

## ENGINEERING COMMITTEE

### AGENDA

Committee Meeting:  
Tuesday, November 3, 2020  
2:00 PM (Board Room)

Calaveras County Water District  
120 Toma Court (P.O. Box 846)  
San Andreas, California 95249

**Based on guidance from the California Governor's Office, social distancing measures are imposed, Board chamber's capacity will be limited to 8 persons during public meetings. Social distancing and cloth facemasks are required.**

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### ORDER OF BUSINESS

#### CALL TO ORDER / PLEDGE OF ALLEGIANCE

##### **1. PUBLIC COMMENT**

At this time, members of the public may address the Committee on any non-agendized items. The public is encouraged to work through staff to place items on the agenda for consideration by the Committee. Comments are limited to three (3) minutes per person.

##### **2. APPROVAL OF MINUTES: September 1, 2020**

##### **3. NEW BUSINESS**

- 3a Presentation / Discussion Regarding Update to the Capacity Fee Study  
(Shawn Koorn, Associate Vice President, HDR Engineering)
- 3b Presentation / Discussion Regarding Water Modeling and Analysis of the Jenny Lind A-B Transmission Main Replacement Project  
(Sam Singh, Senior Engineering Technician)

**4. OLD BUSINESS**

- 4a Presentation / Discussion – Proposed Update to Standardized Fees for Residential Water Service Installations  
(Damon Wyckoff, Director of Operations)

**5. GENERAL MANAGER COMMENTS**

**6. DIRECTOR COMMENTS**

**7. FUTURE AGENDA ITEMS**

**8. NEXT COMMITTEE MEETING: Tuesday January 5, 2021 at 2:00 p.m.**

**9. ADJOURNMENT**



# CALAVERAS COUNTY WATER DISTRICT ENGINEERING COMMITTEE MEETING

## MINUTES

September 1, 2020

The following Directors/Committee Members were present:

Jeff Davidson  
Russ Thomas

Staff present:

Michael Minkler	General Manager
Charles Palmer	District Engineer
Rebecca Hitchcock	Executive Assistant/Clerk to the Board
Sam Singh	Engineering Tech Senior
Damon Wyckoff	Director of Operations
Jesse Hampton	Plant Operations Manager
Brad Arnold	Manager of Water Resources
Tiffany Burke	Administrative Technician Senior

### 1. CALL TO ORDER / PLEDGE OF ALLEGIANCE

Director Davidson called the meeting to order at 2:00 p.m.

### 2. PUBLIC COMMENT:

There was no public comment.

### 3. APPROVAL OF MINUTES:

The July 7, 2020 Minutes were approved as presented by a motion from Director Thomas and seconded by Director Davidson.

### 4. NEW BUSINESS:

- 4a Discussion/Review – Contingency Plan for Emergency Implementation if the District's Cross-Lake Potable Water Pipeline in Lake Tulloch Fails (Damon Wyckoff, Director of Operations)

Mr. Wyckoff discussed the options for a contingency plan for an emergency water interruption of the cross-lake potable water pipeline in Lake Tulloch. He listed two short-term options in case of a failure. Option 1 would be to enter into an agreement with an outside entity to install a floating pipeline immediately post Tulloch line failure.

Option 2 would be to purchase an HDPE welder and train staff to use it. District staff would immediately secure materials and equipment to repair the Tulloch line failure. There was discussion regarding the pros and cons of both options and the Committee agreed it would be most beneficial to have staff trained to do the work in house.

- 4b Presentation/Discussion – Residential Water Service Installation Practices and Proposed Update to Standardized Fees  
(Charles Palmer, District Engineer)

Mr. Palmer presented the standard fees for installation of residential water meters and services. There has been discussion about the Districts standardized fees since the standard meter is now 1-inch instead of 5/8-inch. Operations provided the below cost estimates:

Furnish & Set 5/8" Res. Meter (pre-existing 5/8" meter valve, no upsizing)	\$371
Furnish & Set 1" Res. Meter (pre-existing 1" meter valve, no upsizing)	\$436
Furnish & Set 1" Res. Meter & Upsize (convert pre-existing 5/8" to 1")	\$943
Install New Res. Service Lateral (including Furnish & Set 1" Res. Meter)	\$4,395

Director Davidson asked why the last estimate was so high. Mr. Wyckoff advised the various items included in each estimate are labor, equipment, and material. There was significant discussion regarding how to make this cost more reasonable. The Committee would like to have this item continued at another meeting with more details, along with cost saving options and an option for the customer to install the meter themselves.

## 5. OLD BUSINESS

- 5a Presentation/Discussion – Copperopolis Above Ground Pipeline, Mitigating Risk of Possible Damage to Pipeline and Loss of Water Service to the Community  
(Damon Wyckoff, Director of Operations)

Mr. Wyckoff gave a presentation of how the District would keep the Copper Town Square in service in the event the exposed pipeline on Reeds Turnpike is damaged. He explained the pipeline is exposed because the native soil was thought to be mine tailings and too contaminated for excavation and below ground installation. The District obtained a quote of \$21,000 to install a guard rail system, which staff believes to be a good solution and among the lowest cost options. It is unknown if the County would allow the guardrail to be installed without an engineered plan. District staff have pinpointed a plan of action in the event the exposed pipeline is damaged. At the pump station, there are valves in-place that would allow the pump station to pump directly into the 12" transmission main, bypassing to the west of the above ground section, to temporarily supply Copper Town Square in an emergency.

- 5b Discussion/Review of the Contract for the AMR/AMI Radio Read Meter Project, CIP #11096

(Charles Palmer, District Engineer)

Mr. Palmer advised the status of the contract for the AMR/AMI Radio Read Meter Project, CIP #11096. He reviewed some of the changes that have occurred since it was originally brought to the Board. This was an informational item only.

5c Presentation/Discussion – Update for the Capital Improvement Program  
And Other Projects  
(Charles Palmer, District Engineer)

Mr. Palmer gave an update of the Capital Improvement Program and other projects the District is currently working on. Mr. Palmer responded to questions from the Committee.

## **6. FUTURE AGENDA ITEMS:**

Director Davidson would like an update on the Capacity Fee Study

## **7. NEXT MEETING**

November 3, 2020 at 2:00 p.m.

## **8. ADJOURNMENT**

There being no further business, the meeting adjourned at approximately 3:04 p.m.

Respectfully submitted,

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Rebecca Hitchcock  
Executive Assistant/Clerk to the Board

# Agenda Item

DATE: November 3, 2020

TO: Engineering Committee, Calaveras County Water District  
Michael Minkler, General Manager

FROM: Charles Palmer, District Engineer

RE: Presentation / Discussion Regarding Progress Update on the Water and Wastewater Capacity Fee Study for Copper Cove, Jenny Lind and La Contenta

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## **SUMMARY**

This item will be presented via WebEx by Shawn Koorn, Associate Vice President and Judy Dean, Senior Financial Analysis with HDR Engineering.

As of April 2020, HDR was retained by CCWD to prepare capacity fee updates for the Jenny Lind and Copper Cove water systems and the La Contenta and Copper Cove sewer systems. The capacity fee are being evaluated following the completion of updated master plans for each of these service areas. HDR is approaching completion of an initial draft of the subject capacity fee study and will present some preliminary information to the Engineering Committee at this time and provide a general update on the status of work. Additional information will be presented at the meeting.

## **FINANCIAL CONSIDERATIONS**

None at this time.

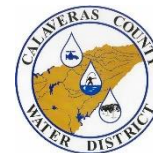


# Calaveras County Water District

## Setting Cost-Based Capacity Charges

### Water and Wastewater Capacity Charge Study

Engineering Committee Session  
Presentation  
November 03, 2020



# Overview of the Presentation

**Purpose  
of the  
Study**

**Overview  
of  
Capacity  
Charges**

**Capacity  
Charge  
Methodology**

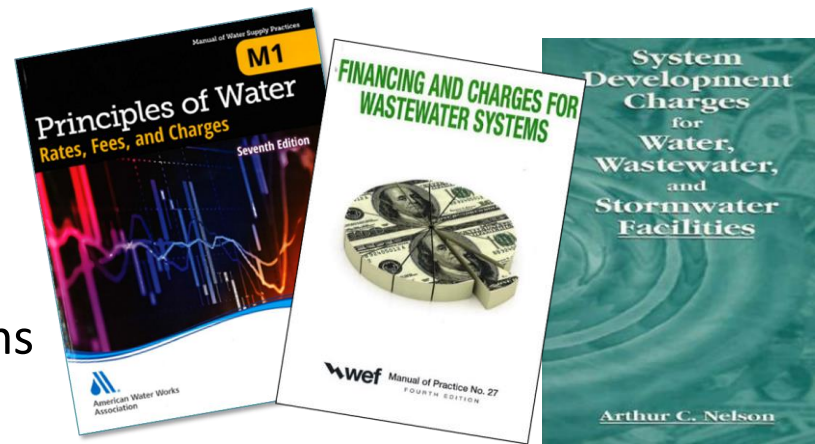
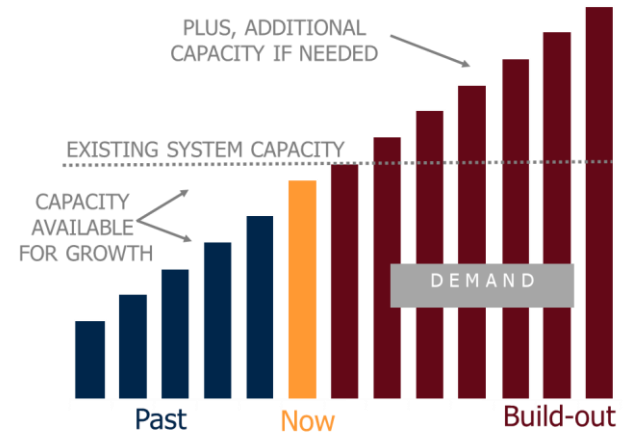
**Review  
Preliminary  
Capital  
Charge  
Analysis**

**Next  
Steps...**



# Purpose of the District's Study

- Review and update the capacity charges
  - Reflect existing conditions and value of the assets providing service
  - Reflect new facilities to be acquired to maintain existing service levels
- Develop the study using generally accepted methodologies
  - Tailored to the District's customer and system characteristics
- Study reviews 4 water/sewer systems
  - Jenny Lind and Cooper Cove Water systems
  - Copper Cove and La Contenta Sewer systems



# Overview of Capacity Charges

- **A capacity charge is defined as a:**
  - Charge required of all new customers desiring water or sewer service or existing customers requiring increased service capacity
  - Charge based on the value of the utility's capacity and the amount of capacity needed by the new customer
- **Establishing cost-based capacity charges are a policy decision to have growth-pay-for-growth that is needed to serve them**
  - Charge is a form of reimbursement to existing customers for their investment in excess (available) capacity
- **Capacity fees are restricted for use for growth related capital projects and/or growth related debt service**
  - Does not include operation and maintenance costs in calculation or fund operations and maintenance costs

# Summary of Present Water and Wastewater Capacity Charges

- Water and wastewater capacity charge last updated in 2006
- Capacity charges have been updated annually with 20 cities average Engineering News Record, Construction Cost Index (ENR-CCI)

Present Capacity Charges as of July 1, 2020 Ordinance 2006-03, dated Sept 27, 2006		
Service Area	Water 5/8" Meter	Sewer Per SFDE
West Point	\$12,561	\$5,500
Copper Cove	\$12,302	\$12,517
Ebbetts Pass	\$8,050	
Jenny Lind	\$12,164	
Inside Assessment Dist 604		\$11,941
Outside Assessment Dist 604		\$20,355
Arnold		\$12,018
Forest Meadows		\$13,534
Vallecito/Douglas Flat		\$14,437
Wallace	\$9,000	\$9,000

ENR/CCI Index, 12/18 = 11186, 12/19 = 11381 = 1.7433% Percent Increase

# Capacity Charges

## Formula

- The charge is determined by bringing current assets, into current day dollars (applying cost index), plus future capital related to growth, dividing by capacity to serve, multiplying by the demand per Equivalent Single Family Unit (ESFU)

$$\left( \frac{\text{Plant Value (\$)}}{\text{Plant Capacity (MGD)}} + \frac{\text{Future Plant (\$)}}{\text{Capacity to Serve (MGD)}} \right) \times \text{Demand per ESFU (gpd)} = \text{Maximum Allowable Capacity Charge}$$

- Method for Determining Plant Value:
  - Original cost, plus ENR-CCI from installment date
  - Less outstanding debt principal
- Future CIP
  - CIP Plan (Current Facility Plans)
  - Proportion to serve growth
- System Planning Criteria
  - Treatment plant capacity (MGD)
  - Water peak day demand per ESFU
  - Wastewater average day demand per ESFU

# Capacity Charges

## Methodology

- System Planning Criteria
  - Determination of an Equivalent Single Family Dwelling Unit (ESFU)
    - District water ESFU = peak day demand per ESFU
    - District sewer ESFU = average day demand per ESFU
- Capital Improvement Plan
  - Current Master Plans
- Debt Service
  - Outstanding principal is credited back within the calculation to avoid “double-counting” as new customer becomes a rate payer
- Legal Requirements
  - California Code (66013, 66016, 66022)
  - Fee must be reasonably related to and attributable to the cost of infrastructure and improvements made necessary to serve new development

# Capacity Charges

## Jenny Lind Water – Preliminary Calculations

- 2017 Jenny Lind Water Master Plan
- Evaluates the value of the existing infrastructure (available capacity)
  - Existing infrastructure value of approximately \$74.0 million (current day dollars)
- Future CIP of ~\$13.15 Mil

Water Capital Improvement Projects (CIP)		2020 - 2030
Description	Function	Total
11092 Jenny Lind WTP Pretreatment	Treatment	\$40,000
Filters 3, 4 & 5 Rehab./Coating	Treatment	660,000
Jenny Lind Raw Water Intake Structure	Treatment	4,000,000
Jenny Lind Tanks A, B, E & F Rehab	Storage	2,000,000
Jenny Lind Tank C Replacement	Storage	500,000
11083j Clearwell #2 Repair & Paint	Storage	200,000
11088 A-B Transmission Pipeline	T & D	5,500,000
11066g Kirby, Gabor, Gamer Service Lines	T & D	250,000
		\$13,150,000

## Copper Cove Water – Preliminary Calculations

- 2018 Copper Cove Water Master Plan
- Evaluates the value of the existing infrastructure (available capacity)
  - Existing infrastructure value of approximately \$66.6 million (current day dollars)
- Future CIP of ~15.0 Mil

Water Capital Improvement Projects (CIP)		2020 - 2030
Description	Function	Total
11104 Tulloch North Loop/Submerged Crossing	Distribution	\$3,500,000
11110 Reeds Turnpike Pump Station	Storage	350,000
11111 Tank B Pump Station Rehab.	Storage	900,000
11083C Tank B & Clearwell Rehab.	Storage	1,150,000
SCADA Improvements	Distribution	100,000
Zone B-C Trans. Pipeline & Pump Station	Distribution	9,000,000
		\$15,000,000

# Capacity Charges

## Copper Cove Sewer – Preliminary Calculations

- 2018 Copper Cove WW Master Plan
- Evaluates the value of the existing infrastructure (available capacity)
  - Existing infrastructure cost of approximately \$43.2 million (current day dollars)
- Future CIP of ~\$19.2 Mil

Sewer Capital Improvement Projects (CIP)			2020 - 2030
Description	Function	Total	
15094 WWTP Secondary, Tertiary & UV Improv.	Treatment	\$13,000,000	
Reclamation Plant Filter Rehab	Treatment	230,000	
15076 Lift Stations 6, 8, & Force Main Bypass	Collection	3,500,000	
15080 Lift Station 15 & 18 Rehab/Replacement	Collection	2,500,000	
			\$19,230,000

## La Contenta Sewer – Preliminary Calculations

- 2018 La Contenta WW Master Plan
- Evaluates the value of the existing infrastructure (available capacity)
  - Existing infrastructure cost of approximately \$22.8 million (current day dollars)
  - Less outstanding debt principal of \$400,000
- Future CIP of ~\$4.6 Mil

Sewer Capital Improvement Projects (CIP)			2020 - 2030
Description	Function	Total	
15092 Huckleberry Lift Station Rehab.	Collection	\$65,000	
La Contenta Spray Field Improvements	Treatment	200,000	
15097 WWTP Biolac, Clarifier & UV Improvements	Treatment	4,000,000	
			\$4,265,000

# Summary of the Water and Wastewater Capacity Charge Study

- Capacity charge analysis establishes the reasonable relationship between the impact of development and the charge to be imposed
- Updated charges reflect the District's current costs and value of capacity
- Capacity charge should not exceed the calculated cost
  - As a matter of policy, the District may adopt a charge which is less than the full calculated costs
    - Implies a sharing of the cost of growth between existing rate payers and new development





# Next Steps

- Incorporate Engineering Committee input and direction as provided
- Develop draft capacity charge analyses
- Develop draft written reports
- Present final capacity charge to District Board
- Implement capacity charge as directed by District Board



**Thank you for your input!**



# Agenda Item

DATE: November 3, 2020

TO: Engineering Committee, Calaveras County Water District  
Michael Minkler, General Manager

FROM: Sam Singh, Senior Engineering Technician

RE: Presentation / Discussion Regarding Water Modeling and Analysis  
of the Jenny Lind A-B Transmission Main Replacement Project

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## SUMMARY

The Jenny Lind A-B transmission main is 20,000 feet in overall length and in its current state consists of 8-inch A.C. pipe water mains along Hartvickson Lane, Baldwin Street, Usher Drive, and Harding Road. This transmission main conveys water via pumps at the Tank A (elevation of 700') and transfers it to Tank B (elevation of 900'). This facility is critical to water conveyance throughout much of Rancho Calaveras. However, it is not a dedicated transmission main as it also currently serves for water distribution to customers along its route. At this time, the 8-inch water mains are too small for the amount of water that must be conveyed during the peak summer months such as during heat waves when water demands are at their highest. Under these high demand conditions, the amount of water being pumped through the existing 8-inch A.C. water mains exceeds their reasonable operating capacity causing water to flow at very high velocities which can more readily damage the system. Also, under these conditions, the starting and stopping of pumps and opening and closing of fire hydrants results in pressure spikes that can break water mains and laterals.

The proposed A-B transmission main project is consistent with the current master plan which identifies significant distribution system improvements along Hartvickson Lane, Baldwin Street, Usher Drive and Harding Road. In the analysis of this transmission main, staff recommends a new 12" diameter ductile iron transmission main that is isolated from the distribution system allowing it to operate at high pressures without it impacting the distribution system and customers service pressures. The transmission main would have pressure regulating stations periodically spaced along its length to transfer water into the distribution system. In this way, service pressures within specific pressure zones in the distribution system can be more precisely controlled and customers will experience steady service pressure and the water system will not be subjected to harsh pressure surges and spikes that are currently damaging service laterals and aging A.C. water mains.

District staff utilized Innovyze modelling software to develop a water model of the Distribution system. A diurnal demand approach was followed to anticipate high and low water demand on each node/junction.

The proposal to furnish a dedicated transmission main originated after hydraulic analysis of the distribution system which differs from the one mentioned in Master Plan 2018. Recommendation from the master plan was to update segments of the distribution/transmission line to reduce velocity in these areas and provide enough volume to get through high demand times. This approach though will be effective for the short term but will not necessarily address all the issues concerning pressures. Dedicated transmission main will provide adequate volume to B-tank service zone and the existing piping system will be put to use as purely distribution. With proposed changes, transient pressure waves throughout the distribution system that have led to multitude of leaks in distribution system will be reduced exponentially and should help prolong service life of water mains that go through regular stress under current conditions.

In terms of implementation, the District traditionally has gone through a conventional “design, bid, and build” procedure in which an engineering firm first designs the pipeline and then the project goes out for bid for construction by a separate contractor. An alternate approach is “design-build” in which the engineer and the contractor work as a team to both design and construct the pipeline under a single contract, which saves time and is good for expediting a project if that is the priority. The project must still be publicly bid and the engineering staff would be responsible for putting together a bid document and defining the project requirements including a conceptual level design, scope of work, materials, specifications and standard details for the project. Since with “design-build” there is a reduced engineering effort up front, there is also a risk of unknown conditions or items not fully contemplated at the time of the bid resulting in change orders.

## **FINANCIAL CONSIDERATIONS**

The project is estimated to cost upwards of \$6 million and staff will need to consider funding options to pay for this project. A cost share will be determined between expansion and renovation and replacement funding sources.

# Agenda Item

DATE: November 3, 2020

TO: Engineering Committee

FROM: Damon Wyckoff, Director of Operations

RE: Presentation/Discussion – Proposed Update of the Standard Fees for Installation of Residential Water Meters and Services

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## SUMMARY

At the September 9<sup>th</sup> Engineering Committee Meeting CCWD Staff presented several flat rate options for routine District Services. Included in the Staff Report were flat rate options to –

- Furnish and Install a new 5/8” Meter on an existing 5/8” lateral - **\$370.62**
- Furnish and install a new 1” meter and upsize the 5/8” lateral to 1” - **\$943.16**
- Furnish and install a new 1” water meter and new 1” service lateral - **\$4,392.62**

The Committee provided positive feedback relative to the fixed costs associated with water meter installations but when it came to the cost to furnish and install a new 1” water meter and new 1” service lateral the Committee consensus was that this fixed cost is too expensive. The estimated cost to furnish and install a new 1” meter and Service Lateral is based on a six-hour work effort. This time frame is considered an average of what it will take to install a brand new 1” service lateral and meter. Service lateral installations could quite easily last ten hours or more. They could also take less than three hours to complete. Upon further review, the circumstances associated with service lateral installations can be so varied and complex that Staff feel it is most prudent to refrain from developing a fixed cost for service lateral installations. Unique cost estimates for new service line installations allows the District to analyze the Customer’s need in detail which in turn reduces the potential for over-spending on the part of the customer and under-estimating on the part of the District.

Staff feel it important the District strike a balance between providing cost-estimates (which can prove a slow, and labor-intensive process) and fixed costs for installation efforts (which can run the risk of over-charging customers/ inadequately recovering costs). The best approach appears to be somewhere in-between. The District would like to provide fixed costs for straight-forward work while continuing to provide cost estimates for the more nuanced and labor-intensive tasks.

Given the fact that the cost estimates to furnish and install new meters are relatively straight forward and are not subject to change from one meter set to another, Staff would like to proceed with flat fees (as follows) for these work efforts. As it is now, Staff will update these fees annually based on the CPI to account for material and labor cost increases.

<b>Cost Estimate - Furnish &amp; Install New 5/8" Meter (Existing 5/8" Lateral)</b>				
Labor	Rate	Duration, hr.	x2.5	Total
Maintenance Worker	\$ 44.07	1	\$ 110.18	\$ 110.18
Equipment	Rate	Duration,hr.	<b>Total</b>	
SVC Truck/day	\$ 50.00	0.042		\$ 2.10
Material	QTY	Cost	<b>Total</b>	
5/8" Meter	1	\$ 200.00		\$ 200.00
5/8"strt mtr vlv	1.00	\$ 58.34		\$ 58.34
				\$ -
<b>Grand Total</b>				<b>\$ 370.62</b>

<b>Cost Estimate - Upsize Lateral (5/8" to 1") for New 1" Meter</b>				
Labor	Rate	Duration, hr.	x2.5	Total
Maintenance Worker	\$ 44.07	2	\$ 110.18	\$ 220.35
Equipment	Rate	Duration,hr.	<b>Total</b>	
SVC Truck/day	\$ 50.00	0.042		\$ 2.10
VacCon/Hr.	\$ 125.00	1		\$ 125.00
Material	QTY	Cost	<b>Total</b>	
1" Meter	1	\$ 265.00		\$ 265.00
1" Cub Stop	1	\$ 115.00		\$ 115.00
1"strt mtr vlv	1.00	\$ 58.34		\$ 58.34
1"CTS/FT	3.00	\$ 0.43		\$ 1.29
1"INSTxMIP Adaptor	2	\$ 17.62		\$ 35.24
1"Brs 90	1	\$ 5.19		\$ 5.19
1" Instatite Tee	1	\$ 88.38		\$ 88.38
1"x3" Full Circle Clamp	1	\$ 27.27		\$ 27.27
<b>Grand Total</b>				<b>\$ 943.16</b>

Staff feel it most prudent to continue with the status quo to furnish and install a one-inch meter and associated service lateral. This allows Staff to continue to work intimately with the Customer's request to develop a unique Cost-To-Serve that effectively meets the customer's need, is cost effective, and can be readily

implemented. For new meter and service lateral installations, a Cost-To-Serve Estimate would continue to be developed by District Staff and provided to the Customer. The Customer could then choose have the District complete the work effort or not. If the Customer decided to proceed with the project, they can then pay the Cost-To-Serve fees. At the end of the project, nominal charges or credits will be reconciled thereby completing the project.

Although this path forward does not firmly place fees associated with meter and service lateral installations firmly in one methodology (flat rate/estimates and deposits), it does provide both Staff and CCWD Customers with an effective path forward for multiple objectives while working to remain cost-conscious, timely, fair, and accurate.

**FINANCIAL CONSIDERATIONS**

None at this time. At a future date, staff proposes to present an agenda item and resolution or ordinance to the Board of Directors for adoption of standard fees as shown below:

ITEM / DESCRIPTION	FEE
Furnish & Set 5/8" Res. Meter (pre-existing 5/8" meter valve, no upsizing)	\$371
Furnish & Set 1" Res. Meter (pre-existing 1" meter valve, no upsizing)	\$436
Furnish & Set 1" Res. Meter & Upsize (convert pre-existing 5/8" to 1")	\$943
Install New Res. Service Lateral (including Furnish & Set 1" Res. Meter)	Deposit & Review