

**WATER MASTER PLAN UPDATE  
AND  
WATER UTILITY RATE STUDY  
AD HOC COMMITTEE MEETING**

**COUNCIL CHAMBERS  
5902 DUNSMUIR AVE.  
TUESDAY, AUGUST 18, 2015  
5:30 PM**

As a courtesy, please turn off cell phones and electronic devices while the meeting is in session. Thank you.

- 1. CALL TO ORDER** by Chairman Craig
- 2. ROLL CALL**  
    Councilmembers: Craig, Deutsch  
    Citizen members: Dinges, Steele
- 3. APPROVAL OF AGENDA**
- 4. PUBLIC COMMENT**
- 5. BUSINESS**
  - A. Review of IRWAP grant applications
  - B. Report and final recommendations on Water Master Plan update
  - C. Report and final recommendations on Water Utility Rate Study
- 6. ADJOURNMENT:**

Copies of this agenda were posted at City Hall, Dunsmuir City Library, the Dunsmuir Park and Recreation District Office and at the Post Office on or before 6:00 PM Wednesday, August 12, 2015.

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**CITY OF DUNSMUIR  
WATER MASTER PLAN AND RATE STUDY  
PROGRESS UPDATE  
WATER AD HOC COMMITTEE MEETING NO. 5  
August 18, 2015**

**OVERVIEW**

**MASTER WATER PLAN**

The GIS model and hydraulic modelling has been completed for the “Existing”, “20-Year Growth”, and “Ultimate” conditions for the City water system. Existing water system deficiencies have been identified. In addition, an inventory of existing old pipelines have been identified and cost estimates determined to replace the old worn-out pipelines. As a result of these analyses, the following water system improvement project schedules have been developed:

**CURRENT IMPROVEMENTS:                      TOTAL ESTIMATED CONSTRUCTION COST: \$1.221M**

Current improvements are those improvements that are to be funded by the current CDBG grant. The project is out to bid with a bid opening on August 11, 2015. Construction is expected to be completed by late 2015 or early summer 2016, depending on weather conditions during construction. Refer to MWP Table 13.

**IMMEDIATE IMPROVEMENTS:                      TOTAL ESTIMATED PROJECT COST: \$9.404M**

Immediate improvements are those improvements that fall into one of the following three categories:

1. Projects that are currently under design to be funded by the upcoming IRWM Proposition 84 grant funding.  
**Estimated Project Cost:       \$1.25M**
  
2. Projects that correct existing deficiencies, such as low pressures during peak demands and inadequate fire flows.  
**Estimated Project Cost:       \$6.789M**
  
3. Projects that replace existing pipelines that have exhibited a significant leak history in recent years.  
**Estimated Project Cost:       \$1.365M**

These projects are considered the highest priority to implement and should be completed as soon as adequate funding is obtained. Refer to MWP Table 14.

**NEAR-TERM IMPROVEMENTS:****TOTAL ESTIMATED PROJECT COST: \$5.539M**

Near-term improvements are those improvements that target replacement of existing old pipelines that have reached or exceeded their useful lives. These projects are second in priority to “Current” and “Immediate” improvements and should be implemented once the higher priority projects are implemented. Refer to MWP Table 15.

**TOTAL OF ALL RECOMMENDED PROJECTS COST: \$16.164M**

Current and Likely-Funded Project Cost: \$2.471M (CDBG and IRWM Funding)

**TOTAL NET FUTURE FUNDING REQUIREMENT: \$13.693M**

In addition, the master water plan effort identified \$8.013M in infrastructure improvements required to serve future growth – mostly in the north Dunsmuir area to Mott Airport. These improvements will be funded by developers as development occurs. Refer to MWP Table 16.

**WATER UTILITY RATE STUDY**

The effort put forth by the Water Ad Hoc Committee, City staff, and PACE has led to a proposed 5-year rate structure founded on the following principals:

- Easy to understand and implement.
- Promotes efficient allocation of the water resource.
- Equitable and non-discriminating, i.e. cost-based.
- Considers other utility policies, such as economic development and planning for the future.
- Considers a customer’s ability to pay, i.e. low-income discounts.
- Provides month-to-month and year-to-year revenue stability within the water enterprise fund.
- Provides revenue to adequately fund O&M, debt service, and short-lived asset reserves.
- Provides revenue to replace and/or secures financing to correct existing deficiencies and replace worn-out infrastructure, i.e. pipelines that have exceeded their useful lives.
- Increases rates to “1.5% of MHI” threshold so the City can qualify for larger grants and more attractive loan terms.

**MODIFICATIONS TO EXISTING RATE STRUCTURE**

Based on the principals described above, the Water Ad Hoc Committee has developed consensus that water utility rates be modified as follows:

- Water allocated in the base rate be reduced from 10 units (7,500 gallons) to 5 units (3,750 gallons) to reflect actual wintertime average water consumption within the City of Dunsmuir.

- Base water rate for 5/8" services be increased from \$26.00 per month to \$40.00 per month over five (5) years, which amounts to a \$2.80 per month increase per year.
- Base rates for larger water meters be adjusted based on AWWA published meter hydraulic capacity factors, similar to the City's current practices. These adjustments will actually decrease the meter factors for the 3/4", 1", 1-1/2", and 2" meters, but increase for the 3" and 4" meters.
- A "Lifeline" or low-income discount be offered for families that meet state low-income status for 5/8" single-family meters only. The discount is proposed to be \$2 per month, which is similar to what other local agencies are offering.
- Consumption rates be converted from a "declining" block to a "uniform" block so that both high and low water consumers pay the same for water beyond that which is included in the base rate. This approach will also promote water conservation. At the end of five years, it is recommended the City consider going to an "inclining" block.
- The City implement a "Water Service Modification" fee that is intended to reimburse City staff for the cost to turn on or shut off water services, as requested by the consumer. Initial thoughts are that this fee should be about \$50 per customer request.
- The City implement a "Water Service Standby" fee which will be applied to services for which the customer requests a shut-off but that are still connected to the water system. The rationale for this fee is that the infrastructure still has to be maintained and available for when the customer requests the water to be turned back on. Initial thoughts are that this fee should be about half the current base rate for the particular meter size.

### **OTHER CHANGES TO WATER SERVICE**

During review and analysis of the City's water billing practices, two situations were revealed that we recommend being rectified in the near future. They are described as follows:

- There are two metered customers in the Shasta Retreat area that are billed on a flat-rate basis. According to City staff, the City council stepped in to resolve a dispute between the two property owners a number of years ago regarding the taking of irrigation water from a nearby creek. According to water consumption records, these two customers are among the 20 highest water users in the City. It is recommended these services are converted back to a "charge-based-on-use" basis, which will be a state requirement by year 2020.
- There are 46 unmetered water services in the Shasta Retreat area. Adding water meters will require an extensive amount of distribution system improvements because multiple houses are served off the same pipelines and existing pipelines are too small and located outside public rights-of-way. Improvements to this area only benefit the

customers in that area. Thus, the City should attempt to form an assessment district and supplement with grant funding for these improvements.

### **FUNDING OF FUTURE CAPITAL IMPROVEMENTS**

The proposed new rates will allow the City to accumulate revenue to begin making improvements to the water system to correct existing deficiencies and replace worn-out pipelines. The proposed water rate structure modifications will allow the City to implement two significant projects within the next five to six years which will address 100% of the City's "Immediate" needs and up to about 35% of the "Near-Term" needs. At the end of five years, the City's water rates are expected to be high enough to qualify for larger grant components offered by the more traditional funding sources, such as USDA Rural Development and Safe Drinking Water State Revolving Fund (SDWSRF). Below is a summary of the before-mentioned projects, along with project cost estimates and approximate year to be completed. Note, the Phase III project will occur at least six years from now.

#### **Phase I - Portion of "Immediate" Improvements**

Project Cost Estimate:	\$2.5M
Year Completed:	2017

#### **Phase II – Remaining "Immediate" & Portion of "Near-Term" Improvements**

Project Cost Estimate:	\$4.9M to \$7.6M (depending on grant portion)
Year Completed:	2021

#### **Phase III – Remaining "Near-Term" Improvements**

Project Cost Estimate:	\$3.59 to \$6.29M (depending on Phase II grant portion)
Year Completed:	Unknown

The cost estimates and timing of project implementation may vary depending on availability of other grant monies, such as from the IRWM program and actual revenue received from proposed rate increases. Costs shown are August 2015 dollars.

### **ATTACHMENTS**

MWP Table 13 – Current Improvements

MWP Table 14 – Immediate Improvements

MWP Table 15 – Near-Term Improvements

MWP Table 16 – As-Developed Improvements

Rate Study Table 2 – Summary of Water Enterprise Fund Financial Plan

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**Table 13: Cost Estimate - Current Improvements**

Description	Ident. Points	Estimated Project Cost (Aug 2015 Dollars)	Comments
<b>CURRENT IMPROVEMENTS (2015) - FUNDED BY CURRENT CDBG GRANT</b>			
Scherrer Ave. Water Main Replacement	8 - 12	\$228,000	The current Scherrer Ave. main is aged and undersized resulting in poor flows along Scherrer Ave. and downstream down S. 1st St. to the Waste Water Treatment Plant. This project replaces the existing 4" and 8" main, improving flows throughout the southern portion of the City.
Upper Blackberry Hill Water Main Replacements	4 - 9	\$559,000	The existing Blackberry Hill Area's mains size range from 3/4" to 2". These mains are undersized and beyond their serviceable life. This project replaces the existing mains with 6" to 8" mains, which will increase the system's capacity in the area.
Willow St. Water Main Replacement	22 - 23	\$151,000	The Willow St. main (circa 1941) has met its serviceable life. This undersized main is prone to leaks and poses a significant risk to the community if it were to have a break. Its current location, on the hillside, makes access and maintenance difficult. This project replaces the existing line with a larger line within the roadway.
Bush St. Water Main Replacement	17	\$125,000	This project replaces the Bush St. main which has been one of the most problematic mains within the City's water system (i.e., frequent leaks and significant man hours).
Butterfly Ave. Water Main Replacement	14 - 17	\$129,000	The Butterfly Ave. water main is undersized and has exceeded its serviceable life. This project will replace the existing 4" main (circa 1926) with an 8" main, greatly improving flows along Butterfly Ave.
Oak St. Water Main Replacement	16	\$29,000	The Oak St. water main between Shasta Ave. and Dunsmuir Ave. is undersized resulting in poor flows in the area. This project will replace the existing 4" water main with an 8" water main, greatly improving flows in the area.
<b>Total Project Cost:</b>		<b>\$1,221,000</b>	

Table 14: Cost Estimate - Immediate Improvements

Rank	Description	Ident. Points	Estimated Project Cost (Aug 2015 Dollars)	Comments
<b>IMMEDIATE IMPROVEMENTS (2016) - EXPECTED TO BE FUNDED WITH PROP. 84 GRANT THROUGH IRWM</b>				
<b>1 - S. Dunsmuir Water Main Replacements</b>				
	Lower Blackberry Hill	5 - 8	\$520,000	Replace leaking and undersized mains along S. 2nd Street (between Bridge St. and Marion St.), Marion St., 3rd St., Welsh St. This project will replace the existing 2" water mains with 6" water mains providing increased capacity to meet demand and provide improved fire suppression in the area with new fire hydrants. Also funds remainder of CDBG - funded project.
<b>2 - N. Dunsmuir Water Main Replacements</b>				
	N. Dunsmuir Ave & Prospector Ave	36 - 40	\$730,000	Replace the leaking mains along Prospect Ave. and Dunsmuir Ave., both of which have exceeded their serviceable life. Relocates Dunsmuir Ave. mains into the right-of-way from under homes and businesses along the west side of Dunsmuir Ave.
<b>IMMEDIATE IMPROVEMENTS (2016) - TO BE FUNDED BY OTHER FUNDING SOURCES</b>				
<b>3 - 0.9 MG Downtown Tank Replacement</b>				
	0.9 MG Tank and Pressure Reducing Stations	2, 17 & 2	\$3,204,000	The existing 0.4 MG Downtown tank is too low to be utilized without significant pressure losses in the Downtown Pressure Zone. Replacing the
<b>4 - Scenic Ave. &amp; Needham Ave. Water Main Replacement</b>				
	10" PVC Main w/ Class "A1" Backfill	37 - 40	\$530,000	Replace the leaking mains along Scenic Ave. and Needham Ave., both of which have exceeded their serviceable life.
<b>5 - Dunsmuir Elementary School Water Improvements</b>				
	8" PVC Main w/ Class "A1" Backfill & PRV	32 - 35	\$460,000	This project will extend the Siskiyou Ave (ending at Forest Ln.) main south through the Dunsmuir Elementary School and connect to the existing main serving the school. Installing a Pressure Reducing Station will move the School into the higher Lookout Pressure Zone, improving the areas fire flow.
<b>6 - River Avenue Water Main Replacement</b>				
	8" PVC Main w/ Class "A1" Backfill	25 - 28	\$490,000	River Ave. residents have experience poor flow due to the aged existing undersized 4" and 2" mains. This project will replace the existing main with an 8" main, improving capacity and fire suppression in the area.
<b>7 - Vista Street Water Main Replacement Project</b>				
	6" PVC Main w/ Class "A1" Backfill	20	\$130,000	The current Vista St. main is undersized resulting in poor flow and decreased pressures. Replacing the main with a larger pipeline will alleviate
<b>8 - Butterfly Avenue to Gills St Water Main Replacement</b>				
	8" PVC Main w/ Class "A1" Backfill	10 - 14	\$390,000	The Butterfly Ave. to Gills St. water main is undersized and has exceeded its serviceable life. This project will replace the existing 4" main (circa 1927) with an 8" main, improving capacity in the southern portion of the City.
<b>9 - Shasta Retreat Water Improvement Project</b>				
2016	8" PVC Main w/ Class "A1" Backfill	34 - 38	\$580,000	The Shasta Retreat Area has been plagued with low pressure problems and old, leaky mains. This project will replace the current 6" fire main, and 4" domestic main with one 8" water main to boost flows in the area and eliminate the leaky mains.
<b>10 - Dunsmuir High School Water Improvement Project</b>				
	6" PVC Main w/ Class "A5" Backfill	18 - 22	\$207,000	The High School has experienced poor pressures and poor flows due to not only its elevation but also the existing mains serving the school. This project will replace the existing water main from Willow Street, greatly improving flows to the school; however, the poor pressure problem will continue to persist until the Downtown Tank can be replaced to a higher elevation.
<b>11 - Wood Street Water Main Replacement Project</b>				
	6" PVC Main w/ Class "A1" Backfill	11	\$135,000	The current wood St. main is undersized resulting in poor flow and decreased pressures. Replacing this main with a larger pipeline will alleviate the problem.
<b>12 - S. Sacramento Avenue Water Main Replacement</b>				
	8" PVC Main w/ Class "A5" Backfill	15 - 17	\$255,000	The current S. Sacramento Ave. water main from Bush St to Branstetter is an aged undersized 4" main which restricts flow along Sacramento Ave. as well as flow crossing the Bush St. Bridge and flow going down Scherrer Ave. to cross the Bridge St. Bridge. To improve flow along Sacramento Ave. and the parts of City east of the Sacramento River, the project would replace the 4" main with an 8" main.
<b>13 - S. Dunsmuir Avenue &amp; Woodward Lane Water Improvement Project</b>				
	10" PVC Main w/ Class "A5" Backfill & 8" PVC Main w/ Class "C" Backfill	1 - 3	\$520,000	S. Dunsmuir Ave. experiences poor flow due to the existing undersized 4" main serving the area. This project will extend the 8" water line along Francis St. southward to Dunsmuir Ave., looping the system in the area, and replacing the existing 4" main in S. Dunsmuir Ave. with a 10" main, improving capacity in the area.
<b>14 - S. 1st Street Water Improvement Project</b>				
	8" PVC Main w/ Class "A5" Backfill	2 - 8	\$590,000	Southeast Dunsmuir's distribution system is undersized and lacks looping. Residents experience decreased pressures during peak demands and during fire events. This project replaces the existing 6" and 2" mains between Bridge St. and Welsh Ln, with an 8" main that will extend south and tie in to the system at the intersection of S. 1st St. and S. 2nd St. looping the system and improving capacity in the area.

**Table 14: Cost Estimate - Immediate Improvements**

Rank	Description	Ident. Points	Estimated Project Cost (Aug 2015 Dollars)	Comments
<b>15 - North Sacramento Ave R.R Crossing Water Main Replacement</b>				
	8" PVC Main w/ Class "A1" Backfill	28	\$255,000	The main along the north end of Sacramento Ave at the railroad crossing is prone to breaks and is a maintenance problem for City Staff as it crosses under the Union Pacific Right-of-Way. This project will replace the pipeline, eliminating both the leaks and the man hours required to fix this problematic main.
<b>16 - Downtown Water Improvement Project</b>				
	8" PVC Main w/ Class "A1" Backfill	15 - 16	\$408,000	The downtown water mains starting on Dunsmuir Ave. just north of Oak St. going south to Branstetter St, then east to Sacramento, and finally south again to Scherrer are undersized and act as a bottleneck for water flowing to the south of town. To eliminate this bottleneck and improve flow in the area and south of town, this project would replace the existing aged 6" and 4" water mains with 8" mains.
<b>Total:</b>			<b>\$9,404,000</b>	



**Table 15: Cost Estimate - Near-Term Improvements**

Description	Ident. Points	Estimated Project Cost (Aug 2015 Dollars)	Comments
<b>Near-Term Improvements (2017 - 2022)</b>			
<b>Katherine &amp; Francis Street</b>			
8" PVC Main w/ Class "A1" Backfill	6 - 7	\$225,000	
<b>Hill Street</b>			
6" PVC Main w/ Class "A1" Backfill	11	\$128,000	
<b>Rose &amp; Scherrer Avenue</b>			
6" PVC Main w/ Class "A1" Backfill	13	\$159,000	
<b>Cedar Street</b>			
6" PVC Main w/ Class "A1" Backfill	19	\$143,000	
<b>Pine Street</b>			
8" PVC Main w/ Class "A1" Backfill	21	\$149,000	
<b>Sacramento Street</b>			
6" PVC Main w/ Class "A1" Backfill	17 - 26	\$602,000	
<b>Ash Street</b>			
6" PVC Main w/ Class "A1" Backfill	26	\$128,000	
<b>Dunsmuir Avenue &amp; Florence Loop</b>			
14" PVC Main w/ Class "A1" Backfill	27 - 29	\$629,000	
<b>Dunsmuir Avenue (Caltrans Right-of-Way)</b>			
14" PVC Main w/ Class "A5" Backfill & Bridge Crossing	29 - 30	\$870,000	
<b>Upper Soda Road</b>			
8" PVC Main w/ Class "A1" Backfill	28	\$106,000	
<b>Stage Coach Road</b>			
6" PVC Main w/ Class "A1" Backfill	30	\$176,000	
<b>Buckboard Lane &amp; McCloud Avenue Road</b>			
6" PVC Main w/ Class "A1" Backfill	31	\$152,000	
<b>Dunsmuir Avenue - Part 1</b>			
14" PVC Main w/ Class "A1" Backfill	30 - 33	\$780,000	
<b>Dunsmuir Avenue - Part 2</b>			
14" PVC Main w/ Class "A1" Backfill	33 - 36	\$430,000	
<b>Shasta View Avenue &amp; Scarlet Way</b>			
10" PVC Main w/ Class "A1" Backfill	33 - 37	\$372,000	
<b>Shasta Avenue</b>			
6" PVC Main w/ Class "A1" Backfill	39 - 41	\$221,000	
<b>Patricia Way &amp; Linda Place</b>			
6" PVC Main w/ Class "A1" Backfill	41 - 42 - 44	\$269,000	
<b>Total:</b>		<b>\$5,539,000</b>	

**Table 16: Cost Estimate - As-Developed Improvements**

Description	Ident. Points	Estimated Project Cost (Aug 2015 Dollars)	Comments
<b>As-Developed</b>			
<b>Zone A: Reservoir</b>			
0.8 MG Reservoir	51	\$2,454,000	
<b>Zone A: Wells</b>			
3 Wells	49, 50 & 52	\$1,597,000	
<b>Zone A: Pipeline Improvements</b>			
10" and 8" PVC Main w/ Class "A1" Backfill	48 - 52	\$1,673,000	
<b>Zone B: Pipeline amd PRV Improvements</b>			
8" PVC Main w/ Class "A1" Backfill and PRV Station	47 - 48	\$814,000	
<b>Zone C: Pipeline amd PRV Improvements</b>			
8" PVC Main w/ Class "A1" Backfill and PRV Station	46 - 47	\$1,475,000	
<b>Total:</b>		<b>\$8,013,000</b>	

TABLE 2

City of Dunsmuir -- Water Enterprise Fund  
 Summary of Enterprise Fund Financial Plan with 100% of Normal Water Use

	Estimated (FY 14-15)	Projected (FY 15-16)	Projected (FY 16-17)	Projected (FY 17-18)	Projected (FY 18-19)	Projected (FY 19-20)
<b>ASSUMPTIONS USED</b>						
Annual Increase in Water Use		0.0%	0.0%	0.0%	0.0%	0.0%
Annual 5/8" Rate Increase		10.8%	9.7%	8.9%	8.1%	7.5%
<b>WATER RATES USED</b>						
5/8" Meter Monthly Service Charge (Up to 3,750 gallons)	\$26.00	\$28.80	\$31.60	\$34.40	\$37.20	\$40.00
Lifeline 5/8" Meter Monthly Service Charge	\$20.80	\$23.04	\$25.28	\$27.52	\$29.76	\$32.00
All Other Consumption Rate (\$3,751 to 22,500 gallons)	\$2.92	\$2.10	\$2.20	\$2.30	\$2.40	\$2.50
Consumption Rate (22,501 to 90,000 gallons)	\$2.07	\$2.10	\$2.20	\$2.30	\$2.40	\$2.50
Excess Consumption Rate (over 90,000 gallons)	\$1.15	\$2.10	\$2.20	\$2.30	\$2.40	\$2.50
<b>BEGINNING FUNDS AVAILABLE BALANCE</b>						
	\$63,312	\$48,817	\$102,159	\$190,792	\$192,069	\$178,283
<b>REVENUES</b>						
Fixed Service Charges	\$337,600	\$445,000	\$436,000	\$427,000	\$417,000	\$408,000
Consumption Charges	\$122,700	\$170,000	\$219,000	\$268,000	\$318,000	\$367,000
Investment Income - LAIF	\$500	\$400	\$350	\$450	\$500	\$600
Other Operation Income-Penalties	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Income from Water Connection Fees	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200
Total Revenue	\$469,000	\$623,600	\$663,550	\$703,650	\$743,700	\$784,000
<b>EXPENDITURES</b>						
Water Enterprise	\$392,383	\$470,258	\$474,917	\$602,373	\$607,486	\$611,943
Transfer to Capital Improvements Fund (From Table 1)	\$91,112	\$100,000	\$100,000	\$100,000	\$150,000	\$200,000
Total Expenditures	\$483,495	\$570,258	\$574,917	\$702,373	\$757,486	\$811,943
<b>ENDING BALANCE/OPERATING RESERVE</b>	<b>\$48,817</b>	<b>\$102,159</b>	<b>\$190,792</b>	<b>\$192,069</b>	<b>\$178,283</b>	<b>\$150,340</b>
<b>YEAR END OPERATING RESERVE</b>	<b>12%</b>	<b>22%</b>	<b>40%</b>	<b>32%</b>	<b>29%</b>	<b>25%</b>

Notes: 1. Excluding unfunded depreciation expense.  
 2.  
 3.