

Table of Contents

SECTION ES – EXECUTIVE SUMMARY

SECTION 1 – INTRODUCTION

1.1	Background and Need.....	1-1
	1.1.1 Town History.....	1-1
	1.1.2 Water System Background.....	1-2
	1.1.3 Need for Plan.....	1-3
	1.1.4 Plan Authorization.....	1-4
	1.1.5 Past Studies.....	1-4
1.2	Study Objective.....	1-4
1.3	Scope of Study.....	1-5
	1.3.1 Planning Period.....	1-5
	1.3.2 Planning Area.....	1-5
	1.3.3 Work Tasks.....	1-5
1.4	Acknowledgements.....	1-5
	1.4.1 City Council and Staff.....	1-6
	1.4.2 Water System Task Force.....	1-6

SECTION 2 – STUDY AREA

2.1	Physical Environment.....	2-1
	2.1.1 Planning Area Location.....	2-1
	2.1.2 Climate.....	2-1
	2.1.3 Land Use.....	2-3
	2.1.4 Floodplains.....	2-3
	2.1.5 Wetlands.....	2-3
	2.1.6 Cultural Resources.....	2-3
	2.1.7 Biological Resources.....	2-4
	2.1.8 Coastal Resources.....	2-4
2.2	Population.....	2-4
	2.2.1 Historic and Existing Population.....	2-4
	2.2.2 Projected Population.....	2-6

SECTION 3 – REGULATORY REQUIREMENTS

3.1	Responsibilities as a Water Supplier.....	3-1
3.2	Public Water System Regulations.....	3-2
3.3	Current Standards.....	3-3
3.4	Future Water System Regulations.....	3-9
3.5	Water Management and Conservation Plans.....	3-10

SECTION 4 – DESIGN CRITERIA AND SERVICE GOALS

4.1	Design Life of Improvements.....	4-1
	4.1.1 Pumping Equipment and Structures.....	4-1
	4.1.2 Treated Water Transmission and Distribution Piping.....	4-1
	4.1.3 Treated Water Storage.....	4-1

4.2	Sizing and Capacity Criteria and Goals	4-2
4.2.1	Water Supply	4-2
4.2.2	Water Treatment	4-2
4.2.3	Treated Water Storage	4-2
4.2.4	Distribution System	4-4
4.2.5	Fire Protection	4-4
4.3	Basis for Cost Estimates	4-5
4.3.1	Construction Costs	4-5
4.3.2	Contingencies	4-6
4.3.3	Engineering	4-6
4.3.4	Legal and Administrative	4-6
4.3.5	Land Acquisition	4-6
 SECTION 5 – EXISTING WATER SYSTEM		
5.1	Raw Water Supply	5-1
5.1.1	Water Rights	5-1
5.1.2	Water Quality	5-2
5.1.3	Siletz River Intake Structure	5-2
5.1.4	Big Creek Reservoirs and Dams	5-4
5.1.5	Big Creek Pump Station and Transmission	5-4
5.2	Water Treatment Facilities	5-5
5.2.1	Raw Water Chemical Addition	5-5
5.2.2	Flocculation and Sedimentation	5-6
5.2.3	Filtration	5-7
5.2.4	Disinfection	5-8
5.2.5	Instrumentation and Controls	5-9
5.2.6	Finish Water Pumping	5-9
5.2.7	Treatment Performance	5-9
5.3	Treated Water Storage	5-10
5.3.1	Storage Summary	5-10
5.3.2	Main Storage Tanks	5-10
5.3.3	City Shops Storage Reservoirs	5-11
5.3.4	Smith Storage Tank	5-11
5.3.5	Yaquina Heights Storage Tank	5-12
5.3.6	South Beach Storage Tank	5-12
5.4	Distribution Pumping Facilities	5-13
5.4.1	Candletree Pump Station	5-13
5.4.2	Billy View Booster Pump Station	5-13
5.4.3	Yaquina Heights Booster Pump Station	5-14
5.4.4	Lakewood Booster Pump Station	5-14
5.4.5	Salmon Run Booster Pump Station	5-15
5.4.6	OCCC Booster Pump Station	5-15
5.5	Distribution Piping System	5-16
5.5.1	Pipe Inventory	5-16
5.5.2	Pressure Zones	5-16
5.5.3	Fire Protection	5-17
 SECTION 6 – WATER DEMAND ANALYSIS		
6.1	Existing Water Use	6-1
6.1.1	Definitions	6-1

6.1.2	Existing Water Demand	6-2
6.1.3	Existing Water Sales	6-6
6.1.4	Existing EDU Analysis	6-8
6.1.5	Unaccounted Water	6-8
6.2	Projected Water Demand	6-9
6.2.1	Basis for Projections	6-9
6.2.2	Water Demand Projections	6-9
 SECTION 7 – IMPROVEMENT NEEDS		
7.1	Needs Summary	7-1
7.2	Raw Water Supply Alternatives	7-1
7.2.1	Groundwater Alternatives	7-2
7.2.2	Surface Water Alternatives	7-2
7.2.3	Raw Water Storage Alternatives	7-4
7.3	Water Treatment Alternatives	7-8
7.3.1	Current Deficiencies	7-8
7.3.2	Desalination Treatment (RO)	7-8
7.3.3	Upgrade Existing Water Treatment Plant	7-13
7.3.4	Construct New Water Treatment Plant	7-15
7.3.5	Comparison of Treatment Alternatives	7-15
7.3.6	Other Alternatives	7-17
7.3.7	Treatment Alternative Cost Comparison	7-17
7.4	Treated Water Storage Alternatives	7-18
7.4.1	Current Deficiencies and Need	7-18
7.4.2	Future Storage Needs	7-19
7.5	Distribution Alternatives	7-21
7.5.1	Analysis and Deficiencies	7-21
7.5.2	Piping Improvements - South	7-21
7.5.3	Piping Improvements – Bay Crossing	7-22
7.5.4	Piping Improvements – Idaho Point	7-23
7.5.5	Piping Improvements – North	7-24
7.6	Distribution Pump Station Alternatives	7-28
7.6.1	Lakewood Pump Station	7-28
7.6.2	Candletree Pump Station	7-28
 SECTION 8 – CAPITAL IMPROVEMENT PLAN		
8.1	Capital Improvement Plan Purpose	8-1
8.2	CIP Summary	8-1
8.3	Prioritization	8-2
8.3.1	Priority 1 – High Priority Improvements	8-2
8.3.2	Priority 2 – Medium Priority Improvements	8-3
8.3.3	Priority 3 – Low Priority Improvements	8-3
8.4	SDC Update	8-4
8.4.1	SDC Eligibility	8-4
8.4.2	Growth in the System	8-5
8.4.3	Reimbursement SDC Calculation	8-6
8.4.4	Improvement SDC Calculation	8-7
8.4.5	Potential SDC Credits	8-7
8.4.6	Water System SDC Summary	8-9

SECTION 9 – WATER MANAGEMENT & CONSERVATION PLAN

- 9.1 Water Management & Conservation Plan 9-1
 - 9.1.1 Introduction 9-1
 - 9.1.2 Proposed Submittal of Plan Updates 9-2
 - 9.1.3 Required Elements of Plan 9-2
- 9.2 Water Supplier Description (OAR 690-086-0140) 9-2
 - 9.2.1 Service Area, Population, and System Overview 9-2
 - 9.2.2 Raw Water Supply and Storage 9-3
 - 9.2.3 Water Treatment Plant & Treated Water Storage 9-4
 - 9.2.4 Existing Service Population 9-4
 - 9.2.5 Existing Water Demand 9-5
 - 9.2.6 Unaccounted Water 9-6
 - 9.2.7 Adequacy and Reliability of Supply Sources 9-6
- 9.3 Water Conservation Discussion (OAR 690-086-0150) 9-7
 - 9.3.1 Introduction 9-7
 - 9.3.2 Water Conservation Progress Report 9-7
 - 9.3.3 Water Usage Measurement and Reporting Program 9-7
 - 9.3.4 Current Water Conservation Practices 9-8
 - 9.3.5 Water Conservation Planning Strategy 9-8
- 9.4 Mandatory Conservation Measures (OAR 690-086-0150.4) 9-12
 - 9.4.1 Introduction 9-12
 - 9.4.2 Annual Water Audit 9-12
 - 9.4.3 System Metering Program 9-12
 - 9.4.4 Meter Testing and Maintenance Program 9-13
 - 9.4.5 Leak Detection and Repair Program 9-13
 - 9.4.6 Public Education Program 9-14
 - 9.4.7 Rate Structure Adopted For Water Consumption 9-14
 - 9.4.8 Water Reuse and Recycling Opportunities 9-16
 - 9.4.9 EPA WaterSense® Program 9-17
- 9.5 Recommended Plan and Schedule (OAR 690-086-0150.4) 9-18
- 9.6 Water Curtailment Plan (OAR 690-086-0160) 9-19
 - 9.6.1 Historical Deficiencies 9-20
 - 9.6.2 Source Water Supply Evaluation 9-20
- 9.7 Alert Stages for Water Curtailment 9-20
- 9.8 Indicators for Alert Stages 9-21
 - 9.8.1 Planned Maintenance/Repair or Sudden Failure 9-21
 - 9.8.2 Reduce Reservoir Levels or Stream Flows 9-21
 - 9.8.3 Palmer Hydrological Drought Index 9-23
 - 9.8.4 Surface Water Supply Index 9-24
 - 9.8.5 Assessment by System Managers 9-26
- 9.9 Recommended Curtailment Triggers, Measures and Actions 9-26
- 9.10 Water Curtailment Ordinance 9-28
- 9.11 Long-Range Water Supply Plan 9-29
 - 9.11.1 Introduction 9-29
 - 9.11.2 Long-Range Water Demand 9-29
 - 9.11.3 Projected Demand vs. System Capacity 9-30
 - 9.11.4 Development of New Sources – Long Term Planning 9-30

SECTION 10 – FINANCING AND RATE ANALYSIS

10.1 Financial Impacts..... 10-1

10.2 Existing Water Rate Structure 10-1

 10.2.1 Connection Fees..... 10-1

 10.2.2 Water User Rates – General Rates 10-2

 10.2.3 Rates for Outside Customers 10-2

10.3 Water System Budget and Financial Summary..... 10-3

10.4 Potential Funding Sources 10-3

 10.4.1 Local Funding Sources..... 10-3

 10.4.2 State Funding Programs..... 10-4

 10.4.3 Federal Funding Programs..... 10-5

10.5 Funding Plan 10-6

 10.5.1 Priority 1 Project Funding Plan 10-6

 10.5.2 Funding for Additional Projects and Priorities..... 10-7

LIST OF TABLES

Table 2.1.6-1 – Listed National Register Historic Properties, Newport 2-3

Table 2.2.1-1 – Historic Population Summary, 1910-2007 2-4

Table 2.2.1-2 – Population and Housing Units, 2000-2007 2-5

Table 2.2.2-1 – Population, Housing Unit and EDU Growth Projections 2-7

Table 2.3-4 – Current System EDU 2-10

Table 2.3-4 – Projected EDU and Equivalent Service Population 2-11

Table 4.3.1-1 – ENR Index 1990-2007 4-5

Table 5.1.1 – Water Rights Summary 5-1

Table 5.1.2 – Raw Water Quality Parameters, 2004-2007 5-2

Table 5.3.1 – Storage Summary 5-10

Table 5.5.1 – Pipe Inventory, Existing Distribution System..... 5-16

Table 5.5.2 – Pressure Zone Summary 5-17

Table 6.1.2-1 – Oregon Community Peaking Factors..... 6-5

Table 6.1.2-2 – Current Water Demand Values..... 6-6

Table 6.1.3-1 – Water Sales Summary 6-7

Table 6.1.3-2 – Single-Family Residential Water Sales Summary 6-7

Table 6.1.4-1 – System EDU Summary 6-8

Table 6.1.5-1 – Unaccounted Water 6-9

Table 6.2.1-1 – Unit Water Demand Values 6-9

Table 6.2.2-1 – Water Demand Projections 6-10

Table 7.2-1 – Summary of Maximum Daily Flow Projections..... 7-1

Table 7.2-2 – Groundwater Well Yields in Newport Area..... 7-2

Table 7.2-3 – Siletz River Water Right Supply (Priority Dates Senior to 9/24/1963) 7-3

Table 7.2-4 – Big Creek/Siletz Water Balance Analysis 7-6

Table 7.3.2 – Desalination Treatment Facilities Preliminary Cost Estimate..... 7-11

Table 7.3.3a – Water Treatment Plant Upgrade Cost Estimate..... 7-14

Table 7.3.3b – Water Intake Structure Cost Estimate..... 7-14

Table 7.3.3c – Raw Water Transmission Pipe Cost Estimate..... 7-15

Table 7.3.7 – Treatment Alternative Cost Comparison Summary..... 7-18

Table 7.4.1 – Agate Beach Lower Storage Tank Cost Estimate..... 7-19

Table 7.4.2a – City Shops Storage Tank Cost Estimate..... 7-19

Table 7.4.2b – Agate Beach Upper Storage Tank Cost Estimate..... 7-20

Table 7.4.2c – King Ridge Storage Tank Cost Estimate	7-20
Table 7.5.2-1 – Hwy. 101 SE 40 th to 50 th and Bore Piping Cost Estimate	7-22
Table 7.5.2-2 – SW Coho Piping Cost Estimate	7-22
Table 7.5.3-1 – Bay Crossing, HMSC Option Cost Estimate	7-23
Table 7.5.3-2 – Bay Crossing, Idaho Point Option Cost Estimate	7-23
Table 7.5.4-1 – Idaho Point Piping Cost Estimate	7-24
Table 7.5.5-1 – NE Avery Street Loop Closure Cost Estimate	7-24
Table 7.5.5-2 – NW 60 th / Rhododendron St. Waterline Replacement Cost Estimate ..	7-25
Table 7.5.5-3 – Highway 101, NE 36 th to NE 40 th Waterline Cost Estimate	7-25
Table 7.5.5-4 – Golf Course Drive Waterline Cost Estimate	7-26
Table 7.5.5-5 – Highway 101, NE 40 th to Circle Way Waterline Cost Estimate	7-26
Table 7.5.5-6 – Crestview Place to 17 th Court Waterline Cost Estimate	7-26
Table 7.5.5-7 – NW 19 th and Nye Street Waterline Cost Estimate.....	7-27
Table 7.5.5-8 – NW Ocean View Waterline Cost Estimate	7-27
Table 7.5.5-9 – NW 5 th , Benton to Eads Waterline Cost Estimate	7-28
Table 7.6.1 – Lakewood Pump Station Cost Estimate	7-28
Table 7.6.2 – Candletree Pump Station Cost Estimate.....	7-29
Table 8.2 – Water System CIP Summary	8-2
Table 8.3.1 – Priority 1 CIP Projects	8-3
Table 8.3.2 – Priority 2 CIP Projects	8-3
Table 8.3.3 – Priority 3 CIP Projects	8-4
Table 8.4.1 – SDC Eligibility for CIP Projects	8-5
Table 8.4.2 – Newport Growth	8-6
Table 8.4.3 – Reimbursement SDC Summary-Newport Water System.....	8-7
Table 8.4.4 – Improvement SDC Summary-Newport Water System	8-7
Table 8.4.5a – Potential Rate Impacts per EDU	8-8
Table 8.4.5b – Potential SDC Credits	8-8
Table 8.4.6 – Water System SDC Summary.....	8-9
Table 9.2.2-1 – City of Newport Water Diversion Rights.....	9-3
Table 9.2.2-2 – City of Newport Water Storage Rights	9-3
Table 9.2.4 – Newport Population and Housing Units	9-5
Table 9.3.5 – System-Size Category and Guideline Classifications	9-9
Table 9.4.7-1 – Rate Structure for Water Service Within City Limits (Monthly Costs) ..	9-15
Table 9.4.7-2 – Rate Structure for Water Service Outside City Limits (Monthly Costs)	9-15
Table 9.5 – Recommended Water Conservation Plan and Schedule	9-18
Table 10.2.1 – Connection Fee Summary	10-1
Table 10.2.2 – General Water Use Rates	10-2
Table 10.2.3 – Outside Customer Water Use Rates.....	10-2
Table 10.3.1 – City of Newport Water Fund Budget Summary	10-3

LIST OF FIGURES

Figure 1-1 – Location Map	1-7
Figure 2.1.2-1 – Precipitation Normals, NCDC 1971-2000	2-2
Figure 2.1.2-2 – Temperature Normals, NCDC 1971-2000	2-2
Figure 2.2.1-1 – Newport Historic Population, 1910-2007	2-5
Figure 2.2.2-1 – Newport Population Growth, 1980-2030.....	2-6
Figure 2.1.1-1 – Planning Area Map	2-8
Figure 2.1.5-1 – Wetlands Map, National Wetlands Inventory.....	2-9
FEMA Floodplain Map (Panel No. 410131 0001 C).....	2-10

FEMA Floodplain Map (Panel No. 410131 0002 C).....	2-11
FEMA Floodplain Map (Panel No. 410131 0003 C).....	2-12
Figure 5.1.1 – Water Rights Locations, USGS Topographic Base	5-18
Figure 5.5-1 – Existing Water System.....	5-19,20
Figure 5.5-2a – Fire Hydrant Coverage, Existing Water System (South Portion)	5-21
Figure 5.5-2b – Fire Hydrant Coverage, Existing Water System (Central Portion).....	5-22
Figure 5.5-2c – Fire Hydrant Coverage, Existing Water System (North Portion).....	5-23
Figure 6.1.2-1 – Daily Water Production, 2004-2007	6-2
Figure 6.1.2-2 – Plant Run Hours and Daily Production, 2006	6-3
Figure 6.1.2-3 – 2004 WTP Production.....	6-3
Figure 6.1.2-4 – 2005 WTP Production.....	6-4
Figure 6.1.2-5 – 2006 WTP Production.....	6-4
Figure 6.1.2-6 – 2007 WTP Production.....	6-5
Figure 6.1.3-1 – Water Sales Percentage by Customer Type (Volume Basis)	6-7
Figure 7.2-1 – Siletz River Daily Streamflows, 1990-2006.....	7-3
Figure 7.2-2 – Big Creek/Siletz Water Balance Graph.....	7-6
Figure 7.3-1 – Desalination Plant Relative Costs.....	7-11
Figure 7.3.3 – Water Treatment Plant Conceptual Layout.....	7-30
Figure 7.5 – Existing Water System Problem Areas	7-31,32
Figure 8.1 – Proposed Water System Improvements	8-10
Figure 9.8.2 – Salmon and Steelhead Spawning Through Fry Emergence	9-22
Figure 9.8.3 – Palmer Hydrological Drought Index, June 2008	9-24
Figure 9.8.4-1 – Oregon Surface Water Supply Index, July 1, 2008.....	9-25
Figure 9.8.4-2 – SWSI Values for the North Coast Basin, Oct. 2006 – July 2008	9-25
Figure 10.5.1 – Bond Projections for the City of Newport	10-6