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## TECHNICAL MEMORANDUM

**DATE:** August 8, 2008

**PROJECT:** 07-0848.407/408

**TO:** Mr. Dennis Wright, P.E., Engineering Director  
City of West Linn

**FROM:** Chris H. Uber, P.E.  
Brian M. Ginter, P.E.  
Murray, Smith & Associates, Inc.

**RE:** Technical Memorandum #7: City of West Linn - Water System Master Plan  
Task 7 Deliverable: Develop a Capital Improvement Plan and Capital Maintenance Plan  
Task 8 Deliverable: Prepare Cost Allocations and Financing Options

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### Purpose

The purpose of this memorandum is to document the development of a Capital Improvement Plan and Capital Maintenance Plan and the preparation of project cost allocations and financing options as elements for the Water System Master Plan. This memorandum constitutes the technical memorandum deliverable of Task 7 – Develop a Capital Improvement Plan (CIP) and Capital Maintenance Plan (CMP) and Task 8 - Prepare Cost Allocations and Financing Options.

## **Cost Estimating Data**

An estimated project cost has been developed for each recommended improvement presented in this section. Itemized project cost estimate summaries are presented in the Appendix. This appendix also includes a cost data summary for recommended water main improvements developed on a unit cost basis. Project costs include construction costs and an allowance for administrative, engineering and other project related costs.

The estimated costs included in this plan are planning level budget estimates presented in 2008 dollars. Since construction costs change periodically, an indexing method to adjust present estimates in the future is useful. The Engineering News Record (ENR) Construction Cost Index (CCI) is a commonly used index for this purpose. For future reference, the August 2008 ENR CCI of 8,762 for the Seattle area construction market (the nearest market ENR monitors) was used for project cost estimates in this report.

## **Recommended Improvements**

The analysis presented in previous technical memoranda prepared in support of the Water System Master Plan form the basis for the recommended water distribution system improvements presented in this document. Recommended improvements include maintenance projects to improve the reliability or performance of existing facilities and new proposed facilities or replacement facilities to address an existing inadequacies or inadequacies found under future conditions imposed on the system. System improvements include recommendations for improvements to reservoirs, pump stations, distribution system water lines and other facilities. The recommended improvements presented in this technical memorandum are presented by project type and include projects related to the City of West Linn's (City) CMP and CIPs. Project cost estimates are presented for all recommended improvements and annual budgets are presented for recommended on-going programs.

## **Capital Maintenance Program**

Based on the evaluations documented in Technical Memorandum #3 – Evaluate Existing Facilities, several improvements were identified for inclusion in the City's water system CMP. These improvements are tabulated and listed below in Table 1. The CMP is recommended for major maintenance and replacement needs of existing facilities. Table 1 lists the projects included in the CMP and itemizes the estimated project costs associated with these maintenance projects for the 20-year study period of the master plan. A discussion of each CMP project follows Table 1. All amounts are in 2008 dollars.

**Table 1  
Recommended CMP Project Cost and Budget Summary**

CMP Project	Estimated Project Cost
Asbestos Cement Pipe Replacement	\$ 6,900,000
Galvanized/Steel Pipe Replacement	750,000
Pressure Reducing Valve Vault Improvements	100,000
Reservoir Seismic Assessment and Improvements	390,000
Reservoir Coating Maintenance and Replacement	360,000
Willamette Pump Station Motor Control Center Assessment and Upgrades	120,000
Demolish Abandoned View Drive Site Facilities	75,000
SCADA System Upgrades	150,000
<b>Total</b>	<b>\$ 8,845,000</b>

*Asbestos Cement Pipe Replacement*

It is recommended that the City continue the asbestos cement (AC) water main replacement program. Aging AC pipe has been shown to have higher occurrences of leaks and failures than other piping materials and special precautions must be taken when working near, tapping into, or connecting to this pipe material. The City's current AC main replacement program should continue to be funded by the CMP until all AC pipe in the system has been replaced. Approximately 54,300 linear feet of 4, 6, 8 and 10-inch diameter AC pipe are included in the CMP for replacement. Piping 8-inch diameter and smaller should be replaced with new 8-inch diameter mains and 10-inch diameter mains should be replaced with 10-inch diameter piping. An annual budget of \$345,000 is included in the CMP for complete replacement of the AC pipe over the 20-year planning horizon, resulting in a total CMP budget of \$6,900,000.

*Galvanized/Steel Pipe Replacement*

It is recommended that the City continue to replace existing undersized and aging galvanized and steel pipelines. These waterlines, typically 3-inches in diameter or less, generally are dead-end mains providing service to a limited number of homes. As such, it is recommended that replacement of these mains be completed with 4-inch diameter ductile iron piping. An annual budget of \$75,000 from FY 2009 through FY 2018 is included in the CMP to allow the City to completely replace the remaining 11,500 linear feet of galvanized and steel piping in the system.

*Pressure Reducing Valve Stations*

It is recommended that the City complete drainage improvements at existing PRV vaults below a ground elevation of approximately 175 feet to address potential flooding issues. These vaults should be sealed to reduce groundwater infiltration and surface water inflow,

and sump pumps installed to effectively remove any water that enters the vault. A budget of \$20,000 per year from FY 2009 through FY 2013 is included in the CMP. For a total of \$100,000.

#### *Reservoir Seismic Assessment and Improvements*

It is recommended that the City complete a seismic assessment of the selected existing reservoirs to assess the current seismic risk at each site, determine if the current level of seismic restraint is adequate and develop recommended improvements as needed to meet current seismic code requirements. It is anticipated that these assessments will be completed for the Willamette, View Drive, Bland and Horton Reservoirs. Other existing reservoirs are not recommended for assessments because the Rosemont Reservoir is assumed to be adequate given its recent design which included current seismic considerations and a CIP project is recommended for replacement of the Bolton Reservoir. The estimated project cost for this assessment is \$90,000 and it is recommended that the assessment be completed in FY 2011. A budget of \$100,000 is included in the CMP for FY 2013 through FY 2015 for completion of recommended improvements developed during the assessment.

#### *Ongoing Reservoir Lining and Coating Maintenance*

It is recommended that three of the City's existing reservoirs (Bland, Rosemont and View Drive) be re-coated within the 20 year planning horizon. A schedule for completing these re-coatings is included in the CMP. It is recommended that the Bland Reservoir interior and exterior coating be replaced in FY 2016 after construction of Bland Reservoir No. 2 is completed (this project is included in the CIP for construction in FY 2014). The estimated project cost for this improvement is \$150,000. It is also recommended that the exterior coating of the View Drive and Rosemont reservoirs be replaced. These improvements are considered medium-term improvements and a budget of \$210,000 is included in the CMP for completion of these improvements.

#### *Willamette Pump Station Motor Control Center (MCC) Assessment*

It is recommended that an assessment of the condition, performance and operation of the existing MCC's in the Willamette Pump Station should be completed to determine if corrective repairs or replacement will be required to address issues identified by City staff. These issues include pump performance and operational concerns. It is recommended that the City proceed with the completion of this assessment in FY 2009 to determine the extent of improvements required. A budget of \$20,000 is included in the CMP for completion of the assessment and an approximate budget of \$100,000 is included in FY 2010 for completion of recommended improvements developed during the assessment. This budget amount should be confirmed as part of the assessment.

### *Demolition of Abandonment of View Drive Site Facilities*

It is recommended that the abandoned reservoir and pump station on the View Drive site be demolished and removed to improve site aesthetics and reduce the risk associated with failure of aging structures. A project cost of \$75,000 is included in the CIP for FY 2011 to complete these site improvements.

### *Supervisory Control and Data Acquisition (SCADA) System Upgrades*

It is recommended that the City complete upgrades to the water system SCADA system. Recommended upgrades include replacement of existing aging infrastructure, including the Master Telemetry Unit and components at remote pump station sites. The upgraded telemetry system should be capable of allowing remote operator interface and control from a portable computer via an internet connection. The software interface should also allow for efficient review, analysis, charting, plotting and exporting of historical water system trend data including water demand, meter readings, reservoir levels and pump run times. It is recommended that the City proceed with the completion of SCADA system upgrades in FY 2009. A budget level cost estimate for completion of the necessary system upgrades of \$150,000 is included in the CMP.

### *CMP System Development Charge Allocation*

The proposed CMP projects itemized above generally provide equal benefit to all existing and future City water system customers as they will improve the reliability and performance of the water system. As such, the SDC allocation for these projects is based on the ratio of existing to future customers in the water system through build-out. This results in an SDC allocation for the \$8,845,000 CMP of 19%, or approximately \$1,700,000.

## **Capital Improvement Program**

Based on the analysis of the three water system's storage, pumping, transmission and distribution facilities presented in previous technical memoranda, a list of recommended system improvements for each category has been developed for inclusion in the CIP. A discussion of CIP elements is presented below.

### ***Reservoirs***

It is recommended that two new reservoirs be constructed in the water service area within the planning horizon. Table 2 presents a summary listing of these recommendations and includes project cost estimates for each reservoir as well as timing for a recommended project start. Also included in Table 2 is an SDC allocation for each project. Allocation assumptions for each project are included in the discussion below.

**Table 2**  
**Recommended Reservoir Improvement Summary**

<b>Project Start (Fiscal Year)</b>	<b>Project Description</b>	<b>Estimated Project Cost</b>	<b>SDC Allocation</b>
2009/2010	Bolton Reservoir Replacement – 4.0 MG	\$8,000,000	50%
2013/2014	Bland Reservoir No. 2 – 0.3 MG	\$525,000	100%
<b>Total</b>		<b>\$8,525,000</b>	

A brief description and summary of recommended reservoir improvement projects, is presented below. The projects are presented in order of recommended priority of completion.

*Bolton Reservoir Replacement*

It is recommended that the existing 2.0 mg Bolton Reservoir be abandoned, removed and replaced with a new reservoir at the same location. The proposed Bolton Reservoir replacement should have a total capacity of 4.0 mg. It is anticipated that the new reservoir will be a partially buried circular strand-wrapped pre-stressed concrete structure. The elevation overflow of the proposed reservoir should be approximately 18 feet higher than the overflow elevation of the existing reservoir, resulting in an elevation overflow of approximately 460 feet, with a sidewall depth of approximately 30 to 35 feet. This additional side wall height provides more effective service to the Bolton pressure zone from the reservoir when the SFWB Division Street Pump Station is not in operation and provides improved suction pressure to the Bolton Pump Station. Preliminary engineering, preliminary designs and final designs for replacement of the Bolton Reservoir are recommended to begin in FY 2009 with construction occurring in FY 2010 and FY 2011.

The SDC allocation for this project assumes that the replacement capacity of the reservoir is for existing customers and the additional 2.0 mg capacity is to serve growth within the service area throughout build-out.

*Bland Reservoir No. 2*

It is recommended that the City construct a new 0.3 mg welded steel reservoir in the Bland pressure zone. The proposed reservoir should be located adjacent to the existing Bland Reservoir and should match the floor and overflow elevation of this existing reservoir. It is recommended that preliminary design and final design of this proposed reservoir improvement begin in FY 2013 with construction occurring in FY 2014.

The SDC allocation for this project assumes that the existing reservoir provides service to existing customers and the proposed reservoir will serve future customers.

## *Pump Stations*

### *General*

It is recommended that two pump stations be modified or upgraded. Booster pump station recommendations are based on analysis presented in prior technical memoranda. A detailed description of each recommendation is presented below in order of priority. Table 3 presents a summary of recommended pump station improvements including project priority and an estimated project start and cost for each recommendation.

**Table 3**  
**Recommended Pump Station Improvement Summary**

<b>Priority</b>	<b>Project Start (Fiscal Year)</b>	<b>Project Description</b>	<b>Estimated Project Cost</b>
1	2010/2011	Emergency Intertie Pump Station Expansion	\$ 60,000
2	2012/2013	View Drive Pump Station Expansion	250,000
<b>Total</b>			<b>\$ 310,000</b>

### *Emergency Intertie Pump Station Expansion*

The supply analysis and storage analysis identified that the City lacks adequate reliable back-up supply to meet future needs in the event that the SFWB supply is interrupted. The City is currently coordinating with the Cities of Lake Oswego and Tigard to facilitate development of system interconnections to insure reliable back-up supplies through the use of broader regional resources. It is anticipated that this backup supply will be available to the City through the Emergency Intertie Pump Station. It is recommended that the City proceed with the installation of a 3<sup>rd</sup> pump in the station to increase the firm capacity to approximately 6 mgd. The estimated project cost for this improvement is \$75,000 and this improvement is scheduled in the CIP for completion in FY 2010.

The SDC allocation for this project which will improve the capacity of the City's backup supply system, providing equal benefit to all existing and future customers, is based on the ratio of existing population to future population.

### *View Drive Pump Station Expansion*

The storage and pumping analysis identified a deficiency in supply to the Rosemont pressure zone under future conditions. Expansion of the capacity of the View Drive Pump Station and the addition of standby electrical power supply for the pump station addresses this deficiency. It is recommended that the City expand the View Drive Pump Station through the addition of an additional 1,050 gpm pumping capacity and add standby electrical power supply with an on-site diesel powered generator. The proposed expansion may require the

construction of additional facilities to house the pump and generator on-site. The estimated project cost for this improvement is approximately \$250,000. It is recommended that work on this project begin immediately and be completed by the summer of 2006.

The SDC allocation for this project, intended to address future deficiencies, is 100 percent to growth.

***Distribution System Improvements***

*General*

The analysis found that distribution system water line improvements are needed to provide improved hydraulic transmission capacity within the distribution system, provide for improved fire flow capacities and provide for system expansion needs. For the purpose of this section recommended distribution system improvements are grouped in the following categories representing relative priority, with 1 being the highest priority and 5 being the lowest. These groupings are also used to establish the SDC allocation based on the City’s current methodology.

**Table 4  
Recommended Distribution System Improvement Prioritization**

<b>Priority Category</b>	<b>Description</b>	<b>SDC Allocation Methodology</b>
1	Improvements related to increasing transmission capacity between supply facilities.	These improvements are intended to address deficiencies resulting from growth. New mains are allocated to growth and the expanded capacity of replacement mains are allocated to growth.
2	Improvements related to improving fire flow capacities, addressing existing system deficiencies.	These improvements address existing deficiencies and are therefore allocated to existing customers. If a project must be increased in size to accommodate future needs then the oversized portion is allocated to growth.
3	Improvements related to improving fire flow capacities, addressing build-out system deficiencies.	These improvements address deficiencies resulting from future customer demand and are allocated to future customers.
4	Improvements intended to increase system looping and proposed for opportunistic completion with planned developments.	These improvements are required to meet the demands of future development and are allocated entirely to growth.
5	Local improvements addressing fire flow capacities for a small number of customers, such as dead-end mains.	These improvements address existing deficiencies and are for local system needs. Allocation of these projects is entirely to existing customers.



Table 5 presents recommended distribution system waterline improvements for each pressure zone. Each improvement is identified by category and includes existing diameter and pipe material, proposed replacement or new diameter, linear feet of main and SDC allocation.

### *Pressure Reducing Valve Station*

It is recommended that a PRV station and associated connection piping be constructed on Scenic Drive for supply between two subzones in the Rosemont pressure zone, pressure zone 13 and pressure zone 12. This improvement will provide additional hydraulic capacity to subzone 12 and improves the reliability of supply to this pressure zone. It is recommended that this improvement be completed in FY 2013. The estimated project cost of this improvement is approximately \$120,000.

### *Supply and Treatment*

The South Fork Water Board (SFWB) is responsible for planning, sequencing, managing and constructing improvements related to the City's water supply source. Technical Memorandum #6 documented a review of the SFWB Water Master Plan Update completed in 2004 and verified that current planning adequately addresses the City's long-term water supply needs. The majority of the proposed improvements to the SFWB system are understood to be primarily for growth and as such the cost of these improvements will be borne by future customers through the payment of SDC's. Capital improvement costs for these improvements are accounted for separately by the SFWB and not included in the City's CIP presented herein.

### **CMP and CIP Schedule Summary**

A summary of the recommended improvements is presented in Table 6. The table provides for prioritized project sequencing by illustrating annual project needs for each facility or improvement category in the next eight years. Those improvements recommended for construction beyond FY 2016 and within the 20-year horizon are identified as medium term projects and those beyond the 20-year planning horizon are identified as long-term improvements. It is recommended that the City's CMP be funded at approximately \$550,000 per year for the first five years and then approximately \$410,000 per year for the next fifteen years. It is recommended that the City's CIP be funded at approximately \$1,500,000 annually for storage, pumping and distribution system piping improvements over the 20-year planning horizon. While the funding needs for certain water system improvements may exceed this amount, especially in the first several years as proposed storage improvements in the Bolton pressure zone are recommended for completion, the proposed improvements listed in Table 6 are phased and sequenced so that the ultimate 20-year average annual capital requirement is approximately \$1,500,000.

**Table 5**  
**Recommended Distribution System Piping Improvement Summary**

No.	Location	Existing Diameter (inches)	Existing Material	Proposed Diameter (inches)	Priority	Length (feet)	Unit Cost (\$/lf)	Estimated Project Cost <sup>1</sup>
<b>Willamette Pressure Zone</b>								
1	Willamette Falls Dr. from PRV to Pump Station	10	CI	20	1	3,710	320	\$ 1,187,200
2	Willamette Falls Dr. from Britton to Ostman	3, 4	AC, CI, DI	12	2	1,686	185	\$ 311,910
3	Dollar St. from 16th to Fields Dr.	6	CI	12	2	2,733	185	\$ 505,605
4	16th St & 8th Ave. to 10th St.	4, 6	CI	8	3	2,809	125	\$ 351,125
5	12th St. from Tualatin Ave. to Volpp St. on to 9th St. up to 5th Ave.	6	CI	8	5	2,845	125	\$ 355,625
6	10th St. from 5th Ave. to Leslies Way	2	PVC	8	5	678	125	\$ 84,750
7	19th St. from Dollar St. to Blankenship Rd.	6	CI	8	3	1,958	125	\$ 244,750
8	Ostman Rd. from Dollar St. to Blankenship Rd.	6	CI	8	3	1,365	125	\$ 170,625
9	Michael Dr.	4, 6	CI	8	5	743	125	\$ 92,875
10	Blankenship Rd. from Ostman Rd. to 19th	6	CI	8	3	980	125	\$ 122,500
11	19th St. from Blankenship Rd. to Johnson Rd.	6	AC	8	3	1,412	125	\$ 176,500
12	Blankenship Rd. from 19th to Willamette Terrace Apartments	6	CI	8	3	378	125	\$ 47,250
		6	-	10	3	643	155	\$ 99,665
13	Johnson Rd. from Blankenship Rd. to Willamette River	6	DI, CI	8	3	4,147	125	\$ 518,375
14	Ostman Rd. & Dollar St. to Rancho Lobo Ln & Swiftshore Dr.	6	DI, CI, PVC	8	3	2,565	125	\$ 320,625
15	South of Willamette Falls Dr. & 19th to Swiftshore Dr.	6	DI	8	5	720	125	\$ 90,000
16	Swiftshore Dr.	6	DI	8	5	874	125	\$ 109,250
		6	DI	12	5	340	185	\$ 62,900
17	Evah Ln	4	DI	8	5	507	125	\$ 63,375
18	From Willamette Falls Dr. to Dollar St.	-	DI	10	44	1,450	155	\$ 224,750
20	Debok Rd. from Blankenship Rd. to Margery St.	6	CI, DI	10	2	1,268	155	\$ 196,540
21	Village Park Pl.	6	CI	8	5	532	125	\$ 66,500
23	Debok Rd. from Village Park Pl. to Tamarisk Dr.	6	CI	10	2	1,614	155	\$ 250,170
24	Farrvista Dr. & Debok Rd. to Farrvista Ct.	6	DI	8	5	597	125	\$ 74,625
		6	DI	10	5	411	155	\$ 63,705
25	Tamarisk Dr.	6	DI	8	3	716	125	\$ 89,500
26	Troy Ct.	6	DI	8	5	551	125	\$ 68,875
27	Wisteria Ct.	6	DI	8	5	320	125	\$ 40,000
34	I-205 crossing west of Tamarisk Dr.	-	DI	8	4	1,208	125	\$ 151,000
<b>Bland Pressure Zone</b>								
19	Barnes Circle from Greene St. to Lois Ln.	6	CI	8	5	546	125	\$ 68,250
22	Riverknoll Ct.	6	DI	8	5	547	125	\$ 68,375
28	Killarney Dr. from Debok Rd. to PRV	6	CI, DI	8	1	1,200	125	\$ 150,000
	Killarney Dr. from PRV to Tipperary Ct.	6	DI	8	1	354	125	\$ 44,250

**Table 5  
Recommended Distribution System Piping Improvement Summary**

No.	Location	Existing Diameter (inches)	Existing Material	Proposed Diameter (inches)	Priority	Length (feet)	Unit Cost (\$/lf)	Estimated Project Cost <sup>1</sup>
<b>Horton Pressure Zone</b>								
29	Weatherhill Rd. from S. Salamo Rd to S. Bland Circle and then south	-	DI	8	4	2,312	125	\$ 289,000
31	Sussex St. south of Sunset Ave.	4	CI	8	5	248	125	\$ 31,000
32	From River View Ave. to Falls View Dr.	4	CI, ST	8	5	213	125	\$ 26,625
39	Clark St. south of Skyline	6	CI	8	5	425	125	\$ 53,125
42	North of Linn Ln.	6	CI	8	5	369	125	\$ 46,125
43	Parkview Terrace and Rosepark Dr.	6	DI	8	5	765	125	\$ 95,625
47	Apollo Rd. west of Athena Rd.	6	PVC	8	5	385	125	\$ 48,125
48	Palomino Way from Saddle Ct. to Palomino Circle	6	-	8	4	246	125	\$ 30,750
<b>Bolton Pressure Zone</b>								
33	Sunset Ave. over I-205	6	CI, DI	8	3	430	125	\$ 53,750
36	River St. from Burns St. to Holly St.	4, 6	CI	8	2	2,107	125	\$ 263,375
37	Bella St.	4	CI	8	5	251	125	\$ 31,375
38	Burns St. from Hood St. to River St.	6	CI	8	2	1,228	125	\$ 153,500
40	Caufield St.	6	DI	8	5	711	125	\$ 88,875
49	Mark Ln. from Willamette Dr. to Lowell Ave.	6	CI	8	3	759	125	\$ 94,875
50	Magone Ln. west of Tulane St.	4	DI	8	5	293	125	\$ 36,625
51	Dillow Dr. and Larson Ave. area	4,6	CI	8	2	1,334	125	\$ 166,750
		6	CI	10	2	901	155	\$ 139,655
52	Hidden Springs Rd. southwest of Willamette Dr.	6	DI	8	3	319	125	\$ 39,875
<b>Rosemont Pressure Zone</b>								
30	Weatherhill Rd.	-	DI	8	4	861	125	\$ 107,625
34	Suncrest Ave. from Carriage Way to Valley View Dr.	8	AC	12	2	1,656	185	\$ 306,360
41	Ridge Ln. area	2	PVC	8	4	1,300	125	\$ 162,500
44	S. Shannon Ln. north of Rosepark Dr.	6	ST	8	5	602	125	\$ 75,250
46	Parker Rd. to Horton Reservoir	-	-	18	1	3,240	290	\$ 939,600
45	Rosemont Rd. from Salamo Rd to Wild Rose Dr.	8	DI	12	2	1,843	185	\$ 340,955
61	Upper Midhill Circle from Robinwood Way to Marylhurst Dr.	4	CI	8	3	795	125	\$ 99,375
62	View Drive Pump Station to Marylhurst Drive	6	CI	10	2	170	155	\$ 26,350
63	Arbor Dr. from Upper Midhill Dr. to Lower Midhill Dr.	6	DI	8	3	406	125	\$ 50,750
64	Skye Pkwy and Scenic Dr. area	-	DI	8	4	680	125	\$ 85,000
65	Kapteyans St. from Marylhurst Dr. to Valley View Dr.	6	2	8	2	336	185	\$ 62,160
<b>Robinwood Pressure Zone</b>								
35	Transmission to View Dr. Reservoir	8, 10	AC	12	1	4,211	185	\$ 779,035
53	Elmran Dr. from Cedaroak Dr. to Nixon Ave.	-	-	8	4	988	125	\$ 123,500
54	Nixon Ave.	2, 6	GLV, DI	8	2	2,536	125	\$ 317,000
	Nixon Ave.	6	STL	8	2	492	125	\$ 61,500
55	Elmran Dr. from Trillium Dr. to Calaroga Dr.	-	-	8	4	860	125	\$ 107,500
56	Parkwood Way west of Calaroga Dr.	2	2	8	5	225	125	\$ 28,125
57	River Rd south of Riverwood Pl.	6	DI	8	3	411	125	\$ 51,375
58	Fairview Way north of Lazy River Dr.	2	STL	8	5	603	125	\$ 75,375
59	Vista Ct.	6	CI	8	5	584	125	\$ 73,000
60	Shady Hollow Way and Willamette Dr. to Fairview Way	3, 6	GLV, DI	8	2	2,002	125	\$ 250,250



Figure 1 in the appendix illustrates the City's water system and identifies all of the proposed CIP and CMP projects discussed herein. Individual project data sheets, contained in the Appendix, include further detail about each CIP project.

## **Funding Sources**

The City may fund the water capital maintenance and improvement programs from a variety of sources. In general, these sources can be summarized as: 1) governmental grant and loan programs; 2) publicly issued debt (tax-exempt or taxable); and 3) cash resources and revenues. These sources are described below.

### ***Government Programs***

#### ***Oregon State Safe Drinking Water Financing Program***

The Safe Drinking Water Fund is capitalized by annual grants from the U.S. Environmental Protection Agency (EPA) and matched with state resources. The program is managed jointly by the Department of Human Services (DHS), Drinking Water Program and the Oregon Economic and Community Development Department (OECDD).

The Safe Drinking Water financing program provides low-cost financing for construction and/or improvements of public and private water systems. This is accomplished through two separate programs; Safe Drinking Water Revolving Loan Fund (SDWRLF) for collection, treatment, distribution and related infrastructure, and Drinking Water Protection Loan Fund (DWPLF) for sources of drinking water prior to system intake.

The Safe Drinking Water Revolving Loan Fund (SDWRLF) lends up to \$6 million per project, with a possibility of subsidized interest rate and principal forgiveness for a Disadvantaged Community.

The standard loan term is 20 years or the useful life of project assets, whichever is less, and may be extended up to 30 years under SDWRLF for a Disadvantaged Community. Interest rates are 80 percent of the current state/local bond rate.

The maximum award for the Drinking Water Protection Loan Fund (DWPLF) is \$100,000 per project.

#### ***Special Public Works Fund***

The Special Public Works Fund program provides funding for the infrastructure that supports job creation in Oregon. Loans and grants are made to eligible public entities for the purpose of studying, designing and building public infrastructure that leads to job creation or retention.

In 2003 the rules for the Special Public Works Fund (Division 42) underwent a dramatic revision. The rules are now broken out into the following major divisions:

- Infrastructure (e.g., public infrastructure needed to support job creation)
- Community Facilities (e.g., publicly owned facilities that supports the local economy)
- Essential Community Facilities Emergency Projects (e.g., city halls, community centers)
- Railroads

Water systems are listed among the eligible infrastructure projects to receive funding. The Special Public Works Fund is comprehensive in terms of the types of project costs that can be financed. As well as actual construction, eligible project costs can include costs incurred in conducting feasibility and other preliminary studies and for the design and construction engineering.

The Fund is primarily a loan program. Grants can be awarded, up to the program limits, based on job creation or on a financial analysis of the applicant's capacity for carrying debt financing.

The total loan amount per project cannot exceed \$15 million. The OECDD is able to offer discounted interest rates that typically reflect low market rates for very good quality creditors. In addition, the Department absorbs the associated costs of debt issuance thereby saving applicants even more on the overall cost of borrowing. Loans are generally made for 20-year terms, but can be stretched to 25 years under special circumstances.

### ***Water/Wastewater Fund***

The Water/Wastewater Fund was created by the Oregon State Legislature in 1993. It was initially capitalized with lottery funds appropriated each biennium and with the sale of state revenue bonds since 1999. The purpose of the program is to provide financing for the design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act.

Eligible activities include costs for construction improvement or expansion of drinking water, wastewater or storm water systems.

To be eligible a system must have received, or is likely to soon receive, a Notice of Non-Compliance by the appropriate regulatory agency, associated with the Safe Drinking Water Act or the Clean Water Act. Projects also must meet other state or federal water quality statutes and standards.

Funding criteria include projects that are necessary to ensure that municipal water and wastewater systems comply with the Safe Drinking Water Act or the Clean Water Act.

In addition, other limitations apply including:

- The project must be consistent with the acknowledged local comprehensive plan.
- The municipality will require the installation of meters on all new service connections to any distribution lines that may be included in the project.
- The funding recipient shall certify that a registered professional engineer will be responsible for the design and construction of the project.

The Water/Wastewater Fund provides both loans and grants, but it is primarily a loan program. The loan/grant amounts are determined by a financial analysis of the applicant's ability to afford a loan including the following criteria: debt capacity, repayment sources and other factors.

The Water/Wastewater Fund financing program's guidelines, project administration, loan terms and interest rates are similar to the Special Public Works Fund program. The maximum loan term is 25 years or the useful life of the infrastructure financed, whichever is less. The maximum loan amount is \$15,000,000 per project through a combination of direct and/or bond funded loans.

Loans are generally repaid with utility revenues or voter approved bond issues. A limited tax general obligation pledge may also be required. Certain entities may seek project funding within this program through the sale of state revenue bonds.

### ***Public Debt***

#### *Revenue Bonds*

Revenue bonds are commonly used to fund utility capital improvements. The bond debt is secured by the revenues of the issuing utility and the debt obligation does not extend to other City resources. With this limited commitment, revenue bonds typically require security conditions related to the maintenance of dedicated reserves referenced to as a bond reserve and financial performance measures which are added to the bond debt as service coverage. In order to qualify to sell revenue bonds, the City must show that the net revenue defined as total revenue less operating and maintenance expense, for the water fund is equal to or greater than a standard factor, typically 1.2 to 1.4 times the annual revenue bond debt service. This factor is commonly referred to as the coverage factor, and is applicable to revenue bonds sold on the commercial market. There is no bonding limit, except the practical limit of the utility's ability to generate sufficient revenue to repay the debt and meet other security conditions. In some cases, poor credit may impair a community's ability to acquire and use revenue bonds.

Revenue bonds incur relatively higher interest rates than government programs, but due to the highly competitive nature of the low-interest government loans, revenue bonds are assumed to be a more reliability source of funding as they are typically can be obtained by most communities.

### ***Water Fund Cash Resources and Revenues***

The City's financial resources available for capital funding include rate funding, cash reserves, and system development charges.

SDCs are sources of funding generated through development and system growth and are typically used by utilities to support capital funding needs. The charge is intended to recover a fair share of the costs of existing and planned facilities that provide capacity to serve new growth.

Oregon Revised Statue (ORS) 223.297 – 223.314 defines SDCs and specifies how they shall be calculated, applied, and accounted for. By statue, an SDC amount can be structured to include one or both of the following two components:

- *Reimbursement Fee* – Intended to recover an equitable share of the cost of facilities already constructed or under construction.
- *Improvement Fee* – Intended to recover a fair share of future, planned, capital improvements needed to increase the capacity of the system.

The reimbursement fee methodology must consider such things as the cost of existing facilities and the value of unused capacity in those facilities. The calculation must also ensure that future system users contribute no more than their fair share of existing facilities costs. Reimbursement fee proceeds may be spent on any capital improvements or debt service repayment related to the system for which the SDC is applied. For example, water SDCs must be spent on water improvements or water debt service.

The improvement fee methodology must include only the cost of projected capital improvements needed to increase system capacity. In other words, the cost(s) of planned projects that correct existing deficiencies, or do not otherwise increase capacity, may not be included in the improvement fee calculation. Improvement fee proceeds may be spent only on capital improvements (or related debt service), or portions thereof, that increase the capacity of the system for which they were applied.

### ***Water System CIP and CMP Funding***

It is recommended that the City complete a detailed water rate and SDC analysis with the completion of this Master Plan to determine specific funding needs and potential funding sources associated with the adopted CIP and CMP. It is anticipated that changes in rates and



SDC's will be required to keep pace with inflation and fund the proposed improvements through build-out of the system.

## **Summary**

A summary of all the recommended improvements is presented in Table 10. The table provides for prioritized project sequencing by illustrating fiscal year (FY) project needs for each facility or improvement category. It is recommended that the District's capital improvement program (CIP) be funded at approximately \$1,500,000 annually for storage, pumping and distribution system piping improvements, and the City's CMP be funded at approximately \$550,000 annually for the next ten years.



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