

**CITY COUNCIL MEETINGS
RULES – PUBLIC DECORUM**

Strict adherence to the following rules of decorum by the public will be observed and adhered to during City Council meetings, including open forum, public comment period on legislative items, and Council deliberations:

- 1. No Clapping!**
- 2. No Cheering!**
- 3. No Booing!**
- 4. No public outbursts!**
- 5. Three-minute time limit for comments made during open forum and public testimony on legislative items!**

In addition, please silence your cell phones when entering the Council Chambers!

Further, keep the following City Council Rules in mind:

Rule 2.2 Open Forum

2.2.4 The open forum is a limited public forum and all matters discussed shall relate to affairs of the City. No person may use the open forum to speak on such matters and in such a manner as to violate the laws governing the conduct of municipal affairs. No person shall be permitted to speak on matters related to the current or advance agendas, potential or pending hearing items, or ballot propositions for a pending election. Individuals speaking during the open forum shall address their comments to the Council President and shall not make personal comment or verbal insults about any individual.

Rule 5.4 Public Testimony Regarding Legislative Agenda Items – Time Limits

- 5.3.1 Members of the public may address the Council regarding items on the Council's legislative agenda, special consideration items, hearing items and other items before the City Council requiring Council action that are not adjudicatory or administrative in nature. This rule shall not limit the public's right to speak during the open forum.
- 5.3.2 No one may speak without first being recognized for that purpose by the Chair. Except for named parties to an adjudicative hearing, a person may be required to sign a sign-up sheet and provide his or her address as a condition of recognition. In order for a council member to be recognized by the Chair for the purpose of obtaining the floor, the council member shall either raise a hand or depress the call button on the dais until recognized by the Council President.
- 5.3.3 Each person speaking at the public microphone shall verbally identify him(her)self by name and, if appropriate, representative capacity.
- 5.3.4 Each speaker shall follow all written and verbal instructions so that verbal remarks are electronically recorded and documents submitted for the record are identified and marked by the Clerk.
- 5.3.5 In order that evidence and expressions of opinion be included in the record and that — decorum befitting a deliberative process be maintained, no modes of expression not provided by these rules, such as demonstrations, banners, applause and the like will be permitted.
- 5.3.6 A speaker asserting a statement of fact may be asked to document and identify the source of the factual datum being asserted.
- 5.3.7 When addressing the Council, members of the public shall direct all remarks to the Council President and shall confine remarks to the matters that are specifically before the Council at that time.
- 5.3.8 When any person, including members of the public, City staff and others are addressing the Council, council members shall observe the same decorum and process, as the rules require among the members inter se. That is, a council member shall not engage the person addressing the Council in colloquy, but shall speak only when granted the floor by the Council President. All persons and/or council members shall not interrupt one another. The duty of mutual respect set forth in Rule 1.2 and the rules governing debate set forth in *Robert's Rules of Order* shall extend to all speakers before the City Council. The council president pro-tem shall be charged with the task of assisting the council president to insure that all individuals desiring to speak, be they members of the public, staff or council members, shall be identified and provided the opportunity to speak.

THE CITY OF SPOKANE



CURRENT COUNCIL AGENDA

MEETING OF MONDAY, OCTOBER 12, 2015

MISSION STATEMENT

TO DELIVER EFFICIENT AND EFFECTIVE SERVICES
THAT FACILITATE ECONOMIC OPPORTUNITY
AND ENHANCE QUALITY OF LIFE.

MAYOR DAVID A. CONDON

COUNCIL PRESIDENT BEN STUCKART

COUNCIL MEMBER MICHAEL A. ALLEN

COUNCIL MEMBER CANDACE MUMM

COUNCIL MEMBER KAREN STRATTON

COUNCIL MEMBER MIKE FAGAN

COUNCIL MEMBER JON SNYDER

COUNCIL MEMBER AMBER WALDREF

CITY COUNCIL CHAMBERS
CITY HALL

808 W. SPOKANE FALLS BLVD.
SPOKANE, WA 99201

City of Spokane Guest Wireless access for Council Chambers for October 12, 2015:

User Name: **COS Guest**

Password: **k8X964wP**

Please note the space in user name. Also, both user name and password are case sensitive

CITY COUNCIL BRIEFING SESSION

Council will adopt the Administrative Session Consent Agenda after they have had appropriate discussion. Items may be moved to the 6:00 p.m. Legislative Session for formal consideration by the Council at the request of any Council Member.

SPOKANE CITY COUNCIL BRIEFING SESSIONS (BEGINNING AT 3:30 P.M. EACH MONDAY) AND LEGISLATIVE SESSIONS (BEGINNING AT 6:00 P.M. EACH MONDAY) ARE BROADCAST LIVE ON CITY CABLE CHANNEL FIVE AND STREAMED LIVE ON THE CHANNEL FIVE WEBSITE. THE SESSIONS ARE REPLAYED ON CHANNEL FIVE ON THURSDAYS AT 6:00 P.M. AND FRIDAYS AT 10:00 A.M.

The Briefing Session is open to the public, but will be a workshop meeting. Discussion will be limited to Council Members and appropriate Staff and Counsel. There will be an opportunity for the expression of public views on any issue not relating to the Current or Advance Agendas during the Open Forum at the beginning and the conclusion of the Legislative Agenda.

ADDRESSING THE COUNCIL

- No one may speak without first being recognized for that purpose by the Chair. Except for named parties to an adjudicative hearing, a person may be required to sign a sign-up sheet as a condition of recognition.
- Each person speaking at the public microphone shall print his or her name and address on the sheet provided at the entrance and verbally identify him/herself by name, address and, if appropriate, representative capacity.
- If you are submitting letters or documents to the Council Members, please provide a minimum of ten copies via the City Clerk. The City Clerk is responsible for officially filing and distributing your submittal.
- In order that evidence and expressions of opinion be included in the record and that decorum befitting a deliberative process be maintained, modes of expression such as demonstration, banners, applause and the like will not be permitted.
- A speaker asserting a statement of fact may be asked to document and identify the source of the factual datum being asserted.

SPEAKING TIME LIMITS: Unless deemed otherwise by the Chair, each person addressing the Council shall be limited to a three-minute speaking time.

CITY COUNCIL AGENDA: The City Council Advance and Current Agendas may be obtained prior to Council Meetings from the Office of the City Clerk during regular business hours (8 a.m. - 5 p.m.). The Agenda may also be accessed on the City website at www.spokanecity.org. Agenda items are available for public review in the Office of the City Clerk during regular business hours.

AMERICANS WITH DISABILITIES ACT (ADA) INFORMATION: The City of Spokane is committed to providing equal access to its facilities, programs and services for persons with disabilities. The Spokane City Council Chamber in the lower level of Spokane City Hall, 808 W. Spokane Falls Blvd., is wheelchair accessible and also is equipped with an infrared assistive listening system for persons with hearing loss. Headsets may be checked out (upon presentation of picture I.D.) at the City Cable 5 Production Booth located on the First Floor of the Municipal Building, directly above the Chase Gallery or through the meeting organizer. Individuals requesting reasonable accommodations or further information may call, write, or email Christine Cavanaugh at (509) 625-6383, 808 W. Spokane Falls Blvd, Spokane, WA, 99201; or ccavanaugh@spokanecity.org. Persons who are deaf or hard of hearing may contact Ms. Cavanaugh at (509) 625-7083 through the Washington Relay Service at 7-1-1. Please contact us forty-eight (48) hours before the meeting date.

If you have questions, please call the Agenda Hotline at 625-6350.

BRIEFING SESSION

(3:30 p.m.)

(Council Chambers Lower Level of City Hall)

(No Public Testimony Taken)

Council Reports

Staff Reports

Committee Reports

Advance Agenda Review

Current Agenda Review

ADMINISTRATIVE SESSION

Roll Call of Council

CONSENT AGENDA

REPORTS, CONTRACTS AND CLAIMS

RECOMMENDATION

- | | | | |
|----|---|---------|------------------------------|
| 1. | Additional purchase of one 2016 M2-106 truck chassis from Freedom Truck Center (Spokane, WA) for the Fleet Services Department—\$80,338.25 (incl. tax). | Approve | OPR 2010-0585
BID 3709-10 |
| 2. | Low bid meeting specifications of Versalift Northwest, L.L.C. (Waco, TX) for an Aerial Manlift and Utility Body—\$84,123.07 (incl. tax). | Approve | OPR 2015-0822
BID 4164-15 |
| 3. | Cooperative Agreement for grant funding award from the United States Environmental Protection Agency to inventory and assess brownfield sites within the Hillyard Target Community—\$400,000. | Approve | OPR 2015-0890 |
| 4. | Contract with H2E, Inc. (Liberty Lake, WA) for design and installation of the System Control Panel at the Waste to Energy Facility from October 12, 2015 through January 31, 2016—\$182,358 (plus tax). | Approve | OPR 2015-0891
RFQ 4169-15 |
| 5. | Amendment No. 1 to Interlocal Agreement with the City of Airway Heights for disposal of solid waste at the waste to energy facility. | Approve | OPR 2014-0728 |

- | | | | |
|-----|---|-----------------------------------|------------------------------|
| 6. | Amendment No. 1 to Avista Contract No. R-39850 between Avista Corporation (Spokane, WA), City of Spokane, and Spokane Parks and Recreation Division to provide general grounds and facilities maintenance services and security patrol for Huntington Park—\$113,115. | Approve | OPR 2014-0416 |
| 7. | Change Order No. 1 to contract with Big Sky Industrial (Spokane, WA) for the Clarke Avenue Lift Station Debris Removal—increase of \$11,100 (plus tax). Total contract amount: \$49,979.60 (plus tax). | Approve | OPR 2014-0849 |
| 8. | Contract Extension with Pacific Rim Laboratories, (Surrey, BC-Canada) for stormwater and wastewater sampling for the Wastewater Management Department, Riverside Park Water Reclamation Facility—\$102,075. | Approve | OPR 2012-0841
RFP 3877-12 |
| 9. | Report of the Mayor of pending claims and payments of previously approved obligations, including those of Parks and Library, through October 5, 2015, total \$4,084,583.44, with Parks and Library claims approved by their respective boards. Warrants excluding Parks and Library total \$3,546,894.03. | Approve &
Authorize
Payment | CPR 2015-0002 |
| 10. | City Council Meeting Minutes: October 1, 2015. | Approve
All | CPR 2015-0013 |

EXECUTIVE SESSION

(Closed Session of Council)

(Executive Session may be held or reconvened during the 6:00 p.m. Legislative Session)

CITY COUNCIL SESSION

(May be held or reconvened following the 3:30 p.m. Administrative Session)
(Council Briefing Center)

This session may be held for the purpose of City Council meeting with Mayoral nominees to Boards and/or Commissions. The session is open to the public.

LEGISLATIVE SESSION

(6:00 P.M.)

(Council Reconvenes in Council Chamber)

WORDS OF INSPIRATION

PLEDGE OF ALLEGIANCE

ROLL CALL OF COUNCIL

ANNOUNCEMENTS

(Announcements regarding Changes to the City Council Agenda)

BOARDS AND COMMISSIONS APPOINTMENTS

(Includes Announcements of Boards and Commissions Vacancies)

APPOINTMENTS

RECOMMENDATION

Bicycle Advisory Board: One Appointment

Confirm

CPR 1992-0059

CITY ADMINISTRATION REPORT

COUNCIL COMMITTEE REPORTS

(Committee Reports for Finance, Neighborhoods, Public Safety, Public Works, and Planning/Community and Economic Development Committees and other Boards and Commissions)

OPEN FORUM

This is an opportunity for citizens to discuss items of interest not relating to the Current or Advance Agendas nor relating to political campaigns/items on upcoming election ballots. This Forum shall be for a period of time not to exceed thirty minutes. After all the matters on the Agenda have been acted on, unless it is 10:00 p.m. or later, the open forum shall continue for a period of time not to exceed thirty minutes. Each speaker will be limited to three minutes, unless otherwise deemed by the Chair. If you wish to speak at the forum, please sign up on the sign-up sheet located in the Chase Gallery.

LEGISLATIVE AGENDA

NO EMERGENCY BUDGET ORDINANCES

NO EMERGENCY ORDINANCES

RESOLUTIONS

(Require Four Affirmative, Recorded Roll Call Votes)

RES 2015-0107 Initiating an East Sprague Parking and Business Improvement Area.
(Relates to Resolution 2015-0108)

RES 2015-0108 Of intention to establish an East Sprague Parking and Business
Improvement Area. (Relates to Resolution 2015-0107)

- RES 2015-0109 Initiating a Hillyard Parking and Business Improvement Area. (Relates to Resolution 2015-0110)
- RES 2015-0110 Of intention to establish a Hillyard Parking and Business Improvement Area. (Relates to Resolution 2015-109)
- RES 2015-0111 Declaring opposition to I-1366 that would eliminate eight billion dollars from the State of Washington Operating Budget over the next six years which would cause drastic cuts to vital public services, including schools, colleges, and other programs families in Spokane depend on by decreasing the state sales tax, unless, by April 2016, the Washington State Legislature approves a constitutional amendment requiring a two-thirds vote to raise revenue or recover revenue for the state treasury.
- RES 2015-0112 Adopting updates to the City's Comprehensive Water System Plan.

NO FINAL READING ORDINANCES

FIRST READING ORDINANCES

(No Public Testimony Will Be Taken)

- ORD C35305 (To be considered under Hearings Item H1.)

FURTHER ACTION DEFERRED

NO SPECIAL CONSIDERATIONS

HEARINGS

(If there are items listed you wish to speak on, please sign your name on the sign-up sheets in the Chase Gallery.)

RECOMMENDATION

- | | | | |
|-----|--|-------------------------------------|------------|
| H1. | a. Vacation of a portion of Grandview Avenue north of 17th Avenue and east of 'D' Street as requested by City Staff. (Grandview/Thorpe Neighborhood) | Approve
Subject to
Conditions | |
| | b. First Reading Ordinance C35305 vacating of a portion of Grandview Avenue north of 17th Avenue and east of 'D' Street. | Further
Action
Deferred | ORD C35305 |
-

OPEN FORUM (CONTINUED)

This is an opportunity for citizens to discuss items of interest not relating to the Current or Advance Agendas nor relating to political campaigns/items on upcoming election ballots. This Forum shall be for a period of time not to exceed thirty minutes. After all the matters on the Agenda have been acted on, unless it is 10:00 p.m. or later, the open forum shall continue for a period of time not to exceed thirty minutes. Each speaker will be limited to three minutes, unless otherwise deemed by the Chair. If you wish to speak at the forum, please sign up on the sign-up sheet located in the Chase Gallery.

ADJOURNMENT

The October 12, 2015, Regular Legislative Session of the City Council is adjourned to October 19, 2015.

NOTES



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2010-0585
Renews #	
Cross Ref #	
Project #	
Bid #	BID #3709-10
Requisition #	RE#17452

Submitting Dept	FLEET SERVICES
Contact Name/Phone	GENE JAKUBCZAK 625-7865
Contact E-Mail	GJAKUBCZAK@SPOKANECITY.ORG
Agenda Item Type	Purchase w/o Contract
Agenda Item Name	5100-ADDITIONAL PURCHASE OF TRUCK CHASSIS

Agenda Wording

Additional purchase of one (1) 2016 M2-106 truck chassis from FREEDOM TRUCK CENTER (Spokane, WA) for the City of Spokane Fleet Services Department - \$80,338.25 including tax

Summary (Background)

On 7/26/10 City Council awarded Bid #3709-10 for the purchase of single axle truck cab & chassis to Freedom Truck Center. Subsequently Fleet Services has identified an additional need for one (1) more truck cab & chassis. This truck cab & chassis will be used to build a new manlift truck with a utility body for the Urban Forestry Division of the Parks & Recreation Department.

<u>Fiscal Impact</u>		<u>Budget Account</u>	
Expense	\$ 80,566.94	#	1950-54925-94000-56404
Select	\$	#	
Select	\$	#	
Select	\$	#	
<u>Approvals</u>		<u>Council Notifications</u>	
<u>Dept Head</u>	JAKUBCZAK, GENE	<u>Study Session</u>	
<u>Division Director</u>	GIMPEL, KEN	<u>Other</u>	PWC 9/28/15
<u>Finance</u>	SALSTROM, JOHN	<u>Distribution List</u>	
<u>Legal</u>	WHALEY, HUNT	TPRINCE	
<u>For the Mayor</u>	SANDERS, THERESA	GJAKUBCZAK	
<u>Additional Approvals</u>		FLEETSERVICES	
<u>Purchasing</u>	PRINCE, THEA	TAXES & LICENSES	

BRIEFING PAPER
Public Works Committee
Fleet Services
September 28, 2015

Subject

Purchase of one (1) cab & chassis for the Urban Forestry Department for \$80,591.99 (tax incl.) as a replacement unit from Freedom Truck Centers of Spokane.

Background

This cab & chassis is being purchased utilizing the terms of bid #3709-10 for cab & chassis.

Impact

This chassis will be utilized by the Urban Forestry Department as a manlift truck. The manlift and utility body are being purchased separately.

Action

Recommend approval.

Funding

Funding is available in the Urban Forestry department's 2015 budget.

**FLEET SERVICES
MEMORANDUM**

September 29, 2015

TO: PURCHASING DEPARTMENT

**FROM: GENE JAKUBCZAK
FLEET SERVICES DIRECTOR**

SUBJ: ADDITIONAL PURCHASES UTILIZING BID # 3709-10

This is an order for One (1) truck chassis utilizing the terms of bid # 3709-10. The vendor has agreed to hold the price originally quoted for this purchase.

This chassis will be used to build a new manlift truck with a utility body for the Urban forestry Department.

Chassis for Urban Forestry Department aerial manlift truck
Unit 428489
RE 17452

QTY	ITEM	UNIT PRICE	TOTAL
1	2016 Freightliner M2-106 chassis	\$55,450.00	\$55,450.00
1	2016 Model year upcharge – for orders after 2/28/12 add \$1,500 plus 5%	\$2,772.50	\$2,772.50
1	Price adjust for orders after 2/28/12	\$1,500.00	\$1,500.00
OPTION S			
1	Cruise Control	\$0.00	\$0.00
1	Alternate Cab to Axle length – 120” – 150”	\$592.00	\$592.00
1	Heated, power mirrors	\$395.00	\$395.00
1	Driver controlled full locking differential	\$650.00	\$650.00
1	Air ride cab	\$135.00	\$135.00
1	Auxiliary radio power post	\$25.00	\$25.00
1	Auxiliary radio mounting provision	\$115.00	\$115.00
1	Premium cab insulation	\$99.00	\$99.00
1	Outside frame clear	\$0.00	\$0.00
1	Four(4)additional factory switches	\$250.00	\$250.00
1	Engine option ISB 250 HP, 660 ft.lbs.	\$2,354.00	\$2,354.00
1	Transmission option – 3000RDS	\$3,998.00	\$3,998.00
1	Frame – RBM 2,590,000	\$750.00	\$750.00
1	Engine tunnel/firewall liner	\$75.00	\$75.00
1	All chassis keyed alike	\$35.00	\$35.00
1	Daytime running lights	\$25.00	\$25.00
1	12 volt dash power supply	\$30.00	\$30.00
1	Back-up alarm	\$97.00	\$97.00

1	Factory mounted P.T.O. switch with indicator lamp	\$195.00	\$195.00
1	Huck bolt fasteners	\$197.00	\$197.00
1	Air Brakes	\$2,560.00	\$2,560.00
1	Tires and wheels upgrade	\$1,258.00	\$1,258.00
1	Tilt, telescoping steering wheel	\$425.00	\$425.00
Sub-total			\$73,982.50
Sales tax @ 8.9%			\$6,584.44
GRAND TOTAL			\$80,566.94

cc: Jeff Perry
Angel Spell



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2015-0822
Renews #	
Cross Ref #	
Project #	
Bid #	BID #4164-15
Requisition #	RE# 17453

Submitting Dept	FLEET SERVICES
Contact Name/Phone	GENE JAKUBCZAK 625-7865
Contact E-Mail	GJAKUBCZAK@SPOKANECITY.ORG
Agenda Item Type	Purchase w/o Contract
Agenda Item Name	5100-PURCHASE OF AERIAL MANLIFT AND UTILITY BODY

Agenda Wording

Low bid meeting specifications of Versalift Northwest, L.L.C. (Waco, TX) for an Aerial Manlift and Utility Body - \$84,123.07 including tax

Summary (Background)

On August 10, 2015 sealed bids were opened to provide the City of Spokane Fleet Services with an Aerial Manlift and Utility Body. One response was received with the lowest responsive bidder being Versalift Northwest. This Aerial Manlift and Utility Body will be installed on a cab & chassis being purchased separately to build a new truck for the Urban Forestry Division of the Parks and Rec Department.

<u>Fiscal Impact</u>		<u>Budget Account</u>	
Expense	\$ 84,123.07	#	1950-54925-94000-56404
Select	\$	#	
Select	\$	#	
Select	\$	#	
<u>Approvals</u>		<u>Council Notifications</u>	
<u>Dept Head</u>	JAKUBCZAK, GENE	<u>Study Session</u>	
<u>Division Director</u>	GIMPEL, KEN	<u>Other</u>	PWC 9/28/15
<u>Finance</u>	SALSTROM, JOHN	<u>Distribution List</u>	
<u>Legal</u>	WHALEY, HUNT	TPRINCE	
<u>For the Mayor</u>	SANDERS, THERESA	GJAKUBCZAK	
<u>Additional Approvals</u>		FLEETSERVICES	
<u>Purchasing</u>	PRINCE, THEA	TAXES & LICENSES	

BRIEFING PAPER
Public Works Committee
Fleet Services
September 28, 2015

Subject

Purchase of one (1) Aerial manlift and utility body for the Urban Forestry Department for \$84,123.07 (tax incl.) as a replacement unit from Versalift Northwest, L.L.C. of Spokane.

Background

This equipment is being purchased utilizing the terms of bid #4164-15.

Impact

This equipment will be utilized by the Urban Forestry Department. The truck chassis is being purchased separately.

Action

Recommend approval.

Funding

Funding is available in the Urban Forestry department's 2015 budget.

**FLEET SERVICES
MEMORANDUM**

September 29, 2015

TO: PURCHASING DEPARTMENT

**FROM: GENE JAKUBCZAK
FLEET SERVICES DIRECTOR**

SUBJ: BID # 4164-15

After careful consideration, the Fleet Services Department recommends bid #4164-15 be awarded to Versalift Northwest, L.L.C., the lowest responsive bidder, for the purchase of one aerial manlift and utility body.

Unit 428489
RE 17453

QTY	ITEM	EACH	TOTAL
1	Aerial Manlift with Utility Body	\$76,604.00	\$76,604.00
Options			
1	Option #3 – 12V Emergency Power	\$ 644.00	\$ 644.00
SUB-TOTAL			\$77,248.00
Sales Tax	8.9%		\$ 6,875.07
TOTAL			\$84,123.07

cc: Angel Spell
Jeff Perry



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2015-0890
Renews #	

Submitting Dept	PLANNING & DEVELOPMENT	Cross Ref #	
Contact Name/Phone	TERI STRIPES 625-6597	Project #	
Contact E-Mail	TSTRIPES@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Contract Item	Requisition #	
Agenda Item Name	0650 - EPA - COOPERATIVE AGREEMENT FOR GRANT FUNDING		

Agenda Wording

Approval of the Cooperative Agreement for grant funding award of \$400,000.00 from the United States acting by and through the US Environmental Protection Agency (EPA). EPA agrees to cost-share 100.00% of all approved budget period costs up to and

Summary (Background)

The City's grant-funded work (Project) will use Community-Wide Assessment (CWA) grant funding to inventory and assess brownfield sites within the Hillyard target community. The Project will include up to 16 Phase I Environmental Site Assessments (ESAs) and up to six Phase II ESAs. The Project will also include preparation of remedial action/site-specific reuse plans (up to four) in the Hillyard community. The City will build on recent initial brownfield inventory, infrastructure assessment,

Fiscal Impact		Budget Account	
Revenue	\$ 400,000.00	#	1360 94163 99999 33166 99999
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	MEULER, LOUIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 1/6/14
Finance	SALSTROM, JOHN	Distribution List	
Legal	WHALEY, HUNT	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	mhughes@spokanecity.org	
Additional Approvals		tstripes@spokanecity.org	
Purchasing		cbrazington@spokanecity.org	
		jstapelton@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

not exceeding total federal funding of \$400,000.00. Recipient's signature is not required on this agreement.

Summary (Background)

market analysis and real estate strategy activities, and engage stakeholders in an effective process to prioritize, assess and complete remedial action/site-specific reuse planning for priority catalyst brownfield sites in the Hillyard target community.

Fiscal Impact

Select \$

Select \$

Budget Account

#

#

Distribution List

	U.S. ENVIRONMENTAL PROTECTION AGENCY Cooperative Agreement	GRANT NUMBER (FAIN): 01J11001		DATE OF AWARD 09/16/2015	
		MODIFICATION NUMBER: 0 PROGRAM CODE: BF			
		TYPE OF ACTION New		MAILING DATE 09/23/2015	
		PAYMENT METHOD:		ACH# X0072	
RECIPIENT TYPE: Municipal		Send Payment Request to: Las Vegas Finance Center FAX # 702-798-2423			
RECIPIENT: City of Spokane 808 W. Spokane Falls Boulevard Spokane, WA 99201-3329 EIN: 91-6001280		PAYEE: City of Spokane 808 W. Spokane Falls Boulevard Spokane, WA 99201-3329			
PROJECT MANAGER Teri Stripes 808 W. Spokane Falls Boulevard Spokane, WA 99201-3329 E-Mail: tstripes@spokanecity.org Phone: 509-625-6597		EPA PROJECT OFFICER Deborah Burgess 300 Desmond Dr Se, Suite 102, WOO Lacey, WA 98503 E-Mail: burgess.deborah@epa.gov Phone: 360-753-9079		EPA GRANT SPECIALIST Kathy Tsing-Choy Grants and Interagency Agreements Unit, OMP-173 E-Mail: tsing-choy.kathy@epa.gov Phone: 206-553-4688	
PROJECT TITLE AND DESCRIPTION City of Spokane Brownfield The City of Spokane will use both hazardous and petroleum funding to assess properties located in the Hillyard area of Spokane under an EPA Community-wide Assessment Grant. This assistance agreement is fully funded. The Federal share of this award reflects the amount of the rescission required by Public Law 113-235.					
BUDGET PERIOD 08/01/2015 - 07/31/2017		PROJECT PERIOD 08/01/2015 - 07/31/2017		TOTAL BUDGET PERIOD COST \$400,000.00	
				TOTAL PROJECT PERIOD COST \$400,000.00	
NOTICE OF AWARD					
Based on your Application dated 08/05/2015 including all modifications and amendments, the United States acting by and through the US Environmental Protection Agency (EPA) hereby awards \$400,000. EPA agrees to cost-share 100.00% of all approved budget period costs incurred, up to and not exceeding total federal funding of \$400,000. Recipient's signature is not required on this agreement. The recipient demonstrates its commitment to carry out this award by either: 1) drawing down funds within 21 days after the EPA award or amendment mailing date; or 2) not filing a notice of disagreement with the award terms and conditions within 21 days after the EPA award or amendment mailing date. If the recipient disagrees with the terms and conditions specified in this award, the authorized representative of the recipient must furnish a notice of disagreement to the EPA Award Official within 21 days after the EPA award or amendment mailing date. In case of disagreement, and until the disagreement is resolved, the recipient should not draw down on the funds provided by this award/amendment, and any costs incurred by the recipient are at its own risk. This agreement is subject to applicable EPA regulatory and statutory provisions, all terms and conditions of this agreement and any attachments.					
ISSUING OFFICE (GRANTS MANAGEMENT OFFICE)		AWARD APPROVAL OFFICE			
ORGANIZATION / ADDRESS EPA Region 10 Mail Code: OMP-173 1200 Sixth Avenue, Suite 900 Seattle, WA 98101		ORGANIZATION / ADDRESS U.S. EPA, Region 10 Office of Environmental Cleanup 1200 Sixth Avenue, Suite 900 Seattle, WA 98101			
THE UNITED STATES OF AMERICA BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY					
Digital signature applied by EPA Award Official Tony Fournier - Acting Manager - Grants and Interagency Agreements Unit				DATE 09/16/2015	

FUNDS	FORMER AWARD	THIS ACTION	AMENDED TOTAL
EPA Amount This Action	\$	\$ 400,000	\$ 400,000
EPA In-Kind Amount	\$	\$	\$ 0
Unexpended Prior Year Balance	\$	\$	\$ 0
Other Federal Funds	\$	\$	\$ 0
Recipient Contribution	\$	\$	\$ 0
State Contribution	\$	\$	\$ 0
Local Contribution	\$	\$	\$ 0
Other Contribution	\$	\$	\$ 0
Allowable Project Cost	\$ 0	\$ 400,000	\$ 400,000

Assistance Program (CFDA)	Statutory Authority	Regulatory Authority
66.818 - Brownfields Assessment and Cleanup Cooperative Agreements	CERCLA: Sec. 101(39) CERCLA: Sec. 104(k)(2) CERCLA: Sec. 104(k)(3)	2 CFR 200 2 CFR 1500 and 40 CFR 33

[illegible]

Budget Summary Page

Table A - Object Class Category (Non-construction)	Total Approved Allowable Budget Period Cost
1. Personnel	\$12,600
2. Fringe Benefits	\$7,400
3. Travel	\$4,000
4. Equipment	\$0
5. Supplies	\$0
6. Contractual	\$376,000
7. Construction	\$0
8. Other	\$0
9. Total Direct Charges	\$400,000
10. Indirect Costs: % Base	\$0
11. Total (Share: Recipient 0.00 % Federal 100.00 %.)	\$400,000
12. Total Approved Assistance Amount	\$400,000
13. Program Income	\$0
14. Total EPA Amount Awarded This Action	\$400,000
15. Total EPA Amount Awarded To Date	\$400,000

Administrative Conditions

1. General Terms and Conditions

The recipient agrees to comply with the current EPA general terms and conditions available at: http://www.epa.gov/ogd/tc/general_tc_applicable_aa_recipients_dec_26_2014.pdf. These terms and conditions are in addition to the assurances and certifications made as part of the award and terms, conditions or restrictions cited below.

The EPA repository for the general terms and conditions by year can be found at: <http://www.epa.gov/ogd/tc.htm>.

2. General Terms and Conditions - Consultant Cap - Additional Information

In addition to the General Terms and Conditions #6 "Consultant Cap", as of January 1, 2015, the limit is \$608.34 per day \$76.04 per hour.

NOTE: For future years' limits, the recipient may find the annual salary for Level IV of the Executive Schedule on the following Internet site: <http://www.opm.gov/oca>. Select "Salary and Wages", and select "Rates of Pay for the Executive Schedule". The annual salary is divided by 2087 hours to determine the maximum hourly rate, which is then multiplied by 8 to determine the maximum daily rate.

3. General Terms and Conditions – Cybersecurity

The recipient agrees to comply with the current EPA general terms and conditions "Cybersecurity". The terms and conditions can be found on the EPA Grants Terms and Conditions Website.

For STATE: http://www.epa.gov/ogd/tc/state_grant_cyber_security_condition.pdf.

For TRIBE: http://www.epa.gov/ogd/tc/tribal_grant_cyber_security_condition.pdf.

For Other Recipients: http://www.epa.gov/ogd/tc/cyber_security_grant_condition_for_other_recipients.pdf.

4. Cost Principles/Indirect Costs Not Included (All Organizations)

The cost principles of 2 CFR 200 Subpart E are applicable to this award. Since there are no indirect costs included in the assistance budget, they are not allowable under this Assistance Agreement.

5. UTILIZATION OF SMALL, MINORITY AND WOMEN'S BUSINESS ENTERPRISES (MBE/WBE)

GENERAL COMPLIANCE, 40 CFR, Part 33

The recipient agrees to comply with the requirements of EPA's Disadvantaged Business Enterprise (DBE) Program for procurement activities under assistance agreements, contained in 40 CFR, Part 33.

MBE/WBE REPORTING, 40 CFR, Part 33, Subpart E

MBE/WBE reporting is required in annual reports. Reporting is required for assistance agreements where there are funds budgeted for procuring construction, equipment, services and supplies, including funds budgeted for direct procurement by the recipient or procurement under subawards or loans in the "Other" category that exceed the threshold amount of \$150,000., including amendments and/or modifications.

Based on EPA's review of the planned budget, this award meets the conditions above and is subject to the Disadvantaged Business Enterprise (DBE) Program reporting requirements. However, if recipient believes this award does not meet these conditions, the recipient must provide a justification and budget detail within 21 days of the award date clearly demonstrating that, based on the planned budget, this award is not subject to the DBE reporting requirements to the Region 10 DBE Coordinator.

The recipient agrees to complete and submit a "MBE/WBE Utilization Under Federal Grants, Cooperative Agreements and Interagency Agreements" report (EPA Form 5700-52A) on an annual basis. All

procurement actions are reportable, not just that portion which exceeds \$150,000.

When completing the annual report, recipients are instructed to check the box titled “annual” in section 1B of the form. For the final report, recipients are instructed to check the box indicated for the “last report” of the project in section 1B of the form. Annual reports are due by October 30th of each year. Final reports are due by October 30th or 90 days after the end of the project period, whichever comes first.

The reporting requirement is based on total procurements. Recipients with expended and/or budgeted funds for procurement are required to report annually whether the planned procurements take place during the reporting period or not. If no budgeted procurements take place during the reporting period, the recipient should check the box in section 5B when completing the form.

The current EPA Form 5700-52A can be found at the EPA Office of Small Business Program's Home Page at http://www.epa.gov/osbp/dbe_reporting.htm.

This provision represents an approved deviation from the MBE/WBE reporting requirements as described in 40 CFR, Part 33, Section 33.502; however, the other requirements outlined in 40 CFR Part 33 remain in effect, including the Good Faith Effort requirements as described in 40 CFR Part 33 Subpart C, and Fair Share Objectives negotiation as described in 40 CFR Part 33 Subpart D and explained below.

SIX GOOD FAITH EFFORTS, 40 CFR, Part 33, Subpart C

Pursuant to 40 CFR, Section 33.301, the recipient agrees to make the following good faith efforts whenever procuring construction, equipment, services and supplies under an EPA financial assistance agreement, and to require that sub-recipients, loan recipients, and prime contractors also comply. Records documenting compliance with the six good faith efforts shall be retained:

- (a) Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
- (b) Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
- (c) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
- (d) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
- (e) Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.
- (f) If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs (a) through (e) of this section.

CONTRACT ADMINISTRATION PROVISIONS, 40 CFR, Section 33.302

The recipient agrees to comply with the contract administration provisions of 40 CFR, Section 33.302.

BIDDERS LIST, 40 CFR, Section 33.501(b) and (c)

Recipients of a Continuing Environmental Program Grant or other annual reporting grant, agree to create and maintain a bidders list. Recipients of an EPA financial assistance agreement to capitalize a revolving loan fund also agree to require entities receiving identified loans to create and maintain a bidders list if the recipient of the loan is subject to, or chooses to follow, competitive bidding requirements. Please see 40 CFR, Section 33.501 (b) and (c) for specific requirements and exemptions.

FAIR SHARE OBJECTIVES, 40 CFR, Part 33, Subpart D

1. For Grant Awards \$250,000 or Less

This assistance agreement is a Technical Assistance Grant (TAG); or the award amount is \$250,000 or less; or the total dollar amount of all of the recipient's financial assistance agreements from EPA in the current Federal fiscal year is \$250,000 or less. Therefore, the recipient of this assistance agreement is exempt from the fair share objective requirements of 40 CFR, Part 33, Subpart D, and is not required to negotiate fair share objectives/goals for the utilization of MBE/WBEs in its procurements.

2. For Recipients Accepting Goals

A recipient must negotiate with the appropriate EPA award official, or his/her designee, fair share objectives for MBE and WBE participation in procurement under the financial assistance agreements.

In accordance with 40 CFR, Section 33.411 some recipients may be exempt from the fair share objectives requirements as described in 40 CFR, Part 33, Subpart D. Recipients should work with their DBE coordinator, if they think their organization may qualify for an exemption.

Accepting the Fair Share Objectives/Goals of Another Recipient

The dollar amount of this assistance agreement, or the total dollar amount of all of the recipient's financial assistance agreements in the current federal fiscal year from EPA is \$250,000, or more. The recipient accepts the applicable MBE/WBE fair share objectives/goals negotiated with EPA. The Region 10 fair share objectives/goals can be found: http://www.epa.gov/osbp/pdfs/r10_fair_share_goals.pdf.

By signing this financial assistance agreement, the recipient is accepting the fair share objectives/goals and attests to the fact that it is purchasing the same or similar construction, supplies, services and equipment, in the same or similar relevant geographic buying market.

Negotiating Fair Share Objectives/Goals, 40 CFR, Section 33.404

The recipient has the option to negotiate its own MBE/WBE fair share objectives/goals. If the recipient wishes to negotiate its own MBE/WBE fair share objectives/goals, the recipient agrees to submit proposed MBE/WBE objectives/goals based on an availability analysis, or disparity study, of qualified MBEs and WBEs in their relevant geographic buying market for construction, services, supplies and equipment.

The submission of proposed fair share goals with the supporting analysis or disparity study means that the recipient is **not** accepting the fair share objectives/goals of another recipient. The recipient agrees to submit proposed fair share objectives/goals, together with the supporting availability analysis or disparity study, to the Regional MBE/WBE Coordinator within 120 days of its acceptance of the financial assistance award. EPA will respond to the proposed fair share objective/goals within 30 days of receiving the submission. If proposed fair share objective/goals are not received within the 120 day time frame, the recipient may not expend its EPA funds for procurements until the proposed fair share objective/goals are submitted.

3. For Recipients with Established Goals

The recipient must negotiate with the appropriate EPA award official, or his/her designee, fair share objectives for MBE and WBE participation in procurement under the financial assistance agreements.

In accordance with 40 CFR, Section 33.411 some recipients may be exempt from the fair share objectives requirements described in 40 CFR, Part 33, Subpart D. Recipients should work with their DBE coordinator, if they think their organization may qualify for an exemption.

Current Fair Share Objective/Goal

The dollar amount of this assistance agreement or the total dollar amount of all of the recipient's financial assistance agreements in the current federal fiscal year from EPA is \$250,000, or more. The Region 10 fair share objectives/goals can be found: http://www.epa.gov/osbp/pdfs/r10_fair_share_goals.pdf.

Negotiating Fair Share Objectives/Goals

In accordance with 40 CFR, Part 33, Subpart D, established goals/objectives remain in effect for three fiscal years unless there are significant changes to the data supporting the fair share objectives. The

recipient is required to follow requirements as outlined in 40 CFR Part 33, Subpart D when renegotiating the fair share objectives/goals.

4. For DWSRF, CWSRF and BROWNFIELDS RLF Recipients ONLY

Objective/Goals of Loan Recipients

As a recipient of an EPA financial assistance agreement to capitalize revolving loan funds, the recipient agrees to either apply its own fair share objectives negotiated with EPA to identified loans using a substantially similar relevant geographic market, or negotiate separate fair share objectives with its identified loan recipients. These separate objectives/goals must be based on demonstrable evidence of the availability of MBEs and WBEs in accordance with 40 CFR, Part 33, Subpart D.

The recipient agrees that if procurements will occur over more than one year, the recipient may choose to apply the fair share objective in place either for the year in which the identified loan is awarded or for the year in which the procurement action occurs. The recipient must specify this choice in the financial assistance agreement, or incorporate it by reference therein.

R10 DBE Coordinator and Where to Send Report

Greg Luchey at (206) 553-2967 or email: Luchey.Greg@epa.gov. The coordinator can answer any MBE/WBE reporting questions you may have. MBE/WBE reports should be sent to the EPA Region 10, Grants and Interagency Agreements Unit, 1200 Sixth Avenue, Suite 900, OMP-173, Seattle, WA 98101 or FAX to (206) 553-4957.

6. Pre-Award Costs (2 CFR 200.209 and 200.458; 2 CFR 1500.8)

Pre-award costs have been approved in accordance with the recipient's application.

7. FY15 Rescission

The federal share of this award reflects the amount of the rescission required by Public Law 113-235.

Programmatic Conditions

Region 10 – FY15 Assessment Terms and Conditions

Please note that these Terms and Conditions (T&Cs) apply to Brownfields Assessment Grants awarded under CERCLA § 104(k).

I. GENERAL FEDERAL REQUIREMENTS

NOTE: For the purposes of these Terms and Conditions the term “assessment” includes, eligible activities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 104(k)(2)(A)(i) such as activities involving the inventory, characterization, assessment, and planning relating to brownfield sites as described in the EPA approved work plan.

A. Federal Policy and Guidance

1.
 - a. Cooperative Agreement Recipients: By awarding this cooperative agreement, EPA has approved the proposal for the Cooperative Agreement Recipient (CAR) submitted in the Fiscal Year 2015 competition for Brownfields assessment cooperative agreements.
 - b. In implementing this agreement, the CAR shall ensure that work done with cooperative agreement funds complies with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 104(k). The CAR shall also ensure that assessment activities supported with cooperative agreement funding comply with all applicable Federal and State laws and regulations.
 - c. The recipient must comply with Federal cross-cutting requirements. These requirements include but are not limited to, DBE requirements found at 40 CFR Part 33; OSHA Worker Health & Safety Standard 29 CFR 1910.120; the Uniform Relocation Act; National Historic

Preservation Act; Endangered Species Act; and Permits required by Section 404 of the Clean Water Act; Executive Order 11246, Equal Employment Opportunity, and implementing regulations at 41 CFR 60-4; Contract Work Hours and Safety Standards Act, as amended (40 USC § 327-333) the Anti Kickback Act (40 USC § 276c) and Section 504 of the Rehabilitation Act of 1973 as implemented by Executive Orders 11914 and 11250.

- d. The CAR must comply with Davis-Bacon Act prevailing wage requirements and associated U.S. Department of Labor (DOL) regulations for all construction, alteration and repair contracts and subcontracts awarded with funds provided under this agreement. Activities conducted under assessment grants generally do not involve construction, alteration and repair within the meaning of the Davis-Bacon Act. The recipient must contact EPA's Project Officer if there are unique circumstances (e.g. removal of an underground storage tank or another structure and restoration of the site) which indicate that the Davis-Bacon Act applies to an activity the CAR intends to carry out with funds provided under this agreement. The Agency will provide guidance on Davis-Bacon Act compliance if necessary.

B. Eligible Brownfields Site Determinations

1.
 - a. The CAR must provide information to EPA about site-specific work prior to incurring any costs under this cooperative agreement for sites that have not already been pre-approved in the CAR's work plan by the EPA. The information that must be provided includes whether or not the site meets the definition of a brownfield site as defined in § 101(39) of CERCLA, whether the CAR is the potentially responsible party under CERCLA 107 and/or has defenses to liability.
 - b. If the site is excluded from the general definition of a brownfield, but is eligible for a property-specific funding determination, then the CAR may request a property-specific funding determination. In their request, the CAR must provide information sufficient for EPA to make a property-specific funding determination on how financial assistance will protect human health and the environment, and either promote economic development or enable the creation of, preservation of, or addition to parks, greenways, undeveloped property, other recreational property, or other property used for nonprofit purposes. The CAR must not incur costs for assessing sites requiring a property-specific funding determination by EPA until the EPA Project Officer has advised the CAR that the Agency has determined that the property is eligible.
2.
 - a. For any petroleum contaminated brownfield site that is not included in the CAR's EPA approved work plan, the CAR shall provide sufficient documentation to the EPA prior to incurring costs under this cooperative agreement which includes (refer to the latest version of EPA's *Proposal Guidelines for Brownfields Assessment Grants* dated October 2014 for discussion of this element) documenting that:
 - (1) a State has determined that the petroleum site is of relatively low risk, as compared to other petroleum-only sites in the State,
 - (2) the State determines there is "no viable responsible party" for the site;
 - (3) the State determines that the person assessing or investigating the site is a person who is not potentially liable for cleaning up the site; and
 - (4) the site is not subject to any order issued under section 9003(h) of the Solid Waste Disposal Act.This documentation must be prepared by the CAR or the State following contact and discussion with the appropriate petroleum program official.
 - b. Documentation must include (1) the identity of the State program official contacted, (2) the State official's telephone number, (3) the date of the contact, and (4) a summary of the discussion relating to the state's determination that the site is of relatively low risk, that there is no viable responsible party and that the person assessing or investigating the site is not potentially liable for cleaning up the site. Other documentation provided by a State to the recipient relevant to any of the determinations by the State must also be provided to the EPA Project Officer.
 - c. If the State chooses not to make the determinations described in 2.a. above, the CAR must contact the EPA Project Officer and provide the information necessary

for EPA to make the requisite determinations.

- d. EPA will make all determinations on the eligibility of petroleum-contaminated brownfields sites located on tribal lands (i.e., reservation lands or lands otherwise in Indian country, as defined at 18 U.S.C. 1151). Before incurring costs for these sites, the CAR must contact the EPA Project Officer and provide the information necessary for EPA to make the determinations described in 2.a. above.

II. GENERAL COOPERATIVE AGREEMENT ADMINISTRATIVE REQUIREMENTS

A. Term of the Agreement

1. The term of this agreement is three years from the date of award, unless otherwise extended by EPA at the CAR's request.
2. If after 18 months from the date of award, EPA determines that the CAR has not made sufficient progress in implementing its cooperative agreement, the recipient must implement a corrective action plan approved by the EPA Project Officer, or EPA may terminate this agreement for material non-compliance with its terms. For purposes of assessment grants, the recipient demonstrates "sufficient progress" when 35% of funds have been drawn down and obligated to eligible activities; for assessment coalition grants "sufficient progress" is demonstrated when a solicitation for services has been released, sites are prioritized or an inventory has been initiated if necessary, community involvement activities have been initiated and a Memorandum of Agreement (for Assessment Coalitions) is in place.
3. Assessment funding for an eligible brownfield site may not exceed \$200,000 unless a waiver has been granted by EPA. Following the granting of a waiver, funding is not to exceed \$350,000 at the site.

B. Substantial Involvement

1. The EPA may be substantially involved in overseeing and monitoring this cooperative agreement.
 - a. Substantial involvement by EPA generally includes administrative activities such as monitoring, reviewing project phases, and approving substantive terms included in professional services contracts.
 - b. Substantial EPA involvement also includes brownfields property-specific funding determinations described in I.B. under *Eligible Brownfields Site Determinations* above. If the CAR awards a subaward for site assessment, the CAR must obtain technical assistance from EPA on which sites qualify as a brownfield site and determine whether the statutory prohibition found in section 104(k)(4)(B)(i)(IV) of CERCLA applies. This prohibition precludes the subrecipient from using EPA funds to assess a site for which the subrecipient is potentially liable under § 107 of CERCLA. (See Section II.C.3 for more information on subawards.)
 - c. Substantial EPA involvement may include reviewing financial and environmental status reports; and monitoring all reporting, record-keeping, and other program requirements.
 - d. EPA may waive any of the provisions in term and condition II.B.1. with the exception of property-specific funding determinations. EPA will provide waivers in writing.
2. Effect of EPA's substantial involvement includes:
 - a. EPA's review of any project phase, document, or cost incurred under this cooperative agreement, will not have any effect upon CERCLA § 128 *Eligible Response Site* determinations or rights, authorities, and actions under CERCLA or any Federal statute.
 - b. The CAR remains responsible for ensuring that all assessments are protective of

human health and the environment and comply with all applicable Federal and State laws.

- c. The CAR and its subrecipients remain responsible for incurring costs that are allowable under 2 CFR Part 200 Subpart E.

C. Cooperative Agreement Recipient Roles and Responsibilities

1. The CAR must acquire the services of a qualified environmental professional(s) to coordinate, direct, and oversee the brownfields assessment activities at a particular site, if they do not have such a professional on staff.
2. The CAR is responsible for ensuring that contractors and subrecipients comply with the terms of their agreements with the CAR, and that agreements between the CAR and subrecipients and contractors comply with the terms and conditions of this agreement.
3. Subawards are defined at 2 CFR 200.92. The CAR may not subaward to for-profit organizations. The CAR must obtain commercial services and products necessary to carry out this agreement under competitive procurement procedures as described in 2 CFR Part 200.317 through 200.326. In addition, EPA policy encourages awarding subawards competitively and the CAR must consider awarding subawards through competition.
4. The CAR is responsible for assuring that EPA's Brownfields Assessment Grant funding received under this grant, or in combination with any other previously awarded Brownfields Assessment grant does not exceed the \$200,000 assessment grant funding limitation for an individual brownfield site. Waiver of this funding limit for a brownfields site must be approved by EPA prior to the expenditure of funding exceeding \$200,000. In no case may EPA funding exceed \$350,000 on a site receiving a waiver.
5. CARs expending funding from a community-wide assessment grant on a particular site must include such funding amount in any total funding expended on the site.

6. Competency of Organizations Generating Environmental Measurement Data: In accordance with Agency Policy Directive Number FEM-2012-02, Policy to Assure the Competency of Organizations Generating Environmental Measurement Data under Agency-Funded Assistance Agreements, the CAR agrees, by entering into this agreement, that it has demonstrated competency prior to award, or alternatively, where a pre-award demonstration of competency is not practicable, the CAR agrees to demonstrate competency prior to carrying out any activities under the award involving the generation or use of environmental data. The CAR shall maintain competency for the duration of the project period of this agreement and this will be documented during the annual reporting process. A copy of the Policy is available online at http://www.epa.gov/fem/lab_comp.htm or a copy may also be requested by contacting the EPA project officer for this award.

D. Quarterly Progress Reports

1. In accordance with EPA regulations 2 CFR Parts 200 and 1500 (specifically, 200.328 *monitoring and reporting program performance*), the CAR agrees to submit quarterly progress reports to the EPA Project Officer within thirty days after each reporting period. These reports shall cover work status, work progress, difficulties encountered, preliminary data results and a statement of activity anticipated during the subsequent reporting period, including a description of equipment, techniques, and materials to be used or evaluated. A discussion of expenditures and financial status for each workplan task, along with a comparison of the percentage of the project completed to the project schedule and an explanation of significant discrepancies shall be included in the report. The report shall also include any changes of key personnel concerned with the project.

Quarterly progress reports must clearly differentiate which activities were completed with EPA funds provided under the BF Assessment grant, versus any other funding source used to help accomplish grant activities.

In addition, the report shall include brief information on each of the following areas: 1) a comparison of actual accomplishments to the anticipated outputs/outcomes specified in the cooperative agreement work plan; 2) reasons why anticipated outputs/outcomes were not met; and 3) other pertinent information, including, when appropriate, analysis and explanation of cost

overruns or high unit costs. The CAR agrees that it will notify EPA of problems, delays, or adverse conditions which materially impair the ability to meet the outputs/outcomes specified in the cooperative agreement work plan.

2. The CAR must submit progress reports on a quarterly basis to the EPA Project Officer. Quarterly progress reports must include:
 - a. Summary and status of approved activities performed during the reporting quarter, summary of the performance outputs/outcomes achieved during the reporting quarter, a description of problems encountered or difficulties during the reporting quarter that may affect the project schedule and a discussion of meeting the performance outputs/outcomes.
 - b. An update on project schedules and milestones; including an explanation of any discrepancies from the approved workplan.
 - c. A list of the properties where assessment activities were performed and/or completed during the reporting quarter.
 - d. A budget recap summary table with the following information: current approved project budget; costs incurred during the reporting quarter; costs incurred to date (cumulative expenditures); and total remaining funds. The CAR should include an explanation of any discrepancies in the budget from the approved workplan.
 - e. Recipient quarterly reports must clearly identify which activities performed during the reporting period were undertaken with EPA funds, and must relate EPA-funded activities to the objectives and milestones agreed upon in the work plan including a list of sites where assessment activities were completed. To the extent consistent with the EPA approved work plan for this agreement, activities undertaken with EPA funds to be included in quarterly performance and financial reporting may include:
 - i. *Action Start Date (interim measure to show grant progress)*
 - ii. *Acres per property*
 - iii. *Assessments completed*
 - iv. *Whether cleanup is required*
 - v. *Types of contaminants found*
 - vi. *Acres of greenspace planned/created*
 - vii. *Engineering/institutional controls required, what type and whether they are in place*
 - viii. *Cleanup plans developed*
 - ix. *Redevelopment underway*
 - x. *Funds leveraged*
 - xi. *Jobs leveraged*
 - xii. *Health monitoring studies, insurance, institutional controls funded*
 - xiii. *Lessons learned during planning and implementation; summary of project*
 - xiv. *Photos of events and sites worked on, including before and after.*
 - f. Documentation of the best efforts to identify and use clean diesel technologies, clean fuels, and/or other diesel emissions reductions practices.
 - g. When considering approaches to the assessment and cleanup of properties EPA's recommendation of best practices should be implemented whenever possible.
 - i. Use energy efficient equipment to minimize energy consumption and use cleaner fuels to power machinery and auxiliary equipment.
 - ii. Minimize the generation of greenhouse gases by minimizing the generation and transport of airborne contaminants and dust.
 - iii. Minimize water use and impacts to water resources and employ best management practices for storm water.
3. The CAR must maintain records that will enable it to report to EPA on the amount of funds expended on specific properties under this cooperative agreement.
4. In accordance with 2 CFR 200.328 (d) (1), the CAR agrees to inform EPA as soon as problems, delays, or adverse conditions become known which will materially impair the ability to meet the outputs/outcomes specified in the approved workplan.

E. Property Profile Submission

1. The CAR must report on interim progress (i.e., assessment started) and any final accomplishments (i.e., assessment completed, cleanup required, contaminants, Institution Controls, Engineering Controls) by completing and submitting relevant portions of the Property Profile Form using the Brownfields Program on-line reporting system, known as Assessment, Cleanup and Redevelopment Exchange System (ACRES). The CAR must enter the data in ACRES as soon as the interim action or final accomplishment has occurred, or within 30 days after the end of each reporting quarter. EPA will provide the CAR with training prior to obtaining access to ACRES. The training is required to obtain access to ACRES. The CAR must utilize the ACRES system unless approval is obtained from the regional Project Officer to utilize and submit the Property Profile Form instead.

F. Community Outreach

The cooperative agreement recipient agrees to clearly reference EPA investments in the project during all phases of community outreach outlined in the EPA-approved work plan, which may include the development of any post-project summary or success materials that highlight achievements to which this project contributed. Specifically:

1. Public or Media Events
The Recipient agrees to notify the EPA Project Officer listed in this award document of public or media events publicizing the accomplishment of significant events related to construction projects as a result of this agreement, and provide the opportunity for attendance and participation by federal representatives with at least ten (10) working days notice.
2. Limited English Proficiency Communities
To increase public awareness of projects serving communities where English is not the predominant language, recipients are encouraged to include in their outreach strategies communication in non-English languages. Translation costs for this purpose are allowable, provided the costs are reasonable.

G. Final Technical Cooperative Agreement Report with Environmental Results

1. In accordance with EPA regulations 2 CFR Parts 200 and 1500 (specifically, 200.328 *monitoring and reporting program performance*), the CAR agrees to submit to the EPA Project Officer within 90 days after the expiration or termination of the approved project period a final technical report on the cooperative agreement and at least one reproducible copy suitable for printing. The final technical report shall document project activities over the entire project period and shall include brief information on each of the following areas: 1) a comparison of actual accomplishments with the anticipated outputs/outcomes specified in the assistance agreement work plan; 2) reasons why anticipated outputs/outcomes were not met; and 3) other pertinent information, including, when appropriate, analysis and explanation of cost overruns or high unit costs.
2. The CAR agrees that it will notify EPA of problems, delays, or adverse conditions which materially impair the ability to meet the outputs/outcomes specified in the cooperative agreement workplan.

H. Geospatial Data Standards

All geospatial data created must be consistent with Federal Geographic Data Committee (FGDC) endorsed standards. Information on these standards may be found at www.fgdc.gov.

III. FINANCIAL ADMINISTRATION REQUIREMENTS

A. Eligible Uses of the Funds for the Cooperative Agreement Recipient

1. To the extent allowable under the work plan, cooperative agreement funds may be used for eligible programmatic expenses to inventory, characterize, assess, and conduct planning and outreach. Eligible programmatic expenses include activities described in Section IV of these Terms and Conditions. In addition, such eligible programmatic expenses may include:

- a. Determining whether assessment activities at a particular site are authorized by CERCLA § 104(k);
 - b. Ensuring that an assessment complies with applicable requirements under Federal and State laws, as required by CERCLA § 104(k);
 - c. Using a portion of the grant to purchase environmental insurance for the characterization or assessment of the site. Funds may not be used to purchase insurance intended to provide coverage for any of the Ineligible Uses under Section III.B.
 - d. Any other eligible programmatic costs including direct costs incurred by the recipient in reporting to EPA; procuring and managing contracts; awarding and managing subawards to the extent allowable under III. B. 2; and carrying out community involvement pertaining to the assessment activities.
2. **Local Governments only.** *No more than 10% of the funds awarded by this agreement may be used for brownfield program development and implementation (including monitoring of health and institutional controls) as described in Task [3](#) of the EPA approved work plan. The CAR must maintain records on funds that will be used to carry out Task [3](#) of its EPA approved workplan to ensure compliance with this requirement.*

B. Ineligible Uses of the Funds for the Cooperative Agreement Recipient

- 1. Cooperative agreement funds shall not be used by the CAR for any of the following activities:
 - a. Cleanup activities;
 - b. Development activities that are not brownfields assessment activities (e.g., construction of a new facility);
 - c. Job training unrelated to performing a specific assessment at a site covered by the grant;
 - d. To pay for a penalty or fine;
 - e. To pay a federal cost share requirement (for example, a cost-share required by another Federal grant) unless there is specific statutory authority;
 - f. To pay for a response cost at a brownfields site for which the recipient of the grant or subaward is potentially liable under CERCLA § 107;
 - g. To pay a cost of compliance with any federal law, excluding the cost of compliance with laws applicable to the assessment; and
 - h. Unallowable costs (e.g., lobbying and fund raising) under 2 CFR Part 225 for state, local and tribal governments, as applicable.
- 2. Under CERCLA § 104(k) (4) (B), administrative costs are prohibited costs under this agreement. Prohibited administrative costs include all indirect costs under 2 CFR Part 225 for state, local and tribal governments, as applicable.
 - a. Ineligible administrative costs include costs incurred in the form of salaries, benefits, contractual costs, supplies, and data processing charges, incurred to comply with most provisions of the *Uniform Administrative Requirements, Cost Principles and Audit requirements for Federal Awards at* 2 CFR 200 and 2 CFR 1500. Direct costs for grant administration, with the exception of costs specifically identified as eligible programmatic costs, are ineligible even if the grant recipient is required to carry out the activity under the grant agreement.
 - b. Ineligible grant administration costs include direct costs for:

- (1) Preparation of applications for brownfields grants;
 - (2) Record retention required under 2 CFR 1500.6;
 - (3) Record-keeping associated with equipment purchases required under 2 CFR 200.313;
 - (4) Preparing revisions and changes in the budgets, scopes of work, program plans and other activities required under 2 CFR 200.308;
 - (5) Maintaining and operating financial management systems required under 2 CFR 200.302;
 - (6) Preparing payment requests and handling payments under 2 CFR 200.305;
 - (7) Non-federal audits required under 2 CFR 200 Subpart F; and
 - (8) Close out under 2 CFR 200.343.
3. Cooperative agreement funds may not be used for any of the following properties:
- a. Facilities listed, or proposed for listing, on the National Priorities List (NPL);
 - b. Facilities subject to unilateral administrative orders, court orders, and administrative orders on consent or judicial consent decree issued to or entered by parties under CERCLA;
 - c. Facilities that are subject to the jurisdiction, custody or control of the United States government except for land held in trust by the United States government for an Indian tribe; or
 - d. A site excluded from the definition of a brownfields site for which EPA has not made a property-specific funding determination.

C. Interest -Bearing Accounts and Program Income

1. In accordance with 2 CFR 1500.7, the CAR is authorized to add program income to the funds awarded by the EPA and use the program income under the same terms and conditions of this agreement. Program income for the assessment CAR shall be defined as the gross income received by the recipient, directly generated by the cooperative agreement award or earned during the period of the award. Program income includes, but is not limited to, fees charged for conducting assessment, site characterizations, clean up planning or other activities when the costs for the activity is charged to this agreement.
2. The CAR must deposit advances of grant funds and program income (i.e. fees) in an interest bearing account.
 - a. For interest earned on advances, CARs are subject to the provisions of 2 CFR 200.305(b)(7)(ii) relating to remitting interest on advances to EPA on a quarterly basis.
 - b. Interest earned on program income is considered additional program income.
 - c. The CAR must disburse program income (including interest earned on program income) before requesting additional payments from EPA as required by 2 CFR 1500.8.

IV. ASSESSMENT ENVIRONMENTAL REQUIREMENTS

A. Authorized Assessment Activities

1. Prior to conducting or engaging in any on-site activity with the potential to impact historic properties (such as invasive sampling), the CAR shall consult with EPA regarding potential applicability of the National Historic Preservation Act and, if applicable, shall assist EPA in complying with any requirements of the Act and implementing regulations.

B. Quality Assurance (QA) Requirements

1. When environmental data is collected as part of the brownfields assessment, the CAR shall comply with 2 CFR 1500.11 requirements to develop and implement quality assurance practices sufficient to produce data adequate to meet project objectives and to minimize data loss. State law may impose additional QA requirements.

C. Completion of Assessment Activities

1. The CAR shall properly document the completion of all activities described in the EPA approved work plan. This must be done through a final report or letter from a qualified environmental professional, or other documentation provided by a State or Tribe that shows assessments are complete.

D. All Appropriate Inquiry

1. As required by CERCLA § 104(k)(2)(B)(ii) and CERCLA § 101(35)(B), the CAR shall ensure that a Phase I site characterization and assessment carried out under this agreement will be performed in accordance with EPA's standard for all appropriate inquiries. The CAR shall utilize the practices in ASTM standard E1527-13 "Standard Practices for Environmental Site Assessment: Phase I Environmental Site Assessment Process," or EPA's All Appropriate Inquiries Final Rule "All Appropriate Inquiries Rule: Reporting Requirements and Suggestions on Report Content", (Publication Number: EPA 560-F-14-003). This does not preclude the use of grant funds for additional site characterization and assessment activities that may be necessary to characterize the environmental impacts at the site or to comply with applicable State standards.
2. All Appropriate Inquiries (AAI) final reports produced with funding from this agreement must comply with 40 C.F.R. Part 312 and must, at a minimum, include the information below. All AAI reports submitted to EPA Project Officers as deliverables under this agreement must be accompanied by a completed "All Appropriate Inquiries Final Rule: Reporting Requirements Checklist for Assessment Grant Recipients" (Publication Number: EPA 560-R-10-030) that EPA's Project Officer will provide to the recipient. The checklist also is available to grantees on the EPA website at www.epa.gov/brownfields.
 - a. An **opinion** as to whether the inquiry has identified conditions indicative of releases or threatened releases of hazardous substances, and as applicable, pollutants and contaminants, petroleum or petroleum products, or controlled substances, on, at, in, or to the subject property.
 - b. An identification of **"significant" data gaps** (as defined in 40 C.F.R. 312.10), if any, in the information collected for the inquiry. Significant data gaps include missing or unattainable information that affects the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances, and as applicable, pollutants and contaminants, petroleum or petroleum products, or controlled substances, on, at, in, or to the subject property. The documentation of significant data gaps must include information regarding the significance of these data gaps.
 - c. **Qualifications and signature** of the environmental professional(s). The environmental professional must place the following statements in the document and sign the document:

Note: The environmental professional may use either "I" or "We."

 - "[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in §312.10 of this part."
 - "[I, We] have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. [I,

We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.”

- d. In compliance with §312.31(b), the environmental professional must include in the final report an ***opinion regarding additional appropriate investigation*** , if the environmental professional has such an opinion.
3. EPA may review checklists and AAI final reports for compliance with the AAI regulation documentation requirements at 40 CFR part 312 (or comparable requirements for those using ASTM Standard 1527-13). Any deficiencies identified during an EPA review of these documents must be corrected by the recipient within 30 days of notification. Failure to correct any identified deficiencies may result in EPA disallowing the costs for the entire AAI report as authorized by 2 CFR 200.338 through 2 CFR 200.342. If a recipient willfully fails to correct the deficiencies the Agency may consider other available remedies under 2 CFR 200.342.

V. Conflict of interest: Appearance of lack of Impartiality

A. Conflict of Interest

1. The CAR shall establish and enforce conflict of interest provisions that prevent the award of subawards that create real or apparent personal conflicts of interest, or the CAR's appearance of lack of impartiality. Such situations include, but are not limited to, situations in which an employee, official, consultant, contractor, or other individual associated with the CAR (affected party) approves or administers a grant or subawards to a subrecipient in which the affected party has a financial or other interest. Such a conflict of interest or appearance of lack of impartiality may arise when:

- (i) The affected party,
 - (ii) Any member of his immediate family,
 - (iii) His or her partner, or
 - (iv) An organization which employs, or is about to employ, any of the above,
- has a financial or other interest in the subrecipient.

Affected employees will neither solicit nor accept gratuities, favors, or anything of monetary value from subrecipients. Recipients may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by affected parties.

VI. PAYMENT AND CLOSEOUT

A. Payment Schedule

1. The CAR may request payment from EPA pursuant to 2 CFR 200.305.
2. Recipients who have received both hazardous substance and petroleum funding, must draw and report the activity specific to the type of funding. For drawdowns under this grant, recipients receiving payments under the Automated Standard Application for Payments (ASAP) process will draw funds from the appropriate codes from the list below on the account detail screen. Recipients under the Electronic Fund Transfer (EFT) process will indicate on the Payment Request Form EPA-190-F-04-001, the appropriate codes from the list below for drawdowns:

For Brownfield Hazardous Funding: 301D79 + (Site/Project Code)
For Brownfield Petroleum Funding: 301D79XBP + (Site/Project Code)

Failure on the part of the recipient to comply with the above conditions may cause the undisbursed portions of the assistance agreement to be revoked and financing method changed to a reimbursable basis.

B. Schedule for Closeout

1. Closeout will be conducted in accordance with 2 CFR 200.343. EPA will close out the award when it determines that all applicable administrative actions and all required work of the grant have been completed.

2. The CAR, within 90 days after the expiration or termination of the grant, must submit all financial, performance, and other reports required as a condition of the grant.

a. The CAR must submit the following documentation:

(1) The Final Report as described in II.G. of the Assessment Terms and Conditions.

(2) A Final Federal Financial Report (FFR - SF425). Submitted to:

US EPA, Las Vegas Finance Center
4220 S. Maryland Pkwy, Bld C, Rm 503
Las Vegas, NV 89119
Fax: (702) 798-2423
<http://www.epa.gov/ocfo/financeservices/payinfo.html>

(3) A Final MBE/WBE Report (EPA Form 5700-52A). Submitted to the regional office.

b. The CAR must ensure that all appropriate data has been entered into ACRES or all Property Profile Forms are submitted to the Region.

c. The grantee must immediately refund to the Federal agency any balance of unobligated (unencumbered) cash advanced that is not authorized to be retained for use on other grants.

END OF DOCUMENT

NEPDA Board and Staff's Work Plan Snapshot: What, Who, & When of 2014 – Q4 thru 2017 – Q4

Site Development Tasks

Deliverable	Responsible Lead	Start	Due Date
SEPA Planned action ordinance, pre-approved permitting, mitigation, design standards – in connection with EPA and Ecology Brownfield work	Teri	2014 – Q3	2017 – Q4
Makers & Builders Space ... Now part of the IPG work	Teri	2016 – Q1	2016 – Q4
Liaison with BNSF to keep redevelopment interest open	Joe	2014 – Q3	2015 – Q4
Create a unique incentives package for THE YARD	Laura	2015 – Q1	2015 – Q4
Connect with current developers interested or investing in the YARD	Anthony/Joe	2014 – Q3	2017 – Q4

Capital Planning Tasks

Create the YARD's Annual Capital Plan	Teri	2015 – Q1	2017 – Q4
<ul style="list-style-type: none"> WSDOT on US 395 planning and integration 	Joe	2014 – Q4	2017 – Q4
<ul style="list-style-type: none"> Integrated stormwater utility planning with City – connected to the IPG 	Craig	2014 – Q4	2017 – Q4
<ul style="list-style-type: none"> Ecology Integrated Planning Grant –stormwater plan, SEPA Planned Action pieces, site Pro Forma for Makers & Builders Space for the City property 	Teri	2014 – Q3	2017 – Q4
<ul style="list-style-type: none"> Commerce Brownfields – *NEPDA Business and Marketing Planning, Redevelopment Opportunity Zone 	Teri	2014 – Q2	2016 – Q2
<ul style="list-style-type: none"> EPA Area Wide Planning - Site Specific Feasibility Study, Pro Forma, Infrastructure Planning, Preliminary Design & Redevelopment Strategy 	Teri	2015 – Q2	2017 – Q4
<ul style="list-style-type: none"> EPA Assessment - Brownfield Inventory, Environmental Assessment Planned Action SEPA Pieces (Additive to Work under AWP & IPG) 	Teri	2015 – Q3	2017 – Q4
<ul style="list-style-type: none"> EDA Technical Assistance - Focused feasibility: Infrastructure needs of current and future heavy freight users 	Teri	2014 – Q3	2015 – Q4

Promotion Tasks

*NEPDA Marketing Plan Updates		Q2	Q3
Maintain and update the YARD Collateral Materials & Web		Q1	Q2
Annual Public Meeting		Q2	Q4
Annual CEO Roundtable Discussion		Q2	Q4
Annual Manufactures Roundtable Discussion	Anthony	Q1	Q2
Quarterly Networking Meetings	Anthony	Q1,2 & Q3	Q1,2 & Q3

Finance Tasks

Pursue grant funding to implement projects - <i>successful Grant pursuits will require work plan adjustments</i>	Teri	Ongoing	
Evaluate property values and decide on establishing a TIF district	Teri	Q2	Q2
*NEPDA Business Plan Updates	Teri	Q1	Q2
NEPDA Annual Budget and Budget asks of CoS	Joe	Q1	Q2
Establish a TIF policy and requirements of gap assistance	Laura	2015 – Q1	2014 – Q4

Indicators & Performance Tasks

The YARD & NEPDA Yearend Report (matrix, comparisons, accomplishments)		Q3	Q4
<ul style="list-style-type: none"> Track permitting measurements for the NE target (Number and Value) 	Teri	Q4	Q4
<ul style="list-style-type: none"> Property values 	Teri	Q2	Q3
<ul style="list-style-type: none"> Trade Area Industry stats 	Teri	Q4	Q4
<ul style="list-style-type: none"> Employment stats 	Teri	Q4	Q4
<ul style="list-style-type: none"> Demographic stats 	Teri	Q4	Q4
<ul style="list-style-type: none"> NEPDA Accomplishments 	Teri	Q3	Q3

Workforce & Entrepreneurship Tasks

Youth & Workforce Development – Promise Zone, NewTech, Skill Center, Hillyard Children’s Zone	Joe	2014 – Q4	2017 – Q4
Workforce Development Council liaison	Joe	2014 – Q4	2017 – Q4
Makers & Builders – user’s needs ... Now part of the IPG work		2015 – Q4	2015 – Q4

Administration Tasks

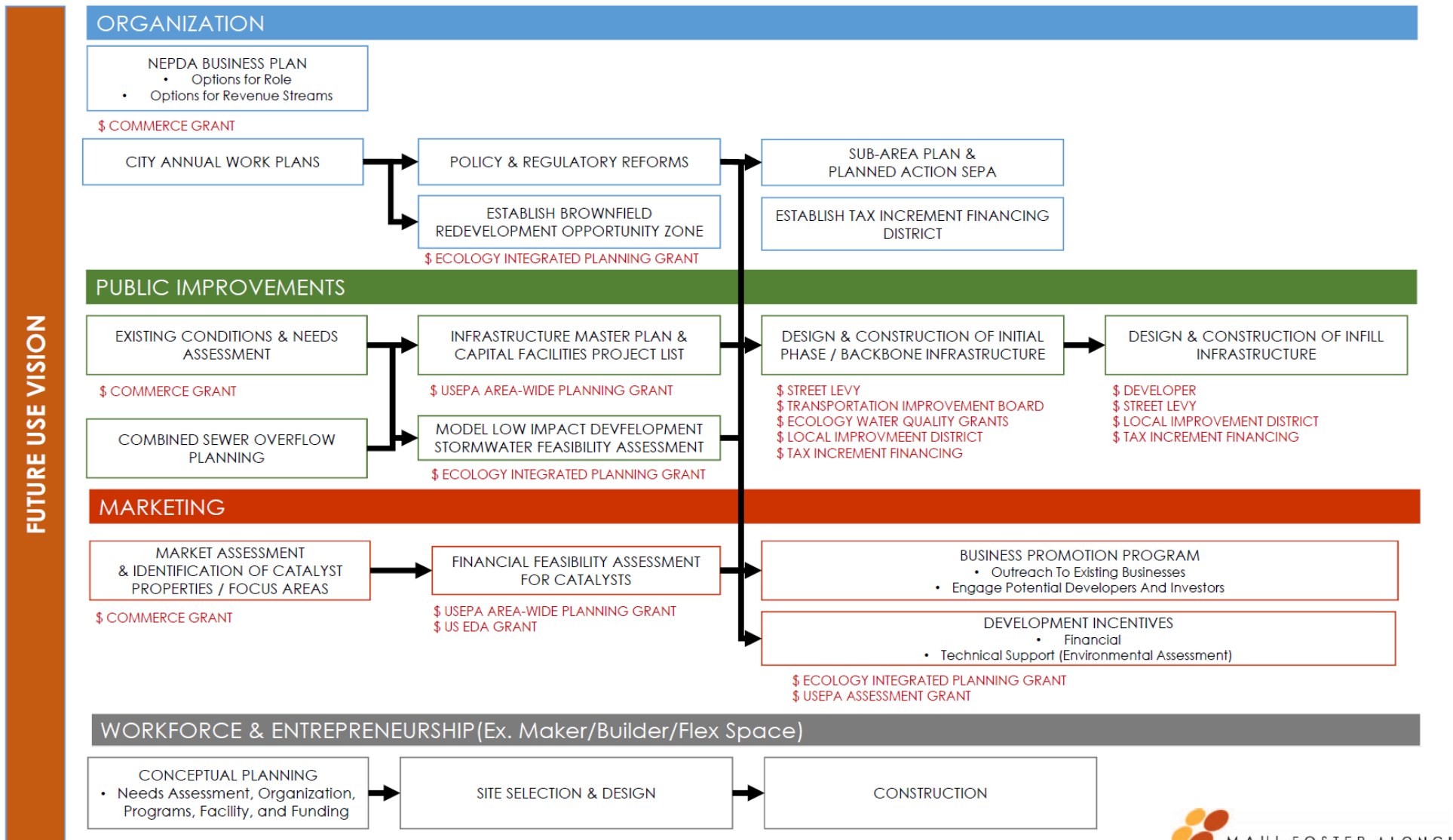
Refine and update Development Strategy	Anthony	Q1	Q3
Amend Interlocal Operating Agreement	Teri	Q2	Q2
Define the Executive Director’s position and needed skill set	Anthony	2016 – Q1	2016 – Q4

NEPDA grant funded projects	Funding Sources				
	Commerce Grant \$110K (6/2014 – 6/2015) Awarded	US EDA Grant \$22K (9/2014 – 9/2015) Awarded	US EPA Area-Wide Planning \$200K (8/2015 – 12/2017) Awarded	Integrated Planning Grant \$300K (8/2015 – 12/2017) Project Scope & Grant Writing winter 2015 – we have already submitted a placeholder To be announced summer 2015	US EPA Assessment Grant \$400K (10/2014 – 12/2018) Grant writing with Consultant 10/2014 - Application due Awarded
Market Study Brownfield Redevelopment Opportunity Zone Analysis Infrastructure Assessment NEPDA Business Plan & Planned Action SEPA Pieces	✓				
Focused feasibility: Infrastructure needs of current and future heavy freight users		✓			
Site Specific Feasibility Study (Concept Plan, Pro Forma) Infrastructure Planning & Preliminary Design (Site Specific and Regional Solutions for Stormwater in Coordination with CSO Abatement Plans) Redevelopment Strategy			✓		
Area Wide IPG Environmental Assessment stormwater plan, SEPA Planned Action pieces, site Pro Forma for Makers & Builders Space for the City property				✓	
Brownfield Inventory Environmental Assessment Planned Action SEPA Pieces (Additive to Work Conducted under AWP & IPG)					✓

The YARD Funding Strategy

City of Spokane & Northeast Public Development Authority

DRAFT





Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2015-0891
Renews #	
Cross Ref #	
Project #	
Bid #	RFQ#4169-15
Requisition #	16073

Submitting Dept	SOLID WASTE DISPOSAL
Contact Name/Phone	CHUCK 625-6524
Contact E-Mail	CCONKLIN@SPOKANECITY.ORG
Agenda Item Type	Contract Item
Agenda Item Name	4490-SOLID WASTE DISPOSAL

Agenda Wording

Contract with H2E, Incorporated (Liberty Lake, WA) for design and installation of the System Control Panel at the waste to energy, October 12, 2015, through January 31, 2016. \$182,358 plus applicable taxes.

Summary (Background)

The WTE facility houses two 400-ton per day boilers. Waste is fed into the boilers through a dedicated feed chute for each boiler. Once inside the boiler, the waste is pushed onto a series of grates by the Ram Feeder. The grates then move the waste through the boiler. The System Control Panel (SCP) controls the Ram Feeder and Grates. The WTE was built in 1989, and the SCP was replaced once in the 1990's and now is in need of replacement again.

Fiscal Impact		Budget Account	
Expense	\$ 198323.15	#	4490-44100-94000-56401-99999
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	CONKLIN, CHUCK	Study Session	PWC 9/28/15
Division Director	GIMPEL, KEN	Other	
Finance	SALSTROM, JOHN	Distribution List	
Legal	WHALEY, HUNT	ttauscher@spokanecity.org	
For the Mayor	SANDERS, THERESA	jsalstrom@spokanecity.org	
Additional Approvals		tprince@spokanecity.org	
Purchasing	PRINCE, THEA		



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

On August 26, 2015, the City issued Request for Qualifications #4169-15 seeking services for a qualified engineer to design and install the SCP for the boiler ram feeders and grates at the WTE. Three statements of qualifications were received on September 5, 2015. 1. Electric PoWer Systems, Inc. of Spokane, WA 2. Trindera Engineering of Coeur d'Alene, ID 3. H2E Engineering of Liberty Lake, WA Of those, H2E, Incorporated, was determined to be the most qualified respondent. The company's sealed price estimate is \$182,358, which is significantly less than the \$300,000 originally budgeted for this work.

Fiscal Impact

Budget Account

Select	\$	#
Select	\$	#

Distribution List

BRIEFING PAPER
Public Works Committee
Solid Waste Disposal
September 28, 2015

Subject

Contract with H2E, Incorporated, Liberty Lake, WA, for design and installation of the System Control Panel (SCP) at the WTE.

Background

The WTE facility houses two 400-ton per day water wall boiler trains. Waste is fed into the boilers through a dedicated feed chute for each boiler. Once inside the boiler, the MSW is pushed down a series of transverse reciprocating grates by the Ram Feeder. The System Control Panel (SCP) controls the Ram Feeder and Grates. The WTE was built in 1989, and the SCP was replaced once in the 1990's and now is in need of replacement again.

On August 26, 2015, the City issued Request for Qualifications #4169-15 seeking services for a qualified engineer to design and install the SCP for the boiler ram feeders and grates at the WTE. Three statements of qualifications were received on September 5, 2015. Of those, H2E, Incorporated, was determined to be the most qualified respondent.

Impact

Replacement of the SCP will allow for the continued safe operations of the WTE.

Action

Recommend approval.

Funding

Funds for this contract are included in the SWD capital budget.

**Agenda Sheet for City Council Meeting of:**

10/12/2015

Date Rec'd

9/30/2015

Clerk's File #

OPR 2014-0728

Renews #

Submitting Dept

SOLID WASTE DISPOSAL

Cross Ref #

Contact Name/Phone

CHUCK 625-6524

Project #

Contact E-Mail

CCONKLIN@SPOKANECITY.ORG

Bid #

Agenda Item Type

Contract Item

Requisition #

Agenda Item Name

4490- SOLID WASTE DISPOSAL

Agenda Wording

Amendment Number 1 to Interlocal Agreement with the City of Airway Heights for disposal of solid waste at the waste to energy facility.

Summary (Background)

The disposal Interlocal Agreement between Airway Heights and the City of Spokane calls for an annual price adjustment beginning in 2017. The ILA calls out the index to be used and the adjustment to be calculated using the month of October to October of the prior year. Airway Heights requested that the calculation month be changed to August to August of the prior year in order to allow them at least 60 days to notify their collection contractor and citizens.

Fiscal ImpactBudget Account

Neutral \$

#

Select \$

#

Select \$

#

Select \$

#

ApprovalsCouncil NotificationsDept Head

CONKLIN, CHUCK

Study Session

PWC 9/28/15

Division Director

GIMPEL, KEN

OtherFinance

SALSTROM, JOHN

Distribution ListLegal

JACOBSON, ERIN

ttauscher@spokanecity.org

For the Mayor

SANDERS, THERESA

jsalstrom@spokanecity.org

Additional ApprovalsPurchasing



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

There may be a slight difference in the first year calculation between October versus August however, regardless of which month we use it's a 12 month year to year calculation.

Fiscal Impact

Select \$

Select \$

Budget Account

#

#

Distribution List

BRIEFING PAPER
Public Works Committee
Wastewater Management
September 28, 2015

Subject

Disposal Interlocal Agreement Amendment 1 with Airway Heights.

Background

The disposal ILA between Airway Heights and the City of Spokane calls for an annual price adjustment beginning in 2017. The ILA calls out the index to be used and the adjustment to be calculated using the month of October to October of the prior year. Airway Heights requested that we change the calculation month to August to August of the prior year in order to allow them at least 60 days to notify their collection contractor and citizens.

Impact

There may be a slight difference in the first year calculation between October versus August however, regardless of which month we use it's a 12 month year to year calculation.

Action

Recommend approval.

Funding

No funding impact.

**INTERLOCAL AGREEMENT AMENDMENT #1
BETWEEN THE CITY OF AIRWAY HEIGHTS AND THE CITY OF SPOKANE
FOR DISPOSAL OF SOLID WASTE**

This INTERLOCAL AGREEMENT AMENDMENT #1 (this "**Amendment**") is made and entered into this ____ day of September, 2015 (the "**Effective Date**") between the CITY OF SPOKANE, a Washington State municipal corporation ("**Spokane**"), and the CITY OF AIRWAY HEIGHTS, a municipal corporation of the State of Washington ("**Airway Heights**"). Airway Heights and Spokane are referred to herein collectively as "**Parties**."

WHEREAS, the Parties entered into that certain interlocal agreement, the "Interlocal Agreement Between the City of Airway Heights and the City of Spokane for Disposal of Solid Waste," dated November 14, 2014 and as filed with the Spokane County Auditor, in accordance with RCW 39.24.040, under "City of Spokane No. OPR 2014-0728" (the "**Agreement**");

WHEREAS, the Agreement establishes the terms and conditions between Airway Heights and Spokane to control the management, handling, and disposal of solid waste within Airway Heights; and

WHEREAS, the Parties agree to amend Section 5(c) of the Agreement to afford Airway Heights, including any vendor contracted by Airway Heights for services related to the management of solid waste, adequate time to notify the public of any rate adjustment in accordance with RCW 35A.21.152.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the Parties agree as follows:

1. **NO MODIFICATION; COUNTERPARTS**. Except as amended herein, the Agreement shall remain in full force and effect. Capitalized terms which are not otherwise defined in this Amendment shall have the meaning ascribed to them in the Agreement. This Amendment may be signed in counterparts.
2. **AMENDMENT**. Section 5(c) of the Agreement is hereby amended to read as follows:

C. Rate Adjustment.

On January 1st of each year following 2016, Spokane will adjust the Airway Heights Disposal Rate to reflect increases in the United States Department of Labor, Bureau of Labor Statistics, West-Size Class B/C, Consumer Price Index, all Items for All Urban

Consumers (CPI-U) (the “Index”). The adjustment factor for computing annual rate adjustments shall be computed by dividing the Index number for ~~October~~ August of the just-completed year by the Index number for ~~October~~ August of the previous year. In the event the Index number stays the same or decreases, no rate adjustment will be made, and the next rate adjustment shall not occur until the Index number increases to a number exceeding the highest previous Index number, and shall be computed using the previous highest Index number. No later than October 31 of each year during the Initial Term or any Extension Term of this Agreement, Spokane may provide notice of any rate adjustment to Airway Heights for services under this Agreement.

Example Calculation of Annual Rate Adjustments:

	INDEX	ADJUST FACTOR	COUNTY DISPOSAL RATE
Base Yr.N	125		\$70.50
N+1	128.844	1.030752	\$72.67
N+2	133.315	1.034710	\$75.19
N+3*	132.474	No change	\$75.19
N+4**	133	No change	\$75.19
N+5	137.748	1.033252	\$77.69
N+6	140.054	1.016741	\$78.99
* No change-Index decreased			
** No charge-Index did not exceed highest previous Index			

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties hereto have duly executed this Agreement as of the date first written above.

THE CITY OF AIRWAY HEIGHTS:

THE CITY OF SPOKANE:

Albert Tripp, City Manager

David Condon, Mayor

ATTEST:

ATTEST:

City Clerk

Terry Pfister, City Clerk

APPROVED AS TO FORM:

APPROVED AS TO FORM:

Stanley Schwartz,
Airway Heights - City Attorney

Elizabeth Schoedel
Assistant City Attorney – Spokane

[Signature Page to Amendment]



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	6/15/2015
Clerk's File #	OPR 2014-0416
Renews #	

Submitting Dept	ASSET MANAGEMENT	Cross Ref #	
Contact Name/Phone	DAVID STEELE 625-6064	Project #	
Contact E-Mail	DSTEELE@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Contract Item	Requisition #	
Agenda Item Name	5900 - AVISTA AGREEMENT - HUNTINGTON PARK		

Agenda Wording

Amendment No. 1 to Avista Contract No. R-39850 between Avista Corporation, City of Spokane and City of Spokane Parks and Recreation Division to provide general grounds and facilities maintenance services and security patrol for Huntington Park.

Summary (Background)

As part of the work completed for Huntington Park and Gathering Place Plaza, Avista agreed to pay the City Parks Department on an annual basis for maintenance of Huntington Park. Subsequently the City has agreed to compensate the Parks Department for an amount not to exceed \$133,115.00 over a period of five years. This transfer of payment obligation allows the City to complete payment of its portion of the total costs for the Plaza and other related work completed at the City's direction.

Fiscal Impact		Budget Account	
Expense	\$ 133,115.00	#	5900-30700-14500-59101- 99999
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	LUKAS, ED	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	Pced 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	WHALEY, HUNT	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	dsteele@spokanecity.org	
Additional Approvals		mhughes@spokanecity.org	
Purchasing		kbustos@spokanecity.org	
		jsalstrom@spokanecity.org	
		jahensley@spokanecity.org	

Amendment No. 1 to Avista Contract No. R-39850

between

Avista Corporation ("Avista")

The City of Spokane ("City")

and

The City of Spokane, Parks and Recreation Division ("Parks and Recreation")

This Amendment to the General Services Agreement identified by the above Avista Contract Number (the "Agreement") between Avista and Parks and Recreation will be effective when signed by Avista, Parks and Recreation, and the City (collectively, the "Parties"). In each instance in which the provisions of this Amendment contradict or are inconsistent with the provisions of the Agreement, the provisions of this Amendment will govern, and the contradicted, superseded or inconsistent provisions will be amended accordingly.

The Agreement is amended as follows:

1. Amend the Agreement and the General Conditions by replacing all references to "Contractor" with "Parks and Recreation".
2. Amend Section 1 of the Agreement by replacing "Exhibit A" with the attached Statement of Work incorporated into this Amendment and the Agreement as "Exhibit A-First Revision".
3. Amend Section 2, Term of Agreement, by replacing that Section, in its entirety, with the following:
"The Agreement will be effective from January 1, 2015, through December 31, 2019 (the "Initial Term"). Subsequent to the Initial Term, the Parties shall execute a new agreement to address the "General Grounds and Facilities Operating Maintenance services for Huntington Park (the "Services), if the Parties agree that Parks and Recreation will continue to provide such Services."
4. Amend the Agreement, by deleting Section 3 (including Section 3.1 through 3.4), in its entirety, and replacing that Section with the following:

"Section 3 Compensation

- 3.1 The compensation applicable under the Agreement shall be calculated in accordance with the attached Pricing Schedule incorporated into this Amendment and the Agreement as "Exhibit C – First Revision".
- 3.2 In exchange for the \$133,115.00 owed to Avista by the City for services provided during construction of the Plaza, the City will pay invoices submitted by Parks and Recreation for the Services applicable under the Agreement (as amended) during the Initial Term defined in Section 3 above; provided, however, that Avista will be responsible for payment for Services requested by Avista outside of the Scope of Work identified in Exhibit A – First Revision including without limitation, requests to open the Park before April 1st or to keep the Park open after November 1st, additional landscaping, costs of maintenance or repairs required as a result of extraordinary vandalism, graffiti, etc.
- 3.3 The Parties shall review the Pricing Schedule, annually. Upon the mutual written agreement of the Parties, revised Pricing Schedules will be incorporated into this Agreement by this reference. Compensation for Work furnished under Change Orders will be payable as agreed to by the Parties under same.
- 3.4 The City shall be responsible, at its sole expense, for the costs of maintenance and/or repairs required as a result of the negligent acts or omissions of Parks and Recreation.

5. Amend Section 7, Other Provisions, by inserting the following Sections 7.3 and 7.4 immediately following Section 7.2:

“7.3 The City shall be responsible for ensuring that Parks and Recreation performs all Huntington Park Maintenance Services to the level of satisfaction/expectation acceptable to Avista.

7.4 Each Party shall defend, indemnify and hold harmless the other Party, its officers, directors, employees, and agents from any and all claims, injuries, damages, losses, or suits (including reasonable attorney fees) arising out of or resulting from the acts, errors or omissions of the indemnifying Party in performance of this Agreement, except for injuries and damages caused by the sole negligence of the indemnified Party. In the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Parties, their officers, directors, employees, and agents, the Party’s liability, including the duty and cost to defend, hereunder shall be only to the extent of the Party’s negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes each Party’s waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification.”

Except as set forth in this Amendment, all other terms of the Agreement remain in effect.

Avista Corporation

(Signature)

(Printed Name)

(Title)

(Date)

The City of Spokane

(Signature)

(Printed Name)

(Title)

(Date)

The City of Spokane, Parks and Recreation Division

(Signature)

(Printed Name)

(Title)

(Date)

Approved as to form:



Assistant City Attorney

**Huntington Park
General Grounds and Facilities Operating Maintenance
Statement of Work**

Project Overview/Purpose:

Huntington Park (the "Park"), located at 824 West Spokane Falls Blvd in Spokane, WA, is used, mainly, for passive recreational activities. The Park's current features include irrigated turf, landscape beds, trees, natural areas, concrete and paver flatwork, fencing/rails/gates, retaining walls, lighting, benches, trash receptacles, picnic tables and interpretive signage. The purpose of this Statement of Work ("SOW") is to define the responsibilities of Parks and Recreation in the performance of operating and maintenance ("O&M") services (the "Services" or "Work") in the Park.

Scope of Services:

Parks and Recreation shall provide the labor, material and equipment required to provide the Services set forth below, including, but not limited to:

1. Maintenance of Turf Areas:
 - a. Mowing (April – October: weekly; November – March: as needed);
 - b. Trimming (twice per month);
 - c. Edging (once per month);
 - d. Aeration and topdressing (once per year – spring);
 - e. Fertilizing (twice per year – spring and fall);
 - f. Herbicide/pesticide treatment (twice per year – spring and fall); and
 - g. Trash/litter removal (April – October: daily; November – March: as needed).
2. Landscaping:
 - a. Tree inspection and pruning (once per year – either early spring or late fall);
 - b. Weeding (as needed);
 - c. Mulch replenishment (once per year – spring);
 - d. Herbicide/pesticide treatment (as needed); and
 - e. Trash/litter removal (as needed).
3. Irrigation:
 - a. Spring startup – verifying that all irrigation zones have full coverage of the intended irrigation areas (no later than April 1st each year unless otherwise requested by Avista);
 - b. Irrigation zone coverage (monthly inspections to verify full coverage of the intended irrigation areas);
 - c. Winterization before nighttime temperatures are forecasted to drop to or below freezing (32° F), and in any event no later than October 21st each year; and
 - d. Minor repairs and adjustments.
4. Flatwork:
 - a. Sweeping daily (as needed);
 - b. Blowing (as needed to keep the area clean, and in any event at least once a month);
 - c. Herbicide treatment (as needed); and
 - d. Power-washing, as needed, and in any event not less than twice per year (spring and fall).
5. Daily Inspections, Cleaning, Minor Repairs, and Graffiti Removal:
 - a. Benches;
 - b. Tables;
 - c. Signs;
 - d. Art;
 - e. Trash receptacles;
 - f. Retaining walls;
 - g. Structures; and

- h. Lighting.
- 6. Security: Daily patrols
- 7. Gates: Excluding winter months (November through March each year), unless otherwise agreed to by the Parties:
 - a. Opening (unlocking) the two (2) gates located in the Battery Point Overlook and a third gate located at the service road entry off Spokane Falls Blvd after daylight; and
 - b. Closing (locking) all three (3) gates before dark.
- 8. Supplies and Equipment: Providing the supplies (including without limitation, herbicides, fertilizer, etc.) and ground equipment (including without limitation, mowers, edgers, power washer, etc.) used to provide the Work, and provide maintenance on such ground equipment, as needed.
- 9. Major Work: Provide the labor, materials and equipment necessary to make repairs including vandalism and graffiti removal.
- 10. Reporting: Provide a **detailed** monthly report showing the labor hours per day per task for Services performed during the previous month.

Please Note: Because the Park is not designed to accommodate Special Events (defined as parties, weddings, reunions, etc.), Parks and Recreation shall not allow such Special Events to occur in the Park.

Exhibit C - First Revision

Huntington Park Labor (April 1 through October 31, 2015 Projection)

<u>Title</u>	<u>Hourly Wage</u>	<u>Average Days per Month</u>
Park Facilities and Grounds Foreperson	\$30.00	18
Laborer II	\$20.00	18
Gardener II	\$21.00	20
Irrigation Specialist	\$21.00	20
Seasonal Gardener	\$12.90	22
Security	\$14.00	30
Facilities Seasonal	\$11.15	30

<u>Estimated Supply Costs</u>	
Operating Supplies	\$2,100.00
Minor Equipment	\$1,600.00
Repairs/Maintenance	\$4,000.00



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2014-0849
Renews #	

Submitting Dept	WASTEWATER MANAGEMENT	Cross Ref #	
Contact Name/Phone	MIKE COSTER 625-4642	Project #	
Contact E-Mail	MCOSTER@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Contract Item	Requisition #	
Agenda Item Name	4320 - CHANGE ORDER - CLARKE AVE. LIFT STATION DEBRIS REMOVAL - BIG		

Agenda Wording

Change Order No. 1 to contract with Big Sky Industrial for the Clarke Ave. Lift Station Debris Removal for an increase of \$11,100.00 plus tax, for a total contract amount of \$49,979.60 plus tax.

Summary (Background)

Due to the risk of potential system failure, quotes were solicited for the removal of debris from the Clarke Street Station Pump Station wet well. Two firms (NRC and Big Sky Industrial), submitted quotes, though NRC's proposal did not meet contract criteria. Big Sky Industrial was awarded a minor contract to complete the work for an estimated cost of \$42,275(tax included). Their quote was based upon estimated volume of debris provided (from similar past activities).

Fiscal Impact		Budget Account	
Expense	\$ 12,065.70	#	4320-43230-35145-54899
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	ARNOLD, DALE	Study Session	
Division Director	GIMPEL, KEN	Other	Public Work 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	WHALEY, HUNT	kbustos@spokanecity.org	
For the Mayor	SANDERS, THERESA	Tax & Licenses	
Additional Approvals		hbarnhart@spokanecity.org	
Purchasing		janderson@spokanecity.org	
		amy@bigsky.pro	
		sjohnson@spokanecity.org	
		cwahl@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

Difficulties with the pump station wet well isolation system required the contractor to spend greater time working at the site than had been anticipated. The additional time resulted in an amended cost increase of \$12,065.70 (tax included), for a total contract cost of \$54,340.70, an amount that requires Council approval.

Fiscal Impact

Revenue **\$** 12065.70

Select **\$**

Budget Account

CR 16036

#

Distribution List

CITY OF SPOKANE

CHANGE ORDER NO. 1

NAME OF CONTRACTOR: Big Sky Industrial

PROJECT TITLE: Clarke Ave. Lift Station Debris Removal

CITY CLERK CONTRACT NUMBER: OPR2014-0849

=====

<u>DESCRIPTION OF CHANGE:</u>	<u>AMOUNT</u>
-------------------------------	---------------

Per the original contract language, Big Sky Industrial was to remove debris and grease from the Clarke Avenue Lift station and transport it to the Spokane Regional Landfill for disposal utilizing three (3) vactor trucks. This change order reflects the additional cost for the extra vactor truck as well as the additional pumping hours that were needed to complete the debris removal which is in excess of the original contract amount.

=====

TOTAL AMOUNT: 11,100.00

CONTRACT SUM (EXCLUDE SALES TAX)	
ORIGINAL CONTRACT SUM (INCLUDE ALTERNATES)	\$38,879.60 (\$342.25 x 113.6 cubic yards)
NET AMOUNT OF PREVIOUS CHANGE ORDERS	\$0.00
CURRENT CONTRACT AMOUNT	\$38,879.60
CURRENT CHANGE ORDER (EXCLUDES SALES TAX)	\$11,100.00
REVISED CONTRACT SUM	\$49,979.60

CONTRACT COMPLETION DATE	
ORIGINAL CONTRACT COMPLETION DATE	Open Ended
CURRENT COMPLETION DATE	Open Ended
REVISED COMPLETION DATE	8/4/15

Contractor's Acceptance: _____ Date: _____

City Approval: _____ Date: _____

Attest: _____ City Clerk

BRIEFING PAPER
Public Works Committee
Wastewater Management
September 28, 2015

Subject

Change Order No. 1 with Big Sky Industrial (OPR#2014-0849) for the removal of debris from Clarke Street Pump Station wet well.

Background

Due to the risk of potential system failure, quotes were solicited for the removal of debris from the Clarke Street Station Pump Station wet well.

Two firms (NRC and Big Sky Industrial), submitted quotes, though NRC's proposal did not meet contract criteria. Big Sky Industrial was awarded a minor contract to complete the work for an estimated cost of \$42, 275 (tax included). Their quote was based upon estimated volume of debris provided (from similar past activities).

Difficulties with the pump station wet well isolation system required the contractor to spend greater time working at the site than had been anticipated. The additional time resulted in an amended cost increase of \$12,065.70 (tax included), for a total contract cost of \$54, 340.70, an amount that requires Council approval.

Action

Recommend approval

Funding

Funding for this purchase is provided in the Wastewater Management budget.

CITY OF SPOKANE

CHANGE ORDER NO. 1

NAME OF CONTRACTOR: Big Sky Industrial

PROJECT TITLE: Clarke Ave. Lift Station Debris Removal

CITY CLERK CONTRACT NUMBER: OPR2014-0849

=====

DESCRIPTION OF CHANGE:

AMOUNT

Per the original contract language, Big Sky Industrial was to remove debris and grease from the Clarke Avenue Lift station and transport it to the Spokane Regional Landfill for disposal utilizing three (3) vactor trucks. This change order reflects the additional cost for the extra vactor truck as well as the additional pumping hours that were needed to complete the debris removal which is in excess of the original contract amount.

=====

TOTAL AMOUNT: 11,100.00

CONTRACT SUM (EXCLUDE SALES TAX)	
ORIGINAL CONTRACT SUM (INCLUDE ALTERNATES)	\$38,879.60 (\$342.25 x 113.6 cubic yards)
NET AMOUNT OF PREVIOUS CHANGE ORDERS	\$0.00
CURRENT CONTRACT AMOUNT	\$38,879.60
CURRENT CHANGE ORDER (EXCLUDES SALES TAX)	\$11,100.00
REVISED CONTRACT SUM	\$49,979.60

CONTRACT COMPLETION DATE	
ORIGINAL CONTRACT COMPLETION DATE	Open Ended
CURRENT COMPLETION DATE	Open Ended
REVISED COMPLETION DATE	8/4/15

Contractor's Acceptance: 

Date: 9.16.15

City Approval: _____

Date: _____

Attest: _____ City Clerk

Change Order – Division Director

WWSS ASSOCIATES, INC
BIG SKY INDUSTRIAL
9711 W EUCLID ROAD
SPOKANE, WA 99224
509-624-4949

Invoice Number: 150765
PO number: 2014-0849
Terms: Net 30

Invoice Date: 7/31/2015
Due Date: 8/30/2015

Customer ID: 1149

Bill To:

CITY OF SPOKANE WASTE WATER MGMT
4401 N AUBREY L WHITE
SPOKANE, WA 99205

Ship To:

CITY OF SPOKANE WASTE WATER MGMT
4401 N AUBREY L WHITE
SPOKANE, WA 99205

Item ID	Description	Qty	UOM	Price	Amount
SEWER JET	CLARK AVE LIFT STATION DEBRIS REMOVAL	1	lot	38,879.60	38,879.60
SEWER JET	PROVIDE EXTRA VACTORS FOR PUMPING SEWAGE WATER	1	lot	11,100.00	11,100.00

Subtotal	49,979.60
Tax amt	4,348.23
Total	54,327.83
Payments	0.00
Balance due	54,327.83

WWSS ASSOCIATES, INC
BIG SKY INDUSTRIAL
9711 W EUCLID ROAD
SPOKANE, WA 99224
509-624-4949

Invoice Number: 150765
PO number: 2014-0849
Terms: Net 30

Invoice Date: 7/31/2015
Due Date: 8/30/2015

Customer ID: 1149

Bill To:

CITY OF SPOKANE WASTE WATER MGMT
4401 N AUBREY L WHITE
SPOKANE, WA 99205

Ship To:

CITY OF SPOKANE WASTE WATER MGMT
4401 N AUBREY L WHITE
SPOKANE, WA 99205

Item ID	Description	Qty	UOM	Price	Amount
SEWER JET	CLARK AVE LIFT STATION DEBRIS REMOVAL	1	lot	38,891.44	38,891.44
SEWER JET	PROVIDE EXTRA VACTORS FOR PUMPING SEWAGE WATER	1	lot	11,100.00	11,100.00

Subtotal	49,991.44
Tax amt	4,349.26
Total	54,340.70
Payments	0.00
Balance due	54,340.70



Big Sky Industrial

SERVICE REPORT

BILLING INFORMATION
9711 W Euclid
Spokane, WA
99224
509-624-4949
509-624-0099 Fax
bigsky@bigsky.pro

NAME: City of Spokane

DATE: 7/31/2015

#:

P.O. #

STREET

DEPT. #

CITY STATE ZIP

SEQUENCE # 1351 86

JOB DESCRIPTION: Vactor Truck Dedicated for Pumping Sewage Water

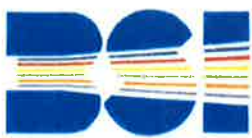
4th Vactor Truck for Pumping Sewage Water

M O B I L I Z A T I O N		AMOUNT	D I E M		AMOUNT	
MOVE IN			MEN/@			
EQUIPMENT START _____ AM/PM					AMOUNT	
EQUIPMENT FINISH _____ AM/PM			@			
_____ HRS/MILEAGE@ _____			@			
_____ HRS/MILEAGE@ _____			@			
MOVE OUT			@			
EQUIPMENT START _____ AM/PM			@			
EQUIPMENT FINISH _____ AM/PM			@			
_____ HRS/MILEAGE@ _____			@			
_____ HRS/MILEAGE@ _____			@			
			@			
			@			
			SUB TOTAL			
			CREW	HOURS	REG	OT
EQUIPMENT START _____ 630			Technician	0630-1630	8.00	2.00
EQUIPMENT FINISH _____ 1630			Technician	0630-1630	8.00	2.00
_____ 10 HRS/@ _____ 100.00		1,000.00	Technician	1330-1630	3.00	
Vactor Truck						
EQUIPMENT START _____ 630						
EQUIPMENT FINISH _____ 1630						
_____ 10 HRS/@ _____ 100.00		1,000.00				
_____ HRS/@ _____						
4th Vactor Truck						
EQUIPMENT START _____			19	REG/HRS@	60.00	1,140.00
EQUIPMENT FINISH _____			4	OT/HRS@	90.00	360.00
_____ HRS/@ _____				REG/HRS@		
				OT/HRS@		
			TOTAL			3,500.00

LEAD MAN CUSTOMER
SIGNATURE SIGNATURE ESTIMATE

The undersigned, hereinafter referred to as Customer, agrees to pay for the specified services, & in the event payment is enforced, BSI shall be entitled to all collection costs & attorney fees.

Check In: Date Time Signature Check Out: Date Time Signature



Big Sky Industrial

SERVICE REPORT

BILLING INFORMATION
9711 W Euclid
Spokane, WA
99224
509-624-4949
509-624-0099 Fax
bigsky@bigsky.pro

NAME: City of Spokane

DATE: 7/30/2015

%: _____

P.O. # _____

STREET _____

DEPT. # _____

CITY _____ STATE _____ ZIP _____

SEQUENCE # **1351 87**

JOB DESCRIPTION: Vector Truck Dedicated for Pumping Sewage Water

4th Vector Truck for Pumping Sewage Water

M O B I L I Z A T I O N		AMOUNT	P E R M	O T H E R		AMOUNT
MOVE IN				MEN/@		
EQUIPMENT START _____ AM/PM						AMOUNT
EQUIPMENT FINISH _____ AM/PM				@		
_____ HRS/MILEAGE@ _____				@		
_____ HRS/MILEAGE@ _____				@		
MOVE OUT				@		
EQUIPMENT START _____ AM/PM				@		
EQUIPMENT FINISH _____ AM/PM				@		
_____ HRS/MILEAGE@ _____				@		
_____ HRS/MILEAGE@ _____				@		
				@		
				@		
				SUB TOTAL		
				CREW	HOURS	REG OT
EQUIPMENT START _____ 630				Technician	0630-1630	8.00 2.00
EQUIPMENT FINISH _____ 1630				Technician	0630-1630	8.00 2.00
10 HRS/@ 100.00		1,000.00		Technician	1230-1630	4.00
Vector Truck						
EQUIPMENT START _____ 630						
EQUIPMENT FINISH _____ 1630						
4 HRS/@ 100.00		400.00				
_____ HRS/@ _____						
4th Vector Truck						
EQUIPMENT START _____				20	REG/HRS@ 60.00	1,200.00
EQUIPMENT FINISH _____				4	OT/HRS@ 90.00	360.00
_____ HRS/@ _____					REG/HRS@	
					OT/HRS@	
				TOTAL		2,960.00

LEAD MAN _____ CUSTOMER _____
SIGNATURE _____ SIGNATURE _____ ESTIMATE _____

The undersigned, hereinafter referred to as Customer, agrees to pay for the specified services, & in the event payment is enforced, BSI shall be entitled to all collection costs & attorney fees.

Check In: _____ Check Out: _____
Date Time Signature Date Time Signature



BILLING INFORMATION
9711 W Euclid
Spokane, WA
99224
509-624-4949
509-624-0099 Fax
bigsky@bigsky.pro

DATE: 7/29/2015

P.O. # _____

DEPT.# _____

SEQUENCE # 1351 88

JOB DESCRIPTION: Vactor Truck Dedicated for Pumping Sewage Water

LEAD MAN _____ CUSTOMER _____
SIGNATURE _____ SIGNATURE _____ ESTIMATE _____

The undersigned, hereinafter referred to as Customer, agrees to pay for the specified services, & in the event payment is enforced, BSI shall be entitled to all collection costs & attorney fees.

Check In:			Check Out:		
Date _____	Time _____	Signature _____	Date _____	Time _____	Signature _____



Big Sky Industrial

SERVICE REPORT

BILLING INFORMATION
9711 W Euclid
Spokane, WA
99224
509-624-4949
509-624-0099 Fax
bigsky@bigsky.pro

NAME: City of Spokane

DATE: 7/28/2015

#: _____

P.O. # _____

STREET _____

DEPT. # _____

CITY _____ STATE _____ ZIP _____

SEQUENCE # **1351 89**

JOB DESCRIPTION: Vactor Truck Dedicated for Pumping Sewage Water

M O B I L I Z A T I O N		AMOUNT	D I P E R M		AMOUNT	
MOVE IN			MEN/@			
EQUIPMENT START _____ AM/PM					AMOUNT	
EQUIPMENT FINISH _____ AM/PM			@			
_____ HRS/MILEAGE@ _____			@			
_____ HRS/MILEAGE@ _____			@			
MOVE OUT			@			
EQUIPMENT START _____ AM/PM			@			
EQUIPMENT FINISH _____ AM/PM			@			
_____ HRS/MILEAGE@ _____			@			
_____ HRS/MILEAGE@ _____			@			
			@			
			@			
			SUB TOTAL			
			CREW	HOURS	REG	OT
EQUIPMENT START _____ 630			Technician	0630-1630	8.00	2.00
EQUIPMENT FINISH _____ 1630			Technician	0630-1630	8.00	2.00
_____ 10 HRS/@ _____ 100.00		1,000.00				
Vactor Truck						
EQUIPMENT START _____						
EQUIPMENT FINISH _____						
_____ HRS/@ _____						
_____ HRS/@ _____						
EQUIPMENT START _____			16	REG/HRS@ 60.00	960.00	
EQUIPMENT FINISH _____			4	OT/HRS@ 90.00	360.00	
_____ HRS/@ _____				REG/HRS@		
				OT/HRS@		
			TOTAL			2,320.00

LEAD MAN _____ CUSTOMER _____
SIGNATURE _____ SIGNATURE _____ ESTIMATE _____

The undersigned, hereinafter referred to as Customer, agrees to pay for the specified services, & in the event payment is enforced, BSI shall be entitled to all collection costs & attorney fees.

Check In: _____ Date _____ Time _____ Signature _____
Check Out: _____ Date _____ Time _____ Signature _____



August 10, 2015

TO:	City of Spokane	RE:	Clarke Avenue Lift Station
-----	-----------------	-----	----------------------------

During initial entry of Side "A", the water level was too high for confined space entry to remove debris. Excess sewage water had to be pumped. It was later discovered that the valve diverting the sewage water from "Side A" into "Side B" was leaking. This allowed sewage water to continue pumping into "Side A", preventing a continuous safe level for confined space entry for grease and debris removal. This also resulted in excessive sewage water being transported for disposal.

07/28/15, One (1) Vactor truck was dedicated to pumping sewage water only. The crew pumped sewage water for 4 hours before the first Technician was able to enter the Confined Space to begin removal of debris (and sewage water). After 2 ¼ hours of cleaning (and pumping sewage water), we had to exit the Confined Space and pump sewage water only.

Start	End	Description	Hours
0700	1100	Pumping Sewage Water	4
1345	1545	Pumping Sewage Water	2

07/29/15, One (1) Vactor truck was dedicated to pumping sewage water only. The crew pumped sewage water for 3 hours before the first Technician was able to enter the Confined Space to begin removal of debris (and sewage water). After 1 ½ hours of cleaning (and pumping sewage water), we had to exit the Confined Space and pump sewage water only before continuing cleaning.

Start	End	Description	Hours
0700	1000	Pumping Sewage Water	3
1130	1300	Pumping Sewage Water	1 ½

07/30/15, an additional Vactor Truck and Technician were brought onto the job site to assist in the pumping of sewage water. Two (2) Vactor trucks were dedicated to pumping sewage water only. The crew pumped sewage water for 4 ½ hours before the first Technician was able to enter the Confined Space to begin removal of debris (and sewage water).

Start	End	Description	Hours
0700	1130	Pumping Sewage Water	4 ½

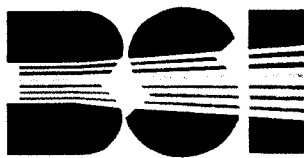
07/31/15, Two (2) Vactor trucks were dedicated to pumping sewage water only. Big Sky Industrial began work on "Side B" Water. The crew pumped sewage water for 2 ¾ hours before the first Technician was able to enter the Confined Space to begin removal of debris (and sewage water). After 1 ¾ hours of cleaning (and pumping sewage water), we had to exit the Confined Space and pump sewage water only for 2 ¼ hours before continuing cleaning.

Start	End	Description	Hours
0700	0945	Pumping Sewage Water	2 ¾
1130	1345	Pumping Sewage Water	2 ¼

8/3/15, Scott and Justin regulated the water level. Continuous cleaning was successful throughout the day.

In conclusion, there was a total of 20 hours of pumping sewage water only, 1 Vactor Truck dedicated for pumping sewage water only, and 1 additional Vactor Truck for 7-30/31 that were not included in the original contract.

Thank You,
Mike Broderius, General Manager



Big Sky Industrial

9711 W Euclid Road

Spokane, WA 99224

bigsky@bigsky.pro

**CITY OF SPOKANE
CLARKE AVEUNE LIFT STATION DEBRIS REMOVAL AND TRANSPORT
SUBMISSION OF QUOTE**

Rick Rinderle

Riverside Park Water Reclamation Facility

4401 N Aubrey L. White Parkway

Spokane, WA 99205

RRinderle@SpokaneCity.org

QUOTE

TO: CITY OF SPOKANE, WASHINGTON

PROJECT NAME: CLARKE AVE LIFT STATION DEBRIS REMOVAL AND TRANSPORT

The undersigned firm has examined the site, read and understands the specifications for the above project and proposes to do the described work at the following price:

PER CUBIC YARD: \$ 342.25

SALES TAX PER CUBIC YARD: (8.7%) 29.77

Contractor agrees that its quote will NOT be withdrawn prior to May 31, 2015; after the stated submittal date of October 3, 2014.

CONTRACTOR RESPONSIBILITY.

Washington State Contractor's Registration No. WJSSAI*984M3

U.B.I. Number 600607287

Washington Employment Security Department Number 596465006

Washington Excise Tax Registration Number 600607287

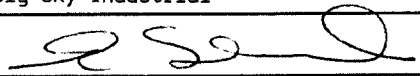
City of Spokane Business License Number T12012442BUS

COMPLETION TIME. All work under the contract shall be started after the date of notice to proceed.

A payment/performance bond is NOT required

Statutory retainage is NOT required

FIRM NAME: Big Sky Industrial

SIGNATURE: 

TITLE: Secretary-Treasurer PHONE: 509-624-4949

ADDRESS: 9711 W Euclid Road Spokane, WA 99224

9711 W Euclid Road
Spokane, WA 99224
bigsky@bigsky.pro



509-624-4949
800-582-4949
509-624-0099 (fax)

Clarke Avenue Lift Station Debris Removal and Transport - attachment 1

Job Location	
Clark Avenue Left Stations	
Contact:	Justin Anderson
Email:	jAnderson@spokaneCity.org
Phone:	509-625-4652

Customer		Date:
City of Spokane		9/29/2014
Riverside Park Water Reclamation Facility		
4401 N Aubrey L. White Parkway		
Spokane, WA 99205		
Email:	rrinderle@spokanecity.org	

JOB DESCRIPTION

Removal and transport of grease and debris from Clark Avenue Lift Station.

Pricing includes filter units capable of minimizing odors.

Pricing includes 3 Vector Trucks.

Services shall be performed during the hours of 7:00 AM thru 3:00 pm, Monday -Friday.

Quote shall be valid from October 3, 2014, through May 31, 2015.

Contractor requests 14 calendar-day advance-notice to coordinate services.

Pricing includes on-site Safety Trained Supervisor.

Price per Cubic Yard is based on 113.6 cubic yard removed.



WWSSASS-02

BWDISNEY

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/4/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Missoula-Palmer Office PayneWest Insurance, Inc. P.O. Box 4386 Missoula, MT 59808	CONTACT NAME:	
	PHONE (A/C, No, Ext): (406) 728-2910	FAX (A/C, No):
INSURED WWSS Associates, Inc. dba Big Sky Industrial 9711 West Euclid Spokane, WA 99224	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A: American Casualty Co of Reading PA	NAIC # 20427
	INSURER B: Continental Casualty Company	20443
	INSURER C:	
	INSURER D:	
INSURER E:		
INSURER F:		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

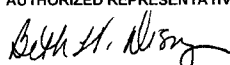
INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	X	C2048442804	12/31/2013	12/31/2014	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 STOP GAP \$ 1,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		C2048442849	12/31/2013	12/31/2014	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000	X	C2048442897	12/31/2013	12/31/2014	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
	<input type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/> N/A				PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	Washington		C2048442804	12/31/2013	12/31/2014	Stop Gap Liability 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Extended Certificate Holder Name: City of Spokane, its officers and employees are additional insureds

CERTIFICATE HOLDER

CANCELLATION

City of Spokane Riverside Park Water Reclamation Facility 4401 N Aubrey L. White Parkway Spokane, WA 99205-3939	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 

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**BLANKET ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS -
WITH PRODUCTS-COMPLETED OPERATIONS COVERAGE**

It is understood and agreed that this endorsement amends the **COMMERCIAL GENERAL LIABILITY COVERAGE PART** as follows:

SCHEDULE (OPTIONAL)

Name of Additional Insured Persons Or Organizations
(As required by "written contract" per Paragraph A. below.)

Locations of Covered Operations
(As per the "written contract," provided the location is within the "coverage territory" of this Coverage Part.)

A. Section II - Who Is An Insured is amended to include as an additional insured:

1. Any person or organization whom you are required by "written contract" to add as an additional insured on this Coverage Part; and
2. The particular person or organization, if any, scheduled above.

B. The insurance provided to the additional insured is limited as follows:

1. The person or organization is an additional insured only with respect to liability for "bodily injury," "property damage," or "personal and advertising injury" caused in whole or in part by:
 - a. Your acts or omissions, or the acts or omissions of those acting on your behalf, in the performance of your ongoing operations specified in the "written contract"; or
 - b. "Your work" that is specified in the "written contract" but only for "bodily injury" or "property damage" included in the "products-completed operations hazard," and only if:
 - (1) The "written contract" requires you to provide the additional insured such coverage; and
 - (2) This Coverage Part provides such coverage.
2. If the "written contract" specifically requires you to provide additional insurance coverage via the 10/01 edition of CG2010 (aka CG 20 10 10 01), or via the 10/01 edition of CG2037 (aka CG 20 37 10 01), or via the 11/85 edition of CG2010 (aka CG 20 10 11 85), then in paragraph **B.1.** above, the words 'caused in whole or in part by' are replaced by the words 'arising out of'.
3. We will not provide the additional insured any broader coverage or any higher limit of insurance than:
 - a. The maximum permitted by law;
 - b. That required by the "written contract";
 - c. That described in **B.1.** above; or
 - d. That afforded to you under this policy,whichever is less.

4. Notwithstanding anything to the contrary in Condition 4. **Other Insurance** (Section IV), this insurance is excess of all other insurance available to the additional insured whether on a primary, excess, contingent or any other basis. But if required by the "written contract" to be primary and non-contributory, this insurance will be primary and non-contributory relative to insurance on which the additional insured is a Named Insured.
5. The Insurance provided to the additional insured does not apply to "bodily injury," "property damage," or "personal and advertising injury" arising out of:
 - a. The rendering of, or the failure to render, any professional architectural, engineering, or surveying services, including:
 - (1) The preparing, approving, or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; and
 - (2) Supervisory, inspection, architectural or engineering activities; or
 - b. Any premises or work for which the additional insured is specifically listed as an additional insured on another endorsement attached to this Coverage Part.

C. SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS is amended as follows:

1. The **Duties In The Event of Occurrence, Offense, Claim or Suit** condition is amended to add the following additional conditions applicable to the additional insured:

An additional insured under this endorsement will as soon as practicable:

- (1) Give us written notice of an "occurrence" or an offense which may result in a claim or "suit" under this insurance, and of any claim or "suit" that does result;
- (2) Except as provided in Paragraph B.4. of this endorsement, agree to make available any other insurance the additional insured has for a loss we cover under this Coverage Part;
- (3) Send us copies of all legal papers received, and otherwise cooperate with us in the investigation, defense, or settlement of the claim or "suit"; and
- (4) Tender the defense and indemnity of any claim or "suit" to any other insurer or self insurer whose policy or program applies to a loss we cover under this Coverage Part. But if the "written contract" requires this insurance to be primary and non-contributory, this provision (4) does not apply to insurance on which the additional insured is a Named Insured.

We have no duty to defend or indemnify an additional insured under this endorsement until we receive from the additional insured written notice of a claim or "suit."

- D. Only for the purpose of the insurance provided by this endorsement, **SECTION V – DEFINITIONS** is amended to add the following definition:

"Written contract" means a written contract or written agreement that requires you to make a person or organization an additional insured on this Coverage Part, provided the contract or agreement:

1. Is currently in effect or becomes effective during the term of this policy; and
2. Was executed prior to:
 - a. The "bodily injury" or "property damage"; or
 - b. The offense that caused the "personal and advertising injury,"for which the additional insured seeks coverage under this Coverage Part.

All other terms and conditions of the Policy remain unchanged.

Material used with permission of ISO Properties, Inc.



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	OPR 2012-0841
Renews #	

Submitting Dept	WASTEWATER MANAGEMENT	Cross Ref #	
Contact Name/Phone	MIKE CANNON 625-4642	Project #	
Contact E-Mail	MCANNON@SPOKANECITY.ORG	Bid #	RFP 3877-12
Agenda Item Type	Contract Item	Requisition #	CR12907
Agenda Item Name	4320 HRGC/HRMS ANALYSIS SAMPLES - PACIFIC RIM LABORATORIES		

Agenda Wording

Contract Extension with Pacific Rim Laboratories,(Surrey, BC-Canada)First of two extensions available for stormwater and wastewater sampling for the Wastewater Management Dept., Riverside Park Water Reclamation Facility. Total Cost is \$102,075.00

Summary (Background)

The sample testing is as required by the City's NPEDES effluent discharge permit issued by Ecology for the Riverside Park Water Reclamation Facility. The ultra-low level organic analyses are required throughout the year for a list of toxins, including PCB's. The original three year contract began in 2012 with Pacific Rim Laboratories. It included the option for two one-year extension. This 1st extension won't have any increase in costs. It allows RPWRF to continue meeting its NPDES requirements

Fiscal Impact		Budget Account	
Expense	\$ 102,075.00	#	4320-43260-35148-54101
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	COSTER, MICHAEL	Study Session	
Division Director	GIMPEL, KEN	Other	Public Works 09/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	WHALEY, HUNT	kbustos@spokanecity.org	
For the Mayor	SANDERS, THERESA	Tax & Licenses	
Additional Approvals		hbarnhart@spokanecity.org	
Purchasing	WAHL, CONNIE	mcannon@spokanecity.org	
		dave@pacificrimlabs.com	
		sjohnson@spokanecity.org	
		cwahl@spokanecity.org	

BRIEFING PAPER
Public Works Committee
Wastewater Management
September 28, 2015

Subject

One year renewal of the contract with Pacific Rim Laboratories to conduct HRGC/HRMS analyses on wastewater and stormwater samples.

Background

The sample testing is as required by the City's NPDES effluent discharge permit issued by Ecology for the Riverside Park Water Reclamation Facility. The ultra-low level organic analyses are required throughout the year for a list of toxins, including PCB's.

The original three year contract began in 2012 with Pacific Rim Laboratories and included the option for two one year renewals. This first renewal will not have any increase in costs.

Impact

This contract allows RPWRF to continue meeting its NPDES permit testing requirements, within budget.

Action

Recommend approval.

Funding

Funding for this purchase is provided in the Wastewater Management budget.

CONTRACT EXTENSION

THIS CONTRACT EXTENSION is between the CITY OF SPOKANE, a Washington State municipal corporation, as "City", and PACIFIC RIM LABORATORIES, INC., whose address is #103, 19575 55A Avenue, Surrey, British Columbia V3S 8P8 Canada, as "Company".

WHEREAS, the parties entered into a Contract wherein the Company agreed to provide HRGC/HRMS ANALYSIS OF WASTEWATER SAMPLES; and

WHEREAS, the original contract allows two (2) additional one (1) year contract periods; and

WHEREAS, the parties would like to extend the contract; -- Now, Therefore,

The parties agree as follows:

1. CONTRACT DOCUMENTS. The Contract dated November 7, 2012 and November 20, 2012, any previous amendments, addendums and / or extensions / renewals thereto, are incorporated by reference into this document as though written in full and shall remain in full force and effect except as provided herein.
2. EXTENSION. The contract documents are hereby extended and shall run through September 30, 2016.
3. COMPENSATION. The City shall pay ONE HUNDRED TWO THOUSAND SEVENTY FIVE AND NO/100 DOLLARS (\$102,075.00) for everything furnished and done under this Contract Extension.

Dated: _____

CITY OF SPOKANE

By: _____

Title: _____

Attest:

City Clerk

Approved as to form:



Assistant City Attorney

Dated: _____

PACIFIC RIM LABORATORIES, INC.

E-Mail address, if available:

dave@pacificrimlabs.com

By: _____


Title: CEO

15-229

Barnhart, Heather

From: Johnson, Samantha
Sent: Wednesday, August 12, 2015 9:39 AM
To: Patrick Pond
Cc: David Hope; Parveen Rai; Barnhart, Heather
Subject: RE: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Patrick –

Thank you for your email! I have shared this information with my colleague, Heather Barnhart, who will process the paperwork for the extension going forward. She will be in touch regarding any future requirements. Should you have any questions in the interim, please do not hesitate to contact her:

Heather Barnhart
Email: hbarnhart@spokanecity.org
Phone: 509.625.4606

Thank you for your interest in doing business with the City. Have a great day!

Best regards,

Samantha Johnson | City of Spokane | Buyer
509.625.4657 | sjohnson@spokanecity.org

From: Patrick Pond [mailto:Pat@pacificrimlabs.com]
Sent: Tuesday, August 11, 2015 4:16 PM
To: Johnson, Samantha
Cc: David Hope; Parveen Rai
Subject: RE: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Hi Samantha,

Yes, we will extend the contract for an additional year at current pricing.

Please feel free to either contact myself or Parveen Rai should you have any further questions while Dave is away.

Regards,



Patrick Pond
Chief Technical Officer

Pacific Rim Laboratories Inc.
#103, 19575 - 55A Avenue, Surrey, BC V3S 8P8
Tel: 604-532-8711 Fax: 604-532-8712
pat@pacificrimlabs.com

The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient are prohibited. If you receive this in error, please contact the sender and delete the material from any computer.

From: Johnson, Samantha [<mailto:sjohnson@spokanecity.org>]
Sent: August 11, 2015 1:49 PM
To: David Hope <dave@pacificrimlabs.com>
Cc: Patrick Pond <Pat@pacificrimlabs.com>
Subject: RE: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Dave –

Perfect. Thank you! Have a safe trip.

Regards,

Samantha Johnson | City of Spokane | Buyer
509.625.4657 | sjohnson@spokanecity.org

From: David Hope [<mailto:dave@pacificrimlabs.com>]
Sent: Tuesday, August 11, 2015 1:40 PM
To: Johnson, Samantha
Cc: Patrick Pond
Subject: Re: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Hi

I am out of country now without computer. Pat will send you confirming email.

Dave

Sent from my BlackBerry 10 smartphone on the TELUS network.

From: Johnson, Samantha
Sent: Tuesday, August 11, 2015 10:34 PM
To: David Hope
Cc: Patrick Pond
Subject: RE: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Dave –

Thank you for getting back to me so quickly! I am glad to hear that Pacific Rim is interested in this contract extension. Would it be possible for you to send me an email that includes a standard email signature? I would like to have something a little more formal to include with the extension paperwork.

Thank you, again!

Regards,

Samantha Johnson | City of Spokane | Buyer

From: David Hope [<mailto:dave@pacificrimlabs.com>]
Sent: Tuesday, August 11, 2015 12:55 PM
To: Johnson, Samantha
Cc: Patrick Pond
Subject: Re: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Hi Samantha,

Thanks for your. Email. Yes, we will extend the contract for an additional year at current pricing. I will be back in her office on the 18th so can sign any paperwork at that time.

Regards

Dave

Sent from my BlackBerry 10 smartphone on the TELUS network.

From: Johnson, Samantha
Sent: Tuesday, August 11, 2015 8:24 PM
To: David Hope
Subject: OPR 2012-0841 HRGC/HRMS Analysis of Wastewater Samples - Contract Extension Request

Dave –

Good morning! The City is interested in extending the attached contract for an additional year. It is currently set to expire September 30, 2015, but this extension would validate the contract through the same date in 2016. Would you please advise if Pacific Rim is also interested in renewing this contract and, if so, confirm you are able to renew at the same pricing?

If you have any questions, please let me know. The extension paperwork on our side can be somewhat cumbersome, so I thank you in advance for your prompt reply.

Have a great afternoon!

Regards,



Samantha Johnson | City of Spokane | Buyer
Wastewater Management Department
RPWRF & Sewer Maintenance
4401 N. Aubrey L. White Parkway Spokane, WA 99205
509.625.4657 | sjohnson@spokanecity.org



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	CPR 1992-0059
Renews #	

Submitting Dept	MAYOR	Cross Ref #	
Contact Name/Phone	KATIE ROSS 625.6716	Project #	
Contact E-Mail	KROSS@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Boards and Commissions	Requisition #	
Agenda Item Name	0520 APPOINTMENT OF GARRY KEHR TO THE BICYCLE ADVISORY BOARD		

Agenda Wording

Appointment of Garry Kehr to the Bicycle Advisory Board for a term of September 28, 2015 to September 28, 2018.

Summary (Background)

Appointment of Garry Kehr to the Bicycle Advisory Board for a term of September 28, 2015 to September 28, 2018.

Fiscal Impact		Budget Account	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	SANDERS, THERESA	Study Session	
Division Director		Other	
Finance		Distribution List	
Legal		tsanders@spokanecity.org	
For the Mayor	SANDERS, THERESA	bblankenagel@spokanecity.org	
Additional Approvals			
Purchasing			



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

Fiscal Impact

Budget Account

\$

#

\$

#

Distribution List



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	RES 2015-0107
Renews #	

Submitting Dept	PLANNING & DEVELOPMENT	Cross Ref #	
Contact Name/Phone	BORIS BORISOV 625-6156	Project #	
Contact E-Mail	BBORISOV@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Resolutions	Requisition #	
Agenda Item Name	0650 - INITIATION RESOLUTION FOR E. SPRAGUE PARKING & BUSINESS		

Agenda Wording

A resolution to initiate an East Sprague Parking and Business Improvement Area.

Summary (Background)

Under RCW 35.87A.030, the City Council is authorized to initiate the establishment of a Parking and Business Improvement Area (PBIA). The East Spokane Business Association (ESBA) and neighborhood stakeholders have expressed interest in the establishment of a PBIA as a means to aid in economic development and neighborhood revitalization in the East Spokane area. This initiation resolution paves the way for the City Council to pass a Resolution of Intention which will establish a public hearing

Fiscal Impact		Budget Account	
Neutral	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	MEULER, LOUIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	PICCOLO, MIKE	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	bborisov@spokanecity.org	
Additional Approvals		smsimmons@spokanecity.org	
Purchasing		aworlock@spokanecity.org	
		mowen@spokanecity.org	
		lmeuler@spokanecity.org	
		mpiccolo@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

to consider the establishment of the East Sprague PBIA. RCW 35.87A.010 authorizes the creation of parking and business improvement districts for economic development and neighborhood revitalization, and to facilitate the cooperation of merchants and businesses, to assist trade, economic viability, and livability. Through the Targeted Investment Pilot Program, the ESBA identified the establishment of a PBIA as a priority and requested City Council assistance. The City Council provided funding to hire a consultant to work with ESBA to develop a PBIA proposal which includes: a description of the boundaries of the proposed area; the proposed uses and projects to which the proposed special assessment revenues shall be put; and the total estimated costs and the estimated rate of levy of special assessments.

Fiscal Impact

Select **\$**

Select **\$**

Budget Account

#

#

Distribution List

tstripes@spokanecity.org

tara.brown1@usbank.com

dhanley@inb.com

jack@jdstrong.com

speedy1727@gmail.com

bob@nwseed.com

dr@acmetv.com

laverne@accessunified.net

RESOLUTION NO. 2015-0107

A resolution to initiate an East Sprague Parking and Business Improvement Area.

WHEREAS, the City of Spokane (the “City”) is a first-class charter city duly incorporated and validly existing under the laws and Constitution of the State of Washington; and

WHEREAS, RCW 35.87A.030 authorizes the Spokane City Council to initiate the establishment of a parking and business improvement area by resolution; and

WHEREAS, the East Spokane Business Association and other interested stakeholders in the East Spokane area have expressed interest in the establishment of a parking and business improvement area as a means to aid in economic development and neighborhood revitalization in the East Spokane area; and

WHEREAS, the City Council has considered the interest of the East Spokane Business Association and neighborhood stakeholders and believes it is in the best interest of the City to proceed with the initiation resolution pursuant to RCW 35.87A.030.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPOKANE as follows:

Section 1. PBIA Initiation. The City Council hereby initiates the establishment of the East Sprague Parking and Business Improvement Area (East Sprague PBIA) by resolution pursuant to Chapter 35.87A RCW, to be known as the East Sprague Business Improvement District (East Sprague BID), for the purposes and within the boundaries described herein.

Section 2. Proposed Boundary Description. The East Sprague PBIA shall be within the following boundaries geographically shown on the map attached as Appendix A (East Sprague PBIA Boundaries) which is incorporated herein by reference:

- From the intersection of S Fiske Street and East 1st Avenue, proceed west along East 1st Avenue to South Perry Street.
- From the intersection of South Perry Street and East 1st Avenue, proceed south along South Perry Street a half block to 1st – Pacific Alley.
- From 1st Avenue – Pacific Alley and South Perry Street, proceed west until Hamilton Street / I-90.
- From Hamilton Street / I-90, proceed north until the railroad.
- From the intersection of North Erie Street and the railroad, proceed northeast along the railroad right-of-way, then proceeding southeast and east along the railroad right of way until North Fiske Street.

- From the intersection of North Fiske Street and the railroad right-of-way, proceed south to East Sprague Avenue.
- From the intersection of North Fiske Street and East Sprague Avenue, proceed west to South Fiske Street.
- From the intersection of South Fiske Street and East Sprague Avenue, proceed south to East 1st Avenue.

When a street or alley is named, the area boundary is the centerline of the right-of-way including vacant portions unless otherwise specified in the description.

In the case of a conflict between the description of the area and the map, the description shall control.

Section 3. Proposed Uses and Programs. The special assessment revenues collected on account of the East Sprague PBIA shall be used for the following uses and component programs:

- A. Clean and Green efforts including district cleanliness, graffiti removal, trash collection, and landscaping.
- B. Neighborhood Beautification, including signage, street tree maintenance, decorative lighting, and streetscape amenities.
- C. District Branding and Marketing, including promotion, advertising, website maintenance, and event assistance.
- D. Safety and Security, including advocacy for increased patrol, crime prevention through design, exploration of security measures and services.
- E. Administration to manage contracting, volunteer coordination and reporting.
- F. Contingency Reserve for unanticipated events or district maintenance needs.

The listing of services is illustrative and not exclusive. All such activities are supplemental to services provided by the City and are not intended to displace any services regularly provided by the City. The estimated initial annual cost for these services is \$78,605.00.

Section 4. Estimated Rate of Levy of Special Assessment.

To finance the programs set forth in Section 3, there shall be levied and collected an annual special assessment upon the “businesses” and “multifamily residential” or mixed-use projects,” as defined in RCW 35.87A.020(3) (including real property improvements thereon) as set forth on the special assessment formula for the East Sprague PBIA which shall be adopted annually by ordinance and incorporated by this reference as if fully set forth herein.

- A. Special assessments shall be levied based on the classification of the businesses, multifamily residential and mixed-use projects (multi-family residential and commercial within the East Sprague PBIAs detailed below, using the Spokane County Assessor's 2015 property information (including but not limited to assessed value, taxable value, lot size, and present use) upon Ratepayers within this area.

Properties classified by the Spokane County Tax Assessor's Office as residential properties with three units or less shall not be assessed. Properties that are located in "Residential Single Family" zoning or "Residential Two Family" zoning and that are also classified by the Spokane County Tax Assessor's Office as "Residential Undivided" shall not be assessed.

- B. Ratepayers will be assessed by the City of Spokane annually, beginning with the base year of the authorization (2016). Beginning in January 2016, the assessment will be as follows:

1. For properties in Zone 1, the assessment will be 2.5¢ per Lot Square Foot (LSF) plus 60¢ per \$1,000 Total Assessed Value (TAV) based on the 2015 Spokane County records, with a minimum of \$200 per property parcel and a maximum of \$1,000 per property parcel.
2. For properties within Zone 2, the assessment will be 1.3¢ per LSF plus 30¢ per \$1,000 of TAV based on the 2015 Spokane County records, with a minimum of \$100 per property parcel and a maximum of \$500 per property parcel.
3. For properties within Zone 3, the assessment will be 0.6¢ per LSF plus 15¢ per \$1,000 TAV based on the 2015 Spokane County records, with a minimum of \$50 per property parcel and a maximum of \$250 per property parcel.

- C. After the first assessment year, the LSF rate and the TAV rate shall be adjusted by an Inflationary Factor, which will be equal to the change in the annual Consumer Price Index (CPI-U-Spokane) or 3% per year, whichever is less, subject to the following conditions:

1. Assessments in the second and third assessment years, as adjusted pursuant to this subsection, shall be based upon the first assessment year.

- i. For the second assessment year (2017), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2015 and June 2016.
 - ii. For the third assessment year (2018), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2016 and June 2017.
 - 2. Assessments in the subsequent years will be recalculated using current records of LSF and TAV as maintained by the Spokane County Assessor's 2018 property information and the rates described in Section 4.C.
 - i. For the fourth assessment year, to account for inflation and maintain the equivalent buying power, the assessment rate on LSF will be increased by an Inflationary Factor, which is equal to the change in CPI-U-Spokane since the first assessment year. The TAV rate will remain the same.
 - ii. For the fifth assessment year (2020), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2018 and June 2019.
 - iii. For the sixth assessment year (2021), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2019 and June 2020.
 - 3. For subsequent years, the assessment will continue on this three-year cycle with updates to the value every three years after the first assessment year.
- D. Annual Improvement Area assessments will be determined by the CPI Factor as set forth in Section 4. B., except in the case of new construction, as follows:
 - 1. Once a year, current Spokane County Assessor's property data will be compared to Spokane County Assessor's property data from the previous year.
 - 2. If there is an increase in Net Building Square Footage for a parcel, then the East Sprague PBIA assessment will be calculated using the new Spokane County Assessor's values. No Inflationary Factor shall be assessed on the parcel in the year the change was made.

In each subsequent assessment year, the Inflationary Factor shall be limited to the lesser of:

- i. 3% per year from the year of the change; or
- ii. The CPI-U-Spokane from January of the year prior to the change to January of the year prior to the assessment year.

New assessments will be invoiced during the next billing cycle.

- 3. If there is no increase in Net Building Square Footage for a parcel, then assessments in the East Sprague PBI A will be calculated as described in Sections 4 B and 4 C above. New assessments will be invoiced during the next billing cycle.

Section 5. This resolution shall take effect immediately.

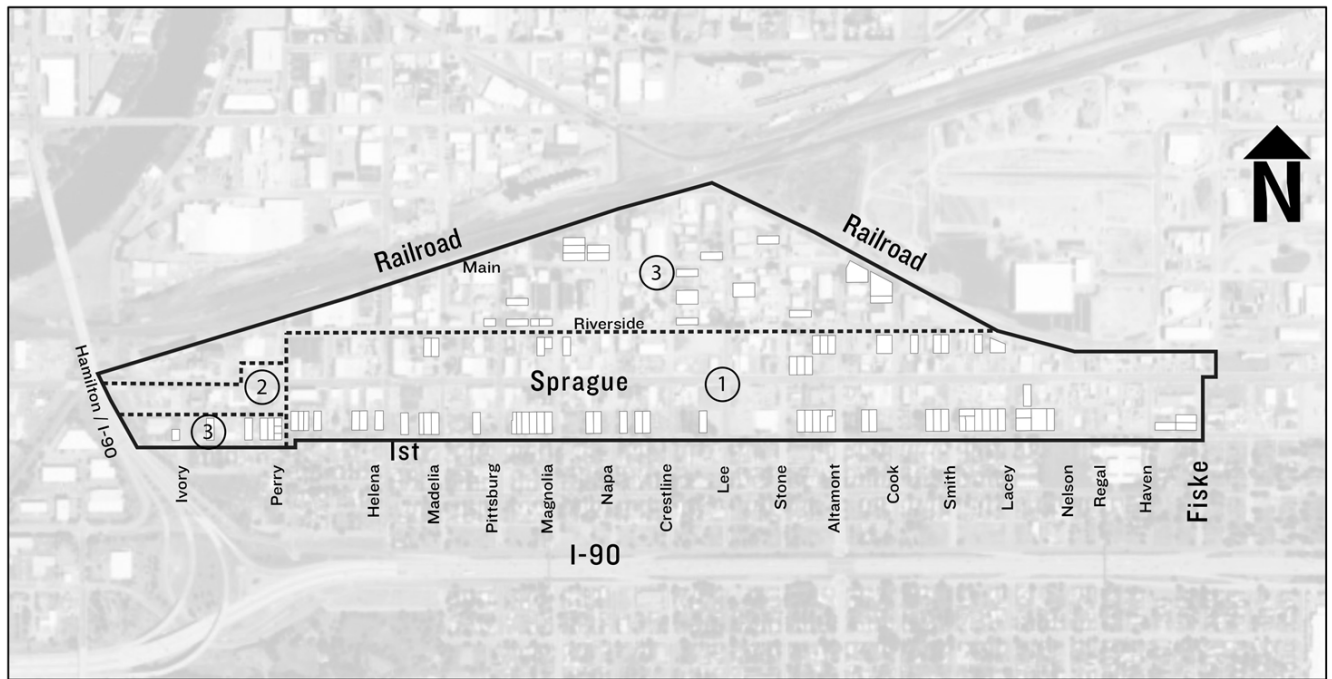
ADOPTED by the City Council this _____ day of October, 2015.



City Clerk

Approved as to form:

Assistant City Attorney

Appendix A. East Sprague Parking and Business Improvement Area Boundaries



-  East Sprague BID Boundary
-  Non-Assessable Parcels

Benefit Areas

- ① Corridor Zoning
- ② General Commercial Zoning
- ③ Industrial Zoning



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	RES 2015-0108
Renews #	
Cross Ref #	
Project #	
Bid #	
Requisition #	

Submitting Dept	PLANNING & DEVELOPMENT
Contact Name/Phone	BORIS BORISOV 625-6156
Contact E-Mail	BBORISOV@SPOKANECITY.ORG
Agenda Item Type	Resolutions
Agenda Item Name	0650 - RESOLUTION OF INTENTION FOR EAST SPRAGUE PARKING & BUSINESS

Agenda Wording

A resolution of intention to establish an East Sprague Parking and Business Improvement Area.

Summary (Background)

Under RCW 35.87A.030, the City Council is authorized to initiate the establishment of a Parking and Business Improvement Area (PBIA). The East Spokane Business Association and neighborhood stakeholders have expressed interest in the establishment of a PBIA as a means to aid in economic development and neighborhood revitalization in the East Spokane area. This resolution of intention will establish a public hearing to consider the establishment of the East Sprague PBIA. RCW 35.87A.010

Fiscal Impact		Budget Account	
Neutral	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	MEULER, LOUIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	PICCOLO, MIKE	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	bborisov@spokanecity.org	
Additional Approvals		smsimmons@spokanecity.org	
Purchasing		aworlock@spokanecity.org	
		mowen@spokanecity.org	
		lmeuler@spokanecity.org	
		mpiccolo@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

authorizes the creation of parking and business improvement districts for economic development and neighborhood revitalization, and to facilitate the cooperation of merchants and businesses, to assist trade, economic viability, and livability. Through the Targeted Investment Pilot Program, the East Spokane Business Association (ESBA) identified the establishment of a PBIA as a priority and requested City Council assistance. The City Council provided funding to hire a consultant to work with ESBA to develop a PBIA proposal which includes: a description of the boundaries of the proposed area; the proposed uses and projects to which the proposed special assessment revenues shall be put; and the total estimated costs and the estimated rate of levy of special assessments.

Fiscal Impact

Select **\$**

Select **\$**

Budget Account

#

#

Distribution List

tstripes@spokanecity.org

tara.brown1@usbank.com

dhanley@inb.com

jack@jdstrong.com

speedy1727@gmail.com

bob@nwseed.com

dr@acmetv.com

laverne@accessunified.net

RESOLUTION NO. 2015-0108

A resolution of intention to establish an East Sprague Parking and Business Improvement Area.

WHEREAS, the City of Spokane (the “City”) is a first-class charter city duly incorporated and validly existing under the laws and Constitution of the State of Washington; and

WHEREAS, RCW 35.87A.030 authorizes the Spokane City Council to initiate the establishment of a parking and business improvement area by resolution; and

WHEREAS, on October _____, 2015, the City Council adopted Resolution No. _____ initiating the establishment of the East Sprague Parking and Business Improvement Area pursuant to RCW 35.87A.030 and setting forth the boundaries of the district, the proposed uses and programs and the estimated rate of the special levy assessments; and

WHEREAS, the East Spokane Business Association and other interested stakeholders in the East Spokane area have expressed interest in the establishment of a parking and business improvement area as a means to aid in economic development and neighborhood revitalization in the East Spokane area; and

WHEREAS, the City Council has considered the interest of the East Spokane Business Association and neighborhood stakeholders and believes it is in the best interest of the City to proceed with the initiation resolution pursuant to RCW 35.87A.030; and

WHEREAS, RCW 35.87A.040 requires that the City adopt a resolution of intention to establish a PBIA and conduct a public hearing thereon; and

WHEREAS, the City Council, after passing the initiation resolution, desires to declare it intent to establish a PBIA and to set a time and place for a public hearing to consider the information contained in the initiation petition.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPOKANE as follows:

Section 1. The City Council hereby intends to establish the East Sprague Parking and Business Improvement Area (East Sprague PBIA) pursuant to Chapter 35.87A RCW, to be known as the East Sprague Business Improvement District (East Sprague BID), for the purposes, and with the boundaries, described herein.

Section 2. Proposed Boundary Description. The East Sprague PBIA shall be within the following boundaries geographically shown on the map attached as Exhibit A (East Sprague PBIA Boundaries) which is incorporated herein by reference:

- From the intersection of South Fiske Street and East 1st Avenue, proceed west along East 1st Avenue to South Perry Street.
- From the intersection of South Perry Street and East 1st Avenue, proceed south along South Perry Street a half block to 1st Avenue – Pacific Alley.
- From 1st Avenue – Pacific Alley and South Perry Street, proceed west until Hamilton Street / I-90.
- From Hamilton Street / I-90, proceed north until the railroad.
- From the intersection of North Erie Street and the railroad, proceed northeast along the railroad right-of-way, then proceeding southeast and east along the railroad right of way until North Fiske Street.
- From the intersection of North Fiske Street and the railroad right-of-way, proceed south to East Sprague Avenue.
- From the intersection of North Fiske Street and East Sprague Avenue, proceed west to South Fiske Street.
- From the intersection of S Fiske Street and East Sprague Avenue, proceed south to East 1st Avenue.

When a street or alley is named, the area boundary is the centerline of the right-of-way including vacant portions unless otherwise specified in the description.

In the case of a conflict between the description of the area and the map, the description shall control.

Section 3. Proposed Uses and Programs. The special assessment revenues collected on account of the East Sprague PBIA shall be used for the following uses and component programs:

- A. Clean and Green efforts including district cleanliness, graffiti removal, trash collection, and landscaping.
- B. Neighborhood Beautification, including signage, street tree maintenance, decorative lighting, and streetscape amenities.
- C. District Branding and Marketing, including promotion, advertising, website maintenance, and event assistance.
- D. Safety and Security, including advocacy for increased patrol, crime prevention through design, exploration of security measures and services.
- E. Administration to manage contracting, volunteer coordination and reporting.

- F. Contingency Reserve for unanticipated events or district maintenance needs.

The listing of services is illustrative and not exclusive. All such activities are supplemental to services provided by the City and are not intended to displace any services regularly provided by the City. The estimated initial annual cost for these services is \$78,605.00.

Section 4. Estimated Rate of Levy of Special Assessment.

To finance the programs set forth in Section 3, there shall be levied and collected an annual special assessment upon the “businesses” and “multifamily residential” or “mixed-use projects,” as defined in RCW 35.87A.020(3) (including real property improvements thereon) as set forth on the special assessment formula for the East Sprague PBIA which shall be adopted annually by ordinance and incorporated by this reference as if fully set forth herein.

- A. Special assessments shall be levied based on the classification of the businesses, multifamily residential and mixed-use projects (multi-family residential and commercial within the East Sprague PBIA detailed below, using the Spokane County Assessor’s 2015 property information (including but not limited to assessed value, taxable value, lot size, and present use) upon Ratepayers within this area.

Properties classified by the Spokane County Tax Assessor’s Office as residential properties with three units or less shall not be assessed. Properties that are located in “Residential Single Family” zoning or “Residential Two Family” zoning and that are also classified by the Spokane County Tax Assessor’s Office as “Residential Undivided” shall not be assessed.

- B. Ratepayers will be assessed by the City of Spokane annually, beginning with the base year of the authorization (2016). Beginning in January 2016, the assessment will be as follows:
1. For properties in Zone 1, the assessment will be 2.5¢ per Lot Square Foot (LSF) plus 60¢ per \$1,000 Total Assessed Value (TAV) based on the 2015 Spokane County records, with a minimum of \$200 per property parcel and a maximum of \$1,000 per property parcel.
 2. For properties within Zone 2, the assessment will be 1.3¢ per LSF plus 30¢ per \$1,000 of TAV based on the 2015 Spokane County

records, with a minimum of \$100 per property parcel and a maximum of \$500 per property parcel.

3. For properties within Zone 3, the assessment will be 0.6¢ per LSF plus 15¢ per \$1,000 TAV based on the 2015 Spokane County records, with a minimum of \$50 per property parcel and a maximum of \$250 per property parcel.

C. After the first assessment year, the LSF rate and the TAV rate shall be adjusted by an Inflationary Factor, which will be equal to the change in the annual Consumer Price Index (CPI-U-Spokane) or 3% per year, whichever is less, subject to the following conditions:

1. Assessments in the second and third assessment years, as adjusted pursuant to this subsection, shall be based upon the first assessment year.
 - i. For the second assessment year (2017), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2015 and June 2016.
 - ii. For the third assessment year (2018), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2016 and June 2017.
2. Assessments in the subsequent years will be recalculated using current records of LSF and TAV as maintained by the Spokane County Assessor's 2018 property information and the rates described in Section 4.C.
 - i. For the fourth assessment year, to account for inflation and maintain the equivalent buying power, the assessment rate on LSF will be increased by an Inflationary Factor, which is equal to the change in CPI-U-Spokane since the first assessment year. The TAV rate will remain the same.
 - ii. For the fifth assessment year (2020), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2018 and June 2019.
 - iii. For the sixth assessment year (2021), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2019 and June 2020.

3. For subsequent years, the assessment will continue on this three-year cycle with updates to the value every three years after the first assessment year.
- D. Annual Improvement Area assessments will be determined by the CPI Factor as set forth in Section 4. B., except in the case of new construction, as follows:
1. Once a year, current Spokane County Assessor's property data will be compared to Spokane County Assessor's property data from the previous year.
 2. If there is an increase in Net Building Square Footage for a parcel, then the East Sprague PBIA assessment will be calculated using the new Spokane County Assessor's values. No Inflationary Factor shall be assessed on the parcel in the year the change was made. In each subsequent assessment year, the Inflationary Factor shall be limited to the lesser of:
 - i. 3% per year from the year of the change; or
 - ii. The CPI-U-Spokane from January of the year prior to the change to January of the year prior to the assessment year.

New assessments will be invoiced during the next billing cycle.

3. If there is no increase in Net Building Square Footage for a parcel, then assessments in the East Sprague PBIA will be calculated as described in Sections 4 B and 4 C above. New assessments will be invoiced during the next billing cycle.

Section 5. The City Council shall hold a public hearing to consider establishing the East Sprague PBIA on Monday, November 2, 2015, at 6:00 P.M., or as soon thereafter as the same may be heard in the City Council Chambers located at City Hall, 808 West Spokane Falls Boulevard, Spokane, Washington 99201-3304. The City Council will receive evidence and testimony from all individuals who are in support of or against the proposal to form the East Sprague PBIA. The City Clerk is directed to cause notice of such hearing to be giving in the manner required by RCW 35.87A.050.

Section 7. This resolution shall take effect immediately.

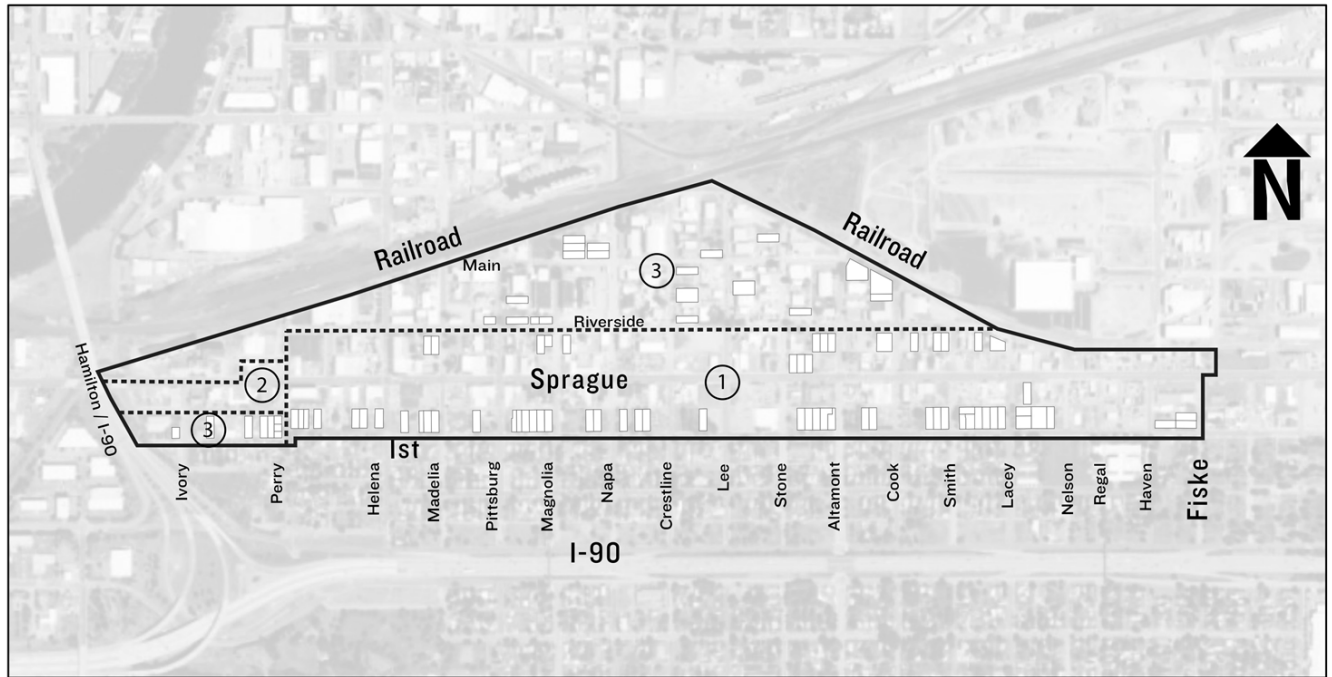
ADOPTED by the City Council this _____ day of October, 2015.



City Clerk

Approved as to form:

Assistant City Attorney

Appendix A. East Sprague Parking and Business Improvement Area Boundaries



-  East Sprague BID Boundary
-  Non-Assessable Parcels

Benefit Areas

- ① Corridor Zoning
General
Commercial
Zoning
- ② General
Commercial
Zoning
- ③ Industrial Zoning



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	RES 2015-0109
Renews #	

Submitting Dept	PLANNING & DEVELOPMENT	Cross Ref #	
Contact Name/Phone	BORIS BORISOV 625-6156	Project #	
Contact E-Mail	BBORISOV@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Resolutions	Requisition #	
Agenda Item Name	0650 - INITIATION RESOLUTION FOR HILLYARD PARKING & BUSINESS		

Agenda Wording

A resolution to initiate a Hillyard Parking and Business Improvement Area.

Summary (Background)

Under RCW 35.87A.030, the City Council is authorized to initiate the establishment of a Parking and Business Improvement Area (PBIA). The Hillyard Business Community identified the establishment of a PBIA as a suitable long term funding mechanism to provide district maintenance, marketing, and safe and clean programs. This initiation resolution paves the way for the City Council to pass a Resolution of Intention which will establish a public hearing to consider the establishment of the

Fiscal Impact		Budget Account	
Neutral	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	MEULER, LOUIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	PICCOLO, MIKE	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	smsimmons@spokanecity.org	
Additional Approvals		aworlock@spokanecity.org	
Purchasing		lmeuler@spokanecity.org	
		tstripes@spokanecity.org	
		mowen@spokanecity.org	
		mpiccolo@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

Hillyard PBIA. RCW 35.87A.010 authorizes the creation of parking and business improvement districts for economic development and neighborhood revitalization, and to facilitate the cooperation of merchants and businesses, to assist trade, economic viability, and livability. The Hillyard Business Community identified the establishment of a PBIA as a priority and requested City Council assistance. The City Council provided funding to hire a consultant to work with Hillyard stakeholders to develop a PBIA proposal which includes: a description of the boundaries of the proposed area; the proposed uses and projects to which the proposed special assessment revenues shall be put; and the total estimated costs and the estimated rate of levy of special assessments.

Fiscal Impact		Budget Account	
Select	\$		#
Select	\$		#
Distribution List			
tstripes@spokanecity.org		dwayne@nwmailing.com	
solomon.jim@gmail.com		burrisrichard@comcast.net	
paulhamilton@allstate.com		john@signsforsuccess.biz	
zzgriz@gmail.com			

RESOLUTION NO. 2015-0109

A resolution to initiate a Hillyard Parking and Business Improvement Area.

WHEREAS, the City of Spokane (the “City”) is a first-class charter city duly incorporated and validly existing under the laws and Constitution of the State of Washington; and

WHEREAS, RCW 35.87A.030 authorizes the Spokane City Council to initiate the establishment of a parking and business improvement area by resolution; and

WHEREAS, Hillyard businesses and other interested stakeholders in the Hillyard area have expressed interest in the establishment of a parking and business improvement area as a means to aid in economic development and neighborhood revitalization in the Hillyard area; and

WHEREAS, the City Council has considered the interest of Hillyard businesses and neighborhood stakeholders and believes it is in the best interest of the City to proceed with the initiation resolution pursuant to RCW 35.87A.030.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPOKANE as follows:

Section 1. PBIA Initiation. The City Council hereby initiates the establishment of the Hillyard Parking and Business Improvement Area (Hillyard PBIA) by resolution pursuant to Chapter 35.87A RCW, to be known as the Hillyard Business Improvement District (Hillyard BID), for the purposes and within the boundaries described herein.

Section 2. Proposed Boundary Description. The Hillyard PBIA shall be within the following boundaries geographically shown on the map attached as Appendix A (Hillyard PBIA Boundaries), which is incorporated herein by reference:

- From the intersection of Francis Street and Regal Street, proceed east along Francis Street until Greene Street.
- From the intersection of Greene Street and Francis Street, proceed south along Greene Street until Garland Street.
- From the intersection of Garland Street and Green Street, proceed west along Garland Street until Regal Street.
- From the intersection of Regal Street and Garland Street, proceed north along Regal Street until Francis Street.

When a street or alley is named, the area boundary is the centerline of the right-of-way including vacant portions unless otherwise specified in the description.

In the case of a conflict between the description of the area and the map, the description shall control.

Section 3. Proposed Uses and Programs. The special assessment revenues collected on account of the Hillyard PBIA shall be used for the following component uses and programs:

- A. District Amenities and Public Space Maintenance, including banners and banner maintenance, street tree maintenance, decorative lighting, and streetscape amenities, which may include maintenance of the future Children of the Sun Trail.
- B. Marketing and Promotion, including neighborhood branding, business directory, website maintenance and event assistance.
- C. Administration to manage contracting, volunteer coordination and reporting.
- D. Contingency Reserve for unanticipated events or district maintenance needs.

The listing of services is illustrative and not exclusive. All such activities are supplemental to services provided by the City and are not intended to displace any services regularly provided by the City. The estimated initial annual cost for these services is \$58,864.00.

Section 4. Estimated Rate of Levy of Special Assessment.

To finance the programs set forth in Section 3, there shall be levied and collected an annual special assessment upon the “businesses” and “multifamily residential” or “mixed-use projects,” as defined in RCW 35.87A.020(3) (including real property improvements thereon) as set forth on the special assessment formula for the Hillyard PBIA which shall be adopted annually by ordinance and incorporated by this reference as if fully set forth herein.

- A. Special assessments shall be levied on all businesses, multifamily residential and mixed-use projects within the Hillyard PBIA. Properties classified by the Spokane County Tax Assessor’s Office as residential properties with three units or less shall not be assessed. Properties that are located in “Residential Single Family” zoning or “Residential Two Family” zoning and that are also classified by the Spokane County Tax Assessor’s Office as “Residential Undivided” shall not be assessed.
- B. Ratepayers will be assessed by the City of Spokane annually, beginning with the base year of the authorization (2016). Beginning in January 2016, the assessment will be \$1.26 per \$1,000 Total Assessed Value (TAV)

based on the 2015 Spokane County records, with a minimum of \$100 per property parcel. A ratepayer may elect to make payment in equal semi-annual installments.

- C. After the first assessment year, the assessment amount shall be adjusted subject to the following conditions:
1. Assessments in the second and third assessment years, as adjusted pursuant to this subsection, shall be based upon the first assessment year.
 - i. For the second assessment year (2017), the assessments will equal the first year assessments multiplied by a Consumer Price Index (CPI) Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2015 and June 2016.
 - ii. For the third assessment year (2018), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2016 and June 2017.
 2. Assessments in the subsequent years will be recalculated using current records of TAV as maintained by the Spokane County Assessor's 2018 property information and the rates described in Section 4 B.
 - i. For the fourth assessment year, the TAV rate will remain the same.
 - ii. For the fifth assessment year (2020), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2018 and June 2019.
 - iii. For the sixth assessment year (2021), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2019 and June 2020.
 3. For subsequent years, the assessment will continue on this three-year cycle with updates to the value every three years after the first assessment year.
- D. Annual Parking and Business Improvement Area assessments will be determined by the CPI Factor as set forth in Section 4 C above, except in the case of new construction, as follows:

1. Once a year, current Spokane County Assessor's property data will be compared to Spokane County Assessor's property data from the previous year.
2. If there is an increase in Net Building Square Footage for a parcel, then the Hillyard PBIA assessment will be calculated using the new Spokane County Assessor's values. No Inflationary Factor shall be assessed on the parcel in the year the change was made. In each subsequent assessment year, the Inflationary Factor shall be limited to the lesser of:
 - i. 3% per year from the year of the change; or
 - ii. The CPI-U-Spokane from January of the year prior to the change to January of the year prior to the assessment year.

New assessments will be invoiced during the next billing cycle.

3. If there is no increase in Net Building Square Footage for a parcel, then assessments in the Hillyard PBIA will be calculated as described in Sections 4 B and 4 C above. New assessments will be invoiced during the next billing cycle.

Section 5. This resolution shall take effect immediately.

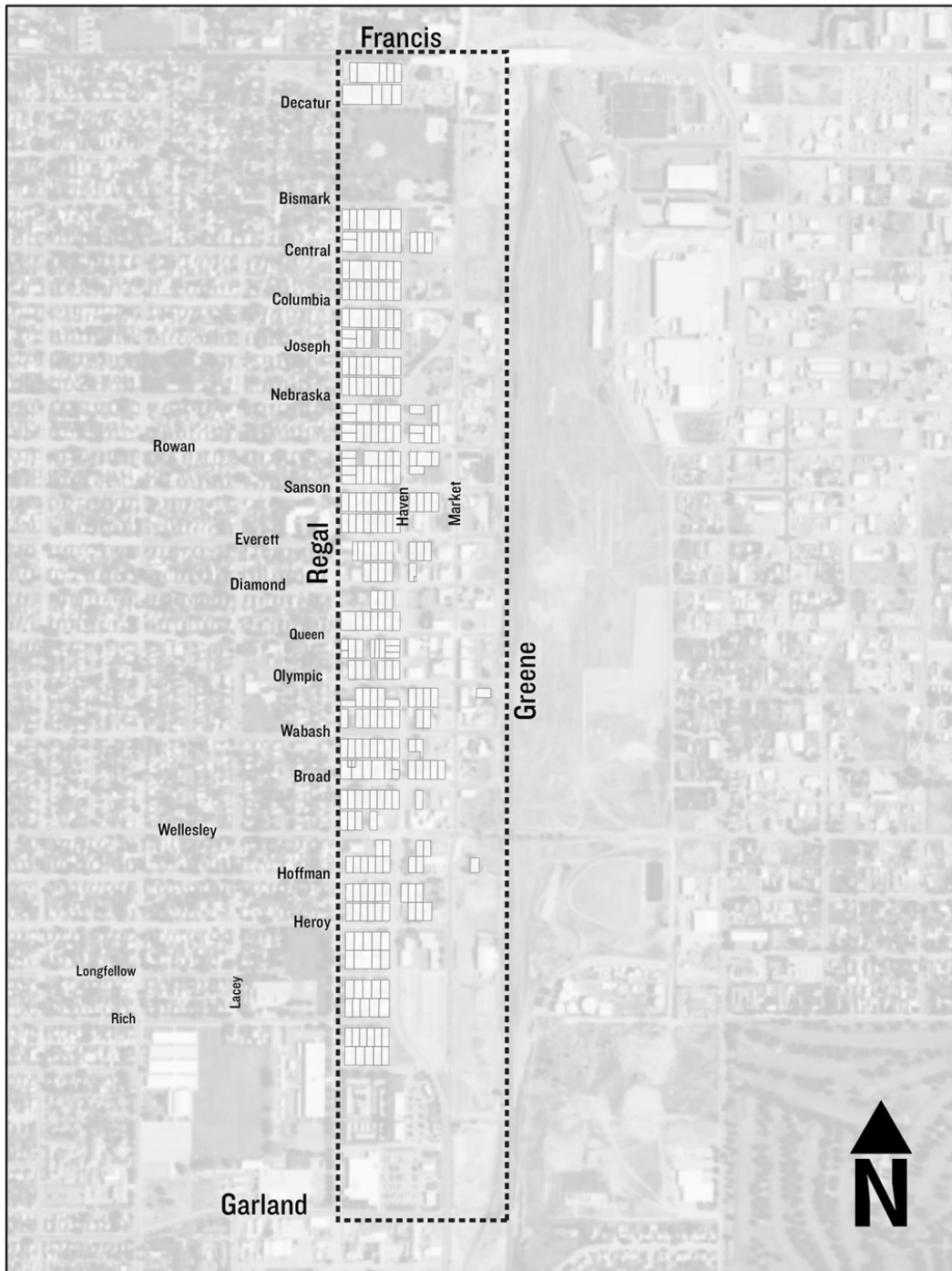
ADOPTED by the City Council this _____ day of October, 2015.

City Clerk

Approved as to form:

Assistant City Attorney

Appendix A. Hillyard Parking and Business Improvement Area Boundaries



 Non-Assessable



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/29/2015
Clerk's File #	RES 2015-0110
Renews #	

Submitting Dept	PLANNING & DEVELOPMENT	Cross Ref #	
Contact Name/Phone	BORIS BORISOV 625-6156	Project #	
Contact E-Mail	BBORISOV@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Resolutions	Requisition #	
Agenda Item Name	0650 - RESOLUTION OF INTENTION FOR HILLYARD PARKING & BUSINESS		

Agenda Wording

A resolution of intention to establish a Hillyard Parking and Business Improvement Area.

Summary (Background)

Under RCW 35.87A.030, the City Council is authorized to initiate the establishment of a Parking and Business Improvement Area (PBIA). The Hillyard Business Community identified the establishment of a PBIA as a suitable long term funding mechanism to provide district maintenance, marketing, and safe and clean programs. This resolution of intention will establish a public hearing to consider the establishment of the Hillyard PBIA. RCW 35.87A.010 authorizes the creation of parking and business

Fiscal Impact		Budget Account	
Neutral	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	MEULER, LOUIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 9/28/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	PICCOLO, MIKE	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	smsimmons@spokanecity.org	
Additional Approvals		aworlock@spokanecity.org	
Purchasing		mowen@spokanecity.org	
		lmeuler@spokanecity.org	
		mpiccolo@spokanecity.org	
		bborisov@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

improvement districts for economic development and neighborhood revitalization, and to facilitate the cooperation of merchants and businesses, to assist trade, economic viability, and livability. The Hillyard Business Community identified the establishment of a PBIA as a priority and requested City Council assistance. The City Council provided funding to hire a consultant to work with Hillyard stakeholders to develop a PBIA proposal which includes: a description of the boundaries of the proposed area; the proposed uses and projects to which the proposed special assessment revenues shall be put; and the total estimated costs and the estimated rate of levy of special assessments.

Fiscal Impact	Budget Account
Select \$	#
Select \$	#

Distribution List

tstripes@spokanecity.org	dwayne@nwmailing.com
solomon.jim@gmail.com	burrishrichard@comcast.net
paulhamilton@allstate.com	john@signsforsuccess.biz
zzgriz@gmail.com	

RESOLUTION NO. 2015-0110

A resolution of intention to establish a Hillyard Parking and Business Improvement Area.

WHEREAS, the City of Spokane (the "City") is a first-class charter city duly incorporated and validly existing under the laws and Constitution of the State of Washington; and

WHEREAS, RCW 35.87A.030 authorizes the Spokane City Council to initiate the establishment of a parking and business improvement area by resolution; and

WHEREAS, on October _____, 2015, the City Council adopted Resolution No. _____ initiating the establishment of the Hillyard Parking and Business Improvement Area pursuant to RCW 35.87A.030 and setting forth the boundaries of the district, the proposed uses and programs and the estimated rate of the special levy assessments; and

WHEREAS, Hillyard businesses and other interested stakeholders in the Hillyard area have expressed interest in the establishment of a parking and business improvement area as a means to aid in economic development and neighborhood revitalization in the Hillyard area; and

WHEREAS, the City Council has considered the interest of Hillyard businesses and neighborhood stakeholders and believes it is in the best interest of the City to proceed with the initiation resolution pursuant to RCW 35.87A.030; and

WHEREAS, RCW 35.87A.040 requires that the City adopt a resolution of intention to establish a PBIA and conduct a public hearing thereon; and

WHEREAS, the City Council, after passing the initiation resolution, desires to declare it intent to establish a PBIA and to set a time and place for a public hearing to consider the information contained in the initiation petition.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPOKANE as follows:

Section 1. The City Council hereby intends to establish the Hillyard Parking and Business Improvement Area (Hillyard PBIA) pursuant to Chapter 35.87A RCW, to be known as the Hillyard Business Improvement District (Hillyard BID), for the purposes, and with the boundaries, described herein.

Section 2. Proposed Boundary Description. The Hillyard PBIA shall be within the following boundaries geographically shown on the map attached as Appendix A (Hillyard PBIA Boundaries), which is incorporated herein by reference:

- From the intersection of Francis Street and Regal Street, proceed east along Francis Street until Greene Street.
- From the intersection of Greene Street and Francis Street, proceed south along Greene Street until Garland Street.
- From the intersection of Garland Street and Green Street, proceed west along Garland Street until Regal Street.
- From the intersection of Regal Street and Garland Street, proceed north along Regal Street until Francis Street.

When a street or alley is named, the area boundary is the centerline of the right-of-way including vacant portions unless otherwise specified in the description.

In the case of a conflict between the description of the area and the map, the description shall control.

Section 3. Proposed Uses and Programs. The special assessment revenues collected on account of the Hillyard PBIA shall be used for the following component uses and programs:

- District Amenities and Public Space Maintenance, including banners and banner maintenance, street tree maintenance, decorative lighting, and streetscape amenities, which may include maintenance of the future Children of the Sun Trail.
- Marketing and Promotion, including neighborhood branding, business directory, website maintenance and event assistance.
- Administration to manage contracting, volunteer coordination and reporting.
- Contingency Reserve for unanticipated events or district maintenance needs.

The listing of services is illustrative and not exclusive. All such activities are supplemental to services provided by the City and are not intended to displace any services regularly provided by the City. The estimated initial annual cost for these services is \$58,864.00.

Section 4. Estimated Rate of Levy of Special Assessment.

To finance the programs set forth in Section 3, there shall be levied and collected an annual special assessment upon the “businesses” and “multifamily residential” or “mixed-use projects,” as defined in RCW 35.87A.020(3) (including real property improvements thereon) as set forth on the special assessment formula for the Hillyard

PBIA which shall be adopted annually by ordinance and incorporated by this reference as if fully set forth herein.

- A. Special assessments shall be levied on all businesses, multifamily residential and mixed-use projects within the Hillyard PBIA. Properties classified by the Spokane County Tax Assessor's Office as residential properties with three units or less shall not be assessed. Properties that are located in "Residential Single Family" zoning or "Residential Two Family" zoning and that are also classified by the Spokane County Tax Assessor's Office as "Residential Undivided" shall not be assessed.
- B. Ratepayers will be assessed by the City of Spokane annually, beginning with the base year of the authorization (2016). Beginning in January 2016, the assessment will be \$1.26 per \$1,000 Total Assessed Value (TAV) based on the 2015 Spokane County records, with a minimum of \$100 per property parcel. A ratepayer may elect to make payment in equal semi-annual installments.
- C. After the first assessment year, the assessment amount shall be adjusted subject to the following conditions:
 - 1. Assessments in the second and third assessment years, as adjusted pursuant to this subsection, shall be based upon the first assessment year.
 - i. For the second assessment year (2017), the assessments will equal the first year assessments multiplied by a Consumer Price Index (CPI) Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2015 and June 2016.
 - ii. For the third assessment year (2018), the assessments will equal the first year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2016 and June 2017.
 - 2. Assessments in the subsequent years will be recalculated using current records of TAV as maintained by the Spokane County Assessor's 2018 property information and the rates described in Section 4 B.
 - i. For the fourth assessment year, the TAV rate will remain the same.
 - ii. For the fifth assessment year (2020), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 3% or the percentage change in CPI-U-Spokane between June 2018 and June 2019.

- iii. For the sixth assessment year (2021), the assessments will equal the fourth year assessments multiplied by a CPI Factor that is the lesser of 6% or the percentage change in CPI-U-Spokane between June 2019 and June 2020.
 - 3. For subsequent years, the assessment will continue on this three-year cycle with updates to the value every three years after the first assessment year.
- D. Annual Parking and Business Improvement Area assessments will be determined by the CPI Factor as set forth in Section 4 C above, except in the case of new construction, as follows:
- 1. Once a year, current Spokane County Assessor's property data will be compared to Spokane County Assessor's property data from the previous year.
 - 2. If there is an increase in Net Building Square Footage for a parcel, then the Hillyard Parking and Business Improvement Area assessment will be calculated using the new Spokane County Assessor's values. No Inflationary Factor shall be assessed on the parcel in the year the change was made. In each subsequent assessment year, the Inflationary Factor shall be limited to the lesser of:
 - i. 3% per year from the year of the change; or
 - ii. The CPI-U-Spokane from January of the year prior to the change to January of the year prior to the assessment year.

New assessments will be invoiced during the next billing cycle.

- 3. If there is no increase in Net Building Square Footage for a parcel, then assessments in the Hillyard PBIA will be calculated as described in Sections 4 B and 4 C above. New assessments will be invoiced during the next billing cycle.

Section 5. The City Council shall hold a public hearing to consider establishing the Hillyard PBIA on Monday, November 2, 2015, at 6:00 P.M., or as soon thereafter as the same may be heard in the City Council Chambers located at City Hall, 808 West Spokane Falls Boulevard, Spokane, Washington 99201-3304. The City Council will receive evidence and testimony from all individuals who are in support of or against the proposal to form the Hillyard PBIA. The City Clerk is directed to cause notice of such hearing to be giving in the manner required by RCW 35.87A.050.

Section 7. This resolution shall take effect immediately.

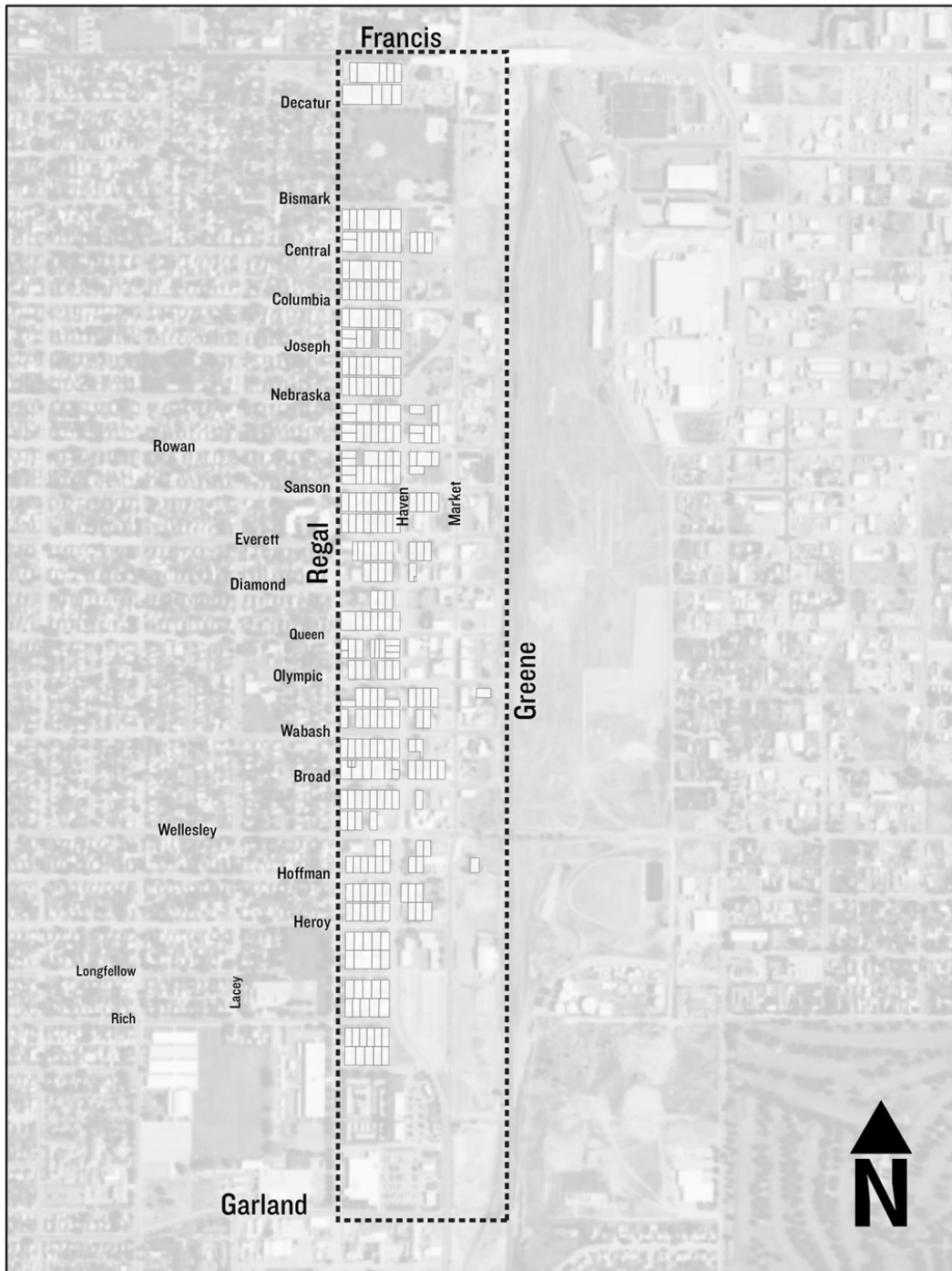
ADOPTED by the City Council this _____ day of October, 2015.

City Clerk

Approved as to form:

Assistant City Attorney

Appendix A. Hillyard Parking and Business Improvement Area Boundaries



 Non-Assessable

**Agenda Sheet for City Council Meeting of:**

10/12/2015

<u>Date Rec'd</u>	9/30/2015
<u>Clerk's File #</u>	RES 2015-0111
<u>Renews #</u>	
<u>Cross Ref #</u>	
<u>Project #</u>	
<u>Bid #</u>	
<u>Requisition #</u>	

<u>Submitting Dept</u>	CITY COUNCIL
<u>Contact Name/Phone</u>	AMBER WALDREF 625-6269
<u>Contact E-Mail</u>	AMCDANIEL@SPOKANECITY.ORG
<u>Agenda Item Type</u>	Resolutions
<u>Agenda Item Name</u>	0320 RESOLUTION OPPOSING STATE INITIATIVE 1366

Agenda Wording

A resolution declaring opposition to I-1366.

Summary (Background)

I-1366 would eliminate eight billion dollars from the State of Washington Operating Budget over the next six years which would cause drastic cuts to vital public services, including schools, colleges, and other programs families in Spokane depend on by decreasing the state sales tax, unless, by April 2016, the Washington State Legislature approves a constitutional amendment requiring a two-thirds vote to raise revenue or recover revenue for the state treasury.

<u>Fiscal Impact</u>	<u>Budget Account</u>
Neutral \$	#
Neutral \$	#
Neutral \$	#
Neutral \$	#

<u>Approvals</u>	<u>Council Notifications</u>
<u>Dept Head</u>	MCDANIEL, ADAM
<u>Division Director</u>	
<u>Finance</u>	SALSTROM, JOHN
<u>Legal</u>	JACOBSON, ERIN
<u>For the Mayor</u>	SANDERS, THERESA

<u>Additional Approvals</u>	
<u>Purchasing</u>	

RESOLUTION NO. 2015-0111

A resolution declaring opposition to I-1366 that would eliminate eight billion dollars from the State of Washington Operating Budget over the next six years which would cause drastic cuts to vital public services, including schools, colleges, and other programs families in Spokane depend on by decreasing the state sales tax, unless, by April 2016, the Washington State Legislature approves a constitutional amendment requiring a two-thirds vote to raise revenue or recover revenue for the state treasury.

WHEREAS, our state's founders, and after much debate and deliberation, wrote a Constitution for Washington requiring that bills pass by a majority vote, understood to mean *greater than fifty percent* – no more and no less; and

WHEREAS, any higher or lower threshold for the passage of legislation results in power being concentrated in the hands of a few, rather than the many, such as one-third of one-house of the Legislature when I-601 and its successors I-960, I-1053, and I-1185 were illegitimately in effect; and

WHEREAS, I-1366 is being falsely promoted as a constitutional amendment to reinstate the unconstitutional supermajority requirement that was struck down by the Washington State Supreme Court in February of 2013 in *League of Education Voters v. State of Washington*, when in fact it is an initiative to the people attempting to force state lawmakers to submit an amendment to the people that would overturn the LEV decision by holding funding for higher education and other vital programs hostage; and

WHEREAS, allowing tax exemptions to be created by a majority vote, but repealed only with a vote of two-thirds or greater represents an unfair double standard that would make it nearly impossible to reform our outdated and regressive tax system; and

WHEREAS, I-1366 could further violate Article IX of the Washington State Constitution by making it more challenging for the state to fulfill its paramount duty of educating Washington's youth; and

WHEREAS, I-1366 could impact state appropriations for Spokane's medical school and expansion of biomedical research in Spokane; and

WHEREAS, I-1366 could negatively impact funding to other higher education institutions like Eastern Washington University and the Community Colleges of Spokane, which could mean higher tuition or fewer class offerings; and

WHEREAS, I-1366 could impact state appropriations for mental health services at Eastern State Hospital; and

WHEREAS, I-1366 could remove an estimated \$2.7 million from the Performance Audit Account, hindering the Washington State Auditor's Office from performing local audits on the City of Spokane's programs; and

WHEREAS, I-1366 could impact state appropriations to the Spokane Regional Health District to support public health services, including public health nursing; and

WHEREAS, I-1366 could impact state appropriations that provide continuum of care services for children in Spokane who have experienced abuse or neglect and their families; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL FOR THE CITY OF SPOKANE that the City Council opposes I-1366 and encourages voters to return their ballots by November 3, 2015.

ADOPTED BY THE CITY COUNCIL ON _____.

City Clerk

Approved as to form:

Assistant City Attorney

**Agenda Sheet for City Council Meeting of:**

10/12/2015

<u>Date Rec'd</u>	9/30/2015
<u>Clerk's File #</u>	RES 2015-0112
<u>Renews #</u>	
<u>Cross Ref #</u>	
<u>Project #</u>	
<u>Bid #</u>	
<u>Requisition #</u>	

<u>Submitting Dept</u>	CITY COUNCIL
<u>Contact Name/Phone</u>	COUNCILMEMBER 6275 AMBER WALDREF
<u>Contact E-Mail</u>	AWALDREF@SPOKANECITY.ORG
<u>Agenda Item Type</u>	Resolutions
<u>Agenda Item Name</u>	AMENDMENTS TO CITY'S COMPREHENSIVE WATER SYSTEM PLAN

Agenda Wording

Resolution amending the City's Comprehensive Water System Plan.

Summary (Background)

Washington Department of Health Regulations require that the City update its Comprehensive Water System Plan at least every six years. This resolution approves the amendments to the Comprehensive Water System Plan.

<u>Fiscal Impact</u>	<u>Budget Account</u>
Neutral \$ 0	# 0
Select \$	#
Select \$	#
Select \$	#

<u>Approvals</u>		<u>Council Notifications</u>	
<u>Dept Head</u>	STUCKART, BEN	<u>Study Session</u>	
<u>Division Director</u>		<u>Other</u>	
<u>Finance</u>	SALSTROM, JOHN	<u>Distribution List</u>	
<u>Legal</u>	JACOBSON, ERIN	eschoedel@spokanecity.org	
<u>For the Mayor</u>	SANDERS, THERESA	rromero@spokanecity.org	
<u>Additional Approvals</u>		jsakamoto@spokanecity.org	
<u>Purchasing</u>			

RESOLUTION NO. 2015-0112

A Resolution adopting updates to the City's Comprehensive Water System Plan.

WHEREAS, pursuant to the Washington State Department of Health regulations, WAC 246-290-100, the City of Spokane is required to update its Comprehensive Water System Plan every six years; and

WHEREAS, the City of Spokane believes it is in the public interest to maintain a current Comprehensive Water System Plan to help ensure the continued, reliable delivery of safe drinking water at reasonable cost, facilitate economic growth, and foster coordination with adjacent water purveyors; and

WHEREAS, a Comprehensive Water System Plan provides guidance and planning information used by City staff in developing the Water Department's annual Six-Year Capital Program update; and

WHEREAS, the Comprehensive Water System Plan, as revised in September, 2015, with recommendations of City staff and as reviewed by the Washington state Department of Health, has been prepared in accordance with the Washington state Department of Health regulations; and

WHEREAS, the Comprehensive Water System Plan has undergone consistency review by neighboring jurisdictions and is now ready to be approved in final form; and

WHEREAS, City Council has resolved to review the Comprehensive Water System Plan at least annually for consistency and possible modification of the water service boundaries; and

WHEREAS, the City Council of the City of Spokane finds implementation of the Plan to be in the public interest;

NOW, THEREFORE, BE IT RESOLVED by the Spokane City Council that the Comprehensive Water System Plan, as revised in September, 2015, is hereby adopted and approved.

BE IT ALSO RESOLVED that the Council requests that staff finalize the document and submit it to the Washington State Department of Health for its approval and provide updates to the Council and its staff on the approval process.

Passed by the City Council this ____ day of October, 2015.

City Clerk

Approved as to form:

Assistant City Attorney

Description of Water System

1.1 Ownership and Management

Name

The City of Spokane Water & Hydroelectric Services Department ("Water Department") provides all potable water to citizens within the City limits, and to some outside the City. As required by State law, the City operates the system under the Washington State Public Water System Identification No. 83100K.

Type of Ownership

The Water System is wholly owned and operated by the City of Spokane, Washington. The Water Department operates as an "Enterprise Fund," a separate account from the General Fund of the City. As an Enterprise Fund, the Water Department pays utility taxes to the City of Spokane, as well as to the State of Washington.

Management Structure

The City of Spokane is operated under the laws of the State of Washington as a first-class municipal corporation. The City has a mayor-council form of government with an elected "strong" mayor who oversees all administrative functions. A seven-member elected City Council, which includes the Council President, serves as the legislative branch. Under the Mayor is an appointed City Administrator who oversees the City's day-to-day operations.

The management structure within the Water Department is as follows:

The Water Department Director has general oversight of the Water Department and reports to the Utilities Division Director. The Water Department Director develops the budget for the department's operation, maintenance, and capital projects. The Director presents information on the departmental budget. Ultimately, the Mayor and his staff propose the annual budget for the City, and the City Council adopts it.

Water Department Director. The Director oversees operations, administration, and the Hydroelectric Project and is involved with administrative decisions, and assists in setting policy for the Department.

Water Superintendent. The Superintendent is responsible for the daily operation and maintenance of the water system which includes small, in-house construction projects that enhance the Water System infrastructure. Large construction projects are bid out to private contractors, and the City's Engineering Services Department oversees these projects. The Superintendent fulfills the duties of the Director, should the Director be absent.

Principal Engineer. The Principal Engineer is responsible for all engineering activities within the Water Department. Engineering includes design of new projects, design modifications of existing water facilities, as well as engineering support for the operation, maintenance, and construction functions of the department. The Principal Engineer may fulfill the duties of the Director, should the Director be absent.

Superintendent of Water Operations and Hydroelectric Services. The Superintendent of Water Operations and Hydroelectric Services is responsible for the safe operation of the dam at Upriver. This position also provides supervision for maintenance and operation of the wells, booster stations, storage facilities, SCDA and assists in engineering with oversight of capital projects at these sites.

Water Services Supervisor. The Water Services Supervisor is responsible for the repair and maintenance of the water system.

1.2 System History and Background

History of Water System Development and Growth

In 1883, the City of Spokane purchased a private water system that was serving the downtown area. The original system was comprised of a water-driven pump installed in the Echo Flour Mill on Havermale Island to serve Spokane River water to a few customers in the new city. Some of the cast iron water mains constructed for this system continue to be used today. Later, in 1888, the pumping plant was relocated and a second pump was added to serve the expanding city.

Because of growth, the Spokane River water quality was deteriorating, creating the need for a new water pumping site. A new site was chosen adjacent to the Spokane River, five miles upstream. The new site was named Upriver. In 1896, the Upriver pumping facility began operation. Just upstream of the pumping station, the Water Department constructed a wood crib dam. Water in the reservoir created by the dam was diverted via a canal to mechanically powered water turbine pumps. These pumps then sent water from the Spokane River into the Water Department distribution system for delivery to its customers.

During the construction of the Upriver pumping station, workers encountered a great deal of subsurface water that appeared to be coming from a source separate from the river. Other than a nuisance at the time of construction, little or no interest was expressed in this separate source of water.

About 10 years later, increased population and pollution of the Spokane River renewed the search for a high-quality water source. It was remembered that large amounts of underground water were encountered during construction of the Upriver facilities. Studies conducted by engineers determined that the water that was a nuisance during the Upriver construction resulted from an underground water flow separate from the Spokane River.

In 1907, the first well was constructed at Upriver to tap the groundwater source. The existing river pumps were converted to pump water from the new well, putting an end to using the Spokane River as a potable water source. This new water source was later named the Spokane Valley-Rathdrum Prairie Aquifer. In 1910 and 1925, additional wells were added at the Upriver facility, again tapping the aquifer.

In 1936, a new, taller concrete dam replaced the wood crib dam. The water behind the dam, with its increased head, was now diverted to a new hydroelectric powerhouse that housed three 1.3 megawatt generators. All wells now had pumps that were powered by electric motors, bringing an end to the use of water turbine pumps.

As Spokane grew, new well pumping stations, booster pump stations, reservoirs, transmission mains, and distribution mains were constructed to keep pace with the growing population's demand for water. In 1967, at the request of land developers, the Water Department began water service to customers outside the City Limits.

Today, the City of Spokane continues to use the Spokane Valley-Rathdrum Prairie Aquifer as its sole source of potable water. The water system has 7 well stations with 14 wells and 27 well pumps, 25 booster pump stations with 72 booster pumps, 22 pressure zones with 34 reservoirs, and more than 1,000 miles of water pipes.

From 1981-1984, major improvements increased the hydroelectric generating capacity at the Upriver facility. The three original powerhouse generators were upgraded to produce 2.0 megawatts each. A second powerhouse was constructed that houses two 5.58 megawatt generators. The hydroelectric power generation allows the Water Department to sell power during times of low electrical demand from the City water pumps. Money realized from these power sales offset the cost of pumping water which helps keep water rates low.

In 1995, the Water Department replaced its last uncovered reservoir with two covered concrete tank reservoirs, protecting the water system from potential airborne contamination. The Water Department is committed to providing facilities that not only meet the needs of the present, but also are sized with future demand in mind.

The long range planning of the water infrastructure is discussed in chapter 8 of this Water System Plan covering the capital improvement program.

The limit of expansion for the City of Spokane Water System is determined by the Spokane County Coordinated Water System Plan (CWSP). The CWSP is part of the General Water Plan for Spokane County and is a mechanism that coordinates the activities between the water purveyors located in Spokane County. The defined City of Spokane service area boundary shown in the CWSP is larger than the corporate limits of the City and frames the total service area for the City. The City's present retail service area is smaller than the total service area. Total and retail service areas are discussed in more detail in Section 1.6.

Geography

The origin of the Spokane aquifer system is one of the most interesting geologic stories worldwide. Northern Idaho, Spokane, and a large portion of Eastern Washington have been repeatedly scoured (as many as 40 times by some accounts) by catastrophic water flows. These massive flows are referred to as the Missoula Floods.

During the Pleistocene Epoch (Ice Age), Glacial Lake Missoula, located in today's Northwestern Montana, breached ice dams that were instrumental in forming and reforming this massive lake. It has been estimated the Lake included 500 cubic miles of water. Each dam breach brought floodwaters, estimated at 750 million cubic feet per second, through the present day sites of Pend Oreille and Coeur d'Alene Lakes, Rathdrum Prairie and the Spokane Valley, and out across the Columbia Plateau of Eastern Washington. The

waters then passed through the Pasco and Umatilla Basins, and the Columbia River Gorge, to the Pacific Ocean. Today, evidence of these floods can be seen throughout Eastern Washington, where numerous coulees are cut into the basalt, resulting in the topographic relief known as the “channeled scablands.” As the flood waters passed through the Rathdrum Prairie-Spokane Valley area, large volumes of boulders, cobbles, and coarse gravels were deposited. These flood deposits form the existing highly permeable aquifer beneath the Rathdrum Prairie of northern Idaho, Spokane Valley, and Spokane. The aquifer and the Spokane River are hydraulically connected. Recent studies reveal that the pumping of groundwater from the aquifer has an impact on the flow rate of the Spokane River.

The Spokane River originates as the outflow of Lake Coeur d’Alene, travels from East to West and cuts through the heart of the City. On the western fringes of downtown Spokane, the river turns north forming in some places the west City limits. Latah (Hangman) Creek enters the City from the south, and travels in a northerly direction to intersect the Spokane River at the elbow where the Spokane River turns to the north.

Within the City’s service area the South side of the City (South Hill) rises from the Spokane River to Moran Prairie and the western slopes of Browne’s Mountain. Elevations range from the valley floor of 1,870 feet above sea level to about 3,000 feet. To the West, elevations vary from a low of 1,735 feet in the Latah (Hangman) Creek-Vinegar Flats area to 2,580 feet on the West Plains. The North side of the City (generally north of the Spokane River) experience elevations that range from 1,683 feet to 2,145 feet. Also on the North side is a plateau known as the Five Mile Prairie, a prominent geographical feature. Elevations of the prairie feature range from 2,145 feet at its base, to 2,400 feet on the plateau.

The wide variety of geographical features and substantial elevation changes found in and around the City, create the need for numerous water system pressure zones.

Ordinances/Bylaws

The Water Department is subject to ordinances approved by the City Council. City of Spokane Municipal Code Chapters 13.04 and 13.08 govern the operation of the water system.

Neighboring/Adjacent Purveyors

Neighboring systems adjoining the City of Spokane water system are:

- Spokane Co. Water District #3
- Whitworth Water District #2
- North Spokane Irrigation District #8
- City of Airway Heights
- Carnhope Irrigation District #7
- Orchard Avenue Irrigation District #6
- City of Medical Lake
- Four Lakes Water District #10
- Pasadena Park Irrigation District
- East Spokane Water District #1
- Fairchild Air Force Base
- Vel View Water District #13

Figure 1.2.1 shows the City of Spokane’s Future Water Service Area which corresponds to the City of Spokane water service area bounded by the neighboring water purveyors’ service area and the neighboring purveyors. **Figure 1.2.2** is Map #2 showing West Spokane

County providing additional detail of the Coordinated Water System Boundary of the City of Spokane Water Service Area.

Figure 1.2.3 is Map #3 showing Central Spokane County providing additional detail of the Coordinated Water System Boundary of the City of Spokane Water Service Area and neighboring water purveyors. The Spokane County Coordinated Water System Plan is discussed in further detail in Section 1.7 of this document.

Insert Figure 1.2.1 – Spokane County CWSP Map

Insert Figure 1.2.2 – Spokane County CWSP Map #2

Insert Figure 1.2.3 – Spokane County CWSP Map #3

1.3 Inventory of Existing Facilities and Pressure Zones

The major components of the City's water system are:

- Pressure Zones
- Energy Sources
- Well Stations
- Pipelines
- Booster Pump Stations
- Pressure Reducing Valve Stations
- Storage Reservoirs
- System Control Facilities
- Service Connections
- Interties

The physical facilities for each of these components will be described and their operation discussed. A delineation of the water system's pressure zones is shown on **Figure 1.3.1**. In addition to again showing the pressure zones, the location of major components of the system, which includes Upriver Dam and Hydroelectric Facilities, well pump stations, transmission mains, booster pump stations, and storage reservoirs, are shown on **Figure 1.3.2**. A copy of the latest Washington State Department of Health "Water Facilities Inventory" is found in **Exhibit 1.3.1**.

Pressure Zones

The City of Spokane water system has 22 (hydraulic) Pressure Zones. These zones allow maximum pressures to be restricted to acceptable limits throughout the system. Sizing guidelines presented by the Washington State Department of Health suggest that static pressures in the range of 40 pounds per square inch (psi) to 80 psi are to be provided at the customer's point of service, and are considered normal. The pressures observed in the City's water system range from over 160 psi to just above 30 psi. The minimum static pressure required by the City for new developments since 1995 is 45 psi. For those areas where pressures are over 80 psi, the City requires pressure-reducing valves. The pressure zones are discussed as follows.

Low Pressure Zone

The Low Pressure Zone was the first water conveyance system built and supplies water to the downtown business district, northwest along the river, and south along the Latah (Hangman) Creek Valley. The Low Pressure Zone receives water from 3 of the 7 well stations within the water system: Well Electric, Parkwater, and Nevada Well Stations. Six reservoirs totaling 28.75 million gallons provide storage for the Low Pressure Zone. These reservoirs are Shadle, Rockwood Vista, Ninth and Pine, West Drive, Thorpe Road, and Qualchan. The Latah Booster Pump Station helps to boost flow within the pressure zone to the Qualchan Reservoir.

Current annual demand within the Low Pressure Zone is about 35 percent of the total water supplied to the entire water system. The maximum overflow elevation for all the Low Pressure Zone reservoirs is 2,100.87 feet.

Insert Figure 1.3.2

North Hill Pressure Zone

The North Hill Pressure Zone is supplied from four well stations: Central, Grace, Hoffman, and Well Electric. This zone lies adjacent to the north side of the Low Pressure Zone. The North Hill Pressure Zone supplies water to those areas north of Euclid Street to Francis Avenue and northwesterly along Indian Trail Road. The North Hill Pressure Zone also supplies water to the Northwest Terrace Pressure Zone through two pressure reducing valve (PRV) stations. Three reservoirs totaling 25.60 million gallons provide storage for this Zone. These reservoirs are North Hill, Five Mile, and Indian Trail.

Current annual demand within the North Hill Pressure Zone is about 28 percent of the total water supplied to the entire water system. The overflow elevation in the three reservoirs is 2,189.87 feet.

Intermediate Pressure Zone

Adjacent and directly south of the Low Pressure Zone lays the Intermediate Pressure Zone. The Intermediate Pressure Zone serves water to the strip of land between elevations 1,957 feet and 2,192 feet, along the middle to lower tier of the South Hill. The Intermediate Pressure Zone receives its supply of water from 3 well stations, and 2 booster pump stations that lift water from the Low Pressure Zone. The 3 well stations are Well Electric, Parkwater, and Ray Street. The 2 booster pump stations are Ninth and Pine and Bishop Court.

Current annual demand within this pressure zone is about 3 percent of the total water supplied to the entire water system. The Lincoln Heights #1 and #2 reservoirs plus the 14th and Grand reservoir serve this pressure zone with a combined storage capacity of 20.52 million gallons, at an overflow of 2,279.87 feet.

High Pressure Zone

The High Pressure Zone provides water service for the land adjacent to and south of the Intermediate Pressure Zone. Two reservoirs serve this zone, Garden Park and 33rd and Lamonte, with total storage capacity of 4.35 million gallons with an overflow elevation of 2,465.87 feet. Two booster pump stations, Lincoln Heights and 14th and Grand, lift water from the Intermediate Pressure Zone to the High Pressure Zone. Current annual demand within the High zone is about 7 percent of the total water supplied to the entire water system.

Top Pressure Zone

The Top Pressure Zone is located south of the High Pressure Zone. It provides service to the extreme southern portions of the City as well as areas outside the city limits. Water is lifted to the Top Pressure Zone from the High Pressure Zone by way of three booster pump stations located at Garden Park, Division-Manito, and 35th and Ray. The two reservoirs that serve this zone, Browne Park #1 and #2, have capacities of 5 million gallons each. Browne Park #1 has an overflow elevation of 2,546.87 feet and Browne Park #2 has an overflow elevation 2,545.87 feet. Current annual demand within the Top Pressure Zone is about 14 percent of the total water supplied to the entire water system.

Glennaire Pressure Zone

The Glennaire Pressure Zone is located along the western slopes of Browne's Mountain. One 150,000 gallon reservoir, Glennaire #1, and a 1,000,000 gallon reservoir, Glennaire #2, have overflow elevations of 2,851.87 feet. Water is lifted from the Top Pressure Zone by the Glennaire Booster Pump Station located just below the two Browne Park Reservoirs. At present, the service area of the Glennaire Pressure Zone lies outside the city limits. The Glennaire Pressure Zone has a current annual demand within the zone of about 0.7 percent of the total water supplied to the entire water system.

Southview Pressure Zone

The Southview Pressure Zone is located along the western slopes of Browne's Mountain, adjacent to and south and east of the Glennaire Pressure Zone. The Southview Reservoir, has an overflow elevation of 2,998.87 feet and stores 48,000 gallons of water. The Southview Booster Pump Station lifts water from the Glennaire Pressure Zone to the Southview Pressure Zone and was designed to accommodate future development needs. The reservoir site is large enough to construct an additional 500,000-gallon reservoir, should future development require. The Southview Pressure Zone has a current annual demand within the zone of about 0.1 percent of the total water supplied to the entire water system.

Woodland Heights Pressure Zone

The West Drive Booster Pump Station lifts water from the Low Pressure Zone to the Woodland Heights Pressure Zone. The Woodland Heights Pressure Zone is located to the south of Indian Canyon Golf Course, just west of the Low Pressure Zone. This zone utilizes the Sunset Tank with storage capacity of 350,000 gallons. This zone has a current annual demand within the zone of about 1 percent of the total water supplied to the entire water system. The Sunset tank overflow elevation is 2,281.87 feet.

Highland Pressure Zone

The Highland Pressure Zone is located north and south of the Interstate 90 freeway on the City's west side; south of the Woodland Heights Pressure Zone, and west of the Low Pressure Zone. The Highland Tank with storage of 1 million gallons has an overflow elevation of 2,385.87 feet. The Milton Booster Pump Station lifts water from the Low Pressure Zone to the Highland Pressure Zone. Water can also be supplied from the Woodland Heights Pressure Zone utilizing the Sunset Booster Pump Station located at the base of the Sunset Tank. Current annual demand within the Highland Pressure Zone is about 1.1 percent of the total water supplied to the entire water system.

Midbank Pressure Zone

Located on the north side of the City, the Midbank Pressure Zone provides water service along the south and west slopes of Five-Mile Prairie between the Five-Mile and North Hill Pressure Zones. The Belt Street Booster Pump Station lifts water from the North Hill Pressure Zone to the Midbank Pressure Zone. The Midbank Standpipe, with a capacity of 580,000 gallons provides storage for the zone. Overflow elevation of the standpipe is 2,292.87 feet. Current annual demand within the zone is about 1 percent of the total water supplied to the entire water system.

Shawnee Pressure Zone

The Shawnee Pressure Zone is located on the northwest slope of the Five Mile Prairie. The Shawnee Booster Pump Station lifts water from the North Hill Pressure Zone to a 20,000-gallon tank, Shawnee Tank #1, and a 54,000 gallon tank, Shawnee Tank #2. Each reservoir has an overflow elevation of 2,276.87 feet. Current annual demand within this zone is about 0.2 percent of the total water supplied to the entire water system.

Woodridge Pressure Zone

The Woodridge Pressure Zone is located to the north and east of the Shawnee Pressure Zone and is also on the northwest slope of the Five-Mile Prairie. The Woodridge Booster Station lifts water from the Shawnee Pressure Zone to the Woodridge Reservoir that feeds the Woodridge Pressure Zone. The Woodridge Reservoir has a capacity of 228,000 gallons and has an overflow elevation of 2,420.58 feet. Current annual demand within this zone is about 0.2 percent of the total water supplied to the entire water system.

Five-Mile Pressure Zone

The Five Mile Pressure Zone is located on Five-Mile Prairie, a prominent geological feature located on the City's north side. The Five-Mile Booster Pump Station, located adjacent to the Five Mile Reservoir, lifts water from the North Hill Pressure Zone to the Strong Road Tank and the Five Mile Pressure Zone. The Strong Road Tank, with a storage capacity of 2 million gallons, has an overflow elevation of 2,520.87 feet. Current annual demand within this zone is about 1.5 percent of the total water supplied to the entire water system.

Kempe Pressure Zone

The Kempe pressure zone is located to the north of the Five Mile Pressure Zone on the Five Mile Prairie. The in-line Kempe Booster Station is located along North Five Mile Road to boost water from the Five Mile Pressure Zone to the Kempe Tank. The Kempe Tank has a storage capacity of 1.1 million gallons with the overflow elevation of 2567.46 feet.

Indian Hills Pressure Zone

The Indian Hills Pressure Zone extends along the western slopes of Five Mile Prairie. The primary source of water is from the Five Mile Pressure system through an altitude valve servicing the Indian Hills Tank. The standpipe has an overflow elevation of 2,330.87 feet. Current annual demand within this zone is about 0.1 percent of the total water supplied to the entire water system.

Spokane International Airport (SIA) Pressure Zone

The SIA Pressure Zone surrounds and includes the Spokane International Airport located west of the City. Originally built in the 1960s to supply the airport with water, the system consisted of two water supply wells and one storage reservoir. These facilities were constructed for the former Geiger Field Air Force Base. The City acquired ownership of the Spokane International Airport's water system and one well in 1980. That well has been abandoned, closed and sealed. A second reservoir was built adjacent to the original. The overflow elevation of SIA Tank #1 is 2,490.09 feet whereas the overflow elevation of SIA Tank #2 is 2,489.28 feet. The two reservoirs give the SIA Pressure Zone a combined storage capacity of 4.5 million gallons. All of the water used in this zone is pumped from the Low

Pressure Zone, through the Thorpe Road Booster Pump Station. Current annual demand within this zone is about 4 percent of the total water supplied to the entire water system.

Plains Pressure Zone

The Plains Pressure Zone is adjacent to and south and west of the SIA Pressure Zone. This zone serves an area that extends west from Spotted Road and south of Electric Avenue. The Mallen Hill reservoir with a capacity of 4 million gallons and an overflow elevation of 2,634.87 feet stores the water that is distributed in this zone. The area is generating considerable interest from land developers as large portions of land remain open space. Current annual demand within this zone is about 0.6 percent of the total water supplied to the entire water system.

Northwest Terrace Pressure Zone

The Northwest Terrace Pressure Zone is located north of Francis Avenue, south of Johannsen Road, paralleling Nine Mile Road in the northwest quadrant of the City. The system receives water from the Low Pressure Zone and the North Hill Pressure Zone through PRV stations. The pressure reducing valves maintain an outlet Hydraulic Grade Line of approximately 1,940 feet. There is no dedicated reservoir for this zone, although the Low and North Hill Pressure Zones can be considered reservoirs. The construction of a reservoir for this zone is included as a Capital Improvement project presented in Chapter 8. Current annual demand within the zone is about 1.5 percent of the total water supplied to the entire water system.

Eagle Ridge Pressure Zone

The Eagle Ridge Pressure Zone is located on the hillsides to the west of the Latah (Hangman) Creek Valley. It is west of the Low Pressure Zone, bounded on the south by the Spokane City Limits and on the north by the Cedar Hills Pressure Zone. The Eagle Ridge Reservoir has a capacity of 542,000 gallons and an overflow elevation 2,331.87 feet. Current annual demand within this zone is about 0.5 percent of the total water supplied to the entire water system.

Eagle Ridge II Pressure Zone

The Eagle Ridge II Pressure Zone is located adjacent to and north of the Eagle Ridge Pressure Zone. The Eagle Ridge II Standpipe has a capacity of 1.22 million gallons and has an overflow elevation of 2,457.00 feet. Current annual demand within this growing zone is about 0.1 percent of the total water supplied to the entire water system.

Cedar Hills Pressure Zone

The Cedar Hills Pressure Zone is located on the hillsides to the west of the Latah (Hangman) Creek Valley. It is west of the Low Pressure Zone and is bounded on the south by the Eagle Ridge Pressure Zone. The reservoir for this zone, Cedar Hills, has a capacity of 300,000 gallons and an overflow elevation of 2,259.87 feet. Current annual demand within this zone is about 0.1 percent of the total water supplied to the entire water system.

Hatch Road Pressure Zone

The Hatch Road Pressure Zone is located on the lower east slopes of the Latah (Hangman) Creek Valley. The Low Pressure Zone forms the north and west boundaries, the Top Pressure Zone forms the east boundary, and the Spokane City Limits forms the south boundary. The Hatch Road Pressure Zone has no reservoir of its own, thus it is supplied water from the Top Pressure Zone. The water supply must travel through two pressure reducing valve stations prior to serving the zone. The pressure reducing valves maintain a Hydraulic Grade Line of approximately 2,188 feet. Current annual demand is about 0.1 percent of the total water supplied to the entire water system.

Energy Sources

The Water Department owns its own dam and hydropower facilities at the Upriver Complex. The department is continuously buying and selling electricity with Avista Utilities, the local power company. The department's hydropower facilities produce enough electricity to meet the yearly total power demands for all its water pumps with some electricity left over to sell. The department has a contract through November 30, 2021, to sell this excess power to Avista. During the late fall, winter, and spring months when the department's water pumping demands are low and river flows are good, excess electricity is sold to Avista. During the summer months, when water pumping demand is high and river flows are low, the department purchases electricity from Avista. During the time that this Comprehensive Water System Plan will be in effect and all of the costs of buying and selling electricity are netted out, the Water Department will most likely have a net gain ranging from \$2.0 million to \$2.5 million per year, which helps maintain low water rates for customers.

Well Stations

The Department has seven well stations which provide direct service to the three primary pressure zones—the Low, Intermediate, and North Hill. All well stations draw water from the Spokane Valley-Rathdrum Prairie Aquifer. Some well stations have multiple wells and multiple pumps. No well station has less than two well pumps. Different pump types are used at the well stations including; horizontal centrifugal, vertical line shaft turbine, and submersible. **Table 1.3.1** shows data regarding each well station's specific pumping equipment. **Figure 1.3.3** shows the relationship of the pumping facilities to the hydraulic profile.

Disinfection of the water occurs at each well head with the injection of gaseous chlorine at a rate of one ton chlorine per 1.2 billion gallons. Due to the high quality of water in the aquifer, no other water treatment is needed or is being used at this time. A brief description of each well station is presented in this section.

TABLE 1.3.1
City of Spokane Well Stations Data

Hydraulic Zone	Pump Station (Note 1)	No. Of Wells @ Site	No. Of Pumps Serving Zone	Connected Horsepower (Hp)	Typical Outlet Pressure (psi)	Capacity (MGD)
Low	Well Electric (1996)	2	1	1,000	80	21.6
	Parkwater (1949)	4	6	3600	68	69.0
	Nevada (2-1958/2-2003)	1	4	2400	68	36.0
North Hill	Well Electric (1925)	2	2	1,800	140	24.2
	Grace Avenue (1950)	1	2	1,800	110	27.4
	Hoffman Avenue (1938)	2	2	1,200	55	15.7
	Central Avenue (1960)	2	4	1,800	55	24.2
Intermediate	Well Electric (1996)	2	1	900	180	10.8
	Parkwater (1-1949/1-2003)	4	2	1900	145	21.7
	Ray Street (1937, 1950)	2	3	2,700	157	31.0
Totals			27	19,100		281.6

Notes:

1) Year following pump station name indicates the date of newest pump installations.

Well Electric Well Station

The oldest well station in the water system, Well Electric is located adjacent to the Spokane River at the Upriver Complex. The well station consists of two 48-foot diameter wells. One well supplies water to a single 900 hp horizontal centrifugal pump that pumps water to the North Hill Pressure Zone. The second well supplies water to three pumps. One pump, another 900 hp horizontal centrifugal, also provides water to the North Hill Pressure Zone. The second pump, a 900 hp vertical line shaft turbine, lifts water to the Intermediate Pressure Zone. The third pump is a 1,000 hp vertical line shaft turbine that lifts water to the Low Pressure Zone. In 2013, the Well Electric Station provided 28.9 percent of the entire water system supply. Typical outlet pressures for the station are 180, 140, and 80 psi for the Intermediate, North Hill, and Low systems, respectively. The two vertical turbine high efficiency pumps were installed in 1996 as replacements for two less efficient pumps.

Parkwater Well Station

The Parkwater Well Station was completed in 1949 and is located one-half mile south and east of the Well Electric Well Station. The Parkwater Well Station houses eight pumps in four 18-foot-diameter wells. All of the pumps are vertical line shaft turbines. One pump is a 900 horsepower unit and another pump is a 1,000 horsepower unit, both units supplying water to the Intermediate Pressure Zone at an outlet pressure of 145 psi. The other six pumps are 600 horsepower and supply water to the Low Pressure Zone at an outlet pressure of about 68 psi. The 1,000 horsepower pump was installed in 2003, replacing one of the older pumps to improve energy efficiency. The Parkwater Well Station in 2013 supplied 33.2 percent of the entire water system demand.

Nevada Well Station

At the intersection of Nevada Street and North Foothills Drive is the Nevada Well Station. The Nevada Well Station supplies water to the Low Pressure Zone. The well was constructed in 1956 and has two 400 horsepower submersible pumps installed in 1956 and two 800 horsepower vertical line shaft turbine pumps installed in 2003 replacing two older 1956 pumps to improve energy efficiency and station redundancy. Typical outlet pressures at this station are 68 psi. In 2013, the Nevada Well Station supplied 14.4 percent of the total water system demand.

Grace Avenue Well Station

Located directly east of the Nevada Well Station is the Grace Avenue Well Station. Two identical 900 horsepower vertical line shaft turbine pumps occupy a single 18-foot-diameter well and supply water to the North Hill Pressure Zone at a discharge pressure of 110 psi. In 2013, the Grace Avenue Well Station supplied 8.2 percent of the total water system demand.

Ray Street Well Station

The Ray Street Well Station is located at the intersection of Ray Street and Hartson Avenue. The Ray Street Well Station pumps water to the Intermediate Pressure Zone. The well station houses two 24-foot-diameter wells and three 900 hp pumps, two pumps in one well and a single pump in the second well. The discharge pressure normally observed at the outlet of the Ray Street well is 157 psi. This well station in 2013 supplied 6.8 percent of the total water system demand.

Hoffman Well Station

Hoffman Well Station is located at Hoffman Avenue and Crestline Street. The well station houses two 16 foot diameter wells that are 40 feet apart. Each well has a 600 horsepower vertical line shaft turbine pump. Normal outlet pressure for the pump station is 55 psi. One pump is out of service for well lining repairs to be complete by 2008. Hoffman Well Station in 2013 supplied 1.5 percent of the total water system demand.

Central Avenue Well Station

The Central Avenue Well Station is on Central Avenue two blocks west of Division Street. The Well Station has two 7-foot-diameter wells and two 450 hp submersible pumps in each well. Normal outlet pressure is 55 psi. This well station in 2013 provided 7.0 percent of the total water system demand.

Insert Figure 1.3.3

Pipelines

The transmission and distribution pipelines vary from 6 inches to 48 inches in diameter. The water system has several different pipe materials in use, with the majority being cast iron or ductile iron. Before ductile iron was available, the Department typically specified the use of cast iron pipe for the smaller distribution piping and steel for the larger transmission mains. All new pipelines are ductile iron.

An area of concern for the Water Department has been the deterioration of Kalamein steel pipe. Kalamein is a galvanized steel pipe installed at various times prior to 1945 when cast iron pipe was not available. The City has an ongoing program to replace the Kalamein pipe with ductile iron pipe. The replacement program, detailed in Chapter 8, includes a plan to replace all Kalamein pipe in the City water system. As of 2015, 95 % of Kalamein pipe has been replaced with ductile iron pipe. Any isolated segments of Kalamein are replaced as they are located. Another area of concern was asbestos cement pipe; all such pipe has now been removed from the water system.

Since 2007, the Water Department has made a concerted financial effort to upgrade its aging 70- to 100-year-old transmission pipeline infrastructure, which, as the ongoing water audit may show, could have been a factor in the City's Distribution System Loss ("DSL") rate of 17.8% in 2014. These are steel pipelines ranging in size from 18 inches to 48 inches in diameter. The type of steel pipeline being replaced is predominately riveted steel although some welded steel is being replaced as well. The result of this effort is the replacement of about 14 miles of pipelines to date. Over the next six years, the Department has a program to replace another 13.5 miles and within 20 years an additional 12.8 miles.

Booster Pump Stations

The City of Spokane water system uses 27 Booster Pump Stations to lift water from the three primary pressure zones to pressure zones located at higher elevations. The Booster Pump Stations are listed in **Table 1.3.2**. The relationship of the Booster Pump Stations and Pressure Zones are shown in **Figure 1.3.3**. The table indicates the Pressure Zone that is served, the number of pumps in each station, pump capacity, and other characteristics of each booster station. The piping configuration in a typical Booster Pump Station includes suction shutoff valves, pumps, check valves, and outlet shutoff valves. The Five-Mile and Thorpe Road Booster Stations also have surge protection devices installed.

TABLE 1.3.2
City of Spokane—Booster Pump Station Data

Pressure Zone Served	Booster Station (Date Constructed)	No. Of Pumps	Connected Horsepower	Typical Inlet/Outlet Pressure (psi)	Nameplate Capacity (MGD)	Total Pumping Capacity (MGD)
Intermediate	9th & Pine (1966)	2	500	8 / 82	11.09	

	Bishop Court (1989)	2	400	50/122	9.22	20.31
High	Lincoln Heights (1931,53,63)	8	2800	7 / 92	56.30	
	14th & Grand (1989)	2	400	27 / 112	9.90	66.20
Top	Division & Manito (1963)	3	90	43 / 80	4.35	
	Garden Park (1963)	4	300	31 / 65	17.70	
	35th & Ray (1986)(2005)	3	300	40 / 78	15.84	37.89
Glennaire	Glennaire (1971,95)	4	130	18 / 160	1.43	1.43
Midbank	Belt Street (1963)(2006)	4	110	40 / 86	1.93	1.93
Indian Hills	Indian Hills (1969)*	2	85	60 / 120	1.80	1.80
Shawnee	Shawnee (2004)	2	60	47 / 90	1.61	1.61
Five Mile	Five Mile (1976)(2006)	3	450	10 / 136	5.81	5.81
Kempe	Kempe (2010)	3	80		5.47	5.47
Highland	Milton (1972,80)	3	245	56 / 170	3.30	
	Sunset (1969)	3	18	6 / 52	0.72	4.02
Woodland Heights	9th & E (1929,32)**	2	90	41 / 128	1.66	
	West Drive (2008)	2	120		2.30	3.96
Southview	Southview (1995)	4	50		1.30	1.30
Eagle Ridge	Eagle Ridge (1997)	3	200	80 / 180	2.30	2.30
Cedar Hills	Cedar Hills (1999)	3	75	19 / 88	1.51	1.51
SIA	Thorpe Road (1976)	4	1000	17 / 185	10.48	
	West Drive (2008)	3	900		9.76	20.24
Plains	Spotted Road (1985)	2	170	39 / 108	4.90	4.90
Eagle Ridge II	Eagle Ridge II (2005)	2	500	8/130	7.20	7.20
Woodridge	Woodridge (2005)	2	40	40/62	1.93	1.93
Low	Latah (2004)	1	500	115/150	23.04	23.04
Total		76				212.85

Notes: *The Indian Hills System is currently fed by the Five Mile System through and altitude valve. The Indian Hills Booster Station is currently not in service but remains for redundancy.

**A portion of the new West Drive Booster Station replaced pumping duty to Woodland Heights. The 9th and E Booster Station is currently not in service but remains for redundancy.

Pressure Reducing Valve Stations

The varied terrain found in the City can cause localized high pressures. To reduce and maintain acceptable pressures within the distribution system, pressure reducing valve (“PRV”) stations have been installed in some locations within various pressure zones. The Northwest Terrace Pressure Zone and the Hatch Road Pressure Zone control pressures throughout the entire pressure zone with PRV stations. **Table 1.3.3** lists the locations of PRV stations within the distribution piping system.

The Water Department requires property owners to install PRVs on individual water services when pressures are between 80 psi and 100 psi. In areas that exceed 100 psi, a PRV station within the distribution system, as described above, plus individual PRVs on services are required.

TABLE 1.3.3
Pressure Reducing Valve Stations Data

Location	Valve Sizes (inches)	Inlet (Psi)	Outlet (Psi)
Shoshone & Lincoln	6 & 1-1/2	120	65
Panorama & Walnut Court	6 & 2	100	56
Walnut St. & Cedar Rd.	6 & 2	80	66
Assembly & Dalke (Extd.) (South)	6 & 1-1/2	80	8
Assembly & Dalke (Extd.) (North) (Northwest Terrace - Low Zone)	8 & 3	80	8
Sundance Dr. & Acoma? Dr. Upper Intertie (Northwest Terrace #1 - Nh Zone)	10 & 4	115	26
BPA Transmission Easement Lower Intertie (Northwest Terrace #2 - Nh Zone)	10 & 4	150	110
Burchwood & 9 Mile Road	8 & 2	120	55
Moran View & Woodland Court (Eagle Ridge)	6 & 3	123	68
Hatch Road (6200 South) #1	10 & 4	110	35
Hatch Road & Tomacher Ln. #2	10 & 4	125	45
Latah Hills Ct & Shelby Ridge (Eagle Ridge)	6 & 3	95	55
Summerwood & Shelby Ridge (Eagle Ridge)	8 & 3	95	55
Prairie Dr & Fleetwood Ct	8 & 3	113	63
16 th Ave & Milton	10 & 6 & 3	175	55
River Ridge & Sand Ridge	10 & 6 & 3	120	65
River Ridge & Government Way	10 & 6 & 3	110	55

Storage Reservoirs

Each Pressure Zone, with the exception of the Northwest Terrace Pressure Zone and the Hatch Road Pressure Zone, has one or more storage reservoir(s). The pressure within each Pressure Zone is determined by the elevation of the water within the reservoir. **Figure 1.3.3** illustrates the hydraulic relationship of the various reservoirs in the water system. **Table 1.3.4** lists the storage reservoirs found in the water system. The table indicates the volume of storage, the zone served, the type of material, and the overflow and floor elevations for each of the 34 reservoirs.

TABLE 1.3.4
City of Spokane—Reservoirs and Storage Data

Hydraulic Zone	Reservoir Name	Elevations			Type	Diameter (ft.)	Reservoir Storage (Mg)	Zone Storage (Mg)
		Over-Flow	Tank Bottom	Base				
Low	Shadle (1965)	2100.87	2031.34	2031.34	Steel Reservoir	107'	4.80	
	Rockwood Vista (1948)	2099.64	2083.51	2083.51	Underground Concrete	2-1/2 ac.	11.00	
	9th & Pine (1964)	2100.64	2082.87	2082.87	Steel Reservoir	260'	7.20	
	West Drive (1956)	2101.65	2066.37	2066.37	Steel Reservoir	72'	1.00	
	Thorpe Road (1983)	2101.87	2045.91	2045.91	Steel Reservoir	104'	3.50	28.75
	Qualchan (1992)	2101.87	2057.87	2057.87	Concrete w/liner	71'	1.25	
Intermediate	14 th & Grand (2005)	2283.25	2206.12	2206.12	Steel Standpipe	34'	0.52	
	Lincoln Heights # 1 (1995)	2279.87	2249.87	2249.87	Concrete w/liner	240'	10.00	20.52
	Lincoln Heights # 2 (1995)	2279.87	2249.87	2249.87	Concrete w/liner	240'	10.00	
High	Garden Park (1956)	2470.23	2396.92	2396.92	Steel Reservoir	65'	3.10	
	33 rd & Lamonte (1930)	2465.91	2431.24	2347.14	Elevated Riv. Steel Tank	78'	1.25	4.35
Top	Browne? Park #1 (1958)	2546.21	2511.73	2511.72	Steel Reservoir	160'	5.00	
	Browne? Park #2 (1990)	2545.87	2511.72	2511.72	Steel Reservoir	160'	5.00	10.00
Glennaire	Glennaire #1 (1958)	2851.87	2841.85	2841.85	Concrete w/sealer	43.33' x 47'	.15	
	Glennaire #2 (1991)	2851.82	2821.87	2821.87	Concrete w/liner	75'	1.00	1.15
North Hill	North Hill (1986)	2189.87	2144.37	2144.37	Steel Reservoir	200'	10.80	
	Five Mile (1956)	2190.12	2159.65	2159.65	Steel Reservoir	240'	10.20	25.60
	Indian Trail (1996)	2189.87	2149.87	2149.87	Concrete w/liner	140'	4.60	
Midbank	Midbank (1960)	2292.87	2230.87	2230.87	Steel Standpipe	40'	0.58	0.58
Indian Hills	Indian Hills (1995)	2330.87	2300.87	2305.87	Steel Standpipe	14'	0.03	0.03

TABLE 1.3.4
City of Spokane—Reservoirs and Storage Data (continued)

Hydraulic Zone	Reservoir Name	Elevations			Type	Diameter (ft.)	Reservoir Storage (Mg)	Zone Storage (Mg)
		Over-Flow	Tank Bottom	Base				
Shawnee	Shawnee #1 (1978)	2275.50	2261.50	2261.50	Steel Reservoir	15'	0.02	
	Shawnee #2 (1993)	2276.62	2261.87	2261.87	Steel Reservoir	25'	0.054	0.074
Five Mile	Strong Road (1982)	2520.87	2396.30	2396.30	Steel Standpipe	55'	2.00	2.00
Kempe	Kempe (2010)	2567.46	2433.46	2433.46	Steel Reservoir		1.10	1.10
Highland	Highland (1966)	2385.81	2276.71	2276.71	Steel Standpipe	40'	1.00	1.00
Woodland Hts.	Sunset (1968)	2281.87	2258.23	2258.23	Steel Reservoir	50'	0.35	0.35
SIA	SIA #1 (1935)	2490.09	2452.67	2362.89	Elevated Riv. Steel Tank	48'	0.50	
	SIA #2 (1984)	2489.28	2364.53	2364.53	Steel Standpipe	78'	4.00	4.50
Southview	Southview (1996)	2998.87	2956.87	2956.87	Steel Standpipe	14'	0.048	0.048
Eagle Ridge	Eagle Ridge (1995)	2331.87	2309.37	2309.37	Steel Reservoir	62'	0.542	0.542
Cedar Hills	Cedar Hills (1999)	2259.77	2239.37	2239.37	Steel Reservoir	52'	0.30	0.30
Plains	Mallen Hill (1985)	2634.87	2580.22	2580.22	Steel Reservoir	110'	4.00	4.00
Hatch Road	No Reservoir*							
NW Terrace	No Reservoir *							
Eagle Ridge #2	Eagle Ridge 2	2466.14	2336.14	2336.14	Steel Reservoir	40'	1.22	1.22
Woodridge	Woodridge	2407.96	2385.29	2385.29	Steel Reservoir	42'	.228	.228
TOTAL STORAGE								106.342 mg

* Pressure zone controlled by prv stations.

Note: Elevations shown in this table refer to NAV 88 DATUM

System Control Facilities

In 1985, a Control Center was established at the Upriver Complex with the installation of a Supervisory Control and Data Acquisition (SCADA) system. The SCADA system provides operational control and monitoring of all major facilities within the water system. As with most computer applications, the SCADA system is subject to frequent updating. The latest updated SCADA system was fully installed June 2007. The next update of the SCADA system software and hardware is expected to be completed by the summer of 2015. Some of the functions that SCADA monitors and/or controls are:

- Storage reservoir levels
- Pump starts, stops, and run times
- Well drawdown elevations
- System chlorine residuals
- Dam and hydroelectric powerhouse

The Control Center is staffed 24 hours a day, 7 days a week by State of Washington Department of Health Certified Water Distribution Managers.

Service Connections

A Service Connection consists of a Water Service Tap and a Service Line. A Water Service Tap and Service Line is defined as: *The Water Service Tap is the connection of a service line to the Distribution Main. The Service Line is the pipe which extends from the Service Tap to the customer's property line and water meter.* This service line delivers potable water to the property. Typical uses for the water include: domestic needs, commercial and industrial needs, irrigation, and fire protection. There are presently more than 76,250 service connection accounts to the City of Spokane water system.

Prior to the installation of a water tap and meter, a permit must be purchased from the City. Purchase of the permit not only supplies the meter, but it also establishes an account to which maintenance and billing records can be attached.

If a meter is installed at the property line, the City requires that it be placed in a concrete meter box as defined in the City Design Standards, and that the meter be placed so that the valve located at the property line will allow water to be shut off prior to entering the meter.

Ownership and protection of the water meter is the responsibility of the property owner. The City will maintain the water meter to insure its operating integrity, but if it is determined that the owner, through neglect or damage, caused the need to repair a meter, the owner will be responsible for the costs of any required repairs.

Interties

Interties are the mechanism for the transfer of water from one water system to another and can be used for permanent water supply; to supplement limited supply capacity of a purveyor; provide water to an area that has limited storage capacity; provide water to meet a peak or fire demand; or to provide for emergency service, such as an equipment failure. Because of the size and redundancies of the City's Water System and the desire to isolate the City's system, all interties with the City anticipate and provide for flow going only from the City's system into the adjoining purveyor's system. However, if some emergency event

required the City to receive flow from a certain purveyor for a significant period of time, reasonably quick plumbing changes can accomplish this.

Seven adjoining purveyors have interties with the City of Spokane Water System. All interties are metered and the purveyor is billed for the water used per rates established in Municipal Code 13.04.2014. A list of the interties is shown in **Table 1.3.5**. Copies of intertie agreements are found in **Exhibit 1.3.2**. The Municipal Code is found at: www.spokanecity.org.

TABLE 1.3.5
City of Spokane Interties

Purveyor	Intertie Location
City of Airway Heights	10800 West U.S. Hwy. 2
Spokane County Water District # 3	#1 - 1500 North Thierman Road #2 - 2000 South Camahan Road #3 - 5400 South Perry Street #4 - 5221 East Desmet Avenue
Whitworth Water District #2	Hawthorne Road/Nevada Street Intersection
Fairchild Air Force Base	2108 W. Spotted Rd.
Vel View Water District #13	3609 West Vel View Drive
North Spokane Irrigation District #8	Francis Avenue/Freya Street Intersection
City of Medical Lake	Hwy 902/Craig Road Intersection

Descriptions of interties are as follows:

Spokane County Water District #3

Of Water District #3's four interties with the City, one (#4) provides the entire water supply needed to serve this area, while the others are for fire flow and other emergency uses.

Whitworth Water District #2

This system's intertie with the City of Spokane is for emergency use only.

North Spokane Irrigation District #8

This District has one intertie with the City of Spokane for emergency use.

City of Airway Heights

Airway Heights has an intertie with the City of Spokane and has purchased a significant amount of water in the past. It has new water facilities which are expected to provide the majority of its potable water in future years.

City of Medical Lake

Medical Lake is currently in negotiations for an emergency intertie with the City of Spokane.

Fairchild Air Force Base

Fairchild has an emergency intertie with the City of Spokane and has purchased water in the past.

Vel View Irrigation District #13

Vel View has emergency intertie with the City of Spokane.

1.4 Related Plans

The following planning documents were identified as having potential impacts on the future plans of the Water Department. Reviewing related plans is necessary to avoid inconsistencies and conflicts between planning agencies.

Comprehensive Plans

For land use and planning projections, the Water System Plan gets guidance from the City's Comprehensive Plan and any applicable local comprehensive plans where service is provided. The City's Comprehensive Plan complies with the Growth Management Act and provides the necessary links with the Spokane County Comprehensive Plan and the County Wide Planning Policies for water service outside the City's boundaries. A major update to this plan is due in 2017.

Stormwater Plans

The City of Spokane has developed and is now implementing through its Wastewater Department a stormwater management plan to control the impacts of non-point source pollution resulting from storm water runoff which can affect the beneficial uses of the Spokane River, Latah Creek, and Spokane Valley/Rathdrum Prairie Aquifer. The City's stormwater management plan can be found on the City's website.

Wastewater Plans

The City of Spokane's Wastewater Department has plans to add an additional level of treatment at the City's Wastewater Reclamation Plant. Design work is under way, as is a pilot project to test membrane treatment technology. This \$100 million project will be the largest expansion at the plant in decades. Additionally, a third digester and another primary clarifier will be added at the plant. Spokane County, meanwhile, retains 10 million gallons of treatment capacity at the City's wastewater plant. However, it also has constructed and now operates its own plant just east of the City limits. This additional level of treatment work will be operational in 2021.

On-Site Sewage Disposal Regulations

On-site sewage disposal regulations are found in the City's Municipal Code, and allow septic tanks to be installed in areas where sewer service is unavailable. Septic tanks are governed by a permitting process through the Spokane Regional Health District. Customers are referred to the City's Wastewater Management Department for connection availability. Should service be unavailable, the customer can then contact the Spokane Regional Health District to determine if a septic tank permit will be approved. In general, the City tries to avoid and discourage the use of septic tanks.

Spokane County Coordinated Water System Plan

The present Spokane County Coordinated Water System Plan ("CWSP") was adopted by Spokane County in July 1999. The City of Spokane took an active role in development of this CWSP. The CWSP is further discussed in Section 1.7.

Wellhead Protection Plan

The City of Spokane's Wellhead Protection Plan Phase 1 Technical Report was completed in February 1998. The Phase 2 implementation Report was completed in June 2000. The plan was updated in 2015. These plans and resulting programs are discussed in detail in Chapter 5.

1.5 Status of Watershed Plans

Watershed planning in Washington State is conducted under the framework of the Watershed Management Act (ESHB 2514) passed by the Washington State Legislature in 1998. The Act enables local citizens, interest groups, and government organizations to collaboratively identify and solve water-related issues in the state's 62 Water Resource Inventory Areas ("WRIA").

The goal of watershed planning is to assess the water resources within each watershed and make recommendations to ensure the state's water resources are used wisely by:

- Protecting existing water rights
- Protecting in stream flows for fish
- Forecasting the future water resource needs
- Ensuring future water availability

The City of Spokane is the largest metropolitan area, and the City Water Department is the largest public owned utility, in all local watersheds. As such, the City finds itself an initiating agency and is involved in four watershed planning processes.

A "Watershed System Plan Checklist" is included in **Exhibit 1.5.1**. A brief discussion on the status of each plan is presented as follows:

WRIA 54 – The Lower Spokane River Watershed

The WRIA 54 Watershed involves the Spokane River and all of the tributaries that flow into the Lower Spokane River downstream of its confluence with Hangman (Latah) Creek to its confluence with the Columbia River.

The WRIA 54-Lower Spokane Watershed Detailed Implementation Plan was presented in December 2010 providing the framework for implementation of watershed planning strategies presented in the 2009 WRIA 54 Watershed Plan. Implementation of the Watershed Detailed Implementation plan represents moving into Phase 4 of the process outlined in Washington's 1998 Watershed Planning Act (Chapter 90.82 RCW). The WRIA 54-Lower Spokane Watershed Detailed Implementation Plan, December 2010 and the WRIA 54-Lower Spokane Watershed Plan, August 2009 are available on the Spokane County website at <http://www.spokanecounty.org/WQMP/project54/>.

WRIA 56 Latah (Hangman) Creek Watershed

The WRIA 56 Watershed spans two states and four counties before it outflows into the Spokane River about a mile west of the Spokane Falls in downtown Spokane. WRIA 56 includes the portion of this watershed that is within Washington State.

The Spokane County Conservation District ("SCCD") initiated the watershed planning process in Latah (Hangman) Creek. In 1999, the SCCD received funds from the Washington State Department of Ecology to constitute a planning unit and develop a scope of work for the planning process. Additional funding was received for a watershed assessment and the development of a watershed management plan.

The WRIA 56 Latah (Hangman) Creek Detailed Implementation Plan, dated February 19, 2008, is intended to be used for the coordination and implementation of the 68 recommendations of the WRIA 56 Latah (Hangman) Creek Watershed Management Plan. The final WRIA 56 Latah (Hangman) Creek Watershed Management Plan was completed in September 2005 completing Phases 1-3, the Detailed Implementation Plan represents Phase 4 of the process outlined in Washington's 1998 Watershed Planning Act (Chapter 90.82 RCW).

The WRIA 56 Latah (Hangman) Creek Watershed Management Plan dated May 19, 2005, is available on the Spokane County Conservation District (SCCD) website at http://www.sccd.org/pdfs/WR_DL/HC%20Final%20Draft%20Report%2005-19-05.pdf and the Detailed Implementation Plan may be found at http://www.sccd.org/pdfs/WR_DL/WRIA%2056%20DIP%20FINAL.pdf. In stream flow, water quality and water storage are the primary issues being addressed in this watershed. The goal is to protect the watershed's in stream resources and associated habitat balanced with the economic interests within the watershed.

WRIA 55 – Little Spokane River Watershed & WRIA 57 - Middle Spokane River Watershed

WRIA 55 Little Spokane River Watershed spans three counties before it outflows into the Spokane River approximately 3 miles downstream of the Nine Mile Falls Dam.

WRIA 57 Watershed is comprised of the Spokane River drainage basin that begins at the state line of Washington and Idaho and ends at its confluence with Latah (Hangman) Creek.

In 1998, the watershed planning effort was initiated when funding was provided by Washington State Department of Ecology. A planning unit made up of local agencies and various interest groups was formed to plan for future water use in the Middle Spokane and Little Spokane watersheds.

The WRIA 55/57 Watershed Plan was approved by the Planning Unit on July 6, 2005. The Watershed Plan was then presented to the initiating agencies for approval. After some minor adjustments the WRIA 55/57 Watershed Plan was adopted by the County Commissioners of Pend Oreille, Spokane, and Steven Counties on January 31, 2006.

A significant component of the WRIA 55/57 Watershed Plan was its watershed simulation modeling, based upon detailed data, which demonstrated the strong hydraulic links between the Spokane River and the Spokane Valley-Rathdrum Prairie Aquifer. There is indication that groundwater pumping has an impact on flow rates in the Spokane River.

A Detailed Implementation Plan for WRIA 55/57 was approved February 20, 2008, for the coordination of the implementation of the 107 recommendations outlined in the WRIA 55/57 Management Plan. These recommendations address central issues to water resource management. Implementation of the Watershed Detailed Implementation plan represents moving into Phase 4 of the process outlined in Washington's 1998 Watershed Planning Act (Chapter 90.82 RCW). Recommendations fall into the following categories:

- In stream flow needs
- Water conservation, reclamation and reuse
- Domestic exempt wells
- Water rights and claims
- Strategies for base flow augmentation
- Strategies for ground water recharge augmentation
- Approaches to plan implementation

The City of Spokane Water Department has a strong interest in the programs that are being proposed in the WRIA 55/57 Watershed Plan. The Water Department will budget funds for the costs of implementing the Plan recommendations, with the full intent that others will join to share in those costs.

1.6 Service Area and Characteristics

Existing and Retail Service Areas and Characteristics

The existing and retail service areas as shown within the future service area in **Figure 1.6.1** is approximately 80 square miles in size. Water service in rural areas may be allowed subject to meeting the intent of the Growth Management Act (GMA) to not promote urban development in a rural area. These rural water services will be provided in accordance with the comprehensive planning documents and state and local regulations. If water service is provided, any existing water right associated with the previous or existing water supply shall be conveyed to the City of Spokane.

The existing service area consists of a central core business district surrounded by other centers and corridors, as defined in the City of Spokane Comprehensive Plan. Other pockets of commercial activity are scattered throughout the service area. The majority of the industrial zones are located along the City's eastern boundary, the northeastern portions of the City, and in the West Plains area. Public lands are interspersed throughout the service area, as parks, playgrounds, and government complexes. Extensive medical facilities are located just south of the central core with others interspersed throughout the area. There are

significant pockets of multi-family housing areas. However, the largest land area presently served is made up of single family residential land use. Small portions of presently rural areas are also served. A land use map is included in Chapter 2, **Figure 2.1.1**.


The retail service area and the existing service area share a common boundary in this water system plan. Anticipated growth within the next 6 years will be within infill areas located within this common boundary. The retail service area boundary does not include possible expansions of the Urban Growth Area boundaries. Any expansions of the Retail Service Area shall be in compliance with the City of Spokane's Comprehensive Water System Plan, SMC Section 13.04.1921 and all other applicable rules and regulations prior to review and inclusion to the retail service area.

The City of Spokane shall provide water service consistent with this plan and the Washington State Growth Management Act (GMA). The City completed a land quantity analysis for 20-year planning purposes in 2010. This analysis indicated the existence of sufficient land capacity for residential, commercial and industrial land within the City to accommodate projected population, commercial, and industrial growth for the next 20 years.

It is the intent of the City to meet the demand for growth within its existing retail water service area in order to provide the most cost-efficient governmental services. Any expansions of the Retail Service Area will be in accordance with the SMC, this plan and any other applicable rules and regulations, and subject to approval by City Council.

As previously referenced, a detailed system map showing location of the major facilities including wells, storage reservoirs, booster stations, and transmission main piping is provided in **Figure 1.3.2**. The current pressure zones are provided in **Figure 1.3.1**.

Future Service Area and Characteristics

The future service area is defined by the Coordinated Water System Plan area for the City of Spokane Water Department service area. The future service area can be provided future service by existing water rights. The City of Spokane worked with a Consultant to provide a third party water demand forecast for future demand and the report is attached as .

Service Area Consideration for Place of Use for City of Spokane Water Rights

Figure 1.6.2 shows the existing water retail service area plus the future water service area presently reserved for the City of Spokane. In addition, it shows adjoining water purveyor service areas that are presently wholesale or emergency intertie customers.

The City of Airway Heights has been a consistent wholesale water customer. Whitworth Water District #2, Vel View Water District #13, North Spokane Irrigation District #8, the portion of Spokane County Water District #3 service area located to the east of the City, Kaiser North, Kaiser South, Mount Saint Michaels, and two different service areas belonging to Spokane County Water District #3 Pasadena Park Irrigation District, Orchard Avenue Irrigation District #6, Carnhope Irrigation District #7, East Spokane Water District #1, the City of Medical Lake and Four Lakes Water District #10 are all reserved for places of use for City of Spokane water rights and are therefore intended for the use or sale of water

by the City and do not include the transfer of water rights to any other entity. All agreements for the sale of water to adjoining purveyors are subject to the approval of the City Council.

1.7 Coordinated Water System Plan (CWSP) Agreement

The City of Spokane as a member of the Water Utility Coordinating Committee (WUCC) and also with a service area within the confines of the critical water supply area is part of the 1999 Spokane County CWSP. Although a significant portion of the CWSP identifies service area boundaries by collecting in one location the water service plans of several local purveyors, Section 3 of the CWSP establishes the mechanism for service area agreements between all local water purveyors within the critical water supply area. Exhibit 3-2 of the CWSP, provided herein as **Exhibit 1.7.1**, is the Water Utility Service Area Agreement. The City has had one amendment to the agreement. This “Amendment No. 1” is also included in **Exhibit 1.7.1**.

Section 3-1 of the CWSP outlines common service area transfer requirements. The water service area boundaries for each purveyor, typically following streets, are identified in Section 3-2 and Exhibit 3-1 of the CWSP. These boundaries are also shown in **Figure 1.2.1** of this plan. Exhibit 3-4 of the CWSP, “Service Area Boundary Amendment Procedure” shown herein as **Exhibit 1.7.2**, details the procedure to make boundary adjustments. Amendments to the defined service area boundaries can occur if both utilities agree to the change. The CWSP has provided a form to make such a change and is provided herein as **Exhibit 1.7.3**. Service Area terms of agreement are identified in the CWSP in Exhibit 3-6, Certificate of Completion Service Area Adjustment, herein shown as **Exhibit 1.7.4**. Documents for the Spokane County Coordinated Water System Plan are maintained on the Spokane County website and may be accessed at <https://www.spokanecounty.org/WQMP/>

The City of Spokane Water System Plan’s service area policies are consistent with the “timely and reasonable” requirement for approval or denial of new requests for water service of Section 8.2 of the Spokane County CWSP. A detailed discussion and flow chart on retail water service requests follows in Section 1.8, “Service Area Policies”. For purposes of requests for water service outside the City’s retail water service area, the provision of service will be “reasonable” if (1) the conditions of the request for service comply with the ~~City’s~~ Comprehensive Plan and development regulations and all federal, state and local rules and regulations, (2) the conditions of service and the associated costs are consistent with those documented in this water system plan, and (3) the conditions of service and the associated costs in each particular case are consistently applied to other applicants requesting similar water services.

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1.8 Service Area Policies

General Policy

The City's duty to provide water service to new service connections must be consistent with the City's utility service extension policy and ordinances, the SMC, this Plan and any applicable local plans and regulations as well as WAC 246-290-106.

The City will honor prior commitments for water service by a special connection or latecomers agreement. In the case of a prior commitment for water service, the vested water capacity exists with the commitment and the parcels included in the prior commitment will be included in the retail water service area upon City Council approval.

The City will evaluate any new requests for retail water service which are outside the City's retail water service area within 120 days of the request, pursuant to the flow chart for retail water service requests provided in Figure 1.8.1. It is the policy of the City to ensure that requests for expansion of the Retail Service Area be considered at least annually.

Water Rates to Other Purveyors

The City has a separate rate for water sold to other purveyors for any purpose. This rate is found in Municipal Code 13.04.2014.

Annexation

When owners of properties outside the City Limits intend to use City water, in addition to obtaining any necessary permits from the County, they must also either annex into the City or sign an annexation agreement as shown in **Exhibit 1.8.1**.

Satellite Systems

For service within the City's future service area, the City prefers direct connections to its piping system. The City will consider, on a case-by-case basis, a satellite system within its future service area to be operated by others on an interim basis until an appropriate time when the system can be connected directly to the City's system. The final decision for such an arrangement will be made by the Water Department Director subject to Mayor and City Council approval.

Rates for Outside City Customers

Outside City customers pay higher rates due to the higher cost to provide water to the outlying areas. For single-family residences, the rates are as outlined in Municipal Code 13.04.2012. Rates for commercial, industrial and all other customer premises not specifically identified as a single-family residence are listed in Municipal Code 13.04.2016.

Formation of Local Improvement Districts

Property owners within the City Limits who wish to form a Local Improvement District ("LID") to build a water system extension can do so by contacting the City's Engineering Services Department. The Engineering Services Department will help the property owner

go through all the necessary procedures. The procedures for a property owner wishing to do a LID outside the City and within the retail service area are basically the same except they will have to prepare a “Request for LID Covenant” as shown in **Exhibit 1.8.2**. LIDs shall only be served within the retail service area. The City’s Hearing Examiner will review all LID proposals and make the final decision regarding each LID.

Oversizing

The complete “Water Main Oversize” policy for upsizing water pipe for necessary present or future application appears in **Exhibit 1.8.3**. The policy was adopted in 1999 and remains in effect. The upsizing policy of water mains installed by private contract provides the flexibility to upsize water mains above what is required by a developer so the City may participate in the upsize of water mains to meet the needs of downstream customers. The “Water Main Oversize Justification Approval” form is shown in **Exhibit 1.8.4**. Oversizing water piping is subject to the approval of the Water Department Director.

Cross Connection Program

The cross connection program is addressed in Chapter 6 of this Plan.

Service Extension Requests

Typically the Water Department pays for wells, pumps, reservoirs, and transmission mains. However, should a developer need infrastructure installed prior to the time and financing as provided for in the Water Department capital plans, the developer, upon request and approval by the City, may proceed at their own expense, provided these service extensions are within the retail service area. Distribution main extensions and service connections most typically are paid for by developers/property owners. All work must be designed by a licensed engineer and constructed in accordance with City design and construction standards.

Satellite Management Agencies

The Water Department does not currently manage any other water systems and has no plans to become a Satellite Management Agency. However, the Department will evaluate future opportunities or requests on a case-by-case basis.

Conditions of Service

Conditions of service are specific requirements that facilitate the implementation of the City’s Water Department service area policies. Conditions of service requirements are provided to each project proponent at time of their request for a permit and/or predevelopment information requests and can include one or more of the following items:

- Purveyor responsibilities
- Customer responsibilities
- Connection fee schedule
- Meter and materials specifications
- Consent agreements for inspection, maintenance, and repair activities that may disrupt water service
- Cross-connection control requirements

- Developer extension requirements, design standards, financing responsibilities, and professional engineer design requirements
- Annexation policies as addressed at the beginning of this section
- Inclusion within the City's Retail Service Area

Each scenario in the process to obtain water for a property, from the initial development of land to the purchase of an established residence, has a set procedure governed by the City's municipal codes, ordinances, and design standards.

City of Spokane Responsibilities

Responsibility of the City for providing operation and maintenance of the water system begins within the public domain and extends to the property line. For this reason most shutoff valves are placed within the public domain and at the property line. Maintenance of the portions of the water system within public domain is performed by City Water Department personnel with City purchased and supplied equipment. As stated in Municipal Code 13.04.140, "The City assumes no responsibility whatsoever for any private water pipes, mains, devices, fixtures, or appurtenances located either within or outside public property or public right-of-way."

City water personnel are not allowed to proceed onto the homeowner's property except at the homeowner's invitation, (i.e. inspection of existing or newly installed equipment, or requested repairs).

Water taps and water meter installations are initiated through a permitting process in City Hall and scheduling with the Water Department. After the applicable work orders (**Exhibit 1.8.5** and **1.8.6**) are completed, and the tap and/or water meter fees are collected, City employees complete the installations in the public domain using City supplied materials. These work orders are done in compliance with "City of Spokane Water Department Rules and Regulations for Water Service Installations" (**Exhibit 1.8.7**). Minimum water service vault dimensions are shown in **Exhibit 1.8.8**.

Single Family Homeowner Responsibilities within City Limits

The simplest procedures are those associated with the purchase of an established residence within the City's service area with all water service equipment in place. Prior to purchase, it is the responsibility of the potential homeowner to determine the condition of the water service equipment on the property by working with the real estate agent and/or the property owner. All water service equipment should be in good operating condition, and must conform to the standards outlined by the City in the "City of Spokane's Design Standards."

Once the property is purchased, maintenance and service leak repairs on the property become the responsibility of the current property owner. Furthermore, any repairs and equipment replacement must conform to the City's current standards and must be approved by a Water Department Inspector prior to covering. Meters that meet the City's specifications will be furnished by the City and will be charged to the customer at cost, on their monthly utility bill.

If the water service has not been interrupted, the new property owner is required to inform the City Utility Billing Department of new ownership and have the billing transferred into their name.

If construction is necessary, City ordinances allow the homeowner to hire state licensed and bonded qualified contractors to perform repairs and to use the street shutoff cock during the work and testing of the new service. If desired, a homeowner may hire the City Water Department to make repairs on their property. Should the homeowner/contractor retain the City, an additional billing would be provided for these services. The additional charge would be provided on the homeowner's utility bill for those repairs.

Rates for water usage within the City's limits are established by Council Resolution, are addressed in Municipal Code 13.04.2002, and are published in the City's Official Gazette.

Single Family Homeowner Responsibilities Outside of the City Limits

Homeowners that utilize the City's water service but are living outside of the City's boundaries are subject to the same rules and regulations as those within the City boundaries. Rates for this class of customer are addressed in Municipal Code 13.04.2012 and published in the City's Official Gazette.

Connection Fee Schedule

Tap and meter fee rates are based on the pipe sizes specified by the engineer/designer of the project proponent. Charges for a 2 inch tap, or smaller are addressed in Municipal Code 13.04.2026. Costs for services that require a tap that is 3 inches or larger are addressed in Municipal Code 13.04.2028.

Should a meter require a concrete box installation there is a separate charge.

To facilitate meter reading Automatic Reader Box (ARB) costs are included in the meter fees.

Several rules apply prior to installation. They are:

- When taps are installed outside of the City's limits, the customer must either annex to the City or sign an annexation covenant as mentioned earlier
- L.I.D. and future main extension waivers are required on all approved long services.
- Taps 1-inch or smaller are required to have a pressure-reducing valve (PRV) placed before the meter if the pressure is greater than 80 psi (the costs for a PRV and its installation are borne by the project proponent)
- Taps larger than 1-1/2-inches are required to have a PRV placed after the meter if the pressure is greater than 80 psi (the costs of a PRV and its installation are borne by the project proponent)
- Tap fees are based on tap size and street right of way width. Meter fees are based on meter size and type (domestic, irrigation, and/or fire). All tap and meter fees are subject to periodic review and change

Special water service connection fees (General Facility Charges (GFCs)) (as mentioned earlier in this section) are also assessed. These fees are for the purpose of helping to pay for major water infrastructure needed to serve an area, and may include wells, pumps,

reservoirs, and large transmission mains. This fee is addressed in Municipal Code 13.04.2042 and as above is also based on size of service.

Meter and Materials Specifications

All specifications for water service meters and materials are in the “City of Spokane’s Design Standards.” Vault dimensions have been defined by the City for larger water services. The required vault sizes are shown on the handout “Water Service Minimum Vault Dimensions,” located in **Exhibit 1.8.8**.

Consent Agreements for Inspection, Maintenance, and Repair Activities that may Disrupt Water Service

Consent agreements to disrupt water service are not required for inspection, maintenance, and repair activities requested by the homeowner. Notice to terminate service is also not required when the service interruption is necessary for repair in an emergency, or for any other reason. However, the Department makes every effort to coordinate disruptions and meet the needs of the customers. As outlined in the City’s Municipal Code, an actual notice to terminate water service is only applicable when executed because of nonpayment. See Municipal Code 04.02.180 “Notice of Termination.”

Developer Projects

Developer projects that intend to use City water must first apply for a permit. All permits start with the Planning Department at City Hall. The developer should schedule a pre-development meeting arranged by the City’s Planning Department. At the pre-development meeting, all applicable City departments and the developer meet to discuss the project. These meetings are held only for projects within the City’s limits.

Through the permitting process, property platting is checked and a SEPA review is performed and routed to all of the City’s infrastructure departments (water, sewer, street, and stormwater). Following the departmental reviews, two public meetings are held.

Any water system extensions required by the project must be designed by a licensed engineer and be in compliance with all of the City’s design and specification standards. The Municipal Code states that all financial responsibility lies with the developer to prepare the design and install the system extensions.

Following receipt of the project information, the City engineer prepares a report describing the project for the City Council. As the final step, all plans/projects must be approved by the City Council.

When the approval process is complete, the developer will receive a letter of approval for the project’s plans. The developer is required to coordinate and pay for the appropriate elements of the construction of the project and coordinate with the City for inspection services. The developer is also responsible to purchase tap permits.

1.9 Duty to Service Requirement

The City of Spokane Water Department as a municipal water supplier has a duty to provide service to all new connections requested in its retail service area. Service within the retail

service area will be provided when the service connection request meets all four elements stated in RCW 43.20.260:

1. **Capacity:** The water system has sufficient capacity to serve water to the new service requested in a safe and reliable manner. Capacity is and will be sufficient to meet all flow requirements and will not impede or reduce existing services below all required flow requirements.
2. **Consistency:** All new service requests shall be consistent with adopted State and local development regulations including but not limited to the Urban Growth Boundary and its requirements on growth and all requirements of the City of Spokane's Comprehensive Plan.
3. **Water Rights:** Available water rights must be sufficient to provide for all new service requested.
4. **Timely and Reasonable:** The water system shall have the necessary infrastructure in place to provide for any new service or must have in the capital improvement plan, the necessary infrastructure improvements to provide for new services in a timely and reasonable manner. A developer may elect to construct infrastructure improvements at their cost, but all such infrastructure improvements shall meet all applicable rules and regulations and shall be consistent with all development regulations.

If these elements for a new water service request within the City's retail service area are met and per the details presented in Sections 1.6, 1.7, and 1.8 of this chapter, water service shall be provided by the City of Spokane Water Department and will comply with the "duty to serve" requirement of RCW 43.20.

1.10 Local Planning Consistency Determination

Water service provided complies with the City of Spokane's Comprehensive Plan, which in turn addresses the necessary links with Spokane County's Comprehensive Plan and the Countywide Planning Policies. Consistency checklists are provided in **Exhibit 1.10.1** for Spokane County Planning, Spokane County Utilities, and City of Spokane Planning. Consistency documents are also provided for the City of Spokane Valley for a small already developed area within Spokane Valley where the City of Spokane provides retail water service, and for the City of Airway Heights.

Basic Planning Data and Water Demand Forecasting

Introduction

This chapter defines the basic planning data involving current and future population, land use, and water demand for this Comprehensive Water Plan to assist the City Water Department plan to accommodate existing and future water needs by providing the basis for the capital improvements plan. The use of population projections, rate of growth, and growth areas provide the basis for the estimated current service population, service connections, water use and equivalent residential units (ERU), and also the projected land use, population, and water demands for the 6 and 20 year planning horizons. A consultant recently completed an extensive demand forecast for the Water Department, and is discussed in Section 2.2.

2.1 Current Population, Land Use, Service Connections, Water Use, and Equivalent Residential Units

Current Population

The 2010 U.S. Census data concludes that the City of Spokane has about 208,916 people within the city limits. The Water Department currently provides water service to areas outside of the City limits within Spokane County and within its water service area defined as the retail service area. Using the 2010 census data and the GIS parcel information including meter location data, the total estimated water service population for the Department's retail service area for 2010 is 227,455 people. The present retail service area is approximately 80 square miles.

Current Land and Water Use

The City of Spokane Comprehensive Plan's existing land use definitions include over 175 separate land use categories. **Figure 2.1.1** is a map showing current land uses. For ease of projecting water demands, these separate categories have been aggregated into four major water use categories in compliance with the 1997 Washington State Department of Health "Water System Planning Handbook" ("Handbook"). (It should be noted that although the Handbook lists an agricultural category, the City of Spokane does not provide water to an agricultural component, and therefore, the City does not report on this category. Businesses related to agriculture (such as dairies or wineries) are included in the "Commercial/Industrial" category.)

The four major use categories are as follows:

- Single Family Residential
- Multi-Family Residential
- Commercial/Industrial

- Governmental

Single Family Residential

The single family residential category includes residential densities of 4 to 10 units per acre. Example uses include: single-family residential, duplexes, planned developments, and mobile home parks.

Multi-Family Residential

Multi-family residential includes triplexes and other larger sized facilities. In addition, households on commercial property, permanent resident hotels, mobile home parks, dormitories and fraternity houses are also included.

Commercial/Industrial

The commercial category includes retail and wholesale businesses, as well as medical and professional businesses. Groupings of wholesale, retail, department, and variety stores are included. Example uses include: service industries, shopping malls, automobile sales and repair, banks, hotels and motels, restaurants, gas stations, hospitals, and entertainment facilities.

The industrial category includes businesses that are involved in the manufacture, storage, processing or packaging of articles, merchandise, or products. Included in this category are both heavy and light activities. Heavy industrial operations include activities that give off smoke, dust, odor, fumes, noise, or other hazards that may affect the surrounding areas. Example uses include: asphalt manufacturing, rock crushers, aluminum smelting, boat assembly, and rendering plants. Light industrial operations include operations which would not be objectionable because of smoke, dust, odor, fumes, noise, or other hazards. Example uses include: bakeries, bottling plants, beverage distributors, food processing plants, and high-tech manufacturing.

Governmental

This category includes city/county/state/federal governmental buildings and grounds, local services district facilities, public and private educational facilities, public and private golf courses, parks, and playfields.

Current Service Connections

The City of Spokane has an electronic water billing system that provides three sets and subsets of information:

1. Account Location
 - Inside the City limits
 - Outside the City limits
 - Water meters located within the airport area
2. Water User Category
3. Water Use by Category

The current data, as of March 2014, associated with the four water use categories identified in the previous sections is provided in **Table 2.1.1**.

Table 2.1.1 CURRENT Categories	
Total Service Connections Within Service Area Boundary—2014	
Account Type	Total Number
Single Family Residential	65,952
Multi-Family Residential	2,501
Commercial/Industrial	6,869
Governmental	928
Totals	76,250

Variations in System Demand

Variations in system demand occur continually throughout the day and year. These variations must be identified to design the necessary water system improvements to meet existing and future system demands. This subsection develops the following system demand relations:

- Existing Demands
- Average Daily Demand
- Seasonal Water Demand
- Maximum Day Demand
- Diurnal System Demand/Peak-Hour Demand
- Peaking Factors
- Non-Revenue Water
- Equivalent Residential Units (“ERU”)

Existing Demands

The existing demands for the City's water system presented in this section were developed from the well supply production records and consumption records. **Table 2.1.2** tabulates the annual quantities of water pumped for the years 2007 – 2013.

TABLE 2.1.2
Annual Pumpage/Consumption Summary (in thousand gallons)

Source	2007	2008	2009	2010	2011	2012	2013
Well Electric	3,332,330	1,357,000	1,291,300	3,253,649	3,284,928	1,906,719	1,933,586
Parkwater	5,125,513	6,398,458	6,837,605	4,061,713	3,900,939	6,100,590	4,860,922
Nevada St	1,960,592	2,395,606	2,077,184	2,577,317	3,137,555	1,686,794	3,058,570
Low System	10,418,435	10,151,064	10,206,089	9,892,679	10,323,422	9,694,103	9,853,078
Well Electric	1,188,800	694,500	1,356,500	400,400	144,303	1,498,783	1,887,271
Parkwater	2,880,049	2,780,769	2,867,008	2,444,469	1,752,050	1,837,765	2,173,840
Ray St	1,637,961	1,785,771	1,636,085	2,102,812	2,861,003	2,303,949	1,438,922
Intermediate	5,706,810	5,261,040	5,859,593	4,947,681	4,757,356	5,640,497	5,499,351
Well Electric	1,250,071	2,020,147	1,988,831	2,136,950	924,826	1,442,865	2,312,873
Central	3,486,333	2,478,737	3,080,748	1,685,892	900,155	1,216,915	1,486,867
Hoffman	391,950	101,907	352,969	201,885	37,779	167,131	310,485
Grace	1,253,459	1,224,548	967,593	1,743,713	3,757,982	2,861,471	1,741,248
North Hill	6,381,813	5,825,339	6,390,141	5,768,440	5,620,742	5,688,392	5,851,473
Pumpage Total	22,507,058	21,237,443	22,455,823	20,608,800	20,701,520	21,022,982	21,203,902
Average Daily Demand	61,663	58,185	61,523	56,462	56,716	57,597	58,093
Maximum Day Demand	194,845	192,277	186,446	171,637	195,104	167,710	208,092
Peaking Factor	3.2	3.3	3.0	3.0	3.4	2.9	3.6
Three Year Running Average (Pumpage)	22,365,833	22,493,180	22,066,775	21,434,022	21,255,381	20,777,767	20,976,135
Consumption (Accounted)	20,799,000	19,127,465	19,031,458	16,869,482	16,536,826	16,991,008	17,416,785
Percent Unaccounted	7.6%	9.9%	15.2%	18.1%	20.5%	19.2%	17.9%

Figure 2.1.1 – Current Land Use Map

Average Daily Demand

Average daily demand ("ADD") is the total annual quantity of water delivered to the system divided by the number of days in the year. Based on **Table 2.1.2** the best conservative value for present ADD is 58.6 mgd which is about a 3.5% decrease from the amount reported in the 2006 Water Comprehensive Plan. The reason for the reduction is as addressed below in "Non-Revenue Water" and conservation measures addressed in Chapter 4.

Seasonal Water Demand

October through April has the lowest average monthly use, ranging from 31.2 to 44.2 mgd. May through September is the peak water demand period with an average ranging from 64.3 to 114.7 mgd. Peak use typically occurs in July and August due to the irrigation and cooling demands. Also, since Spokane is located in an arid climate, water demand in the summer is highly dependent on weather patterns. A cool and wet spring and summer as compared to a hot and dry summer will have more impact on water usage than any other factor.

Maximum Day Demand

Maximum day demand ("MDD") is the quantity of water supplied during the highest-use day of the year. The MDD, for each year for the period 2007 through 2013, occurred in the period of July thru September. The Maximum Day Demand from metered use is shown in **Table 2.1.2** and the best conservative value for present MDD is 188 mgd.

Diurnal System Demand/Peak Hour Demand

Water demand variations occur throughout the day, each and every day of the year. These daily demand variations are best represented graphically on a "diurnal demand curve" that shows the relationship between time of day and water demand. The hourly peak water demand in the City system varies in each pressure zone depending upon the predominant land uses within the zone.

Peaking Factors

Peaking factors (demand ratios) show the relationship between the various demand conditions. The peaking factors developed for the existing demands are used for projecting the future demand conditions. An important peaking factor is the relationship between the ADD and the MDD. Over the last six years this peaking factor has varied from 2.9 to 3.6 ADD. Therefore, 3.2 will be used as the best single representative value. The peak hour demand is 1.7 times MDD.

Non-Revenue Water

The difference between the total water pumped at the well sources and the metered consumption constitutes the amount of non-revenue water. The percent of non-revenue water for each year 2007 – 2013 is 7.6%, 9.9%, 15.2%, 18.1%, 20.5%, 19.2% and 17.9% respectively. A marked increase is seen starting in 2009. This increase is due to the discovery of an accounting error within the City of Spokane billing system when actual consumption data was extracted from the billing data. Since the reporting of the 2009 numbers, these numbers represent the City's best information about the volume of non-revenue water. Some extracted readings were double counted resulting in an erroneously high metered consumption and corresponding accounted water number which when corrected increased unaccounted water use.

The following factors can have significant effects to the amount of non-revenue water volume:

- Inaccurate meters, either at the source or service connections, or both
- Pipeline leakage
- Unauthorized use, such as illegal connections
- Authorized and unauthorized use from fire hydrants
- Unmetered uses such as system operational needs, construction use, street cleaning, line flushing, water main testing, main breaks, reservoir flushing, and fighting fire

The City has made significant progress in reducing the amount of unaccounted for non-revenue water and will continuously work to identify and correct deficiencies in this area. The measures described here will further bolster that effort. With the completion of the ongoing water audit – currently projected for 2016, the City will be able to design and implement measures toward the goal of DSL of 10% or less by _____. Following the discovery of the water accounting error in 2009, the City took efforts and implemented programs to reduce the non-revenue water. The major ongoing programs include:

- **Dedicated Leak Detection Program:**
The City maintains at least one full time leak detection crew working within the City on a continual basis. Service connections are included within the monitoring program. One of the Water Department's performance measures is to leak survey a minimum of 90 miles of water main per quarter, allowing the system to be leak surveyed every three years.
- **Residential Meter Replacement Program:**
The City has a robust meter replacement program. On average, the City replaces about one hundred residential meters every month. The priority for meter replacement is based on a combination of age and total flow through the meter. Also, during the monthly billing cycle, if low flows are observed, the suspect meter is also replaced.
- **Commercial Meter Replacement Program:**
Between 1999 and 2005, the City replaced, repaired, and recalibrated all commercial meters 1 ½ inches and larger. The City continues to replace or recalibrate all inch and a half and two inch meters every four years and all meters three inches and larger every year.
- **Cast Iron Pipe with Poured Lead and Leadite Joints Replacement Program:**
Since 2004 The Water Department is replacing cast iron pipe with leadite joints, as it has proven to fail in a spiral fracture that causes catastrophic damage. In addition, older lead joint distribution main is being replaced in coordination with street projects as part of an integrated strategy to replace aging roads and infrastructure. The older lead joint pipe, which represents a large portion of the City's existing water pipes, is prone to leakage when disturbed and the cost benefit of replacing the aging distribution main in coordination with street projects is beneficial.
- **Source Meter Replacement Program:**
Beginning with Fiscal Year 1998, the City began replacing the source meters at all of the water sources. The supply meter replacement program was completed in 2002.

Currently all well sources are metered. Beginning in 2012 all source meters have been evaluated and are being replaced as needed. The data from those meters will help ensure that the DSL percentages get increasingly accurate, year after year.

- Long Service Elimination Program:

The City of Spokane, starting in 2015, is working to eliminate long services that cross several parcels by a distribution main extension or by metering the service at the first property line. These long services present maintenance issues for access and have been the source of detected leak points in the past. Typically these long services have a meter located in the residence or business leaving miles of privately owned service lines unmetered.

The accounted for portion of non-revenue water includes construction use, street cleaning, fire flow, and system operational needs. These flows are not metered but the water is considered accounted for in that it is known that the use is taking place and the amount of use is estimated. The estimated amount is based on a detailed study done by the department about ten (10) years ago where the use of each hydrant was monitored and the amount of flow for each use estimated. This usage amounted to about 28,000,000 cubic feet per year which is about 1% of total pumpage. It is felt this usage has not changed significantly over the last ten (10) years.

Equivalent Residential Units

An Equivalent Residential Unit (“ERU”) is defined by the State’s adopted Water System Design Manual (Department of Health) as the average quantity of water, in gallons per day, needed by a single family residential unit. Using the last three years of production and connection data in Chapter 4, the City-wide ERU is 359 gallons per day. It should be noted that this is the average for the entire City. While older core areas of the City have smaller lots, which tends to bring the average down, newer developments within the City have ERU’s closer to 439 gallons per day. Both numbers can be used for design purposes depending on design conditions.

2.2 Future Land Use, Population, and Water Demand for 6 and 20 Year Horizons

Future populations are projected from historical growth trends. The future water demands are then based on these projections and on the land use projections. The majority of data used to develop this section is based on information provided by the City’s Planning Department. The population trending information is based on data received and reviewed from the State of Washington. As expressed earlier from the 2010 census, the 2010 population within the City limits of the City of Spokane is 208,916. The 2010 retail service area population was 227,455 which results from service provided outside the City limits. The current retail service area is approximately 80 square miles.

Future Land Use

The Water Department is governed by the City of Spokane’s Comprehensive Plan which provides that “[g]rowth will be managed to allow a mix of land uses that fit, support and enhance Spokane’s neighborhoods, protect the environment, and sustain the downtown area and broaden the economic base of the community.” The City’s Comprehensive Plan emphasizes

infill growth but also recognizes the possibility of outward growth. Under the Comprehensive Plan, “[p]ublic facilities and utilities will be provided concurrently with a growing population to meet the safety, utility, transportation, educational, and cultural needs of residents.” The Water Department is able to support this vision.

Future Population

Population projections for the future suggest growth rates of around 1 percent annually. Using the City of Spokane growth rate projection, the estimated 2013 retail service area population is 235,500. The Water Department is prepared to accommodate growth within its existing retail service area, as defined by policy. The Comprehensive Plan emphasizes infill development, water conservation measures, and responsible stewardship of our water resources. . Managing growth according to the values stated in the Comprehensive Plan will determine the size and ultimate growth of the retail service area over time. The City will entertain updates to the retail water service area on an annual basis or more frequently, if requests for water service are pending.

Spokane County is in the process of estimating an acceptable growth rate projection for Spokane County in coordination with cities and planning jurisdictions within the county. When the growth rate projection for Spokane County is completed by Spokane County and accepted by the cities and local planning agencies, the City of Spokane Planning Department will review it to ensure the adequacy of the system.

Future Water Demand

Non-Revenue Water

Table 2.2.3 indicates the projection of non-revenue water. In 2013, the aggregate non-revenue water for the system was about 17.9 percent.

In the next six years, many improvements, discussed in section 2.1 above, will be made to identify and control system loss. The transmission main replacement program will further reduce non-revenue water.

Water Rates and Rate Impacts on Water Demand

The Department has supported an inclining block rate structure. The block rate structure for water consumption charges customers more when they use more water. Block rates and other measures and the demand impacts are discussed further in Chapter 4. The rate structure is addressed further in Chapter 9.

Water Demand Forecasting

For details on water demand forecasting refer to Chapter 4, Section 4.1, Subsections: “Conservation Program-Next Six Years” and “Water Demand Forecast.”

A water demand forecast, attached as Exhibit ___, (“Water Rights Self-Evaluation”) for the build out of the City of Spokane future water service area has been completed. The City commissioned a consultant to prepare this water demand forecast to estimate the future water demand within the future water service area at the time of build out. This forecast is not tied to a set time schedule since large areas of the future service area are outside of the Urban Growth Boundary and the retail service area and growth into these areas is regulated through long

range planning by the relevant jurisdictions. The water demand forecast is intended as a tool in water rights assessment to aid in the determination of the adequacy of the existing water rights for the City of Spokane. **Table 2.2.3** indicates the projection of annual water consumption in the three primary classification categories, plus the average daily, and maximum daily demands for the planning periods.

Table 2.2.3
Projected Water Use by Customer Class

Classification	Water use				
	2013	Without Conservation		With Conservation	
		2018	2033	2018	2033
Billions of gallons per year					
Residential	10.8	11.4	13.6	11.4	13.4
Commercial/Industrial	4.1	4.4	5.2	4.2	4.7
Government	2.5	2.6	3.2	2.5	2.9
Non-Revenue	3.8	4.0	4.8	3.9	4.3
Total	21.2	22.4	26.8	22.0	25.3
Millions of gallons per day					
Average Daily Demand	58.1	61.4	73.4	60.2	69.3
Maximum Day Demand	186	196	235	193	222
Millions of gallons per hour					
Peak Hour Demand	13.2	13.9	16.6	13.7	15.7

Note: Based on populations of 235,500, 249,600, and 297,200 for 2013, 2018, and 2033, respectively.

System Analysis

Introduction

This chapter presents a broad-based look at the design standards that have been established for use on the City of Spokane Water System. Chapter 7 presents a more detailed look at design standards. These design standards have been developed using historical water system records, water system operating procedures, state and federal requirements, standards of the industry, and addressing geographic and elevation challenges, and are based on a thorough understanding of the collective facilities and their components which operate as the complete water system.

Additionally, this chapter describes the criteria which are used to judge the adequacy of the entire City of Spokane's water system under various demand conditions. These criteria are presented for sizing well stations, storage volume and siting, distribution systems, pressure zone boundaries, booster pump stations, and system operations.

The sources for design standards include the Insurance Services Office (ISO), the State of Washington Department of Health (DOH), American Water Works Association (AWWA) and the 10 States Standards.

The intent of the City's standards is to strike an appropriate balance between the level of service delivered and the costs of installation and maintenance. If standards are too low, customers will not be satisfied. If standards are too high, the cost of installing facilities becomes prohibitive.

3.1 Water System Design Standards

Each of the following standards is further developed in the subsequent subsections. Most of the information in this chapter is also discussed elsewhere in this Plan, primarily Chapters 1, 2, 6, and 7.

- Water Quality Parameters
- Average and Maximum Daily System Demands
- Peak Hour Peaking Factor
- Storage Requirements
- Booster Pump Station Requirements
- Fire Flow Rate and Duration
- Normal Maximum and Minimum System Pressures
- Minimum Pipe Diameters
- System Control Facilities
- Backup Power Requirements
- Valve and Hydrant Spacing
- Facility Materials
- Pipeline Layout Requirements
- Back-flow Criteria
- Standard Pipe Sizes
- Customer Metering

Water Quality Parameters

The Water Department pumps from the Spokane Valley/Rathdrum Prairie Aquifer. The aquifer water is a high quality product in its natural state. As an extra precaution, the

Water Department injects gaseous chlorine at each wellhead to disinfect the raw water. A 0.2 parts per million (ppm) or milligrams per liter (mg/l) free chlorine residual is maintained throughout the water system to ensure proper disinfection and prevent bacterial growth within the system.

Additionally, the Water Department has an ongoing program that monitors the chlorine residual at various points throughout the water system with particular attention being given to those water mains farthest from the well stations. Chlorine residuals are taken at least 120 times per month at sampling sites located throughout the system.

Additionally, to assure the customer receives the highest quality water, the City has on-line turbidity monitors located at Well Electric Wells 1&2, Park Water Well #4, and Nevada Well Station plus a particle counter at Well Electric. Additional tests for PH, conductivity, temperature, and turbidity are taken at varying intervals throughout the systems and at well sites to confirm that no reduction of water quality takes place.

Water Quality is discussed further later in this chapter as well as in Chapter 6.

Average Daily System Demands

Average daily demand (“ADD”) is the total annual quantity of water delivered to the system divided by the number of days in the year. The present ADD is 58.6 million gallons per day (mgd) which is about a 3.5% decrease from the amount reported in the 2006 Water Comprehensive Plan.

Maximum Daily Demand

Maximum day demand (MDD) is the quantity of water supplied during the highest-use day of the year. The MDD, for each year for the period 2007 through 2013, occurred in the period of July thru September. The MDD from metered use is shown in **Table 2.1.2** and the best conservative value for present MDD is 188 mgd.

Peak Hour Peaking Factor

Peaking factors (demand ratios) show the relationship between the various demand conditions. The peaking factors developed for the existing demands are used for projecting the future demand conditions. Peak-hourly demand (PHD) is the largest water demand over a one-hour period. Usually, but not always, the PHD occurs during the maximum day. Using equation 5-3 from the DOH Water System Design Manual, the ratio of PHD to MDD is slightly over 1.6. The Water Department has rounded up and has traditionally used 1.7.

Storage Requirements

System storage is used in a water system to meet peaking demands and provide a reliable supply in the event of a fire or failure of supply sources. Reservoir storage volume is comprised of the following components:

- Operational Storage (OS)
- Equalization Storage (ES)
- Fire Suppression Storage (FSS)
- Standby Storage (SB)
- Dead Storage (DS)

See Section 3.8 for an analysis of the storage requirements for the City's Water System.

Booster Pump Station Requirements

Minimum design standards for booster stations are provided in the design standards of the City of Spokane. All new booster stations require a minimum of three pumps for flexibility in system operations. The total capacity of multiple pumps in a given pump station should generally be approximately twice the calculated MDD for the pressure zone the station serves. This allows a pump, even the largest pump, to be taken out of service and repaired without severely reducing supply capability.

All booster stations are required to include a telemetry system to allow the station to be operated and monitored remotely. Generally, backup power systems are not required for booster stations in the City water system where multiple booster stations provide water to the pressure zone. Within the City, all systems or pressure zones supplied by booster stations are also served with at least one reservoir.

Fire Flow Rate and Duration

Fire fighting flow is required at a relatively high rate for a short period of time. A water system should have a supply, storage, and distribution system grid of sufficient capacity to provide fire fighting needs while maintaining adequate service to residential and commercial customers.

The City of Spokane design standards provide that for residential areas, required fire flows are determined by the Fire Marshal for the area served. Typically a minimum fire flow of 1,000 gallons per minute for a two-hour duration is required for residential areas with homes containing 3,600 square feet or less floor space (includes the sum total of all interior floor levels excluding the garage) and 1,750 gallons per minute for a two-hour duration is required for residential areas with homes containing over 3,600 square feet floor space (includes the sum total of all interior floor levels excluding garage). Where the area served by the reservoir is relatively small and water quality could be affected by large storage volumes, the duration requirement may be reduced, but to not less than 30 minutes, when approved by the Fire Marshal and the Water Department. In considering such a reduction, factors such as home size, density, topography, landscaping, and traffic flow will be evaluated. Fire flow requirements for commercial and industrial areas are determined by the Fire Marshal on a case-by-case basis.

The City generally exceeds the conservative Insurance Services Office (ISO) of Washington State fire flow rates as well as the fire flow requirements set forth by the Washington Administrative Code (WAC 246-293-640), resulting in a very good insurance rating for the City.

Normal Maximum and Minimum System Pressures

Due to the varying topography of the areas served, the system is divided into separate pressure zones to control maximum and minimum pressures. The City of Spokane water system has 22 hydraulic (pressure) zones. These zones allow pressures to be restricted to acceptable limits throughout the system.

Since 1995, the normal minimum and maximum static water system pressure required in new developments (at the water meter) has ranged from 45 to 80 pounds per square inch (psi), respectively. Exceptions to the static pressure standards must be made because streets and mains do not conveniently follow ideal ground contours. If the maximum pressure exceeds 80 psi, but is less than 100 psi, an individual pressure reducing valve (“PRV”) on water services is required per the Uniform Plumbing Code (“UPC”). If the pressure exceeds 100 psi a PRV station is installed within the distribution system, plus the individual PRVs on services is required. For pressures below 45 psi, specific written approval is required from the City of Spokane Water Department before service is provided.

Minimum Pipe Diameters

The determination of minimum pipe sizes is based on domestic water demand in addition to fire flow requirements and the overall grid or loop system found in the water system. The function of the distribution system is to convey water to customers at adequate service pressures and to provide fire flow. A hydraulic analysis is required by the Water Department for the sizing of water mains. In most cases the hydraulic analysis will include a computer model analysis.

System Control Facilities (Telemetry System)

In 1985, the Water Department installed its first Supervisory Control and Data Acquisition (“SCADA”) system. The data was transmitted from the remote sites to the SCADA system computer control center via dedicated phone lines. Today, the City uses radio frequency (“RF”) communication for the SCADA system.

As with all computer technology, the SCADA system is in a continual state of upgrades and improvements. The next generation SCADA system utilizes distributed control technology that transmits data via a broad spectrum radio system and was completed in 2007. Additional upgrades are scheduled in 2015. The communication system between the Central Control Client Server (“CCCS”) site and the remote Programmable Logic Controllers (“PLC”) located at the various water facilities throughout the water system is fully operational. The PLC’s are designed to be “stand alone”. Thus, in the event of a loss of communication, the PLC can continue to provide limited control using system pressures at the remote facility.

Transmitted information is processed by the CCCS system located at the Upriver Complex that then monitors the PLC’s. The control functions of the various components in the water system are monitored by the Water System Operator. The Water System Central Control Room is staffed 24-hours a day and 7 days a week, by certified operators. This subject is also discussed in Chapter 1.

Some of the functions that SCADA monitors and/or controls are:

- storage reservoir levels;
- pump starts, stops, and run times;
- well drawdown elevations;
- system chlorine residuals;
- dam and hydroelectric powerhouse;
- intruder alarms and station security; and

- system pressures in the various pressure zones.

Backup Power Requirements

The City has permanent backup electrical generation facilities for the Well Electric and Parkwater Well Stations. These well stations are equipped for dual electric service. Typically, the Well Electric Well Station and the Parkwater Well Station operate on electric power supplied from the Water Department's Upriver Dam. However, power is also available from Avista Corporation for these two well stations. The ability to operate the Well Electric and Parkwater Well Stations with such backup power provides considerable redundancy for supplying water to the Low, Intermediate, and North Hill Systems.

All other pumping facilities are largely dependent on the Avista power for operations. Electrical outages are infrequent in the Spokane area and there is extensive storage capacity to meet emergency water demands on a short to medium term basis in the event of power outages. The most significant power outage the City has experienced was during "Ice Storm" in November 1997. Restoring power to the City's pumping facilities is placed on a high priority by Avista. In the case of "Ice Storm", power was restored within 48 hours to those pumping stations which lost power.

The Avista electrical system in Spokane is strong with considerable gridding and redundancy, which is further strengthened by the presence of the Avista corporate offices in Spokane. Avista has locally-based field staff available for responding to emergency power outages. Historically, power outages have been of rather short duration. However, to assure a higher level of reliability of its water pumping capability, the Department has purchased a portable generator driven by a diesel engine and is on standby status. The generator is a 500 kVa, 3 phase, dual voltage (240V/480V) unit capable of driving the largest pump in any of the City's pumping stations with the exception of the Well Electric Stations, the Lincoln Heights and the Ninth & Pine Stations, which operate on a different voltage (2,300V) than the rest of the stations.

In addition to the large portable generator, the Department has a smaller portable generator driven by a natural gas engine and is on standby status. The generator is an 18 kVa, 3-phase, dual voltage (240V/480V) unit capable of driving the pumps in some of the City's smaller pumping stations. The portable generator is easily transportable and has been tested at the Department's main office building where it is stationed for potential power outages at the site.

Additionally, the Department is in the process of installing a backup generator for the Lincoln Heights Pumping Station. The generator is built on the diesel backup pump that is being re-purposed for emergency power. This backup power will have the ability to start and operate a portion of the Lincoln Heights Station in an emergency situation

Valve and Hydrant Spacing

The general requirements for Valve and Hydrant Spacing are:

- Distribution system gate valves shall be spaced between every hydrant and at the right-of-way line entering and exiting every major intersection. Transmission line valves shall be located so as to isolate well-defined lengths of line. The maximum length between valves shall not typically exceed 3,000 feet.
- Fire hydrant spacing shall typically not exceed 500 feet primarily in residential areas. In areas where high fire flows are required, the fire hydrant spacing shall be adjusted to meet International Fire Code (IFC), State, and local requirements—typically not exceeding 250 feet.

Facility Materials

The City's standard materials for water system facilities are available from the City of Spokane Water Department. Since these materials change from time to time, they are not provided within this Comprehensive Water Plan. However, general guidance is provided in Chapter 7 where referenced documents are listed.

Pipeline Layout Requirements

The minimum size for water mains shall be not less than 6 inches in diameter, shall be designed for fire flow, and shall be looped wherever possible. Four-inch diameter mains will be allowed in some permanent cul-de-sacs under special permission where no hydrants are connected to the main, where the length of the main is 250 feet or less, where no more than 12 dwelling units will be served, where no dwelling unit in the cul-de-sac will be no further than 250 feet from a fire hydrant, and where an engineering hydraulic analysis (computer model) demonstrates that water velocities and minimum water pressures are within acceptable ranges.

All public water mains shall be located in a public right-of-way, unless authorized in writing by the Director of the Water Department allowing and accepting an exclusive easement, at least 25-feet wide, to accommodate the pipeline.

Eight-inch diameter pipeline shall be the minimum size for permanent dead ends except for cul-de-sacs as discussed above. Six-inch pipelines shall be the minimum size for short, dead end streets which are scheduled or projected to be extended such that the proposed water main will be eventually looped, provided however, that adequate capacity is provided in the interim for domestic demands and fire protection. There will be no dead end mains longer than 1,000 feet.

A hydraulic analysis is required by the Water Department for the sizing of water mains. In most cases, the hydraulic analysis will include a computer model analysis. Normal pipeline velocities should be maintained between 3 to 5 feet per second for pumped systems, allowing a maximum velocity 7.5 feet per second for normal peak conditions. Velocities up to 10 feet per second are commonly allowed within the yard piping of a pump station to reduce capital costs of appurtenances at the station. Maximum allowable velocity during a fire flow event is 15 feet per second.

Predominantly, the depth of pipes to the invert of any water main shall be 5.5 feet. If the water line is placed in a dedicated right-of-way, the ground surface must be rough-graded within 6 inches of approved established grade. No other utilities, cable or conduit shall occupy the same trench as a water line except as approved by the Water Department. Minimum service line size shall be 1 inch.

Back-flow Criteria

Back-flow devices shall be installed on all systems as required by the State and local regulations. Back-flow criteria are discussed in more detail in Chapter 6 and in Chapter 7.

Standard Pipe Sizes

Standard pipe sizes for distribution and transmission water mains are: 4, 6, 8, 10, 12, 18, 24, 30, 36, 42, and 48 inches. Typically, only ductile iron pipe and ductile iron fittings are allowed. Pipe joints shall be push-on type per AWWA. Fitting joints shall typically be ductile iron, mechanical joint per AWWA.

Customer Metering

Spokane Municipal Code section 13.04.0802 addresses water service taps and meters. Generally, each individual building is to be served by its own water service. Minimum meter size shall be $\frac{3}{4}$ inch. Planned Unit Developments ("PUD"s) are master metered at the property line. Residential meters will be installed in an approved meter box at the property line. Meters, 2 inches and above, are installed either in meter boxes at the property line or in the building being served at the point of the service line entry. Larger meters are installed either in concrete meter vaults at the property line or in the building being served at the point of the service line entry – generally in the mechanical room. For commercial and industrial service lines, the City requires that customer's project engineer or architect provide the determination of the service line size based on needs of the facility for fire protection, process water, domestic needs, irrigation, etc. The City reviews the proposed service line for compliance with the City's standards. If the City review finds the service line in compliance with the City's standards, it will be approved. Provisions for a remote reader receptacle shall be included to allow the meter to be read without having to enter the building.

3.2 Water Quality Analysis

Water Quality Laboratory Certifications

The City of Spokane Water Department Water Quality Laboratory ("WQL") is certified by the Department of Ecology to perform both bacteriological and analytical tests. The Bacteriological tests consist of Heterotrophic Plate Counts, Colilert Total/Fecal coliform Presence/Absence, and Colilert Total/Fecal coliform enumeration. The Analytical tests include total and residual chlorine analysis, alkalinity, total dissolved solids, turbidity, pH, conductivity, and total hardness.

Sample Collection and Analysis

The WQL is responsible for collecting at least 120 samples per month representative of the distribution system and analyzing them for the presence/absence of total and fecal coliforms and chlorine residual. The WQL also is responsible for collecting and analyzing system health samples and through the use of Heterotrophic Plate Counts determine where and when flushing is required. Quarterly samples are also collected from the wells for required analytical work such as volatile organic compounds. This analytical work is performed at Anatek Laboratory and North Creek Analytical Laboratory. Periodically, the lab also collects distribution system samples to be tested for Lead and Copper in at risk areas. The laboratory is also responsible for analyzing samples taken at the sites of new construction for total/fecal coliforms.

Surface Water Infiltration

In order to ensure that the City's wells are not being contaminated by the river, the WQL also monitors Well Electric and Parkwater wells for signs of surface water infiltration every week. During high river elevation this monitoring is performed daily. In addition, once a month, all running wells are analyzed for signs of surface water infiltration.

Water Quality Reports

The City of Spokane's drinking water is of very high quality. To maintain this valuable asset, the City conducts many different tests at varying intervals to confirm that the water delivered to customers remains a very high quality product. The Environmental Programs Department of the City has summarized the test results in reports titled "Report on Spokane Drinking Water Quality". The latest report is for 2014 and is provided in **Appendix 3.2.1**.

Since 1999, the City of Spokane has issued to each customer on an annual basis its "Water Quality Consumer Confidence Report (CCR)." The CCR informs each customer about the excellent quality of water supplied to them and provides tips and encouragement for aquifer protection and water conservation. The report also lists emergency contact phone numbers. A copy of the latest report is in **Appendix 3.2.2**. Water Quality is further discussed in Chapter 6.

3.3 Source Description and Condition

Well Electric Well Station (DOH Source #S02)

The oldest operating Well Station in the water system, Well Electric Well Station is located adjacent to the Spokane River within the Upriver Complex. The Well Station consists of two large 48 foot diameter wells. The wells are adjacent to each other in a north-south orientation. The City identifies the north well as Well No. 4 and the south well as Well No. 5

Well No. 4 contains a single 900 horsepower (hp) horizontal centrifugal pump that provides water to the North Hill Pressure Zone. Well No. 5 supplies water to three pumps. One pump, another 900 hp horizontal centrifugal, also pumps water to the North Hill Pressure Zone. The second pump, a 900 hp vertical turbine pump lifts water to the Intermediate Pressure Zone. The third pump is a 1,000 hp vertical turbine pump that lifts water to the Low Pressure Zone. In 2013, the Well Electric station provided 28.9 percent of the entire

water system supply. Typical outlet pressures for the station are 180, 140, and 80 psi for the Intermediate, North Hill, and Low systems, respectively. Pump inlet suction elevations at this station are approximately elevation 1865.7 feet. The minimum recorded water level in the well during pumping is 1887.5 feet, which leaves sufficient submergence of the pump intakes. The two vertical turbine, high efficiency pumps were installed in 1996 as replacements for two less efficient horizontal centrifugal pumps.

The maximum total instantaneous withdrawal rate for the well station is 39,300 gpm, which is the total nameplate capacity of the pumps. The total capacity of the wells exceeds the pumping capacity, but the actual potential yield of the well station is unknown to the City. The water right allows 54,750 gpm.

Due to its close proximity to the Spokane River, from 1998 through 2001 Well Electric was intensively studied to determine if it was ground water under the influence of surface river water. The study concluded with monthly samples taken throughout 2001 for Microscopic Particulate Analysis. The conclusion is there is no river influence during normal operation. However, during certain flood stages in the river the well is flooded by the river at which times the well is shut down until normal operations can again resume.

As mentioned above, this is the oldest well in the system. However, it is in good condition. Historically, there have been no significant variations in source capacity or water table levels at or near this site. The well and pumps are in good condition, showing no signs of diminished performance. The well station piping also shows no signs of deterioration and is in good condition.

Parkwater Well Station (DOH Source #S03)

The Parkwater Well Station is located 1/2 mile south and east of the Well Electric Well Station. Completed in 1949, the Parkwater Well Station houses eight pumps in four 18 foot diameter hand dug wells. The wells are adjacent to each other in an east-west orientation. The City identifies the east well as Well No. 1 and continues the numbering scheme westward with the west well being Well No. 4. All of the pumps are vertical lineshaft turbine pumps. Six pumps are 600 hp and supply water to the Low Pressure Zone with typical outlet pressures of 68 psi. The two remaining pumps include a 900 hp unit, and a 1,000 hp unit that supply water to the Intermediate Pressure Zone at an outlet pressure of 145 psi. The 1,000 hp pump was installed in 2003 replacing a less efficient low system (600 hp) pump to improve energy efficiency and pumping redundancy to the Intermediate Pressure Zone. Pump inlet suction elevations at this station are approximately elevation 1870.0 feet. The minimum recorded water level in the well during pumping is 1887.5 feet, which leaves sufficient submergence of the pump intakes. The Parkwater Well Station in 2013 supplied 33.2 percent of the entire water system demand.

The maximum total instantaneous withdrawal rate of the well station is 63,000 gpm, which is the total nameplate capacity of the pumps and also the maximum allowed per the water right. The total yield of the wells exceeds the pumping capacity, but the actual potential yield of the well station is unknown to the City.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The well and pumps are in good condition, showing no signs of

diminished performance. The well station piping also shows no signs of deterioration and is in good condition.

Nevada Well Station (DOH Source #S01)

At the intersection of Nevada Street and North Foothills Drive is the Nevada Well Station. The Nevada Well Station supplies water to the Low Pressure Zone. The Well Station has two 400 hp submersible pumps that were installed in 1956 and two 800 hp vertical turbine pumps that were installed in 2003 to replace two older less efficient pumps and to improve station redundancy. Typical outlet pressures at this station are 68 psi. Pump inlet suction elevations at this station are approximately elevation 1,846 feet. The minimum recorded water level in the well during pumping is 1,855.37 feet, which leaves sufficient submergence of the pump intakes. In 2013, the Nevada Well Station supplied 14.4 percent of the total water system demand.

The maximum instantaneous withdrawal rate of the well station is 25,000 gpm which is the amount allowed per the water right. The actual pumping capacity is 31,000 gpm, which equates to the total capacity of the pumps. The total yield of the well exceeds the water right, but the actual potential yield of the well station is unknown to the City.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The well and pumps are in good condition, showing no signs of diminished performance. The well station piping also shows no signs of deterioration and is in good condition.

Grace Avenue Well Station (DOH Source #S06)

Located directly East of the Nevada Well Station is the Grace Avenue Well Station. It houses two identical 900 hp vertical line shaft turbine pumps that occupy a single 18 foot diameter well. This Well Station supplies water to the North Hill Pressure Zone, at a discharge pressure of 110 psi. The suction bells of the pumps are at elevation 1,849.87 feet, whereas the lowest observed low water level in the well was 1,859.37 feet, which leaves sufficient submergence of the pump intakes. The Grace Avenue Well Station in 2013 supplied 8.2 percent of the total water system demand.

The maximum instantaneous withdrawal rate of the well station is 19,000 gpm, which is the total nameplate capacity of the pumps. The total yield of the well exceeds the pumping capacity, but the actual potential yield of the well station is unknown to the City. The water right allows 31,000 gpm.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The well and pumps are in good condition, showing no signs of diminished performance. The well station piping also shows no signs of deterioration and is in good condition.

Ray Street Well Station (DOH Source #S04)

The Ray Street Well Station is located at the intersection of Ray Street and Hartson Avenue at the base of the South Hill. The Ray Street Well Station pumps water to the Intermediate Pressure Zone. The Well Station houses two 24 foot diameter wells. The wells are adjacent to each other in a north-south orientation. The City identifies the north well as Well No. 1

and the south well as Well No. 2. The Station contains three 900 hp vertical turbine pumps, two pumps in Well No. 1 and a single pump in Well No. 2. The suction bells of the pumps are positioned at approximate elevation 1,858 feet. Maximum observed drawdown has been to elevation 1,868.37 feet, which leaves sufficient submergence of the pump intakes. The pressure normally observed at the outlet of the Ray Street well is 157 psi. This well station in 2013 supplied 6.8 percent of the total water system demand.

The maximum instantaneous withdrawal rate of the well station is 21,550 gpm, which is the total nameplate capacity of the pumps. The total yield of the wells exceeds the pumping capacity, but the actual potential yield of the well station is unknown to the City. The water right allows 24,850 gpm.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The well and pumps are in good condition, showing no signs of diminished performance. The well station piping also shows no signs of deterioration and is in good condition.

Hoffman Well Station (DOH Source #S05)

Hoffman Well Station is located on Hoffman Avenue at the intersection of Crestline Street on the north side of the City. The Well Station houses two 16 foot diameter wells, 40 feet apart, in an east-west orientation. The City identifies the west well as Well No. 1 and the east well as Well No. 2. Each well contains a 600 hp vertical line shaft turbine pump. Pump suctions are at elevation 1,843.37 feet. The maximum observed drawdown pumping level has been to elevation 1,859.37 feet, which leaves sufficient submergence of the pump intakes. Normal outlet pressure for the pumps is 55 psi. Hoffman Well Station in 2013 supplied 1.5 percent of the total water system demand. The maximum instantaneous withdrawal rate of the well station is 10,920 gpm, which is the total nameplate capacity of the pumps. The total yield of the wells exceeds the pumping capacity, but the actual potential yield of the well station is unknown to the City. The water right allows 11,600 gpm.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The pumps and west well are in good condition. The well station piping also shows no signs of deterioration and is in good condition. Analysis is being done to determine if the existing well should be rehabilitated or if a new well should be drilled at this location.

Central Avenue Well Station (DOH Source #S08)

Pump inlet suction elevations at this station are approximately elevation 1,846 feet. The minimum recorded water level in the well during pumping is 1,855.37 feet, which leaves sufficient submergence of the pump intakes.

The Central Avenue Well Station is the most northerly Well Station in the system, being located on Central Avenue two blocks west of Division Street. The Well Station has two 7 foot diameter wells. The wells are approximately 130 feet apart in a southwest-northeast orientation. The City identifies the southwest well as Well No. 1 and the northeast well as Well No. 2. Well No. 1 contains one 450 hp submersible pump and Well No. 2 contains two 450 hp submersible pumps. Normal outlet pressure is 55 psi. In 2013 Central Avenue Well Station provided 7.0 percent of the total annual water system demand.

The maximum instantaneous withdrawal rate of the well station is 11,900 gpm, which is the total nameplate capacity of the pumps. The total yield of the wells exceeds the pumping capacity but the actual potential yield is unknown to the City. The water right allows 30,900 gpm.

Historically, there have been no significant variations in source capacity or water table levels at or near this site. The Central Avenue Well station is currently in the CIP for rehabilitation. Well No. 1 is planned for rehabilitation in 2016 and Well No.2 in 2018. Details for the Central Avenue Well Rehabilitation projects are provided in Chapter 8.

3.4 Source Capacity Analysis

With information provided by land use planners regarding population and land growth within the water service area of the City (as discussed in Chapter 2, Table 2.2.3, specifically), water use demands were extrapolated into the future for 6 and 20 years. To determine the maximum day demand (production requirements), the average day demands were increased uniformly by the 3.2 peaking factor addressed in Chapter 2.

As earlier indicated, the distribution area is divided into various pressure zones due to the terrain. However, only three zones – LOW, INTERMEDIATE, and NORTH HILL – have Well Pump Stations and all the other zones have their source pumping by means of Booster Stations. Thus, for total quantity of water pumped, only pumpage at the well stations are considered.

Table 3.4.1 shows the comparison of present Well Station capacity compared to the current and future water needs. As shown, the name plate capacities far exceed the anticipated demand. Hence, the current supply system coupled with conservation has the potential to serve the City of Spokane for many more years into the future.

TABLE 3.4.1
Source Capacity and Future Demands

		Maximum Day Demand (MGD) (including unaccounted water)				
		w/o Conservation			With Conservation	
Supply Well	Capacity MGD	2013	2018	2033	2018	2033
Low Zone System						
Nevada Street	44.6					
Well Electric	21.6					
Parkwater	69.0					
Total Capacity	135.2	86.4	91.5	109.0	90.9	103.7
Intermediate Zone System						
Well Electric	10.8					

Parkwater 21.7

TABLE 3.4.1
Source Capacity and Future Demands (continued)

Supply Well	Capacity MGD	2013	Maximum Day Demand (MGD) (including unaccounted water)			
			w/o Conservation		With Conservation	
			2018	2033	2018	2033
Ray Street	26.9					
Total Capacity	59.4	41.6	44.2	52.6	43.5	49.2
North Hill Zone System						
Well Electric	24.2					
Grace	23.0					
Hoffman	7.9					
Central	17.1					
Total Capacity	72.2	51.3	54.3	64.7	53.5	60.7

3.5 Booster Pump Station Capacity Analysis

A Booster Station with its booster pumps provides the means of conveying water from lower pressure zones to higher pressure zones. **Table 3.5.1** summarizes the capacities and demands of each Booster Station throughout the system.

TABLE 3.5.1
Booster Pump Station Capacity and Future Water Demands
City of Spokane Water Department

Pressure Zone Served	Booster Pump Station	Pump Capacity (MGD)	2005	Maximum Day Demand, MGD (including unaccounted water)			
				w/o Conservation		With Conservation	
				2012	2026	2012	2026
Intermediate*	9 th and Pine	11.09					
	Bishop Court	9.22					
Total Intermediate		20.31	8.54	9.34	11.16	8.65	9.75
High	Lincoln Heights	56.30					
	14 th & Grand	9.22					
Total High		65.52	24.40	26.70	31.92	24.73	27.86
Top	Division Manito	3.46					
	Garden Park	17.70					

	35 th & Ray	15.84					
Total Top		37.00	15.40	16.84	20.13	15.56	17.56

TABLE 3.5.1
 Booster Pump Station Capacity and Future Water Demands
City of Spokane Water Department (continued)

Pressure Zone Served	Booster Pump Station	Pump Capacity (MGD)	2005	Maximum Day Demand, MGD (including unaccounted water)			
				w/o Conservation 2012	2026	With Conservation 2012	2026
Glennaire	Glennaire	2.39	1.30	1.42	1.42	1.32	1.32
Midbank	Belt Street	3.84	1.20	1.31	1.57	1.22	1.38
Shawnee	Shawnee	1.61	0.20	0.22	0.26	0.21	0.23
Five Mile	Five Mile	5.81	2.50	2.73	3.27	2.53	2.86
Kempe	Kempe	5.47					
Highland	Milton Street	2.3					
	Sunset	0.72					
Total Highland		4.02	1.30	1.42	1.70	1.32	1.49
Woodland							
	West Drive	2.30					
Total Woodland		3.96	0.40	0.44	0.52	0.41	0.46
Southview	Southview	1.30	0.10	0.11	0.13	0.11	0.12
Eagle Ridge	Eagle Ridge	6.91	1.60	1.75	2.09	1.62	1.83
Cedar Hills	Cedar Hills	1.51	0.01	1.05	1.25	0.97	1.10
SIA	Thorpe Road	10.62					
	West Drive	8.64					
SIA Total		19.26	5.20	5.68	6.79	5.26	5.93
Plains	Spotted Road	8.12	2.30	2.51	3.00	2.33	2.62
Eagle Ridge II	Eagle Ridge II	7.20	0.23	0.25	0.30	0.24	0.27
Woodridge	Woodridge	0.72	0.41	0.45	0.54	0.42	0.48
Low	Latah**	23.04					

* These two Intermediate Pressure Zone booster stations pump from the Low System augmenting the supply from the well stations, see Table 3.4.1.

** The Latah Station is an in-line pressure booster and does not add to the capacity.

3.6 Treatment

The water that the Water Department pumps from the Spokane Valley/Rathdrum Prairie Aquifer is a high quality product in its natural state. However, the Water Department chooses to inject gaseous chlorine at each wellhead to disinfect the raw water. This step is vital in the effort to protect the health of the customers and the public-at-large.

A 0.2 parts per million (ppm) or milligram per liter (mg/l) free chlorine residual is maintained throughout the water system to ensure proper disinfection and prevent bacterial growth within the system.

Additionally, the Water Department has an ongoing program that monitors the chlorine residual within the water system. The monitoring involves routine testing for the chlorine residual at various points throughout the system with particular attention being given to those water mains farthest from the well stations. Chlorine residuals are taken at least 120 times per month at sampling sites located throughout the system. Monitoring efforts are increased during seasons of low water demand for further assurance that chlorine residuals are being properly maintained.

Additionally, to assure the customer receives the highest quality water, the City conducts many other water quality tests at varying intervals to confirm that no reduction of water quality takes place.

3.7 Storage Description and Condition

Each pressure zone, with the exception of the Northwest Terrace Pressure Zone, and Hatch Road Pressure Zone, has at least one storage reservoir. In many pressure zones, more than one reservoir has been built for redundancy and operational purposes. **Table 3.7.1** gives a general description of the various reservoirs found in the water system. This table indicates the volume of storage, the zone served, the type of material, the turnover rate of water, and the date of construction for each of the thirty reservoirs.

Each reservoir is inspected weekly and is assessed for any reportable damage and/or deterioration. The operations staff has also conducted an assessment of each reservoir and determined they are in excellent condition and have a predicted life expectancy in excess for 50 years from 2006.

TABLE 3.7.1
City Of Spokane Water Department
Reservoirs And Storage

Hydraulic Zone	Reservoir Name & Age	Type	Diameter or Size	Average Rate of Water Turnover	Reservoir Storage (MG)	Zone Storage (MG)
Low	Shadle (1965)	Steel Reservoir	107 feet	2 days	4.80	28.75
	Rockwood Vista (1948)	Underground Concrete	2-1/2 acres		11.00	
	9th & Pine (1964)	Steel Reservoir	260 feet		7.20	
	West Blvd. (1956)	Steel Reservoir	72 feet		1.00	
	Thorpe (1983)	Steel Reservoir	104 feet		3.50	
	Qualchan (1992)	Concrete with liner	71 feet		1.25	
Intermediate	14th & Grand (2005)	Rivet Steel Standpipe	34 feet	6.5 days	0.52	20.52
	Lincoln Heights # 1 (1995)	Concrete w/liner	240 feet		10.00	
	Lincoln Heights # 2 (1995)	Concrete w/liner	240 feet		10.00	
High	Garden Park (1956)	Steel Reservoir	65 feet	1.5 days	3.10	4.35
	33rd & Lamonte (1930)	Elevated Riv. Steel Tank	78 feet		1.25	
Top	Brown Park #1 (1958)	Steel Reservoir	160 Feet	3 days	5.00	10.00
	Brown Park #2 (1990)	Steel Reservoir	160 Feet		5.00	
Glennaire	Glennaire #1 (1958)	Concrete w/sealer	43.33 feet x 47 feet	10 days	.15	1.15
	Glennaire #2 (1991)	Concrete w/liner	75 Feet		1.00	
North Hill	North Hill (1986)	Steel Reservoir	200 feet	3 days	10.80	25.60
	Five Mile (1956)	Steel Reservoir	240 feet		10.20	
	Indian Trail (1996)	Concrete w/liner	140 feet		4.60	
Midbank	Midbank (1960)	Steel Standpipe	40 feet	5 days	0.58	0.58
Indian Hills	Indian Hills (1995)	Steel Standpipe	14 feet	2 days	0.03	0.03
Shawnee	Shawnee #1 (1978)	Steel Reservoir	15 feet	6 days	0.02	0.074

TABLE 3.7.1
City Of Spokane Water Department
Reservoirs And Storage (continued)

Hydraulic Zone	Reservoir Name & Age	Type	Diameter or Size	Average Rate of Water Turnover	Reservoir Storage (MG)	Zone Storage (MG)
	Shawnee #2 (1993)	Steel Reservoir	25 feet		0.054	
Five Mile	Strong Road (1982)	Steel Standpipe	55 feet	12 days	2.00	2.00
Kempe	Kempe (2010)	Steel Standpipe	38 feet		1.1	1.1
Highland	Highland (1966)	Steel Standpipe	40 feet	3 days	1.00	1.00
Woodland	Sunset (1968)	Steel Reservoir	50 feet	6 days	0.35	0.35
SIA	SIA #1 (1935)	Rivet Steel Elev. Tank	48 feet	4.5 days	0.50	4.50
	SIA #2 (1984)	Steel Standpipe	78 feet		4.00	
Southview	Southview (1996)	Steel Standpipe	14 feet	2.4 days	0.048	0.048
Eagle Ridge	Eagle Ridge 1995)	Steel Reservoir	62 feet	4.0 days	0.542	0.542
Cedar Hills	Cedar Hills (1999)	Steel Reservoir	52 feet	8.0 days	0.30	0.30
Plains	Mallen Hill (1985)	Steel Reservoir	110 feet	10.0 days	4.00	4.00
NW Terrace	No Reservoir					
Hatch Road	No Reservoir					
Eagle Ridge 2	Eagle Ridge 2	Steel Reservoir	40	8.5 days	1.22	1.22
Wood Ridge	Wood Ridge	Steel Reservoir	42	7.6 days	.228	.228
Total Storage						105.492 mg

3.8 Storage Capacity Analysis

Each individual pressure zone was analyzed for storage adequacy. Operational Storage (OS), Equalization Storage (ES), Fire Suppression Storage (FSS), Standby Storage (SB), and Dead Storage (DS) were all reviewed as part of the evaluation for each pressure system.

With the exception of the Glennaire and Eagle Ridge pressure zones, equalization storage needs for each of the pressure zones and reservoirs calculated out to be zero. The Water Department's long time standard has been to size pumping stations to meet the maximum day demand (MDD) for the system they serve with the largest pump out of service. Since equalization storage is calculated by taking the peak hour demand (PHD) less the sum of all installed and active sources of supply over a given amount of time (150 minutes), and the City's ratio of PHD to MDD is less than 2 with all pumps in service, most pressure zones are able to operate without the use of equalization storage.

The effective storage for each reservoir and pressure system was calculated by removing both the operational storage and the dead storage from the overall volume of the tank. The remaining storage capacity of the reservoir is considered the “effective storage”, and it is the amount of water available for emergency use. “Effective storage” for each pressure zone is shown in **Table 3.8.1**. With the consolidation, or “nesting”, of the fire suppression storage and the standby storage, the WSDM dictates that the larger of these two storage elements, plus any required equalization storage, becomes the “required storage” for the system. These values are also shown in **Table 3.8.1**. A letter from the Fire Marshall allowing the practice of consolidating the FSS and the SB is contained in **Exhibit 3.8.1** of the appendix.

Each of the City of Spokane’s reservoirs has more than one source of supply, as defined by the DOH’s Water System Design Manual (WSDM). Therefore, the Standby Storage for each of the pressure zones was calculated based upon Equation 9-3 of the WSDM which is expressed as: $SB=(2 \text{ Days})(ADD)(N)-t_m(Q_s-Q_l)$. Using this equation, the standby storage for each and every pressure zone calculated out to be zero. The robust size and redundancy of sources to each reservoir are great enough, in every case, to adequately supply the system without being required to relying upon emergency storage. However, the WSDM recommends that the SB volume not be less than 200 gallons/ERU. This becomes the required standby storage volume. **Table 3.8.2** shows the Operational Storage (OS), the Equalization Storage (ES), the Standby Storage (SB), the Fire Suppression Storage (FSS), and the Dead Storage for each of the City’s reservoirs.

Fire suppression storage for each pressure zone has been determined by the City of Spokane Fire Department, or appropriate fire protection authority in locations of the service area outside the City of Spokane. The amount of the fire suppression storage required is based on the largest fire demand anticipated as dictated by building types within the pressure zone.

Due to the topography of the City’s service area coupled with the City’s capability to pump MDD, there are isolated incidences where individual reservoirs serving some intermediate or remote pressure zones may not have all the storage required to fulfill standby or fire suppression needs. However, due to the department’s two operation centers which are staffed 24 hours a day year round and the availability of immediate on-call work crews, reservoirs which lie in-line and above the pressure zone in question can be brought into emergency service in times of need. Department staff is able to monitor system operation through the SCADA system and can operate sources of supply remotely should an unusual emergency need arise. Should a pressure zone need additional emergency storage supply, the reserve capacity of the reservoirs at a higher hydraulic grade line can quickly be made available to the pressure zone below. The summation of “total available emergency storage” for each pressure zone is shown in **Table 3.8.1**. A listing of which storage facilities are available to provide addition emergency storage to each pressure zone are listed in **Table 3.8.3**.

Table 3.8.1 also summarizes the existing storage compared to the current, 6 years, and 20 years required storage.

TABLE 3.8.1
Storage Capacity and Demand
City of Spokane Water Department

Pressure Zone Served	Reservoir Name	Total Capacity (MGD)	Effective Storage	Total Available Emergency Storage	2005	Storage Required (MG)			
						w/o Conservation		With Conservation	
						2012	2026	2012	2026
Low	Shadle Park	4.8							
	Rockwood Plaza	11.0							

TABLE 3.8.1
Storage Capacity and Demand
City of Spokane Water Department (continued)

Pressure Zone Served	Reservoir Name	Total Capacity (MGD)	Effective Storage	Total Available Emergency Storage	2005	Storage Required (MG)			
						w/o Conservation		With Conservation	
						2012	2026	2012	2026
Intermediate	9 th & Pine	7.2							
	West Drive	1.0							
	Thorpe Road	3.5							
	Qualchan	1.25							
	Total	28.75	14.11	49.50	7.68	8.40	10.03	7.78	8.76
High	14 th & Grand	0.52							
	Lincoln Heights #1	10.0							
	Lincoln Heights #2	10.0							
	Total	20.52	19.13	27.02	2.03	2.22	2.65	2.06	2.32
Top	Garden Park	3.10							
	33 rd & Lamonte	1.25							
	Total	4.35	1.10	7.94	1.93	2.11	2.53	1.95	2.21
Glennaire	Browne Park #1	5.0							
	Browne Park #2	5.0							
	Total	10.0	5.71	6.84	2.24	2.45	2.93	2.27	2.56
	Glennaire #1	0.15							
North Hill	Glennaire #2	1.0							
	Total	1.15	1.08	1.12	0.25	0.25	0.25	0.25	0.25
	North Hill	10.8							

	5-Mile	10.2							
	Indian Trail	4.6							
	Total	25.6	14.00	15.72	7.72	8.43	10.08	7.81	8.81
Midbank	Midbank	0.58							
	Total	0.58	0.36	0.36	0.21	0.21	0.21	0.21	0.21
Indian Hills	Indian Hills	0.03							
	Total	0.03	0.0*	1.07	0.21	0.21	0.21	0.21	0.21
Shawnee	Shawnee #1	0.020							
	Shawnee #2	0.054							
	Total	0.074	0.06	0.27	0.21	0.21	0.21	0.21	0.21
Five Mile	Strong Road	2.0							
	Total	2.0	1.07	1.07	0.22	0.24	0.29	0.22	0.26

TABLE 3.8.1
Storage Capacity and Demand
City of Spokane Water Department (continued)

Pressure Zone Served	Reservoir Name	Total Capacity (MGD)	Effective Storage	Total Available Emergency Storage	2005	Storage Required (MG)			
						w/o Conservation		With Conservation	
						2012	2026	2012	2026
Highland	Highland	1.0							
	Total	1.0	0.47	0.71	0.68	0.68	0.68	0.68	0.68
Woodland Heights	Sunset	0.35							
	Total	0.35	0.32	0.32	0.68	0.68	0.68	0.68	0.68
Geiger Heights	Geiger Heights	0.25							
	Total	0.25	0.23	0.23	0.21	0.21	0.21	0.21	0.21
SIA	SIA #1	0.5							
	SIA #2	4.0							
	Total	4.5	2.05	5.76	1.44	1.44	1.44	1.44	1.44
Southview	Southview	0.05							
	Total	0.05	0.05	0.05	0.21	0.21	0.21	0.21	0.21
Eagle Ridge	Eagle Ridge	0.54							
	Total	0.54	0.50	1.27	0.24	0.24	0.24	0.24	0.24
Cedar Hills	Cedar Hills	0.3							
	Total	0.3	0.27	0.27	0.21	0.21	0.21	0.21	0.21
Plains	Mallen Hill	4.0							
	Total	4.0	3.71	3.71	1.44	1.44	1.44	1.44	1.44
Hatch Road	No Reservoir	0	0	6.84	0.21	0.21	0.21	0.21	0.21

Northwest Terrace	Reservoir planned for 2008	0	0	65.2	1.61	1.76	2.10	1.63	1.84
Eagle Ridge #2	Eagle Ridge #2	1.22							
	Total	1.22	0.77	0.77	0.21	0.21	0.21	0.21	0.21
Woodridge	Woodridge	0.23							
	Total	0.23	0.21	0.21	0.21	0.21	0.21	0.21	0.21

* This pressure zone is normally served from the Strong Road Reservoir through a pressure reducing valve thereby providing adequate "effective storage".

TABLE 3.8.2
Storage Summary
City of Spokane Water Department

Pressure Zone Served	Facility Name	Operational Storage	Dead Storage	Required Standby Storage	Required Fire Storage	Required Equalization Storage
Low	9 th & Pine	2,385,890	0			
	Qualchan	184,431	388,697			
	Rockwood Vista	3,374,233	0			
	Shadle Park	553,346	2,666,549			
	Thorpe Rd	395,716	1,593,664			
	West Dr	220,106	140,953			
	Total			7,681,695	1,440,000	0
Intermediate	14 th & Grand	123,079	296,531			
	Lincoln Heights #1	5,073,913	0			
	Lincoln Heights #2	5,073,913	0			
	Total			2,026,994	960,000	0
High	33 rd & Lamonte	560,228	491,628			
	Garden Park	496,233	1,192,945			
	Total			1,934,154	675,000	0
Top	Brown Park #1	1,503,382	1,846,153			
	Brown Park #2	1,503,382	1,846,153			
	Total			2,244,826	960,000	0
Glennaire	Glennaire #1	8,461	0			
	Glennaire #2	163,515	0			
	Total			110,616	210,000	38,125
Southview	Southview	17,265	150	14,000	210,000	0
Woodridge	Woodridge	51,796	0	65,000	210,000	0
Shawnee	Shawnee #1	9,553	0			
	Shawnee #2	29,363	0			
	Total			12,524	210,000	0
Geiger Heights	Geiger Heights	140,942	1,221	80,453	210,000	0
Woodland Heights	Sunset	102,770	0	45,889	675,000	0
Highland	Highland	187,923	519,512	174,958	675,000	0
SIA	SIA #1	270,609	0			
	SIA #2	685,636	2,374,894			
	Total			460,323	1,440,000	0
Plains	Mallen Hill	1,065,874	126,484	1,036,800	1,440,000	0
Eagle Ridge	Eagle Ridge	112,871	0	21,714	210,000	27,083
Eagle Ridge #2	Eagle Ridge #2	234,903	318,153	34,512	210,000	0
Cedar Hills	Cedar Hills	79,397	10,004	97,522	210,000	0
Five Mile	Strong Rd	177,646	1,184,897	223,557	210,000	0
Indian Hills	Indian Hills	5,755	0	21,532	210,000	0
Midbank	Midbank	46,981	198,540	107,039	210,000	0

TABLE 3.8.2

Storage Summary

City of Spokane Water Department (continued)

Pressure Zone Served	Facility Name	Operational Storage	Dead Storage	Required Standby Storage	Required Fire Storage	Required Equalization Storage
North Hill	North Hill	2,266,818	3,201,733			
	Five Mile	3,348,783	0			
	Indian Trail	1,151,027	1,355,909			
	Total			7,715,598	1,440,000	0

TABLE 3.8.3

Available Emergency Storage

City of Spokane Water Department

Pressure Zone Served	Storage Facility Name (without zone)	Additional Emergency Storage Facility Names	Source System of Emergency Storage
Low	9 th & Pine	Sunset	Woodland Heights
	Qualchan	Highland	Highland
	Rockwood Vista	Geiger Heights	Geiger Heights
	Shadle Park	SIA #1	SIA
	Thorpe Rd	SIA #2	SIA
	West Dr	Mallen Hill	Plains
		Cedar Hills	Cedar Hills
		Eagle Ridge #1	Eagle Ridge
		Eagle Ridge #2	Eagle Ridge #2
		14 th & Grand	Intermediate
		Lincoln Heights #1	Intermediate
		Lincoln Heights #2	Intermediate
		33 rd & Lamonte	High
		Garden Park	High
		Brown Park #1	Top
		Brown Park #2	Top
		Glennaire #1	Glennaire
		Glennaire #2	Glennaire
		Southview	Southview
Intermediate	14 th & Grand	33 rd & Lamonte	High
	Lincoln Heights #1	Garden Park	High
	Lincoln Heights #2	Brown Park #1	Top
		Brown Park #2	Top
		Glennaire #1	Glennaire
		Glennaire #2	Glennaire
		Southview	Southview
High	33 rd & Lamonte	Brown Park #1	Top
	Garden Park	Brown Park #2	Top
		Glennaire #1	Glennaire
		Glennaire #2	Glennaire
		Southview	Southview
Top	Brown Park #1	Glennaire #1	Glennaire
	Brown Park #2	Glennaire #2	Glennaire
		Southview	Southview

TABLE 3.8.3

Available Emergency Storage

City of Spokane Water Department (continued)

Pressure Zone Served	Storage Facility Name (without zone)	Additional Emergency Storage Facility Names	Source System of Emergency Storage
Glennaire	Glennaire #1 Glennaire #2	Southview	Southview
Southview	Southview		
Woodridge	Woodridge		
Shawnee	Shawnee #1 Shawnee #2	Woodridge	Woodridge
Geiger Heights	Geiger Heights		
Woodland Heights	Sunset		
Highland	Highland	Geiger Heights	Geiger Heights
SIA	SIA #1 SIA #2	Mallen Hill	Plains
Plains	Mallen Hill		
Eagle Ridge	Eagle Ridge	Eagle Ridge #2	Eagle Ridge #2
Eagle Ridge #2	Eagle Ridge #2		
Cedar Hills	Cedar Hills		
Five Mile	Strong Rd		
Indian Hills	Indian Hills	Strong Rd	Five Mile
Midbank	Midbank		
North Hill	North Hill Five Mile Indian Trail	Indian Hills Shawnee #1 Shawnee #2 Woodridge Midbank Strong Rd	Indian Hills Shawnee Shawnee Woodridge Midbank Five Mile
Hatch Rd	Fed by PRV Station	Brown Park #1 Brown Park #2 Glennaire #1 Glennaire #2 Southview	Top Top Glennaire Glennaire Southview
Northwest Terrace	Fed by PRV Station	North Hill Five Mile Indian Trail Indian Hills Shawnee #1 Shawnee #2 Woodridge Midbank Strong Rd 9 th & Pine Qualchan Rockwood Vista Shadle Park Thorpe Rd	North Hill North Hill North Hill Indian Hills Shawnee Shawnee Woodridge Midbank Five Mile Low Low Low Low Low

TABLE 3.8.3

Available Emergency Storage

City of Spokane Water Department (continued)

Pressure Zone Served	Storage Facility Name (without zone)	Additional Emergency Storage Facility Names	Source System of Emergency Storage
		West Drive	Low
		Sunset	Woodland Heights
		Highland	Highland
		Geiger Heights	Geiger Heights
		SIA #1	SIA
		SIA #2	SIA
		Mallen Hills	Plains
		Cedar Hills	Cedar Hills
		Eagle Ridge #1	Eagle Ridge
		Eagle Ridge #2	Eagle Ridge #2
		14 th & Grand	Intermediate
		Lincoln Heights #1	Intermediate
		Lincoln Heights #2	Intermediate
		33 rd & Lamonte	High
		Garden Park	High
		Brown Park #1	Top
		Brown Park #2	Top
		Glennaire #1	Glennaire
		Glennaire #2	Glennaire
		Southview	Southview

3.9 Distribution/Transmission System

Pipe System

Shown on **Table 3.9.1** is a summary of the length, size, age and type of pipes within the distribution/transmission system. The system is comprised of pipe sizes ranging from two (2) inches to 48 inches in diameter. Several pipe types also serve the system.

As shown, many of the larger diameter pipelines are older, and as a result, the City is actively working on rehabilitation and replacement programs for this aging infrastructure.

Table 3.9.1

City of Spokane Water Department – Type & Age of Pipelines

Material	Diameter (in.)	0-25 Yrs	25-50 Yrs	50+ Yrs	Grand Total
Cast Iron	1.3			145.0	145.0
	2		1,627.0	3,797.0	5,424.0
	4	60.0	16,990.0	27,534.0	44,584.0
	6	705.0	705,836.0	1,466,375.0	2,172,916.0
	8		223,827.0	183,060.0	406,887.0
	10	2,600.0	60,321.0	78,275.0	141,196.0
	12	2,600.0	260,594.0	181,577.0	444,771.0
	16		73.0	21,450.0	21,523.0
	18		3,770.0	1,360.0	5,130.0
	20			1,205.0	1,205.0
	24			2,490.0	2,490.0
	30		1,240.0		1,240.0
Cast Iron Total		5,965.0	1,274,278.0	1,967,268.0	3,247,511.0
Ductile Iron	4	21,555.0	11,477.0	660.0	33,692.0
	6	321,586.7	111,762.0	744.0	434,092.7
	8	195,015.4	14,919.0	1,193.0	211,127.4
	10	7,102.0			7,102.0
	12	269,287.7	24,688.0		293,975.7
	18	58,300.0	3,961.0		62,261.0
	20	2,205.0			2,205.0
	24	88,909.7			88,909.7
	30	65,505.0			65,505.0
	36	46,943.0		487.0	47,421.0
	42	4,589.0			4,589.0
Ductile Iron Total		1,080,988.5	166,807.0	3,075.0	1,250,880.5
Galvanized Steel	2	341.0	970.0	6,327.0	7,638.0
	4		609.0	186.0	795.0
Galvanized Steel Total		341.0	1,579.0	6,513.0	8,433.0
Kalamien	4			182.0	182.0
	6		250.0	4,107.0	4,357.0
	10			2,368.0	2,368.0
	12			5,927.0	5,927.0
	14		144.0	153.0	297.0
Kalamien Total		0.0	394.0	12,737.0	13,131.0
PVC	4	700.0			700.0
	6	3,520.0			3,520.0
	8		1,700.0		1,700.0
PVC Total		4,220.0	1,700.0	0.0	5,920.0

Table 3.9.2

City of Spokane Water Department – Type & Age of Pipelines (continued)

Material	Diameter (in.)	0-25 Yrs	25-50 Yrs	50+ Yrs	Grand Total
Steel	6		684.0	660.0	1,344.0
	8		1,048.0	1,740.0	2,788.0
	10		477.0		477.0
	12	335.0	4,914.0		5,249.0
	14			60.0	60.0
	16		48.0	6,726.0	6,774.0
	18	724.0	43,947.0	37,733.0	82,404.0
	24	9,338.0	41,736.0	102,319.0	153,393.0
	28			12,663.0	12,663.0
	30	1,856.0	52,403.0	75,929.0	130,188.0
	36	433.0	8,873.0	55,063.0	64,369.0
	42			970.0	970.0
	48			13,962.0	13,962.0
Steel Total		12,686.0	154,130.0	307,825.0	474,641.0

General Condition

The overall condition of the City's distribution/transmission system is quite good. In many water systems pipeline failures can be attributed to very aggressive soils that attack the outer wall of the pipe or by the water chemistry within the pipe that will eat away at the inner wall. From years of in-field observations of exposed pipes, the Water Department has determined that the system does not experience either aggressive soils (excepting localized "hot spots") or corrosive water. Hence, the City water system deteriorates as a result of aging and not corrosion. Water Department personnel take pride in their pro-active approach to maintaining and improving the water system. A description of the pipeline system components is provided in Chapter 1.

Water/Sewer Line Separation Requirements

Water and sewer line separation requirements are defined in the City's standard plans and details. A cross section showing standard locations is in **Exhibit 3.9.1**.

Location of Dead Ends

Although discouraged, the City does have a number of pipeline dead ends in the distribution system. These dead ends are monitored and flushed as needed to maintain water quality. As allowed through right-of way acquisition, continued development, or other means, dead ends are removed from the system through expansions, upgrades, and improvements.

Frequency, Cause and Type of System Leaks

The Water Department has a full-time leak correlation team. This pro-active approach helps to create a tight system. The correlation crew is continuing its work of monitoring the water system, with special emphasis being placed on the older pipelines and in downtown Spokane. It has been observed that most leaks are the result of a pipe joint failure.

Occasionally, a leak will be found that can be attributed to poor installation practices or pipe damaged by the construction work of others.

Distribution/Transmission System Replacement Program

There are a number of considerations used to prioritize replacement of both transmission and distribution system water mains. These considerations are:

System Integrity

The age of a water main is a major factor used when making decisions relative to maintaining water system integrity. It is important to note however that there are water mains in the system still in service today that were installed over 100 years ago. In many cases, these old water mains still have decades of reliable service left in them. A better indicator of the condition of a portion of the system is the amount of maintenance required to keep it in operation. Areas where the maintenance effort is recognized to be above the norm are given top priority for replacement.

Concrete Paving

Replacement of asphalt with concrete in major intersections is now a fairly common practice. The concrete is superior to asphalt in durability but makes utility maintenance chores more difficult and costly to accomplish. Since concrete intersections are expected to last approximately 50 years, it has become the Water Department's practice to replace all water lines under proposed concrete paving which the Department feels will not last that long. Additionally, whenever possible, valves or other appurtenances which require periodic maintenance are also relocated beyond the bounds of the area where the concrete intersection is constructed.

Asphalt Paving Projects

Careful evaluation of water mains and services under proposed street reconstruction or resurfacing projects is essential to ensure no newly rehabilitated street needs to be cut for repairs to the water system. Consideration is given to the age of the system, the type of joints (Leadite being of primary concern), and the results of leak surveys in determining whether the water system needs major reconstruction ahead of any proposed paving project. In general, if the Department feels that the pipe will not last 20 years, the pipe is replaced.

Cast Iron Pipe with Leadite Joints

Leadite jointed cast iron pipe is similar to lead jointed pipe. Leadite jointed piping has been associated with devastating types of main breaks. These breaks almost always originate at a Leadite poured bell and cause an entire length of pipe to break spirally from end to end. The resulting damage to the street and surrounding area can be severe. There are almost never any warning signs of an impending break of this type. 12" cast iron Leadite poured joint pipe is most frequently involved. Efforts are now being directed at identifying where in the system this joint type exists for purposes of evaluating and prioritizing replacement.

Replacement Due to Leaks

First priority pipeline replacement projects are those that have been found to be leaking. Although sometimes difficult to identify in long term planning and management programs, those areas that have been known to have troublesome leaking are added to the replacement program. Currently, there are no large projects identified in the program for replacement due to identified leaks.

Large Steel Transmission Mains

The very large transmission mains installed 70 to 100 years ago are steel pipe, predominately riveted steel pipe. Over recent years, the Water Department has observed a degradation of the riveted joints. In order to avert catastrophic failure, the Department has initiated a replacement program. Over the last eight years, about 14 miles of pipe have been replaced. Over the next six years, the Department has a program to replace another 13.5 miles and within 20 years, an additional 12.8 miles. Most of the pipe being replaced will be riveted steel, although some welded steel will also be replaced.

Method of Recording Changes

The Water Department maintains a Geographic Information System (GIS) detailing the location and condition of all pipes (transmission and distribution), valves, hydrants, fittings and appurtenances, service locations, pressure zones, booster stations, well stations, and reservoirs. Information from the GIS system is available in a digital format at all times for both office and field personnel (mobile users). Additional products are published regularly from the GIS systems in a variety of formats (tabular report, map graphics, field atlas books, and digital web content).

All updates to the water system GIS are completed in a timely manner as need dictates. Changes normally result from new development, infrastructure improvement, and field verification of system structure. The utility of the GIS system is extended with connections to infrastructure management and utility billing database systems. These systems are employed in such a way that information tracked by outside departments is not unnecessarily reproduced. Additionally, the GIS system is also an information source for both a steady state and extended period hydraulics analysis model. This model tracks and predicts water quality and monitors system growth.

The prioritization of the GIS system for the Water Department have been defined to the programmers as:

1. Maintain the quality and accuracy of exiting GIS System
2. Extend the cross-functionality of water department computer systems
3. Ensure the security, reliability and ease of use for water department computer system users.

Water System Pressures

Water system pressures are monitored on an ongoing basis at the Water System Control Center, located at the Upriver Complex. Abnormal pressures, high or low, are alarmed and are acted upon when received.

Required Valve Locations and Hydrant Spacing

The City of Spokane Water Department standards for valve locations and hydrant spacing are detailed in the City of Spokane Design Standards for New Construction. In general, valves on distribution mains shall be placed at street intersections so as to allow the distribution system to be isolated and shutdown, block by block, for maintenance and repairs with minimal service disruption. Valves on transmission mains are to be located at interconnection points and other points as appropriate to limit the extent of main shutdown for maintenance or repair. Valves are also required between fire hydrants and the water main. Fire hydrants shall be placed within 250 feet of structures, and not more than 500 feet apart. Fire hydrants shall be placed at intersections where practicable, and all hydrant locations shall be reviewed by the City Fire Department or other fire jurisdiction as applicable.

3.10 Summary of System Deficiencies

The fire suppression storage provided by the Southview Reservoir is currently not adequate to meet local standards. This tank is small by department standards (50,000 gallons). However, increasing the storage capacity at this location would cause potential problems with both water quality and freeze-up issues since this reservoir does not serve a large number of homes nor does it have a large demand. Standby storage for this pressure system is very small, and the reservoir easily provides this quantity. Fire suppression storage is much larger and is the controlling storage volume due to the size and building materials of the residential units within the system boundaries. No other deficiencies are presently noted. The extensive capital program outlined in Chapter 8 addresses this deficiency and is intended to prevent other deficiencies from occurring in the future.

3.11 Proposed Improvement Projects – Deficiency Related

Regarding the deficiency referenced in Section 3.10 for the Southview Reservoir, the Glennaire pressure zone, the Glennaire Reservoirs #1 and #2, and the Southview Booster Station provide the water source for the Southview Reservoir and Pressure Zone. The proposed solution to eliminate the existing storage deficiency is to install an independent dedicated automatic emergency generator, or other similar power source, at the Southview Booster Station, sized to meet the fire flow demand in the case of failure of normal station power. The Glennaire Pressure System has adequate storage to supply the Southview Pressure Zone with fire suppression storage, thus eliminating the deficiency. This project is listed in the Capital Programs in Chapter 8 for 2007 completion.

Water Resource Analysis & Water Use Efficiency (WUE)

4.1 Water Use Efficiency (WUE)

Municipal Water Law Requirements

In 2003, the Washington State Legislature passed the Municipal Water Law (“MWL”) to address increasing demands on the state’s water resources. In support of this measure and in accordance with WAC 246-290-810, the Department of Health (“DOH”) is directed to oversee the Water Use Efficiency (“WUE”) Program with the goal of ensuring a safe and reliable drinking water supply.

Water Use Efficiency (WUE) Goals and Measures

The Spokane City Council first addressed water conservation in a significant way with the adoption of Resolution 2006-0049 on May 10, 2006. This resolution adopted the City of Spokane Water Stewardship Program, which outlined goals and reporting requirements which were intended to meet WAC 246-290-840.

Since that time, in order to maintain compliance with the WUE Goal Setting requirements outlined in WAC 256-290-830, the City of Spokane Water Department evaluated and re-established demand side WUE goals as part of this Water System Plan approval under WAC 246-290-100.

The City of Spokane City Council approved Resolution 2014-0043 on April 21, 2014, adopting revised WUE goals following a public hearing and a public comment period. **Exhibit 4.1.1** is a copy of the City of Spokane Council Memorandum concerning the revised WUE goals and Resolution 2014-0043. The goals, provided below, are revised to meet the WUE Goal Settings requirements in WAC 246-290-830 as part of the water system plan approval.

Resolution 2014-0043 Water Use Efficiency (“WUE”) Goals

1. Continue the reduction of indoor residential use by one half percent (0.5%) on average for residential connections annually, over the next six (6) years.
2. Reduce outdoor residential use by two percent (2%) on average for residential connections annually, over the next six (6) years.
3. Reduce metered outdoor irrigation commercial/industrial use by two percent (2%) for Commercial/Industrial connections annually, over the next six (6) years.

Reduce outdoor metered governmental use by two percent (2%) for governmental connections annually, over the next six (6) years. Measures that will be evaluated and implemented to meet the revised WUE goals are tabulated below in **Table 4.1.1** and separated into indoor and outdoor measures. A brief summary of the proposed measures is

presented in the Conservation Program following the table divided into indoor and outdoor measures.

Table 4.1.1

Water Use Efficiency Measures

Measure	Indoor	Outdoor	Total
Water Use Audits	X	X	2
Retrofit Campaign	X	X	2
Rebates & Credits	X	X	2
Education (schools)	X	X	2
Education (website)	X	X	2
Informational Bill Inserts	X	X	2
Consumption History on Bill	X	X	2
Metering	X	X	2
Inclining Block Water Rate	X	X	2
Government Partnerships		X	1
Total	9	10	19

Conservation Program

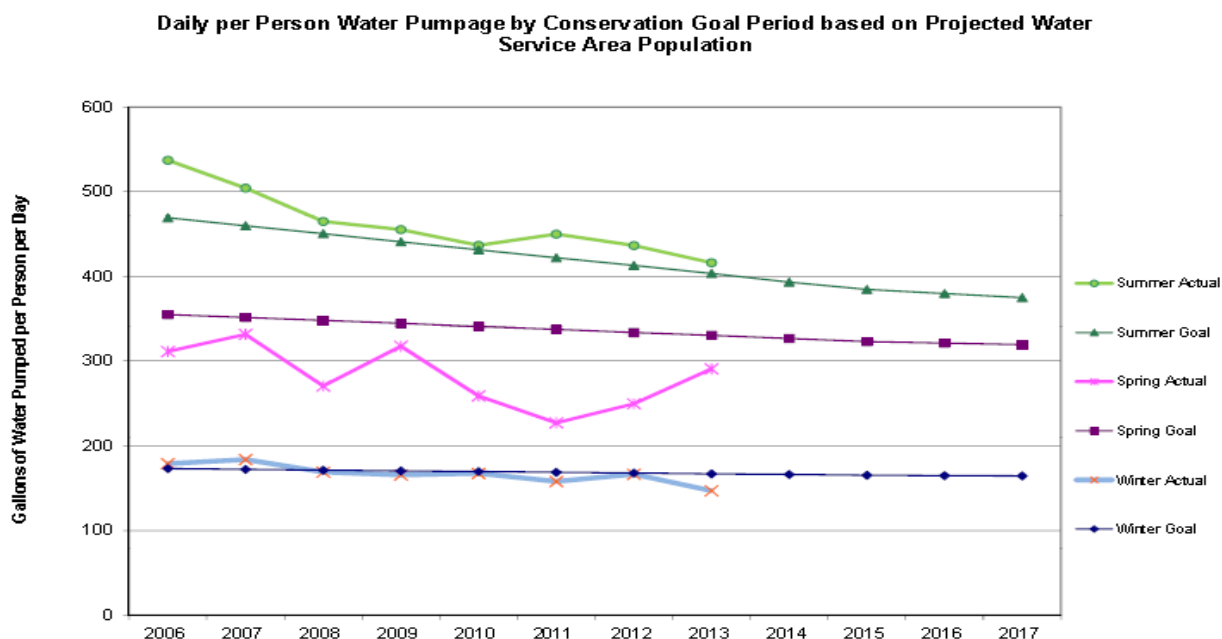
The City encourages its water customers to “Slow the Flow” of water and promote water stewardship. Protecting and preserving our water resources is a long-term goal of the City and is part of our sustainability efforts. Of course, the City must meet water conservation goals as part of state and federal requirements, but using less water also translates into savings on citizens’ utility bills and helps ease the need for projects to expand the capacity of the City’s water and wastewater systems.

Previous Results

Prior to the adoption of new Water Use Efficiency goals in the April 2014 that clearly focus on changing behavior on the demand side, the City tracked progress toward per capita water use reduction goals laid out in its 2006 Water Stewardship Plan. Those goals tracked total water pumped by season, rather than metered use.

The goals were as follows:

- October through March – 0.5% reduction per year
- April through June – 1.0% reduction per year
- July through September – 2.0% reduction per year



The City consistently met its goals for the winter and spring seasons, but had not achieved its summertime use goals.

From 2006 through 2013, the City used a variety of tools to help meet these goals, including educational and outreach efforts and different rebate programs. Educational and outreach activities have included a TV and radio marketing campaign aimed at reducing summer usage, utility bill inserts, attendance at local events, outreach to local school children, outreach to high users of water, and sharing of information through media, social media, and the web. Additionally, at different times, the City provided customers with rebates for installing water-saving toilets and appliances, adding smart controllers onto outdoor irrigation systems, and replacing traditional grass turf with xeriscaping. At times, the City partnered with other agencies on these outreach and rebate programs to extend their reach.

The City also adopted a block rate structure for water consumption that charges customers more when they use more water. In collaboration with the City's Wastewater Department, pilot projects on the use of reclaimed water also were carried out during this time, including tests at the City-owned Downriver and Creek at Qualchan golf courses.

And, as detailed in other chapters, the Water Department has promoted conservation through programs to detect and repair leaks, improve metering at well sources and other locations within the distribution system, and to properly account for water used for non-metered activities, like fire suppression and construction needs.

Future Conservation Program Plans

The City is working to improve and expand its water conservation program for the next six years to meet with the intent of Water Use Efficiency Rules and to benefit the Water Department, the Wastewater Department, and the region. The City completed a survey of water customers in early 2014 that also will be used to inform this program.

The 2014 budget for community outreach and education activities was \$80,000 in addition to City staff time. A new wastewater credit program, which will encourage lower water use, will cost an additional \$700,000. Budgets for these activities in future years will be determined annually and are expected to increase over time. The City Water Wastewater Fund will pay all costs for the water conservation programs.

Here's a look at the Measures the City will use to encourage conservation both for indoor and outdoor uses:

Water Use Audits: Water use audits can help customers understand how they can reduce water consumption in their homes and outside of them. Audits allow homeowners the opportunity to assess how efficiently water is being used and identify opportunities to lower water use. Indoor household water audits can result in savings of 20 to 30 gallons a day, while audits of outdoor irrigation systems can result in even greater water savings. The City is evaluating the option of providing audit kits to allow homeowners or renters to identify savings opportunities themselves.

Retrofit Campaigns:

The City has partnered with SustainableWorks, a non-profit organization that promotes energy efficiency, to help City utility customers save water. City water customers who participate in SustainableWorks' "Save Energy Today" audit program will receive a water conservation kit, provided by the City of Spokane, along with the energy-saving products and recommendations provided through the audit. The water kit includes aerators and low-flow shower heads. SustainableWorks expects to visit about 300 homes within the Department's service area annually. The City is considering expanding this partnership to include water audits with this program.

The City is evaluating the possibility of adding a retrofit campaign for outdoor use, providing property owners with hose timers, rain sensors, or similar products at the conclusion of an outdoor water audit or as part of an outdoor water use audit kit.

Rebates for Indoor Appliances:

The City is considering a program that would provide rebates to consumers who purchase water-efficient appliances, including toilets, washing machines, and dishwashers. An evaluation needs to be completed that compares the cost of such a program with the potential long-term water conservation benefit.

Education:

Public education and outreach is critical for any water conservation program to promote long-term changes in water use habits. The City will use multiple communications tools to reach its audience with educational information, including:

- A School Education Program, which includes presentations to youth and related materials to teach about saving water. Tours of the City's Upriver Facility also will be part of this program.
- Information on the City's web site and social media sites. The City actively maintains information on its web site, encouraging citizens to "Slow the Flow" through many easy-to-use tips. Information also is shared through the City's Facebook, Twitter, and Instagram pages on water-saving ideas. The City also is launching an email newsletter on this topic.

- Development of news releases with water-saving information that are sent periodically to local news media. The City identifies news-worthy timing to provide information on water conservation.
- Participation in Community Events. The City will set up informational displays and tables at community events to have direct educational opportunities with citizens. New displays are under development that would be more interactive and thought-provoking.
- Advertising, sponsorships, partnerships and marketing. The City will continue to look for paid opportunities or partnerships with other agencies that have the potential to reach many citizens with information on water conservation. Particular emphasis on the interrelationship between the Spokane River and the Spokane Valley-Rathdrum Prairie Aquifer, which is the City's sole source aquifer.

Information provided through bills:

Since customers receive City utility bills monthly, bills provide a great opportunity for educational information. The Water Department annually develops bill inserts with water conservation tips, checklists, and related information. Additionally, each customer's bill includes information on their water use history. A customer can use this information to determine whether his or her water use is typical or unusual for a certain time period and also to track changes in use.

The Department will provide education, tools and incentives for all residential water users to reduce their consumption. At a minimum, the Department will inform customers of their consumption status on their bill.

Metering:

As discussed in other chapters, the City has a robust source and service metering program that provides staff with data to identify leaks in the distribution system and within domestic services.

Water Rates:

The City continues to have an inclined block water rate structure. That means customers who use more water pay more, providing a financial incentive to conserve water. This is especially true during the summer irrigation season.

Wastewater Conservation Credit:

Starting in 2015, the City will implement a wastewater bill discount for single-family residential customers who use less water. The credit program is designed to introduce equity in wastewater billing and allow customers to make choices that could lead to lower monthly bills. Under the program, the lowest 20 percent of indoor water users receive credits totaling \$60 a year, distributed in \$5 monthly amounts. The lowest 20 percent of indoor water users is determined annually based on water use during the winter. Although a credit toward the wastewater portion of the bill, this program will help the City achieve its water use efficiency goals by encouraging lower indoor residential water use. The annual cost of this program is about \$700,000.

Special Projects:

The City will continue to seek out special projects to reduce water use. For example, the Water Department is beginning to work with the City's Parks Department to find ways to update wasteful and aged irrigation systems in City parks. Schools are another

4.2 Distribution System Leakage (DSL)

Water Loss Control Action Plan (WLCAP)

The Water Department is diligently working to reduce our Distribution System Loss (DSL). The DLS for the water system in 2013 stands at 17.9%, with a three-year running average of 19.2%. Pumping and accounted water totals for the past 7 years are tabulated in Chapter 2. In 2009, an increase in DSL was reported because of the discovery of an accounting error within the City of Spokane billing system when consumption data was extracted from the billing data. Some extracted readings were double counted, resulting in erroneously high metered consumption and corresponding accounted water number which, when corrected, increased unaccounted water use and increased DSL.

Following the conclusion of the water use audit, the city will create a water loss control action plan in accordance with WAC 246-290-820(4).

The following programs are ongoing programs to help identify apparent losses within our system. These programs center on data collection and data accuracy so we may better assess and address real losses. Data collection and accuracy is the first step forward to reducing our DSL.

- **Source Meter Replacement Program:**
Beginning with Fiscal Year 1998, the City began replacing the source meters at all of the water sources. The supply meter replacement program was completed in 2002 and all well sources are metered. However the accuracy of some source meters is in question due to location of the meters. Currently, the Source Meter Replacement Program is active with the thought of replacing older meters and meters with questionable accuracy. Calibration of the meters and testing accuracy is part of this program.
- **Booster Station Metering Program:**
Starting in 2012, the Water Department started this program to meter booster stations that serve different pressure zones and move water from one zone to the next. By metering booster stations, it will be possible to better account for water traveling through pressure zones and identifying potential leaks and losses by better water accounting in a pressure zone.
- **Meter Data:**
In order to accurately tabulate meter data recording use, the Water Department is beginning to use raw data collected prior to its conversion in the City's Customer Star program to billing data. The use of raw data directly from the meter readings requires additional manipulation and indexing that is done by the billing software but eliminates the manipulation process that is causing inaccurate consumption numbers.
- **Residential Meter Replacement Program:**

The City has had a residential meter replacement program in place since approximately 2004. In the last two years, approximately 100 residential meters were replaced every month. The priority for meter replacement is based on a combination of age and total flow through the meter. Also, during the monthly billing cycle, if low flows are observed, the suspect meter is also replaced.

- **Commercial Meter Replacement Program:**

Between 1999 and 2005, the City replaced or tested, repaired, and recalibrated all commercial meters 1 ½" and larger. There is an ongoing program to recalibrate or replace 1 ½" and two inch meters every four years and three inch and above annually.

Concurrently with data collection and data accuracy in assessing apparent losses, the City is continuing to make progress in reducing the amount of real losses includes the following ongoing programs:

- **Dedicated Leak Detection Program:**

The City has maintains at least one full time leak detection crew working within the City on a continual basis. Service connections are included within the monitoring program.

- **Pipe Replacement:**

12" Cast Iron pipe with Leadite joints.

In 2004, the Water Department began replacing 12" Cast Iron pipe that has leadite joints, as it has proven to fail in a spiral fracture that causes catastrophic damage and is prone to joint leakage upon any disturbance due to the brittle aged joint material.

In addition the following factors can be shown to have a significant effect to the amount of non-metered non-revenue water volume affecting DSL:

- Pipeline leakage.
- Unauthorized use such as illegal connections.
- Authorized and unauthorized use from hydrants .
- Unmetered uses such as system operational needs, construction use, street cleaning, line flushing, water main testing, main breaks, reservoir flushing, and fighting fire.

The Water Department is working to more accurately capture non-metered water use with the following programs:

- **Fire Suppression Use:**

Currently, we receive an annual estimated use from the Spokane Fire Department on the amount of water used in fire suppression activities. Numbers received to date for accounting purposes appear low. Working with the Fire Department, we would like to implement a better accounting system for water used possibly by incident/training exercise to ensure estimated water use reported is accurate.

- **Construction Use/ Hydrant Permits:**

The Water Department currently issues hundreds of non-metered hydrant use permits to contractors and businesses. The use ranges from construction use to use by landscape companies and other small businesses. In 2012-2013, we received

meter data from a construction use of a hydrant permit and determined that the current estimates for use under hydrant permits for construction were grossly underestimated. In order to provide a more accurate accounting for these uses, the Water Department is exploring the possibility of metering some of these hydrant uses to provide an accurate baseline for similar hydrant permit uses.

- Street Cleaning/Sewer work/Other Utility Work with Water:

Continuing the Water Department's ongoing discussion and dialog to receive estimated consumption numbers with other utilities that use City Water in their daily/weekly/monthly operations from an un-metered water source.

The City is working to decrease the Distribution System Loss (DSL) to 10% or less according to State DOH rules. The first step is the evaluation process that is currently ongoing that includes assessing data accuracies and defining real and apparent losses. This includes the metering and data assessment and will have capital programs of \$180,000/year until 2016 dedicated to source and booster station metering. Following the assessment in 2015-2016, the City will explore the possibility of participating in a Water Audit of the system by the 2016-2017 timeframe following the initial assessment.

4.3 Source of Supply Analysis

A source of supply analysis is required of all systems that will be pursuing water rights within 20 years. The City does not plan to pursue additional water rights within the next 20 years.

The City has not studied the question of depletion within the aquifer due to pumping. Seasonal fluctuations due to snowpack and recharge have been seen at City wells. The City is actively monitoring well levels in the event of sustained low precipitation years that may affect aquifer recharge.

Regional Hydro-Geologic Setting and History

Spokane is located within the Rathdrum Prairie/Spokane groundwater basin. The aquifer has been described as one of the most prolific in the nation. The aquifer travels east to west through the Spokane Valley, then turns north and northwest after it passes the east City Limits of Spokane. This places the aquifer under the City and affords the City the opportunity to tap this resource at well sites located throughout the City.

The aquifer was formed during the Pleistocene Era when the Glacial Lake Missoula breached the ice dam that formed the lake. As the lake breached the dam, an estimated 750 million cubic feet per second (484 trillion gallons per day) of water rushed out of the lake into the Pend Oreille, Coeur d'Alene and Spokane areas leaving behind great quantities of sediments of all sizes transported by the ensuing flood. Geologic evidence now points to as many as 40 floods of similar magnitude. The coarser materials were deposited along the main valley floor (today's Rathdrum Prairie in Idaho and Spokane Valley/City of Spokane area in Washington) in the line of greatest flow during the flood, while the smaller sediments were carried as far away as Portland, Oregon. The larger, coarser materials formed the medium through which the aquifer now travels.

Recharge and Discharge

The groundwater system in the aquifer area is recharged by infiltration of precipitation and subsurface flow, infiltration from rivers and lakes, and regional groundwater under-flow. Groundwater is discharged by seepage to the Spokane River, Little Spokane River, and pumping from wells.

It is estimated that within the aquifer between 300 and 600 mgd flows into the Spokane Valley across the Washington-Idaho border. These estimates of groundwater flow are based on past studies of the aquifer that have been limited in scope. Currently, a more comprehensive Interstate Aquifer Study is being finalized by the United States Geologic Survey (USGS), State of Washington, and State of Idaho. This study provides an improved scientific estimate of the quantity of flow found in the aquifer, as well as a model of its flow characteristics.

4.4 Service Reliability

Source Reliability

The reliability over the past 100 years of the Spokane Valley-Rathdrum Prairie Aquifer has not been a concern. However a comprehensive study of the aquifer is progressing to better address long-term quantity issues. Also over the past few years the City has been engaged in the Wellhead Protection Program, which has provided a better understanding of the aquifer system and water quality issues.

Water Right Adequacy

The existing water rights will allow the City to grow as planned within the 20 year planning horizon and beyond. While the City has ample water rights, being good stewards and conserving water is very much a high priority.

Facility Reliability

Facility Reliability of the water system is quite high. Much of the power supply is provided through the Avista Corporation's electrical grid. Avista's electrical grid is very reliable and any outages that have occurred have been very short term. Also the City water system is very high on Avista's restore power list when outages do occur.

In addition, the Water Department owns its own hydroelectric power generating facilities at the Upriver Dam Complex. Much of this power is used directly to power the Departments Well Electric and Parkwater Well Stations, as these stations are located near the Upriver Dam Complex. These well stations provide about half of the City's water supply so in the event of a long-term shutdown of Avista's system, the Water Department can still supply water to the Low Pressure Zone, North Hill Pressure Zone, and the Intermediate Pressure Zone which represent about half of the City's present retail water service area. Low river flows in July and August will limit this ability, but nevertheless various amounts of water can still be pumped depending on the amount of flow in the river. In addition, the Water Department has a large diesel generator mounted on a trailer that can be moved from booster station to booster station to refill reservoirs in higher pressure zones. A diesel motor driven pump at the Lincoln Heights Booster Station can pump water from the Intermediate Pressure Zone to the High Pressure Zone serving a large area on the City's South Hill. The

Department also has a small natural gas driven generator which can supply power for some of the smaller pumps.

In addition to the above electrical power backups, the Water Department's storage reservoir capacity is such that the City could supply water for non-irrigation purposes for 2 or 3 days and longer if water were rationed to just the very basic needs. Also the department has taken great pains to provide as much redundancy as practical in both piping and pumping so that, should a portion of the system fail, service can continue.

When addressing reliability, besides worrying about water quantity, water quality is important too. The Water Department diligently monitors the water quality in the system so that a reliable product can be delivered to the Department's customers.

Shortage Response Plan

In the event the City is unable to provide the water quantity desired by the residents of Spokane, a shortage response plan has been developed. For details of this plan, refer to the Phase I report of the Wellhead Protection Program.

Monitoring Water Levels

Water levels at each of the seven Well Stations are monitored through the SCADA system. In the event a low water level is observed by the SCADA system, an alarm will alert the water system operators. In addition, the Water Department continuously monitors and records the water level of the aquifer at nine additional monitoring well sites, both inside and outside of the City to observe aquifer level trends. The City has never experienced a problem with aquifer levels.

4.5 Water Rights Evaluation

This section discusses the City's water sources, existing and future supply needs, water quality and water rights claims.

Source Type

The City of Spokane currently taps the aquifer with seven well stations. The water rights for specific sites date back to 1948 with the year of priority dating to 1907.

At present, the pumping capacity at all the listed well stations is 195,570 gpm. The permitted capacity is 241,100 gpm. On an annual basis, the historical maximum water quantity distributed over the service area has been about 70,000 acre-feet per year. The permitted quantity is 147,570 acre-feet per year.

Source Location

All well stations are located in a narrow corridor in the central and eastern parts of the City that conform to the main body of the aquifer. **Figure 1.3.2** maps the Well Station locations.

The Legal description of each Well Station is as follows:

Central Avenue:	One well in Lot 17 and the other in Lot 20, both in Block 4 of Byrne Addition, within the NE 1/4, Section 31, T. 26, R. 43 E.W.M
Grace Avenue:	One well in Lot 8, Block 37 of Wolverton & Conlan Addition, within the NE 1/4, Sec.

	8, T. 25, R. 43 E.W.M.
Nevada Street:	One well in Lot 7, Block 37 of Wolverton & Conlan Addition, within the NE 1/4, Sec. 8, T. 25, R. 43 E.W.M.
Hoffman Avenue:	Two wells in Lots 27, 28, 29, & 30, Block 4 of Arlington Heights, within the NE 1/4, Sec. 4, T. 25, R. 43 E.W.M.
Parkwater:	Four wells in Lots 1, 2, 3, & 4, Block 33 of Parkwater Addition, within the SE 1/4, Sec. 11, T. 25, R. 43 E.W.M.
Well Electric:	Two wells, within the NE 1/4, Sec. 11, T. 25, R. 43 E.W.M.
Ray Street:	Two wells, in south half of Block 1, 3rd Addition to Eureka, within the NW 1/4, Sec. 22, T. 25, R. 43 E.W.M.

The Well Station Inventory and Pumping Capacities are summarized in **Table 4.5.1**.

TABLE 4.5.1					
Well Stations					
DOH Source No.	Source Name	Source Category	Use	Well Depth (feet)	Pumping Capacity (gpm)
S01	Nevada Street	Well	All Year Long	122	25,000
S02	Well Electric	Well	All Year Long	50	39,300
S03	Parkwater	Well	All Year Long	126	63,000
S04	Ray Street	Well	All Year Long	75	21,550
S05	Hoffman Avenue	Well	Seasonal	235	10,920
S06	Grace Avenue	Well	Seasonal	124	19,000
S08	Central Avenue	Well	All Year Long	272	16,800

In addition to the existing well stations listed the City of Spokane is actively investigating and perusing an additional well station location. During the winter of 2014 the City submitted a change application to the Department of Ecology for a change in the points of withdrawal on some of its water rights to existing well stations and for the additional well station.

Water Rights Self Evaluation

Table 4.5.2 shows the six year history of the annual quantities of water withdrawn from the aquifer versus water rights at the various Well Stations. Spokane lies within the “rain shadow” of the Cascade Mountains, resulting in an arid climate. As is typical with most areas, weather plays a major role in water consumption. Hot and dry weather is the key to above average water consumption, which is used primarily for lawn and garden irrigation during the summer months.

TABLE 4.5.2		
Annual Supply Versus Water Rights		
<i>Acre-Feet/Year</i>		
Station	Annual Withdrawal	Annual Withdrawals

	I Water Rights	2007	2008	2009	2010	2011	2012	2013
Nevada Street	20,000	6,017	7,352	6,375	7,910	9,629	5,176	9,387
Well Electric	36,000	17,712	12,496	14,230	17,773	13,363	14,880	18,825
Parkwater	51,240	21,500	28,172	29,784	19,968	17,349	24,363	21,590
Ray Street	4,740	5,027	5,480	5,021	6,454	8,780	7,071	4,416
Hoffman Avenue	1,280	1,202	313	1,083	620	116	513	953
Grace Avenue	5,080	3,847	3,758	2,967	5,351	11,533	8,782	5,344
Central Avenue	29,230	10,700	7,607	9,455	5,174	2,763	3,735	4,563
Total	147,570	66,005	65,178	68,915	63,250	63,533	64,520	65,078
Note:								

Table 4.5.3 identifies the existing water rights and compares with existing water usage. **Table 4.5.4** lists the 20-year forecasted need. Currently, the City does not need to request additional water rights within the planning horizon of this water plan.

Purpose of Use

The City of Spokane, by owning water rights, has the ability to supply the needs of residential, commercial/industrial and government customers. This includes supplying adequate quantity, combined with reliability, to maintain the City's high Fire Industry rating for water systems. The City currently has a Class 3 Fire Insurance Rating, a good score translating into lower hazard insurance premiums for the customers.

Place of Use

The place of use listed on all City of Spokane water rights is, "The area served by the City of Spokane, all within Spokane County." This, of course, includes the City's water service area as defined in the Spokane County Coordinated Water System Plan plus other purveyors that have interties with the City's Water System.

Time of Use

The pumping and storage operations run 24 hours a day, 365 days a year. However, as delineated in **Table 4.3.1** Hoffman Avenue and Grace Avenue Well Stations are operated on a seasonal basis during peak demand days of the months May through September.

Provisions or Limiting Conditions

All the studies that have been undertaken on the Spokane Valley-Rathdrum Prairie Aquifer, indicate a good supply of excellent quality water for the near future. However, long term demands on this resource are a concern. Also, a major threat is contamination due to septic tanks, petroleum storage, pipeline spills, or commercial/industrial activities. The Wellhead Protection program, described in Chapter 5, addresses possible contamination of the Aquifer near the wells.

The Water Department works to build redundancy into key areas of the water system. This redundancy provides operating flexibilities in operating pump stations and storage reservoirs, limiting the exposure of the water system to severe area wide emergencies, but also allows for maximum efficiency in pumping strategies.

The Well Electric Well Station because of its close proximity to the Spokane River has undergone significant testing to determine if there is surface water influence. Results of these tests indicate there is no surface water influence. As a precaution, the Well Electric Well Station is not operated during time of rapid river rise and flooding. The Upriver Complex that houses the Well Electric Well Station also contains the Department's Water Quality Testing Laboratory which allows for continued monitoring of this well.

Hydropower Water Rights

All water rights discussed to this point have been for potable water use. The Water Department also has surface water rights from the Spokane River needed for the operation of Upriver Dam. These rights are as follows:

- Surface Water Certificate No. 1014
400 cubic feet per second, Spokane River, Priority date of June 12, 1935
- Surface Water Certificate No. S3-26064C
7,600 cubic feet per second, Spokane River, Priority date of September 11, 1978
- Reservoir Permit No. R3-28402P
4,000 acre-feet of storage, Spokane River, Priority date of October 9, 1987

TABLE 4.5.3: Existing Water Right(s) Status										
Permit Certificate of Claim #	Name of Right-holder or claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Existing Pumping Capacity & Annual Consumption		Current Water Right Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft	Maximum* Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft	Maximum Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft
3199-A	CITY	1956	S 01 NEVADA ST	Primary	25,000	20,000	25,000	12,615	0	7,385
504-D	CITY	1926 1907	S 02 WELL ELECTRIC	Primary	54,750	36,000	39,300	20,519	15,450	15,481
548-A	CITY	1946	S 03 PARKWATER	Primary	63,000	51,240	63,000	24,791	0	26,449
505-D 593-D 504-D 507-D	CITY	1937 1907 1926 1945	S 04 RAY STREET	Primary	14,000 7,000 1,250 2,600**	1,870 350 2,000 520**	21,550	6,057	3,300	(1,317)
506-D	CITY	1938	S 05 HOFFMAN AVE	Primary	11,600	1,280	10,920	1,418	680	(138)
728-A 593-D	CITY	1950 1907	S 06 GRACE AVE	Primary	11,000 20,000	4,080 1,000	19,000	4,026	12,000	1,054
3903-A 593-D 4503 728-A	CITY	1959 1907 1961 1950	S 08 CENTRAL AVE	Primary	7,000 7,000 7,900 9,000	11,480 350 12,640 4,760	16,800	12,084	14,100	17,146
TOTAL FOR PRIMARY WELLS					241,100	147,570	195,570	70,374***	45,530	77,196***
G3-27181	CITY		SIA	Not presently used	200****	526****			200	526
508-D	CITY (PARKS)		S 09 INDIAN CANYON	Golf Course Irrigation	728	265	750	250	(22)	15
PENDING WATER RIGHT APPLICATION		NAME ON PERMIT		DATE SUBMITTED		PRIMARY or SUPPLEMENTAL	PENDING WATER RIGHTS			
None							Maximum Instantaneous Flow Rate (Q _i) Requested gpm		Maximum Annual Volume (Q _a) Requested Acre-ft	
<p>* Based on water right or maximum installed pumping capacity, whichever is the lesser amount. Nevada Street Well Station is only one based on water right. Maximum pumping capacity of Nevada Street is 31,000 gpm.</p> <p>** These are Baxter Well water rights which was officially decommissioned in 2003 with water rights transferred to the Ray Street Well as shown. Priority date is January 12, 1945.</p> <p>*** Based on maximum total from Table 4.3.2. Individual well volumes based on maximum year for that well in Table 4.3.2. Well use can vary from year to year based on energy costs, pump maintenance, etc. Therefore, sum of individual numbers will not equal total numbers.</p> <p>**** 250 gpm and 89 acre feet were sold and transferred to Goodrich Corporation in 2005 for \$350 per acre-foot, processed through the Washington State Department of Ecology. The City is looking for a beneficial use of the remaining water right.</p>										

TABLE 4.5.4: 20-Year Forecasted Water Right(s) Status with Conservation										
Permit Certificate of Claim #	Name of Right-holder or claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Forecasted Pumping Capacity & Annual Consumption		Forecasted Water Right Status	
					Maximum Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft	Maximum* Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft	Maximum Instantaneous Flow Rate (Q _i) gpm	Maximum Annual Volume (Q _a) Acre-ft
3199-A	CITY	1956	S 01 NEVADA ST	Primary	25,000	20,000	25,000	14,500	0	5,500
504-D	CITY	1926 1907	S 02 WELL ELECTRIC	Primary	54,750	36,000	49,000	23,500	5,750	12,500
548-A	CITY	1946	S 03 PARKWATER	Primary	63,000	51,240	63,000	29,300	0	21,940
505-D 593-D 504-D 507-D	CITY	1937 1907 1926 1945	S 04 RAY STREET	Primary	14,000 7,000 1,250 2,600	1,870 350 2,000 520	24,850	4,700	0	40
506-D	CITY	1938	S 05 HOFFMAN AVE	Primary	11,600	1,280	11,600	1,200	0	80
728-A 593-D	CITY	1950 1907	S 06 GRACE AVE	Primary	11,000 20,000	4,080 1,000	19,000	4,700	12,000	380
3903-A 593-D 4503 728-A	CITY	1959 1907 1961 1950	S 08 CENTRAL AVE	Primary	7,000 7,000 7,900 9,000	11,480 350 12,640 4,760	19,000	14,100	11,900	15,130
TOTAL FOR PRIMARY WELLS					241,100	147,570	211,450	80,500**	29,650	67,070**
PENDING WATER RIGHT APPLICATION		NAME ON PERMIT		DATE SUBMITTED		PRIMARY or SUPPLEMENTAL	PENDING WATER RIGHTS			
None							Maximum Instantaneous Flow Rate (Q _i) Requested gpm		Maximum Annual Volume (Q _a) Requested Acre-ft	
* Based on water right or maximum installed pumping capacity, whichever is the lesser amount.										
** Based on projected use as presented in Table 2.2.3 . Individual well volumes based on maximum potential use on a year to year basis subject to which wells are used as determined by energy costs, pump maintenance, etc. Therefore, sum of individual numbers will not equal total numbers.										

4.6 Water Rates

Water rates are approved by the City Council and addressed in the Spokane Municipal Code Title 13, Chapter 13.04, Section 13.04.2002 through Section 13.04.2042. The Municipal Code is available at: www.spokanecity.org. The City has committed to limiting utility rate increases to the average cost of inflation to maintain affordability and predictability for customers. In November 2014, the City Council approved increases of 2.9 percent annually for 2015, 2016, and 2017. This is the first time the City has approved multi-year rate changes.

For water, the City's rates include a base charge and a water consumption component. The consumption portion of the rate is based on an increasing block rate structure which charges more per unit as increased amounts of water are used. The City also charges a monthly integrated capital fee for capital replacement projects for water and wastewater. The integrated capital fee and the base fee are flat rates for residential customers. For commercial/industrial/governmental customers, the fees are based on the amount of water used.

The City provides its customers with a single bill for all utility services, including water, wastewater, stormwater, and solid waste charges. The City applies partial payments to the water utility last and has the authority to shut off water for non-payment.

4.7 Interties

Existing Interties

The City has established a number of interties with five of its adjacent purveyors. It has one intertie with the City of Airway Heights; four with Spokane County Water District #3; one with Whitworth Water District; one with Fairchild Air Force Base; and one with Velview Water District. All of these interties are metered, and supply water on an as-needed basis. Section 1.3 provides additional discussion regarding these interties. **Table 4.8.1** lists the locations, capacity, purpose, and installation date for each existing intertie.

TABLE 4.8.1					
City of Spokane Water Department Interties					
Purveyor	#	Intertie Location	Size	Purpose	Date installed
Airway Heights, City of	1	10800 West U.S. Highway 2	12 inch	I	7/15/86
Spokane County Water District #3	1	1500 N. Theirman Road	10 inch	I	10/28/74
	2	2000 South Carnahan Road	6 inches	I, F	2/1/78
	3	5400 South Perry Street	8 inches	F, C	6/2/60
	4	5221 East Desmet Avenue	12 inches	I	9/16/60
Whitworth Water District #2	1	Hawthorne & Nevada	12 inch	E, F	8/90
Fairchild Air Force Base	1	2108 W. Spotted Road.	10 inch	E	3/13/02
Velview Water District	1	3609 West Velview Dr		I	

TABLE 4.8.1

City of Spokane Water Department Interties

Purveyor	#	Intertie Location	Size	Purpose	Date installed
North Spokane Irrigation Dist #8	1	6400 North Freya Street	8	I,F	5/8/07
Note: E—Emergency, F—Fire Flow, I—Intermittent Retail; C—Continuous Retail					

New Intertie Proposals

Any future intertie proposals must be approved by the City Council.

Intertie Agreements

The City has established formal agreements for all interties. All agreements are based on the capacity of the City's water system and the amount of water required by the purveyor. In the event water supplies are in jeopardy, water service to the City will take precedence over any and all intertie agreements. Copies of the intertie agreements are included in **Exhibit 1.3.2**.

Source Water Protection

5.1 Wellhead Protection Program

Overview

Details of the City's Wellhead Protection Program are provided in a separate multi-volume report. For specific details of the wellhead program, reference should be made to the report. The following is a brief summary of the activities performed in that program.

The City of Spokane Water Department currently operates seven Well Stations that draw groundwater from the Spokane Valley/Rathdrum Prairie Aquifer for a potable water supply. The purpose of the wellhead protection program is to proactively reduce the potential threat of contamination of this groundwater resource. The relatively shallow depth to groundwater and the absence of low permeability layers that could prevent contamination from entering the groundwater makes the City's groundwater supply vulnerable to a variety of contamination threats. In 1994, in response to known groundwater contamination incidents, and the existence of numerous potential contaminant sources, the City established a wellhead protection program. A technical assessment report was completed and approved by the Washington State Department of Health ("DOH") in 1998.

The following components were required as part of the plan:

- Susceptibility assessments.
- One-, five-, and 10-year delineated wellhead protection area ("WHPA") for each well and/or well-field.
- An inventory of potential contamination sources.
- Preparation of contingency plans to provide alternate water sources.
- Inclusion of public participation.
- Implementation of a wellhead protection program.

The first four elements outlined above are described in detail in the above referenced report published in February 1998 titled, "Wellhead Protection Program Technical Assessment". The Spokane City Council accepted this publication on February 23, 1998, after being approved by DOH the same year.

The last two items are currently being conducted with the Spokane Aquifer Joint Board ("SAJB") (local purveyors in Spokane County). To better solidify the regional planning efforts of all the purveyors, the City of Spokane became a member of the SAJB in late 1999. The cooperative program with the SAJB involves an ongoing education and awareness campaign, household hazardous waste collection programs, small business assistance programs done in partnership with the Washington Department of Ecology ("DOE"), and maintaining the Potential Contaminant Source Inventory. Subject to unknown circumstances the City expects to maintain its membership with the SAJB throughout the duration of this Comprehensive Plan.

The following is a brief “Executive Summary” of the major elements of the first phase of the program.

Susceptibility Assessment

The City of Spokane completed and submitted susceptibility assessments for each of its eight wells (1998) to the Washington DOH. As mentioned in several places within this plan, the Water Department now operates seven Well Stations. The susceptibility assessments are on file with the Washington State DOH.

Wellhead Protection Area Information

Data Collection Program

It must be noted here, that the State of Washington, State of Idaho, and the U.S. Geological Survey continue to work on refined modeling of the Spokane Valley/Rathdrum Prairie Aquifer to provide us with better information to implement protection of our drinking water. These models better delineate the aquifer boundary conditions that exist as it makes its journey from northern Idaho through the Spokane Valley and under the City of Spokane to where it flows as springs into the Little Spokane River and Spokane River north and east of the City. Additionally, the models also provide a clearer understanding of the quantities of water flows found within the aquifer. The intent is that this data be used to conduct better land use planning and water use by all entities that depend on the aquifer.

Much of the information within this section was generated in the later 1990’s, and even though it is somewhat dated, it remains the best data that is currently available. A section on current activities to enhance wellhead protection is included at the end of the chapter.

Technically sophisticated methods, such as computerized numeric modeling were required to delineate applicable wellhead protection areas in a large and complex hydrogeologic environment like the Spokane Aquifer. Before numerical modeling could be performed, an accurate conceptualization of the hydrogeologic setting had to be developed. Although the Spokane Aquifer has been studied extensively, additional characterization was needed to support the development of a detailed and expansive numerical model.

An extensive review of previous aquifer investigations provided the basis to determine locations where additional data was needed. Field data collection activities included the development of an aquifer wide water level network, monitoring well installations, long term water level monitoring, geophysical investigations, and aquifer flow testing. This information was used to develop a new “wellhead protection” numerical model with a higher degree of definition of the properties of the Spokane Aquifer than previously available. Since the Spokane Aquifer “wellhead protection” model was first developed the USGS with States of Washington & Idaho participation developed the Bi-State Spokane Valley-Rathdrum Prairie Aquifer model (2007). Then in 2012 with DOH support the City of Spokane and SAJB had the original “wellhead protection” model updated and expanded to cover the full Spokane Valley-Rathdrum Prairie Aquifer.

Delineation of Wellhead Protection Areas

Numerical modeling yields a more accurate Wellhead Protection Area (“WHPA”) delineation than other available methods since it incorporates and accommodates most of the known variables in aquifer properties and dynamics. For the City’s project, a three-dimensional numerical model was constructed using the MicroFem code to simulate pumping conditions and responses caused by groundwater extraction throughout the aquifer. With the calibrated numerical model, estimated groundwater capture zones using particle tracking procedures were determined for special, 1, 5, and 10 year times-of-travel (“TOT”). Particle tracking was conducted for the City’s seven existing well fields and two possible future well sites. These particle tracking path-line plots were then used to develop wellhead protection areas. A map showing the capture zones/wellhead protection area is shown in **Exhibit 5.1.1**.

Potential Contamination Source Inventory (“PCSI”)

Potential sources of groundwater contamination and known groundwater contamination incidents within the Spokane Aquifer were inventoried as part of the wellhead protection plan’s contamination source inventory. The sources included improperly maintained underground storage tanks, industrial and commercial activities, known hazardous material leaks, chemical spills, landfills, and potential contaminants related to vehicle transportation, and chemical transportation.

Using a variety of information sources, a list of businesses within proposed wellhead protection areas was created to identify sites that contain potential sources of pollution. This inventory provides water purveyors the tools to track potential contamination sources. The PCSI inventory also provides federal, state, and local regulatory agencies with information that may be critical for guarding public health from possible airborne contamination, or equally crucial for cleaning up contaminants in the event of a spill over the aquifer. There is an on-going program to keep the PCSI records updated.

Notification of Findings

In conjunction with SAJB, letters have routinely been sent to selected businesses advising them that they may be a potential contamination source to the Aquifer and need to conduct their operations accordingly. A sample letter is found in **Exhibit 5.1.2**.

As required, federal, state, and local regulatory agencies were also sent listings of the potential sources that received notification as well as other pertinent wellhead protection information. A copy of the PCSI list is included in **Exhibit 5.1.3**.

Contingency Plan

Contingency plans consist of a sequence of planned actions that may be taken if accidents occur or changes in groundwater quality are observed in a monitoring well, production well, or wellhead protection area. Different actions would be taken depending on the event and its proximity to a production well. In working these issues the Water Department has an ongoing working relationship with law enforcement, fire departments, and health jurisdictions. Detailed contingency plan information is found in Section 5 of the previously referenced 1998 “Wellhead Protection Program Technical Assessment” report and is included in **Appendix 5.1.1**.

Regional Implementation Efforts

In 1997, the City of Spokane recognized the benefit of working together with all regional water purveyors using the Spokane Aquifer as their source of potable water. As a result, the City of Spokane signed an agreement to jointly fund and develop wellhead protection programs with several other purveyors who had formed the SAJB. In 1999, the City became a member of the SAJB. The consolidated actions better protect the region's sole source of potable drinking water and ensure that any regulations and/or programs are consistent throughout the local region. Experience demonstrates that it is more cost-effective to implement proactive pollution prevention than to pay for an alternative drinking water supply sources or to initiate groundwater remediation efforts. It is also more cost effective for the purveyors to work together through the SAJB than to go it alone. The regional implementation efforts remain an on-going process.

Implementation Strategies

As stated above, the City Water Department is a member of SAJB and has teamed with SAJB members to implement wellhead protection strategies. SAJB has also worked closely with Spokane County on this effort. Besides being more cost effective, it is important that the City work with other SAJB members and the County because many of the wellhead protection areas extend across boundaries for local jurisdictions. The implementation strategies being carried out through SAJB are as follows:

1. An ongoing education and awareness campaign that includes television and radio spot ads, an informative web page, school visits by Aqua Duck (a skilled acting student in costume) and other informative people, educational comic books for kids that discuss protecting the aquifer, a mobile display for public events, and school tours provided at the Department's Upriver Complex.
2. Free household hazardous waste collection at the City's Waste to Energy Facility and the Spokane County's North Side and Valley transfer stations. The free service is available to make it easy for citizens to dispose of wastes properly.
3. A business assistance program to proactively help small business so they know how to properly handle and store products that could contaminant the aquifer. This program is done in collaboration with the Washington State Department of Ecology.
4. Providing for keeping the Potential Contaminant Source Inventory up to date.
5. Promotion of the new EnviroStars waste directory that directs individuals and businesses to resources to properly handle wastes. The Spokane River Forum was integral in creation of this on-line resource.

Pipeline Issues

All wells were surveyed to identify Sanitary/Storm sewers within a 100' radius. These sewers have been identified for location, date of construction, and material (see **Exhibit 5.1.4**). Sanitary pipes located within the sanitary area have been lined to or replaced provide a joint less pipe union to reduce leakage. These pipes will be routinely monitored and replaced or relined as necessary. A video showing the current condition of the insides of these sewers are available.

All well station restroom toilets and urinals (black water) have been removed from service and capped off. Only sinks and floor drains (gray water) are still connected to the sewer service.

A high pressure fuel line (presently referred to as the Conoco pipeline – previously the Yellowstone pipeline) traverses across the Spokane Valley. Failure of this line could affect a number of wells in the Spokane Valley area that belong to a number of different water purveyors. The greatest concern the City of Spokane Water System has regarding this line is that it passes within about 100 feet from the City’s Parkwater Well Station. Failure of the line in this location could have severe impacts to the Parkwater Station and possibly also the City’s Well Electric Well Station. The City is currently looking for ways to reduce the potential impacts caused by this high pressure fuel pipeline, including permitting of a new well site in west Spokane.

Current Efforts to Enhance Wellhead Protection

In the last several years, efforts have been under way to propose a set of recommendations for consistent, region-wide Wellhead Protection measures. This work has been led by the Spokane Valley Rathdrum Prairie Wellhead Protection Policy Coordinating Committee, which includes members from the SAJB, the City, and variety of water districts, state and local agencies and local jurisdictions.

In 2014, the Committee published its set of recommendations intended to compliment the current aquifer protection measures and are specifically targeted at protecting public drinking water wells located within the aquifer. The Committee recommendations are included in **Appendix 5.1.2**.

Among other things, the committee included recommendations about:

- Adopting Regulated Special Wellhead Protection Areas, participating in the Aquifer Protection Council, and adopting notification requirements for proposed projects in wellhead protection areas.
- Proper stormwater treatment and disposal.
- Mitigation of stormwater contamination.
- Proper wastewater collection and conveyance strategies.
- Guidelines for approving new septic systems.
- Consistent land use and utility regulations for wellhead protection areas.
- Regulation of potentially harmful activities within wellhead protection areas.

These recommendations have been forwarded to the various local jurisdictions for their consideration and ultimate implementation.

At the City of Spokane, Environmental Programs and Planning staff are evaluating what ordinances or regulations would need to be changed to implement the recommendations. Additionally, staff are working to identify the impacts to potential development and to

develop detailed mapping to show the relationship of the proposed regulated wellhead protection zones to existing development and zoning. Staff will work with elected leaders to move forward with enhanced wellhead protection measures.

Operation and Maintenance Program

6.1 Water System Management and Personnel

The Water Department's structure and how it relates to the City of Spokane government structure is shown in **Figure 6.1.1**. The Director of Water reports to the Utilities Division Director.

Four major management divisions report to the Director of Water: Operation and Maintenance; Engineering; Hydroelectric Services; and Accounting. The Director, the Superintendent of Operation and Maintenance and other appropriate staff, as discussed in Section 6.2, have mandatory water operations certification as required by the Washington State Department of Health ("DOH"). Detailed organization charts are shown in **Figures 6.1.2 (A,B, C & D)**.

The Department's organization structure illustrates the lines of internal communication during normal operating and maintenance modes. Refer to Section 6.5 – Emergency Response Program, which details lines of communication in the event of an emergency.

6.2 Operation Certification

WAC 246-290-400, Waterworks Operator Certification, requires Class A public water systems in Washington State to retain in their employment individuals who are certified, by examination, as competent in water supply operation and/or management. The DOH determines the level and number of certified positions based on the population and complexity of the water system. The DOH requires the City Water Department to operate with 4 certified water distribution managers. The most recent letter from DOH specifying required certified operators is included in **Exhibit 6.2.1**.

In addition to the above, the Water Department maintains a list of all the employees of the Water Department that maintain current Washington State Certifications. **Figure 6.2.1** charts the positions of authority held by the certified employees. The grade of certification and the number of employees holding certifications satisfies the requirements of the DOH. The Water Department will notify the State Certification Board should the number of certified employees fall below the DOH requirements.

6.3 System Operations and Control

Identification of Major System Components

The City of Spokane water system has 22 pressure zones serviced by pumping stations and reservoirs. These pressure zones and system components including required maps have been addressed in Chapter 1, Section 1.3. The following list will describe the facilities that serve each pressure zone.

Low Pressure Zone

The Low Pressure Zone is served by source supply well pumps located at Well Electric, Parkwater, and Nevada Well Stations. There are six reservoirs with total storage of 28.75 million gallons in the Low Pressure Zone which are Shadle Park, Rockwood Vista, Ninth & Pine, West Drive, Thorpe Road, and Qualchan. The operator normally uses Ninth and Pine as the zone control reservoir and the pumps are scheduled to operate as needed to keep the water level in the reservoir within its normal operating range. If there is not enough water in the Thorpe Road reservoir when Rockwood Vista and Ninth and Pine reservoirs are nearly full, electrically operated valves can be closed to shut off flow into these two reservoirs, allowing continued pumping of water to Thorpe Road. The Qualchan reservoir can be supplemented by the Latah booster station in the event Ninth and Pine is full and additional flow is needed in the southwest portion of the Low system.

North Hill Pressure Zone

The North Hill Pressure Zone is served by source supply well pumps located at Central, Grace, Hoffman, and Well Electric Well Stations. Three reservoirs with total storage of 25.6 million gallons serve the North Hill Zone namely North Hill, Five Mile, and Indian Trail. Five Mile is normally used as the zone control reservoir, and the North Hill reservoir has an electric valve which can be operated to force water to the northwest portion of this pressure zone.

Intermediate Pressure Zone

The Intermediate Pressure Zone is served by source supply well pumps in the Well Electric, Parkwater, and Ray Street Well Stations. In addition, booster pumps located in the Ninth & Pine and Bishop Court Booster Stations lift water to this pressure zone from the Low Pressure Zone. There are two reservoirs with a total capacity of 20 million gallons of water at Lincoln Heights and a 520 thousand gallon reservoir at 14th & Grand that serve this pressure zone.

High Pressure Zone

Three Booster Stations lift water from the Intermediate Pressure Zone to the High Pressure Zone. The booster stations include Lincoln Heights, Lincoln Heights Annex, and 14th & Grand Blvd. The reservoirs serving this zone are the Garden Park and 33rd & Lamonte Street with total storage of 4.35 million gallons.

Top Pressure Zone

The Top Pressure Zone is supplied by booster pumps located at Garden Park, Division & Manito, and 35th & Ray Street Booster Stations. These booster stations lift water from the High Pressure Zone. The two Browne Park Reservoirs, that serve this zone, have storage capacities of 5.0 million gallons each.

Glennaire Pressure Zone

The Glennaire Booster Station lifts water from the Top Pressure Zone to supply the Glennaire Pressure Zone. The Glennaire Reservoirs #1 and #2 provide a total storage capacity of 1.15 million gallons.

Southview Pressure Zone

The Southview Pressure Zone served by the Southview Booster Station lifts water from the Glenaire Pressure Zone. The Southview Reservoir has a storage capacity of 48 thousand gallons. The water that is distributed in the Southview Pressure Zone has been pumped five times, lifting the water in excess of 1,150' above that of the original water source.

Woodland Heights Pressure Zone

The West Drive Booster Station lifts water from the Low Pressure Zone to the Sunset Reservoir (350 thousand gallons) and the Woodland Heights Pressure Zone. The Woodland Heights Pressure Zone can also be supplied by allowing water to drain from the Highland Pressure Zone.

Highland Pressure Zone

This Highland Pressure Zone is served by two booster pump stations and a reservoir. The Milton Street Booster Station lifts water from the Low Pressure Zone, while the Sunset Booster Station lifts water from the Woodland Heights Pressure Zone. Storage capacity of the Highland Reservoir is 1.0 million gallons.

SIA Pressure Zone

Thorpe Road Booster Station lifts water from the Low Pressure Zone to two reservoirs at the Spokane International Airport. The total storage capacity of these reservoirs is 4.5 million gallons. If needed, a limited supply of water can be provided to the SIA Pressure Zone by valving water from the Abbott Road Booster Station and the Geiger Heights Pressure Zone.

Plains Pressure Zone

The Spotted Road Booster Station serves the Plains Pressure Zone by lifting water from the SIA Pressure Zone to the Mallen Hill Reservoir. The Mallen Hill Reservoir has a storage capacity of 4 million gallons. The Spotted Road Booster Station also contains an electrically operated valve that can be used to drain water from the Plains Pressure Zone to supply the SIA Pressure Zone. This draining process can be utilized in the event of operating difficulties at the Thorpe Road Booster Station.

Eagle Ridge Pressure Zone #1

The Eagle Ridge Booster Station lifts water from the Low Pressure Zone to the Eagle Ridge Reservoir. The Eagle Ridge Reservoir has a storage capacity of 542 thousand gallons.

Eagle Ridge Pressure Zone #2

The Eagle Ridge Booster #2 Booster Station lifts water from Eagle Ridge #1 pressure zone to the Eagle Ridge #2 Reservoir. Eagle Ridge #2 Reservoir has a storage capacity of 1.22 million gallons.

Cedar Hills Pressure Zone

The Cedar Hills Booster Station lifts water from the Low Pressure Zone to the Cedar Road Reservoir. The storage capacity of the Cedar Road Reservoir is 300 thousand gallons.

Northwest Terrace Pressure Zone

The Northwest Terrace Pressure Zone is unique in the Spokane Water System in that it is one of two pressure zones served entirely by Pressure Reducing Stations that contains pressure-reducing valves. One pressure reducing valve (PRV) station accepts water from the Low Pressure Zone. The second feed into this zone comes from the North Hill Pressure Zone, where two pressure reducing stations step down the pressure to acceptable levels.

Hatch Road Pressure Zone

The Hatch Road Pressure Zone is the only other pressure zone within the system served entirely by two PRV stations with the water supplied from the Top Pressure Zone.

Midbank Pressure Zone

The Midbank Pressure Zone, supplied by booster pumps located in the Belt Street Booster Station, lifts water from the North Hill Pressure Zone. The capacity of the Midbank Reservoir that serves this pressure zone is 580 thousand gallons.

Five Mile Pressure Zone

The Five Mile Booster Station, located adjacent to the Five Mile Reservoir, lifts water from the North Hill Pressure Zone to the Strong Road Reservoir. The Strong Road Reservoir that serves this pressure zone has a capacity of 2.0 million gallons.

Indian Hills Pressure Zone

The Indian Hills Pressure Zone receives water supplies from the Five Mile Pressure Zone through a pressure reducing station that is located adjacent to the reservoir. In the event that the Indian Hills pressure regulator fails or needs maintenance, the Indian Hills Booster Station is a backup station that pumps from the North Hill Pressure Zone into the Indian Hills Reservoir. The storage capacity of the Indian Hills Reservoir is 30 thousand gallons.

Shawnee Pressure Zone

The Shawnee Booster Station lifts water from the North Hill Pressure Zone to the Shawnee Pressure Zone. The two Shawnee Reservoirs have a combined storage capacity of 74 thousand gallons.

Woodridge Pressure Zone

The Woodridge Pressure Zone is fed by the Woodridge Booster Station which pumps from the Shawnee System. The Woodridge Reservoir has a capacity of 228 thousand gallons.

Kempe Pressure Zone

The Kempe Pressure zone is fed by the Kempe Bosster Station which pumps from the Five Mile System. The Kemp Reservoir has a capacity of 1.1 million gallons.

Routine System Operation

The City of Spokane Water Department has a Water System Control Room located at Upriver Complex. The control room is staffed 24 hours per day, seven days per week by a certified operator who controls the operation of all pumping facilities and reservoirs in the

water system. This same operator controls operation of the Upriver Dam and Hydroelectric Facilities. The water system operator must have a Water Distribution Manager I certification. In addition, on alternate days a second operator visits and checks each pumping station. While at each station, readings such as pumpage, and chlorine use are recorded. The operator reports any abnormalities.

The normal starting and stopping of pumps is controlled by water levels in the reservoirs. The pumps operate as needed to maintain the reservoir levels within their normal operating range. This is done using a telemetry system to communicate to the remote stations. The telemetry system consists of a SCADA (Supervisory Control and Data Acquisition) system that uses a central computer located in the Upriver Complex Control Room. The SCADA system communicates with seven well station, 24 booster stations, and 34 reservoirs over four multiplexed leased phone lines and a broad spectrum radio system. The Water Department is currently developing and installing a new state-of-the-art SCADA system.

The monitoring at well stations includes well level, pump operation, station voltage, motor amperage, discharge pressure, discharge flow rates, and chlorine residuals and usage. The monitoring at booster stations includes pump operation, suction and discharge pressures, station voltage, motor amperage, and discharge rates. Monitors at the reservoirs record water levels, inlet/outlet valve positions, as well as checking for flooded vaults. All facilities also are fitted with intrusion monitors that will activate an alarm. The SCADA system uses a continuous polling process that updates information to the control room every one to three minutes. If a station fails to respond, a communication alarm is generated.

Alarms are generated when any quality falls above or below the defined normal operating range. As an example, the water level alarms will activate on both high and low set point values as defined for each specific reservoir. The inlet/outlet valves at the reservoirs are monitored and will also activate an alarm should they close. Alarms located in well stations or booster stations include suction and discharge pressures, intruders, high or low voltage or amperage use. The SCADA computer generates an alarm to alert the water system operator stationed at the water system control room.

The well pumps are started or stopped by the operator based on his/her professional opinion. The SCADA system starts and stops booster pumps on an as needed basis. The computer programs utilized in the SCADA system can be changed to suit the season or weather condition. The operator monitors the operation of the booster stations and changes or overrides the control strategies as necessary. In the event SCADA communication fails with a well station or booster station, each pump can be manually operated.

The normal operation in the summer is different than in the winter because of the difference in demand. Average winter pumpage is about 33 million gallons per day. Average summer pumpage approaches 155 million gallons per day after a week of hot dry weather. Typically, three weeks of hot dry weather will bring with it very high demands for water. High demands for water in the summer months mean that some pumping stations are activated for summer use and deactivated during winter months. Well stations commonly used for summer peaking demands are Grace and Hoffman. Booster Stations used primarily in the summer are Ninth & Pine, Bishop Court, and Division & Manito.

The Water Department's primary objective is to schedule pump operations to ensure an uninterrupted supply of water in adequate quantities and at appropriate pressures throughout the water system. A secondary goal is to operate the system efficiently. Pump scheduling is changed for winter and summer operations so that the pumps that best match the demand are used first. The secondary goal of improving operating efficiency entails using the most efficient pump first. "The most efficient pump" is based on pump curves for new pumps and results from field efficiency tests.

At times, pressure considerations within the water system will override the need to operate pumps efficiently. These times are dwindling however, as infrastructure modifications are improving the water system. Each reservoir has a defined water level range, which in turn defines when pumps are cycled on and off. Each pressure zone has a different combination of pump capacity, reservoir storage, and water demands. Thus, each pressure zone has control strategies that are unique. Copies of the control strategies for each pressure zone can be found in **Appendix 6.3.1**

Safe operating procedures and protection of the employees are of the utmost importance. The City of Spokane has a Risk Management Department that is responsible for advising the Water Department employees about safety requirements. The City's "Safety Manual" is furnished to supervisors and all employees receive an employee handbook with safety measures. The City's safety procedures are in compliance with WISHA and OSHA standards, as implemented by the Department of Labor and Industries. In addition, water system operators are trained in specific safety tasks and procedures. Outlines of these tasks and procedures are presented in **Appendix 6.3.2**.

Also part of "Routine System Operations" is meter reading. Meter readers read water meters and record water consumption. The meter readers provide the consumption data to the City of Spokane Utility Billing Department, which produces the utility bills. The meters of residential customers are read bi-monthly, while the meters for commercial customers are read monthly.

Operations Calendar

Daily/Every other day

Trapline or Station Checking

- Check all operating stations.
- Record pumpage at each station and pump hour meters.
- Record chlorine usage for each well pump.
- Make out trouble reports for deficiencies.
- Check charts for proper operation.
- Check operating pumps for noise, vibration, temperature, oil level, leaks and proper voltage & amperage.
- Check station for security and/or vandalism.

Shift Operations

- Check station for security and/or vandalism.
- Make rounds every four hours taking readings and filling out charts and logs.

- Monitor pump operation and change control strategies as necessary.
- Respond to alarms generated by SCADA.
- Answer Phones and radio calls and respond as necessary.
- Take chlorine residuals for Well Electric operating pumps.
- Record pumpage and chlorine usage for Well Electric and hour meters.
- Record Electrical meter readings for pump load.

Weekly

Station Checking

- Take chlorine residual on all operating pumps.
- Change recording charts.

Shift Operators

- Fill and change logs and charts.

Spare Operator & Tank Checking

- Change chlorine tanks and exchange with chlorine supplier as needed.
- Check all tanks and reservoirs for vandalism.
- Record chlorine residual at all tanks.
- Check for leaks and abnormal conditions.

Monthly

Station Checker or Spare Operator

- Get end of month hour meter reading.
- Bring in station logs and start next month's log.
- Attend safety meeting.

Quarterly

Spare Operator

- Download information from monitoring wells.

Annually

All Operators

- Gather information necessary for annual reporting.

Maintenance Calendar

Daily

- Perform assessment work at each assigned station.
- Note deficiencies and report to foreman.

Monthly

- Check vibration and bearing temperatures on all running pumps.

- Attend safety meetings.

Winter

- Make repairs to pumps in well stations as necessary.
- Service Well Electric pumps and auxiliaries.
- Calibrate and service flow meters.
- Clean switch gear.

Spring

- Perform pump maintenance in booster stations .
- Clean switch yards and transformers.
- Place stations in service as needed - Indian Canyon, Bishop Court, Grace, Hoffman.
- Check out and service stations as they are put in operation.

Summer

- Respond to trouble reports to keep all units in operating condition.
- Make sure air coolers and vent fans are working properly.
- Service hydroelectric generators and other elements of hydro dam.

Fall

- Shut down and winterize stations when they are no longer needed.
- Drain air coolers at stations.
- Check and service all heaters in vaults, sumps, and stations.
- Begin repairs of pumps that failed or need service from summer operations.
- Check current on pumps.

Preventative Maintenance Program

In addition to the daily checks made by the operator, each station is assigned a maintenance mechanic to perform maintenance on the equipment. The assigned mechanic, as part of an Assessment Program, performs preventive maintenance checks on the equipment in the station. These preventative examinations include noting; pump and motor bearing temperatures, pump and motor vibration, unusual noise, lack of lubrication, and servicing the electrical equipment. Air coolers, heaters and vent fans are also included in these checks. Work that is beyond the scope of the Assessment Program is reported to the foreman and is scheduled for repair.

Typically, normal maintenance projects are scheduled during the off-season. This provides assurances that equipment will provide reliable service during the months of high demand plus scheduling large replacement and repair jobs during the off-season provides the opportunity to be more efficient, and keep costs to a minimum. Therefore, for water pumps, motors and related equipment major work is scheduled for late fall, winter, and early spring when water demand is lowest. For the Department's hydroelectric facilities major work is scheduled for summer when river flows are low.

Equipment, Supplies, and Chemical Listing

The City of Spokane's water comes solely from the Spokane Valley/Rathdrum Prairie (SVRP) Aquifer. Treatment of the water is not required; however, chlorine is added at the wellhead as a disinfectant. Chlorine is the only chemical that is stored, and the quantity stored is only the amount that is currently in use. The chlorine is purchased on a yearly contract and the supplier is required to maintain sufficient quantities at their storage facilities to satisfy on-going needs. Typically, the City uses 2,000 lb and 150 lb cylinders of gaseous chlorine. Chemicals used for water testing, such as chlorine residual sampling, are supplied by a chemical supplier that stores them off-site. No more than the current week's supply of these chemicals is stored on City of Spokane property, and the amount stored at any given location never exceeds 2,500 pounds at any time.

6.4 Comprehensive Monitoring (Regulatory Compliance) Plan

The Federal Safe Drinking Water Act ("SDWA") provides direction for the Department's water quality monitoring program. The water quality monitoring program is based on compliance with WAC 246-290-300, Public Water System Rules and Regulations, as established by the State Board of Health and the Environmental Protection Agency ("EPA"). Enforcement of the program is the responsibility of the DOH, specifically the Department's Eastern Regional office located in Spokane. The Safe Drinking Water Act, as it is implemented and enforced through the EPA, at times drives City monitoring directly, because programs such as the Unregulated Contaminant Monitoring Rule ("UCMR") require preemptive monitoring of potential emerging contaminant threats.

The Department's Water Quality Section, along with the support of the City's Environmental Programs Department, manages water quality for the City of Spokane. The Water Quality Section consists of two people with appropriate water quality expertise plus an in house laboratory. Other branches of the water department assist on an as-needed basis. The following sections provide a summary of the water quality monitoring program.

Water Quality Section

The Water Quality Section ensures that the City is in compliance with all state and federal drinking water regulations. Responsibilities include:

- Controls access to sampling points and maintains all water quality records.
- Maintains and operates a certified drinking water laboratory.
- Carries out field tests, laboratory tests, bacteriological & protozoa sampling and tests chlorine residuals in the water at designated sampling points.
- Records field data at the time of source sampling, maintains continuous monitoring instrumentation, and carries out river and GWI monitoring.
- Maintains lists of EPA-approved laboratories, their testing capabilities, and utilizes their services as necessary.
- Maintains the monitoring system that measures groundwater depth and downloads the aquifer groundwater depth data (nine sites).
- Writes the Consumer Confidence Report on an annual basis.
- Advises Water Department personnel and other departments on water quality issues.

- Works with regional groups regarding water quality

Environmental Programs

The City's Environmental Programs Department assists the water quality program by performing the following activities:

- Coordinates the source and special testing programs.
- Writes technical water quality reports.
- Maintains a file of duplicate source test records.
- Maintains a source water quality database.
- Maintains searchable contaminant source inventory databases.
- Maintains the wellhead protection-groundwater aquifer model.
- Keeps abreast of new regulatory requirements and assists in their implementation.
- Brings water quality issues to the floor in planning processes.

Source Testing

Locations

Since all of the City's well stations draw their water from the same aquifer, the Water Department considers each source well station as an individual well requiring a single sample for each parameter representing each well within the well station. This meets the DOH "Well Field and Monitoring Requirements" **Appendix 6.4.1**.

Over the past several years, the City has added special raw water sampling pumps and ports at various well stations. The City considers bacterial testing on the raw (untreated) well water an important indicator of the water quality found in the aquifer. The City has also been asked to continue this raw water sampling by DOH staff. The City has raw water sample points at all well stations except Central Avenue Well Station.

Photographs of representative sample taps at the City's source pump stations can be seen in **Appendix 6.4.2**. Each photograph is followed by a list of pump stations with similar sample points. The actual pump station where the photograph was taken is the first name listed.

Water quality staff also records detailed field data at the time of sample collection. This includes information regarding the exact sampling location, the pumping rate at the sample location, the pumping rate at other nearby well locations, and the groundwater elevations and conditions. Two types of these recording forms can be found in **Appendix 6.4.3**.

Inorganic Chemical/Physical Monitoring

The City Water Department is responsible for Chemical/Physical Monitoring (i.e. total inorganics, nitrates, chloride, etc.).

See **Table 6.4.1** for sample type information.

The City uses the "Full List" Inorganic test at a certified lab to meet the nitrite requirement, as it currently has the same "one in three year" compliance schedule. For chlorine residual monitoring, the City usually monitors for free chlorine residual. The required Water Quality Parameters ("WQP") have varied with each testing program, and those that can be done by City staff have varied by program as well. The WQP-GWI field testing includes

conductivity, pH, temperature, and turbidity being done by City water quality personnel. While turbidity is not generally required, it is and has been required for special testing programs as noted above.

Radionuclides

Monitoring requirements have been met for the initial monitoring compliance period through December 31, 2007. Regular compliance monitoring to meet the Radionuclide Rule will begin with the next monitoring cycle. See **Table 6.4.1**.

Organic Chemical Monitoring

Samples for Organic Chemical monitoring have including regulated and unregulated Volatile and Synthetic Organic Compounds, collected at the source. Samples are collected, depending on the type of sample needed, from each source at locations mentioned previously. Sampling procedures require drinking water samples be collected in kits provided by the lab and shipped overnight, cold packed and appropriately preserved, in order to arrive at the lab in a timely manner. Travel blanks are included in the kit. The laboratory typically rejects samples that exceed quality control parameters for analysis, including samples that report positive travel blanks. More recently, EPA protocols require the labs to check arrival temperatures and pH before accepting samples for testing for some parameters. Some tests, including volatile organics, require a field preservation step in addition to the chemicals that are placed in the sample container by the lab. See **Table 6.4.1**.

Bacteria

The City collects and tests bacterial samples of raw water from all operating well stations on a monthly basis. This is a voluntary activity to determine the quality of the source water over time. The samples are collected, cooled, and transported to the laboratory within the prescribed 6-hour holding time. See **Table 6.4.1**.

TABLE 6.4.1

DRINKING WATER TEST LOCATIONS & FREQUENCIES				
Current as of November 1, 2005				
TEST PARAMETER	Source Tests Done	Type of Sample	Required by State and/or EPA	Required Frequency per Source
Chemistry - Inorganic				
Asbestos	No	Treated	Yes	1 per 9 years
Chlorine Residual	Yes	Raw	Yes	1 per day
Full List of Inorganic Contaminants	Yes	Raw	Yes	1 per 3 year
Copper	Yes	Treated	Yes	50 per 3 year
Lead	Yes	Treated	Yes	50 per 3 year
Nitrate	Yes	Treated	Yes	1 per year
Nitrite	Yes	Treated	Yes	1 per 3 year
Temperature	Yes	Both	No	Monthly/Quarterly
Turbidity	Yes	Both	No	Monthly/Quarterly
WQP*-GWI	Yes	Raw	Yes	1 per week
*WQP - Water Quality Parameters				
Radionuclides				
Alpha particle activity	Yes	Either	Yes	4 qtrs, 1y in 4y
Beta particle activity	Yes	Either	Yes	4 qtrs, 1y in 4y
Radon	Yes	Treated	Yes	4 quarters
Chemistry - Organic				
Volatile Organics	Yes	Treated	Yes	1 per 3 year
Trihalomethanes	Yes	Treated	Yes	Quarterly
Haloacetic Acids (HAA%5)	Yes	Treated	Yes	Quarterly
Chemistry – Synthetic Organic				
Carbamates (531.1)	Yes	Treated	Yes	2 qts per 3y
Dioxin (1631)	No	Treated	Yes	1 per 3 year
Diquat & Paraquat (549)	Yes	Treated	Yes	1 per 3 year
EDB & DBCP (504.1)	Yes	Treated	Yes	1 per 3 year
Endothal (548)	Yes	Treated	Yes	1 per 3 year
Glyphosate (547)	Yes	Treated	Yes	1 per 3 year
Herbicides (515.1)	Yes	Treated	Yes	2 qts per 3y
Pesticides (525.2)	Yes	Treated	Yes	2 qts per 3y
Bacteria				
Total Coliforms	Yes	Raw	No	1 / year min. [1/month]
Fecal Coliforms	Yes	Raw	No	1 / year min. [1/month]
Heterotrophic Plate Counts	Yes	Raw	No	1 / year min. [1/month]
Total Coliforms	Yes	Treated	Yes	120 per month
Fecal Coliforms	Yes	Treated	Yes	120 per month
Heterotrophic Plate Counts	Yes	Treated	No	120 per month

Schedule

Source testing generally follows a once in three year cycle within a nine-year sampling framework. The City's scheduled source testing is designed to meet State & Federal requirements, meet City informational needs regarding citizen concerns and proposed regulations, and finally provide as broad a look at source quality as possible.

Every opportunity is taken to combine testing needs into single sampling events. Other circumstances that could change the projected sampling schedules are discussed under "Adjustments to Monitoring Program" presented later in this chapter. **Appendix 6.4.4** shows the "2005 Drinking Water Source – Completed Quarterly Monitoring". Current and projected future schedules can be found in **Appendix 6.4.5**.

Most sampling is done in the month of July because this is the only month, of the four usually used, where it is practical to have all the well stations operating. In the winter months, two well stations are winterized, Grace and Hoffman.

The City has planned source sampling events to fall on the last Tuesday of the month, in the first month of each quarter (i.e. January, April, July, October). County and City testing at the wells is performed at one time, saving mobilization costs and providing a cross check on lab data where duplicate tests are run. Approximately 30 days before the planned sampling date, Environmental Programs staff review the projected sample plan and make adjustments as deemed appropriate. The Department's Water Quality Section, the necessary labs, and other sampling participants are contacted to confirm sampling dates. A projected sampling list is generated and sent to all participants.

Past schedules of lab work are retained and annual test result summaries are produced. Efforts are being made to record expenditures, and laboratories used, on the projected work schedule.

Waivers

The City has taken advantage of some source testing waivers offered by DOH. The City has not tested for parameters waived on a statewide basis (for example dioxin). In the past 3-year compliance period, the City chose not to take advantage of such waivers and instead did two quarters of testing at each of the well sites for the synthetic organic chemicals (SOCs) required by the State to be tested. Waiver costs, and anticipated monitoring benefits and costs, are weighed against each other in determining when the City will take advantage of State monitoring waivers.

Written requests for and responses to waiver requests are saved both at the Water Department and the City's Environmental Programs Department. Waivers can be contingent on a well's vulnerability and susceptibility ratings. See **Appendix 6.4.6** for the City well vulnerability and susceptibility ratings.

The City anticipates that some SOC parameters will continue to be waived on a statewide or area basis. City water will evaluate these waivers as notices are received and decide which are appropriate to use.

The Ray well station has been on quarterly nitrates analysis since the level was found just over half the MCL (5 mg/L) in March 1997. Since that time, the nitrate concentrations have

been typically 5 mg/L or less, but as there have been intermittent exceedances of half the MCL, the City will continue quarterly monitoring for nitrates at Ray Street Well Station.

With the SOC testing, the City has had three chemicals detected, all below MCL levels. Di (2-ethylhexyl) Phthalate, Di (2-ethylhexyl) Adipate, and Di-n-Butylphthalate have each been detected more than once, but never consistently (for more detail see the Water Quality Section 3.2). The State has not required follow-up quarterly testing because there is reason to believe that the results may be laboratory errors.

Options

As discussed earlier, with DOH approval, the City does use the option of considering single test point data representative of well station discharge in cases where there are multiple holes (wells/casings) and pumps. The City also uses the option of treating the entire system as a single treatment plant for the purposes of disinfectant byproduct monitoring.

Laboratories

The Water Department contracts, and/or otherwise engages, State-accredited laboratories to perform drinking water testing as required by regulation. The City has a Department of Ecology accredited Water Laboratory and an accredited Wastewater Laboratory. The Wastewater Laboratory tests nitrate samples at the Ray Well Station for the City, as a cross-check with results obtained from other laboratories.

The City puts out a Request for Proposals every three years and awards a contract for water quality testing in this manner. The City also runs some samples through a County contracted, State approved lab, in connection with an Agreement between the City and Spokane County. The County then provides the City with an annual aquifer water quality report and access to aquifer wide sampling results.

The City of Spokane has used the following laboratories over the last several years for drinking water analysis:

City of Spokane
Water Quality Laboratory
2701 N Waterworks St.
Spokane WA 99212

Anatek Labs
504 E Sprague Ave Ste D
Spokane WA 99202

Spokane County Health District
1101 W College Ave
Spokane WA 99201-1440

North Creek Analytical Laboratories
11922 E 1st Ave
Spokane Valley WA 99206

Special Monitoring

As discussed in the Water Quality Section (Chapter 3.2), the City has been engaged in special sampling at Well Electric. DOH has required this testing in an effort to help determine if this well is or can be influenced by the Spokane River. It has been determined that Well Electric is hydraulically connected to the Spokane River, but has been determined by DOH to not be under the direct influence of surface water.

In fall 1994, and spring 1995, an outside consultant took groundwater measurements in approximately 100 wells located throughout the Washington portion of the Spokane Valley/Rathdrum Prairie Aquifer as part of the wellhead protection program. The Spokane River stage data was also collected during the same periods. This work, along with seismic profiling of the aquifer bottom in a number of locations, was done to further the development of an aquifer model used in determining potential wellhead protection areas, as required by the State's Wellhead Protection Program. For further information see City of Spokane "Wellhead Protection Program Technical Assessment" report.

Other special testing required by DOH, that the City has had done, includes quarterly and annual testing for volatile organics following detections, and quarterly checks on nitrate levels following the exceedance of half the MCL.

City special testing in the past has included a number of tests that were done voluntarily, to meet City needs. This included testing for nitrate, radon, cryptosporidium, giardia, microscopic particle analysis, coliform bacteria, heterotrophic plate counts in raw source water, and synthetic organics.

The American Water Works Association ("AWWA") has recommended that utilities in areas where radon is found in groundwater begin taking quarterly samples for radon at the entry points to the distribution system. This testing, which they recommend be done for one year, is not currently required but would provide a baseline and would likely meet forthcoming requirements.

The City has nine ground water level monitoring points in the aquifer besides the production well level monitoring. This level monitoring network was installed as a part of the City's Wellhead Protection Program. Each of the monitors, but one, is located in a new monitoring well. One of the monitors is located in an old "208" monitoring well and is dubbed the "Central PreMix 208" monitoring site. City water quality staff downloads the data from these locations on roughly a quarterly basis. The downloaded information is also sent to the Environmental Programs Department. Pictures of each of the sites, along with the name and location, are in **Appendix 6.4.7**.

Future Monitoring Requirements

It is expected that additional chemicals and microbiological contaminants will be added to the required EPA monitoring list. It is anticipated that such changes will not significantly affect the City but will fit within the existing testing that is already required.

City staff is continually working to identify future monitoring requirements. The advanced schedules of planned monitoring help keep the potential events in perspective.

Distribution System Testing

Locations

Distribution system sampling locations are generally testing program specific and will be discussed here by program.

Asbestos Monitoring

There is no longer any asbestos-cement pipe in the City of Spokane water distribution system.

Coliform Monitoring

There are fixed distribution system sites where coliform sampling occurs on a regular basis. See “Coliform Monitoring Plan” for details, **Appendix 6.4.8**.

Disinfectant Residual Monitoring

Water Quality personnel continuously monitor the disinfectant residual, drawing samples from fixed locations throughout the distribution system.

Lead - Copper Rule Testing

The federal Lead-Copper Rule required the City to identify homes with lead service lines (981 homes identified) and homes with copper plumbing with lead soldered joints less than five years old (671 homes identified). Fifty of each of these types of listed homes (100 altogether) were originally tested twice for lead-copper. All 100 tests were below the EPA action levels which qualified the Water Department for reduced monitoring. Reduced monitoring involves sampling only 25 of the previously sampled sites of each type (50 total). Specific information about the location of homes tested, and test results are available at the Water Department. The City is currently classified as optimized for corrosion control. See **Appendix 6.4.9**.

Disinfection Byproduct Testing

The Stage II Disinfectants and Disinfection By-Product Rule set new limits for trihalomethanes, establishes limits for haloacetic acids and limits for disinfectants. This requires at least quarterly checks for trihalomethanes and haloacetic acids at the point of maximum residence time. The City uses Mallen Tank as the point of maximum residence time during the Winter and Spring quarters, and a sampling station located at Nine Mile Road and Ridgecrest Drive, referred to as the BPA transmission easement, during Summer and Fall quarters.

Schedule

Coliform bacterial monitoring and the associated disinfectant residual monitoring are continuous monitoring programs designed to exceed the minimum monthly sampling requirements set by State and Federal regulation. For more information about the schedule, see **Appendix 6.4.5**.

Waivers

The City has not sought State waivers for distribution system testing. The State can waive some Lead-Copper testing, based on past results, when action levels are not exceeded.

Special Monitoring

Other than some follow-up coliform monitoring and the UCMR testing, which was special monitoring for EPA, no other special monitoring is currently required.

Record Keeping

Analysis reports for all water-quality monitoring are maintained in the City of Spokane Water Quality Laboratory. Duplicate records are kept at the Environmental Programs Department office in City Hall. The Water Quality Section and Environmental Programs both have databases of past results. Results of bacteriological sampling are maintained at the City of Spokane Water Quality Laboratory for ten years. The samples are catalogued by month and sorted out as drinking water, raw water, new construction, and sanitary survey. Environmental Programs Department keeps copies of recent raw water and Spokane River bacteriological results. Additional detail water quality testing information is provided in the “Report on Spokane Drinking Water for 2005” in **Appendix 3.2.1**. Representative laboratory reports for the various tests are located in **Appendix 6.4.10**.

Adjustments to Monitoring Programs

The City of Spokane has to be prepared to modify the monitoring program for any and/or all of the following reasons:

1. State or Federal regulations change.
2. The State Department of Health or US EPA may require additional testing.
3. Current monitoring results may trigger re-sample requirements.
4. The City’s Contingency Plan and/or Emergency Response Plan may result in the need for additional testing. See Chapter 5 of the City of Spokane’s 1998 “Wellhead Protection Technical Assessment” report and **Table 6.4.2**.

TABLE 6.4.2

RE-SAMPLING FOR DETECTIONS OF CONTAMINANTS		
Inorganic Chemicals		
	Asbestos	None required, State discretion
	Metals	None required, State discretion
	Nitrate	Four quarterly samples when ≥ 5 mg/L
	Nitrite	Four quarterly samples when ≥ 0.5 mg/L
	Turbidity	Re-sample within one hour if > 1.0 NTU
Radiochemicals		
	Alpha Particle	If > 2 pCi/L recommend Ra-226 & Ra-228
	Beta Particle	If > 5 pCi/L required Ra-226
	Radium 226	If > 3 pCi/L required Ra-228, State may require annual Ra-226 testing

Organic Chemicals		
	SOCs	Quarterly testing, two quarters minimum
	VOCs	Quarterly testing, two quarters minimum
Bacteria		
	Total/Fecal Coliforms	At least three repeat samples per positive coliform sample taken within 24 hours of results. (See Coliform Monitoring Plan for details)
Re-sampling for MCL exceedances in each of the major contaminant groups is addressed below.		
Inorganic Chemicals		
	Asbestos	Monitor quarterly
	Metals	Quarterly monitoring; State may require re-sample within 2 weeks
	Nitrate	Re-sample within 24 hours or notify public
	Nitrite	Re-sample within 24 hours or notify public
	Secondary Contaminants	Three additional samples within 30 days.
Radiochemicals		
	Alpha Particle	Quarterly monitoring
	Total Radium	Quarterly monitoring
	Man-made	Monthly testing
Organic Chemicals		
	Trihalomethanes	4 distribution samples per treatment plant per quarter
	Haloacetic Acids	4 distribution samples per treatment plant per quarter

6.5 Emergency Response Program

Preparedness, response mitigation, and recovery form the essential elements of an emergency management plan. Mitigation planning involves performing a vulnerability analysis, identifying facilities whose functions are critical to the functioning of the community such as hospitals, critical patient's homes, and the like. For a large system like the City of Spokane Water system, many of the problems that may be viewed as critical situations with respect to a small system, could be handled routinely. Thus, this plan addresses the most critical of the factors and the response/notification plans are implemented to address such situations.

Water System Personnel Emergency Call-Up List

An emergency notification flow chart is a vital part of the Emergency Response Program. This chart is posted in both the 24 hour - staffed Water Department Radio/Dispatch Room located at the department's business office at 914 E. North Foothills Drive and the 24 hour - staffed Upriver Complex Water System Control Room located at 2701 N. Waterworks St. The location of these facilities is shown on the map in **Figure 1.3.2**. The flow chart lists the personnel to be notified in the event of a major emergency and is revised as personnel changes occur. The notification chart is provided as **Figure 6.5.1**.

Water Emergency Communications Plan

The Department has developed a Water Emergency Communications Plan to communicate effectively with the citizens of the City of Spokane and all customers of the City's Water Department during emergencies that impact the quality of their drinking water. The plan

supports a comprehensive multi-media approach to reach customers in ways that are convenient for them. The Plan is attached in **Appendix 6.5.1**.

Insert **Figure 6.5.1** - Emergency Notification Flow Chart

Vulnerability Analysis

Major System Facilities

The Spokane Water System's major facilities and pressure zones are shown in **Figure 1.3.2** and **1.3.3**.

Disaster Effects

The natural and man-made disasters that could possibly affect the City of Spokane Water System are listed in **Table 6.5.1**.

TABLE 6.5.1 Disaster Probability & Severity			
Types of Disaster	Probability	Severity	Reference
NATURAL:			
Earthquake	2	2	National
Severe Wind Storm	8	5	Weather
Severe Snow Storm	6	5	Service
Ice Storm	5	6	
Severe Cold Period	8	3	
Drought	6	2	
Flooding	6	2	
Severe Thunderstorm	5	4	
Tornado	1	4	
MAN MADE:			
Industrial Discharge	2	2	WSDOE
Sabotage	2	7	Police Dept.
Bomb Blast	2	6	Police Dept.
Aquifer Pollution	2	10	
Note: Rating Scale 1-10, 10 being high; Severity considers the water system as a whole			

How a particular disaster may affect individual components of the Water System is listed in **Table 6.5.2.**

TABLE 6.5.2									
DISASTER EFFECTS ON SYSTEM COMPONENTS									
DISASTER TYPE	AQUIFER	WELL STATIONS	BOOSTER PUMP STATIONS	RESERVOIRS	TRANSMISSION MAINS	DISTRIBUTION MAINS	POWER SOURCE	COMMUNICATION	TRANSPORTATION
Natural:									
<i>Earthquake</i>		X	X	X	X	X	X	X	X
<i>Sever Wind Storm</i>				X			X	X	X
<i>Sever Snow Storm</i>							X	X	X
<i>Sever Thunder Storm</i>		X	X				X	X	X
<i>Tornado</i>				X			X	X	X
<i>Ice Storm</i>							X		X
<i>Sever Cold Period</i>				X		X			
<i>Drought</i>	X	X							
<i>Flooding</i>	X	X							
Man-made									
<i>Industrial Discharge</i>	X	X							
<i>Sabotage</i>	X	X	X	X					
<i>Bomb Blast</i>			X	X					X
<i>Aquifer Pollution</i>	X	X			X	X			

Contingency Operational Plan

Aquifer

The Aquifer is the main source of the water system during normal conditions. Any major disaster to the aquifer, like pollution or contamination, would result in potentially crippling the water supply. The City will have to resort to testing water from each individual well station and selectively pump from wells that have not been contaminated. However, depending upon the type of contamination, City wide emergency notifications need to be made and people need to be warned against use of water for domestic purposes in this type of event.

Under severe drought conditions, aquifer levels may be affected. Depending on the severity, rationing may need to be enforced. Flooding of the Spokane River may cause the possibility of ground water being influenced by the surface water. Only Well Electric Well Station is within 200' of the river. As a precaution, during periods of river flooding, withdrawal of water from the Well Electric is suspended.

Pump Stations

For normal conditions, the well stations and booster stations pumping systems have built in redundancies that can provide the demand for water should portions of the system be out of service. In each of the pressure zones, the combination of pump stations and reservoirs are such that any problems occurring in individual components of the system can be addressed.

Reservoirs

Under normal conditions, and during high demand periods, the storage is kept at maximum. During low demand periods, the storage volumes in most of the reservoirs are kept lower.

Earthquake, severe windstorms, severe cold periods may affect individual reservoirs. Anytime an earthquake is reported, all storage structures are inspected. All City-operated reservoirs have been designed for seismic and wind loadings, using AWWA and Uniform Building Code standards for the geographical area.

Transmission Mains

Transmission mains normally transport water from pump stations to reservoirs. Transmission mains are buried a minimum of five and one half feet to the pipe invert. Transmission main ruptures cause severe disruption of water service in the area served. Also, the possibility of flooding, damage to properties, and impediments to transportation may result. Immediate action to isolate the main is undertaken.

Distribution Mains

The results are similar to Transmission Mains, but usually less severe.

Communication

Spokane Water Department Offices have one or more operator available at all hours of the day. Telephone [(509) 625-7800] is the primary source when communicating with the

general public. Radio dispatch [Station A - freq. 153.590 MHz] is the primary communication tool used when the Water Department contacts an employee, should that employee be working outside of the Business Office. If a problem exists with the main phone PBX, an alternate telephone [(509) 489-3858] is available.

Upriver Control Center has one or more personnel available at all hours of the day. Telephone [(509) 742-8141] is the primary source when communicating with the general public. Radio [Upriver - freq. 153.590 MHz] is the primary communication tool used when contacting Operations personnel, should that employee be working outside the Operations offices. During swing and graveyard shifts, the Upriver radio operator communicates to Station A radio at a preset time, typically once each hour.

In case of emergencies, exchanging information over the Radio with the construction and operational personnel is the best means as all the vehicles have radio systems. This frees up the phone lines for inter-communication with others who have no access to the radio.

Control of pumps and data collection, including information gathering about any alarms in individual facilities, is normally through the SCADA system at the City Upriver Operations Center. The means of communication between the Upriver Control Center and individual facilities is again through a combination of radio and phone lines. In the event of a problem, personnel will resort to manual local control.

Power Source

Avista is the local electrical utility and is responsible for maintaining reliable power supply in the area, with Inland Power and Light supplying power for a few of the outlying systems. Under peak demand conditions, water withdrawn solely from the reservoirs in each system should be able to provide two to three hours supply, in a worst case scenario. With the elimination of irrigation flows this can be extended to 2 or 3 days. With very strict rationing to just the very basic needs this could be extended further. The power sources are normally very reliable and outages are normally very short. In addition, the Department's hydroelectric facilities will allow for some degree of pumping of Well Electric and Parkwater Well Stations. The amount of pumpage from these two well stations will depend on river flows and will vary from full pumpage in the winter and spring months to a much smaller fraction of that in the summer and fall months. Nevertheless there is the capability to pump various amounts of source well water into the system at all times of the year. The Department also has a large mobile diesel generator and a small natural gas powered generator which can be moved from booster station to booster station as needed. Also a diesel powered pump, for emergency purposes, is located at Lincoln Heights Booster Station. To date, the City Water System has not had to curtail water service due to a power outage. However, should a severe long term blackout occur, rationing may have to be initiated.

6.6 Safety Procedures

The Safety Program that has been developed for employees of the Water Department is presented in **Appendix 6.6.1**. As with most programs, it is in a continuous state of change to adjust to new standards and situations.

6.7 Cross Connection Control Program

The purpose of a cross connection control and backflow prevention program is to protect the health of water consumers and retain a potable water supply. It is also intended to define and establish the policies and procedures necessary to properly implement a cross connection control program as required by ordinance and established in WAC 296-290-490. An outline of the “Cross Connection Control Program” is presented in **Appendix 6.7.1** with enforcing information presented in **Appendix 6.7.2**.

Extra attention for cross connection control is concentrated on “Title 9” facilities and equipment using hazardous materials. An ongoing survey and inspection program is carried out to make sure approved air gaps are used for filling with water any tanks or containers holding hazardous material such as chemical sprays for lawns etc. Approved air gaps are also required for anyone using a fire hydrant to fill a tank or container. For private parties, such as contractors, using a City hydrant requires a permit and the adequacy of their equipment and filling procedures is determined at that time.

6.8 Customer Complaint Response Program

The current method for addressing customer complaints is as follows:

1. The 24-hour radio/dispatch center receives all calls relating to customer concerns/complaints. Approximately 50 to 60 calls are taken annually.
2. Based upon the dispatcher’s initial line of questioning, a determination of the seriousness of the concern/complaint is made.
3. In cases where public health is not at risk, the dispatcher responds to their concerns/complaints by asking additional questions. These questions allow the dispatcher to address their concerns/complaints over the telephone.
4. In cases where public health is not at risk, but a field investigation is warranted, an appointment is made with the customer at his/her earliest convenience—typically the following day. The City receives approximately 25 to 30 of these types of calls annually.
5. In cases where the concern/complaint may be a possible risk to public health, a Water Quality staff experienced in water quality issues is dispatched to investigate the nature and scope of the concern/complaint.
6. Based on the field investigation the inspector will specify the corrective action needed.
7. If water quality is suspected of being compromised, a water quality sample will be drawn immediately, and taken to the City of Spokane laboratory for immediate analysis.
8. Anytime a water quality sample is taken, a copy of the water analysis results will be mailed to the complainant and a copy kept in Department files.
9. The complaints that have required a field inspection are logged into the water quality computerized database and also recorded on the appropriate “repair card” and added to the water quality files.

10. The Department has implemented a maintenance management system which has a caller log form to track customer service concerns/complaints.

6.9 Recordkeeping and Reporting

Water quality complaints are added to the Water Quality computer database along with a written record affixed to a “work order” that is placed in the Water Quality file, by address. Water quality complaint records are kept in the 24 hour radio/dispatch center for ready access. Water quality complaint records become permanent records and are held indefinitely.

Water consumption records are generated monthly by Utility Billing—General Services Department. Water source pumpage records are generated monthly by the Upriver Complex - Water System Control Station. Water consumption and pumpage records are held at the Water Department office for 6 years. After this period they are transferred off-site where they are stored indefinitely. The procedures followed by the Water Department for Recordkeeping and Reporting are in accordance with WAC 246-290-480.

6.10 O & M Improvements

Improvements that will have financial impacts on the water system’s operation and maintenance are addressed in Chapter 8.

Design and Construction Standards

7.1 Project Review Procedures

Several processes are utilized in the review of project reports and construction documents for Water Department infrastructure. Projects may be designed in-house, by consultants contracted by the City, or by consultants engaged by an individual or developer for a project including City water facility infrastructure required for their respective needs.

- For projects designed by City engineering staff, the reports and construction documents are reviewed by the Water Department Engineering staff and by the Water Department Construction & Maintenance staff. When construction of a distribution system provides fire protection, the City Fire Department will review these plans for projects within its jurisdiction. For projects outside the City limits, the Fire Marshal of the affected Fire District reviews the plans for the project.
- For projects designed by consultants engaged by the City, reports and construction documents are reviewed by City Engineering Services Design Section Engineering staff, by the Water Department Engineering staff and the Water Department Construction & Maintenance staff. When construction of a distribution system provides fire protection, the City Fire Department will review these plans for projects within its jurisdiction. For projects outside City limits, the Fire Marshal of the affected Fire District reviews the plans for the project.
- For projects designed by a consultant engineer engaged by an individual or developer that include City water facility infrastructure improvements (*i.e.*, projects constructed by Private Contract), the reports and construction documents are reviewed by the City Developer Services Engineering staff, by the Water Department Engineering staff and by the Water Department Construction & Maintenance staff. When construction of a distribution system provides fire protection, the City Fire Department will review these plans for projects within its jurisdiction. For projects outside City limits, the Fire Marshal of the affected Fire District reviews the plans for the project.

For all projects, the design and construction documents must reference the City's approved Design Standards which includes the Standard Specifications for Road, Bridge, and Municipal Construction, as amended and published jointly by the Washington State Department of Transportation ("WSDOT") and the American Public Works Association ("APWA"), and the City of Spokane General Special Provisions for Private Contracts as amended. The most up-to-date versions on the City of Spokane Design Standards, General Special Provisions for Private Contracts and the City of Spokane Standard Plans are available on the City of Spokane Engineering Services website at <https://beta.spokanecity.org/business/resources/>. Any deviation from the Design Standards requires WDOH review and approval. Changes to the City's approved Design

Standards may require an addendum to the City of Spokane's Comprehensive Water Plan which must be submitted to DOH for review and approval.

Reports and construction documents are reviewed to assure the project designs comply and meet the minimum design standards and policies set forth by the City. In addition, the documents are reviewed to ensure state drinking water regulations, local ordinances, and any other applicable requirements are met.

Please refer to **Exhibits 7.5.1, 7.5.2, and 7.5.3** for examples of correspondence, approvals, inspection documentations, record drawings and reports, Council actions, DOH correspondence, reports and approvals.

7.2 Policies and Requirements for Outside Parties

The basic policy provisions for providing water service are codified in the City of Spokane Municipal Code Title 13.04, Public Utilities and Services, Water. Additional policy provisions are as identified in this Comprehensive Plan. Much of the information below is also found in Chapter 1, Section 1.8.

Water Rates to Other Purveyors

The City has separate rates for water sold to other purveyors for any purpose. These rates are found in the Spokane Municipal Code 13.04.2014. The code is provided at: www.spokanecity.org.

Annexation

Owners of properties located outside the City Limits and inside the City's water service area as defined by DOH, can request connection to the City's water system. In addition to obtaining any necessary permits from the County, they must also contact the City and either request annexation into the City or sign an agreement of annexation as shown in **Exhibit 1.8.1**. Annexation covenants are in addition to other terms and conditions for delivery of water service.

Satellite Systems

For service within the City's service area, the City prefers direct connections to its piping system. The City may consider on a case-by-case basis, a satellite system within its service area to be operated by others on an interim basis until such time as the system can be connected directly to the City's system. The final decision for such an arrangement will be made by the Water Department Director subject to Mayor and City Council approval.

Rates for Outside City Customers

Outside City customers pay higher rates generally due to higher costs associated with providing service to the outlying areas. For single-family residences, the rates are outlined in SMC 13.04.2012. Rates for commercial, industrial and all other customer premises not specifically identified as a single-family residence are listed in SMC 13.04.2016.

Formation of Local Improvement Districts

Property owners within the City Limits who wish to form a Local Improvement District to build a water system extension can do so by contacting the City's Engineering Services Department. The Engineering Services Department will help the property owner go through all the necessary procedures. The procedures for a property owner requesting to do a LID outside the City is generally the same except a "Request for LID Covenant" as shown in **Exhibit 1.8.2** will need to be prepared. The City's Hearing Examiner will review all LID proposals and make the final decision regarding each LID.

Oversizing

The complete "Water Main Oversize" policy for upsizing water pipe for necessary present or future application appears in **Exhibit 1.8.3**. The "Water Main Oversize Justification Approval" form is shown in **Exhibit 1.8.4**. Oversizing water piping is subject to the approval of the Water Department Director.

Cross-Connection Program

The cross-connection program is addressed in Chapter 6 of this plan.

Service Extension Requests

Typically the Water Department provides for the backbone water infrastructure such as wells, pumps, reservoirs, and transmission mains. Should developers need such infrastructure prior to Water Department capital plans and cash flow being sufficient to provide, they may proceed at their own expense, provided these service extensions are within the retail service area. Distribution main extensions and service connections most typically are paid for by developers/property owners. All work must be designed by a licensed engineer, reviewed and accepted by the City and constructed in accordance with City design and construction standards.

Franchise Agreements

If a water main extension is required to be constructed in a right-of-way that is not the jurisdiction of the City of Spokane, either a new franchise agreement or an amendment to an existing agreement must be obtained to allow for construction, operation, and maintenance of the water facility from the appropriate authority prior to final approval being granted. It is the responsibility of the project proponent to secure the agreement in the City's name.

Satellite Management Agencies

The Water Department does not currently manage any other water systems and has no plans to become a Satellite Management Agency. However, the Department will evaluate future opportunities on a case-by-case basis.

Conditions of Service

Conditions of service are property specific and development specific requirements in order to facilitate the implementation of the City's water department retail service area policies and are based on location and proposed use of the property. The specific conditions of

service requirements are provided to each project proponent at the time of request for water service availability and can include one or more of the following items:

- Purveyor responsibilities
- Customer responsibilities
- Specific considerations based on the proposed use for property
- Connection fee schedule
- Meter and materials specifications
- Consent agreements for inspection, maintenance, and repair activities that may disrupt water service
- Cross-connection control requirements
- Developer extension requirements, design standards, financing responsibilities, and professional engineer design requirements.
- Annexation policies as addressed at the beginning of this section.
- Location within the City's retail service area.

Each scenario in the process to obtain water for a property, from the initial development of land to the purchase of an established residence, has an established procedure governed by the City's municipal code, ordinances, and design standards, and state law.

City of Spokane Responsibilities

The City's responsibility to provide for the operation and maintenance of the water system begins within the public domain and extends to the property line. For this reason, most shutoff valves are placed within the public domain and at the property line. Maintenance of the portions of the water system within public domain is performed by City water department personnel with City purchased and supplied equipment. As stated in SMC 13.04.140, "The City assumes no responsibility whatsoever for any private water pipes, mains, devices, fixtures, or appurtenances located either within or outside public property or public right-of-way."

City water personnel are not allowed to proceed onto the homeowner's property except at the homeowner's invitation, (*i.e.*, inspection of existing or newly installed equipment, or requested repairs).

Water taps and water meter installations are initiated through a permitting process in City Hall and scheduling with the Water Department. After the applicable work orders (**Exhibit 1.8.5** and **1.8.6**) are completed, and the tap and/or water meter fees are collected, City employees complete the installations in the public domain using City-supplied materials. These work orders are done in compliance with "City of Spokane Water Department Rules and Regulations for Water Service Installations" (**Exhibit 1.8.7**).

Single Family Homeowner Responsibilities within City Limits

The simplest procedures are associated with the purchase of an established residence within the City's service area with all water service equipment in place. Prior to purchase, it is the responsibility of the potential homeowner to determine the condition of the water service equipment on the property. All water service equipment should be in good operating condition, and must conform to the standards outlined by the City in the "City of Spokane's Design Standards."

All maintenance and service leak repairs on the property are the responsibility of the property owner. Any repairs and equipment replacement must conform to the City's current standards and be approved by a Water Department inspector prior to covering. All replacement meters are supplied by the City and can be charged to the customer at cost on the monthly utility bill.

If the water service has not been interrupted, the new property owner is required to inform the City Utility Billing Department of new ownership and have the billing transferred into their name.

If construction is necessary, City ordinances allow the homeowner to hire state licensed and bonded qualified contractors to perform repairs and to use the street shutoff cock during the work and testing of the new service. The homeowner must also complete and submit a "City of Spokane Construction Services Form" (**Exhibit 1.8.8**) to inform the City of intended desire to operate the shut off cock. If desired, a homeowner may hire the City Water Department to make repairs on their property. Should the homeowner/contractor retain the City, an additional billing would be provided for these services. The additional charge would be provided on the homeowner's utility bill for those repairs.

Rates for water usage, within the City's limits, are established by Council Resolution and are addressed in SMC 13.04.2002 and are published in the City's Official Gazette.

Single Family Homeowner Responsibilities Outside of the City Limits

Homeowners that use the City's water service but live outside the City's corporate limits are subject to the same rules and regulations as those homeowners within the City limits. Rates for this class of customer are addressed in SMC 13.04.2012 and published in the City's Official Gazette.

Connection Fee Schedule

Tap and meter fee rates are based on the pipe sizes specified by the engineer/designer of the project proponent. Charges for a 2-inch tap, or smaller are addressed in SMC 13.04.2026. For services that require a tap that is 3-inch or larger, the costs are addressed in SMC 13.04.2028.

Should a meter require a concrete box installation (24 inches only with no excavation), there is a separate charge.

To facilitate meter reading, radio reading device or AMR costs are included in the meter fees.

Prior to installation, the following rules apply:

- When taps are installed outside of the City's limits, the customer must either annex to the City or sign an annexation covenant as mentioned earlier
- LID and future main extension waivers are required on all approved long services
- Taps of 1 inch or smaller are required to have a pressure-reducing valve (PRV) placed before the meter if the pressure is greater than 80 pounds (the cost of a PRV and its installation is borne by project proponent)

- Taps larger than 1-1/2 inch are required to have a PRV placed after the meter if the pressure is greater than 80 pounds. The cost of a PRV and its installation is borne by project proponent.
- Tap fees are based on tap size and street right-of-way width. Meter fees are based on meter size and type (domestic, irrigation, and/or fire). Dedicated fire only services that utilize a DCDVA the meter fee will be determined by the size of the tap. All tap and meter fees are subject to periodic review and change.

Special water service connection fees (General Facility Charges), as mentioned earlier in this section, also are assessed. These fees are for the purpose of helping to pay for major water infrastructure needed to serve an area such as wells, pumps, reservoirs, and large transmission mains. This fee is addressed in SMC 13.04.2042 and, as above, is also based on size of service.

Meter and Materials Specifications

All specifications for water service meters and materials are in the “City of Spokane’s Design Standards.” Vault dimensions have been defined by the City for larger water services. The required vault sizes are shown on the handout “Water Service Minimum Vault Dimensions,” located in **Exhibit 1.8.9**.

Consent Agreements for Inspection, Maintenance, and Repair Activities that may Disrupt Water Service

Consent agreements to disrupt water service are not required for inspection, maintenance, and repair activities requested by the homeowner. Notice to terminate service also is not required when the service interruption is needed for an emergency repair or for any other reason. However, the Department makes every effort to coordinate disruptions to meet the needs of the customers. As outlined in the City’s Municipal Code, an actual notice to terminate water service is only applicable when executed because of nonpayment. See SMC 04.02.180 “Notice of Termination.”

Private Development Projects within the Retail Service Area

All developer projects that intend to utilize City water must first apply for a permit. All permits start within the City’s Planning Department. If desired, the developer can schedule a pre-development meeting. At the pre-development meeting, all applicable City departments and the developer meet to discuss the project. These meetings are held only for projects within the City’s limits.

Through the permitting process, property platting is checked and a SEPA review is performed and routed to all of the City’s infrastructure departments (water, sewer, street, and storm water). Following the departmental reviews, two public meetings are held.

Any water system extensions required by the project must be designed by a licensed engineer and be in compliance with all of the City’s design and specification standards. All projects must meet the design standards set out in “City of Spokane Design Standards” (Section 2). The Municipal Code states that all financial responsibility lies with the developer to prepare the design and install the system extensions.

Following receipt of the project information, the City engineer prepares a report describing the project for the City Council. As the final step, all plans/projects must be approved by the City Council.

When the approval process is complete, the developer will receive a letter of approval for the project's plans. The developer is required to coordinate and pay for the appropriate elements of the construction of the project and coordinate with the City for inspection services. The developer is also responsible to purchase tap permits.

The developer is responsible to obtain for the City approval of any alterations to an existing franchise from the Board of County Commissioners in order to allow the construction, operation and maintenance of a water system in the street concerned.

Water Service Interties

Water service to other purveyors within or abutting the Water Department service area will be based upon meeting the following requirements.

- County and DOH approval of the connecting system
- Water service will be provided on an estimated average annual day volume with maximum day and peak hour demand met by local storage of groundwater supplies to make maximum use of available resources
- Water service will be provided intermittently when demand exceeds supply
- Water service will require contracting entity to implement conservation efforts
- Water service will be used in crisis situations increasing system reliability. (Emergency Source)
- Water rates charged will be based upon a negotiated rate schedule, plus applicable service charges
- In the event of anticipated water shortages to City customers, water service to purveyors through interties may be curtailed

Plan Review

The main goals in reviewing design plans developed by a private party are to assure that the project will satisfy City Design Standards and deliver a safe, adequate, and high-quality drinking water product. To assist the private party in their effort, the City asks that the following factors be considered as they make their plans for development:

- The availability of an existing public water system that has the capability of providing water for domestic, commercial, irrigation and fire protection purposes with consideration for adequate water pressures and required flow volumes within the proximity of the project. In the absence of these, the developer must consider the costs associated with extending, or upgrading, the water system to the project location. Generally, all costs associated with extending water to a project location are the responsibility of the owner or developer.

- Water pressure evaluations—the normal pressure to be supplied at the customer service connection shall be 45 to 80 psi.
- If the pressure exceeds 80 psi, then a PRV will be required on all of the individual services. A PRV is required to comply with the Uniform Plumbing Code to protect the building's plumbing system from excessive water pressure.
- If the pressure is less than 45 psi, the property owner may not be able to efficiently operate all their appliances or irrigation equipment. To avoid future problems, the need for a new water system pressure zone may be required to provide proper water pressure. The Water Department Director will determine the need for establishing a new water system pressure zone and the assessment of costs.
- Regardless of available water pressure, individual booster pumping systems for individual service connections are not allowed. Such systems represent a cross connection, which have the potential to create back-flow conditions into the public water system that have the possibility of contaminating the water supply. Additionally, if a water main break should occur, allowing air into the pipe, the air could reach the Booster Station potentially causing damage to the pump(s) and/or the customer's equipment.
- Generally, fire hydrants located within the public right-of-way are publicly owned and maintained by the Water Department. Fire hydrants not located within the public right-of-way are considered private, with maintenance requirements a responsibility of the property owner. The Water Department Director can rule on exceptions.
- Projects that have the potential of creating a back-flow condition into the public water supply, known as a cross-connections, are required to install an approved back-flow device on the water service in order to comply with City of Spokane Water Department Rules and Regulations and Washington State law. The possibility of contaminating the public water supply needs to be eliminated in order to assure that the drinking water will always be safe for consumption. In some cases, cross-connection(s) can be corrected by proper plumbing system design and/or modifications to existing plumbing systems, eliminating the need to install a back-flow prevention device on the service. The inspectors at the Water Department will assist the developer in evaluating remedial alternatives.
- The City Water Department requires project proponents to make the determinations as to the amount of water and size of services needed for a project. With advances in computer technology and water hydraulic analysis programs (water system modeling), the Water Department requires that applicants for water service demonstrate via a hydraulic analysis (computer water system model), the water demands for the proposed project as well as how those water demands integrate into the overall water system. The City Water Department then reviews the submitted materials for accuracy and adequacy.
- If an existing building, with an existing water service, has been abandoned without water service (*i.e.*, meter turned off) for one year or more, a new service line may be

required. An existing water service often deteriorates under such conditions and the Water Department is interested in avoiding water quality problems.

- If an existing building, with an existing water service, is to be demolished and the water service has been turned off, a new service line will generally be required for any new structure that is built.
- If the estimated cost of constructing necessary public water system improvements is less than \$70,000, the Water Department can, by State law, contract with the project owner for the construction of the improvements. The Water Department charges a fee to provide a cost estimate (firm bid). The estimate will include Water Department engineering services to design the water system improvements and for the Water Department to construct those improvements. The Department will schedule and undertake the construction only upon receiving full payment of the estimate. The owner may seek the services of private engineer and private contractors for the design and construction of public water main extensions. Should such plans be developed by a private engineer, they are subjected to the full review process outlined in this Comprehensive Water System Plan.
- For the installation of a public fire hydrant the Water Department charges a fee to provide a cost estimate (firm bid). This estimate will include engineering services to design the public fire hydrant installation and construction services. The Water Department will schedule the job upon receiving full payment of the estimate.
- When requested, and with payment of the required fee, the Water Department will provide field services to perform flow tests on public fire hydrants. The results of the flow tests are given to the party submitting the request. The flow tests are also added to the Water Department's file of flow test records. Results of previous flow tests are filed and maintained at the Water Department. Should the Water Department receive a request for fire flow information that already exists, that information will be made available at no additional cost.
- To recover the cost of labor, equipment, and material, the Water Department charges fees for a water service and tap at the time an application for water service is filed.

7.3 Design Standards

The City's Department of Engineering Services is responsible for maintaining and updating the City's Design Standards. These Standards are developed to normalize design elements for consistency and to assure minimum requirements of public safety and health are met. Further, the Standards govern design for new construction and upgrading all streets, sewers, water lines and other utilities in new or existing City rights-of-way, easements or areas which are proposed for dedication to the City of Spokane.

The Design Standards also reference and include the Standard Specifications for Road, Bridge, and Municipal Construction, as amended and published jointly by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), and the City of Spokane Supplemental Specifications to the WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction, as amended.

The Standards for Water are provided in Section 8.0 of the Design Standards.

An abridged copy of the Design Standards is provided in **Appendix 7.1.1** that includes:

- Table of Contents
- Section 1.0, *Overview* (which includes Purpose and Scope as well as Definitions)
- Section 2.0, *Developer/Consultant Services*
- Section 8.0, *Water*

An abridged copy of the City of Spokane Supplemental Specifications to the WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction as amended is provided in **Appendix 7.1.2** which includes:

- Table Of Contents
- Section 7-10, *Trench Excavation Bedding and Backfill for Water Mains*
- Section 7-11, *Pipe Installation for Water Mains*
- Section 7-12, *Valves for Water Mains*
- Section 7-13, *Valve Chambers*
- Section 7-14, *Hydrants*
- Section 7-15, *Service Connections*
- Section 9-30, *Water Distribution Materials*

Provided in **Appendix 7.1.3**, is an abridged copy of the Standard Plans which are a component of the City of Spokane Supplement Specifications as follows:

- Table of Contents
- Standard Plan No. W-109A, *Underground Utility Location*
- Standard Plan No. W-110, *Water-Sewer Parallel Construction*
- Standard Plan No. W-111, *Sewer Crossing*
- Standard Plan No. Y-101, *Typical Hydrant Setting*
- Standard Plan No. Y101A, *Typical Hydrant Offset Setting*
- Standard Plan No. Y102, *Typical 2-Inch Air Valve for Ductile Iron Pipe*
- Standard Plan No. Y103, *Section of 4-Inch Blow-Off in Pre-Cast Drywell*
- Standard Plan No. Y-103A, *4-Inch Blowoff in Drywell, Multi-drain, Remote Setting*
- Standard Plan No. Y-108, *Ductile Iron Pipe Clamp for Pipe Up to 12-Inch Diameter*
- Standard Plan No. Y-109, *Cast Iron Valve Box*

In addition, the following publications are included as a part of the Design Standards the City references relative to system design for performance and sizing:

- *Water System Design Manual* as published by DOH, Environmental Health Programs, Division of Drinking Water, Publication DOH #331-123, August 2001 edition including the most current revisions thereof or most current edition thereof.
- *The Group A Public Water Systems, Chapter 246-290 WAC* publication as published by the DOH, Division of Drinking Water, Publication DOH #331-010, Effective June 2004 edition, including the most current revisions thereof or most current edition thereof.
- The American Water Works Association AWWA Standards.

- The American Water Works Association AWWA Manual of Water Supply Practices No. M11, Steel Pipe—A Guide for Design and Installation.
- The American Water Works Association AWWA Manual of Water Supply Practices No. M14, Recommended Practice for Backflow Prevention and Cross-Connection Control.
- The American Water Works Association AWWA Manual of Water Supply Practices No. M22, Sizing Water Service Lines and Meters.
- The American Water Works Association AWWA Manual of Water Supply Practices No. M31, Distribution System Requirements for Fire Protection.
- The American Water Works Association AWWA Manual of Water Supply Practices No. M33, Flowmeters in Water Supply.

The following are design standards for the different components of the City of Spokane water system. Also a Table of Contents for the City of Spokane Municipal Code pertaining to water is included in **Exhibit 7.3.1**.

Pipelines

- The minimum size for water mains shall be not less than 6 inches in diameter, shall be designed for fire flow, and shall be looped wherever possible.
- Four-inch diameter mains will be allowed in some permanent cul-de-sacs under special permission (see Design Standards Section 8.4) where no hydrants are connected to the main, where the length of the main is 250 feet or less, where no more than 12 dwelling units will be served, where no dwelling unit in the cul-de-sac will be no farther than 250 feet from a fire hydrant and where an engineering hydraulic analysis (computer model) demonstrates that water velocities and minimum water pressures are within acceptable ranges as provided in the City of Spokane's Design Standards (see Design Standards Sections 8.3 and 8.4).
- All public water mains shall be located in a public right-of-way, unless authorized in writing by the Director of the Water Department, allowing and accepting an exclusive easement, at least 25-foot wide, to accommodate the pipeline.
- Eight-inch diameter pipe shall be the minimum size for permanent dead ends, except for cul-de-sacs as discussed above. Six-inch pipe shall be the minimum size for short, dead end streets, which are scheduled or projected to be extended such that the proposed water main will be eventually looped, provided however, that adequate capacity is provided in the interim for domestic demands and fire protection.
- There will be no dead end mains longer than 1,000 feet.
- A hydraulic analysis is required by the Water Department for the sizing of water mains. In most cases the hydraulic analysis will include a computer model analysis.

- Normal pipeline velocities should be maintained between 3 to 5 feet per second for pumped systems, allowing a maximum velocity 7.5 feet per second for normal peak conditions. Velocities up to 10 feet per second are commonly allowed within the yard piping of a pump station to reduce capital costs of appurtenances at the station. Maximum allowable velocity during a fire flow event is 15 feet per second.
- Predominantly, the depth of pipes to the invert of any water main shall be 5.5 feet (see Design Standards Section 8.7). If the water line is placed in a dedicated right-of-way, the ground surface must be rough-graded within 6 inches of approved established grade.
- No other utilities, cable or conduit shall occupy the same trench as a water line except as approved by the Water Department. Minimum service line size shall be 1 inch. Service line pipe type shall be in accordance with Design Standards Section 8.5.
- All customer water use shall be metered. Minimum meter size shall be $\frac{3}{4}$ inch and all new meters shall be equipped with an approved remote radio device (AMR). The Water Department will furnish and install the complete meter unit after proper application has been made and fees paid. Meters are owned by the property owner but maintained by the Water Department.

Valves

- Distribution system valves shall be spaced between every hydrant and typically at the right-of-way line entering and exiting every major intersection. Transmission main valves shall be located so as to isolate well-defined lengths of pipelines. The maximum length between valves shall not exceed 3,000 feet.
- Valves, 3 inches to 12 inches in size shall be resilient seat gate valves conforming to ANSI/AWWA C509 and Standard Specification Section 9-30.3(1). Valves 14 inches and 16 inches in size shall be gate valves conforming to ANSI/AWWA C500 and with the Standard Specifications Section 9-30.3(2). Valves 18 inches and larger in size shall be butterfly type conforming to ANSI/AWWA C504 and Standard Specifications 9-30.3(3). All valves shall open **clockwise**. Valves shall be installed in accordance with Standard Specifications Section 7-12.

Hydrants

All fire hydrants shall include a Storz fitting on the main port, a shutoff valve located at the main, and be installed in accordance with Standard Specification Section 7-14. Fire hydrants shall conform to ANSI/AWWA C502 and Standard Specification Section 9-30.5. For specified locations of fire hydrants, see Design Standards Section 8.8. The required fire flow shall be available with a 20 psi minimum residual at all points throughout the distribution system (see Design Standards Sections 8.2-3 and 8.3). As a rule, fire hydrant spacing shall not exceed 500 feet - typically only applicable in residential areas. Hydrants shall, as a minimum, be located at each street intersection. In areas where high volume fire flows are required, the fire hydrant spacing shall be adjusted to meet IFC, State, and local requirements—typically not exceeding 250 feet.

Water Service Pressure

The policy for minimum water pressures within the City of Spokane water service system relative new development hereafter shall be as follows:

New public water systems or additions to existing systems shall be designed for minimum static pressure of 45 psi. Pressures are to be measured at all existing and proposed water service meters or along property lines adjacent to mains if no meter exists and under the condition where all equalizing storage has been depleted or the supplying reservoirs water level are at the bottom of the normal operating range – whichever is less. In no case, shall any point in the system be permitted to drop below 20 psi (140 KPa) during fire flow conditions.

This policy meets or exceeds the State of Washington law for Group A Public Water Systems, Chapter 246-290 WAC, Subsection WAC 246-290-230 Distribution Systems, Paragraph (5), which provides minimum criteria that must be met by water systems similar in size to the City of Spokane.

Fire Flow

Minimum required fire flows are set by the Spokane Fire Department for projects within its jurisdiction and by the Fire Marshal for those Fire Districts for projects within that district's area of jurisdiction. Additionally, for projects outside the City of Spokane, Spokane County may choose to set the required fire flows for a project. In general, the following provides a discussion on fire flow requirements.

Fire fighting flow is required at a relatively high rate for a short period of time. A water system should have a supply, storage, and distribution system grid of sufficient capacity to provide fire fighting needs while maintaining adequate service to residential and commercial customers. This is discussed in more detail later in this Chapter.

Fire flow volumes are typically calculated based on the largest fire flow that could occur in a pressure zone. The fire flow volume is determined by multiplying the designated fire flow by the duration to calculate the storage volume.

Generally the City exceeds the conservative ISO fire flow storage minimums. This is discussed in more detail later in this Chapter.

Over the years, the Water Department has conducted numerous field fire flow tests to verify the water system's fire flow capacity. The Water Department maintains a record of these tests. Lastly, to provide a strong water system for providing fire protection, the Water Department designs each system with adequate pumping capacity to allow for the largest pump to be out of service while still supplying the maximum day demand.

Ordinances/Bylaws: The Water Department is subject to the contents of the City of Spokane Municipal Code (SMC), Section 13.04.000 and Section 13.08.000 (please reference www.spokanecity.org on the Internet).

Service Taps and Meters

City Ordinance Section 13.04.0802 addresses water service taps and meters. Generally, each individual building is to be served by its own water service.

Planned Unit Developments (PUDs) are master metered at the property line. Residential meter will be installed in an approved meter box at the first property line. Commercial meters, 1 ½" inches and 2" meters are installed either in meter boxes at the property line or in the building being served at the point of the service line entry. Larger meters are installed either in concrete meter vaults at the property line or in the building being served at the point of the service line entry – generally in the mechanical room.

For commercial and industrial service lines, the City requires that a customer's project engineer or architect provide the determination of the service line size based on needs of the facility for fire protection, process water, domestic needs, irrigation, etc. The City reviews the proposed service line for compliance with the City Standards. If the City review finds the service line in compliance with the City Standards, it will be approved. Provisions for a remote reader receptacle shall be included to allow the meter to be read without having to enter the building.

Storage

System storage is used in a water system to meet peaking demands and provide a reliable supply for operational services, in the event of a fire, and for failure of supply sources. Reservoir volume is the combined total of all five components of storage. These components are operational storage (OS), equalization storage (ES), standby storage (SB), fire suppression storage (FSS), and dead storage (DS). Operational storage is the volume of storage used to operate the system under normal conditions, between the supply sources cycling off and on. Equalization storage is a factor of pumping capacity to the maximum day demand of the entire built out area being served by the reservoir. Standby storage is provided to supply a measure of reliability should supply sources fail for a period of time. Fire storage is determined by identifying the largest fire flow rate within the area being served and the expected duration of the fire. The lesser volume of SB and FSS may be nested into the larger volume. Dead storage is the volume of the reservoir too low in elevation to provide adequate pressure for normal service.

Effective Storage is the sum of SB and FSS, or the larger of those two components should they be nested.

Equalizing Storage (ES)

Minimum equalizing storage is the quantity of storage needed to meet peak demands that exceed the supply capacity. However, over a 24-hour period, total supply capacity must equal or exceed total 24-hour maximum day demand. Equalizing storage requirements are greatest on the day of maximum demand.

The WDOH provides a Water System Design Manual, DOH #331-123, that identifies guidelines in determining equalizing storage requirements. Equalizing storage is determined by the following equation.

$$E.S. = (PDH - Q_s) * 150$$

Where:	E.S.	=	Equalizing Storage (gallons)
	PDH	=	Peak hourly demand (gpm) Defined in Chapter 5 of the Design Manual
	Q _s	=	Source Capacities (gpm)

The City's supply stations, whether they are booster stations or well stations, are typically designed to meet the MDD of the pressure zone they serve with the largest pump out of service. With all pumps in service, these stations can typically serve the system with the PHD thereby eliminating the need for equalization storage. However, as future reservoirs are in the process of being designed, the equalizing storage component must be addressed for each particular case taking into account potential growth in the system, sub-storage needs for future higher water systems served by the storage, other reservoirs proposed in the future for the system, and any particular operational needs for the system—all in addition to the equation above.

Fire Suppression Storage (FSS)

Fire flow volumes are typically calculated based on the largest fire flow that could occur in a pressure zone. The fire flow volume is determined by multiplying the designated fire flow by the expected duration to calculate the required storage volume.

The process the City follows in calculating appropriate fire flow storage involves examining existing zoning and planning (i.e., residential, commercial, industrial, etc.) as well as proposed future development within the area to be served by the reservoir, and consultations with the Fire Marshall of jurisdiction who will provide guidance relative to the needed fire flow volume and duration based on the zoning and planned development within the subject area. Based on the information obtained, and based on the engineering analysis of the system, the appropriate sizing of the proposed reservoir is determined to include sufficient storage for fire protection.

The Insurance Services Office (ISO) of Washington State guidelines for fire flow storage, as administered by the Washington State Rating Bureau (WSRB), specify that enough storage and supply capacity be available to meet required fire flows during the MDD. The fire fighting volume specified by these guidelines is the amount needed to meet the recommended fire fighting flow for a minimum of 2 hours. For flows in excess of 2,500 gpm, an additional 1 hour of flow duration is required for every 1,000 gpm of flow required. The City generally exceeds the conservative ISO fire flow storage minimums resulting in the good insurance rating for the City of Spokane.

The Washington Administrative Code minimum fire flow storage (WAC 246-293-640) requires, as a minimum, 500 gpm for 30 minutes (15,000 gallons) for residential fires, 750 gpm for 60 minutes for commercial fires (45,000 gallons), and 1,000 gpm for 60 minutes (60,000 gallons) for industrial fires.

The City of Spokane Fire Department requires a much greater volume be reserved for FSS than either the Washington Administrative Code or the ISO guidelines. The standard they employ is the International Fire Code (IFC) which dictates the storage requirements as follows:

- Residential Units < 3,600 sq. ft = 120,000 gallons (1,000 gpm for 2 hours)
- Residential Units > 3,600 sq. ft. = 210,000 gallons (1,750 gpm for 2 hours)
- Multifamily Residential = 675,000 gallons (3,750 gpm for 3 hours)
- Retail Centers (large) = 960,000 gallons (4,000 gpm for 4 hours)
- Storage Centers (warehouse) = 1,440,000 gallons (6,000 gpm for 4 hours)

Fire Flow Rate and Duration

Fire fighting flow is required at a relatively high rate for a short period of time. A water system should have a supply, storage, and distribution system grid of sufficient capacity to provide fire fighting needs while maintaining adequate service to residential and commercial customers.

The City of Spokane Design Standards provides for residential areas: Required fire flows are determined by the Fire Marshal for the area served. Typically a minimum fire flow of 1,000 gallons per minute for a two-hour duration is required for residential areas with homes containing 3,600 square feet or less floor space (includes the sum total of all interior floor levels excluding the garage) and 1,750 gallons per minute for a two-hour duration is required for residential areas with homes containing over 3,600 square feet floor space (includes the sum total of all interior floor levels excluding garage). If the area served by the reservoir is relatively small and water quality could be affected by large storage volumes, the duration requirement may be reduced, but to not less than 30 minutes, when approved by the Fire Marshal and the Water Department. In considering such a reduction, factors such as home size, density, topography, landscaping, and traffic flow will be evaluated. Fire flow requirements for commercial and industrial areas are determined by the Fire Marshal on a case-by-case basis.

Again, the City generally exceeds the conservative ISO fire flow rates as well as the fire flow requirements set forth by the Washington Administrative Code (WAC 246-293-640), resulting in a good insurance rating for the City.

Standby Storage (SB)

The WDOH requires an emergency or reserve storage volume called “standby storage” to be incorporated into the design of any storage facility. Standby storage is defined as the storage necessary to meet demands during an emergency such as a pump station being taken out of service because of power failure, transmission pipeline failure, or a pressure reducing valve being taken out of service for repair, or when unusual conditions impose water demands higher than anticipated. The SB volume for a single source will vary from SB volume with multiple sources. The required standby storage for each pressure zone is based upon equations 9-2 and 9-3 of the Washington State Department of Health Water System Design Manual (August 2001). Standby storage and fire flow storage are typically nested with each other, with the larger of the two volumes becoming the storage capacity the facilities are required to provide.

Storage Siting

Reservoir siting criteria is related to the hydraulic grade line elevation required to operate the storage effectively with the available supply into an area and to match existing storage within the pressure zone. Storage is situated to minimize the distance that the distribution pipeline grid must convey water. Normally, the City of Spokane locates storage and supply at opposite sides of the distribution system to provide consistent pressures in the system. Often the City will prefer to site a reservoir on high ground, if a site is available within a reasonable distance to the system storage needs. This provides a lower profile structure for aesthetic purposes, and allows for the most storage volume within the operating range of the reservoir. Storage also is located so it may be filled by as many sources as possible,

providing for the operation of the system as normally as possible during an interruption of supply from one of the sources.

Booster Stations

Minimum design standards for Booster Stations are provided in the Design Standards of the City of Spokane.

All new Booster Stations require a minimum of three pumps for flexibility in system operations. The total capacity of multiple pumps in a given pump station should generally be approximately twice the calculated MDD for the pressure zone the station serves. This allows a pump, even the largest pump, to be taken out of service and repaired without severely reducing supply capability.

All Booster Stations are required to include a Telemetry System to allow the station to be operated and monitored remotely. The Telemetry System is discussed in the Design Standards, and also in Chapter 3.

Generally, backup power systems are not required for Booster Stations in the City water system where multiple Booster Stations provide water to the pressure zone. Emergency/Backup power is discussed later in this Chapter.

Within the City, all systems or pressure zones supplied by Booster Stations are also served with at least one reservoir. The criterion for the design of a Booster Station is provided in **Table 7.3.1**.

TABLE 7.3.1
Booster Station Design Standards

Identified Criteria	With Reservoir Storage
Design Flow	MDD*
Size Peaking Factor with Largest Pump Out of Service	1.0
Minimum Number of Operational Pumps	3
Fire Flow Pump Required	No

* MDD = Maximum Day Demand

Backup Power

The City has permanent backup electrical generation facilities for the Well Electric and Parkwater Well Stations. These Well Stations are equipped for dual electric service. Typically, the Well Electric Well Station and the Parkwater Well Station operate on electric power supplied from the Water Department's Upriver Dam. However, Avista Electric Utility power is also available to these two well stations. The ability to operate the Well Electric and Parkwater Well Stations with such backup power provides considerable redundancy for supplying water to the Low, Intermediate and North Hill Systems.

All other pumping facilities are largely dependent on power provided by Avista Utilities for operations. Electrical outages are infrequent in the Spokane area, and there is extensive storage capacity to meet emergency water demands on a short- to medium-term basis in the event of power outages. Restoring power to the City's pumping facilities is a high priority by Avista. The Avista electrical system in Spokane is strong with considerable gridding and redundancy. Additionally, Avista's corporate offices are located in Spokane, providing locally based field staff who can respond quickly to emergency power outages. Thus, historically, power outages are of rather short duration.

To assure a higher level of reliability of its water pumping capability, the Department has a portable generator driven by a diesel engine. The generator is a 500 kVa, 3 phase, dual voltage (240V/480V) unit capable of driving the largest pump in any of the City's pumping stations with the exception of the Well Stations, and the Lincoln Heights and the Ninth & Pine Stations, which operate on a different voltage (2,300V) than the rest of the stations.

In addition to the large portable generator, the Department has a smaller portable generator driven by a natural gas engine. The generator is an 18 kVa, 3-phase, dual voltage (240V/480V) unit capable of driving the pumps in some of the City's smaller pumping stations. The portable generator is easily transportable and is located at the Department's main office building for potential power outages at the site or other locations.

Additionally, the Department is in the process of installing a backup generator for the Lincoln Heights Pumping Station. The generator is built on the diesel backup pump that is being re-purposed for emergency power. This backup power will have the ability to start and operate a portion of the Lincoln Heights Station in an emergency situation

7.4 Construction Standards (Materials and Methods)

Construction Standards developed for the City of Spokane include the following references:

Standard Specifications

The Standard Specifications are comprised of the following: Standard Specifications for Road, Bridge, and Municipal Construction, as amended and published jointly by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), and the City of Spokane Supplemental Specifications to the WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction as amended – are hereinafter collectively referred to as the "Standard Specifications."

Group A Public Water Systems

The Group A Public Water Systems, Chapter 246-290 WAC publication as published by the Washington State Department of Health, Division of Drinking Water, Effective June 2004 edition including the most current revisions thereof or most current edition thereof are also referenced in these construction standards.

American Water Works Association (AWWA) Standards

The American Water Works Association (AWWA) Standards are also used by the City. The specific standards typically referenced for construction are:

Ductile-Iron Pipe and Fittings

C104/A21.4-95	American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
C105/A21.5-93	American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems
C110/A21.10-93	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (75 mm Through 1200 mm), for Water and Other Liquids
C111/A21.11-95	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pipe and Fittings
C150/A21.50-96	American National Standard for the Thickness Design of Ductile-Iron Pipe
C151-A21.51-96	American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water
C153/A21.53-94	American National Standard for Ductile-Iron Compact Fittings, 3 In. Through 24 In. (76 mm Through 610 mm) and 54 In. Through 64 In. (1,400 mm Through 1,600 mm), for Water

Steel Pipe

C200-97	AWWA Standard for Steel Water Pipe - 6 In. (150 mm) and Larger
C203-91	AWWA Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot-Applied
C205-95	AWWA Standard for Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. (100 mm) and Larger - Shop Applied
C206-97	AWWA Standard for Field Welding of Steel Water Pipe
C207-94	AWWA Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In. (100 mm Through 3,600 mm)
C208-96	AWWA Standard for Dimensions for Fabricated Steel Water Pipe Fittings
C209-95	AWWA Standard for Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines
C210-92	AWWA Standard for Liquid-Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines

C213-96	AWWA Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines
C214-95	AWWA Standard for Tape Coating Systems for the Exterior of Steel Water Pipelines
C219-91	AWWA Standard for Bolted, Sleeve-Type Couplings for Plain-End Pipe
C221-97	AWWA Standard for Fabricated Steel Mechanical Slip-Type Expansion Joints

Valves and Hydrants

C502-94	AWWA Standard for Dry-Barrel Fire Hydrants (Includes addendum C502a-95.)
C504-94	AWWA Standard for Rubber-Seated Butterfly Valves
C509-94	AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service (Includes addendum C509a-95.)
C510-92	AWWA Standard for Double Check Valve Backflow-Prevention Assembly
C511-92	AWWA Standard for Reduced-Pressure Principle Backflow-Prevention Assembly
C512-92	AWWA Standard for Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service
C550-90	AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants

Pipe Installation

C600-93	AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances
C602-95	AWWA Standard for Cement-Mortar Lining of Water Pipelines in Place 4 in. (100 mm) and Larger

Disinfection of Facilities

C651-92	AWWA Standard for Disinfecting Water Mains
C652-92	AWWA Standard for Disinfection of Water-Storage Facilities

Meters

C700-95	AWWA Standard for Cold-Water Meters—Displacement Type, Bronze
C701-88	AWWA Standard for Cold-Water Meters—Turbine Type, for Customer Service

C702-92	AWWA Standard for Cold-Water Met—Compound Type
C703-96	AWWA Standard for Cold-Water Met—Fire Service Type
C704-92	AWWA Standard for Propeller-Type Meters for Waterworks Applications
C706-96	AWWA Standard for Direct-Reading, Remote-Registration Systems for Cold-Water Meters
C707-82 (R92)	AWWA Standard for Encoder-Type Remote-Registration Systems for Cold-Water Meters

Service Lines

C800-89	AWWA Standard for Underground Service Liner Valves and Fittings
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Storage

D100-96	AWWA Standard for Welded Steel Tanks for Water Storage
D102-97	AWWA Standard for Coating Steel Water-Storage Tanks
D115-95	AWWA Standard for Circular Prestressed Concrete Water Tanks with Circumferential Tendons
D130-96	AWWA Standard for Flexible-Membrane-Lining and Floating-Cover Materials for Potable Water Storage

Pumping

E101-88	AWWA Standard for Vertical Turbine Pumps - Line Shaft and Submersible Types
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- The American Water Works Association AWWA Manual of Water Supply Practices No. M11, Steel Pipe—A Guide for Design and Installation
- The American Water Works Association AWWA Manual of Water Supply Practices No. M14, Recommended Practice for Backflow Prevention and Cross-Connection Control
- The American Water Works Association AWWA Manual of Water Supply Practices No. M22, Sizing Water Service Lines and Meters
- The American Water Works Association AWWA Manual of Water Supply Practices No. M31, Distribution System Requirements for Fire Protection
- The American Water Works Association AWWA Manual of Water Supply Practices No. M33, Flowmeters in Water Supply

Other Codes and Standards

Also referenced and applicable are:

- ANSI – American National Standards Institute
- A – American Society for Testing and Materials
- CFR – Code of Federal Regulations
- FSS – Federal Specifications and Standards, General Services Administration
- HIPS – Hydraulic Institute Pump Standards
- IEEE – Institute of Electrical and Electronics Engineers
- NEC – National Electric Code
- NEMA – National Electrical Manufacturers' Association
- NEPA – National Environmental Policy Act
- NFPA – National Fire Protection association
- OSHA – Occupational Safety and Health Administration
- RCW – Revised Code of Washington (Laws of the State)
- SEPA – State Environmental Policy Act
- SSPC – Steel Structures Painting Council
- IBC – International Building Code
- UL – Underwriter Laboratory listing
- UPC – Uniform Plumbing Code
- IFC – International Fire Code
- WAC – Washington Administrative Code
- WISHA – Washington Industrial Safety and Health Administration

Connections to Existing System

While construction of new water infrastructure is often done by outside contractors, it is the City of Spokane Water Department's policy that only Water Department staff will make the final connections from a completed, inspected, chlorinated, and tested system component to the existing live system. Only Water Department crews are permitted to work on live system components. This includes all connections, tapping for services or hydrants, and the operating system valves.

Service Taps and Meters

City Ordinance Section 13.04.0802 governs Service Taps and Meters. Taps and meters are installed by the Water & Hydroelectric Services Department to the property line – generally this is the public right-of-way line. This topic is discussed in more detail in Section 7.3, *Design Standards* in this Chapter. Also, please refer to **Appendix 7.1.1** and **7.1.2** for City of Spokane Water Department Rules and Regulations for Water Service Installations.

7.5 Construction Certification and Follow-Up Procedures

All projects constructed that are related to the improvement of the water system are inspected by City staff or by a consultant engineer engaged by the City. In some cases where the project is particularly large or when insufficient staff time is available for proper inspection, a consultant engineer is engaged by the City for construction inspection.

Construction inspection includes the examination of construction procedures, methods of installation, a comparison of work with the construction documents and design, materials used and installed compared to that specified in the construction documents, care of handling and storage of material, safety practices, sanitary practices by the contractor's staff, and progress of work. When appropriate, material samples will be taken to a lab for testing and analysis. Pressure tests are performed by the Contractor and witnessed by the City inspector prior to commissioning the project. All disinfecting of water mains, reservoirs, and pumping equipment are performed by the Water Department Construction & Maintenance staff that are trained in the procedures. Water quality sampling is also performed by the Water Department Construction & Maintenance staff that is trained in the procedures for sampling. Sample(s) are taken to a lab for testing and analysis.

Construction record drawings are prepared by the City Engineering Services Construction Management Section Engineering staff and included into the design drawings by the City Engineering Services staff. The original drawings are then filed at City Hall. A copy of the construction record drawings are submitted to the Water Department. The water system maps are updated and the drawings are filed for future reference.

As required in WAC 246-290-040, within 60 days following the completion of and prior to use of the project or portions thereof, a Construction Report must be completed by a professional engineer and submitted to the Washington State Department of Health Drinking Water Division (DOH) Regional Engineer. This responsibility rests with the City professional engineering official in charge of the inspection and construction management for the project. Generally this is the City Engineering Services Construction Management Section Principal Engineer. Alternatively, for projects being constructed under the inspection and construction management of the Water Department Services staff, the Water Systems Engineer will submit the Construction Report.

Exhibits 7.5.1, 7.5.2 and 7.5.3 have examples of correspondence, approvals, inspection documentations, record drawings & reports, Council actions, and DOH correspondence, reports & approvals for processing of project forms.

Capital Improvement Program

8.1 Prioritizing Capital Improvements

This chapter provides a summary of the improvement projects identified for the City of Spokane water system together with their estimated project costs and a schedule for the improvements. The improvement projects are divided into five categories:

- Sources
- Booster Pump Stations
- Storage Systems
- Distribution/Transmission Piping
- Other Improvements

As shown in the following tables, the identified improvements consist of projects needed to replace/rehabilitate aging infrastructure, projects needed to accommodate economic growth, projects having a mixture of those elements, and operational/planning type projects. The estimated costs shown herein have been increased to allow for inflation at the anticipated time of construction. Unless specifically identified as something else, costs for all improvements will be paid for with Water Department or Water-Wastewater Integrated Capital funds. Sources of these funds are addressed in Chapter 9.

The summaries provided are divided into two timetables. The two timeframes presented are the 6-year capital improvements projects and the 7- to 20-year capital improvement projects.

The 6-year capital improvement projects for the five categories are governed by the City of Spokane Six Year Comprehensive Water Program that is updated annually. The plan is part of the City's overall capital plan and is approved annually by the City Council in a public process. The projects in the 6-year capital summary provided in this chapter are taken directly from the approved City of Spokane Six Year Comprehensive Water Program 2014-2019. A copy of the current Comprehensive Water Program is provided in Appendix 8.1.1 which includes projected funding sources. The anticipated completion schedule and costs are summarized in the tables.

The 7- to 20-year capital improvement projects for the five categories are intended to repopulate the City of Spokane Six Year Comprehensive Water Program during the annual update and approval process. As capital improvement projects are completed in accordance with the Six Year Comprehensive Water Program projects from the 7- to 20-year capital improvement project list are prioritized and moved to the Six Year Program during the annual update.

8.2 Source Improvements

Source improvements involve well stations and well pumps. The projects included in this capital plan include rehabilitation of existing wells, replacement/rehabilitation of existing well pumps, and the creation of new supply sources. **Table 8.2.1** displays the proposed

source improvement projects in the City of Spokane Six Year Comprehensive Water Program 2014-2019.

As shown in **Table 8.2.1**, the majority of the planned improvements are being conducted to maintain integrity of the supply system as a result of aging facilities. The West Central Well project is the exception, as it will be a new facility when it is constructed.

Table 8.2.1

Source Improvement 6-Year

Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
Central Avenue Station 1st Well Rehabilitation	Water Rates	\$0	\$0	\$75	\$1,425	\$0	\$0	\$0	\$1,500
	Total	\$0	\$0	\$75	\$1,425	\$0	\$0	\$0	\$1,500
Central Avenue Station 2nd Well Rehabilitation	Water Rates	\$0	\$0	\$0	\$75	\$1,425	\$0	\$0	\$1,500
	Total	\$0	\$0	\$0	\$75	\$1,425	\$0	\$0	\$1,500
Hoffman Well	Water Rates	\$0	\$0	\$0	\$0	\$150	\$1,350	\$0	\$1,500
	Total	\$0	\$0	\$0	\$0	\$150	\$1,350	\$0	\$1,500
New West Central Well	Water Rates	\$0	\$0	\$0	\$0	\$0	\$100	\$10,000	\$10,100
	Total	\$0	\$0	\$0	\$0	\$0	\$100	\$10,000	\$10,100
Parkwater Pump Replacement	Water Rates	\$0	\$250	\$0	\$0	\$0	\$0	\$0	\$250
	Total	\$0	\$250	\$0	\$0	\$0	\$0	\$0	\$250
Well Electric Station Upgrade	Water Rates	\$0	\$20	\$230	\$0	\$0	\$0	\$0	\$250
	Total	\$0	\$20	\$230	\$0	\$0	\$0	\$0	\$250
Category Total		\$0	\$270	\$305	\$1,500	\$1,575	\$1,450	\$10,000	\$15,100

Costs in Thousands of Dollars

Additional details of the source improvements are included in the City of Spokane Six Year Comprehensive Water Program 2014-2019. **Table 8.2.2** lists the 7- to 20-year Capital improvement projects for source improvements that will be evaluated and prioritized for eventual inclusion into the Six Year Comprehensive Water Program.

Table 8.2.2

Source Improvement 7-20 Year

Project Name		Project Estimate (x1000)
Ray Street Well Station	Station Upgrade - Note 1	\$1,500
Hoffman Well Rehabilitation/Reconstruction	Station Upgrade - Notes 1, 2	\$2,000
Well Electric - North Hill Elements	Station Upgrade - Note 1	\$800
Parkwater - Low System Elements	Station Upgrade - Note 1	\$800

Note 1: All of the well stations were constructed between 1925 and 1960. Over the next 20 years, this program will undertake well station overhaul, rehabilitation, modernization, and upgrades which may include some increases in pumping capacity for increased system redundancy, reliability, and operational flexibility.

Note 2: One of the two well casings at this location has been compromised due to a shift in the earth. Reconstruction, or the construction of a new casing, may be required in order to regain full utilization of this well station.

8.3 Booster Pump Station Improvements

Similar to the source system improvements, the majority of booster pump station improvements are a result of aging infrastructure, with a few projects needed to meet growth demands. **Table 8.3.1** displays the proposed booster pump station projects in the City of Spokane Six Year Comprehensive Water Program.

Table 8.3.1

**Booster Pump Stations
6-Year**

Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
Booster Station Metering	Water Rates	\$0	\$180	\$180	\$180	\$0	\$0	\$0	\$540
	Total	\$0	\$180	\$180	\$180	\$0	\$0	\$0	\$540
Five Mile Booster Replacement	Water Rates	\$0	\$0	\$0	\$0	\$200	\$1,800	\$0	\$2,000
	Total	\$0	\$0	\$0	\$0	\$200	\$1,800	\$0	\$2,000
Five Mile Pump Replacement	Water Rates	\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$200
	Total	\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$200
Garden Park Booster Station Rehabilitation	PWTF	\$0	\$922	\$0	\$0	\$0	\$0	\$0	\$922
	Water Rates	\$50	\$728	\$0	\$0	\$0	\$0	\$0	\$728
	Total	\$50	\$1,650	\$0	\$0	\$0	\$0	\$0	\$1,650
Plains System New Booster	Water Rates	\$0	\$68	\$682	\$0	\$0	\$0	\$0	\$750
	Total	\$0	\$68	\$682	\$0	\$0	\$0	\$0	\$750

Upriver Headers	Water Rates	\$0	\$0	\$0	\$150	\$1,850	\$0	\$0	\$2,000
	Total	\$0	\$0	\$0	\$150	\$1,850	\$0	\$0	\$2,000
Category Total		\$50	\$2,098	\$862	\$330	\$2,050	\$1,800	\$0	\$7,140

Costs in Thousands of Dollars

Additional details of the booster pump station improvements are included in the City of Spokane Six Year Comprehensive Water Program 2014-2019. **Table 8.3.2** lists the 7- to 20-year Capital improvement projects for booster pump stations that will be evaluated and prioritized for eventual inclusion into the Six Year Comprehensive Water Program.

Table 8.3.2

Booster Pump Station Improvement 7-20 Year

Project Name		Project Estimate (x1000) (X1000)
Milton	Station Upgrade - Note 1	\$250
Southview	Station Upgrade - Note 1	\$100
Sunset	Station Upgrade - Note 1	\$400
9 th and Pine	Station Upgrade - Note 1	\$750
Shawnee	Station Upgrade - Note 1	\$1,200
Five Mile #2	Station Upgrade - Note 1	\$1,500
14 th and Grand	Station Upgrade - Note 1	\$4,000
Cedar Hills	Station Upgrade - Note 1	\$300
Thorpe Road	Station Upgrade - Note 1	\$750
Bishop Court	Station Upgrade - Note 1	\$200
35 th and Ray St.	Station Upgrade - Note 1	\$500

Note 1: This program will undertake booster station construction or reconstruction, overhaul, rehabilitation, modernization, facility upgrades and upsizing, as needed, over the next 20 years.

8.4 Storage System Improvements

Additional storage capacity is needed in select areas of the water system. Shown in **Table 8.4.1** are the identified storage improvements. The improvements are for growth, hydraulic consistency and/or redundancy purposes.

Table 8.4.1

Storage System Improvements									
Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
High System Tank	Water Rates	\$0	\$0	\$0	\$0	\$200	\$2,800	\$0	\$3,000
	Total	\$0	\$0	\$0	\$0	\$200	\$2,800	\$0	\$3,000
Lincoln Heights Tank #1	Water Rates	\$0	\$700	\$0	\$0	\$0	\$0	\$0	\$700
	Total	\$0	\$700	\$0	\$0	\$0	\$0	\$0	\$700
Plains System Large Capacity Reservoir	PWTF	\$0	\$330	\$0	\$0	\$0	\$0	\$0	\$330
	Water Rates	\$0	\$330	\$5,340	\$0	\$0	\$0	\$0	\$5,670
	Total	\$0	\$660	\$5,340	\$0	\$0	\$0	\$0	\$6,000
SIA System Additional Reservoir	Water Rates	\$0	\$0	\$0	\$150	\$1,850	\$0	\$0	\$2,000
	Total	\$0	\$0	\$0	\$150	\$1,850	\$0	\$0	\$2,000
Tank Rehabilitation	Water Rates	\$0	\$0	\$500	\$500	\$500	\$500	\$500	\$2,500
	Total	\$0	\$0	\$500	\$500	\$500	\$500	\$500	\$2,500
Thorpe Road Reservoir No. 2	Water Rates	\$0	\$0	\$0	\$0	\$0	\$200	\$2,800	\$3,000
	Total	\$0	\$0	\$0	\$0	\$0	\$200	\$2,800	\$3,000
Category Total		\$0	\$1,360	\$5,840	\$650	\$2,550	\$3,500	\$3,300	\$17,200

Costs in Thousands of Dollars

Additional details of the storage system improvements are included in the City of Spokane Six Year Comprehensive Water Program 2014-2019. **Table 8.4.2** lists the 7- to 20-year Capital improvement projects for storage systems that will be evaluated and prioritized for eventual inclusion into the Six Year Comprehensive Water Program.

Table 8.4.2**Storage System Improvement 7-20 Year**

Project Name		Project Estimate (x1000)
Reservoir Rehabilitation Program	Storage Improvements - Note 1	\$1,000/year
Five Mile Reservoir #2	Storage Improvements - Note 2	\$4,000
Eagle Ridge #3	Storage Improvements - Note 2	\$3,000

Note 1: This program will undertake storage facility rehabilitation such as interior and exterior coatings, liners, sealing, and other work necessary to extend the useful life of the facility as needed over the next 20 years.

Note 2: Construction of a new facility to augment storage, increase redundancy and reliability, allow for operational flexibility, balance the system hydraulically, and allow for maintenance activities.

8.5 Distribution/Transmission Piping Improvements

Below are the transmission pipeline projects anticipated over the next six years. These projects consist of a combination of replacing/rehabilitating old infrastructure and constructing new infrastructure to accommodate economic growth. **Table 8.5.1** shows the proposed projects and projected timetable.

Table 8.5.1**Transmission Mains**

Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
57th Transmission Main Rehabilitation/Replacement	Water Fund	\$0	\$0	\$0	\$250	\$2,750	\$0	\$0	\$3,000
	Total	\$0	\$0	\$0	\$250	\$2,750	\$0	\$0	\$3,000
Cleveland Avenue from Buckeye to Greene	Water Fund	\$0	\$2,500	\$0	\$0	\$0	\$0	\$0	\$2,500
	Total	\$0	\$2,500	\$0	\$0	\$0	\$0	\$0	\$2,500
Glenrose/57th/Havana	Water Fund	\$0	\$2,400	\$0	\$0	\$0	\$0	\$0	\$2,400
	Total	\$0	\$2,400	\$0	\$0	\$0	\$0	\$0	\$2,400
Manito Boulevard from 14th to 33rd Avenue	PWTF	\$0	\$0	\$150	\$2,350	\$0	\$0	\$0	\$2,500
	Total	\$0	\$0	\$150	\$2,350	\$0	\$0	\$0	\$2,500
North Five Mile Prairie to Woodridge Transmission Main	Water Fund	\$0	\$30	\$270	\$0	\$0	\$0	\$0	\$300
	Total	\$0	\$30	\$270	\$0	\$0	\$0	\$0	\$300
North/South Freeway Crossings	Water Fund	\$0	\$0	\$100	\$1,900	\$0	\$0	\$0	\$2,000
	Total	\$0	\$0	\$100	\$1,900	\$0	\$0	\$0	\$2,000

SIA Yard Piping	Water Fund	\$0	\$60	\$0	\$0	\$0	\$0	\$0	\$60
	Total	\$0	\$60	\$0	\$0	\$0	\$0	\$0	\$60
SIA/Plains Connection	Water Fund	\$0	\$0	\$200	\$3,300	\$0	\$0	\$0	\$3,500
	Total	\$0	\$0	\$200	\$3,300	\$0	\$0	\$0	\$3,500
Category Total		\$0	\$4,990	\$720	\$7,800	\$2,750	\$0	\$0	\$16,260

Costs in Thousands of Dollars

The following are the distribution pipeline projects anticipated over the next six years. These projects consist of a combination of replacing/rehabilitating old infrastructure and constructing new infrastructure to accommodate economic growth. **Table 8.5.2** shows the proposed projects and projected timetable.

Table 8.5.2

Distribution Mains

Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
Distribution Main Rehabilitation	Water Fund	\$0	\$0	\$450	\$450	\$450	\$450	\$450	\$2,250
	Total	\$0	\$0	\$450	\$450	\$450	\$450	\$450	\$2,250
High Drive Pipe Replacement	Water Fund	\$0	\$570	\$0	\$0	\$0	\$0	\$0	\$570
	Total	\$0	\$570	\$0	\$0	\$0	\$0	\$0	\$570
Howard Bridge Pipe	Water Fund	\$0	\$60	\$0	\$0	\$0	\$0	\$0	\$60
	Total	\$0	\$60	\$0	\$0	\$0	\$0	\$0	\$60
Long Service Elimination	Water Fund	\$0	\$400	\$400	\$400	\$400	\$400	\$400	\$2,400
	Total	\$0	\$400	\$400	\$400	\$400	\$400	\$400	\$2,400
Panorama Pipe Replacement	Water Fund	\$0	\$280	\$0	\$0	\$0	\$0	\$0	\$280
	Total	\$0	\$280	\$0	\$0	\$0	\$0	\$0	\$280
Category Total		\$0	\$1,310	\$850	\$850	\$850	\$850	\$850	\$5,560

Costs in Thousands of Dollars

Additional details of the transmission and distribution main improvements are included in the City of Spokane Six Year Comprehensive Water Program 2014-2019. **Table 8.5.3** lists the 7- to 20-year Capital improvement projects for transmission and distribution main improvements that will be evaluated and prioritized for eventual inclusion into the Six Year Comprehensive Water Program.

Table 8.5.3

Transmission/Distribution Mains 7-20 Year

Project Name	Project Estimate (x1000)
Greene Street - Mission to Buckeye	30" – 4,150 l.f. - Note 1
Waterworks – Well Electric to 11 th and Myrtle	48" – 14,724 l.f. - Note 1

Parkwater Yard Piping	48 & 36" - 3,850 l.f. - Note 1	\$1,900
33 rd – Manito to Howard	24" – 3,293 l.f. - Note 1	\$900
Hatch – 9 th to Rockwood Vista	30" – 132 l.f. - Note 1	\$60
Jefferson – 5 th to 7 th	18" – 700 l.f. - Note 1	\$100
Lincoln Heights to Lamonte – 29 th /33 rd	36" – 13,010 l.f. - Note 1	\$3,000
6 th Ave – Jefferson to Hemlock	18" – 3,515 l.f. - Note 1	\$550
Fairview – Belt to Euclid - Atlantic	18" – 7,850 l.f. - Note 1	\$1,800
Latah Creek Crossing at 5th Ave	18" – 2,000 l.f. - Note 1	\$1,200
Central Well to Indian Trail	30" – 21,450 l.f. - Note 2	\$4,400
Melville Rd. –Thomas Mallen Rd. to Hayford Rd. Main	18" – 8,000 l.f. - Note 3	\$2,100
Spotted Road to Mallen Tank	36" – 15,150 l.f. - Note 4	\$3,250
Sunset Bridge Replacement	18" – 1,307 l.f. - Note 5	\$900
Distribution Main Rehabilitation	Note 6	\$450/year
Downtown Main Replacements	Note 7	\$8,000

Note 1: These are large diameter steel transmission water mains which have been in service from 65 years to over 100 years. The older mains have generally reached the end of their useful lives, and the remainder will have reached the end of their useful lives within the next 20 years. These mains are scheduled for replacement in order to properly maintain this infrastructure in a safe and reliable condition.

Note 2: This pipeline would increase the ability to fully utilize the well capacity at the Central Well Station in fulfilling the water demands in the Indian Trail area. Growth in this area is anticipated to exhaust existing piping capacity in the 20 year time frame.

Note 3: This water main will loop the system and eliminate a long dead end. However, for the project to move ahead, additional long range planning work needs to be done to confirm what size the line should be.

Note 4: This pipeline would run approximately parallel to the existing 24" main that connects this booster and tank. The new pipeline would increase capacity as well as reliability and redundancy.

Note 5: This project would replace the pipeline that crosses over Latah Creek on the Sunset Bridge. The existing pipeline has a poor repair record and replacement would save repair costs while increasing reliability.

Note 6: As reported, cast iron pipe with leadite joints poses a significant concern for leakage and devastating main breaks. This ongoing project replaces 8-inch and 12-inch leadite joint cast iron pipe prior to reconstruction of streets as part of projects undertaken by other department/utilities.

Note 7: The existing water system infrastructure in the City's downtown core area is predominantly cast iron pipe, some of which was installed in the late 1800s. The program will replace this old plumbing with ductile iron pipe to reduce maintenance costs as well as to enhance the reliability of the system. This project will be particularly difficult as businesses and traffic will be impacted during construction.

8.6 Other Improvements

Table 8.6.1 identifies other improvements consisting of major studies, programs and/or operational changes. The purpose of these improvements is to continually strive to operate the water system at higher levels of efficiency.

Table 8.6.1

Facilities and Operations									
Project Name	Funding Source	To Date	2014	2015	2016	2017	2018	2019	Project Total
Backhoe	Water Rates	\$0	\$125	\$0	\$0	\$0	\$0	\$0	\$125
	Total	\$0	\$125	\$0	\$0	\$0	\$0	\$0	\$125
Metering	Water Rates	\$0	\$500	\$500	\$500	\$500	\$500	\$500	\$3,000
	Total	\$0	\$500	\$500	\$500	\$500	\$500	\$500	\$3,000
SCADA System	Water Rates	\$0	\$60	\$60	\$60	\$60	\$60	\$60	\$360
	Total	\$0	\$60	\$60	\$60	\$60	\$60	\$60	\$360
Upriver Building	Water Rates	\$0	\$0	\$300	\$0	\$0	\$0	\$0	\$300
	Total	\$0	\$0	\$300	\$0	\$0	\$0	\$0	\$300
Upriver Dam Spillway Rehabilitation	Water Rates	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0	\$1,000
	Total	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0	\$1,000
Upriver Structural Review	Water Rates	\$0	\$75	\$0	\$0	\$0	\$0	\$0	\$75
	Total	\$0	\$75	\$0	\$0	\$0	\$0	\$0	\$75
Water Department Locker Rooms	Water Rates	\$0	\$80	\$0	\$0	\$0	\$0	\$0	\$80
	Total	\$0	\$80	\$0	\$0	\$0	\$0	\$0	\$80
Welding Truck	Water Rates	\$0	\$114	\$0	\$0	\$0	\$0	\$0	\$114
	Total	\$0	\$114	\$0	\$0	\$0	\$0	\$0	\$114
Yards building roofing.	Water Rates	\$0	\$0	\$0	\$0	\$150	\$0	\$0	\$150
	Total	\$0	\$0	\$0	\$0	\$150	\$0	\$0	\$150
Category Total		\$0	\$1,954	\$860	\$560	\$710	\$560	\$560	\$5,204

Costs in Thousands of Dollars

8.7 Summary of Capital 6-Year Program

Table 8.7.1 is a summary of the categories and providing the total the costs of the Water Capital 6-Year Program.

Table 8.7.1**6-Year Totals**

Improvements	To Date	2014	2015	2016	2017	2018	2019	Project Total
Source Improvements	\$0	\$270	\$305	\$1,500	\$1,575	\$1,450	\$10,000	\$15,100
Booster Pump Stations	\$50	\$2,098	\$862	\$330	\$2,050	\$1,800	\$0	\$7,140
Storage System Improvements	\$0	\$1,360	\$5,840	\$650	\$2,550	\$3,500	\$3,300	\$17,200
Transmission Mains	\$0	\$4,990	\$720	\$7,800	\$2,750	\$0	\$0	\$16,260
Distribution Mains	\$0	\$1,310	\$850	\$850	\$850	\$850	\$850	\$5,560
Facilities and Operation	\$0	\$1,954	\$860	\$560	\$710	\$560	\$560	\$5,204
Totals	\$50	\$11,982	\$9,437	\$11,690	\$10,485	\$8,160	\$14,710	\$66,464

Costs in Thousands of Dollars

Financial Program

This chapter addresses the financial condition for the City of Spokane Water Department and future financial plans to provide for future operations. The City of Spokane is a municipal corporation of the State of Washington designated as a First-Class City. As such, the City is governed by State statutes relative to budgeting. Elected officials must review and approve the City's budget annually. For planning purposes, costs and needed revenues are projected over a multi-year span and are presented in this Plan. However, the adoption of this Comprehensive Water System Plan by the current elected officials does not limit the deliberation on the Department's annual budgets by future elected officials.

9.1 Financial Status

Overview

The City combined its water and wastewater utility funds into a single financial unit in 2013, called the Water-Wastewater Fund, to support integrated planning for water, wastewater, and stormwater needs. The City maintains separate operating departments for its water and wastewater services.

With the creation of the joint fund, the City has reprioritized capital dollars and has increased the capital program for the water system. Planned projects for the water system total about \$35 million over the next three years.

Ultimately, this financial change has resulted in improved responsiveness, greater flexibility to address emergent issues, and the opportunity to leverage revenues to increase capital capacity. Management of all portions of the combined system is conducted to protect and conserve the water supply of the Spokane Valley-Rathdrum Prairie Aquifer, the health of the Spokane River, and the quality of the City's drinking water.

Rates

The City is committed to maintaining affordable and predictable utility rates for its customers. The City's long-term goal is to limit rate increases to the cost of inflation, using a 25-year average of the consumer price index, which currently stands at 2.9%. In November 2014, the Spokane City Council approved three years of utility rates--for 2015, 2016, and 2017--with an annual increase equal to 2.9%.

For water services, customers currently pay a base charge and a water consumption charge. The consumption charge is based on a four-tier block structure that charges more for higher amounts of water used. Additionally, monthly bills include what's called an "integrated capital" charge that pays for capital improvements within the Water-Wastewater System.

Customers receive a single monthly bill from the City that includes charges for the City's water, wastewater, stormwater, and solid waste services. The City applies partial payments to the water utility last and has the authority to shut off water for non-payment.

Green Bonds

Also in November 2014, the Water-Wastewater Fund sold \$200 million in revenue bonds to pay for needed capital improvements for the City's water, wastewater, and stormwater systems. The revenue bonds were designated "green" because they will finance environmentally beneficial projects. The projects will deliver positive outcomes with respect to water quality, water quantity, energy use, and climate resilience.

The City is facing significant capital expenses to meet Clean Water Act requirements and other demands on the wastewater system. Although the bond proceeds primarily will pay for these wastewater and stormwater projects, they can be used to pay for capital needs within the water system as well. And since the wastewater projects will help to protect the water quality in the Spokane River and the aquifer, they will also help to protect drinking water quality.

The 20-year bonds were sold at a very favorable interest rate of 3.08%.

Integrated Streets

The City is moving to integrated infrastructure planning which takes into consideration all uses for the City's right-of-way as projects are planned. The goal is to gain greater value for the dollar and to reduce inconveniences to the public.

This approach has been supported by City voters, who approved the City's Street Levy proposal with a 77% positive vote in the November 2014 election. That levy was predicated on using an integrated approach to streets. That means utility needs, including the replacement and upgrades to the water distribution system, will be integrated into transportation projects as needed into the future.

General Facility Charges & Developer Improvements

General Facility Charges ("GFC") also provide some funding for new infrastructure needed to accommodate economic growth, primarily improvements to well stations, booster stations, reservoirs/tanks, and transmission mains that are needed to accommodate particular projects. Developers pay for the distribution facilities, and if a developer requires an infrastructure improvement earlier than the Department's plans anticipate, the developer can proceed and pay for that infrastructure as well. Depending on the Department's long-term budget and priorities, the developer may have to pay for all or a portion of the cost.

The current GFC for water is \$1,232 per Equivalent Residential Unit (ERU). In the last five years, GFCs have accounted for less than 1.53 percent of total Water-Wastewater Fund revenues.

Historic Financial Results

A summary of the past financial condition for the years 2006 through 2012 is shown in **Table 9.1.1**. As shown in the table, the Water Department has maintained stable rates for our customers over the last six years.

Future Financial Projections

Table 9.1.2 shows the present and projected revenues/expenditures for the Water Department for the years 2013 through 2019. The projections in **Table 9.1.2** consider the following information:

Operating Revenues

1. Water sales are the primary source of revenue for the Department, and this revenue source will increase mainly as a result of anticipated rate increases of 2.9% per year. It is anticipated that customer growth will not increase revenue as much as past years because there will be little or no increase in water sales due to conservation measures addressed in Chapter 4.
2. The other smaller sources of revenue available to the Department as listed below are estimated as shown in the table and as a whole are also important for the overall operations, maintenance, and capital needs of the Department.
3. Power sales income will fluctuate due to yearly weather patterns but is based on average expected returns as anticipated through the Department's contract with Avista. A new contract with Avista was signed in 2011, solidifying the Water Department's revenue stream from this source. Jobbing and contracting revenue is anticipated to increase at 1% per year.
4. Rental income of some Water Department properties to other City departments is shown only through 2014 because other departments are moving to new facilities of their own.
5. Water Department grounds crews do grounds maintenance for other City departments. As such there is a revenue source for "Right of Way Landscape Maintenance," which is anticipated to increase at 2.9% per year.

Operating Expenses

1. Operation, maintenance, administration, operating capital, right of way landscape maintenance, and emergency reserve costs are assumed to increase at 2.9% per year.
2. City utility taxes and State taxes on qualifying "Operating Revenue" are anticipated to remain at the present 20% and 5.029%, respectively.
3. City interfund charges for computer services, payroll, legal services, billing, accounting, and the like are expected to increase at 2.9% per year.

Infrastructure Revenue

1. Interest income from investing "Cash Available" is based on an annual interest rate of 0.5%.
2. Amounts from sales of assets are anticipated to increase at 2% per year.
3. Public Works Trust Fund ("PWTF") and Drinking Water State Revolving Fund ("DWSRF") loans are shown as a source of capital funding.

4. Contributed capital includes those facilities paid for by others and then turned over to the Water Department as assets to be owned and operated by the Department. The primary examples of this are the distribution mains built by developers to serve new homes in subdivisions, although as referred to earlier other infrastructure items can be included as well. The amounts shown are based on past experience plus projected needs.

Infrastructure Expenses

1. The debt service is as shown and is discussed in more detail later in this section.
2. A very large capital program as reflected in Chapter 8 is shown.
3. Contributed Infrastructure is as shown and reflects the “Contributed Capital” addressed in “5” immediately above.

The Department has a number of low interest loans through the State’s Public Works Trust Fund and Drinking Water State Revolving Fund. The debt service for these PWTF and DWSRF loans is labeled as such in **Table 9.1.2**. The current PWTF and DWSRF loan payments will continue until 2041 and have either a 1.0% or 0.5% interest rate. The Department may seek additional PWTF and DWSRF loans for major capital projects in the future.

The Water-Wastewater Fund added \$200 million in revenue bonds in November 2014. The revenues of the combined fund are pledged as the repayment source for this 20-year debt. This is the first time the City has issued significant indebtedness for these utilities. Additional bonding is not anticipated at this time. Debt service for these bonds is not shown in Table 9.1.2.

Going forward, major capital infrastructure projects for water and wastewater will be managed through the separate Integrated Capital Management Department. These expenditures aren’t shown in Table 9.1.2, as a result. Table 9.1.2, instead, displays the Water Department’s operating budget and small operations-related capital items. As discussed above, the City’s capital plans include \$35 million in water infrastructure improvements over the next three years. The Six-Year Capital Plan for Water is attached as Appendix 8.1.1. A 20-year proforma for the Water-Wastewater Integrated Capital Fund is attached as Appendix ____.

9.2 Assessment of Rates

The current water rates are addressed in Municipal Code Title 13, Chapter 13.04. The water consumption rate structure is an increasing block rate structure and includes higher rates for water provided outside the City boundaries. The current block-rate tiers were established in the spring of 2012.

The City Council established principles for setting utility rates in 2012. These principles include balancing sustainability (environmental protection and water conservation), equity and affordability, financial stability for the utilities, and simplicity for the customer.

In 2013 and 2014, the City Council adopted several changes to the wastewater rates to reward conservation and rebate low-water users in support of greater rate equity. The City

Council also adopted a three year rate structure, which provides stable funding for the utilities.

In order to cover the higher costs of infrastructure expansion, out-of-city customers are charged at a higher rate than in-city customers. A utility tax of 20% of sales is imposed. Higher out-of-city rates with the attendant increased utility tax revenue to the City could drive expansion activity or rate-setting in opposition to the City's principle of sustainability and water conservation goals. The City Council reserves the option of revising its rate structure or utility tax framework to ensure consistency with conservation goals and allow greater resource focus on areas such as leak elimination, consistent with this Plan and the City's Comprehensive Plan.

9.3 Program Justification

Table 9.1.1 reflects on the Department's ability to manage its funds and accomplish its objectives. This experience is carried over into **Table 9.1.2** which clearly shows that the Department is prepared to meet its future needs.



Agenda Sheet for City Council Meeting of:
10/12/2015

Date Rec'd	9/28/2015
Clerk's File #	ORD C35305
Renews #	

Submitting Dept	DEVELOPMENT SERVICES CENTER	Cross Ref #	
Contact Name/Phone	ELDON BROWN 625-6305	Project #	
Contact E-Mail	EBROWN@SPOKANECITY.ORG	Bid #	
Agenda Item Type	Hearings	Requisition #	
Agenda Item Name	0650 - VACATION OF A PORTION OF GRANDVIEW AVENUE		

Agenda Wording

Vacation of a portion of Grandview Avenue north of 17th Avenue and east of 'D' Street. Requested by City Staff. (Grandview/Thorpe Neighborhood Council)

Summary (Background)

At its legislative session held on September 14, 2015, the City Council set a hearing on the above vacation for October 12, 2015. Since that time, staff has solicited responses from all concerned parties.

Fiscal Impact		Budget Account	
Neutral	\$	#	
Select	\$	#	
Select	\$	#	
Select	\$	#	
Approvals		Council Notifications	
Dept Head	BECKER, KRIS	Study Session	
Division Director	SIMMONS, SCOTT M.	Other	PCED 2/23/15
Finance	SALSTROM, JOHN	Distribution List	
Legal	RICHMAN, JAMES	lhattenburg@spokanecity.org	
For the Mayor	SANDERS, THERESA	edjohnson@spokanecity.org	
Additional Approvals		sbishop@spokanecity.org	
Purchasing		ebrown@spokanecity.org	



Continuation of Wording, Summary, Budget, and Distribution

Agenda Wording

Summary (Background)

There may be a slight difference in the first year calculation between October versus August however, regardless of which month we use it's a 12 month year to year calculation.

Fiscal Impact		Budget Account
Select	\$	#
Select	\$	#

Distribution List

City of Spokane
Department of Engineering Services
808 West Spokane Falls Blvd.
Spokane, WA 99201-3343
(509) 625-6700

ORDINANCE NO. C35305

An ordinance vacating a portion of Grandview Avenue north of 17th Avenue and east of 'D' Street, more specifically described below in Section 1;

WHEREAS, Per RCW 35.79.010, City Staff wishes to initiate by resolution the vacation of a portion of Grandview Avenue and;

WHEREAS, the City Council has found that the public use, benefit and welfare will best be served by the vacation of said public way; -- NOW, THEREFORE,

The City of Spokane does ordain:

Section 1. That the following land described below is hereby vacated. Parcel number not assigned.

Situate in the NE1/4 of the NE1/4 of Section 26, T.25N., R42E., Willamette Meridian, Spokane County, City of Spokane, Washington, more particularly described as:

Commencing at the southwest corner of Lot 8 of Amended Plat of Block 1 City View Addition; thence along the southerly line of said Amended Plat and the recorded northerly right-of-way of Grandview Avenue, S68°25'00"E, 3.61 feet, to a point of curvature, said point being the true point of beginning for this vacation; thence continuing along said southerly line of Amended Plat and said northerly right-of-way, S68°25'00"E, 327.81 feet, to its intersection with the existing northerly right-of-way of 17th Avenue, also being the southerly angle point of Lot 2 of said Amended Plat; thence along said northerly right-of-way of 17th Avenue, S89°19'27"W, 158.40 feet, to its intersection with said recorded southerly right-of-way of Grandview Avenue; thence, along said recorded southerly right-of-way of Grandview Avenue N68°25'00"W, 88.39 feet, to its intersection with the easterly 60 foot right-of-way, being in a curve, as calculated from the existing centerline location of Grandview Avenue travelled surface; thence along said calculated easterly right-of-way, through a curve to the left, having a delta angle of 65°45'24", a curve length of 116.83 feet, and a radius of 101.80 feet, (chord bears N35°32'18"W, 110.53 feet), to a point of

tangency and the point of beginning. Said point being the terminus of this vacation description.

Section 2. An easement is reserved and retained over and through the entire vacated area for the utility services of Avista Utilities, Qwest, Comcast and the City of Spokane to protect existing and future utilities.

Passed the City Council _____

Council President

Attest: _____
City Clerk

Approved as to Form:

Assistant City Attorney

Mayor

Date: _____

Effective Date: _____



**CITY OF SPOKANE
PLANNING & DEVELOPMENT**

808 West Spokane Falls Blvd, Spokane WA 99201-3343
(509) 625-6300 FAX (509) 625-6822

**STREET VACATION REPORT
September 22, 2015**

LOCATION: 17th Avenue & Grandview Avenue

PROPONENT: City of Spokane

PURPOSE: Clean up right-of-way that was intended to be vacated at the time of the L.I.D. and establish new right-of-way along the existing roadway.

HEARING: October 12, 2015

REPORTS:

AVISTA UTILITIES - Avista serves this area with both gas and electric. Currently there is an overhead electric line and some gas lines in the proposed vacation area. This line would be difficult to move because of the angles and the number of services coming from it but if the owners of the property would like us to move our lines and if it is feasible, it would be at the property owners expense. Please reserve an easement to Avista throughout this area and send us the ordinance that creates the new easement.

COMCAST – Comcast would need to retain a utility easement for their existing facilities on the north side of Grandview Avenue

CENTURYLINK – CenturyLink has existing aerial cable and poles in the area to be vacated. It is okay to vacate, but we would like to retain easements rights and leave existing aerial structure as is.

ASSET MANAGEMENT - CAPITAL PROGRAMS – No Comments

FIRE DEPARTMENT - No Comments

NEIGHBORHOOD SERVICES - No Comments

PARKS DEPARTMENT - No Comments

PLANNING & DEVELOPMENT – DEVELOPER SERVICES – 8 inch concrete sewer line in the proposed vacation area and an existing 6 inch

cast iron water main also in the proposed vacation area. The City will require a no-build 30 foot easement for the sewer line.

PLANNING & DEVELOPMENT – TRAFFIC DESIGN - No Comments

PLANNING & DEVELOPMENT – PLANNING – No concerns as long as all parcels have frontage on ROW.

POLICE DEPARTMENT – No Concerns

SOLID WASTE MANAGEMENT - No Comments

STREET DEPARTMENT – No objection

WASTEWATER MANAGEMENT – A “No Build” easement allowing ingress and egress for City crews and equipment for maintenance and repair of the sewer pipeline” is required for the full length of the pipe. This easement must be 35 feet wide centered over the pipe.

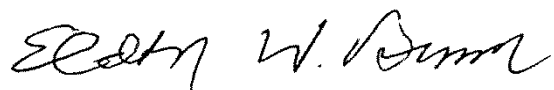
Onsite storm runoff must be contained and handled on the site in accordance with State and City requirements.

WATER DEPARTMENT - No Comments

BICYCLE ADVISORY BOARD - No Comments

RECOMMENDATION: That the petition be granted and a vacating ordinance be prepared subject to the following conditions:

1. An easement as requested by Century Link, Avista Utilities, Comcast and the City of Spokane shall be retained to protect existing and future utilities.
2. Adequate emergency vehicle access shall be maintained to existing and future buildings.
3. The entire vacated area be aggregated onto the parcels north of the vacation area in order for those parcels to still front public right-of-way.
4. That the final reading of the vacation be held in abeyance until all of the above conditions are met.



Eldon Brown, P.E.
Principal Engineer – Developer Services

Legend

- VACATION
- RIGHT-OF-WAY DEDICATION



Preliminary Site Map

Both areas depicted will be surveyed to determine exact legal descriptions for both the vacation and the RW dedication

COSGIS

Disclaimer: This is not a legal document: The information shown on this map is compiled from various sources and is subject to revision. This map should not be used to determine the location of facilities in relationship to property lines, sections lines, streets, etc.
Not suitable for design purposes.

70 35 0 70 140
Feet

COSGIS
City of Spokane GIS

DISTRIBUTION LIST
VACATION OF A PORTION OF GRANDVIEW AVENUE

POLICE DEPARTMENT

ATTN: SGT JOHN GATELY

FIRE DEPARTMENT

ATTN: LISA JONES
MIKE MILLER

CURRENT PLANNING

ATTN: TAMI PALMQUIST
DAVE COMPTON

WATER DEPARTMENT

ATTN: DAN KEGLEY
JAMES SAKAMOTO
ROGER BURCHELL
CHRIS PETERSCHMIDT
HARRY MCLEAN

STREETS

ATTN: MARK SERBOUSEK
DAUN DOUGLASS

TRANSPORTATION OPERATIONS

ATTN: BOB TURNER

PLANNING & DEVELOPMENT

ATTN: ERIK JOHNSON
ELDON BROWN
JOHN SAYWERS

CONSTRUCTION MANAGEMENT

ATTN: KEN BROWN

INTEGRATED CAPITAL MANAGEMENT

ATTN: KATHERINE MILLER

WASTEWATER MANAGEMENT

ATTN: BILL PEACOCK

PARKS & RECREATION DEPARTMENT

ATTN: LEROY EADIE

NEIGHBORHOOD SERVICES

ATTN: JACKIE CARO
JONATHAN MALLAHAN
ROD MINARIK
HEATHER TRAUTMAN

BICYCLE ADVISORY BOARD

ATTN: LOUIS MEULER

SOLID WASTE MANAGEMENT

ATTN: Scott Windsor

CITY CLERK'S OFFICE

ATTN: JACQUELINE FAUGHT

PUBLIC WORKS

ATTN: RICK ROMERO
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ATTN: KAREN STODDARD

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CONRATH, C & S
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16421 SE 22ND ST
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SPOKANE WA 99223-1270

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FULLERTON CA 92833

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FROST, CHRISTOPHER S & GIGI B R
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VALENCIA, JOSE A & YOLANDA
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14205 S SHOREVIEW DR
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MCGOVERN, JAMES T & SARAH D
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