Diablo Water District

2020 Facility Reserve Charge & MERA Update

This technical memorandum describes the 2020 update of the existing funding mechanisms used by Diablo Water District (DWD) to finance capital improvements to serve new development. These mechanisms are DWD's Facility Reserve Charge (FRC) and Main Extension Reimbursement Assessment (MERA). This memorandum documents the updated FRC schedule based on year 2019 and 2020 values, using the methodologies developed in DWD's 2006 Facilities Plan and the 2010 Facility Reserve Charge Update, performed in 2011. This update reflects the potable water use history, projections and related facilities presented in DWD's 2020 Facilities Plan. The technical analysis supporting the update is provided in the tables attached to this memo, which describes the assumptions, findings and recommended update of charges. A list of acronyms used in the study is also included in the Table of Contents for the calculations tables at the end of this memo.

Summary

The historic and updated FRC schedule is presented in Table ES 1 below:

Table ES 1: Historical and Proposed FRC

Current vs Updated Facilities Reserve Charge (FRC)								
	West of Jersey Is. Rd.		East of Jersey Is. Rd.		Bethel Is. (b)		Delta Coves	
Year	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011
Pre-2011	$9,251	--	$13,456	--	$6,607	--	$6,607	--
2011	$5,366	42%	$9,296	31%	$5,366	19%	$5,366	19%
2013	$5,113	45%	$8,929	34%	$5,113	23%	$5,113	23%
2015	$6,548	29%	$8,918	34%	$4,816	27%	$4,816	27%
2016	$6,865	26%	$9,316	31%	$5,072	23%	$5,072	23%
2018	$8,248	11%	$10,864	19%	$5,920	10%	$5,920	10%
2020	**$7,880**	**15%**	**$12,911**	**4%**	**$8,034**	**-22%**	**$8,034**	**-22%**

The FRC values for all areas except West of Jersey Island Road have increased between 2018 and 2020 as a result of the increase in systemwide project costs (26 percent), specific projects planned for Bethel Island and Delta Coves updating connections based on May 2020 data, and usage based on 2019 data. The FRC for West of Jersey Island Road decreased because no area-specific capital projects are planned per the 2020 Facilities Plan. Still, the FRC for East of Jersey Island Road is 4 percent below the pre-2011 FRC; the FRC for Bethel Island (not including Delta Coves) is 22 percent above the pre-2011 FRC; and the FRC for Delta Coves on Bethel Island is 22 percent above the pre-2011 FRC.

Calculation of the FRCs is based on DWD's future costs associated with funding for system capacity that is or will be available for new services. The unit FRC value is based on the number of anticipated

future developer connections (Equivalent Meters) that will support the expansion-related future costs. An Equivalent Meter (EM) represents a Single Family Dwelling (SFD) 5/8" meter service demand (or 1" meter for home with fire sprinkler system). The updated FRCs are based on cost values, existing DWD customer demand as of the year 2019 and reduced overall build out water demands as a result of water conservation. The values should be annually escalated for equity under inflationary impact using the Engineering News Report (ENR) Construction Cost Index (CCI) for the San Francisco region. Note that Bethel Island FRCs must be determined on a case-by-case basis depending on requests for service, even though the FRC value shown for that DWD service area now reflects both the system wide (Base) FRC and a dedicated project serving both Bethel Island and Delta Coves.

Purpose of Charge

The FRC is a funding mechanism for capital improvements constructed by DWD to serve new development. The funds collected from the program are used to finance new construction and retirement of bonded debt for capital facilities required to serve growth. This program ensures that growth is responsible for its fair share of the capital improvements needed within DWD's service area.

DWD's policy is that existing customers should not have to pay higher water rates attributable to the increased water supply, treatment and distribution facility costs required to serve growth. Through the FRC, DWD collects revenue from new water connections to finance the contractually related debt service on existing but unused water treatment plant capacity, and the financing of construction costs for new water facilities required to serve the new development within the DWD service area. The FRC uses a meter capacity-based schedule of charges to equitably share in the costs of new capacity.

All FRC proceeds, as well as interest earned on the balance of funds, are accounted for in a Facility Reserve Fund, which is used solely for growth-related capital project and financing costs as authorized by state law. DWD's Regulation No. 3 specifies that these uses include "…planning, designing, and construction of facilities that increase the District's water supply or the capacity of its water treatment, storage and distribution system; for payment of principal and interest on indebtedness incurred for said facilities; and for payment of expenses of enlarging or relocating facilities to accommodate growth…".

DWD Service Areas

The FRC schedule is based on the division of the DWD sphere of influence into the following four service areas: West of Jersey Island Road, East of Jersey Island Road, Bethel Island (not including Delta Coves), and Delta Coves. The 2020 current and ultimate maximum water demands and facilities required to serve each of the four areas are identified in the attached FRC calculations tables.

Each service area will pay a Base FRC for system-wide projects benefiting the entire system of water supply, transmission and storage capacities. In addition to the Base FRC, each area will pay a supplemental FRC for the specific distribution storage and pumping facilities to serve that particular area. However, all of the potential facilities and financing requirements of future Bethel Island water services are not known or identified in the FRC for that area and will be determined on a case-by-case basis depending on the specific service requested.

Basis for the Facilities Reserve Charge

The FRC is based on the general methodology provided in state law as applicable to county water districts and the current capital improvement plan costs for projects developed by DWD. The expansion-related project costs, the annual payments for unused water treatment plant capacity, and the projected future development requirements establish the link between the FRC and the DWD facility costs.

Table 1 of this memorandum tabulates the capital improvement plan (CIP) expansion-related water supply costs and projects required for DWD's ultimate service area using the costs developed in the 2020 Facilities Plan. These new facilities and capacity-related projects include: major transmission pipeline projects that provide system wide transmission capacity; reservoirs for meeting system storage, fire protection, and peak demand requirements; Supervisory Control and Data Acquisition (SCADA) system expansion; updating of facilities plan, data and distribution maps; and management of growth-related projects. The total CIP project costs of $82.7 million are divided between system-wide projects of $67.7 million, the East of Jersey Island Road Area projects of $13.9 million, and the Bethel Island and Delta Coves project of $1.0 million. As noted above, the Bethel Island and Delta Coves facilities and financing requirements will be evaluated on a case-by-case basis. Additional information on each of the CIP projects and basis for costs is included in Appendix A of the calculations tables.

The CIP projects in Table 1 are based on facility capacities required to serve customer demands at buildout in each of the DWD service areas. The calculations of these capacity requirements are described below:

- **Current DWD service customers.** The number of future growth-related capacity requests by developers is estimated from the difference between the numbers of water customers at buildout versus the number of current customers. The water use conditions of DWD service customers in 2019 is assumed to be representative of the water use conditions of customers in 2020. Table 2 tabulates that as of 2020 there were 12,310 active service connections with a maximum daily demand (MDD) of 10.0 million gallons per day (MGD) of system wide services. The current maximum daily water use of a single-family dwelling is 697 gallons per day (gpd), which represents 1.0 equivalent meters (EMs) of DWD capacity demand. As such, DWD's current 2020 water demand is assumed to be 14,284 EMs, with 94 percent attributed to the West of Jersey Island Road service area.

- **DWD buildout (ultimate) water supply requirements**. DWD's buildout water supply requirements are based on the ultimate number of customers multiplied by their projected unit water demand. Per the 2020 Facilities Plan, the projected ultimate ADD is 12.6 million gallons per day (MGD). When multiplied by 2.0, DWD's system wide future maximum to average day water demand ratio, the DWD buildout maximum day demand (MDD) is 25.1 MGD.

- **Future development requirements.** The effect of DWD's ongoing and future conservation practices will limit maximum daily water use to 828 gpd per EM, with the number of DWD customers at buildout projected to be 30,312 EMs. As provided in Table 3, the difference between current and buildout customers is approximately 16,028 EMs, with most of the future customers to occur in the Bethel Island area. Table 4 identifies the DWD capacity requirements at system buildout. These capacity requirements will first be served by existing but unused

system capacities, as associated with each service area and second by new capacity built from the projects identified in the CIP listed in Table 1. As shown, the total buildout capacity requirement from DWD centralized sources of supply and District-wide distribution facilities is 25.1 MGD, which provides for some standby water supply in the event of disruption during high demand periods at build out. As provided in Table 3, this total buildout capacity will serve 30,312 EMs, including 16,028 future EMs to be connected.

- **Future water supplies.** DWD's historical maximum day demand (from 2019) of the Randall-Bold Water Treatment Plant (RBWTP) is 8.3 MGD MDD of the current net capacity of 14.6 MGD (57 percent). In addition, DWD currently uses up to 1.7 MGD from groundwater production wells capable of supplying up to 4 MGD. Therefore, DWD has determined that its additional water supply requirements for buildout are 5 MGD of RBWTP capacity and 3 MGD of groundwater supply well capacity. The costs of the 8 MGD of future capacity, plus the contractual payments on the debt service for the existing but unused capacity at the RBWTP, will be funded from future FRC proceeds.

- **Costs of financing capacity for future development.** To provide DWD with flexibility in implementing projects as required for development, the FRC is based on the financing of expansion-related capital projects provided in Table 1. This is in contrast to a pay-as-you-go approach, where it would be necessary to wait until all required funds were accumulated to construct development projects, which would inhibit DWD's ability to serve new development.

Table 5 tabulates these cash flows based on a projected 25 year financing term for the future CIP projects with a 5 percent level payment bond at a 3 percent cost of issuance; the net total debt service is $118.1 million for the system-wide projects, $24.3 million for the East of Jersey Island Road Area projects, and $0.9 million for the Bethel Island and Delta Coves Area-related project. These costs, net of interest earnings, are recovered from FRC proceeds based on the calculations of unit FRC rates.

As shown in Table 6, in addition to the financing costs of future expansion-related projects described above, the FRC covers the debt service on the existing but unused capacity of the RBWTP, which is 43 percent of DWD's future contractual payments to Contra Costa Water District. Also tabulated in Table 6 are the debt service payments on DWD's refinanced 2010 $4.2 Million COP; Glen Park/ Blending and BNSF 24" Relocation 2013 COP, which funded expansion-related projects; a COP for the 2014 Projects; and a 2019 COP for the new corporation yard.

Update of Charges

The net value of the Base and Supplemental FRCs for each service area in Table 7 is calculated by dividing the financing costs of DWD system capacity for future customers by the number of future customers. Offsetting the unit cost of the Base FRC are the unspent proceeds of past FRC payments in the Facilities Reserve Fund, which totals $2.8 million as of April 30, 2020, less $1 million that is reserved to help pay for the 2014 Projects. The components are described as follows:

- **Base FRC**: The Base FRC for system wide costs includes the facility capacity costs that equally benefit all new development. The Base FRC includes new projects and the remaining debt service of the expansion-related financing of existing but unused facilities. The Base FRC is net of the Facilities Reserve Fund balance, for a net Base FRC of $126.3 million. Dividing the net Base FRC by 16,038 EMs of future development, equals $7,880. On a non-net basis, the Base FRC on a per EM basis is $7,992 as shown in Table 7.

- **Supplemental FRC:** In addition to the Base FRC, each area pays a Supplemental FRC for the specific distribution storage and pumping facilities that are required to serve the area. The Supplemental FRC charges are developed by dividing the total cost of required improvements by the number of projected EMs due to the future growth in demands within the applicable area. An EM represents an equivalent single-family connection based on equivalent 5/8-inch meters, the size of the standard residential meter. Larger meter sizes allow higher water use and represent a larger number of EMs per connection. (Note: All single family residences are assumed to equal 1.0 EM regardless of the actual meter size required for fire sprinkler purposes, but larger meters required for landscape irrigation are charged based on size.) As shown, the West of Jersey Island Road does not have a supplemental FRC. The supplemental FRC for East of Jersey Island Road is $24.3 million divided by 4,822 EMs of future development, equaling $5,031 per future East of Jersey Island Road customer. The Bethel Island (not including Delta Coves) Supplemental FRC is currently estimated at $154 per future Bethel Island customer based on its share of the transmission pipeline project, but will ultimately be determined on a case-by-case basis depending on the specific service requested. The Supplemental FRC for the Delta Coves Subdivision is $154 per future Delta Coves customer based on its share of the transmission pipeline project. All additional potable water-supporting infrastructure in Delta Coves will be constructed and paid for by the developer.

- **Combined FRCs.** In the bottom of Table 7, the Base and Supplemental FRCs are summed by area and adjusted by the reserve fund contribution, to derive the net FRC for each area.

Tables 8 – 11 summarize the 2011, 2013, 2015, 2016, 2018 and updated 2020 FRC schedules by service area, as specified in DWD's Regulation No. 3. The tables also provide the FRCs for all water connections with meter sizes from 5/8-inch to 8-inches, based on meter capacity ratio factors defined by the American Water Works Association (AWWA) Manual M1 "Water Rates". CDM Smith recommends that on an annual basis, DWD increase the FRC charges to reflect inflation, based on the increase in the ENR CCI for San Francisco.

MERA Update

The Main Extension Reimbursement Assessment (MERA) obligations are meant to estimate the reimbursement owed to developers because DWD requires a pipe to be sized larger than is strictly needed to serve a particular new development. Table ES 2 summarizes the historic and updated MERA.

Table ES 2: Historical and Proposed MERA

Current vs Updated MERA Charge	
Year	**MERA Incremental Unit Payments, $/EM (Based on 5/8" Meter on SFD)**
Pre-2011	$488
2011	$488
2015	$488
2016	$488
2018	$562
2020	**$615**

Tables 12 – 14 summarize the outstanding DWD obligation at the end of FY 19-20, the MERA projects, and the calculation of the updated 2020 MERA. DWD has $1.0 million in outstanding MERA related obligations at the end of FY 19-20.

Diablo Water District Facilities Reserve Charge 2020
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List of Acronyms

20x2020: Refers to the conservation goal in DWD's 2015 Urban Water Management Plan
ADD: Average Day Demand
AWWA: American Water Works Association
BSNF: Burlington Northern Santa Fe
CCI: Construction Cost Index
CCWD: Contra Costa Water District
CIP: Capital Improvement Plan
COI: Bond Cost of Issuance (%)
COM: Commercial, Business & Light Industrial
COP: Certificate of Participation
CY: Calendar Year
DU: dwelling unit
DWD: Diablo Water District
DWR: Department of Water Resources
EDU: Equivalent Dwelling Unit
EM: Equivalent Meter (⅝ Inch connected to SFD)
ENR: Engineering News Report
FRC: Facility Reserve Charge
FY: Fiscal Year
gpcd: gallons per capita per day
gpd: gallons per day
ID: inside diameter
IND: industrial accounts
INS: institutional accounts: schools, public service
IRR: irrigation accounts
JIR: Jersey Island Road
LF: linear foot
MDD: Maximum Day Demand
MERA: Main Extension Reimbursement Assessment
MFD: Multiple-Family Dwelling
MG: million gallon
MGD: million gallons per day
RBWTP: Randall-Bold Water Treatment Plant
SCADA: Supervisory Control and Data Acquisition
SF: San Francisco
SFD: Single Family Dwelling
SOI: Sphere of Influence
TIC: True Interest Cost
WTP: Water Treatment Plant

Executive Summary

2020 Facilities Reserve Charge (FRC) and Main Extension Reimbursement Assessment (MERA) Comparison

Current vs Updated Facilities Reserve Charge (FRC)								
	West of Jersey Is. Rd.		East of Jersey Is. Rd.		Bethel Island (b)		Delta Coves	
Year	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011	5/8" Meter (a)	Reduction from Pre-2011
Pre-2011	$9,251	--	$13,456	--	$6,607	--	$6,607	--
2011	$5,366	42%	$9,296	31%	$5,366	19%	$5,366	19%
2013	$5,113	45%	$8,929	34%	$5,113	23%	$5,113	23%
2015	$6,548	29%	$8,918	34%	$4,816	27%	$4,816	27%
2016	$6,865	26%	$9,316	31%	$5,072	23%	$5,072	23%
2018	$8,248	11%	$10,864	19%	$5,920	10%	$5,920	10%
2020	**$7,880**	15%	**$12,911**	4%	**$8,034**	-22%	**$8,034**	-22%

These FRCs are based on the May 2020 ENR CCI for San Francisco (CCI = 12,819) and should be escalated annually.
a. An Equivalent Meter (EM) represents a Single Family Dwelling (SFD) ⅝" meter service demand.
b. For Bethel Island, specific requirements and funding arrangements are not included and will be determined on a case-by-case basis depending on requests for service. The FRC for Delta Coves subdivision is calculated and shown separately.
Costs shown above reflect the following CIP estimating factors:

35% Capital Construction Contingency
35% Implementation Allowance (RBWTP)
25% Implementation Allowance (other)
5% Interest Rate Assumed for Future Bonds
0.5% Interest Rate Assumed on Fund Balances
3% Cost of Issuance

Current vs Updated MERA Charge	
Year	MERA Incremental Unit Payments, $/EM (Based on 5/8" Meter on SFD)
Pre-2011	$488
2011	$488
2015 (a)	$488
2016	$488
2018	$562
2020	**$615**

a. While the calculated rate is slightly less than the current MERA rate, pricing uncertainty may result in a significantly higher MERA. Therefore. the current MERA value is being maintained at the pre-2011 value.
MERA: Main Extension Reimbursement Assessment
The MERA value is a repayment to Developers for Oversizing installed Pipelines.

Table 1
FRC Funded CIP Expansion Projects

Future CIP Expansion Projects	Burdened Project Costs (2020 Values)
Systemwide Projects (Including Delta Coves)	
Additional Randall-Bold WTP Contract Capacity of 5 MGD	$34,850,000
Maintain Existing 15 MGD at Randall-Bold WTP	$2,130,000
Future Groundwater Supply Well (1 well @ 2 MGD Capacity)	$3,563,000
Future Well Supply Pipeline (From Well to Blending Facility Pipeline)	$2,000,000
Future Well #4	$4,943,000
Transmission Capacity: 24" Pipeline in Neroly/ Delta Roads and Sellers Road to Cypress Road	$12,500,000
Transmission Capacity: 24" Pipeline in Neroly Road between Laurel and Carpenter Roads	$1,880,000
Permanent Generators at Existing Wells	$1,000,000
Stonecreek Well Iron and Manganese Removal System	$1,130,000
SCADA System Expansion (main control systems)	$340,000
Facilities Plan Updates and Distribution System Map and Facilities Database Updates (a)	$840,000
Growth Related Project Management	$2,525,000
Subtotal - Systemwide Facilities	$67,701,000
East of Jersey Island Road - Expansion Facilities (Not Including Bethel Island & Delta Coves)	
Cypress Reservoir & Pump Station - first 2.5 MG reservoir all site work, pump station building and initial pumps	$8,025,000
Cypress Reservoir & Pump Station - second 2.5 MG reservoir add one pump	$4,250,000
Transmission Line Parallel to Cypress Road	$1,630,000
Subtotal - East of Jersey Island Road Expansion Facilities	$13,905,000
Bethel Island & Delta Coves	
Transmission Capacity: 18" Pipeline to Neroly Road	$1,050,000
Subtotal - Bethel Island & Delta Coves	$1,050,000
Project Cost Summary by Area	
Systemwide Projects (Including Delta Coves)	**$67,701,000**
West of JIR	**$0**
East of JIR (Not Including Bethel Island & Delta Coves)	**$13,905,000**
Bethel Island (b) & Delta Coves	**$1,050,000**
Grand Total	**$82,656,000**

Burdened Project Costs include: 35% capital construction contingency, and implementation allowance of 35% (RBWTP) and 25% (other projects). See Appendix A.

a. Assumes the following documents would be produced prior to District system buildout, anticipated to be 2040: Facilities Plan updates (2 updates x $250k) = $500k; System Mapping updates (2 updates x $100k) = $200k; and bi-annual FRC Model updates ($7k each on average).

b. For Bethel Island, specific requirements and funding arrangements are not included and will be determined on a case-by-case basis depending on the request for service.

Table 2
Current Water Use

Description	Customer Classifications SFD	MFD	COM/ Other	IRR	IND	Total
Ratio of Maximum to Average Water Demand (a)						
Average Day Demands (MGD)	3.7	0.1	0.3	0.4	0.0	4.5
Max. Month (MGD)	5.3	0.1	0.4	0.9	0.0	6.8
Ratio of Max. Month to Average Day Demand	1.5	1.1	1.6	2.1	1.1	1.5
Maximum Day Demands (MGD, MDD)	8.2	0.1	0.4	1.1	0.0	10.0
Estimated Ratio of Max. Day to Max. Month	1.5	1.1	1.0	1.3		1.5
Ratio of Maximum Day to Average Day Demand	2.3	1.1	1.6	2.7	1.1	**2.2**
Active Service Connections (DWD May 2020)(b)						
West of JIR	11,165	19	279	150	1	11,614
East of JIR (excludes 215 accounts on local wells)	626	0	13	20	0	659
Bethel Island (excludes unmetered local wells)(c)	32	0	0	5	0	37
Total Active Service Connections	11,823	19	292	175	1	12,310
Average Use per SFD Dwelling Unit (gpd/DU, ADD)	310					
Current Maximum Daily Use per DU (gpd/DU, MDD)	697					
Total Current Uses (Equivalent Meters, MDD)	**11,823**	**214**	**645**	**1,601**	**1**	**14,284**
Estimated ADD on DWD System by Service Area						
West of JIR (MGD)	3.5	0.1	0.3	0.3	0.0	4.2
East of JIR (MGD)	0.2	0.0	0.0	0.0	0.0	0.3
Bethel Island (MGD)(b)	0.0	0.0	0.0	0.0	0.0	0.0
Total Average Day Demands (MGD)	3.7	0.1	0.3	0.4	0.0	4.5
Estimated Total Current Maximum Day Demand (MGD, MDD)						
RBWTP						8.3
Wells						1.7
Estimated Total						10.0

Current Sources of Supply	Capacity in Use	Existing System Net Capacity (MGD)	Max Day Demand (MGD)(e)		Average Day Demand (MGD)	(MG/yr)
RBWTP Surface Water	57%	14.6	8.3		4.1	1,488
Groundwater	42%	4.0	1.7		0.8	295
Total	54%	18.6	10.0		4.9	1,783
Unaccounted for Water				8%	(0.4)	
Total Metered Water Use					4.5	

Demand values used for FRC and MERA are Maximum Day Demands (MDD).
(a) Calendar Year (CY) 2019 Data is from the annual year-end report to DWR.
Future industrial maximum to average month ratio is projected to be 1.1.
(b) Metered hydrants are proportionally distributed to the areas based on the number of SFD and are included in COM/Other.
(c) Bethel Island data on this tab includes Delta Coves current uses.
(d) The maximum day use in 2019 was 9.96 MGD on 8/12/19 (8.265 MGD from RBWTP and 1.697 MGD from wells).
(e) Source: Daily water delivery records for 2019.

Table 3
Buildout Water Demands & Equivalent Meters

Description	Customer Classes SFD	MFD	COM/ Other	IRR	IND	Total
Customer Average Day Demands at Buildout (a)						
West of JIR (MGD) (b)	5.3	0.9	1.5	0.5	0.1	8.2
East of JIR (MGD)	1.5	0.5	0.1	0.3	0.0	2.4
Bethel Island (MGD) (includes Delta Coves)	1.0	0.2	0.3	0.5	0.0	2.0
Total DWD (MGD)	7.8	1.6	1.8	1.3	0.1	12.6
Single Family Average Day Unit Demand, gpd/du (a)	**360**					
Future Ratio of Max Day to Avg Daily Demand	2.3	1.1	1.6	4.8	1.1	2.0
Maximum Day Demands (MGD)	14.1	1.8	2.9	6.2	0.1	**25.1**
System Demand at Buildout (EM) (c)	17,070	2,160	3,469	7,509	103	30,312
Est Avg. Use per DU (gpd/DU @ MDD) (equal to gpd/EM @ MDD)	**828**					
Maximum Day Demands at Buildout (MGD)						
West of JIR	9.6	1.0	2.3	2.5	0.1	15.4
East of JIR	2.8	0.6	0.2	1.2	0.0	4.7
Bethel Island (includes Delta Coves)	1.8	0.3	0.4	2.5	0.0	5.0
Total System	14.1	1.8	2.9	6.2	0.1	25.1
Current System Demand	8.2	0.1	0.4	1.1	0.0	10.0
New System Demand (MGD @ MDD)	5.9	1.6	2.4	5.1	0.1	**15.1**
Maximum Day Demands at Buildout (Equivalent Meters (EM))						
West of JIR	11,562	1,185	2,779	3,027	103	18,657
East of JIR	3,322	672	211	1,455	0	5,660
Bethel Island	1,692	259	430	3,022	0	5,403
Delta Coves (d)	494	44	49	5	0	592
Total System EM at Buildout	17,070	2,160	3,469	7,509	103	30,312
Current System EM	11,823	214	645	1,601	1	14,284
New (Future) Demands	5,247	1,946	2,824	5,909	102	16,028
New (Future) Equivalent Meters by Area (EM) (a)						
West of JIR	1,071	1,015	2,183	1,431	102	**5,288**
East of JIR	2,485	672	211	1,455	0	**4,822**
Bethel Island	1,692	259	430	3,022	0	**5,403**
Delta Coves	416	44	49	5	0	**514**
Total	5,247	1,946	2,824	5,909	102	**16,028**

a. Future (new) demand in DWD service areas at buildout (2040) per Table 5-9 of the June 2020 Facilities Plan assumptions and current usage.
b. Build out Industrial demand is presumed to equal the anticipated demand at Oakley, page 5-4 of 2020 Facilities Plan.
c. DWD total SFR DUs at buildout per 2020 Facilities Plan, Table 5-3.
d. Delta Coves EM values are based on the following information provided by Yousra Tilden (BKF) on October 18, 2013:
Single family residential = 494 units,
Condominiums = 96 units,
Commercial establishments = 6 units over 7 acres, plus 5.8 acres for the Yacht Club, totals 13 acres.
To convert the number of condominium units to equivalent meters (EMs), we have presumed that MFD customers have an average of 8 dwelling units (DU) per account at buildout. Buildout MFD accounts total 600 (2020 Facilities Plan, Table 5-3), or 4,800 DU. Estimate one MFD DU equals 0.45 EDUs based on the 2019 and 2020 water use and EMs data. Therefore, 96 MFD equates to 44 EM.
To convert the commercial acres to EMs, we used the 2020 Facilities Plan, Table 5-5, unit demand factors for SFD and Commercial to estimate the number of DUs per acre of Commercial land (1360 gpd/acre / 360 gpd/du = 3.8 du/acre). Presume one EM equals one single family DU. Therefore, 13 acres of Commercial land equates to 49 EMs.
DWD indicated that five irrigation customers already exist in Delta Coves. June 2020.

Table 4
Future Development

Description	Planned Buildout Capacity	FY 2020 Used System Capacity	Existing System Capacity (2020)	Future Development (New EM Customers)
Total System Water Sources of Supply				
Current RBWTP Capacity (MGD) (a)	15.0		15	
Future RBWTP Capacity (MGD) (a)	5.0			
Total RBWTP Capacity (MGD) (a)	20.0			
Less current in-plant water uses of 3% (a)	(0.45)		(0.45)	
Net Capacity (MGD)	19.6			
WTP at Maximum Day (MGD) (b)	19.6	8.2	14.6	11.4
Groundwater Supply at Max Day (MGD) (c)	7.0	1.7	4.0	5.3
Total Capacity (MGD with standby and blending reserves)	26.6	10.0	18.6	16.6

Customer Buildout Demands (EM)	Planned Buildout Demands (EM)	Existing Active Demands (EM)	Existing Capacity of Distribution System	Future Development (New EM Customers)
West of JIR (b)	18,657	13,369	18,657	5,288
East of JIR	5,660	838	2,644	4,822
Bethel Island	5,403	0	0	5,403
Delta Coves	592	78	120	514
Total (EM)	30,312	14,284	21,421	16,028
Water Use per EM (gpd/EM, MDD)	828			
Total Demand (MDD, MGD)	25.1			

Total Capacity (Percentage)	Planned Buildout Demands	Existing Active Demands
West of JIR	100%	72%
East of JIR	100%	15%
Bethel Island	100%	0%
Delta Coves	100%	13%
Total	100%	47%

Equivalent Meter (EM) provides water service to one single-family dwelling.
a. Current net DWD capacity at Randall-Bold WTP less in-plant water uses of 3%. Table assumes future 5 MGD increase will be as net capacity. Both per 2020 Facilities Plan Section 9.3.1.
b. Includes 1.1 MGD in reserved industrial capacity, in West of JIR area, assigned to RBWTP.
c. Total groundwater supply as of 2020 includes 2 MGD from the Stonecreek Well, 2 MGD for the Glen Park Well, and presumes the Bethel Island residential wells will be retired before buildout.

Table 5
CIP Expansion Project Financing

Systemwide Projects to be Funded (from Table 1)		$67,701,000	East of Jersey Island Road CIP Projects to be Funded (from Table 1)		$13,905,000	Bethel Island / Delta Coves CIP Projects to be Funded (from Table 1)		$1,050,000
	Year	Payments (a)		Year	Payments (a)		Year	Payments (a)
Total Payments	2020	$4,947,659	**Total Payments**	2020	$1,016,192	**Total Payments**	2020	$43,260
	2021	$4,947,659		2021	$1,016,192		2021	$43,260
	2022	$4,947,659		2022	$1,016,192		2022	$43,260
	2023	$4,947,659		2023	$1,016,192		2023	$43,260
	2024	$4,947,659		2024	$1,016,192		2024	$43,260
	2025	$4,947,659		2025	$1,016,192		2025	$43,260
	2026	$4,947,659		2026	$1,016,192		2026	$43,260
	2027	$4,947,659		2027	$1,016,192		2027	$43,260
	2028	$4,947,659		2028	$1,016,192		2028	$43,260
	2029	$4,947,659		2029	$1,016,192		2029	$43,260
	2030	$4,947,659		2030	$1,016,192		2030	$43,260
	2031	$4,947,659		2031	$1,016,192		2031	$43,260
	2032	$4,947,659		2032	$1,016,192		2032	$43,260
	2033	$4,947,659		2033	$1,016,192		2033	$43,260
	2034	$4,947,659		2034	$1,016,192		2034	$43,260
	2035	$4,947,659		2035	$1,016,192		2035	$43,260
	2036	$4,947,659		2036	$1,016,192		2036	$43,260
	2037	$4,947,659		2037	$1,016,192		2037	$43,260
	2038	$4,947,659		2038	$1,016,192		2038	$43,260
	2039	$4,947,659		2039	$1,016,192		2039	$43,260
	2040	$4,947,659		2040	$1,016,192		2040	$43,260
	2041	$4,947,659		2041	$1,016,192		2041	$43,260
	2042	$4,947,659		2042	$1,016,192		2042	$43,260
	2043	$4,947,659		2043	$1,016,192		2043	$43,260
	2044	$4,947,659		2044	$1,016,192		2044	$43,260
Total Debt Service		$123,691,472	Total Debt Service		$25,404,793	Total Debt Service		$1,081,500
Minus Interest from Reserve Fund @ 0.5%		($618,457)	Minus Interest from Reserve Fund @ 0.5%		($127,024)	Minus Interest from Reserve Fund @ 0.5%		($127,024)
Minus Last Payment from Reserve Fund		($4,947,659)	Minus Last Payment from Reserve Fund		($1,016,192)	Minus Last Payment from Reserve Fund		($43,260)
Net DWD Debt Service on Systemwide Projects		**$118,125,356**	**Net Debt Service on East of Jersey Island Road Projects**		**$24,261,578**	**Net Debt Service on East of Jersey Island Road Projects**		**$911,216**

a. DWD Debt Service for 2020 CIP Projects is based on 25 year Bonds, Level Payments at 5% TIC and 3% COI.

Table 6
Debt Service Payments

Randall-Bold WTP Capacity Contract Payments (Bonded Debt Service, 2012A), (a)			Refinanced DWD Debt Service for 2010 (Stonecreek) (b)			Glen Park/Blending & BNSF (2013 COP) (c) Debt Service Share			Restructured 2014 Projects Installment Payments (2019 COP) (d)			New Corporation Yard, 2019 Certificates of Participation		
	Date	Payments		Year	Payments		Year	Payments		Year	Payments		Year	Payments
Payments Made	10/1/2012	$2,666,720	Remaining	7/1/2020	$63,556	Payments	7/1/2013	$30,755	Remaining	7/1/2020	$51,333	Remaining	7/1/2020	$89,956
	4/1/2013	$138,693	Payments	1/1/2021	$172,000	Made	1/1/2014	$170,751	Payments	1/1/2021	$207,000	Payments	1/1/2021	$123,600
	10/1/2013	$223,200		7/1/2021	$49,600		7/1/2014	$89,951		7/1/2021	$38,700		7/1/2021	$72,600
	4/1/2014	$223,200		1/1/2022	$184,600		1/1/2015	$169,951		1/1/2022	$223,700		1/1/2022	$142,600
	10/1/2014	$2,123,200		7/1/2022	$46,900		7/1/2015	$89,151		7/1/2022	$35,000		7/1/2022	$71,200
	4/1/2015	$213,700		1/1/2023	$186,900		1/1/2016	$344,151		1/1/2023	$225,000		1/1/2023	$141,200
	10/1/2015	$3,573,700		7/1/2023	$44,100		7/1/2016	$86,601		7/1/2023	$31,200		7/1/2023	$69,800
	4/1/2016	$196,900		1/1/2024	$194,100		1/1/2017	$536,601		1/1/2024	$231,200		1/1/2024	$144,800
	10/1/2016	$3,591,900		7/1/2024	$41,100		7/1/2017	$82,101		7/1/2024	$27,200		7/1/2024	$68,300
	4/1/2017	$179,925		1/1/2025	$196,100		1/1/2018	$537,101		1/1/2025	$232,200		1/1/2025	$143,300
	10/1/2017	$3,614,925		7/1/2025	$38,000		7/1/2018	$77,551		7/1/2025	$23,100		7/1/2025	$66,800
	4/1/2018	$162,750		1/1/2026	$193,000		1/1/2019	$537,551		1/1/2026	$238,100		1/1/2026	$146,800
	10/1/2018	$3,667,750		7/1/2026	$34,900		7/1/2019	$72,951		7/1/2026	$18,800		7/1/2026	$65,200
	4/1/2019	$110,175		1/1/2027	$199,900		1/1/2020	$537,951		1/1/2027	$238,800		1/1/2027	$150,200
	10/1/2019	$3,730,175		7/1/2027	$31,600	Remaining	7/1/2020	$68,301		7/1/2027	$14,400		7/1/2027	$63,500
	4/1/2020	$55,875		1/1/2028	$206,600	Payments	1/1/2021	$548,301		1/1/2028	$244,400		1/1/2028	$148,500
Remaining Payments	10/1/2020	$1,342,211		7/1/2028	$28,100		7/1/2021	$62,901		7/1/2028	$9,800		7/1/2028	$61,800
				1/1/2029	$203,100		1/1/2022	$452,901		1/1/2029	$249,800		1/1/2029	$151,800
				7/1/2029	$24,600		7/1/2022	$58,026		7/1/2029	$5,000		7/1/2029	$60,000
				1/1/2030	$209,600		1/1/2023	$458,026		1/1/2030	$255,000		1/1/2030	$155,000
				7/1/2030	$20,900		7/1/2023	$52,526					7/1/2030	$58,100
				1/1/2031	$210,900		1/1/2024	$462,526					1/1/2031	$153,100
				7/1/2031	$17,100		7/1/2024	$46,376					7/1/2031	$56,200
				1/1/2032	$217,100		1/1/2025	$466,376					1/1/2032	$156,200
				7/1/2032	$13,100		7/1/2025	$40,076					7/1/2032	$54,200
				1/1/2033	$223,100		1/1/2026	$475,076					1/1/2033	$159,200
				7/1/2033	$8,900		7/1/2026	$33,008					7/1/2033	$52,100
				1/1/2034	$223,900		1/1/2027	$483,008					1/1/2034	$162,100
				7/1/2034	$4,600		7/1/2027	$25,695					7/1/2034	$49,900
				1/1/2035	$234,600		1/1/2028	$490,695					1/1/2035	$164,900
							7/1/2028	$17,558					7/1/2023	$47,600
							1/1/2029	$497,558					1/1/2036	$167,600
							7/1/2029	$9,158					7/1/2036	$45,200
							1/1/2030	$504,158					1/1/2037	$170,200
													7/1/2037	$42,700
													1/1/2038	$172,700
													7/1/2038	$40,100
													1/1/2039	$175,100
													7/1/2039	$37,400
													1/1/2040	$177,400
													7/1/2040	$34,600
													1/1/2041	$179,600
													7/1/2041	$31,700
													1/1/2042	$181,700
													7/1/2042	$28,700
													1/1/2043	$183,700
													7/1/2043	$25,600
													1/1/2044	$185,600
													7/1/2044 - 1/1/2050	$1,281,600
CCWD Debt Service on RBWTP														
Remaining CCWD Debt Service for RBWTP		$1,342,211	Total Remaining Payments (as of 6/20)		$3,522,556	Total Remaining Payments (as of 6/20)		$5,252,250	Total Remaining Payments (as of 6/20)		$2,599,733	Total Remaining Payments (as of 6/20)		$6,411,756
Minus Last Payment from Reserve Fund		($864,000)	Minus Last Payment from Reserve Fund		($234,600)	Minus Last Payment from Reserve Fund		($533,080)						
Minus Interest from Reserve Fund @ 0.5%		$0	Minus Interest from Reserve Fund @ 0.5%		($17,595)	Minus Interest from Reserve Fund @ 0.5%		($26,654)						
Total Remaining CCWD Debt Service for RBWT		$478,211	DWD Net Remaining Payments		$3,270,361	DWD Net Remaining Payments		$4,692,516	DWD Net Remaining Payments		$2,599,733	DWD Net Remaining Payments		$6,411,756
DWD Development Share of Debt Service														
Total Remaining CCWD Debt Service for RBWTP		$478,211							DWD Net Remaining Payments		$2,599,733			
DWD Share of RBWTP Capacity (15 of 40 MGD, Capped)		35.5%							Unused Capacity		50%			
DWD Share of Remaining Payments		$169,765	DWD Net Remaining Payments		$3,270,361	DWD Net Remaining Payments		$4,692,516	Facilities Fund Related		$1,299,867	DWD Net Remaining Payments		$6,411,756
Existing but Unused Capacity		43%	Unused Capacity		85%	Unused Capacity		73%	FRC Reserves (e)		($1,000,000)	Unused Capacity		53%
Future Growth Share of DWD Capacity in RBWTP		**$73,331**	**Net DWD Debt Service for 2010 COP**		**$2,779,806**	**Net DWD Debt Service for 2013 COP**		**$3,425,537**	**Net DWD Debt Service for 2014 Projects**		**$299,867**	**Net DWD Debt Service for New Corp Yard**		**$3,398,230**

a. For the existing Randall-Bold WTP Bonds, DWD pays a 35.5% share and CCWD pays the remaining 64.5% share. DWD's 35.5% share of the existing capacity is divided between existing and future users.
b. Projects are the Stonecreek Well at 2 MGD and pipeline at 7 MGD, with no 2010 usage. Unused capacity based on median usage of 0.32 mgd in max month of August 2019.
c. The original 2005 COP of $7.5 million funded the $1.4 million Glen Park Well and Pump Station, a $2.5 million pipeline and a $3 million Blending Facility.
The capacity of the Blending Faciliity and pipeline is 7 MGD, and 2 MGD for the well and pump station. As of 2010, all facilities are operating at 1.85 MGD.
Unused capacity is estimated based on median use of 1.24 mgd in the max month of July 2019.
The debt related to the new BNSF 24" pipeline will be paid off in 2021, therefore the unused capacity for this debt is presumed to the weighted average of the Glen Park Well and Pump Station and Blending Facility.
d. New administrative facility and Reservoir No. 1 interior recoating. Fifty percent is attributed to growth and is the responsibility of the Facilities Fund.
e. DWD has earmarked $1 million of the FRC Reserves for the final 2014 Projects payment. Coordinate with fee reduction in Table 7.

Table 7
2020 FRC Update

Description	Facilities Reserve Fund for Fee Reduction (c)	FRC Financing of Expansion Projects	Remaining Debt Service for Expansion-Related Systemwide Facilities: RBWTP Facility	Groundwater Supply Facilities	2010 COP $4.2 Million	Corporate Yard	2014 Projects	Total
DWD Assets, Costs & Contractual Obligations								
Base Systemwide	($1,807,951)	$118,125,356	$73,331	$3,425,537	$2,779,806	$3,398,230	$299,867	$126,294,176
West of JIR		$0						$0
East of JIR		$24,261,578						$24,261,578
Bethel Island (a)		$832,021						$832,021
Delta Coves (a)		$79,195						$79,195
Total		$143,298,150	$73,331	$3,425,537	$2,779,806	$3,398,230	$299,867	$151,466,970
Future Development Customers Paying FRCs (EM)								
Base Systemwide				16,028				
West of JIR				5,288				
East of JIR				4,822				
Bethel Island				5,403				
Delta Coves				514				
Incremental Unit Payments ($/EM, Future Customers)		**FRC Projects ($ per EM)**	**FRC Debt Service Payments ($ per EM)**					**Subtotal FRC ($ per EM)**
Systemwide Base FRC	($113)	$7,370	$5	$214	$173	$212	$19	$7,992
Supplemental FRCs								
West of JIR		$0						$0
East of JIR		$5,031						$5,031
Bethel Island (b)		$154						$154
Delta Coves		$154						$154

Total FRCs Including Allocated Systemwide Costs ($/EM)	Facilities Reserve Fund for Fee Reduction (c)	Combined Systemwide & Area FRC	Total FRC
West of JIR	($113)	$7,992	**$7,880**
East of JIR	($113)	$13,023	**$12,911**
Bethel Island (b)	($113)	$8,146	**$8,034**
Delta Coves	($113)	$8,146	**$8,034**

The 2020 FRC Update is based on Future Cashflows Associated with Facility Expansion.
a. Allocated the Bethel Island/ Delta Coves project based on buildout equivalent meters.
b. The Bethel Island Supplemental FRC for Distribution Storage & Pumping Facilities will be determined on a case-by-case basis depending on requests for service. The Total FRC for Bethel Island will be the Base Fee plus the Supplemental Fee identified on a case-by-case basis.
c. Facilities Reserve Fund balance of $2,807,951, as of April 30, 2020, reduced by $1 million that is earmarked for the final 2014 Projects payment.

Table 8
West of Jersey Island Rd 2020 FRC

Meter Size (inches)	Capacity Ratio Factors (a)	2011 FRC Charges	2013 FRC Charges	2015 FRC Charges	2016 FRC Charges	2018 FRC Charges	2020 FRC Charges
5/8" (EM)	1.0	$5,366	$5,113	$6,548	$6,865	$8,248	$7,880
1"	1.4	$7,512	$7,159	$9,167	$9,611	$11,547	$11,032
1.5"	1.8	$9,658	$9,204	$11,786	$12,357	$14,846	$14,183
2"	2.9	$15,560	$14,828	$18,989	$19,909	$23,919	$22,851
3"	11.0	$59,021	$56,246	$72,025	$75,516	$90,728	$86,676
4"	14.0	$75,118	$71,585	$91,669	$96,112	$115,472	$110,315
6"	21.0	$112,677	$107,378	$137,503	$144,168	$173,208	$165,473
8"	29.0	$155,602	$148,284	$189,885	$199,088	$239,192	$228,510

a. All meter capacity ratio factors are from AWWA Manual M1.
Charges for meters greater than 8" to be determined by DWD on a case-by-case basis.
The charge for a 1" meter for residential services, which is made necessary for the installation of a fire sprinkler system, is the same as the charge for a 5/8" meter for one- and two-family residential systems.

Table 9
East of Jersey Island Rd 2020 FRC

Meter Size (inches)	Capacity Ratio Factors (a)	2011 FRC Charges	2013 FRC Charges	2015 FRC Charges	2016 FRC Charges	2018 FRC Charges	2020 FRC Charges
5/8" (EM)	1.0	$9,296	$8,929	$8,918	$9,316	$10,864	$12,911
1"	1.4	$13,014	$12,500	$12,485	$13,043	$15,210	$18,075
1.5"	1.8	$16,733	$16,072	$16,052	$16,769	$19,555	$23,239
2"	2.9	$26,958	$25,893	$25,861	$27,017	$31,506	$37,441
3"	11.0	$102,256	$98,215	$98,095	$102,478	$119,504	$142,018
4"	14.0	$130,144	$125,001	$124,848	$130,427	$152,096	$180,750
6"	21.0	$195,216	$187,502	$187,273	$195,640	$228,144	$271,124
8"	29.0	$269,584	$258,931	$258,614	$270,170	$315,056	$374,410

a. All meter capacity ratio factors are from AWWA Manual M1.
Charges for meters greater than 8" to be determined by DWD on a case-by-case basis.
The charge for a 1" meter for residential services, which is made necessary for the installation of a fire sprinkler system, is the same as the charge for a 5/8" meter for one- and two-family residential systems.

Table 10
Bethel Island 2020 Base FRC

Meter Size (inches)	Capacity Ratio Factors (a)	2011 FRC Charges	2013 FRC Charges	2015 FRC Charges	2016 FRC Charges	2018 FRC Charges	2020 FRC Charges
5/8" (EM)	1.0	$5,366	$5,113	$4,816	$5,072	$5,920	$8,034
1"	1.4	$7,512	$7,159	$6,742	$7,100	$8,288	$11,247
1.5"	1.8	$9,658	$9,204	$8,669	$9,129	$10,656	$14,461
2"	2.9	$15,560	$14,828	$13,966	$14,708	$17,168	$23,298
3"	11.0	$59,021	$56,246	$52,975	$55,789	$65,120	$88,370
4"	14.0	$75,118	$71,585	$67,422	$71,004	$82,880	$112,471
6"	21.0	$112,677	$107,378	$101,133	$106,506	$124,320	$168,707
8"	29.0	$155,602	$148,284	$139,660	$147,080	$171,680	$232,976

a. All meter capacity ratio factors are from AWWA Manual M1.
Charges for meters greater than 8" to be determined by DWD on a case-by-case basis.
The charge for a 1" meter for residential services, which is made necessary for the installation of a fire sprinkler system, is the same as the charge for a 5/8" meter for one- and two-family residential systems.

b. The Bethel Island Supplemental FRC for Distribution Storage & Pumping Facilities will be determined on a case-by-case basis depending on requests for service. The Total FRC for Bethel Island will be the Base Fee plus the Supplemental Fee.

Table 11
Delta Coves 2020 FRC

Meter Size (inches)	Capacity Ratio Factors (a)	2011 FRC Charges	2013 FRC Charges	2015 FRC Charges	2016 FRC Charges	2018 FRC Charges	2020 FRC Charges
5/8" (EM)	1.0	NA	NA	$4,816	$5,072	$5,920	$8,034
1"	1.4	NA	NA	$6,742	$7,100	$8,288	$11,247
1.5"	1.8	NA	NA	$8,669	$9,129	$10,656	$14,461
2"	2.9	NA	NA	$13,966	$14,708	$17,168	$23,298
3"	11.0	NA	NA	$52,975	$55,789	$65,120	$88,370
4"	14.0	NA	NA	$67,422	$71,004	$82,880	$112,471
6"	21.0	NA	NA	$101,133	$106,506	$124,320	$168,707
8"	29.0	NA	NA	$139,660	$147,080	$171,680	$232,976

a. All meter capacity ratio factors are from AWWA Manual M1.
Charges for meters greater than 8" to be determined by DWD on a case-by-case basis.
The charge for a 1" meter for residential services, which is made necessary for the installation of a fire sprinkler system, is the same as the charge for a 5/8" meter for one- and two-family residential systems.

Table 12
Main Extension Reimbursement Assessment-Related DWD Obligations

Developer	DWD Development	Date Accepted	Total MERA Value	Outstanding DWD Obligation at end of FY 19-20
DWD Outstanding Obligations for MERA Reimbursements				
Discovery Homes	8736 - Pheasant Meadows	Pending	$7,612	$7,612
City of Oakley	CIP 92	7/1/2016	$35,360	$15,360
Centex Homes	8530 /8790 Riata	8/31/2008	$158,870	$47,661
Pulte Homes	8731 - Magnolia Park	8/15/2011	$220,405	$66,118
SDC Delta Coves LLC	6013 - Delta Coves, 18" Offsite	4/24/2019	$810,606	$729,546
Brookfield Emerson Land, LLC	9032, 9349, 9350 & 9351 Emerson Ranch	2/26/2020	$30,250	$30,250
Albert D. Seeno Construction	8760-9027 - Carpenter Road Improvements - 18" Waterline	Pending	$90,340	$90,340
Total				**$986,887**

MERA: Main Extension Reimbursement Assessment

Table 13
Pipeline Projects Funded by Developers

General Location	Pipe Capacity Reqd for Build out (Inch ID)	Fully Burdened Unit Cost (2020 per LF)	Pipe Length Reqd for Buildout (LF)	Construction Contingency	Est Pipe Distribution Cost	Pipe Capacity Reqd for Current Developers (Inch ID)	Current Developer Reimbursement Unit Cost ($ per LF)	DWD Payments to Developer for Oversizing Reimbursement (10 yr payment)
West of Jersey Island Road Area								
12" pipelines	12	$95	24,000	25%	$2,850,000	8	$83	$858,000
16" pipelines	16	$145	9,150	25%	$1,660,000	8	$83	$900,550
18" pipelines	18	$157	3,850	25%	$760,000	8	$83	$440,450
Subtotal West of Jersey Island Road Area			37,000		$5,270,000			$2,199,000
East of Jersey Island Road Area								
12" pipelines	12	$102	56,200	25%	$7,170,000	8	$89	$2,168,200
18" pipelines	18	$170	2,250	25%	$480,000	8	$89	$279,750
20" pipelines	20	$186	8,800	25%	$2,050,000	8	$89	$1,266,800
24" pipelines	24	$219	1,400	25%	$380,000	8	$89	$255,400
Contra Costa Canal Crossing just northwest of Jersey Island Road & East Cypress Rd. (casing)	20	$802	200	25%	$200,000	8	$719	$56,200
Subtotal East of Jersey Island Road Area			68,850		$10,280,000			$4,026,350
Bethel Island (Delta Coves)								
16" pipelines in Delta Coves (PVC)	16	$213	24,500	25%	$6,520,000	12	$158	$2,649,000
Subtotal Bethel Island (Delta Coves)			24,500		$6,520,000			$2,649,000
Summary								
Subtotal West of Jersey Island Road Area			37,000		$5,270,000			$2,199,000
Subtotal East of Jersey Island Road Area			68,850		$10,280,000			$4,026,350
Subtotal Bethel Island (Delta Coves)			24,500		$6,520,000			$2,649,000
Total DWD Sphere of Influence			130,350		$22,070,000			**$8,874,350**

These projects represent the remaining facilities required to buildout. Distribution pipes already constructed are listed in the fixed assets.

Note: The MERA calculation is for DWD's Sphere of Influence, including service to Delta Coves on Bethel Island. Specific requirements for service to other parts of Bethel Island will be determined on a case-by-case basis.

All costs in this table are in May 2020 dollars. Unit costs for pipes include pipes, fittings, valves and corrosion protection. The unit costs are average values including both simple and difficult projects. Unit costs do not include any construction contingency. Pave unit costs are used for major transmission projects. The estimated construction cost includes a 25 percent contingency.

Applicable costs for potential reimbursement are calculated as: 1) For SOI except Delta Coves, the estimated construction cost minus the cost for an 8-inch pipeline using unit costs of 8-inch pipeline (unpaved) and for 8-inch pipe in casing; and 2) For Bethel Island as the estimated construction cost of 16-inch DIP minus the cost for a 12-inch DIP pipeline using unit costs specifically developed by CDM Smith in May 2020 dollars. Unit costs by CDM Smith do not include mobilization, restoration, patching, or other ancillary items/activities. Specific reimbursement amounts are determined on a case-by-case basis for each development based on DWD's MERA policy. New development is reimbursed for the difference between the cost of the required waterline and the cost of either an 8-inch or 12-inch pipeline depending on what is required to provide adequate service, including fire flows, for the development.

Table 14
2020 Main Extension Reimbursement Assessment

Description	Value
Outstanding MERA Reimbursement Obligations	$986,887
Future MERA Project Reimbursements	$8,874,350
Total MERA Obligations	$9,861,237
Future Development Customers Paying FRC (EM)	16,028
Calculated 2020 MERA Incremental Unit Payments ($/EM or ⅝" Meter on SFD) (a)	**$615**
Calculated 2018 MERA Payment (⅝" Meter) (a)	$562
Pre-2011 MERA Payment (⅝" Meter)	$488

MERA: Main Extension Reimbursement Assessment
The MERA value is a repayment to Developers for Oversizing installed Pipelines.
a. DWD may not always adopt the calculated MERA Incremental Unit Payment.

Appendix A

Summary of Recommended Capital Improvement Projects for Ultimate DWD System

Type of Project and Area Served	Project	Estimated Cost (May 2020 $) (1)				
		Base Construction Cost	Total Construction Cost (2)	Project Implementation Allowance (3)	Land Cost	Total Capital Cost (May 2020 dollars) (1)
Systemwide Projects (Including Delta Coves)						
Treated Water Supply (4,10)	Future expansion of Randall-Bold WTP for additional 5 mgd capacity. WTP expansion cost includes replacement of Randall-Bold high lift pumps for additional pumping capacity, additional clearwell capacity, and treatment upgrades and associated documentation.	$22,500,000	$30,400,000	$10,600,000	$0	$41,000,000
Treated Water Supply (4)	Projects between 2021-2030 at Randall-Bold WTP associated with maintaining existing 15 mgd capacity available for near-term development. Costs obtained from CCWD's draft 2020 Water Treatment Plant Master Plan Report. Costs shown herein = Total Project Costs x Unused Existing Capacity (approx. 33%) x DWD Ownership (37.5%)	NA	$1,700,000	$430,000	$0	$2,130,000
Groundwater Supply (5)	Groundwater Well #3: New well at 1.5 mgd average capacity. Well and pump station costs based on Stonecreek Well and Pump Station. Includes treatment system at $700k and generator at $197k. Assumes Land cost for 0.25 acre per site at up to $250,000 per acre for developable land.	$2,100,000	$2,800,000	$700,000	$63,000	$3,563,000
	Pipeline to connect new High School well to Blending Facility pipeline. Pipeline anticipated to consist of installation of 18-inch pipe w/ 2,000 ft unpaved construction, and 3,500 ft paved construction. Pipe unit cost of $157 per LF in unpaved roads, and $264 per LF along Sellers Rd.	$1,200,000	$1,600,000	$400,000	$0	$2,000,000
	Groundwater Well #4: New well at 1.5 mgd average capacity. Assumes 2,000 ft of pipe in paved alignment to connect to Well #3. Includes treatment system at $700k and generator at $197k. Assumes 50% increase from Base to Total Construction Cost due to additional planning required. Assumes land cost for 0.25 acre per site at up to $250,000 per acre for developable land.	$2,600,000	$3,900,000	$980,000	$63,000	$4,943,000
Transmission Capacity (6)	Transmission pipeline in Neroly/Delta Roads, Sellers Avenue to Cypress Road (21,700 linear feet [LF] of 24-inch pipe at $325 per LF assuming paved unit costs; plus 400 LF total for two cased crossings at Marsh Creek and Railroad at $772 per LF). Does not include 1,566 LF installed under MERA for Riata project.	$7,400,000	$10,000,000	$2,500,000	$0	$12,500,000
Transmission Capacity (6)	Transmission pipeline in from Reservoirs R-2 and R-3 to Neroly Road (2,700 LF of 24-inch steel pipe at $343 per LF assuming paved unit costs). Transmission pipeline coming out of Randall-Bold WTP (500 LF of 30-inch steel pipe at $392 per LF assuming paved unit cost).	$1,100,000	$1,500,000	$380,000	$0	$1,880,000
Permanent Generators at Existing Wells	New permanent generators placed at South Park Well Pump Station (250kW/312.5kVA); Glen Park Well Pump Station (200kW/250kVA); Stonecreek Well Pump Station: 200kW/250kVA	$610,000	$800,000	$200,000	$0	$1,000,000
Stonecreek Well Iron and Manganese Removal System	Package treatment system to be installed at Stonecreek Well Pump Station. Treatment system quote of $350k received; assume additional improvements required will result in 2x construction price.	$700,000	$900,000	$230,000	$0	$1,130,000
SCADA System Expansion (7)	Upgrade main SCADA control system (PLC's and HMI workstations) for future expansion to serve ultimate system facilities	NA	NA	NA	NA	$340,000
Facilities Plan Updates; Distribution System Map Updates (10)	Periodic updates of DWD's facilities plan to reflect actual growth and adjust facilities requirements for future growth; and periodic updates of the distribution system maps and facilities database to add new facilities as growth occurs.	NA	NA	NA	NA	$840,000
Growth Related Project Management	Pre-planning, planning and related staff labor for growth projects. Assumed to be constant for five years. Budgeted based on FY 14-15 staff costs of $275,000. (5 x $275,000 = $1,375,000)	NA	NA	NA	NA	$2,525,000
Subtotal for Systemwide Projects (Including Delta Coves)						*$73,851,000*
East of Jersey Island Road - Expansion Facilities (Not Including Bethel Island & Delta Coves)						
Storage and Pumping Facilities (8) (9)	Cypress Reservoir & Pump Station: First phase including all site work, 2.5 MG tank, and pump station building with capacity for 5 x 60 HP pumps (4 duty + 1 standby pumps, each at 1,200 gpm and 150 total dynamic head design point). Also assumes chemical storage @ $215k, tank mixer @ $68k, and generator @ $250k. Land cost for 3.7 acres at $250k per acre.	$4,200,000	$5,700,000	$1,400,000	$925,000	$8,025,000
	Cypress Reservoir & Pump Station: Second phase with second 2.5 MG tank, add additional pump at pump station as needed, up to 5 duty pumps at build out.	$2,500,000	$3,400,000	$850,000	$0	$4,250,000
Transmission Capacity (6)	Transmission pipeline parallel to Cypress Road (3,100 LF of 20-inch pipe at $300 per LF assuming paved unit costs).	$930,000	$1,300,000	$330,000	$0	$1,630,000
Subtotal for East of Jersey Island Road - Expansion Facilities (Not Including Bethel Island & Delta Coves)						*$13,905,000*
Bethel Island and Delta Coves						
Transmission Capacity (6)	Transmission pipeline in Bethel Island Road (500 LF of 18-inch pipe at $279 per LF assuming paved unit costs and 650 LF of 18-inch pipe assuming trenchless unit cost of $557 per LF). Assumes 50% implementation allowance.	$500,000	$700,000	$350,000	$0	$1,050,000
Subtotal for Bethel Island & Delta Coves						*$1,050,000*
GRAND TOTAL FOR ALL RECOMMENDED PROJECTS						***$88,806,000***

(1) All costs in these columns as marked are in May 2020 dollars, ENR CCI for San Francisco of 12,819.17.

(2) Unless noted otherwise, Total Construction Cost equals the base construction cost plus a 35% construction contingency to cover required work not yet identified at the planning level, unforeseen conditions, bid climate, and change orders during construction.

(3) Project implementation allowance equals 25% of total construction cost for all projects except the Randall-Bold WTP expansion to cover engineering design, construction services, environmental, permitting, and legal. The implementation allowance for the Randall-Bold WTP expansion project is 35% of total construction cost to include an additional 10% for CCWD project administration.

(4) Due to existing and planned DWD groundwater wells, current financial plan anticipates DWD owned capacity of Randall-Bold WTP will be 20 mgd, requiring expansion of the Randall-Bold WTP by 5 mgd.

(5) Groundwater well costs include standby power capability for use as emergency storage. Costs are based on the Stonecreek Well and Pump Station construction.

(6) Pipeline unit construction costs include valves and appurtenances, pavement removal and replacement, traffic control, and an average allowance for correction of utility interferences.

(7) Costs of projects for supply and distribution storage and pumping include the costs of SCADA equipment for those facilities. Work associated with this item assumed to include: new Monitoring panel PLC at the Corp Yard; new PLC at the DWD/Randall-Bold WTP control panel; new PLC at the Blending Facility, new Ethernet switch at the Corp Yard, radio system upgrades/replacement, Local Operating Panel replacements at South Park PS, Glen Park Well PS, and Blending Facility. Capital cost reflects rough estimate for all work to be performed.

(8) Reservoir costs assume above-ground concrete tanks, and include site work, valve vault, telemetry, piping and appurtenances. Costs for reservoirs east of Jersey Island Road include a soil/foundation allowance due to the poor soils in those areas.

(9) Distribution pump station costs assume an above-ground building, and include standby pump, standby power, and telemetry.

(10) Existing customer receive benefit from pump replacement and treatment upgrades. Estimated 85% for growth.