

City of Yelm Draft Water System Plan Volume 1 of 2



IN ASSOCIATION WITH:
FCS GROUP AND
TRIANGLE ASSOCIATES
JUNE 2009





City of Yelm
Draft Water System Plan
Volume 1 of 2



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JUNE 2009

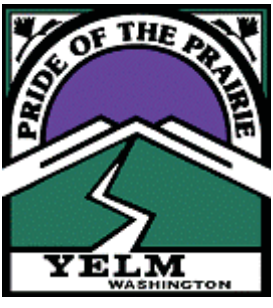
City of Yelm Draft Water System Plan Appendices

Volume 2 of 2



IN ASSOCIATION WITH:
FCS GROUP AND
TRIANGLE ASSOCIATES
JUNE 2009

BROWN AND
CALDWELL



City of Yelm
Draft Water System Plan
Appendices Volume 2 of 2



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TRIANGLE ASSOCIATES

JUNE 2009



Water System Plan Submittal Form

This form is required to be submitted along with the Water System Plan (WSP). It will serve to expedite review and approval of your WSP. WSPs will not be reviewed until submittal form and checklist are completed

City of Yelm Water System

99305J

City of Yelm

1. Water System Name

2. PWS ID# or Owner ID#

3. System Owner Name

Stephanie Ray

(360) 458-8414

Project Manager

4. Contact Name for Utility

Phone Number

Title

105 Yelm Avenue West, P.O. Box 479

Yelm

WA

98597

Contact Address

City

State

Zip

Jeff Morgan, P.E.

(360) 943-7525

Managing Engineer

5. Project Engineer

Phone Number

Title

724 Columbia Blvd NW, Suite 420

Olympia

WA

98501

Project Engineer Address

City

State

Zip

Same as #4

6. Billing Contact Name (required if not the same as #4)

Billing Phone Number

Billing Fax Number

Billing Address

City

State

Zip

6. How many services are presently connected to the system?

2,379 (November 2008)

7. Is the system expanding? (seeking to extend service area or increase number of approved connections)

Yes No

8. If number of services is expected to increase, how many new connections are proposed in the next six years?

Projection of 1,339 ERUs

9. If the system is private-for-profit, is it regulated by the State Utilities and Transportation Commission?

Yes No

10. Is the system located in a Critical Water Supply Service Area (i.e., have a Coordinated Water System Plan)?

Yes No

11. Is the system a customer of a wholesale water purveyor?

Yes No

12. Will the system be pursuing additional water rights from the State Department of Ecology in the next twenty years?

Yes No

13. Is the system proposing a new intertie?

Yes No

14. Do you have projects currently under review by the Department of Health?

Yes No

15. Are you requesting distribution main project report and construction document submittal exception, and if so, does the WSP contain standard construction specifications for distribution mains?

Yes No

16. Are you requesting distribution related project report and construction document submittal exception, and if so, does the WSP contain distribution facilities design and construction standards, including internal engineering review procedures?

Yes No

17. Have you sent copies of the draft WSP or notice to adjacent purveyors for their review?

Yes No

18. Have you sent copies of the draft WSP to local governments with jurisdiction within your service area for their review?

Yes No

19. Are you proposing a change in the place of use of your water right?

Yes No

If answer to questions 17 and 18 is yes, list adjacent utilities/entities that have received a copy of the draft WSP: Thurston County and the City of Yelm.
Additionally, copies are available for the public, including adjacent purveyors, to review at several locations throughout the City of Yelm.

Is this plan: an Initial Submittal a Revised Submittal

Please enclose the following number of copies of the WSP:

2 copies for Department of Health

1 copy for Department of Ecology

1 additional copy if you answered "yes" to question 9

Please return completed form to the Office of Drinking Water regional office checked below.

3 Total copies attached

Northwest Drinking Water Operations
Department of Health
20435 72nd Ave. S, Ste 200
Kent, WA 98032-2358
(253) 395-6750

Southwest Drinking Water Operations
Department of Health
PO Box 47823
Olympia, WA 98504-7823
(360) 236-3030

Eastern Drinking Water Operations
Department of Health
1500 W. Fourth Ave, Suite 305
Spokane, WA 99201
(509) 456-3115

For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

DRAFT

WATER SYSTEM PLAN

Prepared for
City of Yelm, Washington
June 2008

This is a draft and is not intended to be a final representation
of the work done or recommendations made by Brown and Caldwell.
It should not be relied upon; consult the final report.

Prepared By:

Don Fiene, P.E.

Kate Burlingame

Reviewed By:

Jeff Morgan, P.E.



This document was prepared solely for City of Yelm in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Yelm and Brown and Caldwell dated March 11, 2008. This document is governed by the specific scope of work authorized by City of Yelm; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by City of Yelm and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

BROWN AND CALDWELL

724 Columbia Street NW, Suite 420
Olympia, Washington 98501

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LIST OF ABBREVIATIONS

ac-ft	acre-feet
AC	asbestos cement
ADD	average day demand
BPA	backflow prevention assemblies
CCC	cross-connection control
CCCS	Cross-Connection Control Specialist
ccf	100 cubic feet
CERB	Community Economic Revitalization Board
cfs	cubic feet per second
CIP	Capital Improvement Plan
City	City of Yelm
CPI	Consumer Price Index
CTED	Washington State Department of Community, Trade and Economic Development
D	distribution project
DBP	disinfection by-product
DBPR	Disinfection By-product Rule
DOH	Washington State Department of Health
DSL	distribution system leakage
DWSRF	Drinking Water State Revolving Fund
Ecology	Washington Department of Ecology
ENR-CCI	<i>Engineering News Record</i> Construction Cost Index
EPA	U.S. Environmental Protection Agency
ERU	equivalent residential unit
fps	feet per second
FTE	full-time equivalent
GO	general obligation
gpd	gallons per day
gpm	gallons per minute
HAA5	five haloacetic acids
HMI	human-machine Interface
hp	horsepower
LF	linear feet
LFC	local facility charge
LID	local improvement district
LiDAR	Light Detection and Ranging
MDD	maximum day demand
µg/L	micrograms per liter
mg/L	milligrams per liter
msl	mean sea level
MG	million gallons
mgd	million gallons per day
MPC	master planned community
MSDS	material safety data sheets
msl	mean sea level
O&M	operation and maintenance
OFM	Washington State Office of Financial Management

psi	pounds per square inch
psig	pounds per square inch gauge
PHD	peak hour demand
PVC	polyvinyl chloride
PWTF	Public Works Trust Fund
Qa	annual water rights
R&R	repair and replacement
RCW	Revised Code of Washington
RD	Rural Development
RES	storage/reservoir project
SBA	self-breathing apparatus
SCA	Sanitary Control Area
SCADA	supervisory control and data acquisition
SDC	system development charge
SFR	single family residential
SMCL	secondary maximum contaminant limit
sq ft	square feet
SR	State Route
SRI	seasonal rate increase
T	treatment project
TRPC	Thurston Regional Planning Council
TTHM	total trihalomethanes
UFC	Uniform Fire Code
UGA	Urban Growth Area
ULID/LID	utility local improvement district
USDA	U.S. Department of Agriculture
W	source project
WAC	Washington Administrative Code
WFI	Water Facilities Inventory
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Plan
WQMR	Water Quality Monitoring Report
WRIA	Water Resource Inventory Area
WSP	Water System Plan
WTS	treatment project
WUE	Water Use Efficiency
YMC	Yelm Municipal Code

Appendix II

Plan Content Checklist

The following checklist summarizes the topics which are discussed in each section of this handbook. It is intended to serve as a checklist for the purveyor, assuring that key topics are included in the draft WSP. DOH will use this checklist during the plan review process.

<i>Water System Planning Handbook Chapter</i>	WSP Chapter (If Applicable)	WSP Page Section (If Applicable)
Chapter 1 - Description of Water System		
Ownership and Management	_____	<u>1.1</u>
System Name	_____	<u>1.1.1</u>
Type of Ownership	_____	<u>1.1.2</u>
Management Structure	_____	<u>1.1.3</u>
Water Facilities Inventory Report Form	_____	<u>1.1.4</u>
System Background	_____	<u>1.2</u>
History of Water System Development and Growth	_____	<u>1.3</u>
Geography	_____	<u>1.3.2</u>
Neighboring/Adjacent Purveyors	_____	<u>1.4</u>
Ordinances/By Laws	_____	<u>1.5</u>
Inventory of Existing Facilities	_____	<u>1.6</u>
Description of Facilities and Major Components	_____	<u>1.6.</u>
Number of Service Connections (Existing and Approved) ..	_____	<u>1.6.1 - 1.6.4</u>
Existing Interties	_____	<u>1.6.5</u>
Related Plans	_____	<u>1.6.6</u>
List of Related Plans	_____	<u>1.6.8</u>
Comments From Agencies and Adjacent Purveyors	_____	<u>10.2</u>
Responses to Comments	_____	<u>will be included in 10.2</u>
Existing Service Area and Characteristics	_____	<u>1.7.1</u>
Existing Service Area Map	_____	<u>1.7.1</u>
Zoning and Land Use	_____	<u>1.7.1</u>
Future Service Area	_____	<u>1.7.2 - 1.7.3</u>
Future Service Area Map	_____	<u>1.7.3</u>
Zoning and Land Use	_____	<u>1.7.4</u>
Service Area Agreements	_____	<u>1.8</u>
Service Area Policies	_____	<u>1.9</u>
Satellite Management	_____	<u>1.9.5</u>
Condition of Service Policies	_____	<u>1.10</u>

Chapter 1 - Description of Water System (Cont.)	WSP Chapter (If Applicable)	WSP Page Section (If Applicable)
Complaints	_____	<u>1.11</u>
Policy	_____	<u>1.11</u>
Recordkeeping	_____	<u>1.11</u>
Chapter 2 - Basic Planning, Data and Water Demand Forecasting		
Current Population, Service Connections, Water Use, and Equivalent Residential Units	_____	<u>2.1</u>
Current Population	_____	<u>2.1.1</u>
Total Service Connections	_____	<u>1.6.5</u>
Water Use Data Collection	_____	<u>2.1.2-2.1.3</u>
Equivalent Residential Units	_____	<u>2.1.4</u>
Projected Land Use, Future Population, and Water Demand	_____	<u>2.2</u>
Projected Land Use	_____	<u>2.2.1, 2.2.3, 2.2.5, 2.2.7, 2.2.8</u>
Projected Population	_____	<u>2.2.1</u>
Projected Non-Residential Water Needs	_____	<u>2.2.4-2.2.13</u>
Projected Non-Revenue Water	_____	<u>2.2.12</u>
Water Rates and Rate Impacts on Water Demand	<u>9</u>	<u>9.6</u>
Water Demand Forecasting	_____	<u>2.2.2-2.2.13</u>
Chapter 3 - System Analysis		
System Design Standards	_____	<u>3.1</u>
Water Quality Analysis	_____	<u>3.2</u>
Historical Review of Trends	_____	<u>3.2</u>
Future Requirements	_____	<u>3.2</u>
System Description and Analysis	_____	<u>3.3</u>
Source	_____	<u>3.3.1</u>
Water Treatment	_____	<u>3.3.2</u>
Storage	_____	<u>3.3.3</u>
Distribution System/Hydraulic Analysis	_____	<u>3.3.4</u>
Identification of System Improvements	_____	<u>3.3.5</u>
Assessment of Alternatives	_____	_____
Prioritizing Improvements	_____	<u>8.2</u>
Selection of Alternatives	_____	_____
Chapter 4 - Conservation Program, Water Right Analysis, System Reliability and Interties		
Conservation Program Development and Implementation	_____	<u>4.1</u>

	WSP Chapter (If Applicable)	WSP Page- (If Applicable)	Section
Required Measures For All Systems		<u>4.1</u>	
Chapter 4 - Conservation Program, Water Right Analysis, System Reliability and Interties - (Cont.)			
Other Measures and Level of Implementation		<u>4.1</u>	
Conservation Program Outline		<u>4.1</u>	
Regional Conservation Programs		<u>4.2</u>	
Source of Supply Analysis		<u>4.2</u>	
Enhanced Conservation Measures		<u>4.2.1</u>	
Water Right Changes		<u>4.2.2</u>	
Interties		<u>4.2.3</u>	
Artificial Recharge		<u>4.2.4</u>	
Use of Reclaimed Water, Reuse, and other Non-potable ... Sources		<u>4.2.5</u>	
Treatment		<u>4.2.6</u>	
Water Right Evaluation		<u>4.3</u>	
Permits, Certificates, Claims and Applications - Narrative .		<u>4.3.1</u>	
Existing Water Right(s) Status (Table 3)		<u>4.3.1</u>	
Forecasted Water Right(s) Status (Table 4)		<u>4.3.2</u>	
Water Rights, Current Water Usage and Projected Needs . .		<u>4.3.2</u>	
Water Reservations		<u>N/A</u>	
Assessment of Need for Additional Water Rights		<u>4.3.2</u>	
Water Supply Reliability Analysis		<u>4.4</u>	
Summary of System Reliability Efforts		<u>4.4.1-4.4.3</u>	
Water Shortage Response Planning		<u>4.4.4</u>	
Monitoring Well Levels		<u>4.4.5</u>	
Interties		<u>4.5</u>	
Existing Interties		<u>4.5</u>	
New Intertie Proposals		<u>4.5</u>	
Intertie Agreements		<u>4.5</u>	
Identification of System Improvements		<u>3.3.5</u>	
Assessment of Alternatives		<u>4.2, 4.3, Appendix 4E</u>	
Prioritizing Improvements		<u>4.2, 4.3, App. 4E</u>	
Selection of Alternatives		<u>4.2, 4.3, Appendix 4E</u>	
Chapter 5 - Source Water Protection			
Wellhead Protection Program		<u>5.2</u>	
Overview		<u>5.2</u>	
Completed Susceptibility Assessment Form(s)		<u>5.2</u>	

	<u>WSP Chapter (If Applicable)</u>	<u>WSP Page section (If Applicable)</u>
Wellhead Protection Area Information		<u>5.2</u>
Chapter 5 - Source Water Protection (Cont.)		
Delineation of Wellhead Protection Area(s)		<u>5.2</u>
Contaminant Source Inventory		<u>5.3</u>
Notification of Findings		<u>5.3</u>
Contingency Plan		<u>5.4</u>
Spill Response Plan		<u>5.5</u>
Regional Implementation Efforts		<u>5.2</u>
Implementation Strategies		<u>5.2</u>
Watershed Control Program		<u>5.6</u>
Watershed Description/Characteristics		<u>5.6</u>
Identification of Activities/Land Uses Detrimental to Water Quality		<u>5.6</u>
Watershed Management and Control Measures		<u>5.6</u>
Monitoring Program		<u>5.6</u>
System Operations		<u>5.6</u>
Periodic Watershed Evaluations/Updates		<u>5.6</u>
Identification of System Improvements		<u>5.7</u>
Assessment of Alternatives		<u>5.7</u>
Prioritizing Improvements		<u>5.7</u>
Selection of Alternatives		<u>5.7</u>
Chapter 6 - Operation and Maintenance Program		
Water System Management and Personnel		<u>6.2</u>
Operator Certification		<u>6.3</u>
System Operations and Control		<u>6.5</u>
Identification of Major System Components		<u>6.5.1</u>
Routine System Operation		<u>6.5.2</u>
Preventative Maintenance Program		<u>6.5.3</u>
Equipment, Supplies and Chemical Listing		<u>6.5.4</u>
Comprehensive Monitoring (Regulatory Compliance) Plan		<u>6.6</u>
Monitoring Plan Elements		<u>6.6</u>
Source		<u>6.6.1</u>
Distribution		<u>6.6.2</u>
Treatment		<u>6.6.3</u>
Adjustments to Monitoring Programs		<u>N/A</u>
Emergency Response Program		<u>6.7</u>

Water System Personnel Emergency Call-Up List	_____	<u>6.7.1</u>
Chapter 6 - Operation and Maintenance Program (Cont.)	WSP Chapter	WSP Page section
	(If Applicable)	(If Applicable)
Notification Procedures	_____	<u>6.7.1</u>
Vulnerability Analysis	_____	<u>6.7.2</u>
Contingency Operational Plan	_____	<u>6.7.3</u>
Safety Procedures	_____	<u>6.8</u>
Cross-Connection Control Program	_____	<u>6.9</u>
Customer Complaint Response Program	_____	<u>6.10</u>
Recordkeeping and Reporting	_____	<u>6.11</u>
O & M Improvements	_____	<u>6.12</u>
Identification of System Improvements	_____	<u>6.12 (summary)</u>
Assessment of Alternatives	_____	<u>6.12</u>
Prioritizing Improvements	_____	<u>6.12</u>
Selection of Alternatives	_____	<u>6.12</u>
Chapter 7 - Distribution Facilities Design and Construction Standards		
Project Review Procedures	_____	<u>7.2</u>
Policies and Requirements for Outside Parties	_____	<u>7.3</u>
Design Standards (Performance Standards and Sizing Criteria) ..	_____	<u>7.3</u>
Construction Standards (Materials and Methods)	_____	<u>7.5</u>
Construction Certification and Follow-up Procedures	_____	<u>7.6</u>
Identification of System Improvements	_____	<u>N/A</u>
Assessment of Alternatives	_____	<u>N/A</u>
Prioritizing Improvements	_____	<u>N/A</u>
Selection of Alternatives	_____	<u>N/A</u>
Chapter 8 - Improvement Program		
Improvement Schedule (Table 5)	_____	<u>8.3-8.5</u>
Chapter 9 - Financial Program		
Water Systems with 1,000 or More Connections (Not Regulated by) UTC)	_____	<u>9</u>
Past and Present Financial Status	_____	<u>9.2</u>
Available Revenue Sources	_____	<u>9.4</u>
Allocation of Revenue Sources	_____	<u>9.5</u>
Program Justification	_____	<u>9.7</u>
Assessment of Rates	_____	<u>9.6, 9.8</u>
Water Systems with Less Than 1,000 Connections (Not Regulated by UTC)	<u>N/A</u>	<u>N/A</u>

Past Financial Status	_____	<u>N/A</u>
Chapter 9 - Financial Program (Cont.)		
Improvement Program Financing	_____	<u>N/A</u>
Financial Viability Test	_____	<u>N/A</u>
Rate Structure Analysis	_____	<u>N/A</u>
Water Systems Regulated by UTC	_____	<u>N/A</u>
Historical Financial Information	_____	<u>N/A</u>
Future Financial Planning Information	_____	<u>N/A</u>
Chapter 10 - Miscellaneous Documents		
Supportive Documents	<u>10</u>	<u>10</u>
State Environmental Policy Act	_____	<u>10.1</u>
Other Documents	_____	<u>Appendiced</u>
Agreements	_____	<u>N/A</u>
Comments on WSP from County	_____	<u>10.2</u>
Comments on WSP from Adjacent Utilities	_____	<u>10.2</u>