CHAPTER 8

IMPROVEMENT PROGRAM

8.1 IMPROVEMENT PROGRAM OBJECTIVE

The development of a water system improvement program is a primary goal of this Comprehensive Water Plan. Through the analysis of existing system demands, capabilities and deficiencies, and by projecting future system growth, the Plan has identified needed improvements and future improvements.

In previous sections of this report, deficiencies in the existing City of Selah water system have been identified and specific improvements have been recommended. The costs of such improvements often prohibit their completion within a short time period without seriously impacting budgets and user rates. It is prudent, therefore, to group improvements so they might be reasonably accomplished over a number of years.

8.2 PRIORITIZED IMPROVEMENTS – YEARS 2008 THROUGH 2013

The following is a prioritized listing of recommended system improvements, together with a brief description, anticipated construction, and estimated project costs (based on 2007 construction costs). Actual costs will vary from those shown in the following estimates because of changes in the construction industry, the competitive bid process, the availability of materials and equipment, and the timing of the improvements. The estimated improvement costs should be should be increased by the rate of inflation for each subsequent year after 2007. The recommended improvements are identified on Figure 8-1 – Recommended Water System Improvements.

1. ZONE 5 RESERVOIR AND BOOSTER PUMP STATION

   The City of Selah currently has no water system facilities to serve Zone 5 of the north hill area, west of the existing Goodlander reservoir. A new Zone 5 reservoir and booster pump station will be constructed in 2008 to serve the proposed development in this area. The improvement will provide a storage facility for the new development and increase the City's total storage capacity to meet their storage requirements by the year 2027. This improvement will also include the installation of a Zone 4 PRV station to serve lower elevation lots and to serve existing Zone 4 services. The existing Goodlander Heights constant pressure booster pump station will be taken out of service and the existing development will be served by the new facilities. The new Zone 5 improvements will increase fire flow capacity to existing Zone 4 services. This improvement will be constructed with private funds and will become part of the City's distribution system upon completion.

Mobilization & Site Prep.	70,000
Reservoir Site Fence & Gravel Access	15,000
Zone 5 Reservoir 30' Dia. X 60' High (320 MG)	350,000
12-Inch Zone 5 Transmission Main (2,800 LF)	168,000
Zone 5 Booster Pump Station	300,000
Zone 4 Pressure Reducing Valve Station	30,000
Telemetry System & Programming	50,000
Subtotal	983,000
Sales Tax (8.2%)	80,600
Subtotal	1,063,600
Contingency (20%)	212,700
Subtotal	1,276,300
Engineering and Administration (25%)	319,100
TOTAL ESTIMATED COST	$1,595,400

CITY OF SELAH

Comprehensive Water Plan Update

RECOMMENDED WATER SYSTEM IMPROVEMENTS

LEGEND

- RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE SERVICE AREA BOUNDARY (URBAN GROWTH AREA)
- POSSIBLE FUTURE ZONE 1 IMPROVEMENTS
- POSSIBLE FUTURE ZONE 2 IMPROVEMENTS
- POSSIBLE FUTURE ZONE 3 IMPROVEMENTS
- POSSIBLE FUTURE ZONE 4 IMPROVEMENTS
- POSSIBLE FUTURE ZONE 5 IMPROVEMENTS
- POSSIBLE FUTURE ZONE 6 IMPROVEMENTS

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RECOMMENDED SYSTEM IMPROVEMENTS

Year 2008 Improvements

1. Zone 5 Reservoir & Booster Pump
2. Well No. 8
3. Zone 3 BPS & 12–inch Trans. Main
4. City Shop Water Main Extension
5. Selah Loop Rd. Water Main
6. Telemetry System Improvements
7. Larson Dr. Water Main Ext.

Year 2009 Improvements

8. N. Wenas Rd. Water Main loop

Year 2010 Improvements

9. S. 1st St. Water Main Replacement

Year 2011 Improvements

10. Goodlander & N. Res. Rehab.

Year 2012 Improvements

11. Pear Ave. Water Main

Year 2013 Improvements

12. W. Naches Ave. Water Main
13. Comp. Water Plan Update

Year 2014-2027 Improvements

14. W. Home Ave. Water Main
15. E. Home Ave. Water Main
16. Palm Park Booster Rehab.
17. Hillview Ave. Water Main
18. Speyers Rd. Water Main

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FIGURE 8-1

2. NEW SOURCE WELL NO. 8

The City of Selah plans to construct Well No. 8 at the Well No. 3 and No. 4 site in Wixson Park. The new well will increase source capacity to maximize the City's instantaneous rights of 5,500 gpm and improve system reliability. Provided below are the estimated project costs:

Mobilization	25,000
Well Drilling, Casing, & Testing	400,000
Pump, Pump House & Controls	100,000
8-Inch Transmission Main (30 LF)	1,350
8-Inch Gate Valve (2 EA)	2,000
Subtotal	528,350
Sales Tax (8.2%)	43,350
Subtotal	571,700
Contingency (20%)	114,300
Subtotal	686,000
Engineering and Administration (25%)	171,500
TOTAL ESTIMATED COST	$857,500

3. NEW ZONE 3 BOOSTER PUMP STATION AND 12-INCH TRANSMISSION MAIN

The City of Selah plans to construct a Zone 3 booster pump station and 12-inch transmission main from the Well No. 6 site to the existing 12-inch pipe near 12th Street. The new booster pump station will increase supply capacity to the upper pressure zones and improve system reliability. Provided below are the estimated project costs:

Mobilization	40,000
Project Temporary Traffic Control	25,000
Pumps, Pump House & Gen-Set	400,000
12-Inch Transmission Main (3,300 LF)	165,000
12-Inch Butterfly Valve (5 EA)	8,000
Fire Hydrant Assembly (2 EA)	7,000
HMA Surface Repair (2,000 SY)	70,000
Gravel Surface Repair (1,300 TON)	21,000
Subtotal	736,000
Sales Tax (8.2%)	60,400
Subtotal	796,400
Contingency (20%)	159,300
Subtotal	955,700
Engineering and Administration (25%)	238,900
TOTAL ESTIMATED COST	$1,194,600

4. CITY SHOP WATER MAIN EXTENSION

The City of Selah plans to construct a new public works shop near the wastewater treatment facility, east of the BNSF railroad and south of Rushmore, on City owned property. This improvement project will extend water from the existing water main to provide service to the new City shop. Provided below are the estimated project costs:

Mobilization	5,000
12-Inch Water Main & Fittings, In Place (1,050 LF)	52,500
12-Inch Butterfly Valve (3 EA)	4,800
Fire Hydrant Assembly (2 EA)	7,000
Shoring or Extra Excavation (1,050 LF)	1,050
Select Backfill (10 CY)	300
Gravel Surface Repair (3 TON)	200
Subtotal	70,850
Sales Tax (8.2%)	5,800

Subtotal	76,650
Contingency (10%)	7,670
Subtotal	84,320
Engineering and Administration (25%)	21,080
TOTAL ESTIMATED COST	$105,400

5. SELAH LOOP ROAD WATERMAIN

This improvement project will include the construction of a new 12-inch water main crossing at the intersections of Goodlander Road and Selah Loop Road, Weems Way and Selah Loop Road, and McGonagle Road and Selah Loop Road, for future extension of the City's water distribution system. Provided below are the estimated project costs:

Mobilization	4,000
D.I. Pipe for Watermain 12 In. Diam. (1,030 LF)	51,500
D.I. Pipe for Watermain 6 In. Diam. (18 LF)	900
G.I. Pipe for Watermain 2 In. Diam. (8 LF)	200
Butterfly Valve 12 In. (8 EA)	12,800
Gate Valve 6 In. (1 EA)	600
Shoring or Extra Excavation (6,780 SF)	1,695
Gravel Backfill for Pipe Bedding and Trench (800 TON)	16,000
Subtotal	87,695
Sales Tax (7.9%)	6,925
Subtotal	94,620
Contingency (10%)	9,460
Subtotal	104,080
Engineering and Administration (15%)	15,620
TOTAL ESTIMATED COST	$119,700

6. TELEMETRY SYSTEM IMPROVEMENTS

The City's HMI computer has reached its recommended lifetime and needs to be replaced to avoid potential loss of communication between the City and its control system. The new HMI computer and software will be installed in 2008. Provided below are the estimated costs for this improvement:

TOTAL ESTIMATED COST	$12,000

7. LARSON DRIVE WATER MAIN EXTENSION

The City of Selah plans to construct a new road connecting North Wenas Road to South Park Drive, which will include a water main extension from the 12-inch water main in South Park Drive, west to North Wenas Road. The water main improvements will include the installation of new fire hydrants and extensions to the north and south at North Wenas Road for future water main looping. Provided below are the estimated project costs:

Mobilization	3,000
Project Temporary Traffic Control	500
Shoring or Extra Excavation (500 LF)	500
12-Inch Water Main & Fittings, In Place (400 LF)	24,000
8-Inch Water Main & Fittings, In Place (100 LF)	4,500
8-Inch Gate Valve (2 EA)	2,000
12-Inch Tapping Sleeve & Valve (1 EA)	3,000
Fire Hydrant Assembly (2 EA)	7,000
Select Backfill, as Directed (60 CY)	1,800
Minor Changes	1,000

Subtotal	47,300
Sales Tax (8.2%)	3,900
Subtotal	51,200
Contingency (20%)	10,200
Subtotal	61,400
Engineering and Administration (25%)	15,350
TOTAL ESTIMATED COST	$76,750

8. NORTH WENAS ROAD WATER MAIN LOOP – NORTH PARK DRIVE TO MARU AVE.

This improvement project will loop the 8-inch water main in North Park Drive to the 12-inch water main in Larson Drive and from the 12-inch water main in Larson Drive to the 8-inch water main at the intersection of Maru Avenue and North Wenas Road. The proposed new 8-inch water main will be located outside the roadway on the east side of North Wenas Road. Looping these water mains will improve fire flow to this area. Provided below are the estimated project costs:

Mobilization	7,500
Project Temporary Traffic Control	2,000
8-Inch Water Main & Fittings, In Place (1,350 LF)	60,750
8-Inch Gate Valve & Valve Box (1 EA)	1,000
Fire Hydrant Assembly (2 EA)	7,000
Shoring or Extra Excavation (1,350 LF)	1,350
Select Backfill, As Directed (80 CY)	2,400
HMA Surface Repair (60 SY)	2,700
Minor Changes	2,000
Subtotal	86,700
Sales Tax (8.2%)	7,100
Subtotal	93,800
Contingency (20%)	18,800
Subtotal	112,600
Engineering and Administration (25%)	28,150
TOTAL ESTIMATED COST	$140,750

9. SOUTH FIRST STREET WATERMAIN REPLACEMENT – SELAH AVENUE TO VALLEYVIEW AVENUE

Water main improvements were made to S. First Street in 1996, but some pipeline sections were in satisfactory condition at the time and were not replaced. This improvement project will replace the existing 6-inch steel pipeline along South First Street, from Selah Avenue to Valleyview Avenue. Both fire flow capacity and system reliability will be improved in this area of the system. Provided below are the estimated project costs:

Mobilization	5,000
Project Temporary Traffic Control	2,500
12-Inch Water Main & Fittings, In Place (650 LF)	35,750
12-Inch Gate Valve & Valve Box (1 EA)	1,750
12-Inch Tapping Sleeve & Valve (1 EA)	3,000
8-Inch Tapping Sleeve & Valve (1 EA)	2,000
Water Service Connection (9 EA)	6,750
Fire Hydrant Assembly (1 EA)	3,500
Shoring or Extra Excavation (750 LF)	750
Select Backfill, As Directed (100 CY)	3,000
Crushed Surfacing Base Course (250 TON)	4,500
Hot Mix Asphalt, Cl. ½" PG 64-28 (100 TON)	7,000
Minor Changes	2,000
Subtotal	77,500

Sales Tax (8.2%)	6,400
Subtotal	83,900
Contingency (20%)	16,800
Subtotal	100,700
Engineering and Administration (25%)	25,200
TOTAL ESTIMATED COST	$125,900

10. GOODLANDER AND NORTH RESERVOIRS REHABILITATION

Some of the piping, valves, ladders, and miscellaneous metal parts of the existing Goodlander Reservoir and North Reservoirs are corroding and in need of repair or replacement. This improvement project will include replacement of the existing steel overflow pipe and the interior and exterior access ladders, and the extension and coating of the steel inlet pipe of the Goodlander Reservoir. It will also include the replacement of the existing steel access ladders, hatches, and inlet/outlet piping and valve of the North Reservoirs. Also included in this improvement project is the cleaning and coating of the interior walls and floor of the North Reservoirs. Provided below are the estimated project costs:

TOTAL ESTIMATED COST	$300,000

11. PEAR AVENUE WATERMAIN REPLACEMENT – ELEVENTH STREET TO SPEYERS ROAD

This improvement project will replace the existing 6-inch steel pipeline in Pear Avenue, from Eleventh Street to Speyers Road. This improvement project will replace undersized and aging steel pipelines, improving both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Mobilization	11,000
Project Temporary Traffic Control	5,500
8-Inch Water Main & Fittings, In Place (1,450 LF)	58,000
8-Inch Gate Valve & Valve Box (6 EA)	6,000
Water Service Connection (25 EA)	18,750
Fire Hydrant Assembly (2 EA)	7,000
Shoring or Extra Excavation (1,950 LF)	1,950
Select Backfill, As Directed (175 CY)	5,250
Crushed Surfacing Base Course (550 TON)	9,900
Hot Mix Asphalt, Cl. ½" PG 64-28 (550 TON)	38,500
Minor Changes	2,000
Subtotal	163,850
Sales Tax (8.2%)	13,450
Subtotal	177,300
Contingency (20%)	35,500
Subtotal	212,800
Engineering and Administration (25%)	53,200
TOTAL ESTIMATED COST	$266,000

12. WEST NACHES AVENUE WATERMAIN REPLACEMENT – EIGHTH STREET TO ELEVENTH STREET

This improvement project will replace the existing 6-inch steel pipeline in W. Naches Avenue, from Eighth Street to the end of W. Naches Avenue west of Eleventh Street. This improvement project will replace undersized and aging steel pipelines, improving both fire flow capacity and system reliability in this area of the system. Provided below are the estimated project costs:

Mobilization	10,000
Project Temporary Traffic Control	5,000
8-Inch Water Main & Fittings, In Place (1,200 LF)	48,000
8-Inch Gate Valve & Valve Box (10 EA)	10,000
Water Service Connection (15 EA)	11,250
Fire Hydrant Assembly (3 EA)	10,500
Shoring or Extra Excavation (1,500 LF)	1,500
Select Backfill, As Directed (150 CY)	4,500
Crushed Surfacing Base Course (450 TON)	8,100
Hot Mix Asphalt, Cl. ½" PG 64-28 (450 TON)	31,500
Minor Changes	2,000
Subtotal	142,350
Sales Tax (8.2%)	11,700
Subtotal	154,050
Contingency (20%)	30,800
Subtotal	184,850
Engineering and Administration (25%)	46,250
TOTAL ESTIMATED COST	$231,100

13. COMPREHENSIVE WATER PLAN UPDATE

The Department of Health requires Comprehensive Water Plans to be reviewed and updated every six years. Provided below are the estimated project costs:

TOTAL ESTIMATED COST	$65,000

8.3 FUTURE SYSTEM IMPROVEMENTS - YEARS 2014 THROUGH 2027

The following is a prioritized listing of recommended system improvements that are planned to be completed after the six-year planning period, but within the next twenty years. The estimated costs (based on 2007 construction dollars) for the prioritized improvements is included and will vary due to the same conditions described in Section 8.2 of this Plan. These recommended system improvements and a general plan for future major system improvements, that have not been prioritized or estimated, are shown on Figure 8-1.

The general plan for future major system improvements is a representation of the possible required water mains and/or structures necessary to extend or loop the City's existing distribution system, when development occurs within the City's current and future retail service area boundaries. Although conditions and circumstances in the City's water system may change the exact location and/or configuration of needed improvements, the general plan shown on Figure 8-1 allows the City to review proposed development with respect to system expansion.

14. WEST HOME AVENUE WATERMAIN REPLACEMENT – N. NINTH STREET TO SPEYERS ROAD

This improvement project will replace the existing 6-inch steel pipeline in W. Home Avenue, from Ninth Street to Selah Loop Road. This improvement project will replace undersized and aging steel pipelines, improving both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Mobilization	9,000
Project Temporary Traffic Control	4,500
8-Inch Water Main & Fittings, In Place (1,050 LF)	42,000
8-Inch Gate Valve & Valve Box (4 EA)	4,000
Water Service Connection (28 EA)	21,000
Fire Hydrant Assembly (2 EA)	7,000
Shoring or Extra Excavation (1,600 LF)	1,600

Select Backfill, As Directed (150 CY)	4,500
Crushed Surfacing Base Course (450 TON)	8,100
Hot Mix Asphalt, Cl. ½" PG 64-28 (400 TON)	28,000
Minor Changes	2,000
Subtotal	131,700
Sales Tax (8.2%)	10,800
Subtotal	142,500
Contingency (20%)	28,500
Subtotal	171,000
Engineering and Administration (25%)	42,800
TOTAL ESTIMATED COST	$213,800

15. EAST HOME AVENUE WATERMAIN REPLACEMENT – N. WENAS ROAD TO EXISTING 8-INCH IN E. HOME AVENUE

The water main in east end of E. Home Avenue between N. First Street and N. Wenas Road (Hwy. 823) was replaced with a new 8-inch water main in 2001. This improvement project will replace the remainder of the existing 4-inch water main in E. Home Avenue, improving flow through this water main loop. Provided below are the estimated project costs:

Mobilization	6,000
Project Temporary Traffic Control	3,000
8-Inch Water Main & Fittings, In Place (650 LF)	26,000
8-Inch Gate Valve & Valve Box (2 EA)	2,000
Water Service Connection (24 EA)	18,000
Shoring or Extra Excavation (1,150 LF)	1,150
Select Backfill, As Directed (100 CY)	3,000
Crushed Surfacing Base Course (300 TON)	5,400
Hot Mix Asphalt, Cl. ½" PG 64-28 (275 TON)	19,250
Minor Changes	2,000
Subtotal	85,800
Sales Tax (8.2%)	7,000
Subtotal	92,800
Contingency (20%)	18,600
Subtotal	111,400
Engineering and Administration (25%)	27,900
TOTAL ESTIMATED COST	$139,300

16. PALM PARK BOOSTER STATION REHABILITATION

The existing Palm Park booster pump station was built in 1967 and currently is used primarily during peak demand periods. Rehabilitation of the pump station will improve the booster pump reliability and increase the total pumping capacity to Zone 3. Provided below are the estimated project costs:

TOTAL ESTIMATED COST	$300,000

17. HILLVIEW AVENUE WATERMAIN REPLACEMENT

This improvement project will consist of replacing the existing 6-inch steel pipelines in Hillview Avenue, North Fourth Street, View Crest Place, Sun Rise Place, and North Second Street. This improvement project will replace undersized and aging steel pipelines, improving both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Mobilization	26,000
Project Temporary Traffic Control	13,000

8-Inch Water Main & Fittings, In Place (3,200 LF)	128,000
8-Inch Gate Valve & Valve Box (7 EA)	7,000
8-Inch Tapping Sleeve & Valve (2 EA)	4,000
Water Service Connection (60 EA)	45,000
Fire Hydrant Assembly (5 EA)	17,500
Shoring or Extra Excavation (4,400 LF)	4,400
Select Backfill, As Directed (450 CY)	13,500
Crushed Surfacing Base Course (1,600 TON)	28,800
Hot Mix Asphalt, Cl. ½" PG 64-28 (1,300 TON)	91,000
Natural Surface Repair (175 SY)	5,250
Minor Changes	2,000
Subtotal	385,450
Sales Tax (8.2%)	31,600
Subtotal	417,050
Contingency (20%)	83,450
Subtotal	500,500
Engineering and Administration (25%)	125,100
TOTAL ESTIMATED COST	$625,600

18. SPEYERS RD. WATER MAIN EXTENSION – N. 13TH ST. TO SHANNON ROAD

In order to serve future development and City property, west of 13th Street, a Zone 3 water main extension will need to be constructed along Speyers Road. This improvement project will provide water service to an area within the City's future service area that currently has no water service. The water main extension will be completed with future developer funds and will be constructed outside the roadway, as reflected in the estimated costs provided below:

Mobilization	25,000
Project Temporary Traffic Control	25,000
12-Inch Water Main & Fittings, In Place (3,600 LF)	180,000
12-Inch Butterfly Valve (11 EA)	17,600
Fire Hydrant Assembly (5 EA)	17,500
Shoring or Extra Excavation (3,700 LF)	3,700
Select Backfill (200 CY)	6,000
HMA Surface Repair (500 SY)	70,000
Gravel Surface Repair (400 TON)	21,000
Subtotal	302,800
Sales Tax (8.2%)	24,800
Subtotal	327,600
Contingency (10%)	32,700
Subtotal	360,300
Engineering and Administration (25%)	90,000
TOTAL ESTIMATED COST	$450,300

8.4 IMPROVEMENT SCHEDULE

Table 8-1 provides a 6-year schedule for completion of the prioritized improvements identified in Section 8.2. Scheduling of the remaining improvements beyond this 6-year period should be reviewed yearly as priorities and City growth patterns change and progress. The estimated improvement costs are provided in Table 8-1, as well as the total projected yearly cost. The estimated costs in Table 8-1 have been inflated for each year after 2008 to reflect the possible future costs, based upon the projected year the improvement will be completed.

TABLE 8-1 SCHEDULE OF RECOMMENDED IMPROVEMENTS

Priority No.	Improvement Description	Estimated Cost in 2007 Dollars	Completion Year							Funding Source
			2008	2009	2010	2011	2012	2013	2014 to 2027	
1	Zone 5 Reservoir & Booster Pump	1,595,400	1,643,300							Private
2	Well No. 8	857,500	883,300							SRF Loan/City
3	Zone 3 BPS & 12-Inch Trans. Main	1,194,600	1,230,500							SRF Loan/City
4	City Shop Water Main Extension	105,400	108,600							City
5	Selah Loop Rd. Water Main	104,080[a]	107,200							City
6	Telemetry System Improvements	12,000	12,400							City
7	Larson Drive Water Main Extension	76,750	79,100							SIED Funds
8	N. Wenas Rd. Watermain Loop	140,750		149,400						Private/City
9	S. First St. Water Main Replacement	125,900			137,600					City
10	Rehabilitation of Goodlander and North Reservoirs	300,000				338,000				City
11	Pear Ave. Water Main Replacement	266,000					308,400			City
12	W. Naches Ave. Water Main Replace.	231,100						276,000		City
13	Comprehensive Water Plan Update	65,000						78,000		City
14	W. Home Ave. Water Main Replacement	213,900							263,000	City
15	E. Home Ave. Water Main Replacement	139,300							171,400	City
16	Palm Park Booster Station Rehab.	300,000							370,000	City
17	Hillview Ave. Water Main Replacement	625,000							815,600	City
18	Speyers Rd. Water Main Extension	450,300							553,800	Private
	TOTAL COSTS	6,802,980	2,421,100[b]	0[b]	137,600	338,000	308,400	354,000	1,620,000[b]	

Note: Improvement costs for years following 2007 include 3% inflation per year.

[a] Engineering and administration was completed in 2007.

[b] Total does not include improvement costs funded with private developer funds.