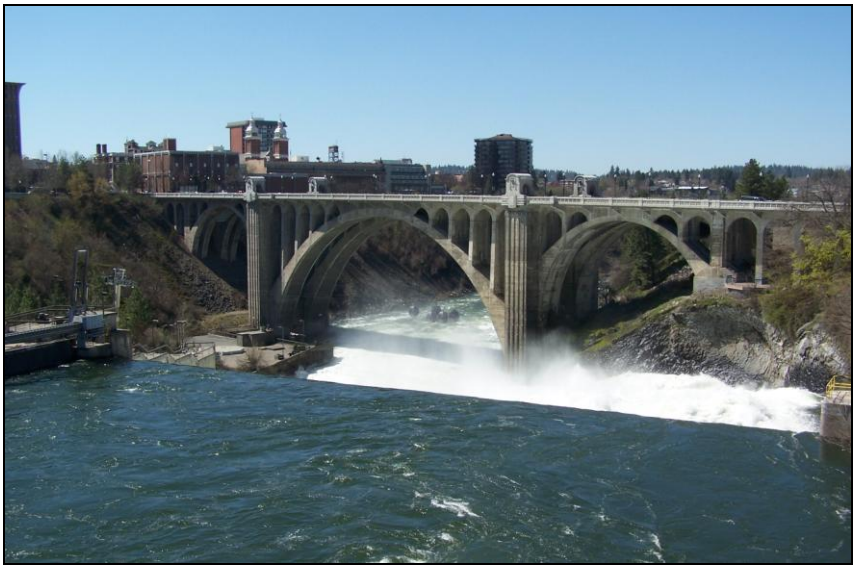
Six Year Comprehensive



Wastewater Program

2011-2016

Prepared for:

City Council

February 7, 2011

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Dale Arnold

CAPITAL PROGRAMS AND G.I.S

PROGRAM MANAGER	**John Mercer, AICP**
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	Craig French

Date Printed: January 25, 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 5 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, stormwater, 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. The Six-Year Comprehensive Utility Program is designed to meet each of the five purposes 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 user fees charged to customers fund the utility activities, so that no City General Fund revenues 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 Wastewater, 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	November-April
Prepare rough draft (Draft 1) of Program for internal City review	January	May-June
Prepare working draft (Draft 2) for coordination with budget; start environmental process (SEPA)	February-March	July
Working draft presentations: Public Works Committee; Plan Commission workshop and hearing	April-May	August-September
Pre-publication draft (Draft 3) is presented together with the Plan Commission recommendation to City Council	June	October
Publish complete and approved Program	July	November

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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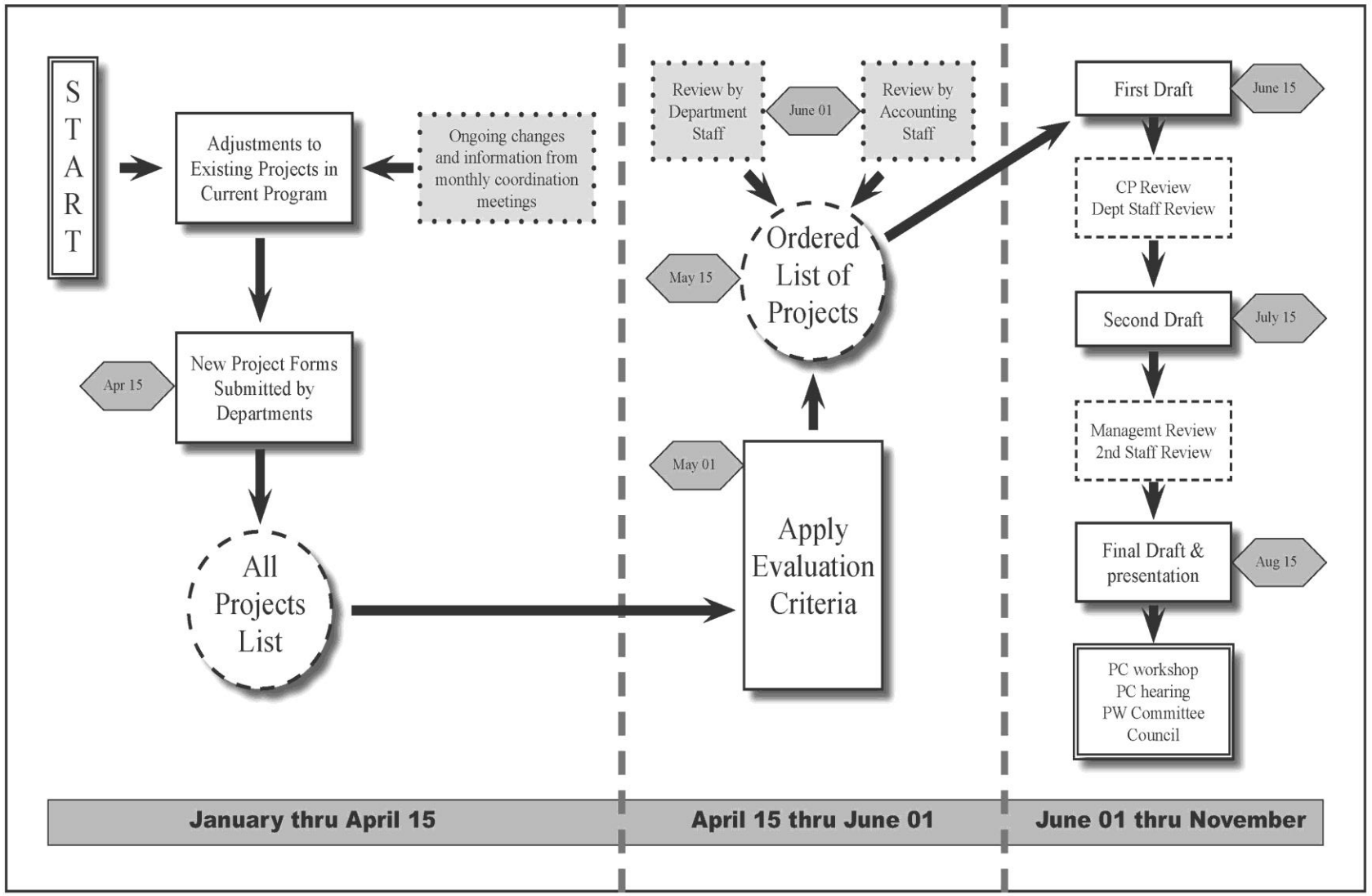
Manager, Capital Programs and GIS
Engineering Services Department
City of Spokane
808 W. Spokane Falls Blvd.
Spokane, WA 99201-3334
(509) 625-6065
jmercer@spokanecity.org

Six-Year Comprehensive Utility Program Flowchart and Schedule



JDM 06/09/09

RESOLUTION 2011-0009

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 Wastewater Program for the ensuing six years, 2011 through 2016; and

WHEREAS, the Spokane City Plan Commission, on December 9, 2010, following a public hearing, found the 2011-2016 Six-Year Comprehensive Wastewater 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 Wastewater Program, 2011-2016; 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 Wastewater Program at 6:00 p.m., at City Hall in Spokane, Washington, on the 7th day of February, 2011.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Spokane that the revised and extended Six-Year Comprehensive Wastewater Program 2011 through 2016 is hereby adopted; and

BE IT FURTHER RESOLVED, that a copy of the revised and extended Six-Year Comprehensive Wastewater Program for the six years 2011 through 2016, 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 Wastewater Program, 2011-2016.

Adopted this 7th day of February, 2011.

Terri Pfister, City Clerk

Approved as to Form:

Assistant City Attorney

CITY OF SPOKANE WASHINGTON

RES 11-09

CITY PLAN COMMISSION FINDINGS OF FACT, CONCLUSIONS, AND RECOMMENDATIONS ON THE 2011-2016 SIX YEAR WASTEWATER PROGRAM

A Recommendation of the City Plan Commission certifying that the 2011-2016 Six Year Wastewater 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 Wastewater Program shall be in conformance with the City's Comprehensive Plan.

D. This program is supported by the Comprehensive Plan Policy LU3.1, Coordinated and Efficient Land Use, which states, "Encourage coordinated and efficient growth in development through infrastructure financing and construction programs, tax and regulatory incentives and focus growth in areas where adequate services and facilities exist or can be economically extended."

E. The 2011-2016 Six Year Wastewater Program identifies capital project activity which has implications on the growth of the community. One public testimony was received requesting that financials be included in the report.

F. The City Plan Commission held a workshop on November 10, 2010, and also held a public hearing on December 8, 2010, to obtain public comments on the 2011-2016 Six Year Wastewater Program.

G. The City Council must receive a recommendation from the City Plan Commission to certify that the 2011-2016 Six Year Wastewater Program is in conformance with the City's Comprehensive Plan in effect on the day of certification.

CONCLUSIONS:

A. The 2011-2016 Six Year Wastewater Program has been prepared in full consideration of the City's Comprehensive Plan.

B. The 2011-2016 Six Year Wastewater 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.

RECOMMENDATIONS:

A. The Spokane City Plan Commission concludes that the 2011-2016 Six Year Wastewater 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 these amended documents by the City Council.

Michael Ekins

12/9/2010

Michael Ekins, President **Date**
Spokane Plan Commission

RES 11-09

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, further environmental reviews and studies may be made before proceeding with the project.

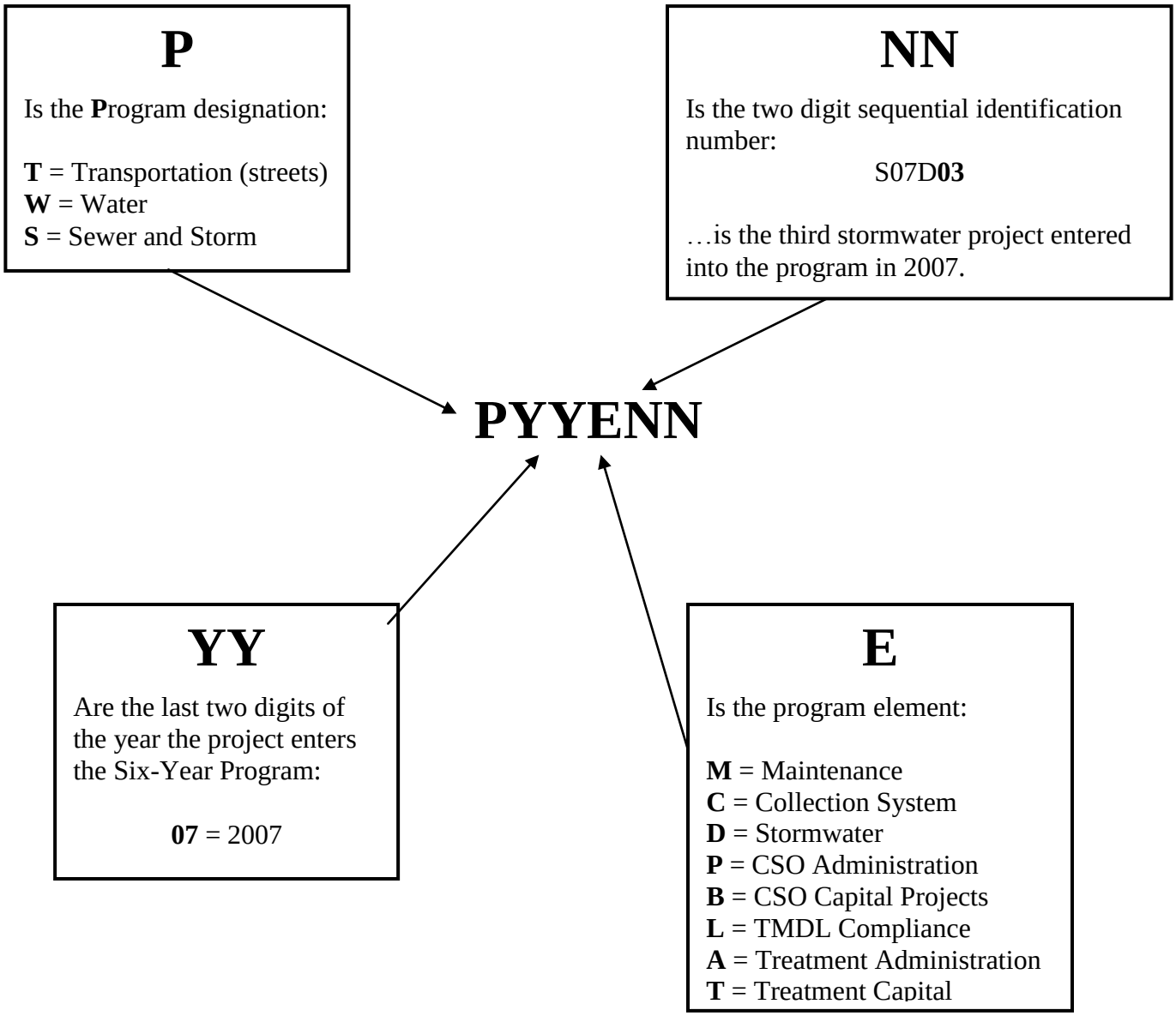
For projects requiring an environmental impact statement, a formal inter-disciplinary team will be appointed. A hearing or advertising for hearing interest is required along with a community involvement plan. Items with state or local funds are classified in accordance with the SEPA Guidelines.

> **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 Determination 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 Projects—Construction Substantially Complete By End Of 2010
S08M03 – Northwest Terrace Force Main Replacement
S08C01 – Lower Terrace Phase I
S08M01 – Northwest Terrace Pump Station Replacement
S08B04 - Weir Modifications, Phase 3
S03T04 - Headworks Screening and Grit Improvements
SIA Building 2504
S08D02 - Broadway Avenue SURGE Project
S08D02 – Lincoln Street SURGE Project
2010 Projects Not Completed—Carryover to 2011 -- 2016
S07C01 – Upriver-Havana Sewer Project
S09C01 – Joint City-County Marion Haye Intertie
S05D01 – Hazel's Creek Drainage and Conservation Area
S08D01 - Hazels Creek Basin Drainage Implementation
S04B04 – CSO Basin 15 Improvements
S04B05 – CSO Basin 14 Improvements (combined with CSO Basin 15 Improvements)
S04B10 - CSO Basin 10 Improvements (under construction in 2010)
S10T01 – Primary Skimming
New Projects
S11B01 – I07 Improvements
S11B02 – Elm Street Improvements
S11B03 - Interceptor I05 Basin Improvements
S11C01 - RPWRF Hillside Sewer Replacement
S11C02 - Hillside Sewer Replacements
S11C03 - Litchfield Sewer Hydraulic Improvement
S11D01 – Summit Low Impact Urban Retrofit Project
S11D02 – River Runoff Reduction – Phase I
S11D03 – River Runoff Reduction – Phase II
S11T01 - Secondary Effluent Piping

New Projects (continued)
S11T02 – Parking Improvements
S11T03 - Chemically Enhanced Primary Treatment Full Scale Test
S11T04 - Digesters 4 and 5 Heat Exchangers
S11T05 - Effluent Heat Recover
S11T06 - Low Head Hydro Power
S11T07 - CEPT Facility
S11T08 - New Aeration Basin No. 5
S11T09 - New Primary Clarifier No. 5
Projects with a Rescheduled Construction Start Date
S04B07 – Interceptor I03-1 Improvements – Moved from 2012 to 2014
S04B08 – Interceptor I03-2 Improvements –Combined with Interceptor I03-1 Improvements
S04B09 – CSO Basin 7 Improvements – Moved from 2012 to 2015
S04B11 – CSO Basin 12 Improvements – Moved from 2013 to 2014
S04B13 – CSO Basins 38,39 and 40 Improvements – Moved from 2013 to 2011
S04B14 — Interceptor I04-1 Improvements - Moved from 2012 to 2013
S04B15 – Interceptor I04-2 Improvements – Combined with Interceptor I04-1 Improvements
S04B16 – Post Street CSO Improvements – Moved from 2017 to 2015
S04B18 – CSO Basin 23-1 Improvements – Moved from 2011 to 2012
S04B19 – CSO Basin 23-2 Improvements – Moved from 2011 to 2012
S10B02 – CSO Basin 22b Weir Modification – Moved from 2011 to 2015
S04B20 – CSO Basin 33-1 Improvements – Moved from 2012 to 2013
S04B23 – CSO Basin 33-2 Improvements – Moved from 2012 to 2011
S05B01 – CSO Basin 6 Improvements – Moved from 2011 to 2015
S05B06 – CSO Basins 34-2 Improvements – Moved from 2014 to 2012
S05B07 – CSO Basins 34-3 Improvements – Moved from 2014 to 2012
S07L02 - Next Level of Treatment Implementation – Moved from 2012 to 2014
S08L01 - Joe Albi/Fairmont Reclaimed Water Project - Moved from 2011 to 2016
S08L03 - Reclaimed Water Distribution System – moved from 2011 to 2013
S08L04 - Reclaimed Water Treatment - moved from 2011 to 2013

V. Financial Information

Wastewater Management Department

Estimated Fund Balance

2011 Through 2016

	2011 Budget	2012 Estimate	2013 Estimate	2014 Estimate	2015 Estimate	2016 Estimate
Revenues						
Rate Revenues (Collection)	8,015,469	9,143,045	10,429,243	11,215,087	12,060,143	12,605,262
Rate Revenues (Treatment)	38,746,858	44,197,572	50,415,066	54,213,841	58,298,854	60,933,962
Stormwater	6,055,480	6,055,480	6,055,480	6,055,480	6,055,480	6,055,480
Rate Stabilization	22,728,426	25,796,763	29,279,326	31,328,879	33,521,900	34,862,776
Misc Revenues	7,374,141	9,546,312	18,469,909	22,006,099	14,830,779	11,365,622
Total Operating Revenues	**82,920,374**	**94,739,172**	**114,649,025**	**124,819,385**	**124,767,157**	**125,823,103**
Expenses						
Operations & Maintenance	31,815,052	33,034,261	34,316,859	35,667,429	36,734,079	37,832,729
State Taxes	1,607,071	1,837,337	2,215,880	2,412,680	2,421,322	2,453,899
Subtotal	**49,498,252**	**59,867,575**	**78,116,286**	**86,739,277**	**85,611,756**	**85,536,475**
Other Expenses:						
Debt Service PWTFL	463,292	463,292	463,292	463,292	463,292	463,292
Equipment replacement	1,254,201	1,291,827	1,330,582	1,370,499	1,411,614	1,453,963
City Taxes	16,047,749	18,349,265	22,262,243	24,270,119	24,173,861	24,411,945
Subtotal - Other Expenses	**17,765,242**	**20,104,384**	**24,056,117**	**26,103,911**	**26,048,768**	**26,329,200**
Excess/(deficiency) of Revenue over Expenditures *	**31,733,010**	**39,763,191**	**54,060,169**	**60,635,366**	**59,562,988**	**59,207,274**
Beginning Fund Balance	**60,030,839**	**219,080,849**	**178,026,040**	**131,912,209**	**71,099,575**	**137,372,963**
Excess / (Deficiency) from Operations	31,733,010	39,763,191	54,060,169	60,635,366	59,562,988	59,207,274
Debt Proceeds ^	189,000,000				199,280,000	
Debt Service (Estimated)		-13,230,000	-13,230,000	-13,230,000	-13,230,000	-27,179,600
Capital Projects	-48,453,000	-67,588,000	-86,944,000	-108,218,000	-165,390,000	-117,961,000
Debt Service Reserves (Estimated)	-13,230,000				-13,949,600	
Ending Fund Balance	**219,080,849**	**178,026,040**	**131,912,209**	**71,099,575**	**137,372,963**	**51,439,637**

* HDR suggested minimum approx. $25M

^ Bond issuance is affected by many factors, including future rate increases, and may be subject to change in amount or timing.

PROGRAM SUMMARY

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VI. Program Summary

The Six-Year Comprehensive Wastewater Program provides a blueprint for improving the Wastewater Management Department's infrastructure in a coherent, coordinated, and cost-effective manner. The Six-Year Comprehensive Programs are prepared in support of the City's overall planning efforts. All projects in the Program are intended to address both the current need and the needs of the future. All projects placed in the Program must be designed to serve 50 to 100 years from now. All facilities need continued maintenance to keep them operating at optimal levels in order to achieve their design life. Planning for the future has proven to be a financial benefit for the citizens of the City.

The Six-Year Comprehensive Wastewater Program is organized into five elements: sanitary collection system, stormwater, combined sewer overflow (CSO) abatement, total maximum daily load (TMDL) compliance, and Riverside Park Water Reclamation Facility (RPWRF). 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 on-going projects in this summary. 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.

- Sanitary collection system: The City operates and maintains over 471miles of sanitary sewer lines, 400 miles of "combined" sanitary and storm sewer lines, twenty-eight sewage lift stations and fourteen river crossings.
- Stormwater: The City operates and maintains over 356 miles of storm drain pipes and over one hundred stormwater outfalls to the river.
- Combined Sewer Overflow (CSO) Abatement: The City is under a NPDES Permit issued by the Washington State Department of Ecology. This permit requires the City of Spokane to complete improvements by 2017 to the combined sewer system to minimize the number of overflows and discharges to the Spokane River from the City's thirty CSO regulator structures.
- Total Maximum Daily Load (TMDL) Compliance: The City has a requirement under Washington State law to meet water quality standards of the Spokane River by enhancing treatment of wastewater generated by its wastewater treatment plant (RPWRF). Presently, TMDL requirements for phosphorus and dissolved oxygen are being developed, with other requirements planned for the future.
- Riverside Park Water Reclamation Facility (RPWRF): The City's wastewater treatment plant is named the Riverside Park Water Reclamation Facility, and it is located on the east bank of the Spokane River, north of the T.J. Meenach Bridge within the Riverside State Park. This facility treats approximately 44 million gallons of wastewater each day.

Wastewater Department

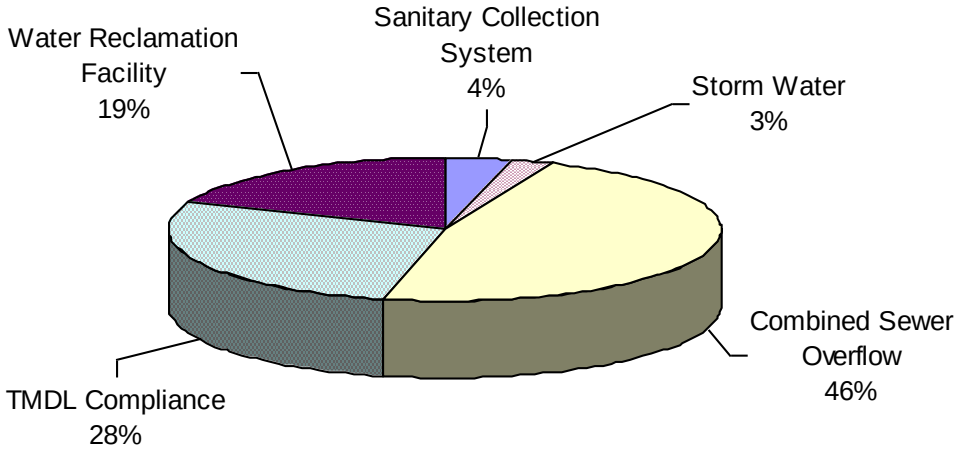
The City of Spokane's Wastewater Management (WWM) Department provides sewer collection, wastewater treatment, and stormwater management. All of these services are designed and managed to protect our local rivers and groundwater. These services are linked through a Water Quality Improvement Program (WQIP) to ensure that the Department's efforts to protect Spokane's water resources are integrated. The WWM Department is an enterprise fund, which provides goods or services to the public for a fee and makes the entity self-supporting. The WWM Department's 2010 budget was over $60 million with the major source of revenue coming from sewer and stormwater rates. The 20 percent utilities tax is a major source of revenue to the City's general fund.

Wastewater Comprehensive Program Summary

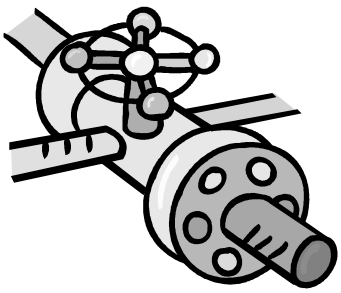
thousands of dollars

Project Element	2011	2012	2013	2014	2015	2016	Total
Sanitary Collection System	6,724	4,693	4,054	4,655	1,195	1,195	**$22,516**
Storm Water	2,105	5,092	2,820	1,825	2,500	1,200	**$15,542**
Combined Sewer Overflow	24,676	41,769	46,201	47,260	75,597	44,807	**$280,310**
TMDL Compliance	1,250	280	9,700	31,660	61,900	59,410	**$164,200**
Water Reclamation Facility	13,698	15,754	24,169	22,818	24,198	11,349	**$111,986**
Total All Elements	**$48,453**	**$67,588**	**$86,944**	**$108,218**	**$165,390**	**$117,961**	**$594,554**

Wastewater Management Comprehensive Program
2011-2016



SANITARY COLLECTION SYSTEM



VII. Sanitary Collection System

The Sanitary Collection System contains projects related to gathering sanitary sewage and sending to the Riverside Park Water Reclamation Plant (RPWRP). Major projects either for maintenance projects (designated with the element letter M) or for new sewer systems (designated with the element letter C) are included in this element. Maintenance projects include major work such as pipe replacements, pipe lining and pump station upgrade or replacement. Both pump stations and pipes shown will provide service to areas currently without sewer service. Project costs are in thousands of dollars.

Sanitary Collection System Summary

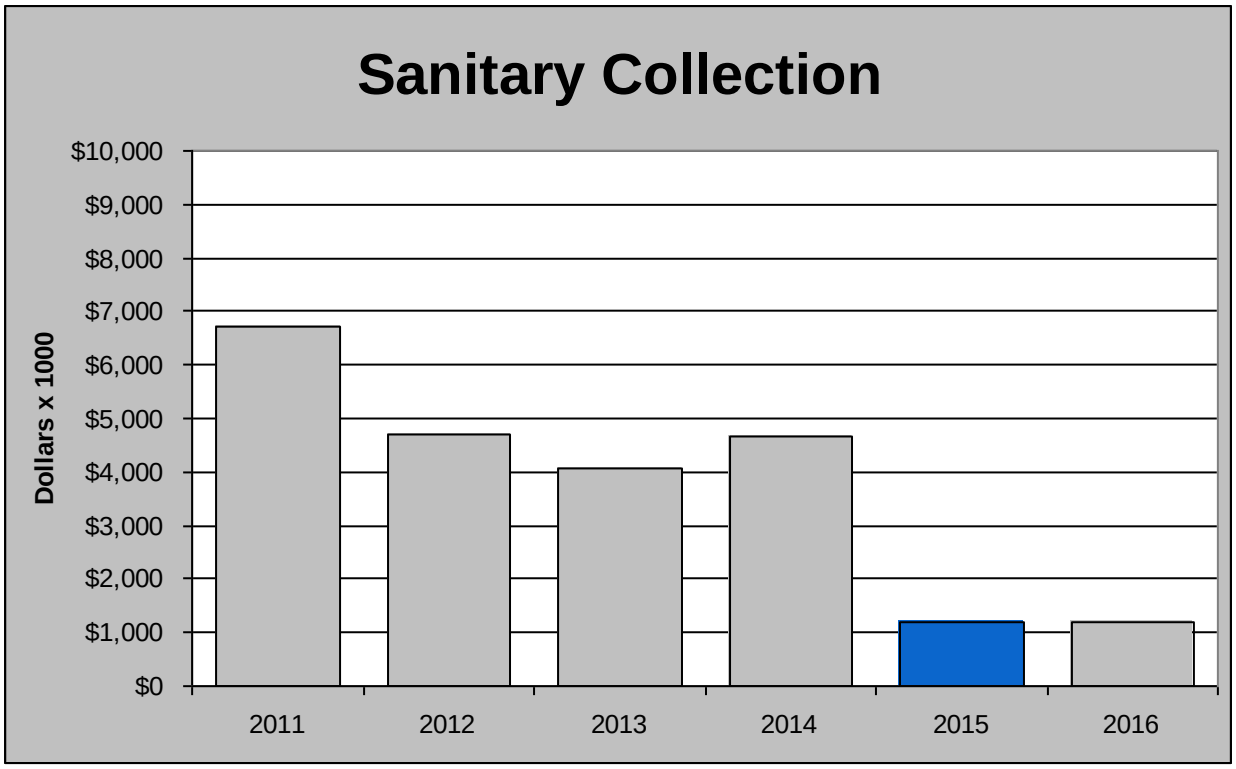
thousands of dollars

Project	2011	2012	2013	2014	2015	2016	Total
Individual Projects							
S04M03 - Post Street Bridge Rehabilitation			200	1,800			**$2,000**
S07C01 - Upriver-Havana Sewer Project	3160						**$3,160**
S09C01 - Joint City-County Marion Haye Intertie		1179					**$1,179**
S09C02 - Lower Terrace Sewer Project, Phase 2			130	1,460			**$1,590**
S11C02 - Hillside Sewer Replacements			200	200	200	200	**$800**
S11C01 - Lower Hollywood Trunk Replacement	197						**$197**
S11C03 - Litchfield Sewer Hydraulic Improvement	313						**$313**
Continuing Maintenance and Rehabilitation Projects							
S02C01 - Lateral Upgrade Program	75	75	75	75	75	75	**$450**
S02C02 - Infrastructure Upgrade-Public	150	150	150	150	150	150	**$900**
S02C03 - Infrastructure Participation-Private	20	20	20	20	20	20	**$120**
S02M06 - CBD & On-Going CIPP Project	300	250	250	250	150	150	**$1,350**
S02M09 - Force Main Replacement	130	140	150				**$420**
S03S01 - STEP Projects	100	100	100	100	100	100	**$600**
S04M02 - Lift Station Repair & Upgrade	312	312	312				**$936**
S05M01 - Future Rehabilitation Projects		500	500	500	500	500	**$2,500**

Sanitary Collection System Summary *(continued)*

thousands of dollars

Project	2011	2012	2013	2014	2015	2016	Total
Continuing Maintenance and Rehabilitation Projects *(continued)*							
S06C01 - Street Bond Infrastructure Upgrade	1,867	1,867	1,867				**$5,601**
S08C03 - Groundwater Mitigation Construction	100	100	100	100			**$400**
S11C02 - Hillside Sewer Replacements			200	200	200	200	**$800**
Yearly Totals	**$6,724**	**$4,693**	**$4,054**	**$4,655**	**$1,195**	**$1,195**	**$22,516**



Sewer Collection System

Project Details-Individual Projects

<table>
<tr><th>Project</th><th colspan="4">Project Description</th></tr>
<tr><td rowspan="4">S04M03 - Post Street Bridge Rehabilitation</td><td colspan="4">The Post Street Bridge, located immediately north of City Hall, carries a 54-inch sewer interceptor that transports sewage from the south side of the river to the north side. The City Public Works Department plans a significant rehabilitation of the Post Street Bridge. Included with the Post Street Bridge rehabilitation is replacement of the old 54-inch steel pipe with 450 feet of 60-inch ductile iron pipe, as well as manhole replacement on both river banks. This project will be constructed in coordination with bridge rehabilitation project.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2014</td><td>CE</td><td>Engineering</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td></td><td>$1,565,000</td><td>$235,000</td><td>$200,000</td><td>Right-of-way</td></tr>
</table>

<table>
<tr><td rowspan="4">S07C01 - Upriver-Havana Sewer Project (Gravity Trunk line and related lift station).</td><td colspan="4">This project provides trunk sewer service to the area north of Upriver Drive and east of Havana Road through construction of a new sewer system connecting to Interceptor Segment I05. The existing sewer system in this area is one 8 inch 800 foot gravity line and two private lift stations. These lift stations must store sewage and pump into this gravity line during off-peak periods (12am-5am). This project will extend a gravity trunk sewer and construct a public lift station to provide adequate sewer service to this area and will eliminate the need for these private lift stations. A new publicly owned lift station will be provided. The trunk system will be installed in Upriver Drive.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2011</td><td>EA</td><td>Engineering</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td></td><td>$2,528,000</td><td>$380,000</td><td>$252,000</td><td>Right-of-way</td></tr>
</table>

<table>
<tr><td rowspan="4">S09C01 - Joint City-County Marion Haye Intertie</td><td colspan="4">This project will construct a gravity sewer pipe from North Pointe lift station to Spokane County's Marion Haye Lift Station. The North Pointe lift station would be eliminated after construction of the intertie.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2012</td><td>CE</td><td>WWM</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td></td><td>$943,200</td><td>$141,480</td><td>$94,320</td><td>Right-of-way</td></tr>
</table>

<table>
<tr><td rowspan="4">S09C02 - Lower Terrace Sewer Project, Phase 2</td><td colspan="4">The Lower Terrace Sewer project will provide sewer service to the Nine Mile area. This phase of the project will construct a lift station and force main to connect to the force main constructed in phase 1 of this project.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2014</td><td>EA</td><td>Engineering</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td></td><td>$1,270,000</td><td>$190,000</td><td>$130,000</td><td>Acquired</td></tr>
</table>

Sewer Collection System
Project Details-Individual Projects *(continued)*

Project	Project Description			
S11C01 – Lower Hollywood Trunk Replacement	This project will construct approximately 1300 LF of 24-inch HDPE sewer line to accommodate the flow restrictions associated with the modifications at RPWRF Headworks project and to provide for the future flows from the Spokane County Marion Haye Lift Station.			
	Construction Starts		**Environmental**	**Design by**
	2011		CE	WWM
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$157,600	$23,640	$15,760	Right-of-way

S11C03 – Litchfield Sewer Replacements	Litchfield Sewer Hydraulic Improvements will realign existing sewer pipelines in a curvilinear layout and add new manholes to achieve better hydraulic flow characteristics to reduce odors and increase flow capacity. Five locations in northwest Spokane have been identified as needing these improvements. A successful pilot project at the intersection of Litchfield and Daisy Place was constructed in 2010 and will serve as the basis for these improvements.			
	Construction Starts		**Environmental**	**Design by**
	2011		CE	WWM
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$250,000	$38,000	$25,000	Right-of-way

Sewer Collection System
Project Details-Continuing Projects

S02C01 - Lateral Upgrade Program	The City has numerous old sewer laterals that are either too small (6-inch pipes) or that are very difficult to maintain because of improper manhole placement. This project identifies and corrects these old sewer laterals. The laterals that are under-sized or are maintenance intensive are identified and corrected.		
	Start Date	**Environmental**	**Design by**
	2011	CE	WWM

S02C02 - Infrastructure Upgrade-Public	The Wastewater Management Department coordinates with other City infrastructure work on an ongoing basis. When sewer or stormwater facilities are within other City projects, the Department evaluates these facilities for upgrade or replacement. For example: in conjunction with a road project, the Department funds the replacement of shallow vitrified clay pipe, broken or cracked pipes, and deteriorated manholes including replacement of worn surface cast iron rings and covers. These facility replacements and upgrades are funded through this project and paid for through separate schedules as part of the larger City improvement.		
	Start Date	**Environmental**	**Design by**
	2011	CE	Engin/WWM

Sewer Collection System
Project Details-Continuing Projects *(continued)*

Project	Project Description		
S02C03 - Infrastructure Participation-Private	Occasionally, a situation will arise where a developer is installing a sewer or storm drain line to serve a specific development, and some of the lines could serve a larger area if the pipe size was increased. Funds from this project are intended to reimburse a developer for over sizing pipes and other facilities to meet the larger community needs.		
	Start Date	**Environmental**	**Design by**
	2011	CE	WWM

S02M06 – City Wide On-Going "Cure In Place Pipe (CIPP) Project	CIPP is a method that rehabilitates damaged pipe using a polyester felt liner impregnated with a resin that hardens when heated. Essentially, CIPP constructs a new pipe within a damaged pipe without resorting to excavating. Many of the existing older sewers are made of vitrified clay that is susceptible to cracking and/or infiltration at the joints. Excavation to replace sewer pipes in congested streets is very expensive, so using CIPP is a cost-effective method to rehabilitate these types of pipes.		
	Start Date	**Environmental**	**Design by**
	2011	CE	WWM

S02M09 - Force Main Replacement	Many of the lift station installed in the 1980s and 1990s used plastic (PVC) pipe for their force mains. Recurring line breaks on these plastic force main lines have required expensive emergency repairs. This project is an on-going replacement of these plastic pipes with ductile iron. Replacement is prioritized by the Sewer Maintenance Division based on the condition and location of the plastic force mains. Eventually, all plastic force mains will be replaced with ductile iron pipe.		
	Start Date	**Environmental**	**Design by**
	2011	CE	Engin/WWM

S03S01 - STEP Projects	The term "STEP" is an acronym for "Septic Tank Elimination Program." The City has numerous isolated pockets of properties using septic tanks. This project will construct small lateral extensions to connect to the sewer. Construction will be schedule when project are identified.		
	Start Date	**Environmental**	**Design by**
	2011	EA	WWM

S04M02 - Lift Station Repair & Upgrade	This project repairs and/or upgrades existing lift stations because either the pumps and/or control equipment require excessive maintenance. Upgrades may also include above-ground facilities to address the new confined-space safety issues of lift stations in underground vaults. Currently two lift stations have been identified for repair/upgrade-- North Pointe (old Lidgerwood, built in 1979) located on the southeast corner of Colton and Holland {constructing a new sewer line to eliminate this lift station is currently under study} and Springfield located on Springfield and Columbus (built in 1972).		
	Start Date	**Environmental**	**Design by**
	2011	CE	Engin/WWM

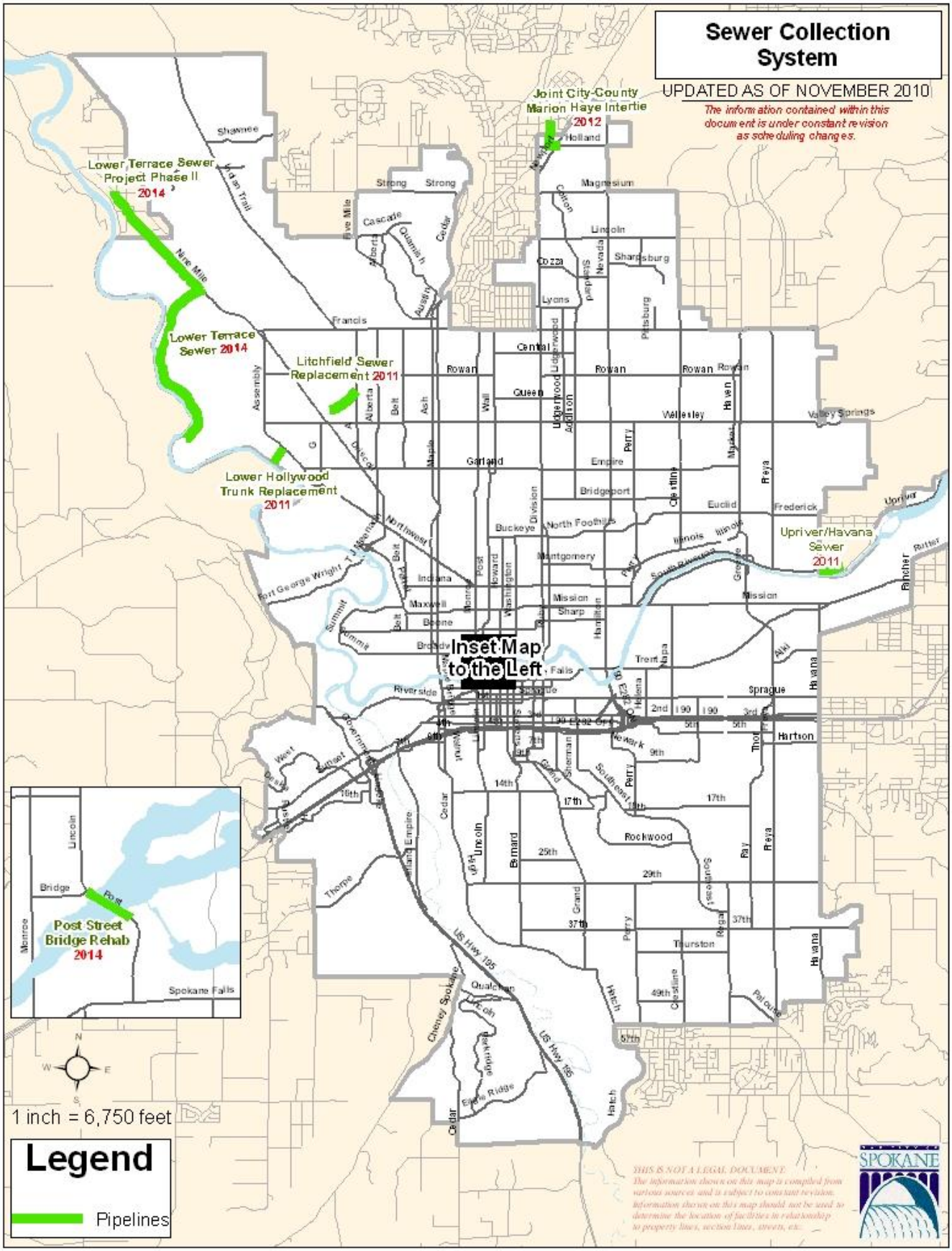
Sewer Collection System
Project Details-Continuing Projects *(continued)*

Project	Project Description.		
S05M01 - Future Rehabilitation Projects	Often rehabilitation projects must be completed within 2 or 3 years from the time the need is identified. The purpose of this project is to make funds available in the last five years of the program for rehabilitation projects that are not yet identified.		
	Start Date	**Environmental**	**Design by**
	2012	CE	Not known

S06C01 - Street Bond Infrastructure Upgrade	The Wastewater Management Department is coordinating with the City's 10-year street bond improvements. When sewer or storm drain facilities are within these street bond projects, the Department evaluates these facilities for upgrade or replacement; for example at an intersection within the bond project, the Department would fund the replacement of old brick catch basins, shallow vitrified clay pipes, broken or cracked pipe and deteriorated manholes including replacement of worn surface cast iron rings and covers. These facility replacements and upgrades are funded through this project and paid for under separate pay schedules as part of the bond contact improvement. This is an on-going project until 2014.		
	Start Date	**Environmental**	**Design by**
	2011	EA	Engineering

S08C03 - Groundwater Mitigation Construction (TREES)	The Groundwater Evaluation and Mitigation (GEM) program identifies areas of the City with high groundwater issues where cost effective and efficient mitigation actions could be used. This project will coordinate with other City Departments and the City Parks Department to fund the planting of water loving trees in previously identified locations... After the completion of this project, the issues identified and subsequent evaluation will direct, future efforts		
	Start Date	**Environmental**	**Design by**
	2011	EA	Engineering

S11C02 – Hillside Sewer Replacements	Wastewater Management Department staff is currently evaluating the vulnerability of the trunk and inceptor pipes within the sewer system (S02M05). This evaluation may result in recommendations to replacement some lines on hillsides. The Hillside Sewer Replacements project will replace the pipes found vulnerable by the staff analysis.		
	Start Date	**Environmental**	**Design by**
	2011	EA	Engineering


Sewer Collection System
UPDATED AS OF NOVEMBER 2010
The information contained within this document is under constant revision as scheduling changes.
Joint City-County Marion Haye Intertie 2012
Lower Terrace Sewer Project Phase II 2014
Lower Terrace Sewer 2014
Litchfield Sewer Replacement 2011
Lower Hollywood Trunk Replacement 2011
Upriver/Havana Sewer 2011
Inset Map to the Left
Post Street Bridge Rehab 2014
1 inch = 6,750 feet
Legend
Pipelines
THIS IS NOT A LEGAL DOCUMENT.
SPOKANE

STORMWATER

VIII. Stormwater

The Stormwater element contains infrastructure projects related to the collection, treatment and disposal of runoff resulting from either rain and/or melted snow. Project costs are in thousands of dollars.

Stormwater Summary

thousands of dollars

Project	2011	2012	2013	2014	2015	2016	Total
Individual Projects							
S05D01 - Hazels Creek Drainage and Conservation Area	50	300	250				**$600**
S06D03 - Sylvia Court Drainage - Phase II	100	500					**$600**
S08D01 - Hazels Creek Basin Drainage Implementation			750	600	600		**$1,950**
S10D02 - Summit Low Impact Urban Retrofit Project	160	1,586					**$1,746**
S10D03 - River Runoff Reduction - Phase 1	320	320	320				**$960**
S10D04 - River Runoff Reduction - Phase 2		886					**$886**
Ongoing Projects							
S02D03 - Corridor Acquisition	175	200	200	200	200		**$975**
S04D01 - Bio-Infiltration System Rehabilitation	200	200	200	200	200	200	**$1,200**
S08D02 - Spokane Urban Runoff Greenway Ecosystems Projects	500	500	500	500	500	500	**$3,000**
S09D01 - Stormwater Infrastructure Upgrade-Public	600	600	600				**$1,800**
S10D01 - Unidentified Future Stormwater Projects				325	1000	500	**$1,825**
Yearly Totals	**$2,105**	**$5,092**	**$2,820**	**$1,825**	**$2,500**	**$1,200**	**$15,542**

Stormwater
Project Details-Individual Projects

<table>
<tr><th>Project</th><th colspan="4">Project Description</th></tr>
<tr><td rowspan="4">S05D01 - Hazels Creek Drainage and Conservation Area Site Improvements</td><td colspan="4">The Hazels Creek Drainage and Conservation Area is a disposal site for a portion of the Moran Prairie. This project is a continuation as determined by the refinements in the hydraulic models require. Future site improvements may include the stormwater treatment systems, ponds; access improvements; weed abatement and native species plantings; wetland mitigation; and educational elements. See S08D01 for information on the Hazel's Creek Sub-basin improvements.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2012</td><td>EA</td><td>Engineering</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td>$480,000</td><td>$72,000</td><td>$48,000</td><td>Acquired</td></tr>
</table>

<table>
<tr><td rowspan="4">S06D03 - Sylvia Court Drainage - Phase II</td><td colspan="4">While Phase I of this project (completed in 2005) eliminated some of the worst drainage problem conflicts in this area; Phase II will construct the remaining system to transport the sporadic seasonal excessive drainage to City-owned property for disposal. The selected alternative recommends installing a pipeline to convey stormwater under Arrowhead Street north to the City Park property just north of Brookfield Rd.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2012</td><td>EA</td><td>Engineering</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td>$435,000</td><td>$65,000</td><td>$100,000</td><td>Acquired</td></tr>
</table>

<table>
<tr><td rowspan="4">S08D01 - Hazels Creek Basin Drainage Implementation (Off-site)</td><td colspan="4">The Hazel's Creek drainage basin consists of approximately 1,200 acres on the Moran Prairie that drain to the Hazel's Creek Drainage and Conservation Area (see S05D01.) This project will implement infrastructure improvements recommended by the Hazels Creek Feasibility Analysis and subsequent hydraulic modeling and evaluation. Planned improvements may include: pipes, detention basins, control structures, disposal site development, evaluation and conversion of some existing evaporation ponds to detention ponds, monitoring and control systems, and identification and purchase of drainage easements. Exploration of long-term financing options such as a special drainage district will be included in this project.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2014</td><td>EA</td><td>WWM</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td>$1,560,000</td><td>$234,000</td><td>$156,000</td><td>TBD</td></tr>
</table>

Stormwater
Project Details-Individual Projects *(continued)*

<table>
<tr><th>Project</th><th>Project Description</th></tr>
<tr><td>S11D01 - Summit Low Impact Urban Retrofit Project</td><td>The Summit Low Impact Urban Retrofit Project (SLURP) involves piping existing stormwater runoff from Monroe Street and portions of the Kendall Yards development into a storage vault and then pumping the stormwater approximately 4,000 feet to a storm garden for treatment and infiltration. The storm garden will be located within a future City of Spokane Park will be incorporated as part of the park design. An easement will be granted to the City for the storage tank and pumping station, and the park will be donated to the City by the Kendall Yards Development. A stormwater grant from the Washington State Department of Ecology will fund the storm garden portion of this project.
<table>
<tr><th colspan="2">Construction Starts</th><th>Environmental</th><th>Design by</th></tr>
<tr><td colspan="2">2012</td><td>EA</td><td>WWM</td></tr>
<tr><th>Construction Budget</th><th>CM Budget</th><th>Design Budget</th><th>Property</th></tr>
<tr><td>$1,379,000</td><td>$207,000</td><td>$160,000</td><td>Acquiring</td></tr>
</table></td></tr>
<tr><td>S11D02 - River Runoff Reduction - Phase 1</td><td>The River Runoff Reduction Phase 1 project will remove a direct connection of separated stormwater to the Spokane River by disconnecting approximately 100 existing catch basins in existing public residential streets. In accordance with State and Federal rules for Underground Injection Control (UIC) for drywells, this runoff will be treated in two stages. The first stage of treatment will be the collection in catch basins with down-turned elbows providing both emergency spill containment and oil/sediment separation. The second stage of treatment will then be by injection/disposal through the drywells into approved soils. This treatment train as approved by the State Department of Ecology will allow for the disconnection of this stormwater from the Spokane River and thus reduce the associated pollutant loading. The project location was selected to coordinate with well draining soils and dedicated storm lines in north Spokane. Residential streets are very low pollutant generating areas and the soils in these areas meet treatment standards.
<table>
<tr><th colspan="2">Construction Starts</th><th>Environmental</th><th>Design by</th></tr>
<tr><td colspan="2">2011</td><td>EA</td><td>WWM</td></tr>
<tr><th>Construction Budget</th><th>CM Budget</th><th>Design Budget</th><th>Property</th></tr>
<tr><td>$768,000</td><td>$115,200</td><td>$76,800</td><td>Acquired</td></tr>
</table></td></tr>
<tr><td>S11D03 - River Runoff Reduction - Phase 2</td><td>Phase 2 of the River Runoff Reduction project has the same purpose and function as the Phase 1 project; however, locations for Phase 2 were selected to coordinate with well draining soils and dedicated storm lines in north Spokane.
<table>
<tr><th colspan="2">Construction Starts</th><th>Environmental</th><th>Design by</th></tr>
<tr><td colspan="2">2012</td><td>EA</td><td>WWM</td></tr>
<tr><th>Construction Budget</th><th>CM Budget</th><th>Design Budget</th><th>Property</th></tr>
<tr><td>$708,800</td><td>$106,320</td><td>$70,880</td><td>Acquired</td></tr>
</table></td></tr>
</table>

Stormwater
Project Details-On-going Projects *(continued)*

Project	Project Description		
S02D03 - Corridor Acquisition	This project funds the purchase of property for future drainage projects identified by the Stormwater drainage ways project.		
	Start Date	**Environmental**	**Design by**
	2011	N/A	N/A

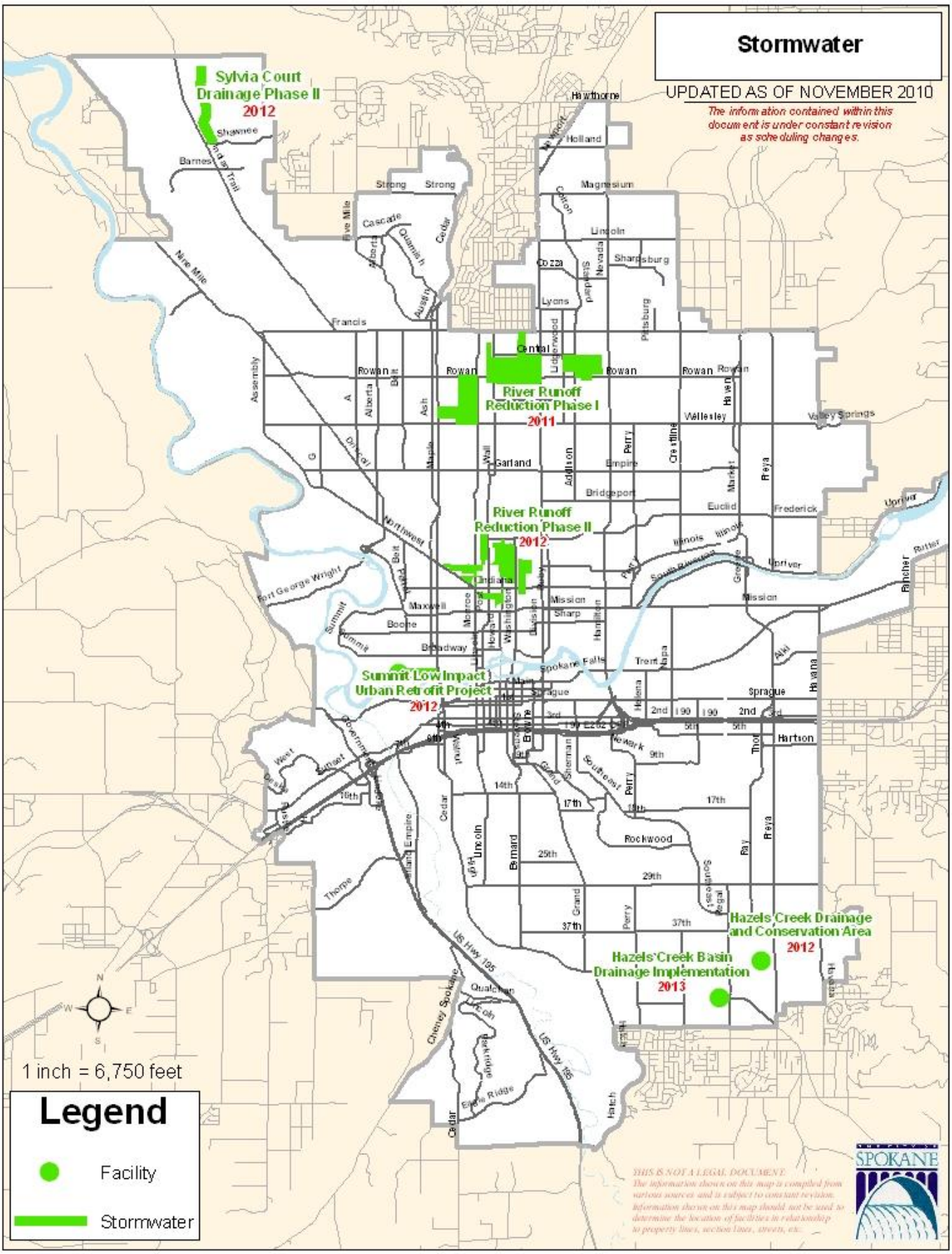
S04D01 - Bio-Infiltration System Rehabilitation	"Bio-Infiltration Systems" or grass percolation areas are commonly known as "grassy swales" or "208 swales". The City maintains in equivalency approximately 10 acres of grass percolation areas along streets that are used to treat and dispose of stormwater. Sometimes the grass percolation areas will have a drywell to allow excess storm water to infiltrate into the ground during large storms. City staff performs regular maintenance in order to maintain these facilities effectiveness. Grass percolation areas have a 20-year design life, but generally need substantial maintenance every 5-10 years. This project provides funds for this substantial maintenance effort along arterials, etc. As a side note, Spokane County and the City of Spokane Valley are currently researching additional rehabilitation methods, and City crews will incorporate any new rehabilitation technology into their efforts.		
	Start Date	**Environmental**	**Design by**
	2011	CE	WWM

S08D02 - Spokane Urban Runoff Greenways Ecosystems Projects	The Spokane Urban Runoff Greenways Ecosystems, or SURGE, is a program to determine the suitability of retrofitting plant-based stormwater treatment systems into the existing urban environment. SURGE is an approach to wet weather management that is designed to be sustainable, environmentally friendly and cost-effective. SURGE improves water quality, increases green space, and enhances streetscapes. Currently two projects are in place and being evaluated on west Broadway and south Lincoln Street. Results from these two projects will assist the City in determining if this type of approach is feasible in the Spokane climate. These projects include rain gardens, porous pavements. Future projects may include infiltration planters, trees and tree boxes, or modified native grassy swales.		
	Start Date	**Environmental**	**Design by**
	2010	EA	Engineering

Stormwater
Project Details-On-going Projects *(continued)*

Project	Project Description		
S09D01 - Stormwater Infrastructure Upgrade-Public	The Wastewater Management Department coordinates with other City Departments infrastructure work. When stormwater facilities are located within these other City projects, the Department evaluates existing facilities for upgrade and/or replacement. For example: in conjunction with a road project, the Department may fund the replacement of old deteriorated brick catch basins, shallow clay pipes, broken or cracked pipes and any deteriorated manholes including replacement of worn surface cast iron rings and covers. These facility replacements and upgrades are funded through this project and paid for through separate schedules within the contract of the other department's contracts.		
	Start Date	**Environmental**	**Design by**
	2011	CE	WWM

S11D01 - Unidentified Future Stormwater Projects	This item is a placeholder for work that cannot yet be identified as specific projects, but is anticipated to be needed in the future.		
	Construction Starts	**Environmental**	**Design by**
	2015	EA	WWM


Stormwater
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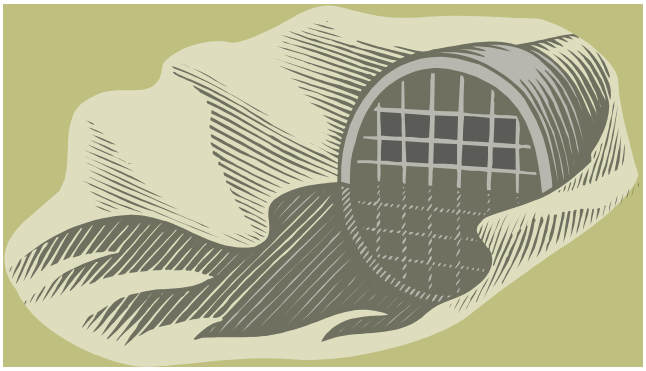
Sylvia Court Drainage Phase II 2012
River Runoff Reduction Phase I 2011
River Runoff Reduction Phase II 2012
Summit Low Impact Urban Retrofit Project 2012
Hazels Creek Drainage and Conservation Area 2012
Hazels Creek Basin Drainage Implementation 2013
1 inch = 6,750 feet
Legend
Facility
Stormwater
THIS IS NOT A LEGAL DOCUMENT.
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.
CITY OF SPOKANE

COMBINED SEWER OVERFLOW ABATEMENT



IX. Combined Sewer Overflow Abatement

The Combined Sewer Overflow (CSO) Capital Abatement element contains projects from the individual CSO basins that will reduce CSO overflows to the Spokane River. Most of these projects include construction of off-line storage tanks for temporary retention of mixed sanitary sewage and storm water. The City is working diligently to meet a 2017 Department of Ecology NPDES Permit deadline for completion of CSO abatement projects. Design costs included environmental documentation and property acquisition cost. Project costs in the table are in thousands of dollars.

Combined Sewer Overflow Abatement Summary

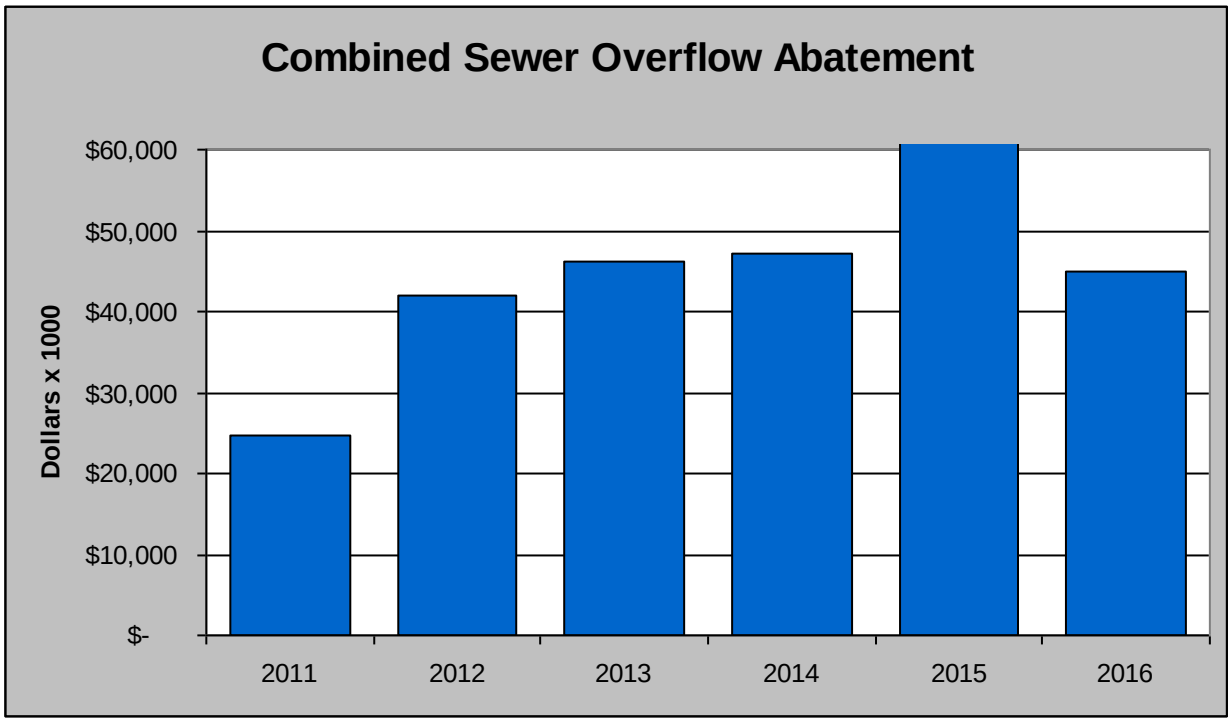
Amounts are shown in thousands of dollars (x 1000)

Project	2011	2012	2013	2014	2015	2016	Total
S04B03 -CSO Basin 41 Improvements	6,320						**$6,320**
S04B04/5 - CSO Basin 14 and 15 Improvements	420	4700	4150				**$9,270**
S04B07/8 - Interceptor I03 Improvements	160	140	370	2280	4570		**$7,520**
S04B09 - CSO Basin 07 Improvements				90	1370		**$1,460**
S04B10 - CSO Basin 10 Improvements	952						**$952**
S04B11 - CSO Basin 12 Improvements			150	2300	2220	2880	**$7,550**
S04B13 - CSO Basins 38, 39, 40 Improvements	5990						**$5,990**
S04B14 - Interceptor I04 Improvements		390	1,380	850	17060		**$19,680**
S04B16 - Post Street Basin Improvements	30			290	1280		**$1,600**
S04B18 - CSO Basin 23-1 Improvements	19	770	715				**$1,504**
S04B19 - CSO Basin 23-2 Improvements	494	3916	3716				**$8,126**
S04B20 - CSO Basin 33-1 (33 a, b, c) Improvements		1,510	12,320	11,430	10,820		**$36,080**
S04B23 - CSO Basin 33-2 (33d) Improvements	6,122						**$6,122**

Combined Sewer Overflow Abatement Summary *(continued)*

Amounts are shown in thousands of dollars (x 1000)

Project	2011	2012	2013	2014	2015	2016	Total
S04B24 - CSO Basin 34-1 (Playfair) Improvements	898	737	5,530	5,530	737	14,377	**$27,809**
S05B01 - CSO Basin 6 Improvements				290	5020	4630	**$9,940**
S05B02 - CSO Basin 20 Improvements	180	50	1,960				**$2,190**
S05B04 - CSO Basin 26 Improvements	990	1,390	5,080	10,630	10,090	10,090	**$38,270**
S05B06 - CSO Basin 34-2 (Hartson) Improvements	276	15,895					**$16,171**
S05B07 - CSO Basin 34-3 (20th & Ray) Improvements	786	10,720					**$11,505**
S06B04 - CSO Basin 24 Improvements	1,020	1,340	8,910	11,290	8110		**$30,670**
S10B01 - CSO Storage at RPWRF			780	1,830	8,480	12,710	**$23,800**
S10B02 - CSO Basin 22b Weir Modification				40	70		**$110**
S11B01 - Interceptor I07 Basin Improvements		170	1000	400	5750		**$7,320**
S11B02 - Elm Street Basin Improvements	20	40	140				**$200**
S11B03 - Interceptor I05 Basin Improvements				10	20	120	**$150**
Yearly Totals	**$24,676**	**$41,769**	**$46,201**	**$47,260**	**$75,597**	**$44,807**	**$280,310**


Combined Sewer Overflow Abatement
Dollars x 1000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$-
2011
2012
2013
2014
2015
2016

Combined Sewer Overflow Abatement
Project Details-Individual Projects

Project	Project Description			
S04B03 -CSO Basin 41 Improvements	The project will identify, design and construct a CSO storage facility located near Upriver Drive and Rebecca Street to meet Department of Ecology's regulations. The new facility will reduce combine sewer overflows to the Spokane River while better managing flow rates to the RPWRF.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$5,056,000	$758,400	$505,600	Needed

S04B04/5 – CSO Basins 14 and 15 Improvements	The project will identify, design and construct a CSO storage facility located near Broadway Avenue and Summit Boulevard to meet Department of Ecology's regulations. One facility will be constructed for both CSO Basin 14 and CSO Basin 15. The new facility will reduce combined sewer overflows to the Spokane River while better managing flow rates to the RPWRF.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$7,696,000	$1,154,000	$420,000	Needed

S04B07/8 – Interceptor I03 Improvements	This project will identify, design and construct facilities to manage and control the unregulated wet weather flow from areas tributary to Interceptor Segment I03. Previously two storage facilities were described; however, the location and number of facility is being evaluated. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms, and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$5,957,000	$893,000	$670,000	Needed

S04B09 – CSO Basin 07 Improvements	The project will identify, design and construct a CSO storage facility located near Downriver Drive and Euclid Avenue to meet Department of Ecology's regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2015		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,191,000	$179,000	$90,000	Needed

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

Project	Project Description			
S04B10 – CSO Basin 10 Improvements	This project will identify, design and construct a CSO storage facility to meet Department of Ecology Regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$761,600	$114,240	$76,160	Needed

S04B11 – CSO Basin 12 Improvements	This project will identify, design and construct a CSO storage facility located near Pettet Avenue and Nora Avenue to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$6,435,000	$965,000	$150,000	Needed

S04B13 – CSO Basins 38, 39, 40 Improvements	The project will identify, design and construct two CSO storage facilities near South Riverton Avenue and Regal Street for CSO Basins 38, 39 and 40 to meet Department of Ecology's regulations, which allows better management of downstream interceptor flow rates. Major features of the facility include installation of flow controls; self cleaning flush mechanisms; a new regulator; elimination of two (39 & 40) CSO outfalls; and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$4,792,000	$718,800	$479,200	Needed

S04B14 – Interceptor I04 Improvements	This project will identify, design and construct facilities to manage and control the unregulated wet weather flow from areas tributary to Interceptor Segment I04. Previously two storage facilities were described; however, the location and number of facility is being evaluated. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms, and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$16,035,000	$2,405,000	$1,240,000	Needed

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

Project	Project Description			
S04B16 - Post Street CSO Improvements	This project will identify, design and construct a CSO storage facility to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2015		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,113,000	$167,000	$320,000	Needed

S04B18 - CSO Basin 23-1 Improvements	This project will identify, design and construct a CSO storage facility near Ide Avenue and Cedar Street to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,203,000	$181,000	$120,000	Needed

S04B19 - CSO Basin 23-2 Improvements	This project will identify, design and construct a CSO storage facility near Bridge Avenue and Ash Street to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	TBD
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$6,501,000	$975,000	$650,000	Needed

S04B20 - CSO Basin 33-1 Improvements	This project will identify, design and construct a CSO storage facility near 2nd Avenue and Hamilton Street to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$28,864,000	$4,329,600	$2,886,400	Needed

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

Project	Project Description			
S04B23 - CSO Basin 33-2 Improvements	This project will identify, design and construct a CSO storage facility near Sprague Avenue and Hamilton Street to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$4,898,000	$735,000	$489,000	Needed

Project	Project Description			
S04B24 - CSO Basin 34-1 (Playfair) Improvements	This project will identify, design and construct a CSO storage facility near Sprague Avenue and Haven Street at the Playfair site to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$22,247,000	$3,337,000	$2,225,000	Needed

Project	Project Description			
S05B01 - CSO Basin 6 Improvements	This project will identify, design and construct a CSO storage facility near Northwest Boulevard and Garland Avenue to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2015		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$8,391,000	$1,259,000	$290,000	Needed

Project	Project Description			
S05B02 – CSO Basin 20 Improvements	This project will identify, design and construct a CSO storage facility near High Drive and 29th Avenue to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,704,000	$256,000	$230,000	Needed

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

Project	Project Description			
S05B04 – CSO Basin 26 Improvements	This project will identify, design and construct the primary storage facility for CSO Basin 26 to meet Department of Ecology regulations. Previously two storage facilities were described; however, the location and number of facility is being evaluated. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$30,616,000	$4,592,400	$3,061,600	Needed

S05B06 – CSO Basin 34-2 (Hartson)	This project will identify, design and construct a CSO storage facility near Harston Avenue and Altamont Street to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$13,800,000	$2,095,000	$276,000	Needed

S05B07 – CSO Basin 34-3 (20th & Ray) Improvements	This project will identify, design and construct a CSO storage facility to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$9,322,000	$1,398,000	$785,000	Needed

S06B04 – CSO Basin 24 Improvements	This project will identify, design and construct a storage facility for CSO Basin 24 and 25 to meet Department of Ecology regulations. Previously two storage facilities were described; however, the location and number of facility is being evaluated. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$24,536,000	$3,680,400	$2,453,600	Needed

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

Project	Project Description			
S10B01 – CSO Storage at RPWRF	This project will identify, design and construct a CSO storage facility at the Riverside Park Water Reclamation Facility to meet Department of Ecology regulations. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms; a new regulator and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2015		CE	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$19,040,000	$2,856,000	$1,904,000	Acquired

S10B02 – CSO Basin 22b Weir Modifications	This project includes design and construction of modifications to the weir for CSO Basin 22b.			
	Construction Starts		**Environmental**	**Design by**
	2012		CE	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$88,000	$13,000	$9,000	Acquired

S11B01 – I07 Improvements	This project will identify, design and construct facilities to manage and control the unregulated wet weather flow from areas tributary to Interceptor Segment I07. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates; self cleaning flush mechanisms, and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2015		CE	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$5,870,000	$880,000	$570,000	Acquired

S11B02 – Elm Street Improvements	This project will identify, design and construct facilities to manage and control the unregulated wet weather flow from areas tributary to the Elm Street Pump Station. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates, self cleaning flush mechanisms, and remote sensors for centralized operations.			
	Construction Starts		**Environmental**	**Design by**
	2013		CE	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$160,000	$24,000	$16,000	Acquired

Combined Sewer Overflow Abatement
Project Details-Individual Projects *(continued)*

<table>
<tr><th>Project</th><th colspan="4">Project Description</th></tr>
<tr><td rowspan="4">S11B03 – Interceptor I05 Basin Improvements</td><td colspan="4">This project will identify, design and construct facilities to manage and control the unregulated wet weather flow from areas tributary to Interceptor Segment I-05. Major features of the facility include installation of flow controls to better manage downstream interceptor flow rates, self cleaning flush mechanisms, and remote sensors for centralized operations.</td></tr>
<tr><td colspan="2">Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td colspan="2">2016</td><td>CE</td><td>Engineering Services</td></tr>
<tr><td>Construction Budget</td><td>CM Budget</td><td>Design Budget</td><td>Property</td></tr>
<tr><td></td><td>$120,000</td><td>$18,000</td><td>$12,000</td><td>Acquired</td></tr>
</table>

<table>
<tr><td rowspan="3">S00P04 - CSO-PMO</td><td colspan="3">CSO-PMO stands for Combined Sewer Overflow (CSO) Project Management Office. Currently a consultant is performing modeling, planning and preliminary design for the CSO Reduction. An RFP will be sent out for the CSO-PMO for final design and construction to the meet the 2017 NPDES permit deadline. The funding for the PMO is included in the design or construction budget individual combined sewer projects.</td></tr>
<tr><td>Construction Starts</td><td>Environmental</td><td>Design by</td></tr>
<tr><td>2011</td><td>EA</td><td>WWM</td></tr>
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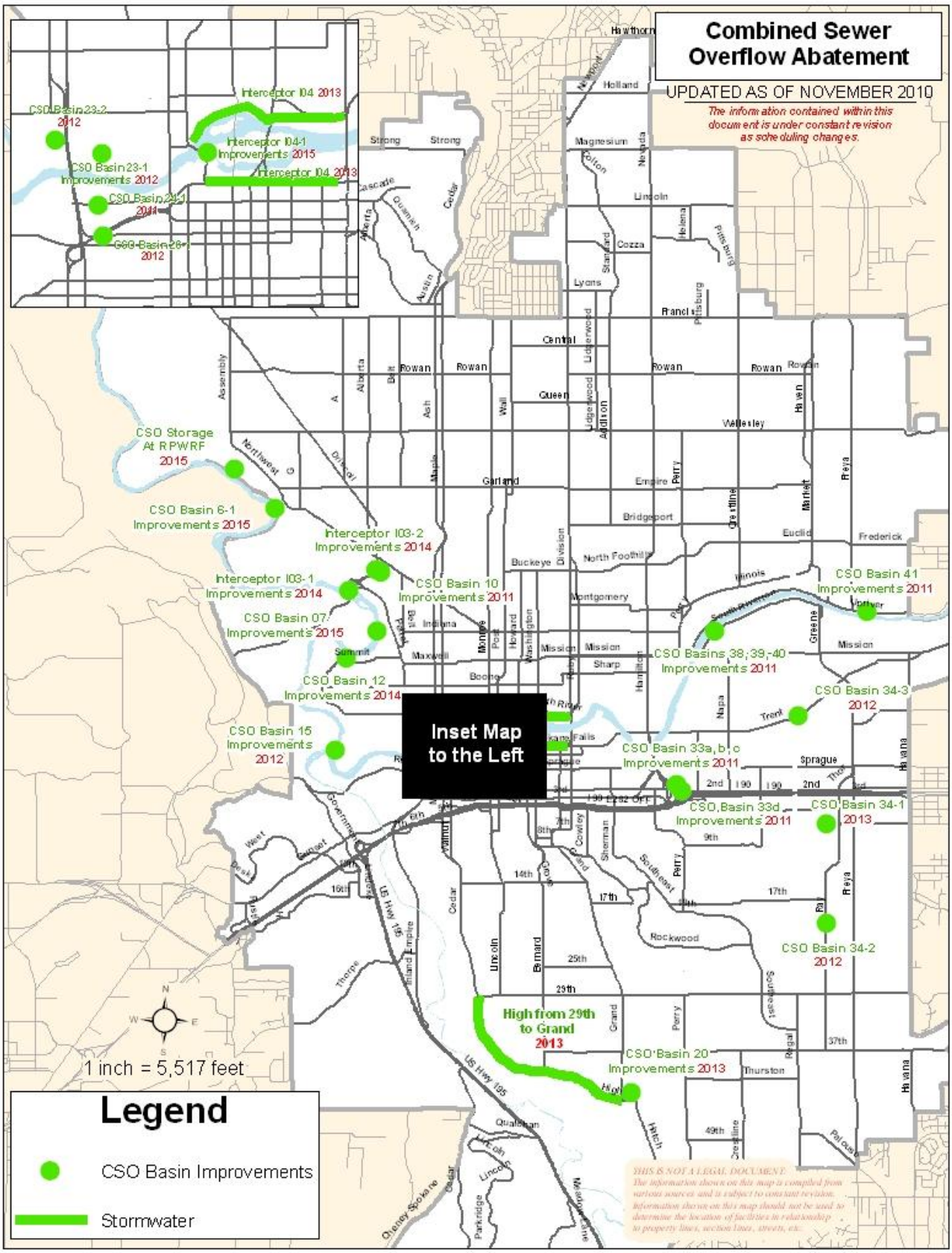

Combined Sewer Overflow Abatement
UPDATED AS OF NOVEMBER 2010
The information contained within this document is under constant revision as scheduling changes.
Interceptor I04 2013
CSO Basin 23-2 2012
Interceptor I04-1 Improvements 2015
CSO Basin 23-1 Improvements 2012
Interceptor I04 2013
CSO Basin 21-1 2011
CSO Basin 26-1 2012
CSO Storage At RPWRF 2015
CSO Basin 6-1 Improvements 2015
Interceptor I03-2 Improvements 2014
Interceptor I03-1 Improvements 2014
CSO Basin 10 Improvements 2011
CSO Basin 07 Improvements 2015
CSO Basin 12 Improvements 2014
CSO Basin 15 Improvements 2012
Inset Map to the Left
CSO Basin 41 Improvements 2011
CSO Basins 38, 39, 40 Improvements 2011
CSO Basin 34-3 2012
CSO Basin 33a, b, c Improvements 2011
CSO Basin 33d Improvements 2011
CSO Basin 34-1 2013
CSO Basin 34-2 2012
High from 29th to Grand 2013
CSO Basin 20 Improvements 2013
1 inch = 5,517 feet
Legend
CSO Basin Improvements
Stormwater
THIS IS NOT A LEGAL DOCUMENT. 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.

TOTAL MAXIMUM DAILY LOAD (TMDL) COMPLIANCE

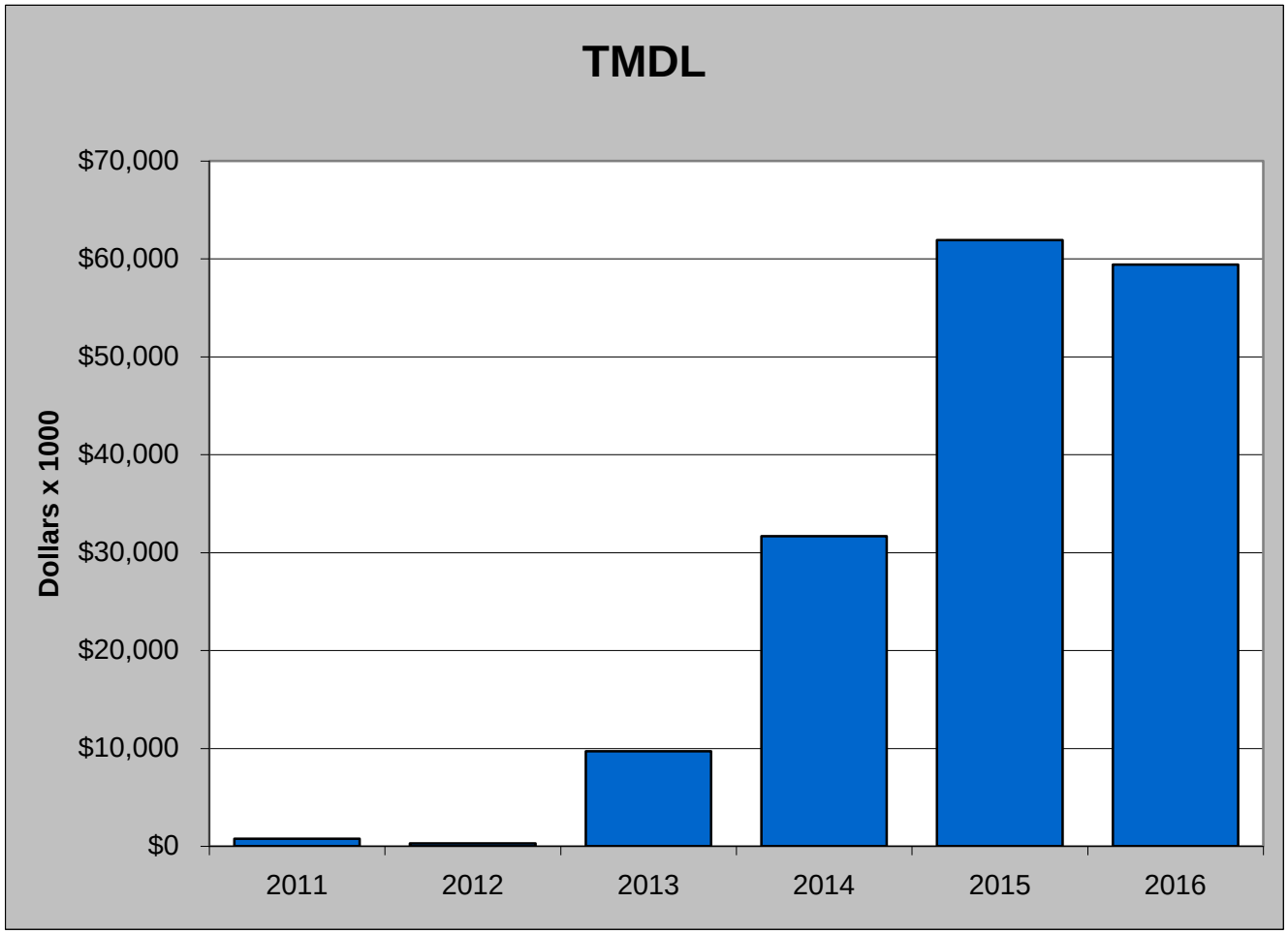
X. TMDL Compliance

The Spokane River and Lake Spokane do not have enough dissolved oxygen (DO) during the months of March through October to meet current Water Quality Standards (WQS). To comply with WQS, Total Maximum Daily Load (TMDL) requirements need to be met to return the river to a healthy condition. The Department of Ecology has determined the maximum TMDL for nutrients affecting DO in the Spokane River and Lake Spokane. The permit for the RPWRF will be re-issued soon and will include the implementation plan to meet the TMDL. The new permit will contain more stringent effluent limitations for phosphorus, ammonia and carbonaceous biological oxygen demand and will address reclaimed water use. Project costs in the table are shown in thousands of dollars.

TMDL Compliance Summary

Amounts are shown in thousands of dollars (x 1000)

Project	2011	2012	2013	2014	2015	2016	Total
S04L01 - Final Effluent Filter Pilot & Evaluation	1000						**$1000**
S07L01- Reclaimed Water Pilot Project	250						**$250**
S07L02 - Next Level of Treatment Implementation			4,700	28,160	58,400	58,400	**$149,660**
S08L01 - Joe Albi/Fairmont Reclaimed Water Project						1,010	**$1,010**
S08L03 - Reclaimed Water Distribution System			1,000	1,000	1,000		**$3,000**
S08L04 - Reclaimed Water Treatment			4,000	2,500	2,500		**$9,000**
S09L01 - West Plains Reclaimed Water Evaluation		280					**$280**
Yearly Totals	**$1250**	**$280**	**$9,700**	**$31,660**	**$61,900**	**$59,410**	**$164,200**


TMDL
Dollars x 1000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
2011
2012
2013
2014
2015
2016

TMDL Compliance
Project Details-Individual Projects

Project	Project Description			
S04L01 - Final Effluent Filter Pilot & Evaluation	This project is a pilot study to determine the most suitable technology (or technologies) for seeking phosphorous removal in RPWRF effluent down to 50ug/l or lower per the State Department of Ecology's Dissolved Oxygen Total Maximum Daily Load (TMDL). Six pilot units will be tested over a two-year period.			
	Construction Starts		**Environmental**	**Design by**
	2011		CE	Engineering Services
	Operational Cost	**CM Budget**	**Design Budget**	**Property**
	$1,000,000	--	--	Acquired

S07L01- Reclaimed Water Pilot Project	The City plans to conduct a pilot project to demonstrate the feasibility of using reclaimed water locally during the growing season. The highest Department of Health classification, Class A reclaimed water is produced using a small scale system located at the RPWRF. Portions of Downriver and Qualchan Golf Courses were selected to receive the reclaimed water. Expansion of service to Qualchan Golf Course is planned for the second year. Reclaimed water is trucked to storage at the golf courses for use via their irrigation systems. Class A reclaimed water production began in 2007.			
	Construction Starts		**Environmental**	**Design by**
	2011		CE	Engineering Services
	Operational Cost	**CM Budget**	**Design Budget**	**Property**
	$250,000	--	--	Acquired

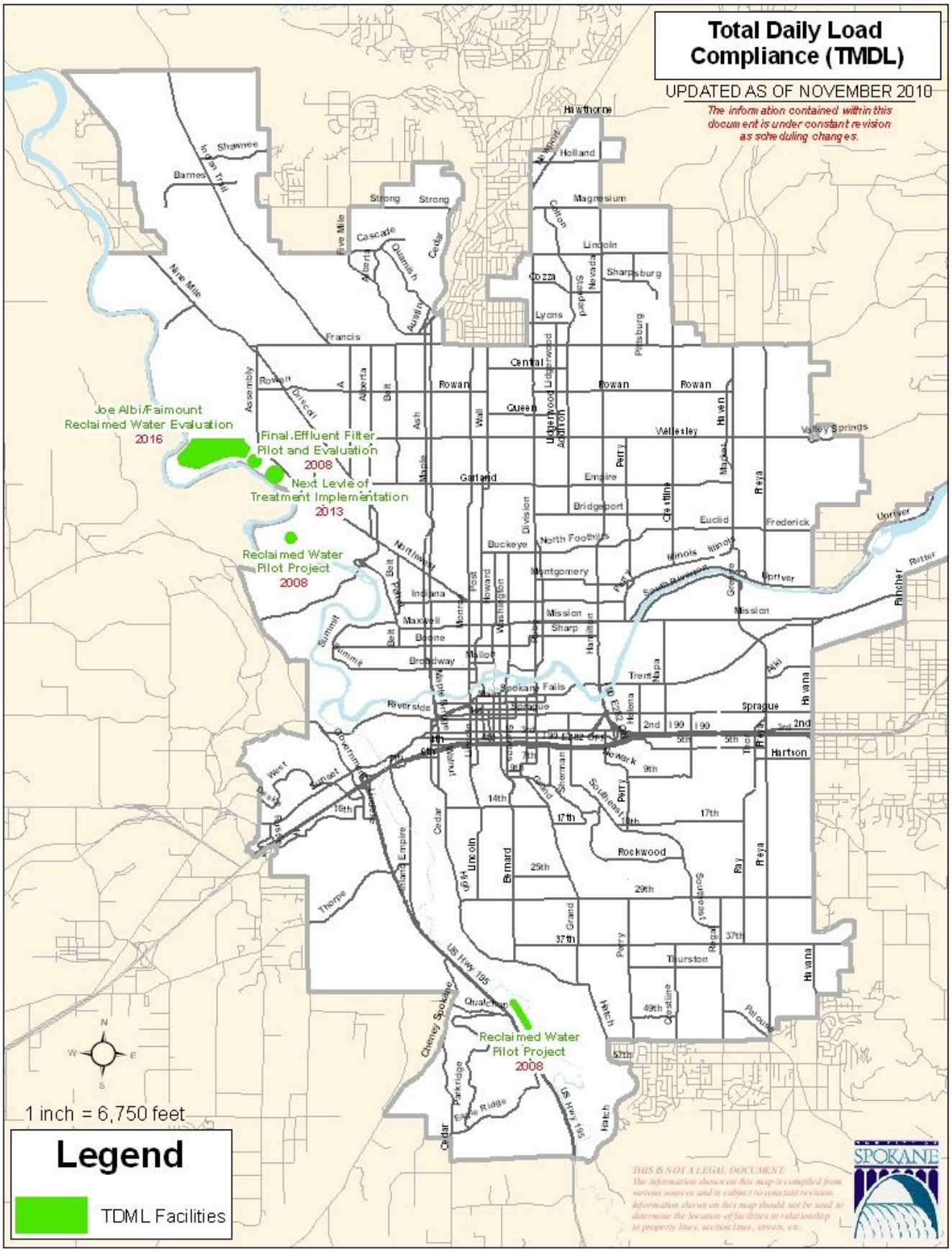
S07L02 - Next Level of Treatment Implementation	This project consists of an engineering report, design and final construction of the final effluent filtration technology (or technologies) selected in the pilot project (S04L01) to seasonally remove phosphorus down to a seasonal average of 17.8 pounds per day. The filters will be installed to discharge higher quality effluent to the Spokane River. The engineering report concerning the final effluent filter will be submitted to the State Department of Ecology.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$119,728,000	$17,959,000	$11,973,000	Acquired

TMDL Compliance
Project Details-Individual Projects *(continued)*

Project	Project Description			
S08L01 - Joe Albi/Fairmont Reclaimed Water Project	This project will provide a pipeline to connect the Riverside Park Water Reclamation Facility to Fairmount Memorial Park, Joe Albi Stadium, and Riverside State Park for reclaimed water service. This is a first step in providing reclaimed water for irrigation. Future projects will include storage and pumping capacity to deliver the reclaimed water through this pipeline.			
	Construction Starts		**Environmental**	**Design by**
	2016		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$808,000	$121,200	$80,800	Right-of-way

S08L03 - Reclaimed Water Distribution	If a reclaimed water system is found feasible in the Reclaimed Water System Feasibility Study, this project will design and construct the recommended facilities.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$2,400,000	$360,000	$240,000	unknown

S08L04 - Reclaimed Water Treatment Construction	This project constructs reclaimed water treatment facilities at a satellite location or Riverside Park Water Reclamation Facility. Based on the results of the pilot project (S07L01) to provide reclaimed water to golf course, treatment facilities may be installed in conjunction with Reclaimed Water System Feasibility Study.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$7,200,000	$1,080,000	$720,000	unknown
S09L01 – West Plains Reclaimed Water Evaluation	Fairchild Air Force Base draws its potable water from wells near the Spokane River. In the event that water is supplied to FAFB by the City's Water Department such that the existing pipeline will no longer be needed by FAFB, this project will evaluate the pipe for use in a City reclaimed water system and, if necessary, recommend design modification.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	Engineering Services
	Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
	--	--	$280,000	--


Total Daily Load Compliance (TMDL)
UPDATED AS OF NOVEMBER 2010
The information contained within this document is under constant revision as scheduling changes.
Joe Albi/Faimount Reclaimed Water Evaluation 2016
Final Effluent Filter Pilot and Evaluation 2008
Next Levle of Treatment Implementation 2013
Reclaimed Water Pilot Project 2008
Reclaimed Water Pilot Project 2008
1 inch = 6,750 feet
Legend
TDML Facilities
THIS IS NOT A LEGAL DOCUMENT.
SPOKANE

RIVERSIDE PARK WATER RECLAMATION FACILITY (RPWRF)

VII. Riverside Park Water Reclaimed Facility

The Riverside Park Water Reclamation Facility (RPWRF) Capital Projects element of the 6-Year Program contains individual projects that will improve the City's treatment of wastewater prior to discharge to the Spokane River. The sequence of these projects is intended to allow full operation of the facility during construction. The projects have been organized into "Packages" from A to E based on priority of the work, physical sequence, locations and logistics, and to combine work of specialists for design efficiency. Project costs in the table are in thousands of dollars.

RPWRF Summary

Amounts are shown in thousands of dollars (x 1000)

Project	2011	2012	2013	2014	2015	2016	Total
PACKAGE A							
S02T03 - Primary Clarifier Odor Control	7,047	1,782					**$8,829**
S10T01 – Primary Skimming	1,357	343					**$1,700**
S10T02 - Secondary Effluent Piping	878	222					**$1,100**
S10T15 - Parking Improvements	399	101					**$500**
S10T16- Chemically Enhanced Primary Treatment Full Scale Test	176	44					**$220**
			Total Package A		**$12,349**		
PACKAGE B							
S03T01 – West Plant Generator	102	681	748				**$1,531**
S04T03 - Primary Sludge Pump Station Rehabilitation	72	477	524				**$1,073**
S07T02 - Digester Gas Compressor Room Upgrades	276	1838	2,031				**$4,145**
S07T04 - Co-Generation (Steam Turbines)	51	340	374				**$765**
S10T03 – Process Building Extension	419	2792	3068				**$6,279**
S10T07 – Additional Gravity Belt Thickeners	133	885	972				**$1,990**
S10T08 - Digesters 4 and 5 Heat Exchangers	143	953	1048				**$2,144**
S10T05 - Effluent Heat Recovery	5	34	37				**$76**

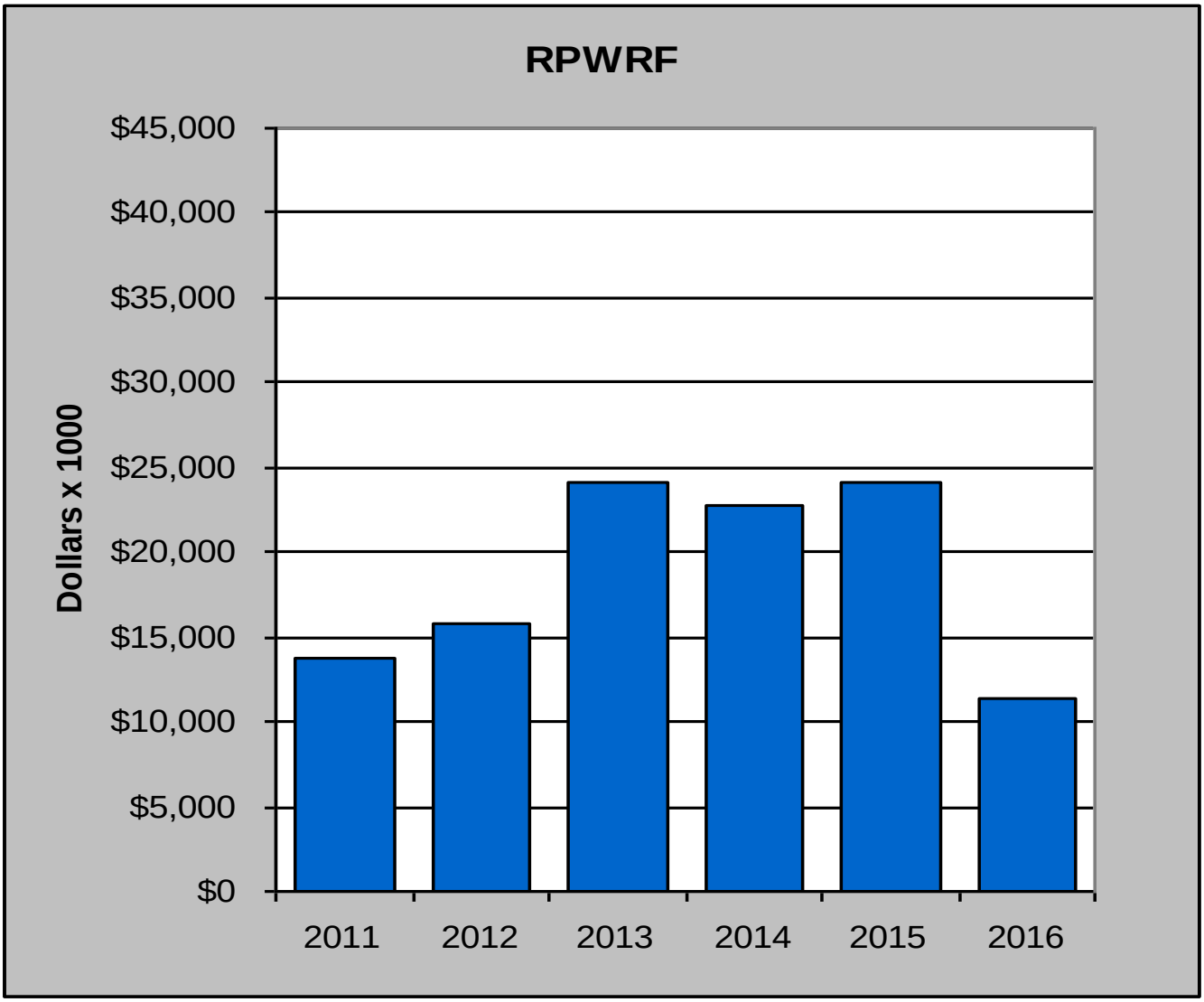
RPWRF Summary *(continued)*

Amounts are shown in thousands of dollars (x 1000)

Project	2011	2012	2013	2014	2015	2016	Total
PACKAGE B (CONTINUED)							
S10T10 - Low Head Hydro Power	194	1294	1421				**$2,909**
					Total Package B	**$20,912**	
PACKAGE C							
S09T01-Egg-shaped Digester Facility #3	788	1330	8192	9,056	5317		**$24,683**
S10T04 – Headworks Odor Control	135	228	1404	1,553	912		**$4,232**
S10T11 - CEPT Facility	90	152	936	1,035	607		**$2,820**
					Total Package C	**$31,735**	
PACKAGE D							
S10T14 - New Blower No. 5		72	186	1147	1,267	427	**$3,099**
S11T08 - New Primary Clarifier No. 5		164	422	2606	2880	970	**$7,042**
S11T09 - New Aeration Basin No. 5		329	843	5213	5,759	1,940	**$14,084**
					Total Package D	**$24,225**	
PACKAGE E							
S10T06 - Aeration Basin 1 to 4 Modifications			343	874	6,123	6,735	**$14,075**
					Total Package E	**$14,075**	

RPWRF Summary

Project	2011	2012	2013	2014	2015	2016	Total
NON-PACKAGED (STAND ALONE) PROJECTS							
Continuing Maintenance and Rehabilitation Projects							
S00P04 - RPWRF-PMO Administration and Management	1,433	1,693	1,620	1,334	1,333	1,277	**$8,690**
	$13,698	**$15,754**	**$24,169**	**$22,818**	**$24,198**	**$11,349**	**$111,986**


RPWRF
Dollars x 1000
$45,000
$40,000
$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0
2011
2012
2013
2014
2015
2016

RPWRF
Project Details-Individual Projects

Package A

Project	Project Description			
S02T03 - Primary Clarifier Odor Control	Primary clarifiers have been identified as the next priority in the odor control strategy at the RPWRF. This project will design and construct covers over the four existing primary clarifiers, including an exhaust fan facility to divert odorous air to a new bio-filter east of the primary clarifiers.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$7,063,200	$1,059,480	$706,320	Acquired

S10T01 - Primary Skimming	The new skimming facility will remove grease and scum from the wastewater stream. The facility will be located in the primary clarifier channel downstream from the primary skimming wells, east of the existing primary building. The project results in shorter pipes carrying skimmings fed by gravity. These changes will reduce the likelihood of clogging.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
	$1,180,000	$177,000	$343,000	Acquired

S10T02 – Secondary Effluent Piping	The secondary effluent piping modifications will combine all the effluent piping from all the secondary clarifiers before entering the chlorine contact basin influent channel. The influent channel contains extra valves for future expansion to the Next Level of Treatment (i.e., phosphorus removal). This project facilitates use of the fifth secondary clarifier and provides more operational flexibility for disinfection. This project needs to be built before the wet weather capacity is increased above 100 million gallons per day.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
	$880,000	$132,000	$88,000	Acquired

S10T15 - Parking Improvements	Parking improvements are necessary to accommodate Package B construction and to provide contractor parking during Packages B through E. Significant parking will be added within the plant. Off-street parking outside the plant will be expanded and conform to the Aesthetic Master Plan goals.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
	$400,000	$60,000	$40,000	Acquired

RPWRF
Project Details-Individual Projects *(continued)*

PACKAGE A (CONTINUED)

Project	Project Description			
S10T16 - Chemically Enhanced Primary Treatment Full Scale Test	Chemically Enhanced Primary Treatment test results will provide data required to design a permanent CEPT system and will be used in the design of future phosphorus removal treatment processes. The test will involve two temporary chemical pumping systems used to deliver alum and polymer into the influent to remove some phosphorus at the beginning of the treatment process. The pumping systems will be temporarily housed in existing facilities.			
	Construction Starts		**Environmental**	**Design by**
	2011		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
	$176,000	$26,400	$17,600	Acquired

PACKAGE B

Project	Project Description			
S03T01 - West Plant Generator	The project will design and install a new emergency generator at the west end of the RPWRF to provide additional backup power as electrical loads increase when treatment processes are added and expanded.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,225,000	$184,000	$122,000	Acquired

S04T03 - Primary Sludge Pump Station Rehabilitation	This project replaces the primary clarifier sludge pumps that have been in service for over 25-years and are near the end of their useful life. New variable speed control drives will be installed to improve flow control for the downstream solids thickening processes.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$870,000	$130,000	$73,000	Acquired

PACKAGE B (CONTINUED)

Project	Project Description
S07T02 - Digester Gas Compressor Room Upgrades	Once solids are removed from the wastewater they must be treated to the standards for biosolids reuse. At the RPWRF the solids are placed in large tanks and are digested. Solids digestion generates methane gas as a byproduct and the gas is collected and compressed for use either in mixing the solids or for steam generation. The existing gas compressor room has been in service approximately 30 years with some improvements during that time. This project will upgrade equipment to ensure the safe collection of the methane gas and safe operation of the system.

Construction Starts		Environmental	Design by
2012		EA	PMO
Construction Budget	**CM Budget**	**Design Budget**	**Property**
$3,316,000	$497,000	$332,000	Acquired

S07T04 - Co-Generation (Steam Turbines)

While most methane gas produced by the RPWRF digesters is burned to produce steam for process and space heating, excess gas is currently burned at a waste flare. Flaring usually occurs in the summer when steam heat demand is lowest. This project will burn excess methane gas in a new boiler to generate steam to power steam turbines to generate electricity for use at the RPWRF. The project will be housed in the existing boiler/co-generation facility.

Construction Starts		Environmental	Design by
2012		EA	PMO
Construction Budget	**CM Budget**	**Design Budget**	**Property**
$612,000	$92,000	$61,000	Acquired

S10T03 – Process Building Extension

Large vehicle traffic at the process building has increased while available space has decreased due to construction, creating maneuvering and storage issues. This project extends the process building to control odors and increase the efficiency of operations, such as chemical deliveries and biosolids handling.

Construction Starts		Environmental	Design by
2012		EA	PMO
Construction Budget	**CM Budget**	**Design Budget**	**Construction Budget**
$5,023,000	$753,000	$503,000	$5,023,000

S10T07 –Additional Gravity Belt Thickeners

Gravity Belt Thickeners (GBT) reduces the volume of sludge prior to digestion by removing water. Two additional GBTs are needed to meet the treatment demand.

Construction Starts		Environmental	Design by
2012		EA	PMO
Construction Budget	**CM Budget**	**Design Budget**	**Property**
$1,613,000	$242,000	$135,000	Acquired

RPWRF
Project Details-Individual Projects *(continued)*

Package B (continued)

Project	Project Description			
S10T08 - Digesters No. 4 and 5 Heat Exchangers	Digesters 4 and 5 will receive new heat exchangers that heat the contents of the digesters. This project will provide a complete redundant heating system to the existing steam heating system for the digestion process. The project needs to be built before more digesters are constructed.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$1,715,000	$257,000	$172,000	Acquired

S10T09 - Effluent Heat Recovery	This project includes a heat pump system used to extract heat from plant water 3 and use it to heat a room or building. This project will meet sustainability goals. It should be built as soon as possible.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$60,800	$9,120	$6,080	Acquired

S10T10 - Low Head Hydro Power	This project includes a turbine pump system used to generate power from the plant effluent flow stream and use it at the Water Reclamation Facility site. This project will meet sustainability goals.			
	Construction Starts		**Environmental**	**Design by**
	2012		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$2,327,000	$349,000	$233,000	Acquired

RPWRF
Project Details-Individual Projects *(continued)*

Package C

Project	Project Description			
S09T01 - Egg-shaped Digester Facility #3	The project will design and construct one additional 2.8 million gallon egg shaped digesters and integrate it into the digester gallery to enhance operations, accommodate increased solids from the Next Level of Treatment, and provide redundancy.			
	Construction Starts		**Environmental**	**Construction Starts**
	2013		EA	2014
	Construction Budget	**CM Budget**	**Construction Budget**	**Property**
	$19,746,000	$2,962,000	$1,974,600	Acquired

S10T04-Headworks Odor Control	This project will be used to reduce the odor emitted from the headworks building.			
	Construction Starts		**Environmental**	**Design by**
	2013		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$3,386,000	$508,000	$338,000	Acquired

S10T11 - CEPT Facility	This project includes a Chemically Enhanced Primary Treatment facility housing a pumping and chemical storage system used to deliver alum and polymer into the wastewater flow stream to remove some phosphorus in the primary clarifiers. CEPT will improve phosphorus removal and enable the activated sludge treatment process to accommodate increased loading from growth and from Next Level of Treatment. The facility will also provide additional maintenance garage space.			
	Construction Starts		**Environmental**	**Construction Starts**
	2013		EA	2014
	Construction Budget	**CM Budget**	**Construction Budget**	**Property**
	$2,256,000	$338,400	$225,600	Acquired

RPWRF
Project Details-Individual Projects *(continued)*

Package D

Project	Project Description			
S10T14 - Blower No. 5	The secondary treatment process requires large blowers to provide oxygen to the organisms that treat wastewater. The existing blower system is nearing capacity; and a new blower is required. The new blower, ductwork, and electrical and control equipment will be housed within the existing blower building.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$2,479,000	$372,000	$248,000	Acquired

S11T09 - Primary Clarifier No. 5	This project includes a primary clarifier, solids pumping systems, yard piping and flow splitting for primary treatment. This project will provide redundancy in the primary treatment system to help remove phosphorus and will allow increased storm flow through primary and secondary treatment, reducing wet weather impacts at RPWRF. It needs to be built before Next Level of Treatment.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$5,634,000	$845,000	$563,000	Acquired

S11T10 - Aeration Basin No. 5	This project includes a new aeration basin with associated yard piping and equipment. This project will provide additional treatment capacity to meet new permit limits. It needs to be built before the Next Level of Treatment.			
	Construction Starts		**Environmental**	**Design by**
	2014		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$11,267,000	$1,690,000	$1,127,000	Acquired

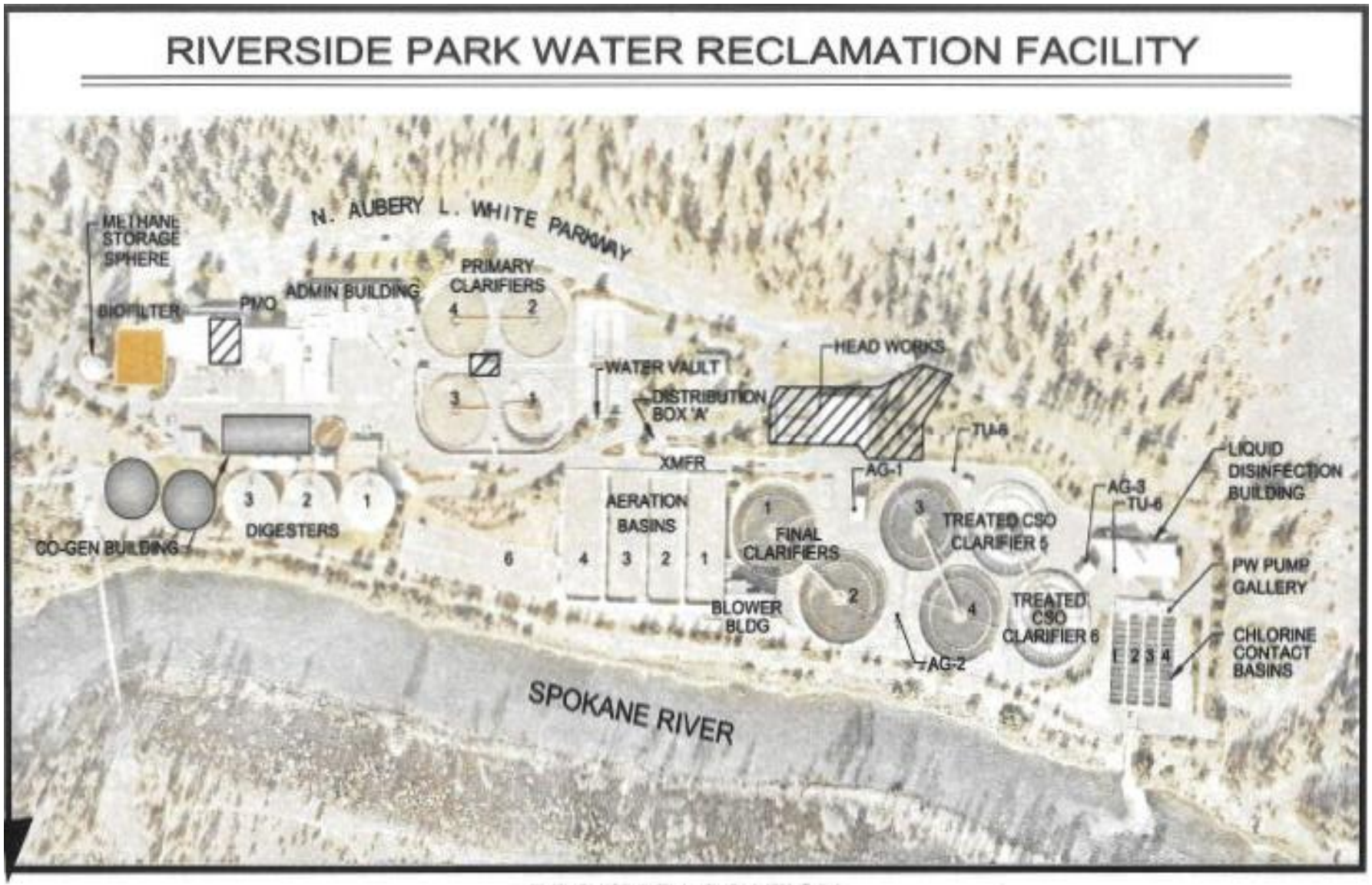
Package E

Project	Project Description			
S10T06 – Aeration Basin 1 to 4 Modifications	The project will add baffles to create a plug-flow regime and increase the efficiency in the four existing rectangular aeration basins.			
	Construction Starts		**Environmental**	**Design by**
	2015		EA	PMO
	Construction Budget	**CM Budget**	**Design Budget**	**Property**
	$11,181,000	$1,677,000	$1,217,000	Acquired

RPWRF
Project Details-Individual Projects *(continued)*

Non-Packaged (Stand Alone) Projects

Project	Project Description			
S00P04 - RPWRF-PMO Administration and Management	"PMO" stands for Project Management Office, and it includes program administration, management, and planning for Water Quality Improvement Program upgrades at the City's Riverside Park Water Reclamation Facility (RPWRF). In addition to capital project implementation, process consulting and plant engineering, the PMO provides planning, organization, scheduling, budgeting, staffing, accounting, invoicing, documentation, record retention, status reporting, office management and, when requested, public outreach, for all the improvements and upgrades at the RPWRF. Included in their activities are sub-consultant administration and management as well as construction administration and management, including safety management. PMO planning efforts guide the implementation of the facility improvements including odor control, permitting, aesthetics, treatment processes, and plant-wide infrastructure.			
	Start Year	**Use**	**Environmental**	**Design by**
	2011	Design	--	--



PROJECT LOCATION

XII. Planning and Support

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	Project Description			
S04C01 - Strategic Infrastructure Planning Study	The Public Works 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**
	2011	2 years	--	600

S00P01 - Communications and Education	This project provides for public communications and education regarding the City's Combined Sewer Overflow (CSO) system, and it includes the City's internet-based overflow notice system. Other communication efforts include 344-FISH signs, kiosks and reporting telephone number to report overflows. The Communications and Education Project is a requirement of the State Department of Ecology's CSO permit requirements for the City.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6	20	--

S02A01 - Technical Consulting	Although most of the studies, design and planning for the City's Riverside Park Water Reclamation Facility (RPWRF) is performed by the PMO, the City utilizes a third-party consultant to provide an independent opinion. These consultants have technical specialties that complement the PMO activities. Past technical consulting has included overall treatment process review and Spokane River studies.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6	150	--

S02M05 - Interceptor/Trunk Inspection Program	The City's trunk and interceptor pipes constitute the "backbone" of the sewer collection system. A failure of any component of this backbone system threatens the integrity of the entire sewer system and could cause significant environmental damage. Some elements of the trunk and interceptor system are vulnerable to damage from a variety of causes: steep slopes, proximity to water bodies, bridge crossing, utility conflicts, and other conditions. Wastewater Management Department staff is currently evaluating this project and may use a consultant to assist in identifying vulnerable backbone elements and to recommend work that may reduce existing vulnerability.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	2	--	1,200

Project	Project Description			
S02S01 - STEP Studies	The term "STEP" is an acronym for "Septic Tank Elimination Program." The City has numerous isolated pockets of properties using septic tanks. This project will construct small lateral extensions every other year that were identified in previous studies (S02S01).			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6	20	--

S03D02 - Austin Draw Infiltration Facility Study	This project will identify infiltration capacity and conceptual design of the Austin Draw Infiltration Facility located below the Five Mile Prairie. The study location is an area north of Francis, between Five Mile Road and Cedar Road. Information from this study will allow the City and the County to size and design storm water facilities in this area.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	1	--	100

S04C02 - High Drive Sewer Study	The Sewer Maintenance Division has responded to several line breaks and "blow-outs" in the sewer lines along and west of High Drive. Some of these lines have very steep slopes with shallow ground cover. This project is a study that will determine the best way to rehabilitate, replace or re-route the High Drive sewer lines to reduce and/or eliminate the current maintenance issues. Projects may be added to the 6-Year Program as a result of this study. This project will use information provided by the Trunk Sewer Vulnerability Assessment (S04C03).			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2012	1	--	100

S05D02 - Second Drainage-Conservation Area Master Plan	This project consists of the technical studies and assessments for a second regional drainage and conservation area facility similar on the Five Mile Prairie.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2013	2	--	500

S06D01 - NPDES Phase II Permit Implementation	The City was issued a National Pollution Discharge Elimination System (NPDES) Storm Water Phase II Permit in February 2007 by the Washington State Department of Ecology. Requirements of the permit are currently being implemented; however, the level of effort necessary to meet the conditions of the permit will continue to increase over the five-year period. Permit implementation is an on-going project.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2008	5	200	--

S07A01 - Wastewater Facility Plan Update	The City is required to update its Wastewater Facility Plan every five years. The next update work will be performed in 2010. A consultant usually assists the City with these updates.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	1	--	350

Project	Project Description			
S08C02 - Groundwater Evaluation and Mitigation	The Groundwater Evaluation and Mitigation (GEM) program will evaluate areas of the City with high groundwater regarding cost effective and efficient mitigation actions. The GEM program includes several facets to investigate and implement pilot projects. Investigations will be designed to more fully understand the groundwater problems and potential solutions. The initial facets of this project are: 1) Tree Runoff Evaluation Experiment (TREE) to determine the effectiveness of trees in removing excess groundwater; 2) Examination for Disposal of Groundwater Evaluation (EDGE) to identify disposal sites; and 3) Pumping Out at Wells (POW) to determine the effect of pumping on groundwater. After the completion of these facets, Clean water Reduction Infrastructure System Plan (CRISP) will develop a planning-level conveyance system to disposal sites identified in EDGE.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2012	5	100	500
S08L02 - Reclaimed Water System Feasibility Study	This project will determine the feasibility of installing a large reclaimed water system. The study will identify reclaimed water potential customers such as golf courses, parks, cemeteries, industries and other potential users. The evaluation will propose the potential locations and size of facilities including pumps, tanks, and pipelines to serve reclaimed water to high-demand users. The study will also estimate the cost of construction and staffing requirements.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	3	--	600
S08L05 - Water Conservation Program	The City Wastewater and City Water Departments together are funding the Water Stewardship program to promote water conservation.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6	250	--
S08L06 - Non-point Source Reduction Program	The Non-point Source Reduction Program is a part of regional efforts by participating NPDES permit holders and Ecology. An initial study will determine the best opportunities for non-point source phosphorus reductions identified in the TMDL. This program will fund and implement methods to reduce non-point source phosphorus. Spokane County has taken the lead in this project. The City will coordinate all non-point reduction activities with the County.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	6	500	--
S11B06 - CSO Reduction Plan Update	The City's Combined Sewer Overflow (CSO) Reduction Plan is updated every five years. The 2005 update was achieved through memorandums prepared by City staff and the PMO. The 2005 update was approved by Ecology. The next update is scheduled for approximately 2011.			
	Start Year	**Project Duration**	**Annual Budget**	**Total Budget**
	2011	--	--	--