision, including:

- Acquisition for developed parks, natural areas, trails, recreation, and maintenance facilities.
- Maintenance of existing parks, natural areas, trails, and facilities
- Development of new community centers
- Development of new parks
- Improvements at existing developed parks
- New trails/improvements to existing trails
- Natural area parks

Portland Parks & Recreation maintains a 20-year capital improvement plan (CIP) list, which includes known growth and maintenance related projects that have been identified at this time. The CIP list does not yet include projects for locations where Portland Parks & Recreation has not yet acquired property or developed a master plan for a site, or projects for tree maintenance and canopy expansion investments. Further information about the Portland Parks & Recreation CIP list, including currently identified projects, can be found on the City of Portland's website at: <https://www.portlandoregon.gov/parks/63265>.

The Citywide Systems Plan does not include a detailed 20-year project list for Portland Parks & Recreation. A comprehensive system plan that reflects asset management needs and community priorities and includes a list of needed investments, costs, and funding sources, will be developed over the next few years. In addition, this information is not required as part of this Plan under Statewide Planning Goal 11: Public Facilities and related statutes and administrative rules.

### **Other Essential Facilities and Systems**

The Citywide Systems Plan does not include a detailed 20-year project list for public safety, technology, and other essential facilities and services because comprehensive system plans, including lists of needed investments, costs and funding sources, are not available at this time. In addition, this information is not required as part of this Plan under Statewide Planning Goal 11: Public Facilities and related statutes and administrative rules.