Six Year Comprehensive

Water Program

2012-2017

CITY OF SPOKANE

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SENIOR ENGINEER	**Marcia Davis, P.E.**
PROJECT STAFF	**Mark Papich, P.E.**
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Date Printed: September 29, 2011

I. Introduction

The City of Spokane Comprehensive Plan

The first planning activities of the City of Spokane (City) in the early 1900s were centered on parks and transportation. From these beginnings, planning in Spokane has continued to grow in significance and usefulness. In 1968, the City adopted the first land use plan as one element of the comprehensive plan. The *1968 Land Use Plan* was updated in 1983. Over the years, topics in the comprehensive plan have expanded to include parks and open spaces, bikeways, water and wastewater facilities, shorelines and individual neighborhoods.

In 1990, the State of Washington enacted the Growth Management Act (GMA) that established rules for communities (such as the City of Spokane) to accomplish community planning. The City's most recent planning effort, the *2000 Comprehensive Plan* (adopted in 2001 and updated in 2006), complies with the GMA rules and consists of goals, policies, maps, illustrations, and implementation strategies that state how the City should grow physically, socially and economically. The City's planning effort is termed "comprehensive" because it identifies the community's long-range plans for growth. The *2000 Comprehensive Plan* consists of over 30 official documents that encompass all aspects of city activities.

Importantly, the GMA includes two provisions to ensure that the City follows Comprehensive Plan directives:

1. The City must regulate land use and development consistent with the plan; the zoning code, subdivision code, environmental ordinances, and the building code must follow the plan's intent.
2. The City must make capital budget decisions and capital project investments in conformance with the plan.

These two GMA rules give the new *Comprehensive Plan* a much higher level of importance in managing and guiding the City's growth and development than previous editions of the plan.

Capital Facilities Planning

As defined in the *Comprehensive Plan*, capital facilities and utilities support the physical development and growth of the city. Section 1.1 of the Comprehensive Plan states that the

> "*...city must make capital budget decisions and capital project investments in conformance with the plan.*"

Further, it states,

> "*In addition to ongoing needs for repair and maintenance, these lists of capital facilities include the immediate improvements necessary to support growth, in conformance with the Comprehensive Plan.*"

The *Comprehensive Plan* strives to contain and manage sprawl, and encourages investment of infrastructure in support of the managed growth areas, including focusing high intensity growth in specified Centers and Corridors and infill development in other areas of the City. Chapter 5--Capital Facilities and Utilities (CFU) of the *Comprehensive Plan* is intended *"to guide how these crucial services coordinate with and support the future growth and development of Spokane.*" Spokane Horizons volunteers identified Visions and Values as being important in relation to Spokane's current and future growth. Those visions and values identified in Chapter 5 concerning CFU are:

- Public facilities and utilities will be provided concurrently with a growing population to meet the safety, utility, transportation, educational and cultural needs of residents.
- Ensuring good parks, schools, libraries and streets in the neighborhoods.
- Providing services and facilities as growth occurs.

The City's capital facility programs are part of the City's overall planning efforts as described in the table below:

Summary of Planning Efforts - City of Spokane		
Planning Effort	**Period**	**Description**
Six-Year Comprehensive Programs	6 Year	Prepared annually to support and coordinate with the other planning efforts.
Infrastructure Financial Planning	20 Year	Updated annually by City Utility Departments to balance rates and fees with estimated costs for maintenance and new construction.
City Comprehensive Plan	20 Year	Updated every 6 years (last update in 2006) this document is mandated by State law to direct growth, development and expansion.
Strategic Infrastructure Planning	50 – 100 years	The City does not presently have a Strategic Infrastructure Plan (SIP). Once created, the SIPs are usually updated every 5-10 years. The SIPs are useful because much of the underground infrastructure has an expected 50-100 year life.

Goals and Policies

Goals and policies in Section 5.4 of the *Comprehensive Plan* provide details for planning and decision-making. In order to fully comply with the *Comprehensive Plan*, capital sewer, water, and street facilities planning must acknowledge and address at least four simultaneous goals:

1st. Adequate infrastructure for infill development must be provided.

2nd. Facilities must be constructed within the Urban Growth Area (UGA),

3rd. Infrastructure not to the detriment or in lieu of other development that is supportive of and necessary for designated Centers and Corridors.

4th. Existing facilities and infrastructure must be maintained and upgraded as needed.

The Six-Year Comprehensive Programs

The City prepares and publishes six-year capital improvement programs annually for street, water, stormwater and sewer projects. They provide a blueprint for improving the City's infrastructure in a rational, coordinated, cost-effective manner. Each of the five distinct purposes of the Six-Year Comprehensive Utility Program is used as summarized in the table below:

Purposes of the City's Six-Year Utility Program	
Purpose	**Description**
Efficiency	The City Utilities are "enterprise" activities that are managed like many successful businesses. A utility builds, operates and maintains infrastructure (pipes, buildings, pumps, etc.) to provide a service to customers. The fees charged to customers fund the utility activities, so that no City taxes are used to pay for utility operations. The Six Year Program provides the planning structure to construct and maintain the infrastructure in an orderly manner.
Fiscal Prudence	The 20-year utility financial planning period and the Program are directly related in an attempt to promote a predictable and even cash flow for the Utilities. By matching improvement projects with cash flow and revenues, peak capital spending can be minimized; projects can be spread out to minimize costly short-term borrowing; and large fee increases can be avoided.
Low-Cost Supplemental Funding	Grants and low interest loans are available from federal and state agencies for utility infrastructure improvements. These agencies require that projects proposed for funding are part of an approved capital improvement program, and the Program satisfies that requirement.
Program Coordination	All Programs are closely coordinated with each other. This coordination allows efficient installation of utility improvements in conjunction with street projects and prevents costly multiple construction projects in the same area. In addition, each separate project is shared with Spokane County and state agencies to ensure that other public projects are consistent with City projects.
Public Information	The Program is used by the public. Information contained in the Program supports redevelopment, private construction projects, and other City economic development activities.

Six-Year Programs Annual Update Process

The Six-Year Comprehensive Sewer, Water and Street Programs are updated annually. New projects are added and completed (or cancelled) projects are removed from the programs during the annual update. Projects are added based on a need identified by one or more of the following sources:

Utility maintenance and operations staff identify infrastructure needing immediate replacement or upgrade based on observed conditions.

Adopted facility and management plans list projects needed for continued system operation.

Other City projects (such as street or bridge work) create an opportunity for cost-effective upgrades or facility replacements.

Planning documents, such as the City Comprehensive Plan, provide guidance on expansion and growth related projects.

Regulatory agencies (such as the Washington Department of Ecology and the Department of Health) have ordered improvements to the infrastructure system for public health and safety.

Updating the Six-Year Comprehensive Programs is an annual activity that begins immediately after the most recent plan is adopted. The adoption of the utility programs update is scheduled to compliment the City's budget process. A summary of the process is provided below:

City of Spokane
Six-Year Programs Schedule

Activity	Street Program	Utility Programs
Collect information from City staff & agencies	July-December	August - January
Prepare rough draft (Draft 1) of Program for internal City review	January	February
Prepare working draft (Draft 2) for coordination with budget; start environmental process (SEPA)	February-March	March-April
Working draft presentations: Public Works Committee; Plan Commission workshop and hearing	April-May	May-June
Pre-publication draft (Draft 3) is presented together with the Plan Commission recommendation to City Council	June	July
Publish complete and approved Program	July	July

Note: State law requires the six-year capital *street* program be completed by June 30 of each year.

Capital Projects

Criteria were established to distinguish maintenance projects from the capital projects included in the Six-Year Comprehensive Programs. Each project meets the following criteria:

1) The completed value of the project is at least $70,000.
2) The expected useful life of the project is at least five years.
3) The completed project results in a physical fixed asset.

Further Information

For further information on the City's Six-Year Comprehensive Programs, please contact:

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CITY PLAN COMMISSION FINDINGS OF FACT, CONCLUSIONS, AND RECOMMENDATIONS ON THE 2012-2017 SIX YEAR WATER PROGRAM

A Recommendation of the City Plan Commission certifying that the 2012-2017 Six Year Water Program is in conformance with the City of Spokane's Comprehensive Plan.

FINDINGS OF FACT:

A. In May 2001, the City of Spokane adopted its Comprehensive Plan under the Growth Management Act (Chapter 36.70A RCW or "GMA").

B. The City's Comprehensive Plan is required to be consistent with the GMA.

C. The GMA requires that the City's annual Six Year Water Program shall be in conformance with the City's Comprehensive Plan.

D. The 2012-2017 Six Year Water Program identifies capital project activity which has implications on the growth of the community.

E. The City Plan Commission held two workshops on June 8, 2011, and July 13, 2011 and also held a public hearing on July 13, 2011, to obtain public comments on the 2012-2017 Six Year Water Program.

F. The City Council must receive a recommendation from the City Plan Commission to certify that the 2012-2017 Six Year Water Program is in conformance with the City's Comprehensive Plan in effect on the day of certification.

G. The projects are supported by Comprehensive Plan policy CFU 1.1, Level of Service.

H. The projects are supported by Comprehensive Plan policy CFU 1.2 Operational Efficiency.

I. Any amendments to the Water Program based on funding shortfall, need to come back to the Plan Commission for level of service review.

ACTION: Motion was made and seconded to accept the staff's Findings of Fact A through by a vote of 8 to 0.

CONCLUSIONS:

A. The 2012-2017 Six Year Water Program has been prepared in full consideration of the City's Comprehensive Plan.

B. The 2012-2017 Six Year Water Program has been reviewed by the City Plan Commission and found to be in conformance with the goals and policies of the City's 2001 Comprehensive Plan.

ACTION: Motion was made and seconded to accept conclusions A and B by staff as conclusions of the Plan Commission by a vote of 8 to 0.

RECOMMENDATIONS:

A. The Spokane City Plan Commission concludes that the 2012-2017 Six Year Water Program is in full compliance with the existing Spokane Comprehensive Plan as required by RCW 36.70A and RCW 35.77.010 and is recommended for adoption by the Spokane City Council.

B. By a vote of 8 to 0, the Plan Commission recommends the approval of this document by the City Council.

Karen Byrd

Karen Byrd, President
Spokane Plan Commission

7/13/11

Date

RES 11-56

RESOLUTION NO. 2011-0056

WHEREAS, pursuant to the requirements of WAC 365-195-315 (as authorized by RCW 36.70A.190, Laws of the State of Washington) the City of Spokane has prepared a revised and extended Six-Year Comprehensive Water Program for the ensuing six years, 2012 through 2017; and

WHEREAS, the Spokane City Plan Commission, on July 13, 2011, following a public hearing, found the 2012-2017 Six-Year Comprehensive Water Program to be in full conformance with the City's Comprehensive Plan; and

WHEREAS, the City of Spokane utilizes state and federal grants and low-interest loans as appropriate to supplement its financial resources and such anticipated funding is incorporated in the Six-Year Comprehensive Water Program, 2012-2017; and

WHEREAS, pursuant to the above law, the City Council of the City of Spokane, being the legislative body of the City held a public hearing on the Six-Year Comprehensive Water Program at 6:00 p.m., at City Hall in Spokane, Washington, on the 8th day of August, 2011.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Spokane that the revised and extended Six-Year Comprehensive Water Program 2012 through 2017 is hereby adopted; and

BE IT FURTHER RESOLVED, that a copy of the revised and extended Six-Year Comprehensive Water Program for the six years 2012 through 2017, together with a copy of this resolution, be filed with the City Clerk, City of Spokane; and

BE IT FURTHER RESOLVED, that City staff be authorized to apply for state and federal grants and low-interest loans in support of projects as identified in the Six-Year Comprehensive Water Program, 2012-2017.

Adopted this 8th day of August, 2011.

Terri Pfister, City Clerk

Approved as to Form:

Assistant City Attorney

II. Environmental Evaluation

Each project in this program has been evaluated for its environmental impacts, and an appropriate environmental classification has been given each item. The initial environmental assessment was made on the effect of the project to the local area and to the general public, taking into account such considerations as right of way acquisition, effect of clearing and grading, changes in natural drainage and possible disruptions to neighborhoods. Proposed projects have been indicated as having a "Not significant" environmental effect (designated by "CE" or "NS") or of requiring additional study (marked "ES" or "EA"). These projects for which additional study is indicated will be reviewed with particular attention to the sensitive areas at the time of preliminary design. At that time, a further declaration may be made before proceeding with the project.

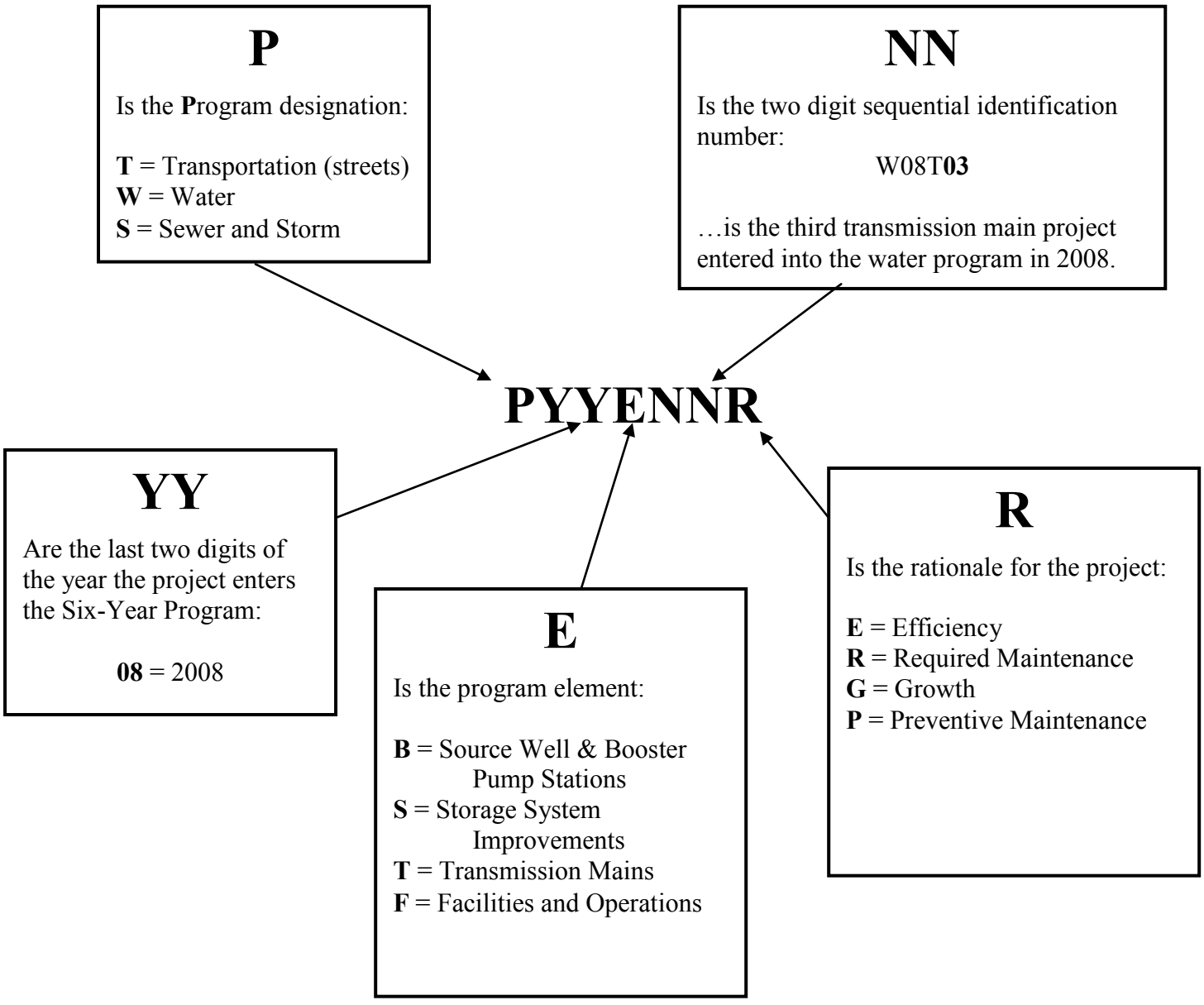
For projects requiring an environmental impact statement, a formal inter-disciplinary team will be appointed. A hearing or advertising for hearing interest is required along with a community involvement plan. Items with state or local funds are classified in accordance with the SEPA Guidelines.

> **CE** Categorically Exempt indicates that the proposal is not environmentally sensitive and no further action need be taken.
>
> **NS** Non-Significant indicates the proposal will not have a significant adverse effect upon the quality of the environment, and an environmental-impact statement and a public hearing are not required. No further environmental documentation is required.
>
> **EA** Environmental Assessment indicates that the proposal may or may not have a significant adverse effect on the quality of the environment and that further environmental investigation is needed.
>
> **ES** Environmentally Significant indicates the proposal will have a significant adverse effect upon the quality of the environment. It is expected that additional documents will be needed that address environmental impacts.

If a program has been determined not to have a significant adverse impact upon the environment, a Declaration of Non-Significance is made, and an environmental impact statement is not required under RCW43.21C.030(2)(c). This decision is made after review of a completed environmental checklist and other information on file.

III. How to Use This Document

When a new project is added to the six-year program, it is assigned a unique tracking number. Once assigned, this tracking number stays with the project for its life, even if other project numbers are subsequently assigned for billing and internal tracking purposes. The tracking numbers are of the form:



IV. Project Reconciliation

As part of the Six Year Program update, the status of each project is reviewed. At times, various factors will cause delay in construction or require rescheduling of the project. Occasionally, a project will be rescheduled beyond the six year programming window. The Project Reconciliation is an attempt to resolve the scheduled construction and account for projects both removed and added to the program.

Completed and In Use for 2011
W08P01 – 2nd Ave. – Howard to Cedar (with Bond Project)
W09T01 – Hartson-11th Avenue from Havana to Sherman
Construction Underway in 2011
W00R09R – Mission Transmission Main, Phase II (with Bond Project)
Projects Removed From Maintenance Fund
W09B14P – Pump Maintenance And Repair
W05S02P – Tank And Reservoir Painting
W00F04P – Water Operations Facility Upkeep
W07F05P – Remote Meter Reading Upgrades
Future Projects--Scheduled Beyond 2017
W00B07E – Shawnee Booster Station
W05B01E – Hoffman Well Rehabilitation
W09B08E – Indian Trails Area New In-Line Booster
W09S03G – Plains System Reservoir #3
W09B15E – West Supply Well
W09S06E – Shadle Additional Reservoir
W09T08E – Fiske St. from Lincoln Heights Reservoir to 29th Avenue
W09T10E – Glenrose Road from 57th Avenue to 37th Avenue
W11T01P – 37th Avenue Water Main
W09B04E – Central Avenue Station 2nd Well Rehabilitation
W09F03P - Upriver Facility Rehabilitation
W09B05P – Lincoln Heights Building Rehabilitation
W07S02E – Thorpe Road Reservoir
W09B11P – Garden Park Booster Station
W07B07G – Beacon Hill Booster Station Upgrade
W05S03G – Beacon Hill Reservoir

V. Financial Information

PROPOSED

Water Department Financial Summary

	Proposed 2012	Proposed 2013	Proposed 2014	Proposed 2015	Proposed 2016	Proposed 2017
SOURCES OF FUNDS:						
Residential Rate Revenues	28,672,803	33,353,638	38,883,671	41,031,994	43,299,012	45,691,282
Commercial Rate Revenues	5,118,917	6,014,727	7,011,969	7,399,380	7,808,196	8,239,599
Misc Revenues	4,175,391	4,191,345	4,207,413	4,236,010	4,274,341	4,313,648
Revenue Adjustment (Commercial)	138,000	300,150	486,174	648,483	818,907	997,852
Revenue Adjustment (Residential)	767,400	1,669,095	2,703,550	3,606,128	4,553,834	5,548,926
Total Operating Revenues	**38,872,510**	**45,528,955**	**53,292,777**	**56,921,994**	**60,754,290**	**64,791,307**
USES OF FUNDS:						
Operations & Maintenance	29,723,727	31,142,497	33,612,699	34,395,791	36,530,226	37,831,589
State Taxes	1,829,245	2,163,196	2,552,782	2,733,894	2,924,731	3,125,813
City Taxes	7,264,242	8,592,340	10,141,291	10,861,774	11,620,927	12,420,830
Debt Service PWTFL	1,046,791	1,033,821	919,956	889,927	793,549	782,614
Total Expenses	**39,864,005**	**42,931,854**	**47,226,728**	**48,881,387**	**51,869,432**	**54,160,846**
Excess/(deficiency of revenues and other sources over (under) expenditures and other uses	**(991,495)**	**2,597,101**	**6,066,049**	**8,040,608**	**8,884,857**	**10,630,461**
Beginning Cash Balance	**10,745,425**	**7,414,996**	**4,997,347**	**5,329,789**	**9,196,635**	**13,080,492**
Excess / (Deficiency) from operations	(991,495)	2,597,101	6,066,049	8,040,608	8,884,857	10,630,461
Revenue Adjustment	(2,000,000)	(2,000,000)	(1,000,000)	(1,000,000)		
Expense Adjustment	2,303,066	2,321,250	2,255,393	2,090,238		
Capital Projects (Six Year Plan)	(2,642,000)	(5,336,000)	(6,989,000)	(5,264,000)	(5,001,000)	(7,426,000)
Changes to Capital Projects						(5,700,000)
Ending Cash Balance *	**7,414,996**	**4,997,347**	**5,329,789**	**9,196,635**	**13,080,492**	**10,584,953**

* HDR suggested minimum approx. $12-14M

Notes:

1. The Six Year Water Program is subject to change based on final Council approval of future budgets.
2. Revenue projections are based on estimated rate increase and growth consistent with current economic climate.
3. Revenue Adjustments in 2012-2014 are a correction to over-estimated revenues in past budgets.
4. Misc Revenues are revenues from operation outside of water utility operations, such as electric sales.
5. PWTFL is an abbreviation for Public Works Trust Fund Loan.
6. A consultant, HDR, created a rate model for the City in 2009-2010. HDR recommended a minimum cash balance of $12,000,000 to $14,000,000 for the Water Department.

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PROGRAM SUMMARY

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VI. Program Summary

The Six-Year Comprehensive Water Program (Program) provides a blueprint for improving the Water Department's infrastructure in a coherent, coordinated, and cost-effective manner. The Program is prepared in support of the City's overall planning efforts. All projects in the Program are intended to serve both the current and future needs, and they are programmed to provide a service life of 50 to 100 years. The Department's comprehensive maintenance program keeps the infrastructure operating at optimal levels and extends useful life. Planning for the future has proven to be a financial benefit for the citizens of the City.

The Program is organized into four elements: source well and booster pump stations, storage system improvements, and transmission mains, and facilities and operations. Each element is described below. Projects within these elements are divided into individual and continuing projects. Projects that are individual and specific to one site are listed separately from continuing maintenance projects. While on-going maintenance projects with large capital expenditures are included in the Program, minor maintenance work is completed under the utility's operation budget and will not be found in this document.

- Source Well and Booster Pump Stations: Source wells extract water from the Spokane Valley Rathdrum Prairie Aquifer, the City's sole source for drinking water. Booster pump stations move the water across distances and to storage facilities at higher elevations providing service throughout the City.

- Storage Systems Improvements: The City's water system has several varieties of tanks and reservoirs that provide water storage. These facilities are located throughout the City, and they serve the dual purposes of balancing customers supply needs and fire protection. Well and booster pump stations keep the tanks full and full tanks supply emergency storage. In addition tanks help equalize the water pressure in the entire system.

- Transmission Mains: Pipes deliver water from the Aquifer to water customers. Large diameter pipes that transport water across the city to storage facilities are called transmission mains. Smaller diameter pipes that carry water to residences and businesses are called distribution mains.

- Facilities: In addition to operating and maintaining the water system, the City's Water Department is responsible for several facilities, including the Upriver Dam.

Water Department

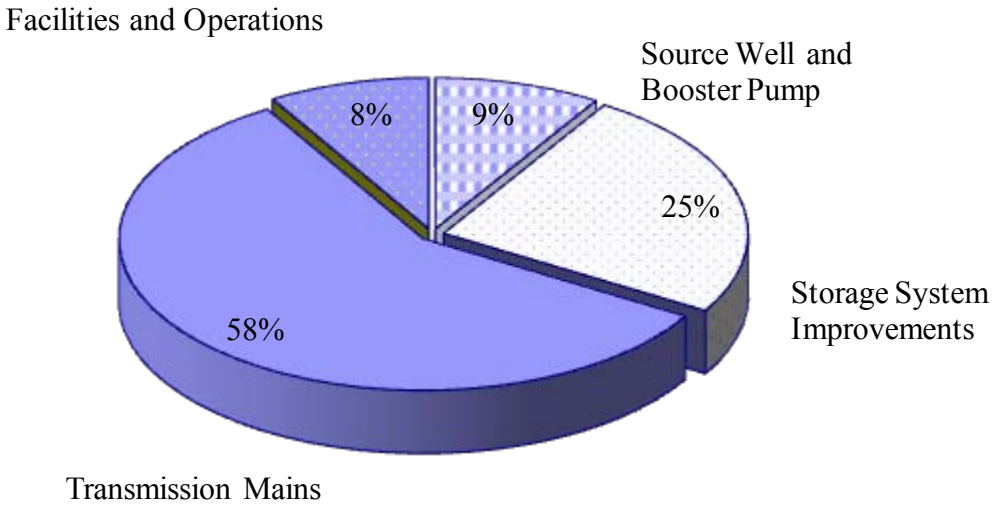
The City of Spokane's Water Department is one of the best water utilities in the Pacific Northwest. It has a Class 1 fire rating, the highest possible, and the Water Department also has the highest possible operating rating. The City of Spokane has some of the highest quality and lowest cost drinking water in the state. The Water Department is an enterprise fund, which provides goods or services to the public for a fee and makes the entity self-supporting. The Water Department has an annual operating budget of over $35 million with the major source of revenue coming from water sales. The 20 percent utilities tax is a major source of revenue to the City's general fund.

Program Element Summary

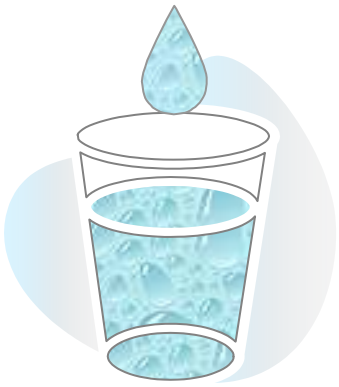
Amounts are shown in thousands of dollars (x1,000)

Project	2012	2013	2014	2015	2016	2017	Total
Source Well and Booster Pump Stations	51	556	635	600	0	680	2,522
Storage System Improvements	130	1,800	3,800	216	2,500	190	8,636
Transmission Mains	2,461	2,980	2,554	4,448	2,501	6,556	21,500
Facilities and Operations	0	0	0	0	0	0	0
Total All Elements	**$ 2,642**	**$ 5,336**	**$ 6,989**	**$ 5,264**	**$ 5,001**	**$ 7,426**	**$ 32,658**

Comprehensive Water Program 2012-2017



SOURCE WELL AND BOOSTER PUMP STATIONS



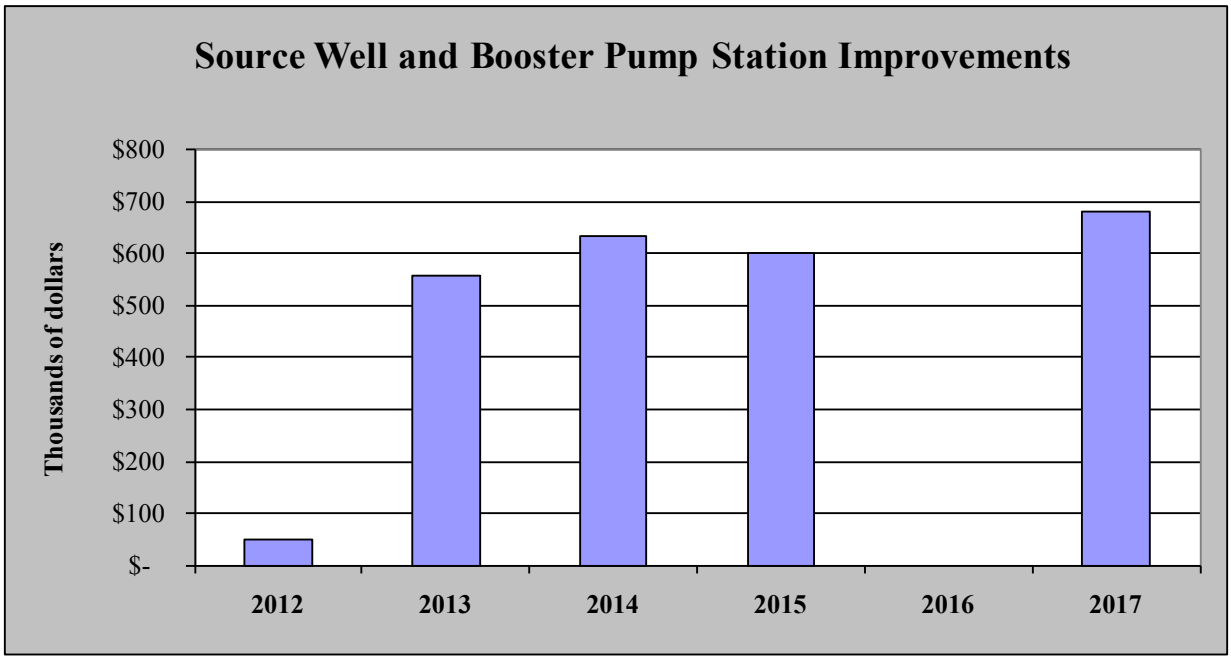
VII. Source Well and Booster Pump Stations

The Source Well and Booster Pump Stations program element contains projects that supply water from the Aquifer to the water system throughout the City's water service area.

Source Well and Booster Pump Stations

Amounts are shown in thousands of dollars (x1,000)

Project	2012	2013	2014	2015	2016	2017	Total
W00B07E - Shawnee Booster						30	30
W07B02E - Well Electric Station Upgrade		10	200				210
W08B02E - Central Avenue Station 1st Well Rehabilitation				600			600
W08B04G - Central Avenue Station 2nd Well Rehabilitation						600	600
W09B08G - Indian Trails System						50	50
W09B09G - Plains System New Booster	51	500					551
W10B02E - Woodland Heights In-Line Booster		46	435				481
Yearly Totals	**$ 51**	**$ 556**	**$ 635**	**$ 600**	**$0**	**$ 680**	**$ 2,522**



Source Well and Booster Pump Stations
Project Details

Project	Project Description			
W00B07E – Shawnee Booster Station	The existing booster station is located at 4400 W. Shawnee Avenue in northwest Spokane in an underground vault and is difficult to maintain. This project will relocate the booster station to an above ground building to improve operations and maintenance.			
	Purpose			
	The purpose of upgrading the Shawnee Station is to save energy costs and provide better water delivery to the system.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2018	Shawnee	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$278,000	$42,000	$30,000	Acquired

Project	Project Description			
W07B02E - Well Electric Station Upgrade	Well Electric Station was constructed in 1925 and is located at 2701 N. Waterworks Street, near the Upriver Dam. This upgrade will remove one pump, motor, and electrical controller combination that supplies water to the North Hill pressure system and replace it with a modern pump & motor system. The upgrade will increase both the energy efficiency and the ability to deliver water quickly to the customers . At the same time the electrical equipment controlling the system will be upgraded to match. The current motor control electronics no longer meet code requirements and the pump & motor are over 85 years old. Well Electric Station is the largest supply source in the City water system, sending water to three different pressure systems.			
	Purpose			
	The purpose of upgrading the Well Electric Station is to save energy costs and provide better water delivery to the system.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2014	North Hill	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$183,000	$27,000	$10,000	Acquired

Source Well and Booster Pump Stations
Project Details *(continued)*

Project	Project Description			
W08B02E – Central Avenue Station 1st Well Rehabilitation	Central Avenue Well Station has two wells at opposite corners of the site located at Central Avenue and Normandie Street. The Number 1 well station will be upgraded, overhauled, rehabilitated, and modernized with new pumps and motors to provide more pumping capacity and to improve the efficiency of the pump motors for increased system capacity. Both wells contain older submersible style pumps which are not energy efficient and are very expensive to maintain. The new pumps will be vertical turbine pumps which will provide for increased system capacity while saving both energy, operational and maintenance costs.			
	Purpose			
	The purpose of this project is save operations and maintenance costs.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2015	North Hills	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$480,000	$72,000	$48,000	Acquired

Project	Project Description			
W08B02G – Central Avenue Station 2nd Well Rehabilitation	Central Avenue Well Station has two wells at opposite corners of the site located at Central Avenue and Normandie Street. The Number 2 well station will be upgraded, overhauled, rehabilitated, and modernized with new pumps and motors to provide more pumping capacity and to improve the efficiency of the pump motors for increased system capacity. Both wells contain older submersible style pumps which are not energy efficient and are very expensive to maintain. The new pumps will be vertical turbine pumps which will provide for increased system capacity while saving both energy, operational and maintenance costs.			
	Purpose			
	The purpose of this project is save operations and maintenance costs.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2017	North Hills	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$480,000	$72,000	$48,000	Acquired

Source Well and Booster Pump Stations
Project Details *(continued)*

Project	Project Description			
W09B08G – Indian Trails Area New In-Line Booster	A new booster station will be constructed in the Indian Trail Road area. The new booster station will improve water supply to the Indian Trail Reservoir by delivering improved water pressure. Although the exact location has not been determined, the Water Department is evaluating properties they currently own in the area to assess the possibility of constructing a booster station.			
	Purpose			
	The purpose of this project is to improve pressure and water supply for the existing system to allow for future growth.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2018	High	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$390,000	$60,000	$50,000	Acquired

Project	Project Description			
W09B09G - Plains System New Booster	A new booster station will be constructed in the West Plains area. The new booster station will improve water service to the Plains Pressure System by providing redundancy and increased capacity. The exact location of this booster station has not been determined, but is needed in the vicinity of the existing Spotted Road Booster Station. This booster station will supply customers and the increasing demands south and west of the SIA area. Demand in the Plains System is increasing as marketable land near and around the Spokane International Airport develops. This proposed booster station will balance our system of supply by eliminating a weak link in the supply system that provides water to this area.			
	Purpose			
	The purpose of this project is to improve the ability to deliver water to the West Plains.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2013	Plains	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$435,000	$65,000	$51,000	Needed

Source Well and Booster Pump Stations
Project Details *(continued)*

<table>
<tr><th>Project</th><th>Project Description</th></tr>
<tr><td rowspan="6">W10B02E – Woodland Heights In-line Booster</td><td>A new booster station will be constructed in the Woodland Heights area to improve water service to the Woodland Heights Pressure System, as well as increase supply to the SIA Pressure System, by providing more efficient water delivery and higher pressure. The exact location of this booster station has not been determined. Most of the City's supply wells are located toward the eastern portion of the city. As water travels from the east part of the city to the west part of the city it loses energy. During periods of high demand the western portion of the city experiences lower pressures, and therefore supply, simply due to the distance the water must travel. This proposed station will not move the water from one system "up" to the next, but rather move water through the Low system such that supply is more evenly distributed across the geographic distances.</td></tr>
<tr><td>Purpose</td></tr>
<tr><td>The purpose of this project is to improve the efficiency of Woodland Heights system. The new booster station will reduce operations cost by saving energy and provide a more reliable source of water service for customers.</td></tr>
<tr><td>
<table>
<tr><th>Construction Starts</th><th>System</th><th>Environmental</th><th>Design by</th></tr>
<tr><td>2014</td><td>Woodland Heights</td><td>CE</td><td>Engineering</td></tr>
<tr><th>Construction Budget</th><th>CM Budget</th><th>Design Budget</th><th>Property</th></tr>
<tr><td>$378,000</td><td>$57,000</td><td>$46,000</td><td>TBD</td></tr>
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</td></tr>
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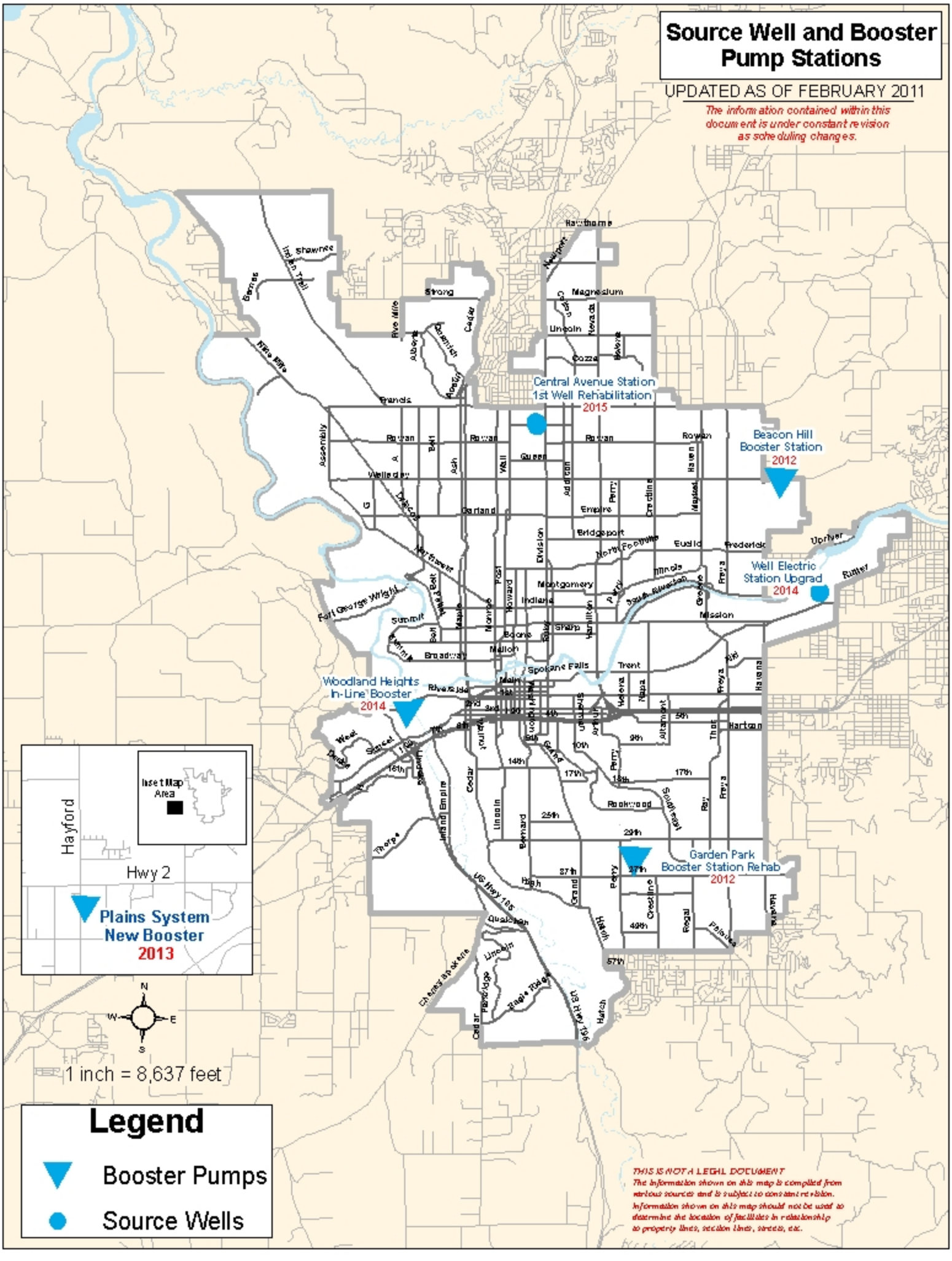
Source Well and Booster Pump Stations
UPDATED AS OF FEBRUARY 2011
The information contained within this document is under constant revision as scheduling changes.
Central Avenue Station
1st Well Rehabilitation
2015
Beacon Hill
Booster Station
2012
Well Electric
Station Upgrad
2014
Woodland Heights
In-Line Booster
2014
Garden Park
Booster Station Rehab
2012
Plains System
New Booster
2013
Inset Map Area
Hayford
Hwy 2
N
S
E
W
1 inch = 8,637 feet
Legend
Booster Pumps
Source Wells
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The information shown on this map is compiled from various sources and is subject to constant revision. Information shown on this map should not be used to determine the location of facilities in relationship to property lines, section lines, streets, etc.

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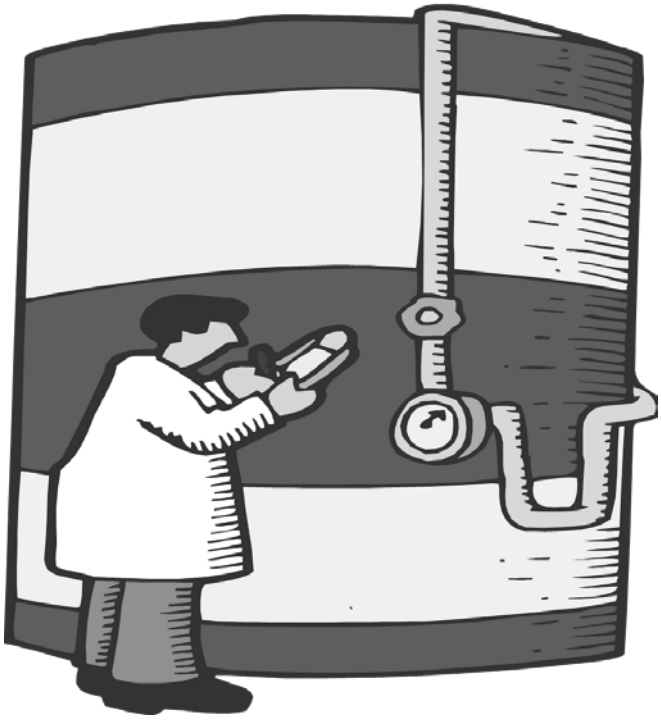
STORAGE SYSTEM IMPROVEMENTS



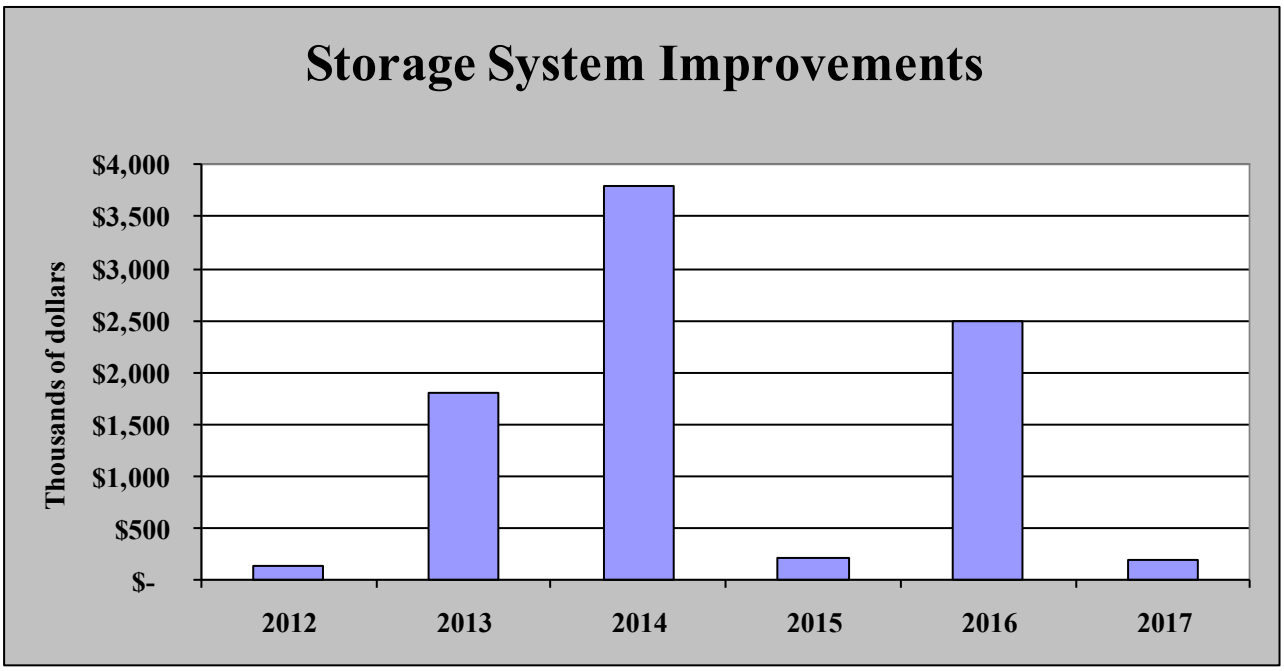
VIII. Storage System Improvements

The Storage System Improvements element contains projects related to water storage, such as tanks and reservoirs. Storage supplies water and maintains system pressure.

Storage System Improvements Summary

Amounts are shown in thousands of dollars (x1,000)

Project	2012	2013	2014	2015	2016	2017	Total
W02S02R - Northwest Terrace Reservoir	130	1470					1,600
W09S01G - Plains System Second Reservoir		330	3800				4,130
W09S02E - High System Additional Storage				216	2500		2,716
W07S02E - Thorpe Road Reservoir No. 2						190	190
Yearly Totals	**$ 130**	**$ 1,800**	**$ 3,800**	**$ 216**	**$ 2,500**	**$ 190**	**$ 8,636**



Storage System Improvements
Project Details

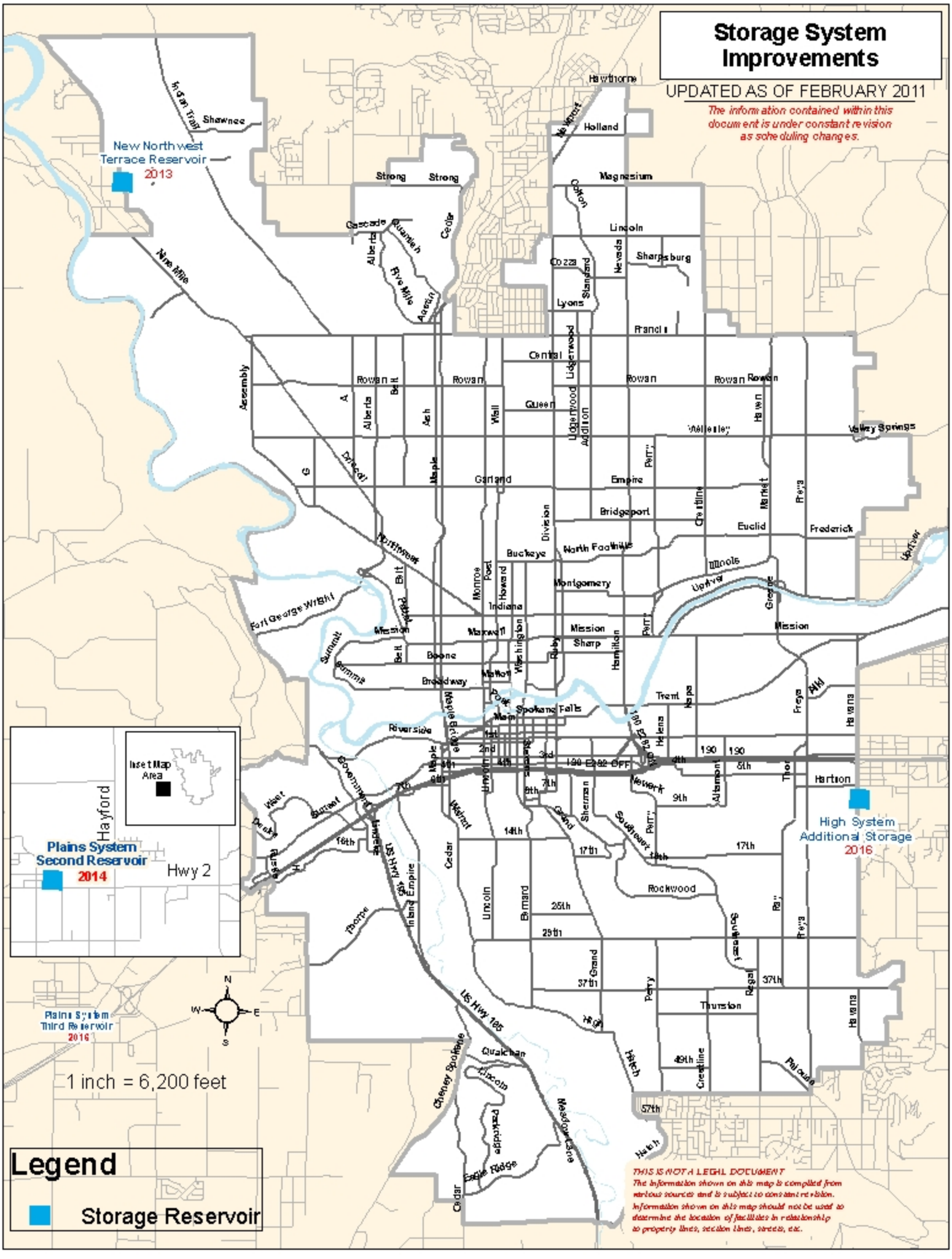
Project	Project Description			
W02S02R - Northwest Terrace Reservoir	This project will construct a new reservoir within the Northwest Terrace Pressure Zone (location not yet determined). When constructed, this 1,000,000 gallon reservoir will reduce the need to rely solely on pressure reduction from higher pressure zones to provide water to this area. Under current operations, water is pumped up "over the hill" to higher pressure system, then fed down to Northwest Terrace, which is at a much lower elevation than the supplying pressure zone. Water pressure is reduced to normal levels by flowing through pressure reducing valves, but a failure of the regulating devices will cause damage due to over-pressurization. The City water system will most likely not be damaged, but devices (i.e. hot water tanks, toilets, etc.) within customers homes are not typically designed to withstand these higher pressures. Installing a water reservoir for this pressure system will eliminate the risk of damage due to a mechanical equipment failure, and it will also provide for dedicated emergency water storage for this pressure system. Currently emergency storage is also dependent upon supply from other pressure zones.			
	Purpose			
	The purpose of this project is to provide a more efficient system to deliver water to the Northwest Terrace Pressure System rather than relying on another pressure system. The new reservoir will reduced operational costs.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2013	NW Terrace	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,278,000	$192,000	$130,000	Needed

Project	Project Description			
W09S01G - Plains System Second Reservoir	This project will construct a new reservoir in the vicinity of Highway 2 and Hayford Road. An exact location has not been determined. The second reservoir provides needed storage in the western portion of the City's water service area. As development continues, this area is becoming underserved by the existing facilities and experiences periods when water pressures are not at the desired levels. Additional storage, both in volume and location, will address this problem. Furthermore, more water supply in the area will create more operational flexibility and better customer service.			
	Purpose			
	The purpose of this project is to provide storage to the western portion of the Plains Pressure System, enhancing redundancy and providing additional capacity for increased water service to the West Plains.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2014	Plains	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$3,304,000	$496,000	$330,000	Needed

Storage System Improvements
Project Details *(continued)*

Project	Project Description			
W09S02E - High System Additional Storage	This project will construct an additional reservoir in the High Pressure System. An exact location has not been determined. Currently the storage volume within the High Pressure System is not adequate to serve both the demands within that pressure zone and to "wheel" water to the systems that feed from it. Localized low pressure and reduced emergency storage can result from this lack of storage capacity. This limits operations as well as emergency capacity. The water system will run more efficiently and effectively once additional storage is developed.			
	Purpose			
	The purpose of this project is to provide localized storage, enhance redundancy and provide additional capacity for increased water service to the High Pressure System. Construction of the additional storage will save costs by allowing the water system to operate more efficiently.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2016	High	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$2,174,000	$326,000	$216,000	Needed

Project	Project Description.			
W07S02E – Thorpe Road Reservoir No. 2	This project will construct a second reservoir next to the existing one on Thorpe Road. The existing reservoir serves the Low Pressure Zone and the new 3.5 million gallon reservoir will provide redundancy and additional capacity for growth in the Spokane International Airport (SIA) and Plains pressure zones on the West Plains. In providing redundancy, it will also provide the ability to take Thorpe Road Reservoir No. 1 off-line for required maintenance.			
	Purpose			
	The purpose of this project is to enhance redundancy and provide additional capacity for increased water service to the West Plains.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2018	SIA/Plains	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,783,000	267,000	190,000	N/A


Storage System Improvements
UPDATED AS OF FEBRUARY 2011
The information contained within this document is under constant revision as scheduling changes.
New Northwest Terrace Reservoir 2013
Plains System Second Reservoir 2014
Plains System Third Reservoir 2016
High System Additional Storage 2016
Inset Map Area
Hayford
Hwy 2
1 inch = 6,200 feet
Legend
Storage Reservoir
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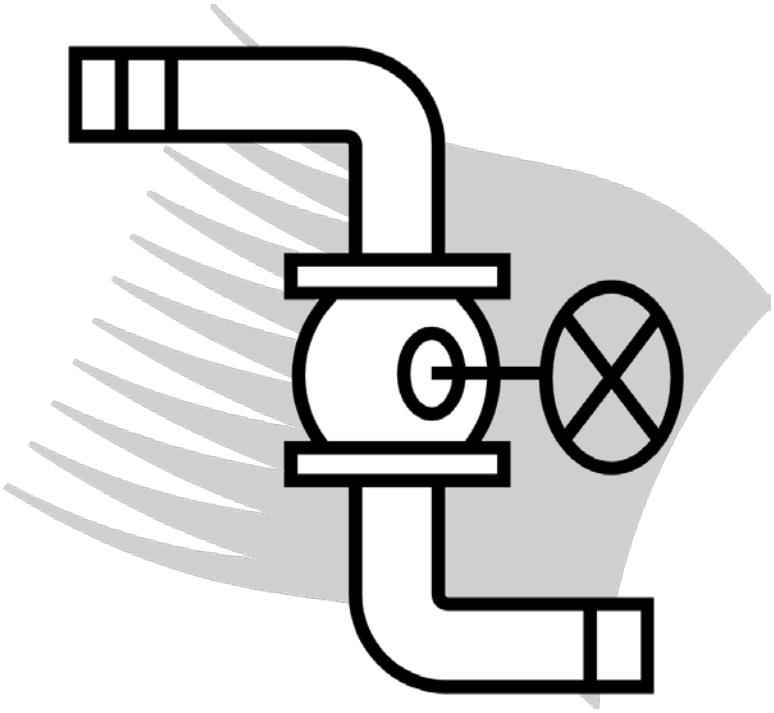
TRANSMISSION MAINS



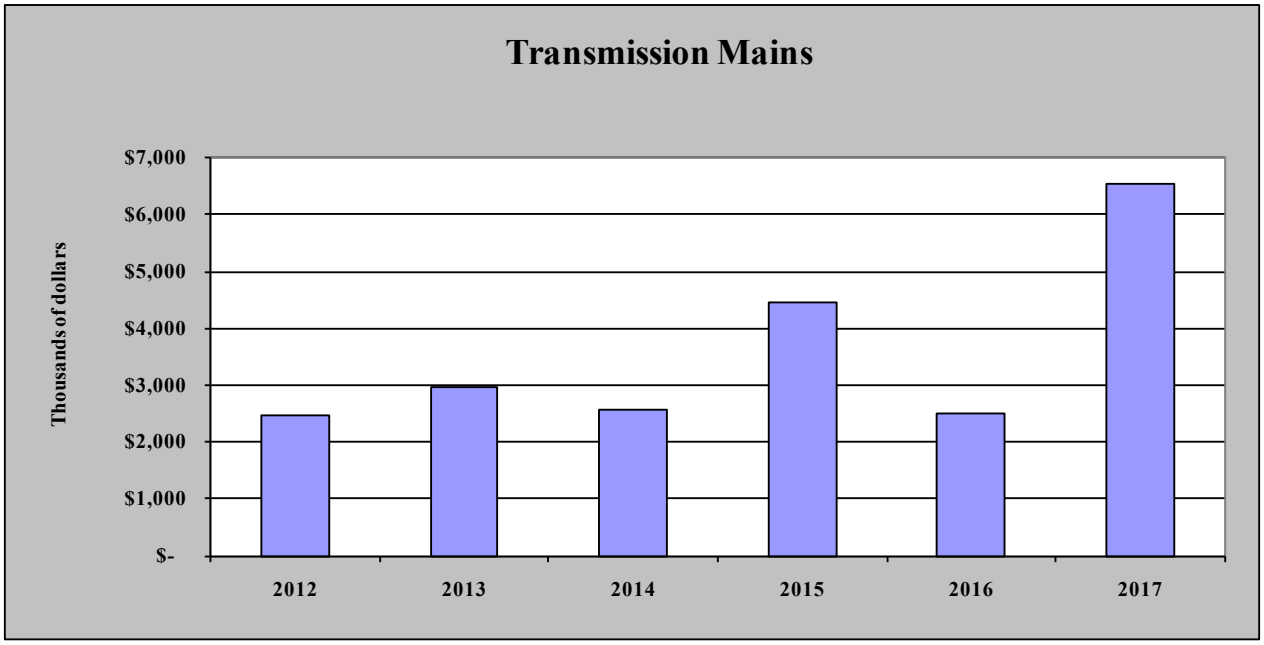
IX. Transmission Mains

Transmission improvements include the large diameter pipes (transmission) that carry water from wells, booster stations and to reservoirs.

Transmission Mains Summary

Amounts are in thousands of dollars (x1,000)

Project	2012	2013	2014	2015	2016	2017	Total
W00R08P - Euclid/Mayfair Transmission Mains	950		308	3,560			4,818
W00R10P - 14th Avenue Main Replacement		25	250				275
W07T01R – Division from 8th & 9th Avenue	1,137						1,137
W09T03G - Regal Road from 37th to 57th					133	1,507	1,640
W09T04P - Manito Blvd, 14th to 33rd		110	1,246				1,356
W09T06G - Hayford Road/Hwy 2 to Craig Road/McFarlane Ave.						3,049	3,049
W09T07P - Crestline, 37th to 57th Avenue					110	1,250	1,360
W09T09P -Perry St/33rd Avenue to Regal St/57th Avenue	204	2,345					2,549
W09T12P - Eljin Rd. from Garland Ave. to Shadle Reservoir				40	408		448
W09T13P - 6th Avenue, Bishop Court to Sunset Blvd				98	1,100		1,198
W10T01P - Green Street Bridge Crossing Replacement	48	450					498
W11T01R - 37th Avenue Water Main	72						72
W00C08P - Water Main Upsizing Fund	50	50	50	50	50	50	300
W00R13P - Pipe Replacement			700	700	700	700	2,800
Totals All Projects	**$ 2,461**	**$ 2,980**	**$ 2,554**	**$ 4,448**	**$ 2,501**	**$ 6,556**	**$21,500**


Transmission Mains
Thousands of dollars
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$-
2012
2013
2014
2015
2016
2017

Transmission Mains
Project Details

Project	Project Description			
W00T08P - Euclid/Mayfair Transmission Mains	This project will replace about 2.9 miles of old (about 100 years old) 24-inch steel transmission main with 30-inch ductile iron pipe. Installed in 1909 and 1936, this pipeline supplies water from the Well Electric well station to the North Hill pressure zone. The existing main is riveted steel, which has a problematic history that has become more problematic as it ages. Both corrosion from the exterior (corrosive soils eating away the steel) and the riveted construction techniques of the past (where the rivets become actual weak points and can loosen, corrode, and leak) compromise the existing main. Construction will coordinate with the City's Street Bond. The project will be split into two phases. The first phase of the project will coincide with the street bond project. The second phase will follow approximately 3 years after the initial phase.			
	Purpose			
	The purpose of this project is to replace the existing main prior to catastrophic failure. Catastrophic failures will increase in likelihood each year; a single rupture from a pipeline of this size can cause enormous damage. An eminent failure is not anticipated, but reasonable and responsible operation and maintenance of the water system dictates replacing this main. Costs of repairs and damage control of a ruptured main will far exceed the costs of replacement.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2012 & 2015	North Hill	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$3,922,000	$588,000	$390,000	Right-of-way

Project	Project Description			
W00T10P - 14th Avenue Main Replacement	This project will replace old sections of transmission main in 14th Avenue. Originally, relining the existing transmission main was proposed; however, a more cost effective construction method of replacement was determined to be feasible.			
	Purpose			
	This project will replace a section of pipe that has reached its useful life. An eminent failure is not anticipated, but reasonable and responsible operation and maintenance of the water system dictates replacing this main. Costs of repairs and damage control of a ruptured main will far exceed the costs of replacement.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2014	High	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$217,000	$33,000	$25,000	Right-of-way

Transmission Mains
Project Details *(continued)*

Project	Project Description			
W07T01R – Division from 8th & 9th Avenue	Three 24-inch steel mains lay underneath a portion of Sacred Heart Hospital. The pipes are riveted steel, installed in 1905. Later this section of hospital was constructed over top the pipes, without relocating the mains. This project will replace the three mains with ductile iron pipes rerouted around the hospital. Steel pipes are not as durable as ductile iron. The condition of the mains has been further compromised by corrosion due to underground vault conditions of moisture and air exposure. The mains leading up to the portions under the hospital complex have previously been replaced with ductile iron, and this project will tie to them as it reroutes that water around, rather than under, the buildings.			
	Purpose			
	The purpose of this project is to replace pipes that have reached their useful life. Even a minor failure of these mains may cause potentially serious physical damage to the hospital, occupants and surrounding areas.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2012	Intermediate	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$989,000	$148,000	$98,000	Right-of-way

Project	Project Description			
W09T03G – Regal Road From 37th to 57th	This project replaces about 1.3-miles of 30-inch steel transmission main with 30-inch ductile iron pipe in Regal Road from 37th Avenue to 57th Avenue. The steel pipe has reached its useful service life and will be replaced as a part of preventive maintenance			
	Purpose			
	The purpose of this project is to replace pipes that have reached their useful life. An eminent failure is not anticipated, but reasonable and responsible operation and maintenance of the water system dictates replacing this main. Costs of repairs and damage control of a ruptured main will far exceed the costs of replacement.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2017	Top	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,310,000	$197,000	$133,000	Right-of-way

Transmission Mains
Project Details *(continued)*

Project	Project Description			
W09T04P - Manito Blvd. from 14th to 33rd Avenue	This project replaces about 1.3 miles of 24-inch steel transmission main with 24-inch ductile iron pipe. The pipe route follows Manito Boulevard from 33rd Avenue to 21st Avenue and through Manito Park to 17th Avenue. The main will also be replaced in Tacoma Street to the booster station located at 14th Avenue and Grand Blvd. The existing steel main has had multiple repairs and is noted by field crews to be in poor condition due to the soil conditions.			
	Purpose			
	Corrosive soils are deteriorating the steel pipe. Ductile iron pipes are more durable than steel. While an eminent failure is not anticipated, reasonable and responsible operation and maintenance of the water system dictate replacing this main.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2014	High	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,083,000	$163,000	$110,000	Right-of-way

Project	Project Description			
W09T07P – Crestline, 37th to 57th	This project replaces about 1.3 miles of 24-inch steel transmission main with 24-inch ductile iron pipe in Stone Road from 37th Avenue to 39th Avenue to Lee Road to Thurston Avenue to Crestline Road to 57th Avenue.			
	Purpose			
	The steel pipe has reached the end of its useful service life and will be replaced as a part of preventive maintenance. Steel pipes are not as durable as ductile iron.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2017	Top	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,087,000	$163,000	$110,000	Right-of-way

Project	Project Description			
W09T09P -Perry St/33rd Avenue to Regal St/57th Avenue	This project replaces about 2.5 miles of 18-inch and 24-inch steel transmission main with 24-inch ductile iron pipe in Perry Street from 33rd Avenue to 53rd Avenue, in an easement to 57th Avenue to Regal Street.			
	Purpose			
	The steel pipe has reached its useful service life and will be replaced as a part of preventive maintenance. Steel pipes are not as durable as ductile iron.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2013	Top	CE	Water
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$2,039,000	$306,000	$204,000	Right-of-way

Transmission Mains
Project Details *(continued)*

Project	Project Description			
W09T12P - Elgin Rd. from Garland Ave. to Shadle Reservoir	This project replaces approximately 2,250 feet of 24-inch steel transmission main with 24-inch ductile iron pipe in Elgin Street from Garland Avenue to the Shadle Reservoir located at Wellesley Avenue and Belt Road.			
	Purpose			
	The steel pipe has reached its useful service life and will be replaced with ductile iron pipe as a part of preventive maintenance. Steel pipes are not as durable as ductile iron.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2016	Low	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$355,000	$53,000	$40,000	Right-of-way

Project	Project Description			
W09T13P - 6th Avenue, Bishop Court to Sunset Blvd	This project replaces approximately one mile of 30-inch and 18-inch steel transmission main. The project begins at 5th in Monroe Street south to Bishop Court then west in Bishop Court to Madison, and ending the replacement of the 30-inch steel at 6th and Jefferson. The bulk of the project will be to replace the 18-inch steel main in 6th Avenue from Jefferson to Sunset Blvd. including crossing under I-90 in an existing sleeve			
	Purpose			
	Currently the steel main is out of service from 6th and Cannon due to the condition of the pipe and needs to be replaced to provide a redundant supply to Browns Addition and West Spokane. The steel pipe has reached its useful service life and will be replaced with ductile iron pipe as a part of preventive maintenance.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2016	Low	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$957,000	$143,000	$98,00	Right-of-way

Project	Project Description			
W10T01P – Green Street Bridge Crossing Replacement	The water line contained within Green Street Bridge is currently out of service due to the deteriorated condition of the main. A new water main will be constructed to replace the existing main to provide a redundant supply across the Spokane River.			
	Purpose			
	The existing water main is suspected to be leaking.			
	Construction Starts	**System**	**Environmental**	**Design by**
	2013	Top	EA	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$391,000	$59,000	$48,000	Right-of-way

Transmission Mains
Project Details *(continued)*

Project	Project Description			
W11T01P – 37th Avenue Water Main	The existing steel pipe in 37th Avenue will be replaced. Design will be coordinated with the 37th Avenue Street Project.			
	Purpose			
	The purpose of this project is to replace the aging pipe in 37th Avenue in conjunction with a street project.			
	Construction Starts	**System**	**Environmental**	**Design by**
	TBD	Top	CE	Engineering
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$750,000	$113,000	$72,000	Right-of-way

Ongoing Projects

Project	Project Description				
W00T08P - Water Main Upsizing Fund	This fund pays for up-sizing new distribution mains installed by developers to the sizes needed for future transmission capacity purposes as identified in the Water Comprehensive Plan.				
	Start Year	**System**	**Use**	**Environmental**	**Design by**
	2011	All	Distr	CE	Water

Project	Project Description				
W00T13P - Pipe Replacement	This on-going project is an effort to replace pipe that has reached the end of its useful life and may included steel pipe or galvanized steel (Kalamein) pipe and other in the City. Ductile iron pipe will be installed to replace the outdated pipe.				
	Start Year	**System**	**Use**	**Environmental**	**Design by**
	2011	All	Distr	CE	Water

Distribution Transmission Mains

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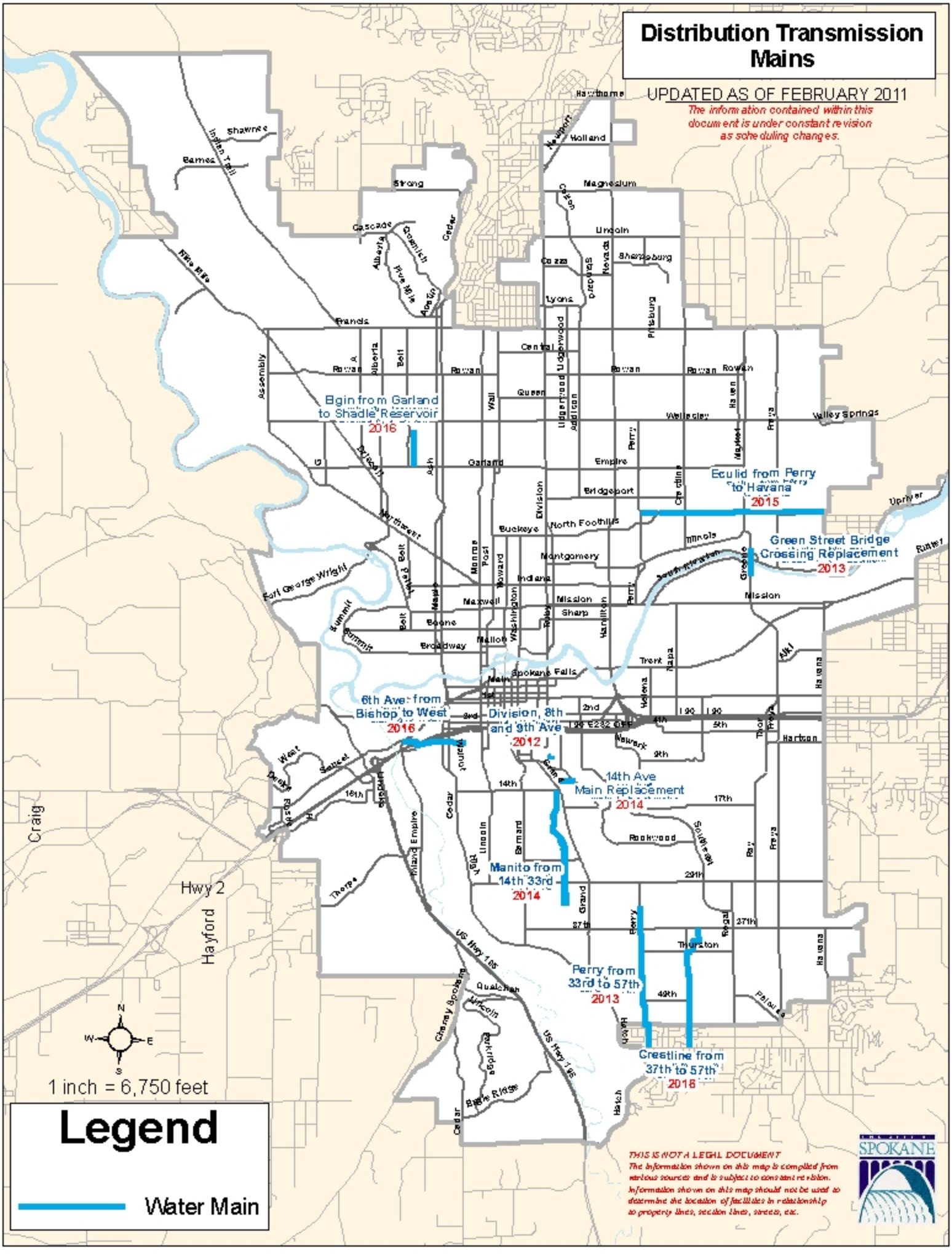

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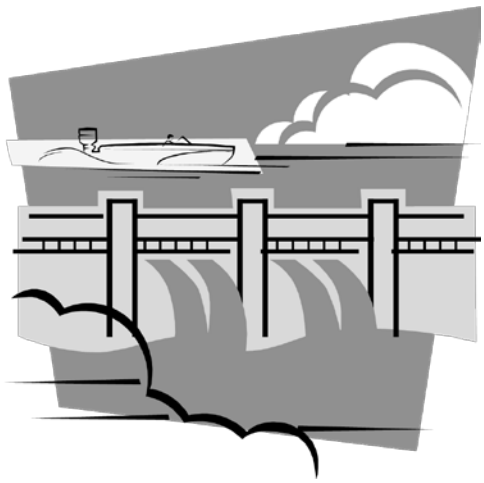
FACILITIES AND OPERATIONS



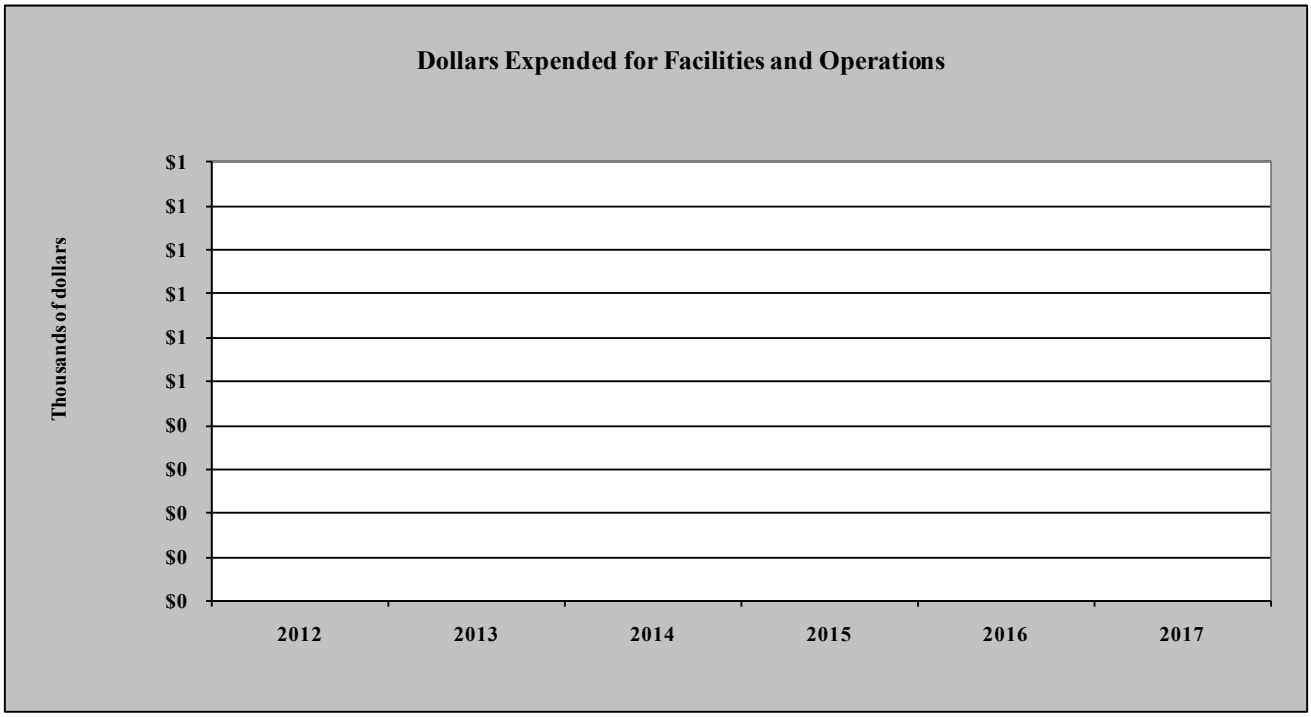
X. Facilities and Operations

The Water Department is responsible for several facilities including the Upriver Dam and the Upriver Facility. On-going Operating Projects are necessary to keep the system running smoothly.

Facility Projects Summary

Amounts are in thousands of dollars (x1,000)

Project	2012	2013	2014	2015	2016	2017	Total
							0
Totals	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**



Facilities and Operations

UPDATED AS OF FEBRUARY 2011

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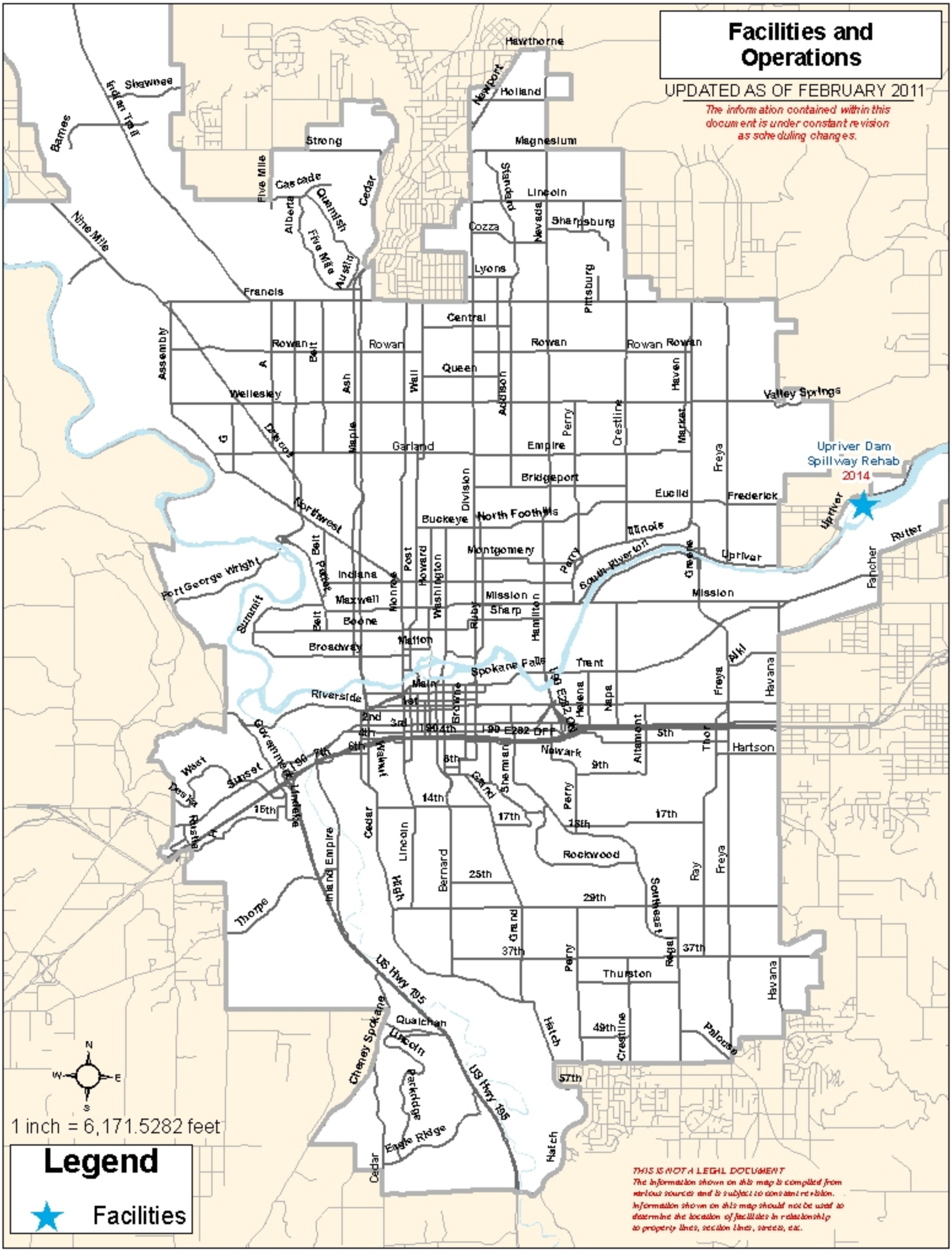

Legend

★ Facilities

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XI. Planning and Support Projects

These programs and studies are important to the capital projects in the six year program; however they do not meet the criteria for capital improvements.

Project	Description			
W04R01 - Strategic Infrastructure Planning	The Strategic Infrastructure Planning Study will analyze the City of Spokane's ability to provide utility infrastructure to support both future demands of our existing infrastructure and infrastructure needs of future growth as guided by the City's Comprehensive Plan. The Study will develop an action plan to address the impacts of infrastructure replacement, population growth, and densification for a 50-year planning horizon. Components of the study will include water, wastewater and stormwater infrastructure coordinated with transportation planning efforts. Each department will fund a portion of the study. The Study will answer "What major infrastructure improvements will be necessary to serve the City's entire Service Area in the next 50 years?" This work will be completed by a consultant under the direction of City staff.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2012	2 years	$100,000	$200,000

W00C01 - Infrastructure Management System	This is an on-going project to implement a computerized system to improve maintenance management and inventory.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6 years	$100,000	$600,000

W07P01 - Wellhead Protection Program	This project provides for the on-going protection of the Aquifer at wellhead locations as mandated by the Federal and State governments.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6 years	$150,000	$900,000

W07P04 - Water Conservation Program	This on-going project supports implementation of the City's Water Stewardship Program in accordance with State conservation guidelines and requirements.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6 years	$150,000	$900,000

XII. Abbreviations and Acronyms

CBD – Central Business District

CE – Categorically Exempt

CFU – Capital Facilities and Utilities

EA – Environmental Assessment

ES – Environmentally Significant

FAFB – Fairchild Air Force Base

GMA – Growth Management Act

NPDES – National Pollution Discharge Elimination System

NS – Non-Significant

PVC – Polyvinyl Chloride

PWTF – Public Works Trust Fund

SIA – Spokane International Airport

SIP – Strategic Infrastructure Plan

TBD – To Be Determined

UGA – Urban Growth Area