

**ATTACHMENT A  
of Ordinance No. 822**

**CITY OF TROUTDALE**  
**PUBLIC FACILITIES PLAN**



**Adopted May 27, 2014  
by the Troutdale City Council**

**Prepared by**

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planning group



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## 1. Purpose Statement

Oregon Administrative Rules (OAR) 660-011-0010 through OAR 660-011-0045, relating to Statewide Planning Goal 11, require cities and counties in Oregon to develop and maintain Public Facilities Plans to help assure that urban development within their boundaries is guided and supported by types and levels of urban facilities and services appropriate for the needs and requirements of the community, and that facilities and services are provided in a timely, orderly and efficient arrangement. Public Facilities Plans also are intended to serve as a framework for development within a city's urban growth boundary (UGB).

The Troutdale Public Facilities Plan (PFP) is intended to further the purposes of Statewide Planning Goal 11. The PFP includes the following information:

- Goals and policies as part of the City's Comprehensive Plan to guide planning, constructing and financing public facilities.
- Narrative descriptions of existing and planned water, wastewater and storm drainage facilities.
- Capital improvement plan for future construction of facilities. The plan contains information about all facility costs, schedule and funding sources.
- General financing plan indicating how the City plans to finance current and planned facilities and services.

Per Oregon Administrative Rules, public facility plans are required to address facilities associated with water, wastewater, stormwater and transportation and that is the primary focus of this document. Additional public facilities and services provided to Troutdale residents (e.g., libraries, police, fire and administrative services) also are briefly described in Section 6 of this Plan, but in less detail.

The information in this plan is based on the most recently updated City Master Plans for Water, Wastewater and Stormwater, along with more up-to-date information about the status and cost of needed future facilities, where available. Information related to transportation facilities is found in the City of Troutdale's Transportation System Plan (2014) and hereby incorporated by reference in this Plan.

It should be noted that there is no obligation on the part of the City to build the projects as described in the PFP or to meet the timeframe listed for the projects. The project list may be included as part of the Comprehensive Plan to show anticipated infrastructure needs based on known regulatory requirements and current assumptions about growth and the direction of future development. The list is intended only to provide a general indication of the facilities needed to support future growth. If growth trends change, or if new regulations are imposed on the City, or if technologies emerge that satisfy needs using

different methods than those assumed in master plans, the City may revise its public facilities investment strategy without amending the Comprehensive Plan or PFP.

It is expected that this Plan will be revised in the future to reflect updates to specific master plans, significant proposals for new development within or outside the city that prompt the need for review of public facilities plans, or other similar factors or events.

## 2. Goals and Policies

The following are goals and policies and implementation measures as part of the City's Comprehensive Plan under the *Public Facilities and Services Element*. They are organized by general topic. These goals and policies are consistent with state law, existing City policies and practices, and facility master plan recommendations, and are intended to promote efficient and effective provision of urban services and to protect natural resources.

### General Goal and Policies

**Goal:** Ensure the cost-effective provision of water, wastewater, and surface water management facilities for property owners, residents and businesses within the urban growth boundary of Troutdale.

### Policies

1. Ensure that urban development is provided with adequate public services.
2. Promote efficient use of urban and urbanizable land through effective provision of adequate public facilities and services.
3. Adopt, periodically review and update long range master plans for the City's water, sewer, and storm drainage systems.
4. Adopt and periodically update the Public Facilities Plan, an implementing element of the Comprehensive Plan, for development of public services and facilities in conformance with the policies of the Comprehensive Plan.
5. Comply with state and federal regulations for utility systems.
6. Finance the provision of public facility improvements and expansions in an equitable manner through the use of system development charges, developer funded/constructed improvements, easement and rights-of-way dedication, and other appropriate funding tools.

### Water Supply and Distribution

**Goal:** The City of Troutdale shall provide reliable and efficient potable water supply, treatment and distribution services to meet the current and future needs of Troutdale residents, businesses and other system users in an orderly and sustainable manner.

## Policies

1. The City shall be the sole public water service provider to all users within the City limits.
2. The City will encourage development and annexation that makes orderly and efficient use of its water system capacity.
3. The City will provide for the advanced construction of facilities to allow for growth and development commensurate with the City's Comprehensive Land Use Plan as budget allows and only where private development is not reasonably expected to directly provide such facilities.
4. The City will base decisions to construct additional water facilities on the capital improvement project list included in this plan, consistent with the Water Master Plan, and as updated by the City Public Works Department through its annual capital improvement and work planning efforts.
5. The City will comply with all local, state and federal water quality and quantity standards and regulations.
6. The City will recover degraded operational source capacity in its existing wells to the extent feasible.
7. The City will protect the physical performance of the existing wells to maintain capacity and improve reliability.
8. The City will develop and protect its existing water rights.
9. The City will develop new source capacity, as needed, to meet future water demands consistent with the City's Water Master Plan.
10. The City will conduct system upgrades needed to improve flow distribution and pressure throughout the water system.
11. The City will continue to improve the resiliency of the water system in order to survive emergency incidents and natural disasters – particularly earthquakes.
12. The City will encourage programs and incentives to reduce unnecessary water consumption by customers of the City's water system.

## Sanitary Sewer Collection and Treatment

**Goal:** The City of Troutdale shall provide reliable and efficient sanitary sewer collection and treatment services to meet the current and future needs of Troutdale residents, businesses and other system users, and to protect the land and water resources of the City and State, in an orderly and sustainable manner.

## **Policies**

1. The City of Troutdale shall be the sole provider of public sanitary sewer collection and treatment services to all properties within the City limits.
2. The City will encourage development and annexation that makes orderly and efficient use of its wastewater collection and treatment system capacity.
3. The City will base decisions to construct additional wastewater treatment facilities on the capital improvement project list included in this plan, consistent with the Sanitary Sewer Master Plan and as updated by the City Public Works Department through its annual capital improvement and work planning efforts.
4. The City will continue its efforts to reduce inflow and infiltration into the wastewater collection system to the extent such reductions are documented to be cost-effective and/or required by State or Federal regulation.
5. The City will periodically update its Sanitary Sewer Master Plan to maintain current and relevant planning for provision of sanitary sewer facilities and services.
6. The City will monitor the flows to pump stations identified in the Sanitary Sewer Master Plan as having the potential need for future improvements and periodically assess the need to provide increased pumping capacity.

## **Storm Drainage Collection and Disposal**

**Goal:** The City of Troutdale shall provide a reliable and efficient storm drainage management system that reasonably limits risks to people, property and the environment from both the quantity and quality of the City's urban storm water runoff, in an orderly and sustainable manner.

## **Policies**

1. The City, in conjunction with Multnomah County, ODOT and the Sandy Drainage Improvement Company, will cooperatively provide storm water collection, treatment and discharge services to properties within the city limits.
2. The City will prepare and apply development methods and standards consistent with those established in the City's Storm Drainage Master Plans and other subsequent storm drainage planning efforts.
3. The City will work cooperatively with Multnomah County and the Sandy Drainage Improvement Company to establish and implement drainage plans for South Troutdale Basin (Beaver Creek and Sandy River) and North Troutdale Basin (Arata Creek, Salmon Creek and Columbia River).
4. Drainage plans for specific developments will favor onsite retention and infiltration over offsite discharge; provide treatment for water quality; provide for management of existing and projected on and off-site flows; emphasize the use of natural drainageways and systems; minimize the use of impervious surfaces; provide



drainage easements; incorporate on-site detention facilities, where appropriate; and implement other strategies identified in the City's Storm Drainage Master Plans and consistent with standards in the City's Development Code.

5. Drainage facilities and practices will comply with state and federal water quality standards and requirements.
6. The City will use parks, greenways and open spaces to help manage and mitigate the impacts of stormwater runoff and drainage on natural drainageways and storm drainage facilities.
7. The City will regulate development to prevent erosion, control and mitigate stormwater runoff and protect water quality.
8. The City will implement and apply erosion control standards and best practices to minimize discharge of sediments from construction sites.
9. New development will be designed to manage stormwater drainage on-site to the maximum extent feasible and limit storm drainage runoff outside project boundaries.
10. The City will implement community education and outreach to inform developers, property owners and other community members about stormwater management issues and steps they can take to reduce pollution related to stormwater runoff.
11. The City will continue to monitor the stormwater system to detect and eliminate illicit stormwater discharges.
12. The City will continue efforts to minimize stormwater pollution discharges related to municipal operations.

## **Transportation**

Goals and policies associated with transportation facilities are found in the City's Transportation System Plan and are hereby incorporated by reference.

## 3. Public Facilities System Descriptions

### 3.1 Water System

#### Overview

The City of Troutdale owns and operates a State-regulated municipal water system that consists of 64 miles of underground conveyance piping ranging from 2-inch to 12-inch in diameter, seven groundwater wells with approximately 6.3 MGD nominal combined production capability, four reservoirs with a total storage capacity of 6 million gallons, two booster pumping stations, and various other appurtenances. Water from the City's wells is chlorine-treated for taste and odor, but none of the wells require chlorination for disinfection. The City supplies all of its own water needs through its groundwater wells, but also maintains interties with the Cities of Gresham, Wood Village and Fairview for reciprocal emergency supply.

The City operates seven wells (2, 3, 4, 5, 6, 7 and 8). Most of the City's original water supply wells were installed between 1978 and 1981; Well 8 and Well 5 were subsequently added to the system in 1993 and 2007, respectively. Well #1 was taken out of service and disconnected many years ago due to TCE (trichloroethylene) contamination at the wellhead resulting from adjacent industrial activity, and is now maintained only for aquifer monitoring purposes. The City owns four on-line reservoirs, with two booster pump stations that provide additional pressure where needed.

The City's distribution system conveys water from the municipal wells, reservoirs, and pump stations to the customers and is divided into six pressure zones by pressure regulating valves (PRV's). Each pressure zone is interconnected to the next lower pressure zones through PRVs located within the distribution system. The PRVs are adjusted manually by the City operators to provide balanced flow and appropriate working pressures to the distribution network.

In 2012, the system served a population of about 16,000 residents with about 4,745 service connections, including approximately 4,400 residential, 175 commercial, 45 industrial, 15 community service, 70 fire-standby, and 40 irrigation accounts with an average day demand of 1.7 MGD and peak day demand of 3.7 MGD. The City does not currently provide water service east of the Sandy River, though that area does contain properties within the City limits.

#### Planning and Future Facility Needs

A **Water Management and Conservation Plan** was completed for Troutdale in 2005, pursuant to OAR 690-315 and OAR 690-086, in order to obtain relief from limitations imposed as part of an extension of two of the City's six water rights, which would have caused significant reductions in the City's water supply. The Oregon Water Resources Department (OWRD) declared that two of the City's water right permits have the "potential

for substantial interference with the nearest surface water source, namely Sandy River,” and thus limited water withdrawal under those rights.

The plan includes a description of the existing facilities at the time of the plan, projections of 20-year water needs, identification of resource issues, a 20-year supply strategy, and new or updated conservation and curtailment plans. Water conservation measures proposed in the plan focus on reducing peak demand by three customer classes – residential, commercial, and industrial, with a focus on the outdoor water use of residential customers.

The **2012 Water Master Plan** features in-depth analysis of existing conditions including an inventory and assessment of water supply wells, finished water storage and booster pumping, and the distribution system, as well as an evaluation of water quality and water rights. The City currently holds seven separate water permits for municipal use with a cumulative total permitted capacity of 5,606 gpm (12.49 cfs or 8.07 MGD<sup>1</sup>).

The City’s Water Master Plan assumes that future development through 2032 will include in-fill of existing developments, development of three proposed Urban Growth Areas (Northern Urban Plan Area, Southern Urban Plan Area, and Urban Renewal Area), and development of the Troutdale-Reynolds Industrial Park and Strebin Farms. The Water Master Plan was based on a then-projected increase in population between 2012 and 2032 of 3,816 people, with a total average day water demand of 2,130,517 gallons per day (gpd) in 2032.

The 2012 **Water Master Plan** documents the following needs related to water source, distribution system, and finished water storage and booster station facilities.

#### Source

The City overall has sufficient water right capacity to meet current and projected demands in year 2032. In order to develop and maintain sufficient source capacity as well as develop and protect sufficient water rights capacity, the following measures were recommended.

- Enhance the operational source capacity using existing wells.
- Protect the physical performance of the existing wells to maintain capacity and improve reliability.
- Fully develop and protect existing water rights.
- Develop new source capacity.

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<sup>1</sup> Assuming 24 hours of constant water production

## Distribution System

To ensure effective operation of the distribution system, the city should confirm the connections to other water systems are functional. Control valves should be operated at least annually to confirm their functionality.

## Finished Water Storage and Booster Stations

Potential future strategies and improvements associated with these facilities include the following.

- A structural evaluation for each facility is needed to determine upgrades required to meet current seismic code, especially the stand pipe Reservoir 2.
- Each reservoir needs flexible connections and seismic shut-off valves on all pipe connections to the reservoirs. Steel reservoirs number 2, 3 and 4 need to be anchored to their foundations to prevent “walk-off” failure during an earthquake.
- Currently, each reservoir is monitored by SCADA for recording water levels only. Issues with vandalism at Reservoir 3 and past issues with Reservoir 4 could be addressed by adding surveillance equipment and appropriate signage.
- A portable onsite generator for Booster Pump Station 2 and Reservoir 4 could be installed to maintain pressure within the system and level sensor functioning during power outages.
- Booster Pump Station 1 is under-capacity and should be upsized in case an emergency condition occurs for a prolonged period of time.

## **3.2 Sanitary Sewer System**

### **Overview**

The City provides wastewater collection and treatment services to its residents, commercial establishments, institutional customers, and a number of industries. Sewer service is provided only to customers within the city limits. An area along the privately owned portion of Jackson Park Road includes approximately 20 residences that have their own sanitary septic systems. Several homes located on the east side of the Sandy River are connected via a septic tank effluent pump system to the City sanitary sewer system at the west end of the Historic Columbia River Highway bridge. Approximately 27 other residences on the east side of the Sandy River are on privately-owned sanitary septic systems.

The topography of Troutdale influences how the sanitary sewer system was constructed and will continue to be upgraded in the future. Gravity sewers convey the flow down gradient and toward the Troutdale Water Pollution Control Facility. Pump stations convey flows up hills, across extraordinarily flat plains, and over divides, ultimately discharging into the gravity sewers where physically possible. The City’s system includes a total of 10

pump stations, over 53 miles of sanitary sewer pipes throughout the city and a wastewater treatment plant located in the northern portion of the city near the Sandy River.

### **Planning and Future Facility Needs**

A **Sanitary Sewer Master Plan** was prepared for Troutdale in 2013 in order to identify future sewer planning needs and facilities. The plan includes a description of the existing facilities at the time of the plan, projections of facility needs through the year 2040, and a capital improvement and financing plan.

The Sanitary Sewer Master Plan features in-depth analysis of existing conditions including an inventory and assessment of sanitary sewer system facilities, including sanitary sewer pipe, force mains and pump stations. The Plan incorporates hydraulic modeling of the City's sewer system to identify hydraulic capacity deficiencies in the existing wastewater sewer collection system for both existing and future planning scenarios. This analysis also assesses rainfall derived infiltration/inflow (RDII) conditions to help identify potential system deficiencies. The Plan also incorporates a capacity analysis to determine hydraulic capacity issues associated with current and future development planning scenarios.

The Sanitary Sewer Master Plan documents the following needs related to sanitary sewer facilities.

- Selected sanitary sewer pipes will need to be replaced throughout the city to accommodate future sanitary sewer flows based on the future hydraulic modeling analysis.
- Four pump stations may require upgrading to convey future flows. If and when these stations will need upgrading will depend upon the timing and type of future development.
- New sanitary sewer lines will be needed to accommodate potential future development in the Troutdale Reynolds Industrial Park and other undeveloped lands.

## **3.3 Storm Drainage System**

### **Overview**

The City of Troutdale is divided into two distinct north and south drainage areas. The North Troutdale drainage basin is located generally north of Historic Columbia River Highway and drains into the Columbia River (via the SDIC pump station). The South Troutdale drainage basin is located generally south of Historic Columbia River Highway and drains into the Sandy River, its tributary Beaver Creek and underground injection facilities.

Storm water runoff within the North Troutdale drainage basin is primarily collected and transported in open channel systems. The exceptions to this are culverts for road crossings, local drainage collection systems in the uppermost Arata Creek drainage basin within

Wood Village, the Troutdale Airport, the Frontage Road/I-84 area and the Troutdale Reynolds Industrial Park. Land situated below the floodplain in the North Troutdale drainage basin – largely in the area north of Salmon Creek and in Fairview – provides flood storage during peak storm events. The Sandy Drainage Improvement Company (SDIC) is responsible for maintaining the floodplain water surface levels within the low-elevation areas of the North Troutdale drainage basin. The SDIC maintains the Columbia River levee and operates the storm runoff pumping station, where most runoff generated within this drainage basin is directed.

A significant portion of the South Troutdale drainage basin discharges into underground injection control (UIC) facilities (dry wells). This drainage infiltrates and is not collected by storm system structures or open channels. The bulk of the South Troutdale Basin is served by a storm water collection system consisting of several sub-basins that discharge to Beaver Creek and the Sandy River. The City maintains 16 outfalls in the South Troutdale drainage basin that include 14 outfalls along Beaver Creek and 2 outfalls along the Sandy River.

### **Planning and Future Facility Needs**

The City maintains separate master plan documents for the North Troutdale and South Troutdale drainage basins. The South Troutdale plan incorporates a smaller plan that was developed specifically for the South Troutdale Road area.

The **North Troutdale Storm Drainage Master Plan** (2007) provides an overview of the drainage basin, analyses of existing and projected future basin hydrology conditions, runoff analysis, proposed capital improvement projects, and public involvement. The plan also includes an evaluation of the 2004 Stormwater Management Plan (SWMP) and Best Management Practices (BMPs) that were recommended in the SWMP and that the City proposed to implement to meet National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) requirements. Future conditions assumed for modeling in the plan were defined as full build-out of the basin expected by 2020 within the City’s urban growth boundary and based on zoning at the time of plan preparation.

The **South Troutdale Storm Drainage Master Plan** (2012) addresses existing study area characteristics, an evaluation of the storm system capacity (hydrology and hydraulic model development and results), storm system water quality evaluation (including identification of “opportunity areas”), and an “integrated management strategy” that includes proposed capital improvement projects (CIPs) necessary to meet future needs. The City’s 2009 Comprehensive Land Use Plan was used in conjunction with an inventory of vacant land to develop future land use assumptions associated to determine future drainage conditions and needs.

The City operates under a Phase II NPDES MS4 permit requiring the City to reduce pollutants discharged from the City’s storm drainage system. The City’s existing MS4 Storm Water Management Plan includes a range of programmatic, non-structural, and source

control activities managed by the City. The South Troutdale Storm Drainage Master Plan includes structural controls and improvements to address NPDES MS4 requirements.

The **South Troutdale Road Storm Drainage Plan** (2009) addresses a specific part of the South Troutdale drainage basin. The plan was prepared after land in the South Troutdale Road area was annexed to the city and development in the area was anticipated. The plan area is comprised of five parcels totaling approximately 100 acres, is generally bounded by Beaver Creek on the west, SE Stark Street on the north, South Troutdale Road on the east, and SE Strebin Road on the south, and includes provisions for roadway drainage of Troutdale Road. The plan is intended to identify feasible locations for discharge to Beaver Creek, document water quality treatment alternatives and possible locations, develop design criteria and prepare conceptual design of the drainage network, develop a system model for the concept drainage network, and develop a final system map for development of the selected network alternative, along with estimated costs for the drainage system.

Storm drainage system needs identified in the **North Troutdale Storm Drainage Master Plan** are associated with a series of “trouble spots” related to the duration of flooding, depth of flooding, locations of traffic disruptions, potential flooding of businesses or homes, backwater effects from surface streams, and conveyance limitations (e.g., pipe size). Proposed projects to address these existing and projected trouble spots include the Salmon Creek Weir, Arata Creek conveyance in the Dunbar Avenue area, north Arata Creek conveyance from Marine Drive to Salmon Creek, South Arata Creek culvert improvements, Columbia River Highway railroad underpass (bypass conveyance), and improvement of the culvert at the Marine Drive curve south of the Troutdale Airport. Projects and strategies to address these areas include:

- Completion of drainage conveyance improvements, culvert improvements, and roadway bypasses.
- Implementation of a variety of best management practices to reduce the impacts of drainage on drainage systems and water quality.

Storm drainage system needs identified in the **South Troutdale Storm Drainage Master Plan** include:

- Measures needed to address ten pipe segments which are expected to experience flooding under either existing or future conditions.
- Sixteen (16) capital improvement projects (CIPs) intended to address flood control, water quality, and integrated flood control/water quality in this drainage area based on an evaluation of specific opportunity areas and associated regulatory requirements, as well as existing and future drainage conditions.

The **South Troutdale Road Storm Drainage Master Plan** includes management alternatives for six local drainage areas in the study area, where all drainage flows toward Beaver Creek. Specific recommended projects include:

- Use of a continuous swale to treat runoff from South Troutdale Road (Drainage Area 1).

- On-site treatment of runoff from Drainage Area 2 with discharge to Outfall 2.
- On-site treatment of runoff from Drainage Areas 3 and 4, with discharge from Drainage Area 3 via an outfall on the north side of the wetland (Outfall 3) and discharge from Drainage Area 4 to a pipe system with an outfall on the south side of the wetland (Outfall 4).
- Treatment of runoff from South Troutdale Road (Drainage Area 5) in a series of stormwater swales along the western side of South Troutdale Road, with final discharge to the wetland at Outfall 5.

### **3.4 Transportation System**

Information about existing and future transportation facility conditions and needs is found in the City's Transportation System Plan and is hereby incorporated by reference.



## 4. Capital Improvements Plan (CIP)

### Overview

The City of Troutdale's Public Facilities Plan (PFP) calls for significant investment in infrastructure to accommodate expected growth and development over the next 20 years. A summary of planned improvements associated with water, wastewater and stormwater drainage facilities is presented in Table 1 below, with more detail provided in Appendix A. Information about the cost of transportation facility improvements is included in the City's Transportation System Plan and hereby incorporated by reference.

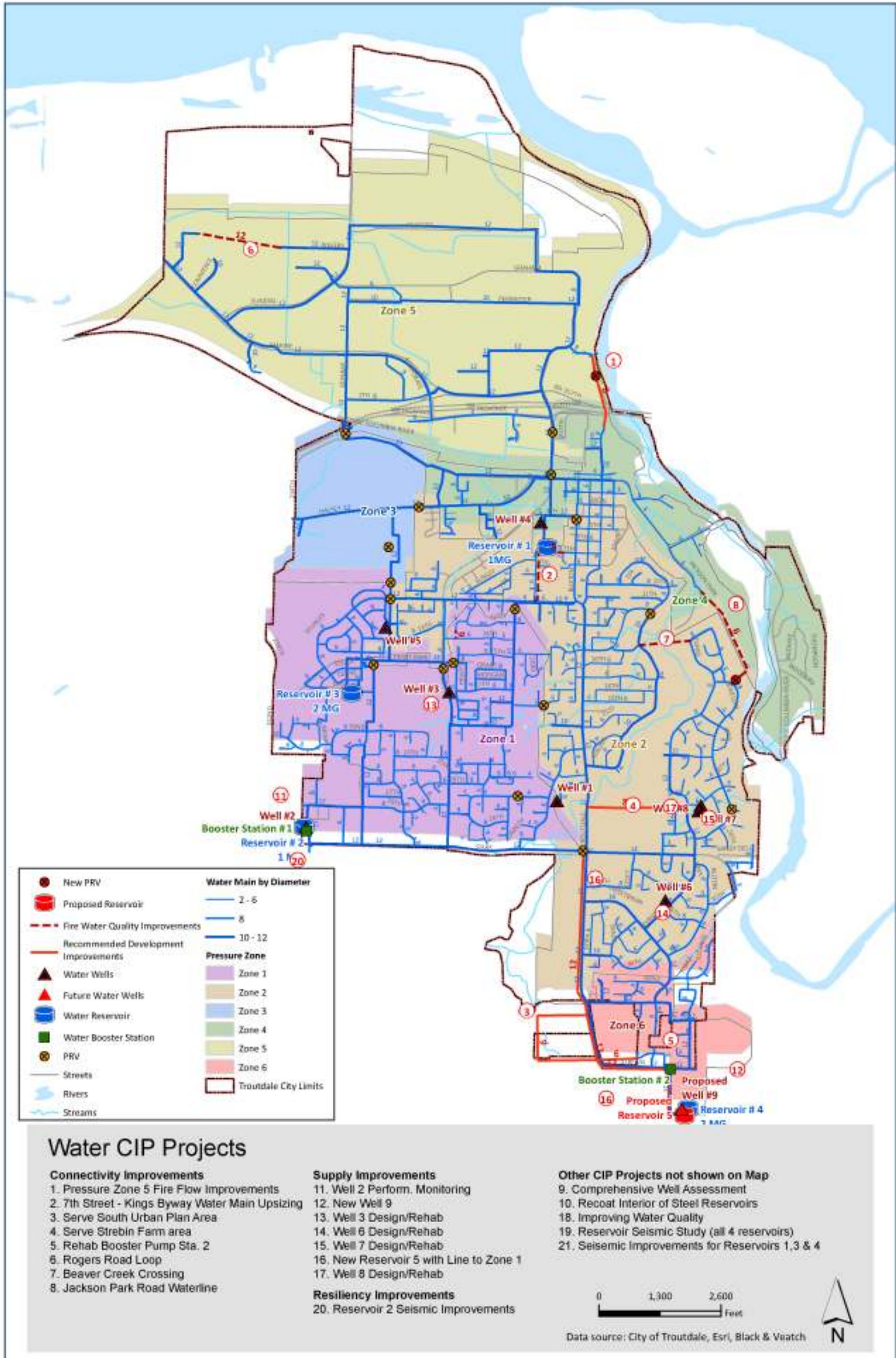
The level of investment for public facilities is based on cost estimates for planned projects in the City's adopted master plans for water, sewer, storm drainage, and transportation. A list of all planned public facility projects associated with water, wastewater and stormwater drainage facilities is included in Appendix A. It indicates the location, estimated cost, source of funding, and estimated timeframe for each capital improvement project. All cost estimates are expressed in year 2012 dollars.

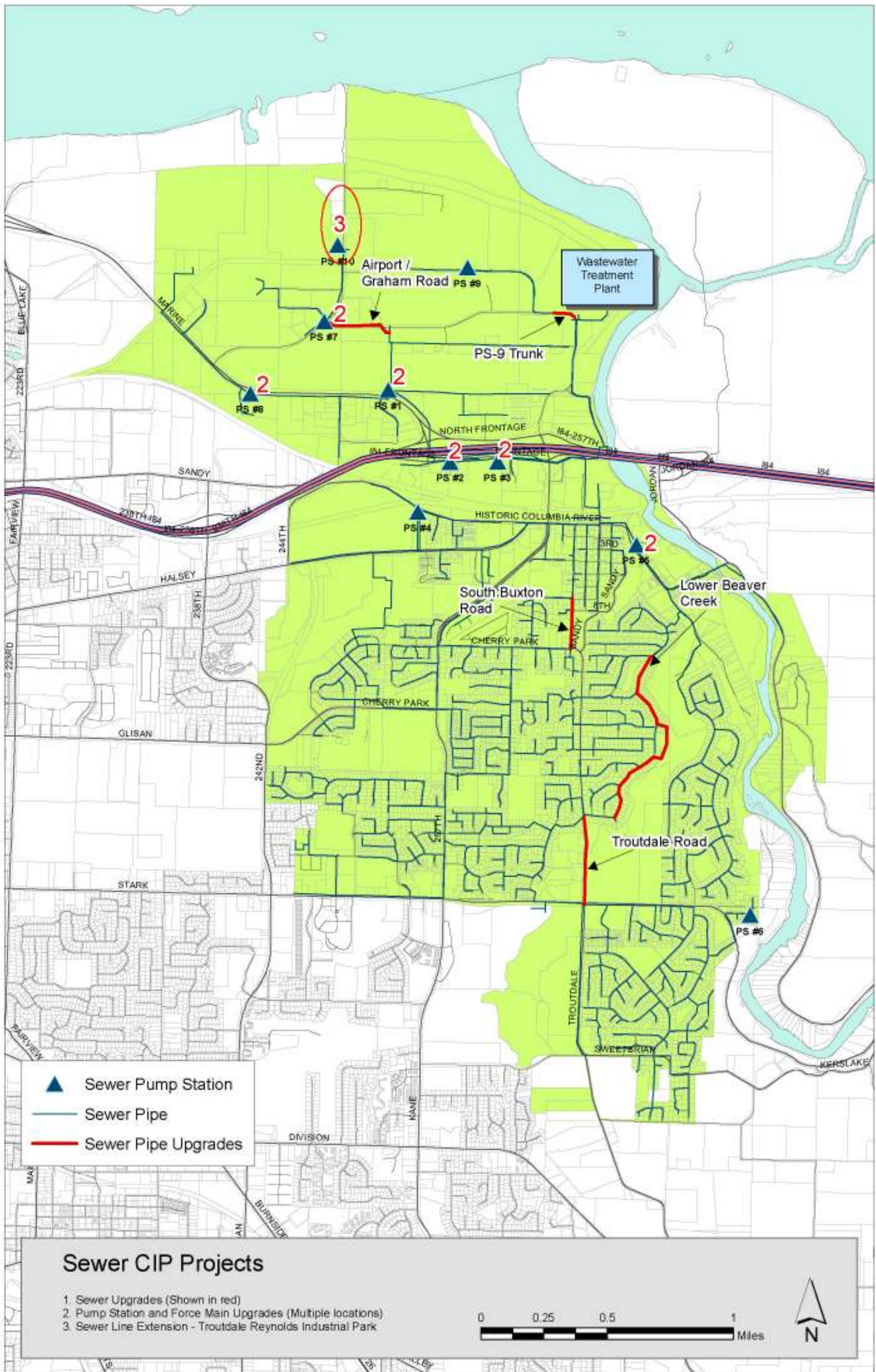
**Table 4-1: Summary of Planned Improvements**

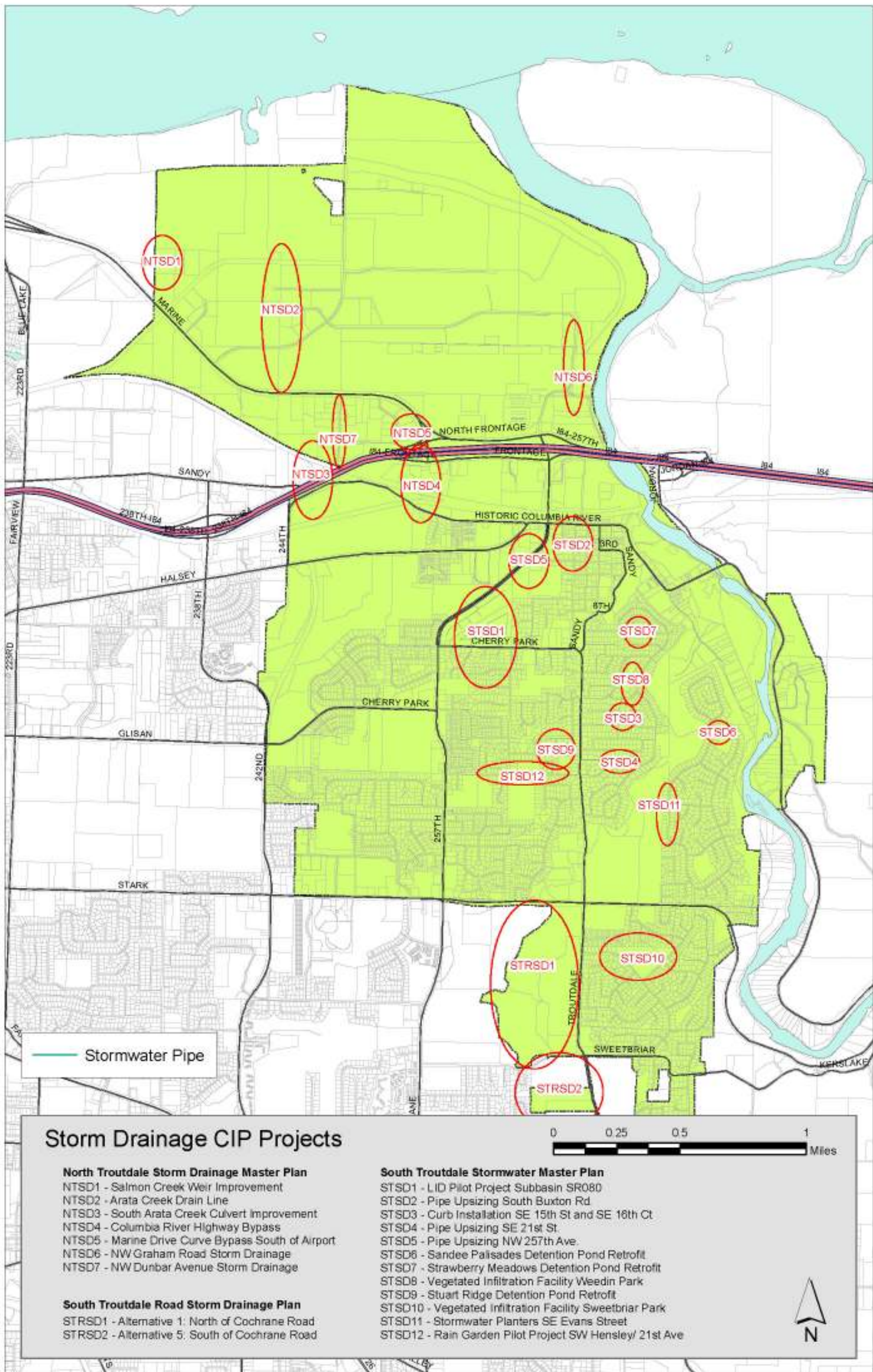
<b>Public Facility</b>	<b>Short-term (Yr. 1 – 5)</b>	<b>Medium-term (Yr. 6 – 10)</b>	<b>Long-term (Yr. 11 – 20)</b>	<b>Total</b>
<b>Water</b>				
<i>Connectivity</i>	\$896,500	\$760,000	\$470,000	\$2,126,500
<i>Supply</i>	\$953,900	\$2,047,200	\$3,998,900	\$7,000,000
<i>Incident Resiliency</i>	\$75,000	\$0	\$645,000	\$720,000
<b>Total</b>	<b>\$1,925,400</b>	<b>\$2,807,200</b>	<b>\$5,113,900</b>	<b>\$9,846,500</b>
<b>Sanitary Sewer</b>				
<i>Sewer pipe upgrades</i>	\$1,204,000	\$1,204,000	\$2,409,000	\$4,817,000
<i>Pump station, force main upgrades</i>	\$976,250	\$976,250	\$1,952,500	\$3,905,000
<i>Sanitary sewer pipe extensions</i>	\$783,250	\$783,250	\$1,566,500	\$3,133,000
<b>Total</b>	<b>\$2,963,750</b>	<b>\$2,963,750</b>	<b>\$5,927,500</b>	<b>\$11,855,000</b>
<b>Storm Drainage</b>				
<i>North Troutdale Storm Drainage Plan (2007, 2012 updates)</i>	\$2,719,400	\$212,600	\$0	<b>\$2,932,000</b>
<i>South Troutdale Storm Drainage Plan (2012) *</i>	\$462,400	\$455,300	\$1,193,500	<b>\$2,111,200</b>
<i>South Troutdale Road Storm Drainage Plan (2009) – Alternatives 1 and 5</i>	\$0	\$290,400	\$290,400	<b>\$580,800</b>
<b>Total</b>	<b>\$3,181,800</b>	<b>\$958,300</b>	<b>\$1,483,900</b>	<b>\$5,624,000</b>
* Cost estimates include two alternative estimates for one project; total combined costs will be less than indicated, depending on which option is selected.				

<b>Public Facility</b>	<b>Short-term (Yr. 1 – 5)</b>	<b>Medium-term (Yr. 6 – 10)</b>	<b>Long-term (Yr. 11 – 20)</b>	<b>Total</b>
<b>Total Investment</b>	<b>\$8,070,950</b>	<b>\$6,729,250</b>	<b>\$12,525,300</b>	<b>\$27,325,500</b>

Maps indicating the location of specific improvements are shown on the following pages.







## **6. Financing and Implementation Plan**

The City of Troutdale uses a combination of strategies to finance the development and maintenance of its public works infrastructure. The following discussion provides an overview of the financial structure in place to support Troutdale's infrastructure and development and ongoing maintenance needs.

### **6.1 Water System**

The City's Water Fund is an "enterprise fund" that pays for the operation, maintenance and repair, and some capital improvements of the City's water system. The primary revenue source for the Water Fund is the monthly user fee paid by the water customers. Other significant revenue sources are installation fees for new services and penalty fees paid on delinquent accounts. The City will rely on a dedicated Water System Development Charge (SDC), other developer funding, and the State Revolving Fund (SRF) to fund projects already in the City's CIP and improvement projects recommended in the 2012 Water Master Plan. Operation and maintenance projects, not eligible for SDC funding, identified in the Water Master Plan will be funded by user fees. To provide full funding of all of the recommended projects, the City's user fee would have to be increased by an average of 9% per year for the next 20 years.

SDCs are authorized by state law (ORS 223.297-.314) and the Troutdale Municipal Code (Chapter 12.02). Chapter 12.02 addresses basic methodology, exemptions, credits, refunds, and appeals. The detailed methodology for calculating SDC's for each set of public services and facilities is provided in separate resolutions and is outlined in a department directive from the Public Works Director and a worksheet for the public. The City's water SDC is based on Hydraulic Equivalents (HEs) per meter and meter size.

To provide full funding for the all of the identified improvement projects, water SDC rates would need to increase by approximately 10.2% to account for the development of the various CIP projects over the next 20 years. Increases should occur at the time that projects are added to the city's adopted CIP. Developer-funded CIP projects are funded entirely by the developer of the property, and in the 2012 Water Master Plan, this includes service in the South Urban Plan Area and the Strebin Farm Area. The CIPs that are expected to be funded partially by the State Revolving Fund include a new well and a new reservoir. The City may need to use the State Revolving Fund in conjunction with SDCs in order to finance these larger CIPs. It is assumed that these state loans are the only debt that the City will take on for water projects.

### **6.2 Sanitary Sewer System**

Similar to the Water Fund, costs to provide sanitary sewer services, including operation and maintenance, staff and other needs are paid for primarily through sewer utility rates. Capital improvement costs are paid through a variety of sources, including utility rates,

SDCs, developer contributions, local improvement districts (LIDs) and outside funding sources (e.g., state grants or revolving loan funds).

As part of the Sanitary Sewer Master Planning process, an economic and financial model was prepared to ensure that revenues will be adequate to pay for the estimated cost to provide sanitary sewer services and build needed capital improvements. This analysis indicates the following:

- System Development Charges will need to be adjusted to reflect updated administrative and capital improvement costs, and to reflect the proportion of costs to be funded through SDCs. The City's sanitary sewer SDC is expected to decrease from a current rate of approximately \$4,500 per equivalent residential unit (ERU) to just over \$3,400 per ERU. These rates also will be indexed to account for the cost of inflation and will be adjusted annually to reflect inflationary factors.
- Sanitary sewer rates are projected to increase by just over five percent annually in each of the next four years (i.e., FY 2015 through FY 2018) to help pay for a combination of debt service on existing general obligation bonds, as well as future capital improvements and other annual costs.

Projected utility and SDC rate changes are based on a variety of assumptions and may need to be adjusted further to the extent that conditions change over time. The City will closely track its costs as they become available and compare them to assumptions used in the Sanitary Sewer Master Plan. If significant changes occur, the City will revisit the analysis and make appropriate changes

### **6.3 Storm Drainage System**

The City's storm drainage system is funded through a combination of user fees (on the monthly utility bill) and SDCs. The City's stormwater SDC is based on impervious surface area. All single-family detached homes are deemed to have the same (2,700 square feet) impervious surface area for the purpose of assessing SDCs.

Drainage in the North Troutdale drainage area is managed in collaboration with the Sandy Drainage Improvement Company (SDIC), ODOT and Multnomah County. The SDIC is responsible for maintaining the floodplain water surface levels within the low-elevation lands of the North Troutdale drainage basin. It maintains the Columbia River levee and operates the storm runoff pumping station to which most runoff generated within this drainage basin is directed. The City and Multnomah County operate local storm water collection systems that feed into SDIC facilities. Multnomah County and SDIC have their own revenue sources, and the City's CIP includes funding support for certain improvements to the SDIC systems that receive discharges from the City's systems.

## **6.4 Transportation**

Information about funding for transportation facilities is found in the City's Transportation System Plan and is hereby incorporated by reference.



## **7. Additional Public Facilities and Services in Troutdale**

In addition to addressing core public facilities associated with water, wastewater, stormwater and transportation, the City of Troutdale provides or coordinates with other public agencies and private entities to provide a variety of other public facilities and services, including those related to parks and recreation, police, fire, education, libraries, utilities, administration and other activities. This chapter very briefly describes those activities and identifies sources of additional information about them.

### **7.1 Parks and Recreation**

The City manages and maintains a variety of parks, recreation facilities, trails and natural areas. Park facilities include mini-parks, neighborhood, community and special use parks. The City's 2006 Parks Master Plan guides future planning for operation, maintenance and improvement of existing facilities, and also identifies additional, future park and recreation facility needs. The Parks Master Plan includes a set of goals and objectives for parks and recreation, a list of proposed park system improvements, estimated costs of parks projects and a proposed strategy for funding future improvements and operations. In addition, school facilities operated by the Reynolds School District and Mt. Hood Community College provide additional recreational facilities and opportunities for Troutdale residents, as do state and regional parks operated by the Oregon Department of Parks and Recreation and Metro. A copy of the Parks Master Plan and other current information about park and recreation facilities and services and programs can be found on the City's website.

### **7.2 Police**

The City provides 24-hour police services using a combination of over 20 sworn officers and professional staff members, along with a group of dedicated volunteers who serve as reserve officers, office assistants and chaplain. The Police Department is comprised of the Patrol Services, Support Services, Investigations, School Resource Unit and Administration Divisions. The Department also assigns police officers to the East Metro Gang Enforcement Team (EMGET) and Tri-Met Transit Police, using independent funding from those programs. In addition, officers work a variety of specialty assignments designed to provide tactical, investigative and operational skills that benefit the City of Troutdale and inter-agency teams throughout the Metropolitan area. Additional information about police services and facilities can be found on the City's website.

### **7.3 Solid Waste and Recycling**

The City's Solid Waste and Recycling Division provides coordination, education, and management services related to residential and commercial solid waste, collection, disposal and recycling.

The City of Troutdale administers a franchise agreement with a private waste hauling company for solid waste and recycling hauling services. Waste Management of Oregon is the current waste hauling contractor under franchise with the City of Troutdale. The Public Works Department manages the franchise agreement with the City's contracted waste hauling company. Regional solid waste and recycling efforts also are coordinated by the Metro regional government. Current information about local solid waste management and recycling services and programs is available on the City's website.

## **7.4 Other City Services**

In addition to the facilities and services described above, the City of Troutdale provides general administration, land use planning and zoning, building plan review and inspections, engineering and record management services. These City functions currently operate out of multiple buildings, including separate facilities for planning and zoning, police, public works, city hall/courts and administration. Given the disparate nature of these locations and the recent closure of the former city hall and administration building due to structural problems, the City is considering development and construction of a new city hall or city services building. Future planning for such a facility will be the subject of a separate planning effort (outside the Public Facility Plan).

## **7.5 Fire and Emergency Response Services**

Fire protection is provided by Gresham Fire and Emergency Services, under contract to the City of Troutdale. More information about current fire and emergency response services and facilities can be found on the City of Gresham's website.

## **7.6 Schools**

The Reynolds School District, the Gresham-Barlow School District, and Mt. Hood Community College provide public education in Troutdale. Reynolds school facilities within Troutdale (as of 2012) include Sweetbriar and Troutdale elementary schools, Walt Morey Middle School and Reynolds High School. Mt. Hood Community College has three primary campuses, all outside of Troutdale. However, the main campus abuts the southern Troutdale boundary and it also provides programs and services at a number of off-campus sites, including at Gorge Winds Aviation and Reynolds High School within Troutdale. More information about these educational facilities and services can be found on the Reynolds School District and Mt. Hood Community College websites.

## **7.7 Libraries**

Multnomah County provides library services to Troutdale residents, including through the Troutdale branch library which opened in 2010, as well as through a variety of online and

other mobile services. More information about these services can be found at the Troutdale library and the Multnomah County website.

## **7.8 Utilities**

Portland General Electric Company (PGE) and Northwest Natural Gas Company provide energy services to local residents. Comcast and Frontier Communications provide local telephone and cable television service options. A variety of other internet, mobile phone network and other entities also provide additional telecommunications and information services to Troutdale residents.

## 8. Plan Implementation

The City of Troutdale's Public Facilities Plan is implemented through a combination of local plans, infrastructure design and operational standards, and development code provisions. Implementing plans include:

- Water Master Plan (2012)
- Water Management and Conservation Plan (2004)
- North Troutdale Storm Drainage Master Plan (2007)
- South Troutdale Storm Drainage Master Plan (2012)
- South Troutdale Road Storm Drainage Master Plan (2009)
- Transportation System Plan (2013)
- Sanitary Sewer Master Plan (2013).

Infrastructure design standards include:

- Troutdale Municipal Code, Title 13. Street Trees, Park and Recreation Areas
- Troutdale Development Code (various chapters)
- Public Works Construction Standards – Streets (Parts I and II), Water (Parts III and IV), Storm Sewer (Parts V and VI), and Sanitary Sewer (VII and VIII).

Financing is supported by:

- City of Troutdale System Development Charges Methodology Resolutions (Water, Sanitary Sewer, Transportation, Storm Water, Parks)
- City of Troutdale Municipal Code, Title 12. Public Works
  - Chapter 12.02 (System Development Charges)
  - Chapter 12.03 (Water System)
  - Chapter 12.04 (Sanitary Sewer System)
  - Chapter 12.05 (Streets and Sidewalks)
  - Chapter 12.06 (Storm Sewer System)
  - Chapter 12.07 (Pretreatment Program)
  - Chapter 12.08 (Public Improvements)

- Chapter 12.12 (Right-of-Way Management)

- ➔ Annual City budget authorization.

Intergovernmental coordination is implemented through the following arrangements:

- ➔ **Water Services.** The City of Troutdale is the sole provider of potable water services within the boundaries of the City. It has interties and emergency service agreements with the cities of Gresham, Fairview and Wood Village.
- ➔ **Sanitary Sewer Services.** The City of Troutdale is the sole provider of sanitary sewer services within the boundaries of the City.
- ➔ **Storm Drainage.** The City is the primary provider of storm drainage services within the City. Multnomah County and the Oregon Department of Transportation provide storm drainage facilities associated with their respective roadways, and in certain cases the City and County systems interconnect. The Sandy Drainage Improvement Company provides storm drainage and flood control facilities and services in the North Troutdale area in conjunction with the City's systems, as described in the Public Facilities Plan and the North Troutdale Storm Drainage Master Plan. The City coordinates storm drainage services with that District pursuant to those plans, as well as with the Oregon Department of Environmental Quality, the Oregon Department of Transportation, Multnomah County, neighboring jurisdictions, and City residents."

**Appendix A: Capital Improvements Plan**

WATER			Water Plan Listed Cost	Cost 2012 \$s	Project Schedule			Priority	Year	Funding Source
Item	Type	Project Title Description/ Location			Short-term (0-5 years)	Medium-term (6-10 yrs)	Long-term (10-20 yrs)			
1	WC	Pressure Zone 5 Fire Flow Improvements	285,000	\$285,000	\$285,000			High	2013-2015	
2	WC	7 <sup>th</sup> Street – Kings Byway Water Main Upsizing	\$370,000	\$370,000		\$370,000		High	2017-2018	User fees
3	WC	Serve South Urban Plan Area	412,000	\$412,000	\$412,000			High	2014-2016	Developer
4	WC	Serve Strebin Farm area	185,000	\$185,000		\$185,000		High	2017-2018	Developer
5	WC	Rehab Booster Pump Sta. #2	199,500	\$199,500	\$199,500			High	2014-2015	User fees
6	WC	Rogers Road Loop	205,000	\$205,000		\$205,000		High	2020-2021	Developer, SDC
7	WC	Beaver Creek Crossing	110,000	\$110,000			\$110,000	High	2022-2023	SDC
8	WC	Jackson Park Road Waterline	360,000	\$360,000			\$360,000	High	2024-2025	Developer
		<b>Total Connectivity</b>	<b>\$2,126,500</b>	<b>\$2,126,500</b>	<b>\$896,500</b>	<b>\$760,000</b>	<b>\$470,000</b>			
9	WS	Comprehensive Well Assessment	55,000	\$55,000	\$55,000			Medium	2013-2014	User fees
10	WS	Recoat Interior of Steel Reservoir	775,000	\$775,000			\$775,000	Medium	2028-2030	User fees
11	WS	Well 2 Perform. Monitoring	5,000	\$5,000	\$5,000			Medium	2013	User fees
12	WS	New Well 9	1,975,000	\$1,975,000	\$438,900	\$1,097,200	\$438,900	Medium	2015-2023	SDC, SRF
13	WS	Well 3 Assessment/Rehab	100,000	\$100,000	\$100,000			Medium	2015-2016	User fees
14	WS	Well 6 Assessment/Rehab	125,000	\$125,000	\$125,000			Medium	2016-2017	User fees
15	WS	Well 7 Assessment/Rehab	100,000	\$100,000			\$100,000	Medium	2026-2027	User fees
16	WC	Reservoir 5 to Zone 1 Line	1,965,000	\$1,965,000			\$840,000	High	2024-2027	User fees
17	WS	Well 8 Assessment/Rehab	1,800,000	\$1,800,000	\$180,000	\$900,000	\$720,000	Medium	2016-2025	User fees
18	WS	Improving Water Quality	100,000	\$100,000		\$100,000		Medium	NA	User fees
		<b>Total Supply</b>	<b>\$7,000,000</b>	<b>\$7,000,000</b>	<b>\$953,900</b>	<b>\$2,047,200</b>	<b>\$3,998,900</b>			
19	WIR	Reservoir Seismic Study	\$75,000	\$75,000	\$75,000			Low	2012-2013	User fees
20	WIR	Reservoir 2 Seismic Improvements	\$295,000	\$295,000			\$295,000	Low	2028-2030	User fees
21	WIR	Reservoirs 1, 3, 4 Seismic Improvements	\$350,000	\$350,000			\$350,000	Low	2029-2032	User fees
		<b>Total Resiliency</b>	<b>\$720,000</b>	<b>\$720,000</b>	<b>\$75,000</b>	<b>\$0</b>	<b>\$645,000</b>			
		<b>Total Water</b>	<b>\$9,846,500</b>	<b>\$9,846,500</b>	<b>\$1,925,400</b>	<b>\$2,807,200</b>	<b>\$5,113,900</b>			

Item	SANITARY SEWER		Sewer Plan Listed Cost	Cost 2013 \$s	Project Schedule			Priority	Year	Funding Source
	Type	Project Title Description/ Location			Short-term	Medium-term	Long-term			
1A	Pipe	Sewer pipe upgrades South Buxton Road	501,000	501,000	\$125,250	\$125,250	\$250,500		NA	User Fees, SDC
1B	Pipe	Sewer pipe upgrades Lower Beaver Creek No. 1	414,000	414,000	\$103,500	\$103,500	\$207,000		NA	User Fees, SDC
1C	Pipe	Sewer pipe upgrades Lower Beaver Creek No. 2	452,000	452,000	\$113,000	\$113,000	\$226,000		NA	User Fees, SDC
1D	Pipe	Sewer pipe upgrades Lower Beaver Creek No. 3	450,000	450,000	\$112,500	\$112,500	\$225,000		NA	User Fees, SDC
1E	Pipe	Sewer pipe upgrades Lower Beaver Creek No. 4	578,000	578,000	\$144,500	\$144,500	\$289,000		NA	User Fees, SDC
1F	Pipe	Sewer pipe upgrades Lower Beaver Creek No. 5	411,000	411,000	\$102,750	\$102,750	\$205,500		NA	User Fees, SDC
1G	Pipe	Sewer pipe upgrades Troutdale Road	1,112,000	1,112,000	\$278,000	\$278,000	\$556,000		NA	User Fees, SDC
1H	Pipe	Sewer pipe upgrades Airport/Graham Road	646,000	646,000	\$161,500	\$161,500	\$323,000		NA	User Fees, SDC
1I	Pipe	Sewer pipe upgrades PS 9 Trunk	253,000	253,000	\$63,250	\$63,250	\$126,500		NA	User Fees, SDC
		<b>Sewer Pipes Total</b>		<b>4,817,000</b>	<b>\$1,204,250</b>	<b>\$1,204,250</b>	<b>\$2,408,500</b>			
2A	PS/FM	Pump Station/Force Main Upgrades PS-1	2,695,000	2,695,000	\$673,750	\$673,750	\$1,347,500		NA	User Fees, SDC
2B	PS	Pump Station Upgrades PS-2	369,000	369,000	369,000				NA	User Fees, SDC
2C	PS	Pump Station Upgrades PS-5	454,000	454,000	\$113,500	\$113,500	\$227,000		NA	User Fees, SDC
2D	PS	Pump Station Upgrades PS-7	145,000	145,000	\$36,250	\$36,250	\$72,500		NA	User Fees, SDC
2E	PS	Pump Station Upgrades PS-9	242,000	242,000	\$60,500	\$60,500	\$121,000		NA	User Fees, SDC
		<b>Pump Station and Force Mains Total</b>		<b>3,905,000</b>	<b>3,905,000</b>	<b>\$976,250</b>	<b>\$976,250</b>			
3	Ext.	Reynolds Industrial Park sewer extension	3,133,000	3,133,000	\$783,250	\$783,250	\$1,566,500		NA	SDC
				<b>3,133,000</b>	<b>\$783,250</b>	<b>\$783,250</b>	<b>\$1,566,500</b>			
		<b>Total Wastewater</b>	<b>11,855,000</b>	<b>11,855,000</b>	<b>\$2,963,750</b>	<b>\$2,963,750</b>	<b>\$5,927,500</b>			

Item	STORM DRAINAGE		Drainage Plan Listed Cost	Cost 2012 \$s	Project Schedule			Priority	Year	Funding Source
	Type	Project Title Description/ Location			Short-term	Medium-term	Long-term			
NTSD1		Salmon Creek Weir Improvement	\$150,000	\$163,100	\$163,100				2012-2015	SDC, user fee
NTSD2		Arata Creek Drain Line – Marine Dr to Salmon Creek	\$202,000	\$219,700	\$219,700				2012-2015	SDC, user fee
NTSD3		South Arata Creek Culvert Improvement	\$568,000	\$617,700	\$617,700				2012-2015	SDC, user fee
NTSD4		Columbia River Highway Bypass	\$391,000	\$425,200	\$212,600	\$212,600			2012-2017	SDC, user fee
NTSD5		Marine Drive Curve Bypass South of Airport	\$532,000	\$578,600	\$578,600				2012-2016	SDC, user fee
NTSD6		NW Graham Road Storm Drainage	\$550,000	\$598,200	\$598,200				2012-2016	SDC, user fee
NTSD7		NW Dunbar Avenue Storm Drainage	\$303,000	\$329,500	\$329,500				2014-2016	SDC, user fee
				<b>\$2,932,000</b>	<b>\$2,719,400</b>	<b>\$212,600</b>	<b>\$0</b>			
STSD1	FC/WQ	Low Impact Development (LID) Pilot Project Subbasin SR080*	\$50,000	\$50,000		\$50,000				SDC, user fee
STSD2	FC	Pipe Upsizing South Buxton Road	\$130,100	\$130,100	\$130,100					SDC, user fee
STSD3	FC	Curb Installation Between SE 15th Street and SE 16th Court	\$2,500	\$2,500	\$2,500					SDC, user fee
STSD4	FC	Pipe Upsizing SE 21st Street	\$106,100	\$106,100		\$106,100				SDC, user fee
STSD5	FC	Pipe Upsizing NW 257th Avenue*	\$522,700	\$522,700			\$522,700			SDC, user fee
STSD6	WQ	Sandee Palisades Detention Pond Retrofit Subbasin SR220	\$153,800	\$153,800		\$153,800				SDC, user fee
STSD7	WQ	Strawberry Meadows Detention Pond Retrofit Subbasin BC210	\$85,100	\$85,100	\$85,100					SDC, user fee
STSD8	WQ	Vegetated Infiltration Facility (Retention Pond) Weedon Park (Subbasin BC300)	\$297,100	\$297,100			\$297,100			SDC, user fee
STSD9	WQ	Stuart Ridge Detention Pond Retrofit Subbasin BC590	\$60,500	\$60,500	\$60,500					SDC, user fee
STSD10	WQ	Vegetated Infiltration Facility (Rain Garden) Sweetbriar Park (Subbasin BC920)	\$145,400	\$145,400		\$145,400				SDC, user fee
STSD11	WQ	Stormwater Planters (Green Streets) SE Evans Street (Subbasins BC510 and BC520)	\$373,700	\$373,700			\$373,700			SDC, user fee
STSD12	WQ	Stormwater Planters (Green Streets) SW 21st Avenue (Subbasin BC200)	\$184,200	\$184,200	\$184,200					SDC, user fee
		<b>Total South Troutdale Drainage</b>		<b>\$2,111,200</b>	<b>\$462,400</b>	<b>\$455,300</b>	<b>\$1,193,500</b>			SDC, user fee
STRSD1		Alternative 1 - North of Cochrane Road	\$308,545	\$335,600		\$167,800	\$167,800		Unknown	Developer
STRSD1		Alternative 5 - South of Cochrane Road	\$225,486	\$245,200		\$122,600	\$122,600		Unknown	Developer
		<b>Total South Troutdale Road Drainage</b>	<b>\$534,031</b>	<b>\$580,800</b>	<b>\$0</b>	<b>\$290,400</b>	<b>\$290,400</b>			
		<b>Total Storm Drainage</b>		<b>\$5,624,000</b>	<b>\$3,181,800</b>	<b>\$958,300</b>	<b>\$1,483,900</b>			

\* These two projects represent two different alternatives to meeting the same need; only one project will be completed, reducing the overall cost of the combined CIP projects accordingly.