DESERT WATER AGENCY
OCTOBER 16, 2018

BOARD OF DIRECTORS
REGULAR MEETING AGENDA

REGULAR MEETING 8:00 A.M. OPERATIONS CENTER - 1200 SOUTH GENE AUTRY TRAIL – PALM SPRINGS – CALIFORNIA

About Desert Water Agency:

Desert Water Agency operates independently of any other local government. Its autonomous elected board members are directly accountable to the people they serve. The Agency is one of the desert's two State Water Contractors and provides water and resource management, including recycling, for a 325-square-mile area of Western Riverside County, encompassing parts of Cathedral City, Desert Hot Springs, outlying Riverside County and Palm Springs.

1. PLEDGE OF ALLEGIANCE
2. APPROVAL OF MINUTES – October 2, 2018 — CIOFFI
3. GENERAL MANAGER'S REPORT — KRAUSE
4. COMMITTEE REPORTS - A. Executive – October 9, 2018 — CIOFFI
5. PUBLIC COMMENT:
   Members of the public may comment on any item not listed on the agenda, but within the jurisdiction of the Agency. In addition, members of the public may speak on any item listed on the agenda as that item comes up for consideration. Speakers are requested to keep their comments to no more than three (3) minutes. As provided in the Brown Act, the Board is prohibited from acting on items not listed on the agenda.
6. SECRETARY-TREASURER'S REPORT - SEPTEMBER — BLOOMER
7. ITEMS FOR ACTION
   A. Request Authorization for General Manager to Enter into Second Supplemental MOU/Indio Subbasin — KRAUSE
   B. Request Adoption of Resolution No. 1192 Establishing Rates, Fees & Charges for Domestic Water Service, Backup Facility Charges, Supplemental Imported Water Capacity and Service Connection Charges — JOHNSON
8. ITEMS FOR DISCUSSION
   A. September Water Use Reduction Figures — METZGER
   B. Review of the California Water Fix Joint Powers Agreement (PPT) — KRAUSE
9. DIRECTORS COMMENTS AND REQUESTS
10. CLOSED SESSION

    A. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Agua Caliente Band of Cahuilla Indians vs. Coachella Valley Water District, et al

    B. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Agua Caliente Band of Cahuilla Indians vs. County of Riverside, et al

    C. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Mission Springs Water District vs. Desert Water Agency

    D. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Albrecht et al vs. County of Riverside

    E. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Abbey et al vs. County of Riverside

    F. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
    Pursuant to Government Code Section 54956.9 (d) (1)
    Name of Case: Safari Park, Inc. vs. Southridge Property Owners Assoc. of Palm Springs, et al

G. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Pursuant to Government Code Section 54956.8
Property: Conveyance of Easement APN No. 508-053-005 to Desert Water Agency
Agency Negotiators: Mark S. Krause, General Manager and Steven L. Johnson, Asst. General Manager
Negotiating Parties: DWA and Agua Caliente Band of Cahuilla Indians
Under Negotiation: Terms

11. RECONVENE INTO OPEN SESSION – REPORT FROM CLOSED SESSION

12. ADJOURN

MINUTES OF THE REGULAR MEETING OF THE DESERT WATER AGENCY BOARD OF DIRECTORS

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October 2, 2018

Attendance

DWA Board:	James Cioffi, President	)
	Joseph K. Stuart, Vice President	)
	Kristin Bloomer, Secretary-Treasurer	)
	Patricia G. Oygar, Director	)
	Craig A. Ewing, Director	)
DWA Staff:	Mark S. Krause, General Manager	)
	Steve Johnson, Asst. General Manager	)
	Martin Krieger, Finance Director	)
	Sylvia Baca, Asst. Secretary of the Board	)
	Kris Hopping, Human Resources Manager	)
	Ashley Metzger, Outreach & Cons. Mgr.	)
	Esther Saenz, Accounting Supervisor	)
Consultant:	Michael T. Riddell, Best Best & Krieger	)
Public:	David Freedman, P.S. Sustainability Comm.	)
	John Thatcher, Desert Hot Springs Inn	)
	Greta Carter, Desert Hot Springs resident	)
	Carolyn Kramer, Desert Hot Springs resident	)
	Donna Poyuzina, Desert Hot Springs resident	)
	Estela Rojas, Desert Hot Springs resident	)

Pledge of Allegiance

18225. President Cioffi opened the meeting at 8:00 a.m. and asked everyone to join Secretary-Treasurer Bloomer in the Pledge of Allegiance.

New Employee Introductions

18226. President Cioffi called upon General Manager Krause to introduce the new employees.

Mr. Krause introduced the newly hired employees in the Construction Department. Kevin Raust, Equipment Operator; Eduardo Calderon, Equipment Operator; and Ian Morales, Water Service Worker I.

Approval of 09/18/18 Regular Board Mtg. Minutes

18227. President Cioffi called for approval of the September 18, 2018 Regular Board meeting minutes.

Director Oygar moved for approval. After a second by Vice President Stuart, the minutes were approved as written (Director Ewing abstained due to his absence).

18228. President Cioffi called upon General Manager Krause to provide an update on Agency operations.

General Manager's Report

Mr. Krause provided an update on the Surface Water Filtration Avoidance Inspection, Lead testing at school sites, and Whitewater Hydro and State Water Project delivery update

Concluding his report, Mr. Krause noted the current system leak data, and meetings and activities he participated in during the past several weeks.

System Leak Data, General Manager's Meetings & Activities

18229. President Cioffi noted the minutes for the September 25, 2018 Executive Committee were provided in the Board's packet.

Committee Reports: Executive 09/25/18

18230. President Cioffi opened the meeting for public comment.

Public Comment

John Thatcher, Greta Carter, Carolyn Kramer, Donna Poyuzina and Estela Rojas expressed concern and opposition of the litigation between DWA and MSWD.

John Thatcher
Greta Carter
Carolyn Kramer
Donna Poyuzina
Estela Rojas

Agency Counsel Riddell again expressed his concern with misinformation disseminated to Desert Hot Springs residents.

Director Oygar thanked today's speakers for attending.

There being no one else from the public wishing to address the Board, President Cioffi closed the public comment period.

18231. President Cioffi called upon Secretary-Treasurer Bloomer to present an overview of financial activities for the month of August 2018.

Secretary-Treasurer's Report (August)

Secretary-Treasurer Bloomer reported that the Operating Fund Received $3,508,001 in Water Sales Revenue, $164,697 in Reclamation Sales Revenue and $100,561 in Advanced Work Order deposits. Included in the Miscellaneous receipts category is $100,000 from CPV (Smart controller program). $2,165,621 was paid out in Accounts Payable. Year-to-date Water Sales are 7% under budget, Year-to-date Total Revenues are 4% under budget and Year-to-date Total Expenses are 23% under budget. There were 22,624 active services as of August 31, 2018.

Operating Fund

Reporting on the General Fund, Ms. Bloomer stated that $426,508 was received in Property Tax Revenue, $29,601 in Groundwater Assessments and $32,471 from SCE (Whitewater Hydro Power sales, July). $819,299 was paid out in State Water Project charges (YTD $3,884,599). $237,583 was paid out to CVWD (3rd quarter WW Basin management).

General Fund

Secretary-Treasurer's Report (Cont.) Wastewater Fund

Reporting on the Wastewater Fund, Ms. Bloomer stated that $7,259 was received in sewer capacity charges. There are a total of 44 contracts with total delinquents of 6 (14%). $76,488 was paid out in Accounts Payable.

Discussion Items: SWC Mtg. 09/12/18

18232. President Cioffi asked Agency Counsel Riddell to provide a report on the September 12, 2018 meeting of the Board of Directors of the State Water Contractors, Inc.

Mr. Riddell reported on the following: 1) Action items, 2) Water Operations report, 3) Water Quality report, 4) Legislative report, 5) General Manager's report and 6) Business Processes Objectives update.

Directors' Report on CSDA Conference Attendance

18233. Secretary-Treasurer Bloomer, President Cioffi and Vice President Stuart reported their attendance at the California Special District's Associate conference recently held in Indian Wells.

Outreach & Conservation – September 2018

18234. President Cioffi noted that Board packets included Outreach & Conservation reports for September.

Outreach & Conservation Manager Metzger stated that AB1529 was vetoed and SB998 was approved (Agencies will need to implement by the year 2020).

Directors Comments/Requests

18235. Director Ewing asked staff to report on statewide conservation numbers.

Secretary-Treasurer Bloomer inquired about the process for customers to become paperless.

Director Ewing and President Cioffi noted their concern with the continuance of misinformation to Desert Hot Springs residents and that DWA wants to provide correct information and keep communication open.

18236. At 9:10 a.m., President Cioffi convened into Closed Session for the purpose of Conference with Legal Counsel, (A) Existing Litigation, pursuant to Government Code Section 54956.9 (d) (1), Agua Caliente Band of Cahuilla Indians vs. Coachella Valley Water District, et al; (B) Existing Litigation, pursuant to Government Code Section 54956.9 (d) (1), ACBCI vs. County of Riverside, et al; (C) Existing Litigation, pursuant to Government Code Section 54956.9 (d) (1), Mission Springs Water District vs. Desert Water Agency, (D) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Albrecht et al vs. County of Riverside; (E) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Abbey et al vs. County of Riverside; (F) Existing Litigation, pursuant to Government Code Section 54956.9 (d) (1), Safari Park, Inc. vs. Southridge Property Owners Association of Palm Springs, et al., and (G) Real Property Negotiators – Conveyance of Easement, Parties: DWA and ACBCI.

Closed Session:
A. Existing Litigation – ACBCI vs. CVWD, et al.
B. Existing Litigation – ACBCI vs. Riverside County
C. Existing Litigation – MSWD vs. DWA
D. Existing Litigation – Albrecht et al vs. Riverside County
E. Existing Litigation – Abbey et al vs. Riverside County
F. Existing Litigation – Safari Park, Inc. vs. Southridge Property Owners Assoc. of Palm Springs, et al
G. Real Property Negotiators – Conveyance of Easement APN 508-053-005
Parties: DWA and ACBCI

18237. At 10:55 a.m., President Cioffi reconvened the meeting into open session and announced there was no reportable action.

Reconvene – No Reportable Action

18238. In the absence of any further business, President Cioffi adjourned the meeting at 10:56 a.m.

Adjournment

_____
James Cioffi, President

ATTEST:

_____
Kristin Bloomer, Secretary-Treasurer

GENERAL MANAGER'S REPORT
OCTOBER 16, 2018

Water Service Line Damage

On September 28 at approximately 9:30 a.m., Shirley Construction hit a one-inch service line within the Vibe tract. The service line was dug up and then turned off at the corp stop on the pipeline. Construction personnel replaced the entire service line. An Agency damage report was filed. The water loss was from a cut and smashed copper line spraying for approximately 30 minutes.

Water Service Line Damage

On October 9 at approximately 11:30 a.m, Construction staff responded to another hit service within the Vibe tract. Shirley Construction pulled the angle stop off at the meter while trenching for dry utilities. Shirley Construction supplied a new angle stop which then Construction staff replaced. A damage report was filed.

Medical Benefit Cost Update – 2019

In 2018 our premiums for medical insurance increased by $98,597.16. We just received the 2019 benefit rate costs and they are much better than previous years. The 2019 rate changes will increase our costs by just $47,398.71 this year. The chart below shows the increases in 2018 compared to the increases in 2019.

Health Plan	2018 Monthly Rates	2018 % Increase	2019 Monthly Rates	2019 % Increase
Anthem PPO Single	$852.34	+4.48%	$859.93	+.09%
2-Party	$1,736.91	+4.48%	$1,752.48	+.09%
Family	$2,335.06	+4.48%	$2,262.51	-3.1%
Anthem HMO Single	$758.68	+8.22%	No Change	None
2-Party	$1,507.46	+8.22%	No Change	None
Family	$2,021.80	+8.22%	No Change	None
Kaiser Single	$607.82	+12.97%	$623.16	+2.64%
2-Party	$1,204.96	+12.97%	$1,236.43	+2.64%
Family	$1,700.90	+12.97%	$1,745.45	+2.64%
Delta Dental PPO Single	$33.72	No Change	No Change	None
2-Party	$69.61	No Change	No Change	None
Family	$115.47	No Change	No Change	None
VSP Vision Single	$11.70	No Change	No Change	None
2-Party	$18.40	No Change	No Change	None
Family	$35.54	No Change	No Change	None

Actual Costs:

2019 Premiums: $1,726,616.77
2018 Premiums $1,679,218.06

Actual Increase over 2018: $47,398.71 (+2.8%)

Palm Springs International Airport – Conservation Signage

On October 9, DWA staff delivered stickers promoting water conservation to go above all 50 sinks at Palm Springs International Airport. The stickers read, “The desert: Saving water is our way of life” and include the City of Palm Springs logo and Desert Water Agency’s logo.

This partnership aims to save water and show visitors and local residents that our community is committed to water conservation. DWA also offered these stickers to City Hall and the local Police and Fire Departments.

Human Resources Activities - 2018:

September 18-20	Conducted interviews for the open Water Service Worker I positions
September 26	Ethic and Sexual Harassment Prevention training for all employees
October 4	End of Summer appreciation lunch for all employees
October 10	Benefits Fair and Blood Drive
October 1	New online performance evaluation process launched. The first online evaluation period ends on October 31, 2018.
October 1 – 31	Benefits Open Enrollment

Accounting Department Activities

Current:

Implementing TRAX Payroll system which integrates with the newly rolled out Bamboo HR system. The new payroll system will aid in the administration of the recently adopted Alternative Work Schedule. TRAX utilizes an online time tracking platform, which will move the Agency from a manual, paper time tracking process to an electronic process, increasing reporting functions and reduce redundant manual processes.

Staff training on TRAX payroll time card functions.

Completed:

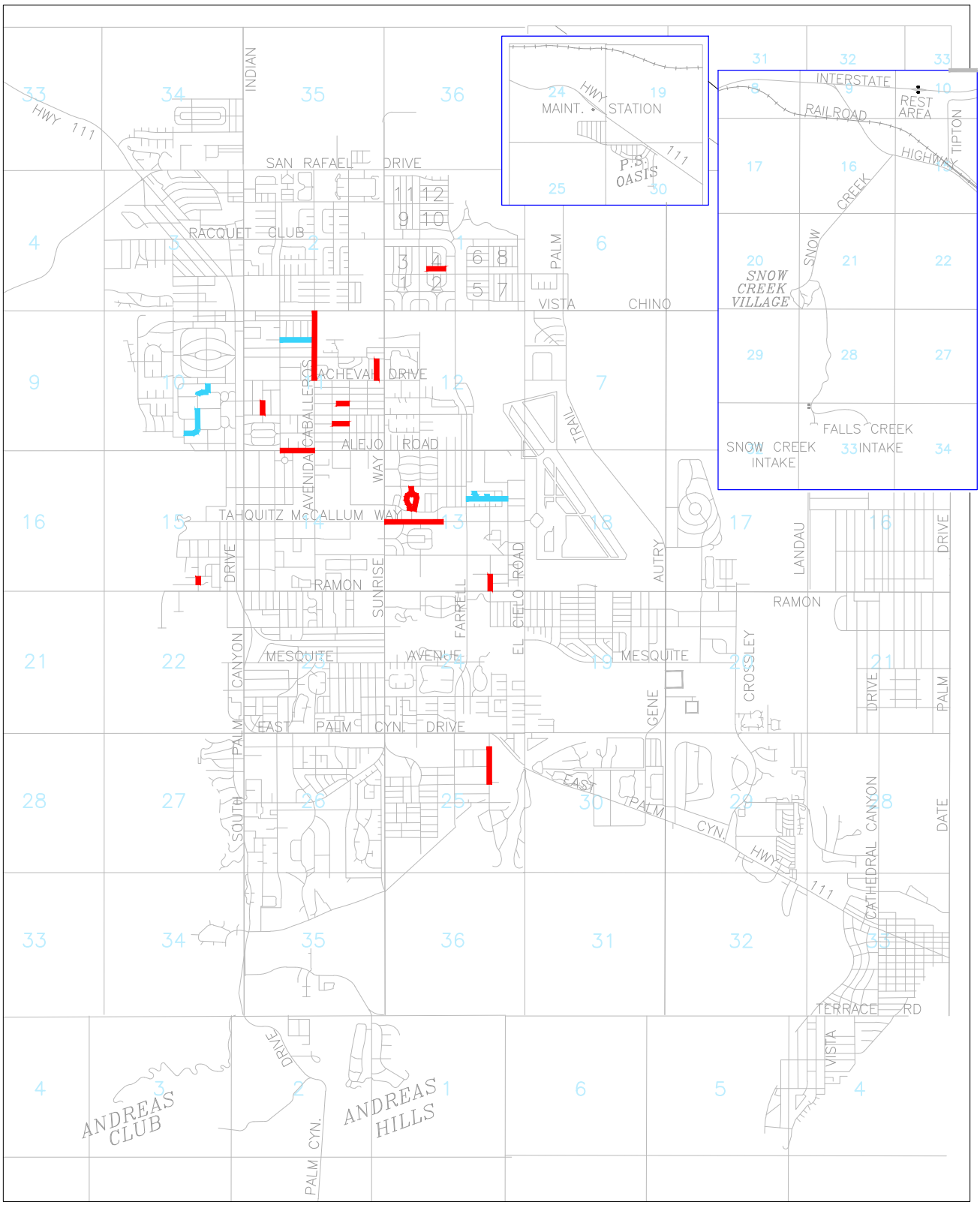
Transferring Agency banking from Union Bank to US Bank.

SYSTEM LEAK DATA

(PERIOD BEGINNING SEPTEMBER 26, 2018 THRU OCTOBER 9, 2018)

STREET NAME	NUMBER OF LEAKS	PIPE DIAMETER (INCHES)	YEAR INSTALLED	PIPE MATERIAL	PIPE CONSTRUCTION
HUDSON RD	4	6	1955	STEEL	BARE/UNLINED
CHIA RD	3	4	1946	STEEL	BARE/UNLINED
AVENIDA CABALLEROS	3	20	1949	STEEL	BARE/UNLINED
LIVMOR AVE (ALL SECTIONS)	2	4 AND 6	1955	STEEL	BARE/UNLINED
MISSION RD	2	4	1939	STEEL	BARE/UNLINED
HERMOSA PL	2	5	1939	STEEL	BARE/UNLINED
AVENIDA PALOS VERDES	2	4	1954	STEEL	BARE/UNLINED
MERITO PL	1	4	1954	STEEL	BARE/UNLINED
CAHUILLA RD	1	5	1939	STEEL	BARE/UNLINED
EASMOR CIR	1	4	1948	STEEL	BARE/UNLINED
MORSUN CIR	1	4	1955	STEEL	BARE/UNLINED
VIA ALTAMIRA	1	4	1954	STEEL	BARE/UNLINED
PATENCIO RD	1	6	1951	STEEL	BARE/UNLINED
CALLE MARCUS	1	4	1945	STEEL	BARE/UNLINED
EL ALAMEDA	1	4	1952	STEEL	BARE/UNLINED
TAHQUITZ CANYON WY	1	8	1946	STEEL	BARE/UNLINED
ALEJO RD	1	8	1958	STEEL	BARE/UNLINED
COMPADRE RD	1	6	1958	STEEL	BARE/UNLINED
CERRITOS DR	1	4	1946	STEEL	BARE/UNLINED
ARABY DR	1	6	1947	STEEL	BARE/UNLINED
TOTAL LEAKS IN SYSTEM:	**31**				

* Streets highlighted in blue are being proposed as part of the **2018/2019 Replacement Pipeline Project**



SYSTEM LEAKS

(Period beginning September 26, 2018 thru October 9, 2018)

DESERT WATER AGENCY

PALM SPRINGS, CALIFORNIA

LEGEND

- LEAK(S) RECORDED
- LEAK(S) RECORDED; INCLUDED IN PROPOSED LIST OF STREETS FOR 2018/2019 REPLACEMENT PIPELINES

DWG. BY	DATE	SCALE
SR	10/18	NTS

EXHIBIT "A"

General Manager's Meetings and Activities

Meetings:

10/03/18	Indio SGMA - Score Proposals Annual Report	CVWD
10/03/18	ACBCI Section 14 Pipeline Easements	ACBCI
10/04/18	Mission Creek SGMA - Score Proposals Annual Report	CVWD
10/08/18	SGPWA Board Meeting – GSA Meeting Structures	SGPWA
10/08/18	Staff/I.S./Security Meetings	DWA
10/09/18	Executive Committee	DWA
10/10/18	MSWD Solar Project Commencement Ceremony	MSWD
10/11/18	K&S Design Meeting Surface Water Filtration	DWA
10/15/18	Staff/I.S./Security Meeting	DWA
10/15/18	DWA/CVWD/MWD Coordination Meeting	Conference Call
10/16/18	DWA Bi-Monthly Board Meeting	DWA

Activities:

1) Outreach Talking Points – KESQ
2) Whitewater Hydro – Automatic Re-start
3) State and Federal Contractors Water Authority and Delta Specific Project Committee (Standing)
4) ACBCI Section 14 Facilities & Easements
5) Lake Oroville Spillway Damage
6) Replacement Pipelines 2018-2019
7) CWF – Finance JPA Agreement
8) DWA/CVWD/MWD Operations Coordination/Article 21/Pool A/Pool B/Yuba Water
9) DWA/CVWD/MWD Agreements Update
10) SWP 2018 Water Supply
11) ACBCI Lawsuits
12) Lake Perris Dam Remediation
13) Section 14 Pipeline Easements
14) DOI Regulation
15) Repair of Facility Access Roads Damaged in the September 10 Storm (Araby)
16) Whitewater Hydro Operations Coordination with Recharge Basin O&M
17) SGMA Tribal Stakeholder Meetings
18) Whitewater Spreading Basins – BLM Permits
19) Lake Perris Dam Seepage Recovery Project Participation
20) Cal Waterfix Cost Allocation
21) DWA Surface Water Filtration Feasibility Study
22) MCSB Delivery Updates
23) Well 6 Meaders Cleaners RWQB Meetings
24) SGMA – Indio Subbasin Classification
25) SGMA – San Gorgonio Pass Subbasin

Minutes
Executive Committee Meeting
October 9, 2018

Directors Present: Jim Cioffi, Joe Stuart
Staff Present: Mark Krause, Martin Krieger, Steve Johnson

1. Discussion Items

A. Review Agenda for October 16, 2018 Regular Board Meeting
The proposed agenda for the October 16, 2018 meeting was reviewed.

B. Expense Reports
The September expense reports were reviewed.

2. Other - None

3. Adjourn

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

OPERATING ACCOUNT

SEPTEMBER 2018

				INVESTED RESERVE FUNDS
BALANCE	SEPTEMBER 1, 2018		($363,811.08)	$20,056,265.49
WATER SALES		$3,001,378.29		
RECLAMATION SALES		172,145.45		
WASTEWATER RECEIPTS		68,536.49		
POWER SALES		2,156.43		
METERS, SERVICES, ETC.		175,852.00		
REIMBURSEMENT – GENERAL FUND		215,602.17		
REIMBURSEMENT – WASTEWATER FUND		6,125.42		
ACCOUNTS RECEIVABLE – OTHER		21,162.67		
CUSTOMER DEPOSITS – SURETY		35,788.38		
CUSTOMER DEPOSITS – CONST.		222,468.00		
LEASE REVENUE		35,237.91		
INTEREST RECEIVED ON INV. FDS.		19,187.50		
FRONT FOOTAGE FEES		0.00		
BOND SERVICE & RESERVE FUND INT		0.00		
MISCELLANEOUS		10,357.00		
TOTAL RECEIPTS			$3,985,997.71	
PAYMENTS				
PAYROLL CHECKS		$362,773.67		
PAYROLL TAXES		154,693.95		
ELECTRONIC TRANSFERS		128,991.64		
CHECKS UNDER $10,000.00		268,362.80		
CHECKS OVER $10,000.00 – SCH. #1		1,783,065.71		
CANCELLED CHECKS AND FEES		16,023.82		
TOTAL PAYMENTS			$2,713,911.59	
NET INCOME			$1,272,086.12	
BOND SERVICE ACCOUNT				
MONTHLY WATER SALES		$0.00		
EXCESS RETURNED BY B/A		$0.00		
BOND SERVICE FUND			$0.00	
INVESTED RESERVE FUNDS				
FUNDS MATURED		$1,338,420.00		
FUNDS INVESTED – SCH. #3		1,626,000.00		
NET TRANSFER			($287,580.00)	$287,580.00
BALANCE	SEPTEMBER 30, 2018		$620,695.04	$20,343,845.49

OPERATING ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
118531	KRIEGER & STEWART INC	ENGINEERING	$61,987.61
118556	THATCHER COMPANY OF CALIFORNIA	WATER SERVICE SUPPLIES	$17,187.79
118564	Z&L PAVING, INC	PAVING	$14,031.00
118579	SOUTHERN CALIFORNIA EDISON CO	POWER	$330,257.60
120608	DESERT WATER AGENCY - WASTEWATER	WASTEWATER REVENUE BILLING FOR AUGUST 2018	$92,135.58
120612	CAFÉ MANAGEMENT LLC	CONSTRUCTION REFUND (17-816-F) LA PLAZA	$13,902.52
120614	CITY OF PALM SPRINGS	CONSTRUCTION REFUND (17-816-H) LA PLAZA	$12,691.63
120617	ACWA-JPIA	HEALTH,DENTAL & VISION INSURANCE PREMIUMS - OCTOBER 2018	$201,368.86
120635	BEST BEST & KRIEGER LLP	LEGAL FEES	$104,228.40
120636	BORDEN EXCAVATING INC	CONTRACT PAYMENT #3 - 2017/18 REPLACEMENT PIPELINES - (W/O #17-111--08/12)	$516,223.62
120646	CONNEY SAFETY	HEXARMOR SAFETY GLOVES	$10,764.56
120647	CORE & MAIN LP	WATER SERVICE SUPPLIES	$28,977.90
120653	DOWN TO EARTH LANDSCAPING	LANDSCAPE MAINTENANCE - SEPTEMBER 2018	$29,874.24
120665	FORSHOCK - MICHAEL JEAN KLUTTS	SCADA COMPUTER UPGRADES	$11,457.59
120678	INLAND WATER WORKS SUPPLY CO	WATER SERVICE SUPPLIES	$13,525.41
120680	J COLON COATINGS INC	CONTRACT PAYMENT - RESERVOIR MAINTENANCE	$81,251.85
120685	LANDMARK CONSULTANTS INC	COMPACTION TESTING (W/O #17-111--12)	$14,836.50
120689	MCKEEVER WATERWELL & PUMP INC	MAINTENANCE - WELL #20, #22, #32	$78,624.00
120698	OUTFLOW TECHNOLOGIES	PROGRAMMING - MODERNIZATION PROJECT (W/O #14-187-M)	$27,245.00
120699	PACIFICA CONSULTING INC	I.T. CONSULTING SERVICES	$12,920.00
120707	PROFORMA SOCAL INC	I.T. SUPPLIES	$17,575.93
120710	SINGER LEWAK LLP	PROGRESS WORK 2017/2018 AUDIT	$10,000.00
120712	THE SOCO GROUP, INC	FUEL PURCHASE	$14,024.85
120722	THATCHER COMPANY OF CALIFORNIA	WATER SERVICE SUPPLIES	$27,369.77
120730	Z&L PAVING, INC	PAVING	$40,603.50
		** TOTAL	$1,783,065.71

DESERT WATER AGENCY
OPERATING FUND - LISTING OF INVESTMENTS
SEPTEMBER 30, 2018

PURCH DATE	NAME	DESCRIPTION	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
		Local Agency Investment Fund						
06-30-83	State of California	LAIF	Open	$ 14,843,845.49	$ 14,843,845.49	$ 14,843,845.49	2.090%	-
		Certificates of Deposit						
		Total Certificates of Deposit		$ -	$ -	$ -		
		Commercial Paper						
		Total Commerical Paper		$ -	$ -	$ -		
		Government Agency						
09-20-16	Union Bank	FNMA (Callable 12-20-18)	09-20-19	$ 1,000,000.00	$ 1,000,000.00	$ 987,290.00	1.300%	Quarterly
10-28-16	Union Bank	FHLMC STEP (Callable 10-28-18)	10-28-21	$ 1,000,000.00	$ 1,000,000.00	$ 984,500.00	2.000%	Quarterly
02-28-17	Union Bank	FHLMC (Callable 11-25-18)	02-25-19	$ 500,000.00	$ 500,000.00	$ 498,075.00	1.400%	Quarterly
09-29-17	Union Bank	FHLMC (Callable 12-29-18)	09-29-20	$ 500,000.00	$ 500,000.00	$ 488,285.00	1.700%	Quarterly
01-29-18	Union Bank	FHLB (Callable 1-29-19)	01-29-21	$ 500,000.00	$ 500,000.00	$ 490,405.00	2.200%	Quarterly
02-08-18	Union Bank	FFCB	05-08-19	$ 1,000,000.00	$ 1,000,000.00	$ 997,130.00	2.000%	Bullet
04-17-18	Union Bank	FFCB	04-17-19	$ 1,000,000.00	$ 1,000,000.00	$ 998,320.00	2.150%	Bullet
		Total Government Agency		$ 5,500,000.00	$ 5,500,000.00	$ 5,444,005.00		
						Weighted Mean YTM	2.021%	
		TOTAL INVESTED @ 09/30/18		$ 20,343,845.49	$ 20,343,845.49	$ 20,287,850.49		
		BALANCE @ 06/30/18		$ 20,642,759.86				
		INCREASE (DECREASE)		($298,914.37)				

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

GENERAL ACCOUNT

SEPTEMBER 2018

				INVESTED RESERVE FUNDS
BALANCE	SEPTEMBER 1, 2018	($1,082,817.37)		$126,684,750.49
* TAXES - RIVERSIDE COUNTY		670,826.12		
* INTEREST EARNED - INV. FUNDS		151,782.34		
GROUNDWATER REPLEN. ASSESSMENT		21,809.93		
REIMBURSEMENT - OPERATING FUND		0.00		
REIMBURSEMENT - CVWD MGMT		0.00		
STATE WATER PROJECT REFUNDS		0.00		
REIMB - CVWD - WHITEWATER HYDRO		0.00		
POWER SALES - WHITEWATER		45,306.94		
MISCELLANEOUS		0.00		
TOTAL RECEIPTS		$889,725.33		
PAYMENTS				
CHECKS UNDER $10,000.00		16,321.05		
CHECKS OVER $10,000.00 - SCH. #1		1,890,150.53		
CANCELLED CHECKS AND FEES		3,420.00		
TOTAL PAYMENTS		$1,909,891.58		
NET INCOME		($1,020,166.25)		
INVESTED RESERVE FUNDS				
FUNDS MATURED		4,339,420.00		
FUNDS INVESTED – SCH. #2		3,745,750.00		
NET TRANSFER			$593,670.00	($593,670.00)
BALANCE	SEPTEMBER 30, 2018		($1,509,313.62)	$126,091,080.49

* INCLUSIVE TO DATE	TAXES	INTEREST
RECEIPTS IN FISCAL YEAR	$1,538,334.29	$568,197.13
RECEIPTS IN CALENDAR YEAR	$23,100,045.40	$1,415,949.49

DESERT WATER AGENCY

GENERAL ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
9154	DESERT WATER AGENCY-OPERATING	P/R & EXP REIMBURSEMENT FOR AUGUST 2018	$207,596.70
9155	COACHELLA VALLEY WATER DISTRICT	WHITEWATER HYDRO REVENUE - JULY 2018	$10,079.43
9156	STATE OF CA. DEPT. OF WATER RESOURCES	STATE WATER PROJECT -SEPTEMBER 2018	$1,655,180.00
9157	DESERT WATER AGENCY-OPERATING	OPERATIONS CENTER CARPET REPLACEMENT (W/O #17-175-M)	$17,294.40
		** TOTAL	$1,890,150.53

DESERT WATER AGENCY
GENERAL FUND - LISTING OF INVESTMENTS
SEPTEMBER 30, 2018

PURCHASE DATE	NAME	DESCRIPTION	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
		Local Agency Investment Fund						
06-30-83	State of California	LAIF	Open	$ 40,896,080.49	$ 40,896,080.49	$ 40,896,080.49	2.090%	-
		Certificates of Deposit						
04-20-17	RBC Wealth Mgmt	Whitney Bank CD	04-22-19	$ 1,000,000.00	$ 1,000,000.00	$ 996,760.00	1.650%	Bullet
06-14-17	RBC Wealth Mgmt	Capital One N/A CD	06-15-20	$ 250,000.00	$ 250,000.00	$ 246,272.50	1.900%	Bullet
06-14-17	RBC Wealth Mgmt	Capital One Bank USA CD	06-15-20	$ 250,000.00	$ 250,000.00	$ 246,272.50	1.900%	Bullet
06-19-17	RBC Wealth Mgmt	First Priority Bank CD	06-19-20	$ 250,000.00	$ 250,000.00	$ 246,605.00	1.750%	Bullet
		Total Certificates of Deposit		$ 1,750,000.00	$ 1,750,000.00	$ 1,735,910.00		
		Commercial Paper						
9-19-18	STIFEL	Wells Fargo MTN (Callable 9-19-20)	9-19-21	$ 1,000,000.00	$1,000,000.00	$998,100.00	3.250%	Quarterly
		Total Commercial Paper		$ 1,000,000.00	$ 1,000,000.00	$ 998,100.00		
		Government Agency						
10-02-15	Stifel	FHLB (Callable Continuous)	10-02-19	$ 1,000,000.00	$ 1,000,000.00	$ 988,060.00	1.450%	Continuous
10-29-15	Stifel	FHLB (Callable Continuous)	10-29-18	$ 1,000,000.00	$ 1,000,000.00	$ 999,200.00	1.120%	Continuous
11-25-15	Stifel	FNMA (Callable 11-25-18)	11-25-19	$ 1,000,000.00	$ 1,000,000.00	$ 986,730.00	1.500%	Qrtrly
02-26-16	Ladenburg Thalmann	FNMA (Callable 11-26-18)	02-26-19	$ 1,000,000.00	$ 1,000,000.00	$ 995,720.00	1.250%	Qrtrly
03-23-16	Ladenburg Thalmann	FNMA (Callable 12-23-18)	03-23-20	$ 1,000,000.00	$ 1,000,000.00	$ 982,120.00	1.500%	Qrtrly
03-30-16	Stifel	FNMA STEP (Callable 12-30-18)	03-30-21	$ 1,000,000.00	$ 1,000,000.00	$ 982,900.00	1.750%	Qrtrly
03-30-16	Stifel	FHLMC STEP (Callable 12-30-18)	03-30-21	$ 1,000,000.00	$ 1,000,000.00	$ 985,200.00	1.750%	Qrtrly
04-26-16	Ladenburg Thalmann	FHLB (Callable Continuous)	10-26-20	$ 999,500.00	$ 1,000,000.00	$ 973,600.00	1.550%	Continuous
05-23-16	Stifel	FNMA (Callable 11-23-18)	08-23-19	$ 1,000,000.00	$ 1,000,000.00	$ 988,110.00	1.250%	Qrtrly
05-26-16	Union Bank	FNMA	11-26-19	$ 1,000,000.00	$ 1,000,000.00	$ 984,210.00	1.300%	1 Time
06-01-16	Stifel	FFCB (Callable Continuous)	03-01-19	$ 1,000,000.00	$ 1,000,000.00	$ 995,190.00	1.250%	Continuous
06-13-16	Ladenburg Thalmann	FNMA (Callable 12-13-18)	06-13-19	$ 1,000,000.00	$ 1,000,000.00	$ 992,310.00	1.400%	Qrtrly
06-16-16	Stifel	FFCB (Callable Continuous)	03-16-20	$ 1,000,000.00	$ 1,000,000.00	$ 980,370.00	1.400%	Continuous
06-21-16	Stifel	FHLMC STEP (Callable 12-21-18)	06-21-21	$ 1,000,000.00	$ 1,000,000.00	$ 980,680.00	1.750%	Qrtrly
06-28-16	Ladenburg Thalmann	FNMA (Callable 12-28-18)	06-28-19	$ 1,000,000.00	$ 1,000,000.00	$ 990,100.00	1.200%	Qrtrly
06-30-16	Stifel	FHLMC STEP (Callable 12-30-18)	12-30-19	$ 1,000,000.00	$ 1,000,000.00	$ 992,740.00	1.500%	Qrtrly
07-07-16	Ladenburg Thalmann	FFCB (Callable Continuous)	01-07-19	$ 1,000,000.00	$ 1,000,000.00	$ 996,350.00	1.000%	Continuous
07-11-16	Ladenburg Thalmann	FHLB (Callable Continuous)	10-11-19	$ 1,000,000.00	$ 1,000,000.00	$ 984,290.00	1.125%	Continuous
07-11-16	Ladenburg Thalmann	FHLB (Callable Continuous)	07-11-19	$ 1,000,000.00	$ 1,000,000.00	$ 989,010.00	1.125%	Continuous
07-13-16	Union Bank	FFCB (Callable Continuous)	01-13-20	$ 1,000,000.00	$ 1,000,000.00	$ 981,500.00	1.240%	Continuous
07-26-16	Ladenburg Thalmann	FNMA (Callable 10-26-18)	07-26-19	$ 999,500.00	$ 1,000,000.00	$ 988,100.00	1.125%	Qrtrly
07-27-16	Stifel	FNMA STEP (Callable 10-27-18)	07-27-21	$ 1,000,000.00	$ 1,000,000.00	$ 958,580.00	1.300%	Qrtrly
08-10-16	Ladenburg Thalmann	FHLMC (Callable 11-10-18)	08-10-20	$ 1,000,000.00	$ 1,000,000.00	$ 975,090.00	1.450%	Qrtrly
08-24-16	Ladenburg Thalmann	FHLMC STEP (Callable 11-24-18)	08-24-21	$ 1,000,000.00	$ 1,000,000.00	$ 985,180.00	1.750%	Qrtrly
08-30-16	Stifel	FHLMC STEP (Callable 11-28-18)	08-27-21	$ 1,000,000.00	$ 1,000,000.00	$ 991,860.00	2.000%	Qrtrly
08-30-16	Ladenburg Thalmann	FNMA (Callable 11-27-18)	11-27-19	$ 1,000,000.00	$ 1,000,000.00	$ 983,660.00	1.250%	Qrtrly
09-06-16	Ladenburg Thalmann	FFCB (Callable Continuous)	03-06-19	$ 1,000,000.00	$ 1,000,000.00	$ 994,510.00	1.150%	Continuous
09-20-16	Union Bank	FNMA (Callable 12-20-18)	09-20-19	$ 1,000,000.00	$ 1,000,000.00	$ 987,290.00	1.300%	Qrtrly
09-27-16	Ladenburg Thalmann	FHLMC STEP (Callable 12-27-18)	09-27-19	$ 1,000,000.00	$ 1,000,000.00	$ 997,330.00	2.000%	Qrtrly
09-29-16	Ladenburg Thalmann	FHLMC STEP (Callable 12-29-18)	09-29-21	$ 950,000.00	$ 950,000.00	$ 926,345.00	1.500%	Qrtrly
09-30-16	Ladenburg Thalmann	FNMA (Callable 12-30-18)	09-30-19	$ 1,000,000.00	$ 1,000,000.00	$ 986,300.00	1.250%	Qrtrly
10-06-16	Ladenburg Thalmann	FHLMC (Callable 10-6-18)	07-06-20	$ 1,000,000.00	$ 1,000,000.00	$ 975,390.00	1.375%	Qrtrly
10-11-16	Ladenburg Thalmann	FHLMC	10-11-18	$ 999,750.00	$ 1,000,000.00	$ 999,680.00	1.000%	Qrtrly
10-17-16	Stifel	FNMA	04-17-20	$ 1,000,000.00	$ 1,000,000.00	$ 977,380.00	1.250%	1 Time
10-28-16	Stifel	FHLMC STEP (Callable 10-28-18)	10-28-21	$ 1,500,000.00	$ 1,500,000.00	$ 1,469,340.00	1.250%	Qrtrly

DESERT WATER AGENCY
GENERAL FUND - LISTING OF INVESTMENTS
SEPTEMBER 30, 2018

PURCHASE DATE	NAME	DESCRIPTION	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
		Government Agency						
10-28-16	Union Bank	FHLMC STEP (Callable 10-28-18)	10-28-21	$ 1,000,000.00	$ 1,000,000.00	$ 984,500.00	2.000%	Qrtrly
11-03-16	Ladenburg Thalmann	FFCB (Callable Continuous)	05-03-21	$ 999,250.00	$ 1,000,000.00	$ 965,300.00	1.490%	Continuous
11-15-16	Stifel	FHLMC STEP (Callable 11-15-18)	11-15-19	$ 1,000,000.00	$ 1,000,000.00	$ 988,010.00	1.250%	Qrtrly
12-14-16	Ladenburg Thalmann	FHLMC (Callable 12-14-18)	12-14-20	$ 1,000,000.00	$ 1,000,000.00	$ 976,210.00	1.750%	Qrtrly
12-29-16	Ladenburg Thalmann	FNMA (Callable 12-29-18)	06-29-20	$ 1,000,000.00	$ 1,000,000.00	$ 982,340.00	1.750%	Qrtrly
12-30-16	Ladenburg Thalmann	FHLMC (Callable 12-30-18)	12-30-19	$ 998,000.00	$ 1,000,000.00	$ 984,730.00	1.500%	Qrtrly
01-27-17	Ladenburg Thalmann	FNMA (Callable 10-27-18)	01-27-20	$ 1,000,000.00	$ 1,000,000.00	$ 985,780.00	1.650%	Qrtrly
01-30-17	Union Bank	FHLB (Callable 10-30-18)	04-30-20	$ 1,000,000.00	$ 1,000,000.00	$ 983,800.00	1.750%	Qrtrly
02-28-17	Union Bank	FHLMC (Callable 11-25-18)	02-25-19	$ 1,000,000.00	$ 1,000,000.00	$ 996,150.00	1.400%	Qrtrly
04-20-17	Stifel	FHLMC STEP (Callable 10-20-18)	04-20-20	$ 1,000,000.00	$ 1,000,000.00	$ 988,710.00	2.250%	Qrtrly
04-27-17	Ladenburg Thalmann	FHLMC (Callable 10-27-18)	01-27-21	$ 1,000,000.00	$ 1,000,000.00	$ 980,020.00	2.000%	Qrtrly
06-08-17	Stifel	FHLMC STEP (Callable 12-8-18)	06-08-20	$ 1,000,000.00	$ 1,000,000.00	$ 994,200.00	1.500%	Qrtrly
06-22-17	Ladenburg Thalmann	FHLMC STEP (Callable 12-22-18)	06-22-22	$ 1,000,000.00	$ 1,000,000.00	$ 987,000.00	1.750%	Qrtrly
06-27-17	Union Bank	FHLB (Callable 12-27-18)	09-27-19	$ 1,000,000.00	$ 1,000,000.00	$ 987,280.00	1.500%	Qrtrly
06-29-17	Ladenburg Thalmann	FHLMC (Callable 12-29-18)	09-29-20	$ 1,000,000.00	$ 1,000,000.00	$ 978,830.00	1.750%	Qrtrly
07-11-17	Ladenburg Thalmann	FHLMC (Callable 10-11-18)	01-11-21	$ 1,000,000.00	$ 1,000,000.00	$ 976,220.00	1.800%	Qrtrly
07-26-17	Stifel	FHLMC STEP (Callable 10-26-18)	07-26-22	$ 1,000,000.00	$ 1,000,000.00	$ 988,390.00	2.000%	Qrtrly
07-27-17	Stifel	FHLMC STEP (Callable 10-27-18)	07-27-22	$ 1,000,000.00	$ 1,000,000.00	$ 992,740.00	2.000%	Qrtrly
08-07-17	Ladenburg Thalmann	FFCB (Callable Continuous)	11-23-20	$ 999,850.00	$ 1,000,000.00	$ 977,520.00	1.770%	Continuous
08-09-17	Stifel	FHLB STEP (Callable 11-9-18)	02-09-22	$ 2,000,000.00	$ 2,000,000.00	$ 1,955,920.00	1.750%	Qrtrly
08-10-17	Ladenburg Thalmann	FHLB STEP (Callable 11-10-18)	08-10-22	$ 1,000,000.00	$ 1,000,000.00	$ 992,510.00	2.000%	Qrtrly
09-08-17	Stifel	FHLB STEP (Callable 12-8-18)	09-08-22	$ 1,000,000.00	$ 1,000,000.00	$ 979,880.00	1.750%	Qrtrly
09-28-17	Ladenburg Thalmann	FHLMC STEP (Callable 12-28-18)	09-28-20	$ 1,000,000.00	$ 1,000,000.00	$ 982,410.00	1.500%	Qrtrly
09-29-17	Union Bank	FHLMC (Callable 12-29-18)	09-29-20	$ 1,000,000.00	$ 1,000,000.00	$ 976,570.00	1.700%	Qrtrly
09-29-17	Stifel	FHLMC STEP (Callable 12-29-18)	09-29-22	$ 1,000,000.00	$ 1,000,000.00	$ 980,990.00	1.750%	Qrtrly
10-26-17	Ladenburg Thalmann	FNMA (Callable 10-26-18)	07-26-21	$ 1,000,000.00	$ 1,000,000.00	$ 972,050.00	2.000%	Qrtrly
11-06-17	Ladenburg Thalmann	FFCB (Callable Continuous)	06-06-19	$ 1,000,000.00	$ 1,000,000.00	$ 993,730.00	1.600%	Continuous
11-20-16	Ladenburg Thalmann	FHLMC (Callable 11-20-18)	11-20-20	$ 1,000,000.00	$ 1,000,000.00	$ 982,530.00	2.000%	Qrtrly
12-11-17	Ladenburg Thalmann	FHLB (Callable 12-11-18)	12-11-20	$ 999,750.00	$ 1,000,000.00	$ 978,550.00	2.000%	Qrtrly
12-14-17	Stifel	FFCB (Callable 12-14-18)	12-14-20	$ 1,000,000.00	$ 1,000,000.00	$ 980,270.00	2.060%	Continuous
01-16-18	Ladenburg Thalmann	FHLMC (Callable 10-16-18)	10-16-20	$ 1,000,000.00	$ 1,000,000.00	$ 982,990.00	2.070%	Qrtrly
01-26-18	Stifel	FHLMC (Callable 10-26-18)	01-26-21	$ 1,000,000.00	$ 1,000,000.00	$ 983,080.00	2.220%	Qrtrly
01-29-18	Union Bank	FHLB (Callable 1-29-19)	01-29-21	$ 1,000,000.00	$ 1,000,000.00	$ 980,810.00	2.200%	Qrtrly
01-30-18	Union Bank	FHLB (Callable 1-30-19)	07-30-20	$ 1,000,000.00	$ 1,000,000.00	$ 985,650.00	2.100%	Qrtrly
01-30-18	Ladenburg Thalmann	FHLB (Callable 10-26-18)	01-26-21	$ 999,650.00	$ 1,000,000.00	$ 983,190.00	2.250%	Qrtrly
02-01-18	Stifel	FFCB (Callable Continuous)	02-01-21	$ 1,000,000.00	$ 1,000,000.00	$ 982,470.00	2.350%	Continuous
02-08-18	Union Bank	FFCB	05-08-19	$ 1,000,000.00	$ 1,000,000.00	$ 997,130.00	2.000%	Qrtrly
02-12-18	Stifel	FHLB (Callable 2-12-19)	02-12-21	$ 1,000,000.00	$ 1,000,000.00	$ 983,190.00	2.300%	Qrtrly
03-26-18	Ladenburg Thalmann	FHLB STEP (Callable 12-26-18)	03-26-21	$ 1,000,000.00	$ 1,000,000.00	$ 996,560.00	2.250%	Qrtrly
03-29-18	Stifel	FHLMC STEP (Callable 12-29-18)	03-29-23	$ 1,000,000.00	$ 1,000,000.00	$ 996,350.00	2.250%	Qrtrly
04-17-18	Union Bank	FFCB	04-17-19	$ 1,000,000.00	$ 1,000,000.00	$ 998,320.00	2.150%	Bullet
06-28-18	Ladenburg Thalmann	FHLMC (Callable 12-28-18)	03-28-22	$ 1,000,000.00	$ 1,000,000.00	$ 992,470.00	3.000%	Qrtrly
06-28-18	Stifel	FHLMC (Callable 6-28-19)	06-28-22	$ 1,000,000.00	$ 1,000,000.00	$ 991,600.00	3.100%	Qrtrly
07-30-18	Ladenburg Thalmann	FHLMC (Callable 1-28-19)	01-28-22	$ 1,000,000.00	$ 1,000,000.00	$ 993,890.00	3.020%	Qrtrly
08-16-18	Ladenburg Thalmann	FHLMC (Callable 11-16-18)	11-16-21	$ 1,000,000.00	$ 1,000,000.00	$ 994,920.00	3.000%	Qrtrly
09-21-18	Ladenburg Thalmann	FHLMC (Callable 12-21-18)	06-21-21	$ 999,750.00	$ 1,000,000.00	$ 997,600.00	2.875%	Qrtrly
		Total Government Agency		$ 82,445,000.00	$ 82,450,000.00	$ 81,257,785.00		
						Weighted Mean YTM	1.837%	
		TOTAL INVESTED @ 09/30/18		$ 126,091,080.49	$ 126,096,080.49	$ 124,887,875.49		
		BALANCE @ 06/30/18		$ 127,941,061.53				
		INCREASE OR (DECREASE)		$ (1,849,981.04)				

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

WASTEWATER ACCOUNT

SEPTEMBER 2018

				INVESTED RESERVE FUNDS
BALANCE	SEPTEMBER 1, 2018	$1,369.76		$1,395,569.36
ACCOUNTS RECEIVABLE - OTHER		$0.00		
CUSTOMER DEPOSITS - CONSTRUCTION		0.00		
INTEREST EARNED - INVESTED FUNDS		9.12		
WASTEWATER REVENUE		92,135.58		
SEWER CAPACITY CHARGES		9,304.87		
MISCELLANEOUS		0.00		
TOTAL RECEIPTS		$101,449.57		
PAYMENTS				
CHECKS UNDER $10,000.00		$10,315.42		
CHECKS OVER $10,000.00 - SCH. #1		69,122.51		
CANCELLED CHECKS AND FEES		0.00		
TOTAL PAYMENTS		$79,437.93		
NET INCOME			$22,011.64	
INVESTED RESERVE FUNDS				
FUNDS MATURED		$0.00		
FUNDS INVESTED – SCH. #2		8,000.00		
NET TRANSFER			($8,000.00)	$8,000.00
BALANCE	SEPTEMBER 30, 2018		$15,381.40	$1,403,569.36

DESERT WATER AGENCY

WASTEWATER ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
3252	COACHELLA VALLEY WATER DISTRICT	WASTEWATER REVENUE BILLING FOR AUGUST 2018	$59,057.12
3253	CITY OF PALM SPRINGS	WASTEWATER REVENUE BILLING FOR AUGUST 2018	$10,065.39
		** TOTAL	$69,122.51

DESERT WATER AGENCY
WASTEWATER FUND - LISTING OF INVESTMENTS
SEPTEMBER 30, 2018

PURCH DATE	NAME	DESCRIPTION	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY
		Local Agency Invstment Fund					
06-30-83	State of California	LAIF	Open	$ 1,403,569.36	$ 1,403,569.36	$ 1,403,569.36	2.090%
		TOTAL INVESTED @ 09/30/18		$ 1,403,569.36	$ 1,403,569.36	$ 1,403,569.36	
		BALANCE @ 06/30/18		$ 1,354,594.08			
		INCREASE OR (DECREASE)		$ 48,975.28			

DESERT WATER AGENCY - OPERATING FUND
COMPARATIVE EARNINGS STATEMENT

MONTH 18-19 SEPTEMBER	THIS MONTH THIS YEAR	THIS MONTH LAST YEAR	THIS MONTH BUDGET	FISCAL YEAR TO DATE THIS YEAR	FISCAL YEAR TO DATE LAST YEAR	FISCAL YEAR TO DATE BUDGET	VARIANCE YTD	VARIANCE PCT
OPERATING REVENUES								
WATER SALES	3,449,347.71	2,933,908.93	3,466,475.00	9,859,900.62	8,869,725.54	10,332,525.00	472,624.38-	5-
RECLAMATION SALES	153,134.15	132,103.04	153,050.00	523,720.78	471,247.15	481,400.00	42,320.78	9
POWER SALES	2,156.43	586.86	2,800.00	2,692.44	13,067.85	2,800.00	107.56-	4-
OTHER OPER REVENUE	162,291.96	170,525.37	165,575.00	513,319.98	586,709.00	496,725.00	16,594.98	3
TOTAL OPER REVENUES	3,766,930.25	3,237,124.20	3,787,900.00	10,899,633.82	9,940,749.54	11,313,450.00	413,816.18-	4-
OPERATING EXPENSES								
SOURCE OF SUPPLY EXP	1,484,122.84	1,280,717.66	1,363,250.00	1,526,173.44	1,311,097.69	1,441,600.00	84,573.44	6
PUMPING EXPENSE	437,568.09	337,884.15	275,800.00	793,019.40	744,425.34	852,700.00	59,680.60-	7-
REGULATORY WATER TREAT	49,195.42	41,730.88	45,225.00	118,983.91	122,597.53	135,675.00	16,691.09-	12-
TRANS & DIST EXPENSE	284,830.69	166,648.01	436,875.00	901,762.46	579,561.12	1,310,625.00	408,862.54-	31-
CUSTOMER ACT EXPENSE	91,256.43	71,716.53	79,400.00	200,869.24	199,720.19	238,200.00	37,330.76-	16-
ADMIN & GEN EXPENSE	601,688.28	638,575.18	686,738.00	3,655,266.84	2,664,419.63	4,110,389.00	455,122.16-	11-
REGULATORY EXPENSE	5,334.62	12,552.33	30,125.00	21,642.62	48,301.15	90,375.00	68,732.38-	76-
SNOW CREEK HYDRO EXP	3,881.65-	1,710.03	3,100.00	1,162.85-	4,407.32	9,300.00	10,462.85-	113-
RECLAMATION PLNT EXP	112,122.60	75,309.05	119,858.00	298,355.70	202,466.08	359,374.00	61,018.30-	17-
SUB-TOTAL	3,062,237.32	2,626,843.82	3,040,371.00	7,514,910.76	5,876,996.05	8,548,238.00	1,033,327.24-	12-
OTHER OPER EXPENSES								
DEPRECIATION	480,712.16	463,958.28	483,692.00	1,446,641.82	1,402,313.91	1,451,076.00	4,434.18-	0
SERVICES RENDERED	14,501.86	21,582.04	15,750.00	39,712.70	65,919.65	47,250.00	7,537.30-	16-
DIR & INDIR CST FOR WO	137,171.30-	149,396.57-	65,750.00-	680,701.84-	542,216.90-	197,250.00-	483,451.84-	245
TOTAL OPER EXPENSES	3,420,280.04	2,962,987.57	3,474,063.00	8,320,563.44	6,803,012.71	9,849,314.00	1,528,750.56-	16-
NET INCOME FROM OPERATIONS	346,650.21	274,136.63	313,837.00	2,579,070.38	3,137,736.83	1,464,136.00	1,114,934.38	76
NON-OPERATING INCOME (NET)								
RENTS	3,397.91	35,236.33	35,250.00	42,033.73	42,028.99	42,050.00	16.27-	0
INTEREST REVENUES	33,990.30	15,903.50	27,500.00	105,105.56	45,148.01	82,500.00	22,605.56	27
INVESTMENT AMORT.	.00	.00	.00	50,720.00	.00	.00	50,720.00	0
OTHER REVENUES	30,250.00	1,040.00	.00	30,950.00	1,740.36	.00	30,950.00	0
GAINS ON RETIREMENT	.00	.00	1,200.00	.00	.00	1,200.00	1,200.00-	100-
DISCOUNTS	2.38	5.27	25.00	25.95	12.51	75.00	49.05-	65-
LOSS ON RETIREMENTS	.00	6,700.59-	3,250.00-	.00	6,700.59-	9,750.00-	9,750.00	100-
TOTAL NON-OPER INCOME	67,640.59	207,456.69	60,725.00	228,835.24	243,852.25	116,075.00	112,760.24	97
TOTAL NET INCOME	414,290.80	481,593.32	374,562.00	2,807,905.62	3,381,589.08	1,580,211.00	1,227,694.62	78

DESERT WATER AGENCY
OPERATING FUND
WATER CONSUMPTION

QUARTER ENDING SEPTEMBER 2018

	THIS QUARTER			FISCAL YEAR TO DATE		
	LAST YEAR	THIS YEAR	% UP (DOWN)	LAST YEAR	THIS YEAR	% UP (DOWN)
WATER REVENUE	$8,869,726	$9,859,901	11	$8,869,726	$9,859,901	11
TOTAL CONSUMPTION (100 CU FT)	4,305,591	4,265,437	(1)	4,305,591	4,265,437	(1)
AVERAGE CONSUMPTION PER CONSUMER (100 CU FT)	192	189	(2)	192	189	(2)
NUMBER OF CONNECTIONS	12	(4) *		22,468	22,609 C	1

* = ADDED THIS QUARTER

C = TOTAL ACTIVE SEPTEMBER 2018

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

OCTOBER 16, 2018

RE: REQUEST AUTHORIZATION FOR THE GENERAL MANAGER TO ENTER INTO A SECOND SUPPLEMENTAL MOU/INDIO SUB-BASIN

On September 6, 2016, Desert Water Agency (DWA) entered into an memorandum of understanding (MOU) regarding governance of the Indio Sub-basin under the Sustainable Groundwater Management Act (SGMA) with Coachella Valley Water District (CVWD), the Coachella Water Authority (CWA) and the Indio Water Authority (IWA) (collectively referred to as the Partners), for the development and submission of an alternative groundwater sustainability plan (GSP) for the Indio Sub-basin. This MOU facilitated both the development and shared financing of the GSP. DWA's share of the cost was $28,180.75.

Subsequently, SGMA required the submission of an Annual Report of all alternative GSP's beginning April 1, 2018. Therefore, we entered into a Supplement Memorandum of Understanding Regarding Governance of the Indio Sub-basin under the Sustainable Groundwater Management Act to cost share the development of the "Water Year 2017 Annual Report for the Indio Sub-basin (Annual Report) which was successfully submitted to DWR before the deadline of April 1, 2018. The cost of the project was $63,260 and it was shared equally among the partners (DWA's share, $15,815).

It is time to start preparing the "Water Year 2018 Annual Report". A scope of work was prepared, and a RFP was sent out to CVWD's list of qualified consultants. Proposals were received from Stantec, Wood Environmental and Infrastructure Solutions, Inc. and Wildermuth Environmental, Inc. The partners selected Stantec to prepare the Annual Report at a cost of $58,285.42 (DWA's share $14,571.36).

A second supplemental MOU is necessary and is intended to gain Board approval for the cost sharing split and preparation of the "Water Year 2018 Annual Report". Since development of the annual report is required each year and an update of the alternative GSP is required every 5 years, possibly required this year and again in 2022 and every 5 years thereafter, this supplemental MOU is intended to gain approval for the

development and cost sharing for all future annual reports and alternative plan updates. There isn't a termination clause in the supplemental MOU's but there is a termination clause in the original MOU which allows any Partner to terminate its payment obligation and participation in the MOU with a 30 day written prior notification for any reason.

Staff recommends that the Board authorize the General Manager to enter into a second supplemental MOU with the Partners for the purpose of producing and cost sharing in the cost of the 2018 Annual Report for the alternative GSP and all future Annual Reports and alternative GSP updates for the Indio Sub-basin applicable to the implementation of the SGMA.

SECOND SUPPLEMENT TO
MEMORANDUM OF UNDERSTANDING
REGARDING GOVERNANCE OF THE INDIO SUB-BASIN
UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

This SECOND SUPPLEMENT dated September XX, 2018 is entered into among the City of Coachella, a municipal corporation acting through, and on behalf of, the Coachella Water Authority (CWA), the Coachella Valley Water District (CVWD), the Desert Water Agency (DWA), and the City of Indio, a municipal corporation acting through, and on behalf of, the Indio Water Authority (IWA) for the purpose of developing a common understanding among the Partners regarding the governance structures applicable to implementation of the Sustainable Groundwater Management Act (Water Code, Part 2.74, Section 10720 et seq.) (SGMA) in the Indio Sub-Basin of the Coachella Valley Groundwater Basin. The Partners to this MOU shall be collectively referred to herein as "Partners" and individually as "Partner".

WHEREAS, each Partner is a party to a Memorandum of Understanding (MOU) dated October 5, 2016 regarding governance of the Indio Sub-basin under SGMA; and

WHEREAS, each Partner is a party to a Supplement to MOU dated April 3, 2018 for the purpose of retaining a consultant to assist in preparing the Groundwater Sustainability Agency's (GSA's) Indio Sub-basin Annual Report for Water Year 2016-2017 in accordance with SGMA; and

WHEREAS, the Partners wish to supplement the MOU a second time for the purpose of retaining consultants to assist in the preparation of the GSA's Indio Sub-basin Annual Reports by Water Year for submission to the California Department of Water Resources (DWR) by April 1 of each year to satisfy SGMA requirements; and

WHEREAS, the Partners wish to supplement the MOU a second time for the purpose of retaining consultants to assist in updates and revisions identified and required by the DWR of the Alternative Groundwater Sustainability Plan (Alternative GSP) for the Indio Sub-basin to satisfy SGMA requirements;

NOW, THEREFORE, it is mutually understood and agreed as follows:

SECTION 1:

RETENTION OF CONSULTANTS AND EXECUTION OF AGREEMENTS

1.1 The Partners acknowledge and agree that DWR has required that the GSAs prepare and submit an annual report by April 1 of each year for the previous Water Year (October 1 through September 30) to DWR in accordance with SGMA. The Partners therefore agree to the following:

1.1.1 The Partners agree to have CVWD develop a scope of work by the end of each Water Year for the preparation of the GSA's Indio Sub-basin Annual Report for the previous Water Year.

1.1.1.1 Each Partner shall have the opportunity to review the scope of work and provide comments for inclusion prior to release in a Request for Proposals (RFP) or Bid Package.

1.1.2 The Partners agree to have CVWD release an RFP or Bid Package in accordance with all Procurement Policies of the CVWD to solicit proposals from qualified consultants for the preparation of the GSA's Indio Sub-basin Annual Report for the previous Water Year. For the purposes of this Second Supplement to the MOU, qualified consultants consist of firms competitively selected and contracted by CVWD for on-call hydrogeological services.

1.1.2.1 Each Partner shall have the opportunity to review and score the proposals received from each respondent to the RFP or Bid Package for the selection of the consultant.

1.1.3 The Partners agree to have CVWD enter into Agreements with selected consultants in accordance with all Procurement Policies of the CVWD to prepare the GSA's Indio Sub-basin Annual Report for each Water Year.

1.1.3.1 Each Partner shall have the opportunity to review and comment on the Draft Annual Report and the Draft Final Annual Report.

1.1.3.2 Each Partner shall be provided one electronic and one hard copy of the Final Annual Report.

1.1.3.3 Each Partner shall be provided electronic copies of all data and files used to create report graphics and tables.

1.2 The Partners acknowledge and agree that DWR may periodically notify the GSAs to perform updates, revisions, or modifications to the Alternative GSP in accordance with SGMA. The Partners therefore agree to the following:

1.2.1 The Partners agree to have the CVWD develop a scope of work to perform required updates, revisions, or modifications to the Alternative GSP.

1.2.1.1 Each Partner shall have the opportunity to review the scope of work and provide comments for inclusion prior to release in a Request for Proposals (RFP) or Bid Package.

1.2.2 The Partners agree to have CVWD release an RFP or Bid Package in accordance with all Procurement Policies of the CVWD to solicit proposals from qualified consultants to perform updates, revisions, or modifications to the Alternative GSP. For the purposes of

this Second Supplement to the MOU, qualified consultants consist of firms competitively selected and contracted by CVWD for on-call hydrogeological services.

1.2.2.1 Each Partner shall have the opportunity to review and score the proposals received from each respondent to the RFP or Bid Package for the selection of the consultant.

1.2.3 The Partners agree to have CVWD enter into Agreements with selected consultants in accordance with all Procurement Policies of the CVWD to perform updates and revisions to the Alternative GSP.

1.2.3.1 Each Partner shall have the opportunity to review and comment on the Draft Alternative GSP and Draft Final Alternative GSP.

1.2.3.2 Each Partner shall be provided one electronic and one hard copy of the Final Alternative GSP.

1.2.3.3 Each Partner shall be provided electronic copies of all data and files used to create report graphics and tables.

SECTION 2:

INVOICING AND PAYMENT

2.1 CVWD shall administer the Agreements with the consultants and pay the consultants per the terms of the Agreement.

2.2 CVWD shall invoice each Partner for reimbursement of one-fourth (1/4) of the payment that has been made to the consultants.

2.3 Each Partner shall pay invoices within 30 days of receipt of the invoice.

SECTION 3:

MISCELLANEOUS

3.1 Abbreviations, capitalized words, and phrases used in this Second Supplement shall have the same meaning as in the MOU.

3.2 All terms of the MOU remain unchanged, except, as supplemented herein.

3.3 This Second Supplement may be executed in any number of counterparts, each of which shall be deemed original, but all of which, when taken together, shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Partners have executed this Second Supplement to the MOU as of the day and year indicated on the first page of this Second Supplement to the MOU.

J. M. Barrett	William B. Pattison, Jr.
Coachella Valley Water District	Coachella Water Authority
Mark Krause	Brian Macy
Desert Water Agency	Indio Water Authority

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

OCTOBER 16, 2018

RE: REQUEST BOARD ADOPTION OF RESOLUTION NO. 1192 ESTABLISHING RATES, FEES & CHARGES FOR DOMESTIC WATER SERVICE, BACKUP FACILITY CHARGES, SUPPLEMENTAL IMPORTED WATER CAPACITY, AND SERVICE CONNECTION CHARGES

On June 19, 2018, the Board of Directors adopted Resolution No. 1188 establishing rates, fees, and charges for domestic water service, to include Backup Facility and Supplemental Imported Water Capacity Charges.

Staff has been performing a comprehensive review of the Backup Facility Charges and have determined that the current values, as indicated in Resolution No. 1188 should be changed and is requesting the Board of Directors adopt Resolution No. 1192. Only the Backup Facility Charges will differ from Resolution No. 1188.

After reviewing the current Backup Facility Charges, staff concluded that revisions should be made to the calculations. The proposed changes divide the water system into twelve (12) zones, instead of the current four (4) zones. This calculation is a more accurate way to determine the total facility costs associated with each capacity unit for each zone. The current charges group several zones together, applying facility costs to some zones that do not benefit from those facilities. For example, the current “Base Zone” charge includes capacity units and facility costs from the “Chino Zone” and the “East Zone”. The “Chino Zone” and East Zone” facilities do not benefit the “Base Zone”. To correct the calculation, distinct zones were created.

The resolution adjusts the Backup Facility Charges based on revised calculations performed by staff. As required by law, the Desert Valleys Builders Association (DVBA) was provided a copy of the proposed changes for review and comments. The DVBA reviewed the proposed revisions and accepts the changes that have been made.

A summary of the changes are as follows:

Backup Facility Charge

	Current		Proposed	Proposed	Proposed	Proposed
Meter Size	Base		Snow Creek Village	Chino	Base	East
5/8" x 3/4"	$2,550		**$2,082**	**$3,026**	**$2,470**	**$2,357**
1"	$6,375		**$5,207**	**$7,565**	**$6,175**	**$5,893**
1 ½"	$12,750		**$10,414**	**$15,130**	**$12,350**	**$11,786**
2"	$20,405		**$16,662**	**$24,208**	**$19,760**	**$18,857**

	Current		Proposed	Proposed	Proposed	Proposed
Meter Size	"A"		Palm Oasis	Chino "A"	Acanto	East "A"
5/8" x 3/4"	$4,225		**$1,493**	**$3,679**	**$4,108**	**$2,541**
1"	$10,570		**$3,734**	**$9,198**	**$10,271**	**$6,354**
1 ½"	$21,145		**$7,468**	**$18,396**	**$20,542**	**$12,708**
2"	$33,835		**$11,948**	**$29,433**	**$32,867**	**$20,332**

	Current		Proposed	Proposed	Proposed
Meter Size	"B"		Southridge "A"	Chino "B"	East "B"
5/8" x 3/4"	$5,760		**$4,390**	**$3,276**	**$3,030**
1"	$14,405		**$10,977**	**$8,190**	**$7,575**
1 ½"	$28,815		**$21,954**	**$16,380**	**$15,150**
2"	$46,105		**$35,126**	**$26,208**	**$24,240**

	Current		Proposed
Meter Size	"C"		Southridge "B"
5/8" x 3/4"	$6,245		**$2,320**
1"	$15,610		**$5,800**
1 ½"	$28,815		**$11,600**
2"	$31,225		**$18,560**

RESOLUTION NO. 1192

A RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY ESTABLISHING RATES, FEES & CHARGES FOR DOMESTIC WATER SERVICE, BACKUP FACILITY, SUPPLEMENTAL IMPORTED WATER CAPACITY AND SERVICE CONNECTION CHARGES

WHEREAS, by previous action this Board has approved various rates, fees and charges for water service, as provided by law; and

WHEREAS, it is appropriate at this time to revise the Agency's Backup Facility Charges, while restating all other rates, fees and charges which remain unchanged; and

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Desert Water Agency that the Agency's rates, fees and charges for water service shall be as follows:

1. Backup Facility Charges. Every applicant for a regular service connection shall, in addition to other charges, pay a Backup Facility Charge based on the size and location of the applicant's service and meter connection as follows:

SNOW CREEK VILLAGE ZONE (Zone 1)

Meter	Charge
5/8 x 3/4 inch	$2,082
1 inch	$5,207
1-1/2 inch	$10,414
2 inch	$16,662

Backup Facility Charges (Cont.)

PALM OASIS ZONE (Zone 2)

Meter	Charge
5/8 x 3/4 inch	$1,493
1 inch	$3,734
1-1/2 inch	$7,468
2 inch	$11,948

BASE ZONE (Zone 3)

Meter	Charge
5/8 x 3/4 inch	$2,470
1 inch	$6,175
1-1/2 inch	$12,350
2 inch	$19,760

CHINO ZONE (Zone 4)

Meter	Charge
5/8 x 3/4 inch	$3,026
1 inch	$7,565
1-1/2 inch	$15,130
2 inch	$24,208

CHINO “A” ZONE (Zone 5)

Meter	Charge
5/8 x 3/4 inch	$3,679
1 inch	$9,198
1-1/2 inch	$18,396
2 inch	$29,433

Backup Facility Charges (Cont.)

CHINO "B" ZONE (Zone 6)

Meter	Charge
5/8 x 3/4 inch	$3,276
1 inch	$8,190
1-1/2 inch	$16,380
2 inch	$26,208

ACANTO ZONE (Zone 7)

Meter	Charge
5/8 x 3/4 inch	$4,108
1 inch	$10,271
1-1/2 inch	$20,542
2 inch	$32,867

SOUTHRIDGE "A" ZONE (Zone 8)

Meter	Charge
5/8 x 3/4 inch	$4,390
1 inch	$10,977
1-1/2 inch	$21,954
2 inch	$35,126

SOUTHRIDGE "B" ZONE (Zone 9)

Meter	Charge
5/8 x 3/4 inch	$2,320
1 inch	$5,800
1-1/2 inch	$11,600
2 inch	$18,560

Backup Facility Charges (Cont.)

EAST ZONE (Zone 10)

Meter	Charge
5/8 x 3/4 inch	$2,357
1 inch	$5,893
1-1/2 inch	$11,786
2 inch	$18,857

EAST "A" ZONE (Zone 11)

Meter	Charge
5/8 x 3/4 inch	$2,541
1 inch	$6,354
1-1/2 inch	$12,708
2 inch	$20,332

EAST "B" ZONE (Zone 12)

Meter	Charge
5/8 x 3/4 inch	$3,030
1 inch	$7,575
1-1/2 inch	$15,150
2 inch	$24,240

2. Supplemental Imported Water Capacity Charges. Every applicant for a regular service connection shall, in addition to other charges, pay a Supplemental Imported Water Capacity Charge based on the size of the applicant's service and meter connection as follows:

Meter Size

Residential	Charge
5/8 x 3/4 inch	$1,370.00
1 inch	$2,250.00
1-1/2 inch	$4,440.00
2 inch	$10,960.00
3 inch	$72,070.00

Commercial	Charge
5/8 x 3/4 inch	$1,250.00
1 inch	$2,740.00
1-1/2 inch	$8,830.00
2 inch	$15,090.00
3 inch	$21,350.00
6 inch	$677,430.00

Irrigation	Charge
5/8 x 3/4 inch	$1,720.00
1 inch	$6,530.00
1-1/2 inch	$25,210.00
2 inch	$23,970.00

3. Backup Facility Charges and Supplemental Imported Water Capacity Charges for Increased Service. A Backup Facility Charge and a Supplemental Imported Water Capacity Charge shall be required for all existing regular service connections for which increased capacity is requested and larger service connections and meters are installed. Said charges shall apply to the difference in service capacity between the new meter and service, and the meter and service which is being replaced.

4. Exemption. The Backup Facility Charge shall apply to all applications for regular service, regardless of the type of use, but shall not apply to applications for temporary service. The Backup Facility Charge may be exempted, or partially exempted for private commercial fire protection service, and where certain water supply, storage, treatment and transmission facilities are required of an applicant. The exemption will be determined by the Agency, whose decision will be final.

5. Accounting of Funds. All revenues collected from backup facility charges shall be deposited with other such fees in a separate capital facilities account or fund in a manner to avoid any commingling of the charges with other revenues and funds of the Agency, except for temporary investments, and such revenues may be expended solely for the purpose for which the backup facility charges are

collected. Any interest income earned by moneys in said account or fund shall also be deposited in that account or fund and may be expended only for the purpose for which the backup facility charges are imposed. The Agency shall make findings once each fiscal year with respect to any portion of the backup facility charges remaining unexpended or uncommitted in the account five or more years after deposit of the charges. The findings shall identify the purpose to which the backup facility charges are to be put, and will demonstrate a reasonable relationship between the charges and the purpose for which the charges were imposed.

6. Meter Installation Charge. The charge for meter installation shall be as follows:

Size	Charge
5/8 x ¾ inch	$255.00
1 inch	$355.00
1-1/2 inch	$530.00
2 inch	$705.00

7. Customer Control Valve Charge. The customer control valve charge shall be as follows:

Size	Charge
1 inch	$360.00
1-1/2 inch	$370.00
2 inch	$435.00

8. Service Connection Charge. The charge for service connection shall be as follows:

	Size	Charge
a.)	1 inch	$1,800.00
	2 inch	$3,230.00
b.)	Payment Patch	$1,380.00
	Concrete Patch	$664.00

9. Connection Charge. A charge for all new connections based on the front footage served thereby shall be levied and collected at the rate of$70.00 per lineal foot of frontage, or the actual rate in accordance with a valid main extension refund agreement, whichever is greater.

10. Meter Test Deposit. The required deposit for testing a water meter shall be as follows:

Size	Charge
5/8 & 3/4 inch to 2 inches	$70.00
3 inch or larger	$140.00

11. Plan Check Fees. The plan check fees for Agency installed water facilities with no mains shall be $140. For developer installed facilities with mains, the fee shall be $140, plus $0.10 per lineal foot of main installed. There is no charge for single residences not falling within the above categories.

12. Design Review Fees. Fees charged for design review for water facilities shall be as follows:

a.) Agency Engineering Department	$140.00 per hour
b.) Engineering Consultants	Actual cost plus 15%
c.) Legal Consultants	Actual cost plus 15%

13. Temporary Service Connection Charge. The following deposits and charges shall be imposed for a temporary service connection:

a.) Deposits	
Meter	$964.00
Backflow Device	$500.00
Total	$1,464.00
b.) Meter Installation Charges	
Meter	$70.00
Backflow Device	$70.00
Total	$140.00
c.) Meter Relocation Charges	
Each Occurrence	$70.00

14. Restoration of Service. The charge for service restored on Agency's normal working days and during normal working hours will be $70. The charge for service restored other than that on Agency's normal working days and after normal working hours will be $150. To have service restored the same day, during working hours, payment must be received between 8:00 a.m. and 4:00 p.m. Payments received after 4:00 p.m. will be at the after-hours rate for restoration of service the same day.

If service is discontinued or turned off by customer request for any reason, other than repairs, the restoration charges will be enforced if restoration of service is requested within 90 days of the initial request of discontinuance.

15. Backflow Protection Device Installation Charges. The following charges shall be imposed for the installation of a backflow protection device:

a.) Double Check Device

Size	Charge
3/4 inch	$647.00
1 inch	$812.00
1-1/2 inch	$1,480.00
2 inch	$1,870.00

b.) Reduced Pressure Principal Device Assemblies

Size	Charge
3/4 inch	$843.00
1 inch	$1,005.00
1-1/2 inch	$1,689.00
2 inch	$2,053.00

c.) Double Check Device with Fire Service Outlet

Size	Charge
1 inch	$1,000.00
1-1/2 inch	$1,668.00
2 inch	$2,149.00

d.) Reduced Pressure Device with Fire Service Outlet

Size	Charge
1 inch	$1,193.00
1-1/2 inch	$1,877.00
2 inch	$2,333.00

16. Metered Service Charge. Service charges for water service include a monthly service charge, a quantitative rate charge, and a zone charge if applicable, as follows:

a.) Monthly Service Charge

Size	Charge
5/8 x 3/4 inch	$22.48
1 inch	$22.48
1-1/2 inch	$42.92
2 inch	$67.44
3 inch	$132.85
4 inch	$206.43
6inch	$410.82
8 inch	$656.08
10 inch	$1,718.90
12 inch	$2,618.56

b.) Quantitative Rate Charge

The base rate charge for all metered and unmetered water used for all purposes other than through temporary service facilities shall be $1.89 per 100 cubic feet.

c.) Temporary Service Quantitative Rate Charge

The base rate charged for all metered and unmetered water used for construction and temporary service shall be $936.54 ($2.15 per 100 cubic feet) per acre foot.

d.) Zone Charges

Zone	Charge per 100 Cubic Feet
"Base"	$0.00
"A"	$0.21
"B"	$0.26
"C"	$0.58
"D" (Tramway)	$2.56

Metered Service Charge. (Cont.)

e.) Drought Rate Surcharge
The surcharge is in addition to the Quantitative Rate Charge. It may be applied in times of mandatory restrictions or extreme water supply shortage.

Use Reduction Required	Addition to Quantitative Rate Charge
10%	$0.12
20%	$0.29
30%	$0.48
40%	$0.74
50%	$1.11
60%	$1.66

17. Private Fire Protection Monthly Service Charges. The monthly service charge for private fire protection shall be as follows:

Service Size	Charge
2 inch	$6.89
4inch	$23.25
6 inch	$50.53
8 inch	$86.89
10 inch	$135.38

18. Backflow Protection Device Repair Charge. The monthly charge for backflow protection device repair shall be as follows:

Size	Charge
3/4 inch	$3.00
1 inch	3.50
1-1/4 inch	3.50
1-1/2 inch	3.50
2 inch	3.50
2-1/2 inch	3.50
3 inch	3.50
4 inch	5.80
6 inch	5.80
8 inch	7.00
10 x 12 inch	7.00

19. Construction and Temporary Service Monthly Charges. The construction and temporary service monthly charge shall include the following and be set as follows:

    a. Monthly Service Charges
    To be in accordance with Item 16-a of this Resolution

    b. Quantitative Charges
    To be in accordance with Item 16-c of this Resolution

    c. Zone Pumping Charges
    To be in accordance with Item 16-d of this Resolution

    d. Backflow Protection Device Charge: $34.15

20. Deposit to Establish Credit. The minimum deposit to establish credit will be two (2) times the average monthly bill. If this cannot be determined, the minimum deposit shall be as follows:

Size	Deposit
5/8 x 3/4 inch	$ 100.00
1 inch	100.00
1-1/2 inch	150.00
2 inch	200.00

21. Development Review. A charge for Agency provided Administrative Services shall be collected at the rate of $140 for each of the following:

    a.) Will Serve Letter

    b.) Development Bond Amount

    Letter c.) Response to Initial Study

22. Water Quality Sampling. The charge for Agency collection and analysis of development bacteriological samples shall be at the rate of $75.00 per sample.

23. Account Establishment Fee Charge. An administrative charge for Agency services to establish account in the new owner's name shall be $30.00 per account.

24. Late Fee. An administrative late fee charge of $25.00 per account will be assessed on accounts that are delinquent (30 days past due).

25. Effective Date: The charges set forth herein shall become effective on October 16, 2018 and as of that date shall replace the charges set forth in Resolution No. 1188.

ADOPTED this 16th day of October 2018.

_____
James Cioffi, President
Board of Directors

ATTEST:

_____
Kristin Bloomer, Secretary-Treasurer
Board of Directors

BACKUP FACILITY CHARGES

FOR WATER SERVICE

October 16, 2018

New development creates an additional demand for water. In order to meet the new demand, new wells must be constructed to provide more water, new storage tanks must be constructed to store water for emergency use, equalizing, and fire storage, and new transmission pipelines must be constructed to transport water from wells to storage tanks and throughout the distribution system. New development in hillside areas and service areas above the Base Zone places demand upon facilities, such as booster pumping plants, water storage tanks and transmission pipelines, whose basic function is to lift the water up to and store in these higher zones.

For the past eight years, new development has added an annual average of about 120 service connections to the Desert Water Agency water system. At this growth rate, every seven years new connections will create a demand for water equivalent to the production capacity of one well. The increased demand will also burden storage, transmission, and booster pumping facilities in all Zones. These facilities must be in place ahead of new connections. Therefore, in most cases, the facilities are constructed in anticipation of demand, and costs of the facilities are recovered through the Backup Facility Charge.

Staff has reviewed the costs that make up the Backup Facility Charge and find that a tiered rate based on our pressure zones is justified to recover cost of the well plants, booster plants, treatment plants, surface water facilities, storage reservoirs, and transmission mains required by each zone.

All new development requiring water service will be charged for Backup Facilities. The charge is based upon the capacity/service size ratio of the service provided and the proportional potential demand placed upon the available water production, transmission, treatment, pressure boosting and storage facilities within the appropriate pressure zone. The charge is not based upon the type of service connection (i.e., residential, commercial, and industrial). The amount of

the charge for any particular development is based on the number of services, service size, meter size and the assigned number of capacity units per service as determined by the Agency. The capacity unit (C.U.) is based on the capacity/service size ratio of the service connection.
Service capacity ratios have historically been based on the relationship between capacity and pipe diameter. Originally established in 1973, the service capacity/diameter relationship for the Agency was based on a 1" service size capacity ratio of Q=KD^2.54. Depending on the specific hydraulic formula selected the service size relationship can range from D^2.5 to D^2.667. These hydraulic formula and capacity/diameter relationships are empirical and therefore approximate. The selected relationship of D^2.54 is reasonable in that it is slightly less than the median relationship of D^2.58.

However, capacity is ultimately limited by the maximum continuous operation flow rate of the meter installed on each service connection. To account for this, the Agency has opted to utilize the AWWA meter factors in lieu of the abovementioned D^2.54 formula. AWWA meter factors are an industry standard and, therefore, a reasonable method to use in determining equivalent capacity units within the system.

To determine the standard capacity for each of the Agency's pressure zones, all active services smaller and larger than the standard one-inch service are converted to one-inch equivalent capacity units using the AWWA meter factors discussed above.

The Agency currently operates 12 different pressure zones. Calculation of the C.U. for each service size in the zones are shown in the tables below:

SYSTEM CAPACITY UNITS – SNOW CREEK VILLAGE ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	45	1.00	45
1-1/2"	0	2.00	0
2"	2	3.20	6.4
Total	47		51

SYSTEM CAPACITY UNITS – PALM OASIS ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4”	0	0.40	0
1”	193	1.00	193
1-1/2”	0	2.00	0
2”	12	3.20	38.4
Total	205		231

SYSTEM CAPACITY UNITS – BASE ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4”	98	0.40	39.2
1”	11,672	1.00	11,672
1-1/2”	491	2.00	982
2”	1,977	3.20	6,326.4
Total	14,238		19,019

SYSTEM CAPACITY UNITS – CHINO ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4”	6	0.40	2.4
1”	1,802	1.00	1,802
1-1/2”	111	2.00	222
2”	269	3.20	860.8
Total	2,188		2,887

SYSTEM CAPACITY UNITS – CHINO "A" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	68	1.00	68
1-1/2"	43	2.00	86
2"	9	3.20	28.8
Total	120		182

SYSTEM CAPACITY UNITS – CHINO "B" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	54	1.00	54
1-1/2"	0	2.00	0
2"	0	3.20	0
Total	54		54

SYSTEM CAPACITY UNITS – ACANTO ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	372	1.00	372
1-1/2"	5	2.00	10
2"	30	3.20	96
Total	407		478

SYSTEM CAPACITY UNITS – SOUTHRIDGE "A" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	5	1.00	5
1-1/2"	15	2.00	30
2"	0	3.20	0
Total	20		35

SYSTEM CAPACITY UNITS – SOUTHRIDGE "B" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	0	0.40	0
1"	6	1.00	6
1-1/2"	1	2.00	2
2"	3	3.20	9.6
Total	10		18

SYSTEM CAPACITY UNITS – EAST ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	89	0.40	35.6
1"	3,723	1.00	3,723
1-1/2"	174	2.00	348
2"	660	3.20	2,112
Total	4,646		6,218

SYSTEM CAPACITY UNITS – EAST "A" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	6	0.40	2.4
1"	344	1.00	344
1-1/2"	8	2.00	16
2"	7	3.20	22.4
Total	365		384

SYSTEM CAPACITY UNITS – EAST "B" ZONE

SERVICE SIZE	SERVICES	AWWA METER FACTORS	CAPACITY UNITS
3/4"	11	0.40	4.4
1"	381	1.00	381
1-1/2"	14	2.00	28
2"	6	3.20	19.2
Total	412		432

The charge per capacity unit for each zone is obtained by determining the cost of water production, pressure boosting, treatment, storage and transmission facilities and dividing it by the total capacity units served by the facilities. The method for determining facility cost and total capacity units for each zone is discussed below.

The total number of current services in each zone was obtained from the Desert Water Agency Information Systems Department.

SNOW CREEK VILLAGE ZONE

The existing capacity units (C.U.) for the Snow Creek Village Zone is 51. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

The Snow Creek Village Zone is served from two surface water sources. Since 1993, the stream sources have had an average capacity rate of 1,257 GPM, or 1.81 MGD. Based on meter consumption data for 2017, the current ADD for the zone is equal to 0.032 MGD, therefore, the MDD is equal to 0.061 MGD. If the MDD is equal to 0.061 MGD, the current gal/C.U./day is equal to 1,196 gal/C.U./day, or (0.06 MGD÷51).

The General Plan has calculated a max demand for the area to be 1.12 MGD, with the remaining water to be delivered to the Base and Chino Zones. Since all service capacity must be met by the stream capacity, the existing units are using 5.4% of the total capacity of the stream source (0.061 MGD ÷ 1.12 MGD). The total maximum capacity units for the entire system are then equal to 944, or (51 ÷ 0.054).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Snow Creek Village Zone charge is composed of costs per capacity unit for production (stream source), treatment, storage and transmission facilities assignable to the Snow Creek Village Zone service.

SNOW CREEK VILLAGE ZONE PRODUCTION COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Snow Creek Village Zone where it is distributed to the zone services.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Snow Creek Village Zone, the water can also benefit the Base Zone and Chino Zones. The Snow Creek Village Zone will use 61.2% of the total stream capacity (1.12 ÷ 1.81); therefore, the cost per capacity unit for the Snow Creek Village Zone is $3,300,000 (0.612) ÷ 944 C.U. = **$2,139/C.U.**

SNOW CREEK VILLAGE WATER TREATMENT COSTS

In order to calculate the cost of water treatment per capacity unit we first determine the cost of those facilities from actual project costs for this zone. Water is treated using chlorine and U.V. in this zone. Since the chlorine facilities were part of the production facilities costs, we will only include U.V for this calculation.

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Snow Creek Village Zone, it can also benefit the Base Zone and Chino Zones. The Snow Creek Village Zone will use 61.2% of the total

stream capacity (1.12 ÷ 1.81); therefore, the cost of treatment per capacity unit is $317,142 (0.612) ÷ 944 C.U. = **$205/C.U.**

SNOW CREEK VILLAGE ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume. The unit cost of water storage per gallon (utilizing the most recent storage facility project costs is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir within the zone are then determined.

SNOW CREEK VILLAGE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Equalization	1,000,000	0.70	$700,000
Village	150,000	0.70	$105,000
TOTAL			**$805,000**

The Equalization Reservoir not only benefits the Snow Creek Village Zone, it can also benefit the Base Zone and Chino Zones. The Snow Creek Village Zone current storage requirements are 0.168 MG, which is 16.8% of the Equalization Reservoir capacity (0.168 ÷ 1.0); therefore, the cost per capacity unit is $700,000 (0.168) ÷ 944 C.U. = $124/C.U. and the cost of storage per capacity unit for the Village Reservoir is therefore, $105,000 ÷ 944 C.U. = $111/C.U., for a total of **$235/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour

ADD during T.O.U periods for the zone is 0.024 MG, or (0.032 x 0.75). The fire flow requirement for the zone is 0.12 MG, or (1,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.024 MG. Adding all of these components equates to 0.168 MG of storage. The current storage capacity for the system is 1.15 MG.

The existing stream capacity of the zone will accommodate an additional 893 capacity units (944 - 51). These additional units will add 1.0 MGD to the MDD. This additional demand will increase the storage requirement to 0.97 MG. Since this is less than the existing storage capacity, no future storage is required.

SNOW CREEK VILLAGE ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	**TRANSMISSION MAIN LENGTH ($/L.F.)**
12"	225
14"	250
15"	265
16"	275
18"	300
20"	320
24"	365
26"	385
30"	425
36"	480
42"	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

SNOW CREEK VILLAGE ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12”	1,500	225	$337,500
***24”**	9,600	365	$3,504,000*
TOTAL			**$3,841,500**

*The 24” main not only benefits the Snow Creek Village Zone, it can also benefit the Base Zone and Chino Zones. The Snow Creek Village Zone will use 61.2% of the total stream capacity rate (1.12 ÷ 1.81); therefore, the cost of transmission main per capacity unit for the 24” main is therefore, $3,504,000 (0.612) ÷ 944 C.U. = **$2,271/C.U.**

The cost of transmission main per capacity unit for the 12” main is therefore, $337,500 ÷ 944 C.U. = **$357/C.U.**

COST PER ZONE SUMMARY

ZONE	SURFACE WATER COST	TREATMENT COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Snow Creek Village	$2,139	$205	$235	$2,628	$5,207

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for surface water production, treatment, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

SNOW CREEK VILLAGE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,082
1	**1.0**	**$5,207**
1.5	2.0	$10,414
2	3.2	$16,662

PALM OASIS ZONE

The existing capacity units (C.U.) for the Palm Oasis Zone is 231. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.14 MGD, therefore, the MDD is equal to 0.26 MGD. If the MDD is equal to 0.26 MGD, the current gal/C.U./day is equal to 1,134 gal/C.U./day, or (0.26 MGD ÷ 231).

The current pumping capacity for the Palm Oasis Zone is 2.56 MGD. Since all service capacity must be met by the Palm Oasis Zone pumping capacity, all of the existing units are using 10.2% of the total capacity of the Palm Oasis Zone (0.26 MGD÷2.56 MGD). The total maximum capacity units for the zone is then equal to 2,265, or (231÷0.102).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Palm Oasis Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, storage and transmission facilities assignable to the Palm Oasis Zone service.

PALM OASIS PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined.

PALM OASIS ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,584/HP)
Well 17	Well Pumping Plants	150	$537,600
Well 43	Well Pumping Plants	250	$896,000
Well 17 Booster	Booster Pumping Plants	80	$309,520*
TOTAL			**$1,743,120**

*$3,869/HP Unit Cost of Booster Pumping Per Horsepower.

The cost of production per capacity unit is therefore, $1,743,120 ÷ 2,265 C.U. = **$769/C.U.**

PALM OASIS ZONE WATER TREATMENT COSTS

In order to calculate the cost of water treatment per capacity unit we first determine the cost of those facilities from actual project costs.

FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 17 Forebay		$137,500
TOTAL		**$137,500**

The cost of forebay treatment per capacity unit is therefore, $137,500 ÷ 2,265 C.U. = **$61/C.U**.

CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	1	$30,440	$30,440
TOTAL			**$30,440**

*Based on average construction cost per site to install chlorine injection facilities.

The cost of chlorine injection treatment per capacity unit is therefore, $30,440 ÷ 2,265 C.U. = **$13/C.U**.

PALM OASIS ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

PALM OASIS ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Oasis I	1,000,000	0.70	$700,000
Palm Oasis II	1,000,000	0.70	$700,000
TOTAL			**$1,400,000**

The cost of storage per capacity unit is therefore, $1,400,000 ÷ 2,265 C.U. = **$618/C.U**.

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.105 MG (0.14 x 0.75). The fire flow requirement for the zone is 0.12 MG (1,000 GPM for 2 hours per General Plan) and the equalization, or

operational storage is 40% of the MDD and is therefore equal to 0.105 MG. Adding all of these components equates to 0.33 MG of storage. The current storage capacity for the zone is 2.0 MG.

The existing pumping capacity of the system will accommodate an additional 2,034 capacity units (2,265 - 231). These additional units will add 2.3 MGD to the MDD. This additional demand will increase the storage requirement to 2.2 MG, requiring 0.2 MG of additional storage (2.2-2.0). The cost for the additional storage will be $140,000, or ($0.70/gal x 0.2 MG). The cost of future storage per capacity unit is therefore, $140,000 ÷ 2,265 C.U. = **$61/C.U.**

PALM OASIS ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	**TRANSMISSION MAIN LENGTH ($/L.F.)**
12"	225
14"	250
15"	265
16"	275
18"	300
20"	320
24"	365
26"	385
30"	425
36"	480
42"	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

PALM OASIS ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12”	17,134	225	$3,855,150
16”	4,200	275	$1,155,000
TOTAL			**$5,010,150**

The cost of transmission mains per capacity unit is therefore, $5,010,150 ÷ 2,265 C.U. = **$2,212/C.U**.

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Palm Oasis	$769	$74	$679	$2,212	$3,734

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

PALM OASIS ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$1,493
1	**1.0**	**$3,734**
1.5	2.0	$7,468
2	3.2	$11,948

BASE ZONE

The existing capacity units (C.U.) for the Base Zone is 19,019. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 18.5 MGD, therefore, the MDD is equal to 34 MGD. If the MDD is equal to 34 MGD, the current gal/C.U./day is equal to 1,787 gal/C.U./day, or (34 MGD ÷ 19,019).

The current pumping capacity for the Base Zone is 40.4 MGD (The total Base Zone well capacity minus the Acanto, Chino Booster and Southridge "A" capacity). Since all service capacity must be met by the Base Zone pumping capacity, all of the existing units are using 84% of the total capacity of the Base Zone (34 MGD ÷ 40.4 MGD). The total maximum capacity units for the zone is then equal to 22,641, or (19,019 ÷ 0.84).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Base Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Base Zone service.

BASE ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32/1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000/305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined.

BASE ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,584/HP)
Well 14	Well Pumping Plants	200	$716,800
Well 16	Well Pumping Plants	250	$896,000
Well 20	Well Pumping Plants	300	$1,075,200
Well 22	Well Pumping Plants	500	$1,792,000
Well 23	Well Pumping Plants	300	$1,075,200
Well 24	Well Pumping Plants	500	$1,792,000
Well 27	Well Pumping Plants	400	$1,433,600
Well 28	Well Pumping Plants	400	$1,433,600
Well 29	Well Pumping Plants	400	$1,433,600
Well 32	Well Pumping Plants	400	$1,433,600
Well 33	Well Pumping Plants	400	$1,433,600
Well 34	Well Pumping Plants	400	$1,433,600
Well 37	Well Pumping Plants	450	$1,612,800
Well 38	Well Pumping Plants	450	$1,612,800
Well 39	Well Pumping Plants	450	$1,612,800
Well 40	Well Pumping Plants	450	$1,612,800
Well 14 Booster	Booster Plant	210	$812,490*
Well 16 Booster	Booster Plant	210	$812,490*
TOTAL			**$24,489,260**

*$3,869/HP Unit Cost of Booster Pumping Per Horsepower.

The Base Zone uses 78.9% (40.4 ÷ 51.2) of the Base Zone total well capacity, therefore, the cost of production per capacity unit is $24,489,260 (0.789) ÷ 22,641 C.U. = **$853/C.U.**

BASE ZONE WATER TREATMENT COSTS

In order to calculate the cost of water treatment per capacity unit we first determine the cost of those facilities from actual project costs. The Base Zone includes

FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

Since the Base Zone uses 78.9% of total pumping capacity, the cost of forebay treatment per capacity unit is therefore, $753,500 (0.789) ÷ 22,641 C.U.= **$26/C.U**.

CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

Since the Base Zone uses 78.9% of pumping capacity, the cost of chlorine injection treatment per capacity unit is therefore, $365,280 (0.789) ÷ 22,641 C.U. = **$12/C.U.**

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Base Zone, the water is also used by Snow Creek Village Zone and Chino Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the cost per capacity unit for the UV treatment per capacity unit is $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

BASE ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Base Zone, the water also serves the Snow Creek Village Zone and Chino Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

BASE ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zone. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Base Zone is 29.42 MG. The existing storage capacity for the Base Zone is 34.5 MG; therefore, the Base zone storage is 85.2% of existing storage, or (29.42 ÷ 34.5).

The cost of storage per capacity unit is therefore equal to $700,000 (0.83) ÷ 30,494 plus $23,450,000(0.852) ÷ 22,641 C.U.: $19 + $882 = **$901/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 13.9 MG, or (18.6 x 0.75). The fire flow requirement for the zone is 1.92 MG (8,000 GPM for 4 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 13.6 MG. Adding all of these components equates to 29.42 MG of storage. The current storage capacity for the system is 34.5 MG.

The existing pumping capacity of the system will accommodate an additional 3,622 capacity units (22,641 – 19,019). These additional units will add 6.5 MGD to the MDD. This additional demand will increase the storage requirement to 34.5 MG, equaling the existing storage and therefore no future storage for the Base Zone is required.

BASE ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

BASE ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
***12”**	231,958	225	$52,190,550
14”	2,570	250	$642,500
16”	28,442	275	$7,821,550
20”	9,580	320	$3,065,600
24”	20,727	365	$7,565,355
26”	2,620	385	$1,008,700
30”	50,993	425	$21,672,025
36”	30,618	480	$14,696,640
42”	70’	535	$37,450
****20”**	9,673	320	$3,095,360**
****24”**	37,551	365	$13,706,115**
TOTAL			**$108,700,370**

*Approximately 60% of all mains in the system are transmission mains with the remaining 40% being distribution mains. Therefore, only 60% of the total mains are included in the above table.

**Main that serves surface water to both the Base Zone and the Chino Zone. The cost of this main was not added to the total. The total capacity units that benefit from this main is 30,494.

Since the Base Zone uses 78.9% of pumping capacity, the cost of transmission mains per capacity unit for the mains only in the Base Zone is therefore, $108,700,370 (0.789) ÷ 22,641 C.U.= **$3,788/C.U.**

The cost of transmission mains per capacity units for the Base Zone and Chino Zone mains is therefore, $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Base	$853	$42	$41	$901	$4,338	$6,175

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

BASE ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,470
1	**1.0**	**$6,175**
1.5	2.0	$12,350
2	3.2	$19,760

CHINO ZONE

The existing capacity units (C.U.) for the Chino Zone is 2,887. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 3.1 MGD, therefore, the MDD is equal to 5.7 MGD. If the MDD is equal to 5.7 MGD, the current gal/C.U./day is equal to 1,975 gal/C.U./day, or (5.7 MGD ÷ 2,887).

The current pumping capacity for the Chino Zone is 10 MGD (The total of Chino Zone well capacity and the Chino Booster capacity minus the Chino "A" booster capacity). Since all service capacity must be met by the Chino Zone pumping capacity, all of the existing units are using 57% of the total capacity of the Chino Zone (5.7 MGD ÷ 10 MGD). The total maximum capacity units for the zone is then equal to 5,064, or (2,887 ÷ 0.57).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Chino Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Chino Zone service.

CHINO ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined.

CHINO ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,584/HP)
Well 21	Well Pumping Plants	300	$1,075,200
Well 30	Well Pumping Plants	400	$1,433,600
Well 35	Well Pumping Plants	400	$1,433,600
Chino Booster	Booster Plants	475	$1,837,775*
TOTAL			**$5,780,175**

*$3,869/HP Unit Cost of Booster Pumping Per Horsepower.

The Chino Zone uses 78% of the total zone capacity (12.8-2.8) ÷ 12.8, where 12.8 MGD is the total capacity of the wells and chino booster and 2.8 MGD is the capacity needed for Chino "A" Zone; therefore, the cost of production per capacity unit for the Chino Zone wells and booster is $5,780,175 (0.78) ÷ 5,064 C.U. = **$890/C.U.** plus a component cost of the Base Zone pumping since Chino Boosters are used to pump Base Zone water to the Chino Zone.

The Chino Zone uses 8.3% of the Base Zone wells (5.5-1.2) ÷ 51.2, where 5.5 MGD is the Chino Booster capacity, 1.2 MGD is the capacity provided to Chino "A" zone, and 51.2 MGD is the total Base Zone capacity; therefore, the component cost of production per capacity unit is ($24,489,260 (0.083) ÷ 5,064 = **$401/C.U**

CHINO ZONE WATER TREATMENT COSTS

Since Base Zone water is pumped to the Chino Zone, the treatment costs for the Chino Zone is a component of the Base Zone treatment costs and any additional treatment facilities associated with the Chino Zone.

CHINO ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	2	$30,440	$60,880
TOTAL			**$60,880**

*Based on average construction cost per site to install chlorine injection facilities.

The Chino Zone uses 78% of the total zone capacity (12.8-2.8) ÷ 12.8, where 12.8 MGD is the total capacity of the wells and booster and 2.8 MGD is the capacity needed for Chino "A" Zone; therefore, the cost of treatment per capacity unit for the Chino Zone facilities is $60,880 (0.78) ÷ 5,064 C.U. = **$9/C.U.**

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Chino Zone uses 8.3% of the Base Zone wells (5.5-1.2) ÷ 51.2, where 5.5 MGD is the Chino Booster capacity, 1.2 MGD is the capacity provided to Chino "A" zone, and 51.2 is the total Base Zone capacity; therefore, the component costs of treatment per capacity unit for the Base Zone facilities are $753,500 (0.083) ÷ 5,064 = **$12/C.U.** and $365,280 (0.083) ÷ 5,064 = **$5/C.U.**

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Chino Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

CHINO ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Chino Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

CHINO ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

CHINO ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Chino II	3,500,000	0.70	$2,450,000
Chino III	3,500,000	0.70	$2,450,000
TOTAL			**$4,900,000**

The required storage for the Chino Zone is 5.54 MG. The existing storage capacity for the Chino Zone is 7.0 MG; therefore, the Chino Zone storage is 79.1% of existing storage (5.54 ÷ 7.0); therefore, the cost of storage per capacity unit for the Chino Zone facilities is $4,900,000 (0.791) ÷ 5,064 C.U.= **$765/C.U.** plus the component cost of the Base Zone storage since Chino Zone utilizes Base Zone water.

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zone. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Chino Zone is 5.54 MG. The Chino Booster provides 43% of the Chino Zone storage; therefore, the amount of storage from the Base Zone is 2.38 MG, or (5.54 x 0.43). The existing storage capacity for the Base Zone is 34.5 MG; therefore, the Chino Zone storage is 6.9% of Base Zone storage (2.38 ÷ 34.5).

The cost of storage per capacity is therefore equal to the component of the Equalization Reservoir and the Base Zone storage, or $700,000 (0.83) ÷ 30,494 plus $23,450,000 (0.069) ÷ 5,064 C.U.: $19 + 319 = **$338/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 2.3 MG (3.1 x 0.75). The fire flow requirement for the zone is 0.96 MG (4,000 GPM for 4 hours per General Plan) and the equalization, or operational

storage is 40% of the MDD and is therefore equal to 2.28 MG. Adding all of these components equates to 5.54 MG of storage. The current storage capacity for the system is 7.0 MG.

The existing pumping capacity of the system will accommodate an additional 2,177 capacity units (5,064 – 2,887). These additional units will add 4.3 MGD to the MDD. This additional demand will increase the storage requirement to 9.0 MG, requiring 2.0 MG of additional storage (9.0 – 7.0). The cost for the additional storage will be $1,400,000, or ($0.70/gal x 2.0 MG). The cost of future storage per capacity unit is therefore, $1,400,000 ÷ 5,064 C.U. = **$276/C.U.**

CHINO ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	**TRANSMISSION MAIN LENGTH ($/L.F.)**
12"	225
14"	250
15"	265
16"	275
18"	300
20"	320
24"	365
26"	385
30"	425
36"	480
42"	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

CHINO ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
***12”**	26,436	225	$5,948,100
15”	940	265	$249,100
16”	4,117	275	$1,132,175
18”	5,927	300	$1,778.100
20”	1,610	320	$515,200
24”	14,021	365	$5,117,665
30”	3,400	425	$1,445,000
****20”**	9,673	320	$3,095,360**
****24”**	37,551	365	$13,706,115**
TOTAL			**$16,185,340**

*Approximately 60% of all mains in the system are transmission mains with the remaining 40% being distribution mains. Therefore, only 60% of the total mains are included in the above table.

**Main that serves surface water to both the Base Zone and the Chino Zone. The cost of this main was not added to the total. The total capacity units that benefit from this main is 30,494.

The Chino Zone uses 78% of the total capacity (12.8-2.8) ÷ 12.8, where 12.8 is the total capacity of the wells and booster and 2.8 is the capacity needed for Chino “A” Zone; therefore, the cost of transmission per capacity unit for the Chino Zone mains is $16,185,340 (0.78) ÷ 5,064 C.U. = **$2,493/C.U**. plus a component of the Base Zone mains cost since Chino Boosters are used to pump Base Zone water to the Chino Zone.

The Chino Zone uses 8.3% of the Base Zone wells (5.5-1.2) ÷ 51.2, where 5.5 MGD is the Chino Booster capacity and 1.2 MGD is the capacity provided to Chino "A" zone; therefore, the component cost of transmission mains per capacity unit for the Base Zone facilities is ($108,700,370 (0.083) ÷ 5,064 = **$1,781/C.U.**

The component cost of transmission mains per capacity units for the shared Base Zone and Chino Zone mains is therefore, $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Chino	$1,291	$30	$41	$1,379	$4,824	$7,565

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

CHINO ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,026
1	**1.0**	**$7,565**
1.5	2.0	$15,130
2	3.2	$24,208

CHINO "A" ZONE

The existing capacity units (C.U.) for the Chino "A" Zone is 182. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.13 MGD, therefore, the MDD is equal to 0.24 MGD. If the MDD is equal to 0.24 MGD, the current gal/C.U./day is equal to 1,318 gal/C.U./day, or (0.24 MGD ÷ 182).

The current pumping capacity for the Chino "A" Zone is 2.8 MGD; however, 1.1 MGD is dedicated to Chino "B" Zone. The pumping capacity for Chino "A" Zone is therefore 1.7 MGD (2.8 - 1.1). Since all service capacity must be met by the Chino "A" Zone pumping capacity, all of the existing units are using 14.1% of the total capacity of the Chino "A" Zone (0.24 MGD ÷ 1.7 MGD). The total maximum capacity units for the zone is then equal to 1,290, or (182 ÷ 0.141).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Chino "A" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Chino "A" Zone service.

CHINO "A" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since Chino "A" Zone is provided water by booster pumps only, we will only be using the booster pump costs.

CHINO "A" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Janis Tuscany	Booster Plant	150	$580,350
TOTAL			**$580,350**

The Chino "A" Zone uses 60.7% of the total capacity (1.7 ÷ 2.8), where 2.8 MGD is the total capacity of the booster and 1.7 MGD is the capacity needed for Chino "A" Zone; therefore, the cost of production per capacity unit for the Chino "A" Zone booster is $580,350 (0.607) ÷ 1,290 C.U.= **$273/C.U.** plus the component cost of the Chino Zone pumping and Base Zone pumping since Chino Zone and Base Zone water is pumped to the Chino "A" Zone.

The Chino "A" Zone uses 13.3% of the Chino Zone capacity (2.8-1.1) ÷ 12.8, where 2.8 MGD is the Chino "A" Booster capacity, 1.1 MGD is the Chino "B" zone capacity, and 12.8 MGD is the capacity provided to Chino "A" zone by the Chino Zone booster; therefore, the component cost of production per capacity unit for the Chino "A" Zone is ($5,780,175 (0.133) ÷ 1,290 = **$595/C.U**

The Chino "A" Zone uses 2.3% of the Base Zone pumping capacity (1.2 ÷ 51.2), where 1.2 MGD is the capacity provided to Chino "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of production per capacity unit for the Chino "A" Zone is ($24,489,260 (0.023) ÷ 1,290 = **$436/C.U.**

CHINO "A" ZONE WATER TREATMENT COSTS

Since Base Zone and Chino Zone water is pumped to the Chino "A" Zone, the treatment costs for the Chino "A" Zone is a component of the Base Zone treatment costs, Chino Zone treatment costs and any additional treatment facilities associated with the Chino "A" Zone.

CHINO ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	2	$30,440	$60,880
TOTAL			**$60,880**

*Based on average construction cost per site to install chlorine injection facilities.

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Chino "A" Zone uses 13.3% of the Chino Zone capacity (2.8-1.1) ÷ 12.8, where 2.8 MGD is the Chino "A" Booster capacity, 1.1 MGD is the Chino "B" zone capacity, and 12.8 MGD is the capacity provided to Chino "A" zone by the Chino Zone booster; therefore, the component cost of treatment per capacity unit for the Chino "A" Zone is $60,880 (0.133) ÷ 1,290 = **$6/C.U**

The Chino "A" Zone uses 2.3% of the Base Zone pumping capacity (1.2 ÷ 51.2), where 1.2 MGD is the capacity provided to Chino "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of treatment per capacity unit for the Chino "A" Zone is ($753,500 + $365,280) (0.023) ÷ 1,290 = **$19/C.U.**

U.V TREATMENT

DESCRIPTION	**YEAR CONSTRUCTED**	***FOREBAY COST**
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Chino "A" Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

CHINO "A" ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Chino "A" Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

CHINO "A" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

CHINO "A" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Desert Palisade Res.	500,000	0.70	$350,000
TOTAL			**$350,000**

The required storage for the Chino "A" Zone is 0.42 MG. The existing storage capacity for the Chino "A" Zone is 0.50 MG; therefore, the Chino "A" Zone storage is 84% of existing storage (0.42 ÷ 0.50); therefore, the cost of storage per capacity unit for the Chino "A" Zone facilities is $350,000 (0.84) ÷ 1,290 C.U. = **$227/C.U.** plus the component cost of the Base Zone and Chino Zone storage since Chino "A" Zone utilizes those zones for water.

CHINO ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Chino II	3,500,000	0.70	$2,450,000
Chino III	3,500,000	0.70	$2,450,000
TOTAL			**$4,900,000**

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zones. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Chino "A" Zone is 6% of the Chino Zone total storage capacity (0.42 ÷ 7.0); therefore, the component cost of storage per capacity unit for Chino "A" Zone is $4,900,000 (0.06) ÷ 1,290 C.U.= **$227/C.U.**

Since the Chino Booster provides 43% of the water to the Chino Zone, only 43% of the required storage will be provided from the Chino Booster. The percentage of water from the Base Zone is 0.5% or (0.42 x 43%) ÷ 34.5; therefore, the component cost of storage per capacity unit for the Chino "A" Zone is $23,450,000 (0.005) ÷ 1,290 C.U. = **$90/C.U.**
The component cost of storage per capacity for the Equalization Reservoir is equal to $700,000 (0.83) ÷ 30,494 = **$19/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods is 0.09 MG (0.13 x 0.75). The fire flow requirement for the system is

0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.09 MG. Adding all of these components equates to 0.42 MG of storage. The current storage capacity for the system is 0.50 MG.

The existing pumping capacity of the system will accommodate an additional 1,108 capacity units (1,290 - 182). These additional units will add 1.5 MGD to the MDD. This additional demand will increase the storage requirement to 2.5 MG, requiring 2.0 MG of additional storage (2.5 – 0.5). The cost for the additional storage will be $1,400,000, or ($0.70/gal x 2.0 MG). The cost of future storage per capacity unit is therefore, $1,400,000 ÷ 1,290 C.U. = **$1,085/C.U.**

CHINO "A" WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	**TRANSMISSION MAIN LENGTH ($/L.F.)**
12"	225
14"	250
15"	265
16"	275
18"	300
20"	320
24"	365
26"	385
30"	425
36"	480
42"	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

CHINO "A" ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
***12"**	6,493	225	$1,460,925
16"	3,782	275	$1,040,050
18"	1,600	300	$480,000
24"	3,600	365	$1,314,000
TOTAL			**$4,294,975**

*Approximately 60% of all mains in the system are transmission mains with the remaining 40% being distribution mains. Therefore, only 60% of the total mains are included in the above table.

The Chino "A" Zone uses 60.7% of the total capacity (1.7 ÷ 2.8), where 2.8 MGD is the total capacity of the booster and 1.7 MGD is the capacity needed for Chino "A" Zone; therefore, the cost of transmission mains per capacity unit for the Chino "A" Zone is $4,294,975 (0.607) ÷ 1,290 C.U.= **$2,020/C.U.** plus a component cost of the Chino Zone and Base Zone transmission main since Chino and Base Zone water is pumped to the Chino "A" Zone.

The Chino "A" Zone uses 13.3% of the Chino Zone capacity (2.8-1.1) ÷ 12.8, where 2.8 MGD is the Chino "A" Booster capacity, 1.1 MGD is the Chino "B" zone capacity, and 12.8 MGD is the capacity provided to Chino "A" zone by the Chino Zone booster; therefore, the component cost of transmission mains per capacity unit for the Chino "A" Zone is $16,185,340 (0.133) ÷ 1,290 = **$1,668/C.U.**

The Chino "A" Zone uses 2.3% of the Base Zone pumping capacity (1.2 ÷ 51.2), where 1.2 MGD is the capacity provided to Chino "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of transmission mains per capacity unit for the Chino "A" Zone is $108,700,370 (0.023) ÷ 1,290 = **$1,938/C.U.**

The component cost of transmission mains per capacity units for the mains that serve the Chino "A" Zone for surface water is $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Chino "A"	$1,304	$29	$41	$1,648	$6,176	$9,198

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

CHINO "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,679
1	**1.0**	**$9,198**
1.5	2.0	$18,396
2	3.2	$29,433

CHINO "B" ZONE

The existing capacity units (C.U.) for the Chino "B" Zone is 54. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Currently, there are no active services connected to this zone. If we assume that the gal/c.u./day is equal to Chino "A" Zone, 1,318, the MDD is equal to 0.071 MGD.

The current pumping capacity for the Chino "B" Zone is 1.1 MGD. Since all service capacity must be met by the Chino "B" Zone pumping capacity, all of the current units would use 6.45% of the total capacity of the Chino "B" Zone (0.071 MGD÷1.1 MGD). The total maximum capacity units for the zone is then equal to 837, or (54÷0.0645).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Chino "B" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Chino "B" Zone service.

CHINO "B" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since Chino "B" Zone is provided water by booster pumps, we will only be using the booster pump costs.

CHINO "B" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Desert Palisade	Booster Plant	80	$309,520
TOTAL			**$309,520**

The cost of production per capacity unit is $309,520 ÷ 837 C.U. = **$369/C.U.** plus a component cost of the Chino "A" Zone, Chino Zone, and Base Zone pumping.

The Chino "B" Zone uses 39.2% of the Chino "A" pumping capacity (1.1 ÷ 2.8), where 2.8 MGD is the total capacity of the Chino "A" booster and 1.1 MGD is the capacity of the Chino "B" Zone; therefore, the component cost of production per capacity unit for the Chino "B" Zone is $580,350 (0.392) ÷ 837 C.U.= **$271/C.U.**

The Chino "B" Zone uses 8.5% of the Chino Zone pumping capacity (1.1 ÷ 12.8), where 12.8 MGD is the Chino Booster capacity, 1.1 MGD is the Chino "B" zone capacity; therefore, the component cost of production per capacity unit for the Chino "B" Zone is $5,780,175 (0.085) ÷ 837 = **$586/C.U.**

The Chino "B" Zone uses 0.92% of the Base Zone pumping capacity (0.47 ÷ 51.2), where 0.47 MGD is the capacity provided to Chino "B" Zone by the Base Zone and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of production per capacity unit for the Chino "B" Zone is $24,489,260 (0.0092) ÷ 837 = **$263/C.U.**

CHINO "B" ZONE WATER TREATMENT COSTS

Since Base Zone, Chino Zone, and Chino "A" Zone water is pumped to the Chino "B" Zone, the treatment costs for the Chino "B" Zone is a component of the Base Zone treatment costs, Chino Zone treatment costs, Chino "A" Zone treatment costs and any additional treatment facilities associated with the Chino "B" Zone.

CHINO ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	2	$30,440	$60,880
TOTAL			**$60,880**

*Based on average construction cost per site to install chlorine injection facilities.

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Chino “B” Zone uses 8.5% of the Chino Zone capacity (1.1 ÷ 12.8), where 1.1 MGD is the Chino “B” zone capacity, and 12.8 MGD is the capacity provided by the Chino Zone booster; therefore, the component cost of treatment per capacity unit for the Chino “B” Zone is $60,880 (0.085) ÷ 837 = **$6/C.U.**

The Chino “B” Zone uses 0.92% of the Base Zone pumping capacity (0.47 ÷ 51.2), where 0.47 MGD is the capacity provided to Chino “B” Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of treatment per capacity unit for the Chino “B” Zone is ($753,500 + $365,280) (0.0092) ÷ 837 = **$12/C.U.**

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Chino "B" Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

CHINO "B" ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Chino "B" Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

CHINO "B" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

CHINO "A" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Desert Palisade Res.	500,000	0.70	$350,000
TOTAL			**$350,000**

The required storage for the Chino "B" Zone is 0.28 MG. The existing storage capacity for the Chino "B" Zone is 0.50 MG; therefore, the Chino "B" Zone storage is 56% of existing storage (0.28 ÷ 0.50); therefore, the cost of storage per capacity unit for the Chino "B" Zone is $350,000

(0.56) ÷ 857 C.U. = **$228/C.U.** plus the component cost of the Base Zone and Chino Zone storage since Chino "B" Zone utilizes those zones for water.

CHINO ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Chino II	3,500,000	0.70	$2,450,000
Chino III	3,500,000	0.70	$2,450,000
TOTAL			**$4,900,000**

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zones. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Chino "B" Zone is 4% of the Chino Zone total storage capacity (0.28 ÷ 7.0); therefore, the component cost of storage per capacity unit for the Chino "B" Zone is $4,900,000 (0.04) ÷ 837 C.U.= **$234/C.U.**

Since the Chino Booster provides 43% of the water to the Chino Zone, only 43% of the required storage will be provided from the Chino Booster. The percentage of water from the Base Zone is 0.3% or (0.28 x 43%) ÷ 34.5, therefore, the component cost of storage per capacity unit for the Chino "B" Zone is $23,450,000 (0.003) ÷ 837 C.U. = **$84/C.U.**
The component cost of storage per capacity for the Equalization Reservoir is equal to $700,000 (0.83) ÷ 30,494 = **$19/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods is 0.02 MG (0.03 x 0.75). The fire flow requirement for the system is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.02 MG. Adding all of these components equates to 0.28 MG of storage. The current storage capacity for the system is 0.50 MG.

The existing pumping capacity of the system will accommodate an additional 783 capacity units (837 - 54). These additional units will add 1.03 MGD to the MDD. This additional demand will increase the storage requirement to 1.07 MG, requiring 0.57 MG of additional storage (1.07 – 0.5). The cost for the additional storage will be $1,400,000, or ($0.70/gal x 2.0 MG). The cost of future storage per capacity unit is therefore, $570,000 ÷ 837 C.U. = **$681/C.U.**

CHINO "B" WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

Since the same transmission mains are used by both Chino “B” and Chino A” Zones, the capacity unit cost for Chino “B” Zone will be based on a component cost of Chino “A” Zone, Chino Zone, and Base Zone values.

CHINO "A" ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
***12"**	6,493	225	$1,460,925
16"	3,782	275	$1,040,050
18"	1,600	300	$480,000
24"	3,600	365	$1,314,000
TOTAL			**$4,294,975**

*Approximately 60% of all mains in the system are transmission mains with the remaining 40% being distribution mains. Therefore, only 60% of the total mains are included in the above table.

The Chino "B" Zone uses 39.2% of the total capacity (1.1 ÷ 2.8), where 2.8 MGD is the total capacity of the booster and 1.1 MGD is the capacity needed for Chino "B" Zone; therefore, the component cost of transmission mains per capacity unit for the Chino "B" Zone is $4,294,975 (0.392) ÷ 837 C.U.= **$2,011/C.U.**

The Chino "B" Zone uses 8.6% of the Chino Zone capacity (1.1 ÷ 12.8), where 1.1 MGD is the Chino "B" zone capacity, and 12.8 MGD is the capacity provided to Chino "A" zone by the Chino Zone booster; therefore, the component cost of transmission mains per capacity unit for the Chino "B" Zone is $16,185,340 (0.086) ÷ 837 = **$1,663/C.U.**

The Chino "B" Zone uses 0.92% of the Base Zone pumping capacity (0.47 ÷ 51.2), where 0.47 MGD is the capacity provided to Chino "B" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of transmission mains per capacity unit for the Chino "B" Zone is ($108,700,370 (0.009) ÷ 837 = **$1,168/C.U.**

The component cost of transmission mains per capacity units for the mains that serve the Chino "B" Zone for surface water is $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Chino "B"	$1,489	$22	$41	$1,246	$5,392	$8,190

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

CHINO "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,276
1	**1.0**	**$8,190**
1.5	2.0	$16,380
2	3.2	$26,208

ACANTO ZONE

The existing capacity units (C.U.) for the Acanto Zone is 478. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.57 MGD, therefore, the MDD is equal to 1.05 MGD. If the MDD is equal to 1.05 MGD, the current gal/C.U./day is equal to 2,196 gal/C.U./day, or (1.05MGD ÷ 478).

The current pumping capacity for the Acanto Zone is 4.7 MGD. Since all service capacity must be met by the Acanto Zone pumping capacity, all of the existing units are using 22% of the total capacity of the Acanto Zone (1.05 MGD÷4.7 MGD). The total maximum capacity units for the zone is then equal to 2,172, or (478÷0.22).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Acanto Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Acanto Zone service.

ACANTO ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since Acanto Zone is provided water by booster pumps, we will only be using the booster pump costs.

ACANTO ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Acanto Booster	Booster Plant	300	$1,160,700
TOTAL			**$1,160,700**

The cost of production per capacity unit for the Acanto Zone is $1,160,700 ÷ 2,172 C.U.= **$534/C.U.** plus a component cost of the Base Zone pumping since Acanto Boosters are used to pump Base Zone water to the Acanto Zone.

The Acanto Zone uses 9.2% of the Base Zone wells (4.7 ÷ 51.2), where 4.7 MGD is the Acanto Booster capacity and 51.2 MGD is the Base Zone wells capacity; therefore, the component cost of production per capacity unit for the Base Zone wells is $24,489,260 (0.092) ÷ 2,172 = **$1,037/C.U.**

ACANTO ZONE WATER TREATMENT COSTS

Since Base Zone water is pumped to the Acanto Zone, the treatment costs for the Acanto Zone is a component of the Base Zone treatment costs and any additional treatment facilities associated with the Acanto Zone.

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Acanto Zone uses 9.2% of the Base Zone wells (4.7 ÷ 51.2), where 4.7 MGD is the Acanto Booster capacity and 51.2 MGD is the Base Zone wells capacity; therefore, the component cost of treatment per capacity unit for the Base Zone facilities is $753,500 (0.092) ÷ 2,172 = **$32/C.U.** and $365,280 (0.092) ÷ 2,172 = **$15/C.U.**

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Acanto Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

ACANTO ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Acanto Zone, the water also serves the Snow Creek Village Zone and Chino Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

ACANTO ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

ACANTO ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Andreas I	1,500,000	0.70	$1,050,000
Andreas II	1,500,000	0.70	$1,050,000
TOTAL			**$2,100,000**

The cost of storage per capacity unit for the Acanto Zone facilities is $2,100,000 ÷ 2,172 C.U.= **$967/C.U.** plus the component cost of the Base Zone storage since Acanto Zone utilizes Base Zone water.

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zone. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Acanto Zone is 1.08 MG. The existing storage capacity for the Base Zone is 34.5 MG; therefore, the Acanto Zone storage is 3.1% of Base Zone storage (1.08 ÷ 34.5).

The cost of storage per capacity is therefore equal to the component of the Equalization Reservoir and the Base Zone storage, or $700,000 (0.83) ÷ 30,494 plus $23,450,000 (0.031) ÷ 2,172 C.U.: $19 + 334 = **$353/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.42 MG (.57 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.42 MG. Adding all of these components equates to 1.08 MG of storage. The current storage capacity for the system is 3.0 MG.

The existing pumping capacity of the system will accommodate an additional 1,694 capacity units (2,172 - 478). These additional units will add 3.7 MGD to the MDD. This additional demand will increase the storage requirement to 4.07 MG, requiring 1.07 MG of additional storage (4.07 – 3.0). The cost for the additional storage will be $749,000, or ($0.70/gal x 1.07 MG). The cost of future storage per capacity unit is therefore, $749,000 ÷ 2,172 C.U. = **$345/C.U.**

ACANTO ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

ACANTO ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
***12"**	8,875	225	$1,996,200
16"	6,832	275	$1,878,800
24"	23	365	$8,395
****20"**	9,673	320	$3,095,360**
****24"**	37,551	365	$13,706,115**
TOTAL			**$3,888,395**

*Approximately 60% of all mains in the system are transmission mains with the remaining 40% being distribution mains. Therefore, only 60% of the total mains are included in the above table.

The cost of transmission per capacity unit for the Acanto Zone mains is $3,888,395 ÷ 2,172 C.U.= **$1,790/C.U.** plus a component of the Base Zone mains cost since Acanto Boosters are used to pump Base Zone water to the Acanto Zone.

The Acanto Zone uses 9.2% of the Base Zone wells (4.7 ÷ 51.2), where 4.7 MGD is the Acanto Booster capacity and 51.2MGD is the Base Zone wells capacity; therefore, the component cost of transmission mains per capacity unit for the Base Zone facilities is $108,700,370 (0.092) ÷ 2,172 = **$4,604/C.U.**

The component cost of transmission mains per capacity units for the shared Base Zone and Chino Zone mains is therefore, $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Acanto	$1,571	$51	$41	$1,664	$6,944	$10,271

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

ACANTO ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$4,108
1	**1.0**	**$10,271**
1.5	2.0	$20,542
2	3.2	$32.867

SOUTHRIDGE "A" ZONE

The existing capacity units (C.U.) for the Southridge "A" Zone is 35. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.04 MGD, therefore, the MDD is equal to 0.07 MGD. If the MDD is equal to 0.07 MGD, the current gal/C.U./day is equal to 2,000 gal/C.U./day, or (0.07MGD ÷ 35).

The current pumping capacity for the Southridge "A" Zone is 0.64 MGD; however, 0.44 MGD is dedicated to Southridge "B" Zone. The pumping capacity for Southridge "A" Zone is therefore 0.20 MGD (0.64 - 0.44). Since all service capacity must be met by the Southridge "A" Zone pumping capacity, all of the existing units are using 35% of the total capacity of the Southridge "A" Zone, or (0.07 MGD ÷ 0.20 MGD). The total maximum capacity units for the zone is then equal to 100, or (35 ÷ 0.35).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Southridge "A" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Southridge "A" Zone service.

SOUTHRIDGE "A" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since Southridge "A" Zone is provided water by booster pumps, we will only be using the booster pump costs.

SOUTHRIDGE "A" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Araby	Booster Plant	50	$193,450
TOTAL			**$193,450**

The Southridge "A" Zone uses 31.3% of the Zone capacity (0.64 – 0.44) ÷ 0.64, where 0.64 MGD is the Southridge "A" Zone total pumping capacity and 0.44 MGD is the Southridge "B" Zone capacity; therefore, the component cost of production per capacity unit for the Southridge "A" Zone is $193,450 (0.313) ÷ 100 = **$605/C.U.**

The Southridge "A" Zone uses 0.39% of the Base Zone pumping capacity (0.20 ÷ 51.2), where 0.20 MGD is the capacity provided to Southridge "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of production per capacity unit for the Southridge "A" Zone is $24,489,260 (0.0039) ÷ 100 = **$955/C.U.**

SOUTHRIDGE "A" ZONE WATER TREATMENT COSTS

Since Base Zone water is pumped to the Southridge "A" Zone, the treatment costs for the Southridge "A" Zone is a component of the Base Zone treatment costs and any additional treatment facilities associated with the Southridge "A" Zone.

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Southridge "A" Zone uses 0.39% of the Base Zone pumping capacity (0.20 ÷ 51.2), where 0.20 MGD is the capacity provided to Southridge "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of treatment per capacity unit for the Southridge "A" Zone is ($753,500 + $365,280) (0.0039) ÷ 100 = **$43/C.U.**

U.V TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Southridge "A" Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

SOUTHRIDGE "A" ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Southridge "A" Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

SOUTHRIDGE "A" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

SOUTHRIDGE "A" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Southridge I	100,000	0.70	$70,000
Southridge II	300,000	0.70	$210,000
TOTAL			**$280,000**

The required storage for the Southridge "A" Zone is 0.30 MG. The existing storage capacity for the Southridge "A" Zone is 0.40 MG; therefore, the Southridge "A" Zone storage is 75% of existing storage (0.30 ÷ 0.40); therefore, the cost of storage per capacity unit for the Southridge "A" Zone facilities is $280,000 (0.75) ÷ 100 C.U. = **$2,100/C.U.** plus the component cost of the Base Zone storage since Southridge "A" Zone utilizes the Base Zone for water.

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zones. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Southridge "A" Zone is 0.80% of the Base Zone total storage capacity (0.30 ÷ 34.5); therefore, the component cost of storage per capacity unit for Southridge "A" Zone is $23,450,000 (0.008) ÷ 100 C.U.= **$1,876/C.U.**.

The component cost of storage per capacity for the Equalization Reservoir is equal to $700,000 (0.83) ÷ 30,494 = **$19/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.03 MG (.04 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.028 MG. Adding all of these components equates to 0.298 MG of storage. The current storage capacity for the system is 0.40 MG.

The existing pumping capacity of the system will accommodate an additional 65 capacity units (100 - 35). These additional units will add 0.13 MGD to the MDD. This additional demand will increase the storage requirement to 0.40 MG, equaling the existing storage and therefore no future storage for the Southridge “A” Zone is required.

SOUTHRIDGE “A” ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

SOUTHRIDGE “A” ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12”	775	225	$174,375
TOTAL			**$174,375**

The Southridge "A" Zone uses 31.3% of the total capacity (0.20 ÷ 0.64), where 0.64 MGD is the total capacity of the Southridge "A" booster and 0.20 MGD is the capacity needed for Southridge "A" Zone; therefore, the cost of transmission mains per capacity unit for the Southridge "A" Zone is $174,375 (0.313) ÷ 100 C.U.= **$545/C.U.** plus a component cost of the Base Zone transmission main since Base Zone water is pumped to the Southridge "A" Zone.

The Southridge "A" Zone uses 0.39% of the Base Zone pumping capacity (0.20 ÷ 51.2), where 0.20 MGD is the capacity provided to Southridge "A" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of transmission mains per capacity unit for the Southridge "A" Zone is $108,700,370 (0.0039) ÷ 100 = **$4,239/C.U.**

The component cost of transmission mains per capacity units for the mains that serve the Southridge "A" Zone for surface water is $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Southridge "A"	$1,560	$47	$41	$3,995	$5,334	$10,977

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

SOUTHRIDGE "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$4,390
1	**1.0**	**$10,977**
1.5	2.0	$21,954
2	3.2	$35,126

SOUTHRIDGE "B" ZONE

The existing capacity units (C.U.) for the Southridge "B" Zone is 18. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.01 MGD, therefore, the MDD is equal to 0.0185 MGD. If the MDD is equal to 0.0185 MGD, the current gal/C.U./day is equal to 1,028 gal/C.U./day, or (0.0185MGD÷18).

The current pumping capacity for the Southridge "B" Zone is 0.44 MGD. Since all service capacity must be met by the Southridge "B" Zone pumping capacity, all of the existing units are using 4.2% of the total capacity of the Southridge "B" Zone (0.0185 MGD ÷ 0.44 MGD). The total maximum capacity units for the zone is then equal to 428, or (18÷0.042).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The Southridge "B" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, surface water, storage and transmission facilities assignable to the Southridge "B" Zone service.

SOUTHRIDGE "B" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since Southridge "B" Zone is provided water by booster pumps, we will only be using the booster pump costs.

SOUTHRIDGE "B" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Southridge	Booster Plant	90	$348,210
TOTAL			**$348,210**

The cost of production per capacity unit is $348,210 ÷ 428 C.U. = **$813/C.U**. plus a component cost of the Southridge "A" Zone and Base Zone pumping.

The Southridge "B" Zone uses 68.8% of the Southridge "A" pumping capacity (0.44 ÷ 0.64), where 0.64 MGD is the total capacity of the Southridge "A" booster and 0.44 MGD is the capacity of the Southridge "B" Zone; therefore, the component cost of production per capacity unit for the Southridge "B" Zone is $193,450 (0.688) ÷ 428 C.U.= **$310/C.U.**

The Southridge "B" Zone uses 0.86% of the Base Zone pumping capacity (0.44 ÷ 51.2), where 0.44 MGD is the capacity provided to Southridge "B" Zone by the Base Zone and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of production per capacity unit for the Southridge "B" Zone is $24,489,260 (0.0086) ÷ 428 = **$492/C.U**

SOUTHRIDGE "B" ZONE WATER TREATMENT COSTS

Since Base Zone and Southridge "A" Zone water is pumped to the Southridge "B" Zone, the treatment costs for the Southridge "B" Zone is a component of the Base Zone treatment costs, Southridge "A" Zone treatment costs and any additional treatment facilities associated with the Southridge "B" Zone.

BASE ZONE FOREBAY TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
Well 14 Forebay	1993	$376,750
Well 16 Forebay	1993	$376,750
TOTAL		**$753,500**

BASE ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	12	$30,440	$365,280
TOTAL			**$365,280**

*Based on average construction cost per site to install chlorine injection facilities.

The Southridge "B" Zone uses 0.86% of the Base Zone pumping capacity (0.44 ÷ 51.2), where 0.44 MGD is the capacity provided to Southridge "B" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of treatment per capacity unit for the Southridge "B" Zone is ($753,500 + $365,280) (0.0086) ÷ 428 = **$22/C.U.**

UV TREATMENT

DESCRIPTION	YEAR CONSTRUCTED	*FOREBAY COST
UV Treatment (Snow Creek/Falls Creek)	2014	$317,142
TOTAL		**$317,142**

*Actual project costs.

The UV treated surface water not only benefits the Southridge "B" Zone, the water is also used by Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit for the UV treatment per capacity unit is therefore, $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

SOUTHRIDGE "B" ZONE SURFACE WATER COST

In order to calculate the cost of surface water per capacity unit we first determine the cost of those facilities from actual project costs. Surface water is transmitted from the diversions into the Base Zone where it is distributed to the zone.

DESCRIPTION	YEAR CONSTRUCTED	*SURFACE WATER FACILITY COST
Snow Creek Diversion	1990	$2,000,000
Falls Creek Diversion	1990	$1,300,000
TOTAL		**$3,300,000**

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Southridge "B" Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

SOUTHRIDGE "B" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

SOUTHRIDGE "B" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Southridge I	100,000	0.70	$70,000
Southridge II	300,000	0.70	$210,000
TOTAL			**$280,000**

The required storage for the Southridge "B" Zone is 0.25 MG. The existing storage capacity for the Southridge "B" Zone is 0.40 MG; therefore, the Southridge "B" Zone storage is 62.5% of existing storage (0.25 ÷ 0.40). The cost of storage per capacity unit for the Southridge "B" Zone facilities is $280,000 (0.625) ÷ 428 C.U. = **$408/C.U.** plus the component cost of the Base Zone storage since Southridge "B" Zone utilizes the Base Zone water.

BASE ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Palm Springs North I	1,500,000	0.70	$1,050,000
Palm Springs North II	12,000,000	0.70	$8,400,000
Tahquitz I	5,000,000	0.70	$3,500,000
Tahquitz II	5,000,000	0.70	$3,500,000
Palm Springs South I	5,000,000	0.70	$3,500,000
Palm Springs South II	5,000,000	0.70	$3,500,000
Equalization	1,000,000	0.70	$700,000*
TOTAL			**$24,150,000**

* The Equalization Reservoir serves the Base Zone, Snow Creek Village Zone, and the Chino Zones. The Base Zone and Chino Zones will use 83% of the total reservoir capacity.

The required storage for the Southridge "B" Zone is 0.70% of the Base Zone total storage capacity (0.25 ÷ 34.5); therefore, the component cost of storage per capacity unit for Southridge "B" Zone is $23,450,000 (0.007) ÷ 428 C.U.= **$383/C.U.**

The component cost of storage per capacity for the Equalization Reservoir is equal to $700,000 (0.83) ÷ 30,494 = **$19/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.0075 MG (0.01 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.0074 MG. Adding all of these components equates to 0.25 MG of storage. The current storage capacity for the system is 0.40 MG.

The existing pumping capacity of the system will accommodate an additional 410 capacity units (428 - 18). These additional units will add 0.42 MGD to the MDD. This additional demand will increase the storage requirement to 0.58 MG requiring 0.18 MG of additional storage (0.58 – 0.40). The cost for the additional storage will be $126,000, or ($0.70/gal x 0.18 MG). The cost of future storage per capacity unit is therefore, $126,000 ÷ 428 C.U. = **$294/C.U.**

SOUTHRIDGE "B" ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

SOUTHRIDGE "B" ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12"	775	225	$174,375
TOTAL			**$174,375**

The Southridge "B" Zone uses 68.8% of the total capacity (0.44 ÷ 0.64), where 0.64 MGD is the total capacity of the Southridge "B" booster and 0.44 MGD is the capacity needed for Southridge "B" Zone; therefore, the cost of transmission mains per capacity unit for the Southridge "B" Zone is $174,375 (0.688) ÷ 428 C.U.= **$280/C.U.** plus a component cost of the Base Zone transmission main since Base Zone water is pumped to the Southridge "B" Zone.

The Southridge "B" Zone uses 0.86% of the Base Zone pumping capacity (0.44 ÷ 51.2), where 0.44 MGD is the capacity provided to Southridge "B" Zone by the Base Zone wells and 51.2 MGD is the capacity of the Base Zone; therefore, the component cost of transmission mains per capacity unit for the Southridge "B" Zone is $108,700,370 (0.0086) ÷ 428 = **$2,184/C.U.**

The component cost of transmission mains per capacity units for the mains that serve the Southridge "A" Zone for surface water is $16,801,475 ÷ 30,494 C.U. = **$550/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	SURFACE WATER COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
Southridge "B"	$1,615	$26	$41	$1,104	$3,014	$5,800

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

SOUTHRIDGE "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,320
1	**1.0**	**$5,800**
1.5	2.0	$11,600
2	3.2	$18,560

EAST ZONE

The existing capacity units (C.U.) for the East Zone is 6,218. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 4.9 MGD, therefore, the MDD is equal to 9.0 MGD. If the MDD is equal to 9.0 MGD, the current gal/C.U./day is equal to 1,447 gal/C.U./day, or (9.0 MGD÷6,218).

The current pumping capacity for the East Zone is 12.68 MGD. Since all service capacity must be met by the East Zone pumping capacity, all of the existing units are using 71% of the pumping capacity of the East Zone (9.0 MGD÷12.68 MGD). The total maximum capacity units for the zone is then equal to 8,757, or (6,218÷0.71).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The East Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, storage and transmission facilities assignable to the East Zone service.

EAST ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined.

EAST ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,584/HP)
Well 25	Well Pumping Plants	400	$1,433,600
Well 26	Well Pumping Plants	400	$1,433,600
Well 31	Well Pumping Plants	400	$1,433,600
Well 36	Well Pumping Plants	400	$1,433,600
Well 41	Well Pumping Plants	450	$1,612,800
TOTAL			**$7,347,200**

The East Zone uses 90.5% of the total well capacity (12.68 ÷ 14), therefore, the cost of production per capacity unit is therefore, $7,347,200 (0.905) ÷ 8,757 C.U. = **$759/C.U.**

EAST ZONE WATER TREATMENT COSTS

In order to calculate the cost of water treatment per capacity unit we first determine the cost of those facilities from actual project costs.

CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	4	$30,440	$121,760
TOTAL			**$121,760**

*Based on average construction cost per site to install chlorine injection facilities.

The East Zone uses 90.5% of the total well capacity (12.68 ÷ 14), therefore the cost of chlorine injection treatment per capacity unit is $121,760(0.905) ÷ 8,757C.U. = **$12/C.U.**

EAST ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

EAST ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
East I	5,000,000	0.70	$3,500,000
East II	5,000,000	0.70	$3,500,000
TOTAL			**$7,000,000**

The East Zone uses 81.6% of the total East Zone storage capacity (8.16 ÷ 10), therefore, the cost of storage per capacity unit is $7,000,000 (0.816) ÷ 8,757 C.U. = **$652/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 3.6 MG (4.9 x 0.75). The fire flow requirement for the zone is 0.96 MG (4,000 GPM for 4 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 3.6 MG. Adding all of these components equates to 8.16 MG of storage. The current storage capacity for the system is 10 MG.

The existing pumping capacity of the system will accommodate an additional 2,539 capacity units (8,757 – 6,218). These additional units will add 3.67 MGD to the MDD. This additional demand will increase the storage requirement to 11.13 MG, requiring 1.13 MG of additional storage (11.13 -10.0). The cost for the additional storage will be $791,000, or ($0.70/gal x 1.13 MG). The cost of future storage per capacity unit is therefore, $791,000 ÷ 8,757 C.U. = **$90/C.U.**

EAST ZONE WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

EAST ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12”	116,491	225	$26,210,475
16”	5,410	275	$1,487,750
20”	3,365	320	$1,076,800
24”	33,345	365	$12,170,955
30”	3,400	425	$1,445,000
TOTAL			**$42,390,980**

Since the East Zone uses 90.5% of pumping capacity, the cost of transmission mains per capacity unit for the East Zone is therefore, $42,390,980 (0.905) ÷ 8,757 C.U.= **$4,380/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
East	$759	$12	$742	$4,380	$5,893

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

EAST ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,357
1	**1.0**	**$5,893**
1.5	2.0	$11,786
2	3.2	$18,857

EAST "A" ZONE

The existing capacity units (C.U.) for the East "A" Zone is 384. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.22 MGD, therefore, the MDD is equal to 0.41 MGD. If the MDD is equal to 0.41 MGD, the current gal/C.U./day is equal to 1,067 gal/C.U./day, or (0.41MGD÷384).

The current pumping capacity for the East "A" Zone is 0.54 MGD. Since all service capacity must be met by the East "A" Zone pumping capacity, all of the existing units are using 75.9% of the capacity of the East "A" Zone (0.41 MGD ÷ 0.54 MGD). The total maximum capacity units for the zone is then equal to 505, or (384 ÷ 0.759).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The East "A" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, storage and transmission facilities assignable to the East "A" Zone service.

EAST "A" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since East "A" Zone is provided water by booster pumps, we will only be using the booster pump costs.

EAST "A" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Terrace	Booster Plant	45	$174,105
TOTAL			**$174,105**

The East "A" Zone uses 40.1% of the Zone capacity (1.32 – 0.78) ÷ 1.32, where 1.32 MGD is the East "A" Zone total pumping capacity and 0.78 MGD is the East "B" Zone pumping capacity; therefore, the component cost of production per capacity unit for the East "A" Zone is $174,105 (0.401) ÷ 505 = **$138/C.U.**

The East "A" Zone uses 3.9% of the East Zone pumping capacity (0.54 ÷ 14), where 0.54 MGD is the capacity provided to East "A" Zone by the East Zone wells and 14 MGD is the capacity of the East Zone; therefore, the component cost of production per capacity unit for the East "A" Zone is $7,347,200 (0.039) ÷ 505 = **$567/C.U.**

EAST "A" ZONE WATER TREATMENT COSTS

Since East Zone water is pumped to the East "A" Zone, the treatment costs for the East "A" Zone is a component of the East Zone treatment costs and any additional treatment facilities associated with the East "A" Zone.

EAST ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	4	$30,440	$121,760
TOTAL			**$121,760**

*Based on average construction cost per site to install chlorine injection facilities.

The East "A" Zone uses 3.9% of the East Zone pumping capacity (0.54 ÷ 14), where 0.54 MGD is the capacity provided to East "A" Zone by the East Zone wells and 14 MGD is the capacity of the East Zone; therefore, the component cost of treatment per capacity unit for the East "A" Zone is $121,760 (0.039) ÷ 505 = **$9/C.U.**

EAST "A" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II	2004	5,000,000 gallons	$2,299,785**
Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585÷5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

EAST "A" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
CC North	500,000	0.70	$350,000
Vista Miller	225,000	0.70	$157,500
TOTAL			**$507,500**

The required storage for the East "A" Zone is 0.57 MG. The existing storage capacity for the East "A" Zone is 0.725 MG; therefore, the East "A" Zone storage is 78.6% of existing storage (0.57 ÷ 0.725); therefore, the cost of storage per capacity unit for the East "A" Zone facilities is $507,500 (0.786) ÷ 505 C.U. = **$787/C.U.** plus the component cost of the East Zone storage since East "A" Zone utilizes the East Zone for water.

EAST ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
East I	5,000,000	0.70	$3,500,000
East II	5,000,000	0.70	$3,500,000
TOTAL			**$7,000,000**

The East "A" Zone uses 5.7% of the total East Zone storage capacity (0.57 ÷ 10), therefore, the cost of storage per capacity unit is $7,000,000 (0.057) ÷ 505 C.U. = **$790/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.165 MG (0.22 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.164 MG. Adding all of these components equates to 0.57 MG of storage. The current storage capacity for the system is 0.725 MG.

The existing pumping capacity of the system will accommodate an additional 121 capacity units (505 - 384). These additional units will add 0.13 MGD to the MDD. This additional demand will increase the storage requirement to 0.68 MG; therefore, no future storage for East "A" Zone is required.

EAST "A" WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH ($/L.F.)
12”	225
14”	250
15”	265
16”	275
18”	300
20”	320
24”	365
26”	385
30”	425
36”	480
42”	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

EAST "A" ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12"	4,310	225	$969,750
TOTAL			**$969,750**

The East "A" Zone uses 40.1% of the Zone capacity (1.32 – 0.78) ÷ 1.32, where 1.32 MGD is the East "A" Zone total pumping capacity and 0.78 MGD is the East "B" Zone pumping capacity; therefore, the component cost of transmission main per capacity unit for the East "A" Zone is $969,750 (0.401) ÷ 505 = **$770/C.U.**

The East "A" Zone uses 3.9% of the East Zone pumping capacity (0.54 ÷ 14), where 0.54 MGD is the capacity provided to East "A" Zone by the East Zone wells and 14 MGD is the capacity of the East Zone; therefore, the component cost of transmission main per capacity unit for the East "A" Zone is $42,390,980 (0.039) ÷ 505 = **$3,273/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
East "A"	$725	$9	$1,577	$4,043	$6,354

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

EAST "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,541
1	**1.0**	**$6,354**
1.5	2.0	$12,708
2	3.2	$20,332

EAST "B" ZONE

The existing capacity units (C.U.) for the East "B" Zone is 432. To determine the total capacity units for the zone, we must first calculate the max demand day (MDD) value utilizing the current General Plan formula:

- MDD = 1.85 x Average Day Annual Demand (ADD)

Using annual production data from 2017, the ADD calculated for the zone equals 0.25 MGD, therefore, the MDD is equal to 0.46 MGD. If the MDD is equal to 0.46 MGD, the current gal/C.U./day is equal to 1,064 gal/C.U./day, or (0.46MGD÷432).

The current pumping capacity for the East "B" Zone is 0.78 MGD. Since all service capacity must be met by the East "B" Zone pumping capacity, all of the existing units are using 59% of the total capacity of the East "B" Zone (0.46 MGD÷0.78 MGD). The total maximum capacity units for the zone is then equal to 732, or (432 ÷ 0.59).

Facility costs were determined by analyzing facility cost valuation from Agency Annual Operating Statistics Reports, cost estimates prepared in conjunction with the currently proposed budget and rate study, and by assessing the current facilities using the 2008 General Plan Update. The facilities cost valuation per capacity unit was determined from the total number of capacity units and the facilities costs.

The East "B" Zone charge is composed of costs per capacity unit for production (wells and boosters), treatment, storage and transmission facilities assignable to the East "B" Zone service.

EAST "B" ZONE PUMPING/WATER PRODUCTION COST

In order to calculate the cost of pumping water per capacity unit we first determine the cost of those facilities from approved capital improvement budgets. The ratio of plant cost to horsepower is determined.

DESCRIPTION	YEAR CONSTRUCTED	PUMPING PLANT HORSEPOWER	PUMPING PLANT COST*
Well 39	2010	450 HP Pumping Plant	$1,320,156.59
Well 40	2009	450 HP Pumping Plant	$1,498,356.82
Well 41	2006	450 HP Pumping Plant	$1,561,858.76
Well 42	2006	200 HP Pumping Plant	$1,175,156.15
TOTAL		**1,550 HP**	**$5,555,528.32**

* Current Capital Improvement Budget Amounts for Pumping Plants.

The most current pumping plant estimated costs are used to determine the ratio of pumping plant cost to unit of horsepower from the table above. The unit cost of pumping per horsepower is $5,555,528.32 ÷ 1,550 hp= $3,584/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone system pumping cost is determined.

Similarly, the cost of pressure boosting facilities is determined.

DESCRIPTION	YEAR CONSTRUCTED	BOOSTER PLANT HORSEPOWER	BOOSTER PLANT COST*
Zone 1240 Booster	2016	80 HP Booster Plant	$950,000
Janis Tuscany Booster Upgrades	2016	225 HP Booster Pumping Plant	$230,000
TOTAL		**305 HP**	**$1,180,000**

* Actual project costs, unadjusted for present value.

The most current pumping plant costs are used to determine the ratio of booster pumping plant cost to unit of horsepower from the table above. The unit cost of booster pumping per horsepower is $1,180,000 ÷ 305 hp= $3,869/hp. By applying this ratio to each active pumping plant the cost of each plant and the zone's booster pumping cost is determined. Since East "B" Zone is provided water by booster pumps, we will only be using the booster pump costs.

EAST "B" ZONE PUMPING COSTS

WELL/BOOSTER BASE ZONES	DESCRIPTION	PLANT HORSEPOWER	ZONE PUMPING COST ($3,869/HP)
Vista Miller	Booster Plant	60	$232,140
TOTAL			**$232,140**

The cost of production per capacity unit is $232,140 ÷ 732 C.U. = **$317/C.U**. plus a component cost of the East "A" Zone and East Zone pumping.

The East "B" Zone uses 59% of the East "A" pumping capacity (0.78 ÷ 1.32), where 1.32 MGD is the total capacity of the East "A" booster and 0.78 MGD is the capacity of the East "B" Zone; therefore, the component cost of production per capacity unit for the East "B" Zone is $174,105 (0.59) ÷ 732 C.U.= **$140/C.U.**

The East "B" Zone uses 5.6% of the East Zone pumping capacity (0.78 ÷ 14), where 0.78 MGD is the capacity provided to East "B" Zone by the Base Zone and 14 MGD is the capacity of the East Zone; therefore, the component cost of production per capacity unit for the East "B" Zone is $7,347,200 (0.056) ÷ 732 = **$562/C.U**

EAST "B" ZONE WATER TREATMENT COSTS

Since East Zone water is pumped to the East "B" Zone, the treatment costs for the East "B" Zone is a component of the East Zone and East "A" Zone treatment costs and any additional treatment facilities associated with the East "B" Zone.

EAST ZONE CHLORINE INJECTION TREATMENT

DESCRIPTION	NUMBER OF ACTIVE SITES	AVG. COST PER SITE	ZONE PUMPING COST (ACTUAL)
Chlorine storage building and pad, injection vault	4	$30,440	$121,760
TOTAL			**$121,760**

*Based on average construction cost per site to install chlorine injection facilities.

The East "B" Zone uses 5.6% of the East Zone pumping capacity (0.78 ÷ 14), where 0.78 MGD is the capacity provided to East "B" Zone by the East Zone wells and 14 MGD is the capacity of the East Zone; therefore, the component cost of treatment per capacity unit for the East "B" Zone is $121,760 (0.056) ÷ 732 = **$9/C.U.**

EAST "B" ZONE WATER STORAGE COSTS

In order to calculate the cost of water storage per capacity unit we first determine the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of storage cost to volume is determined.

DESCRIPTION	YEAR CONSTRUCTED	RESERVOIR STORAGE CAPACITY	RESERVOIR COST*
Tahquitz Reservoir II Zone 1060	2016	500,000 gallons	$1,544,800*
TOTAL		**5,500,000 gallons**	**$3,844,585**

*Revised Budget Amount for project.
** Actual project costs, unadjusted for present value.

The most current water storage estimated costs are used to determine the ratio of water storage cost to unit of storage volume from the table above. The unit cost of water storage per gallon is $3,844,585 ÷ 5,500,000 GAL= $0.70/GAL. By applying this ratio to each water storage reservoir, the cost of each reservoir and the entire zone's water storage costs are determined.

EAST "B" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
Foothill I	100,000	0.70	$70,000
Foothill II	500,000	0.70	$350,000
TOTAL			**$420,000**

The cost of storage per capacity unit for the East "B" Zone facilities is $420,000 ÷ 732 C.U. = **$573/C.U.** plus the component cost of the East "A" Zone and East Zone storage since East "B" Zone utilizes the East "A" and East Zone for water.

EAST "A" ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
CC North	500,000	0.70	$350,000
Vista Miller	225,000	0.70	$157,500
TOTAL			**$507,500**

The East "B" Zone uses 25% of the total East "A" Zone storage capacity (0.184 ÷ 0.725), therefore, the cost of storage per capacity unit is $507,500 (0.25) ÷ 732 C.U. = **$173/C.U.**

EAST ZONE WATER STORAGE COSTS

DESCRIPTION	WATER STORAGE CAPACITY (GAL.)	UNIT COST PER UNIT STORAGE ($/GAL.)	ZONE STORAGE COST
East I	5,000,000	0.70	$3,500,000
East II	5,000,000	0.70	$3,500,000
TOTAL			**$7,000,000**

The East "B" Zone uses 1.8% of the total East Zone storage capacity (0.184 ÷ 10), therefore, the cost of storage per capacity unit is $7,000,000 (0.018) ÷ 732 C.U. = **$172/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.187 MG (0.25 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.184 MG. Adding all of these components equates to 0.61 MG of storage. The current storage capacity for the system is 0.60 MG.

The existing pumping capacity of the system will accommodate an additional 300 capacity units (732 - 432). These additional units will add 0.32 MGD to the MDD. This additional demand will increase the storage requirement to 0.87 MG, requiring 0.27 MG of additional storage (0.87 – 0.60). The cost for the additional storage will be $189,000, or ($0.70/gal x 0.27 MG). The cost of future storage per capacity unit is therefore, $189,000 ÷ 732 C.U. = **$258/C.U.**

EAST "B" WATER TRANSMISSION MAIN COSTS

Historically, the Agency has calculated the cost of water transmission mains per capacity unit by determining the cost of those facilities from actual project costs and approved capital improvement budgets. The ratio of cost per lineal foot to diameter is determined.

DESCRIPTION	YEAR CONSTRUCTED	PIPELINE LENGTH (L.F.)	*PIPELINE COST	PIPELINE UNIT COST ($/L.F.)
12"Alejo/Tamarisk/ Indian Canyon	2012/2014/2015	4,958	$1,290,176	$260/L.F.
14"	-	-	-	-
15"	-	-	-	-
16" Sunny Dunes	2013	1,100	$301,462	$274/L.F.
18"	-	-	-	-
20" E. Well Field	-	-	-	-
24" E. Well Field	-	-	-	-
26"	-	-	-	-
30" N. Well Field	-	-	-	-
36" Avenida Caballeros	2014/2015	2,659	$2,509,219	$944/L.F.
42"	-	-	-	-

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

***ESTIMATED WATER TRANSMISSION MAIN UNIT CONSTRUCTION COSTS**

TRANSMISSION MAIN DIAMETER (INCHES)	**TRANSMISSION MAIN LENGTH ($/L.F.)**
12"	225
14"	250
15"	265
16"	275
18"	300
20"	320
24"	365
26"	385
30"	425
36"	480
42"	535

*Based on the following EMWD assumption: cost $/L.F. = Diameter (inch) x 40.47 x [Diameter (inch) $^{\wedge -0.309}$].

The most current water transmission main estimated costs are used to determine the ratio of water main cost to diameter as shown in the table on the previous page. By applying these ratios to system transmission mains, the cost of all size mains for the entire system is determined by zone.

EAST "B" ZONE WATER TRANSMISSION MAIN COSTS

TRANSMISSION MAIN DIAMETER (INCHES)	TRANSMISSION MAIN LENGTH (L.F.)	UNIT COST PER UNIT LENGTH ($/L.F.)	ZONE TRANSMISSION MAIN COST
12"	4,383	225	$986,175
TOTAL			**$986,175**

The cost of transmission mains per capacity unit is $986,175 ÷ 732 C.U. = **$1,347/C.U.** plus a component cost of the East "A" Zone and East Zone transmission mains since East "B" Zone utilizes water from the East "A" Zone and East Zone.

The East "B" Zone uses 59% of the East "A" pumping capacity (0.78 ÷ 1.32), where 1.32 MGD is the total capacity of the East "A" booster and 0.78 MGD is the capacity of the East "B" Zone; therefore, the component cost of transmission main per capacity unit for the East "B" Zone is $969,750 (0.59) ÷ 732 C.U.= **$781/C.U.**

The East "B" Zone uses 5.6% of the East Zone pumping capacity (0.78 ÷ 14), where 0.78 MGD is the capacity provided to East "B" Zone by the Base Zone and 14 MGD is the capacity of the East Zone; therefore, the component cost of transmission mains per capacity unit for the East "B" Zone is $42,390,980 (0.056) ÷ 732 = **$3,243/C.U.**

COST PER ZONE SUMMARY

ZONE	WATER PRODUCTION COST	TREATMENT COST	STORAGE COST	TRANS-MISSION COST	TOTAL CAPACITY UNIT COST
East "B"	$1,019	$9	$1,176	$5,371	$7,575

The cost of a 1-inch service in the zone is comprised of the cumulative capacity unit costs for water production, treatment, surface water, storage and transmission facilities.

In order to determine the capacity unit cost for each meter size the AWWA meter factors are used. The table below shows the capacity unit charge (Backup Facility Charge) per meter size.

EAST "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,030
1	**1.0**	**$7,575**
1.5	2.0	$15,150
2	3.2	$24,240

FINAL BACKUP FACILITY CHARGE COST SUMMARY

SNOW CREEK VILLAGE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,082
1	**1.0**	**$5,207**
1.5	2.0	$10,414
2	3.2	$16,662

PALM OASIS ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$1,493
1	**1.0**	**$3,734**
1.5	2.0	$7,468
2	3.2	$11,948

BASE ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,470
1	**1.0**	**$6,175**
1.5	2.0	$12,350
2	3.2	$19,760

CHINO ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,026
1	**1.0**	**$7,565**
1.5	2.0	$15,130
2	3.2	$24,208

CHINO "A" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,679
1	**1.0**	**$9,198**
1.5	2.0	$18,396
2	3.2	$29,433

CHINO "B" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,276
1	**1.0**	**$8,190**
1.5	2.0	$16,380
2	3.2	$26,208

ACANTO ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$4,108
1	**1.0**	**$10,271**
1.5	2.0	$20,542
2	3.2	$32,867

SOUTHRIDGE "A" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$4,390
1	**1.0**	**$10,977**
1.5	2.0	$21,954
2	3.2	$35,126

SOUTHRIDGE "B" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,320
1	**1.0**	**$5,800**
1.5	2.0	$11,600
2	3.2	$18,560

EAST ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,357
1	**1.0**	**$5,893**
1.5	2.0	$11,786
2	3.2	$18,857

EAST "A" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$2,541
1	**1.0**	**$6,354**
1.5	2.0	$12,708
2	3.2	$20,332

EAST "B" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,030
1	**1.0**	**$7,575**
1.5	2.0	$15,150
2	3.2	$24,240

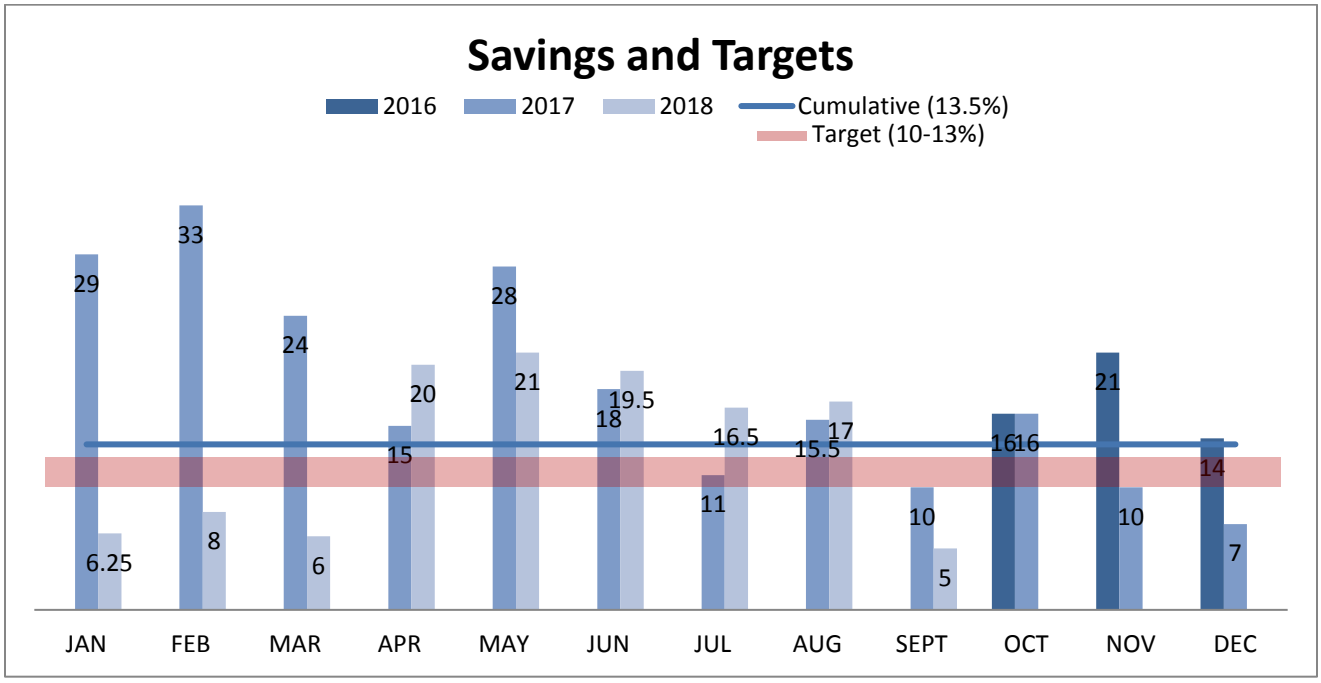
8-A

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

OCTOBER 16, 2018

RE: SEPTEMBER 2018 WATER USE REDUCTION FIGURES

Desert Water Agency and its customers achieved a 5% percent reduction in potable water production during September 2018 compared to the same month in 2013 – the baseline year used by the State Water Resources Control Board (State Water Board) to measure statewide conservation achievements. DWA continues to report its production to the state on a monthly basis, despite mandatory conservation ending in 2017.



DWA is asking its customers to save 10-13% compared to 2013 to help achieve long-term sustainability.

The cumulative savings over the last twelve-month period is 13.5%. The cumulative savings beginning in June of 2016 when we put our 10-13% target in place is 16.8%.

On the following page is additional information for this month.

September 2018 water production	3,377.38 AF
September 2013 water production	3,561.22 AF
Percent changed in this month per drought surcharge baseline (September 2015)	-26.33% (more use)
Quantity of potable water delivered for all commercial, industrial, and institutional users for the reporting month	1048.33 AF
The percentage of the Total Monthly Potable Water Production going to residential use only for the reporting month	68.96%
Population (inclusive of seasonal residents)	106,971
Estimated R-GPCD	236.49
How many public complaints of water waste or violation of conservation rules were received during the reporting month?	9
How many contacts (written/ verbal) were made with customers for actual/ alleged water waste or for a violation of conservation rules?	7
How many formal warning actions (e.g.: written notifications, warning letters, door hangers) were issued for water waste or for a violation of conservation rules?	4
How many penalties were issued for water waste or for a violation of conservation rules?	0

Comments: The Agency's service area is highly seasonal making population analysis a complex task. The State Water Resources Control Board (State Board) analyzes data on a per capita basis.

Historically, DWA has submitted data based on the permanent population of the service area; however, that data does not accurately reflect water use in DWA's service area which has a highly seasonal population. Based on local data, the correct population is higher than previously reported. The Residential Gallons Per Capita Per Day (R-GPCD) is being submitted using the corrected population.

Since Desert Water Agency began recycling water, the agency has reclaimed 97,999 acre feet. If our recycled water production for this month was taken into consideration against our potable production, the conservation achieved would have been several percentage points higher.

Discussion Item 8-B

DELTA CONVEYANCE FINANCE AUTHORITY

JOINT POWERS AGREEMENT

Dated as of July 3, 2018

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JOINT POWERS AGREEMENT

DELTA CONVEYANCE FINANCE AUTHORITY

THIS AGREEMENT, dated as of and effective on July 3, 2018, is made and entered into by and among Alameda County Water District, Alameda County Flood Control and Water Conservation District, Zone 7, and San Gorgonio Pass Water Agency. Additional Public Water Agencies may execute and become members as specified in Section 15 below.

W I T N E S S E T H :

WHEREAS, each Member is a Public Water Agency and is empowered by law to acquire, construct, finance, maintain and operate facilities for the delivery of water for public or private use and all rights, properties and improvements necessary therefor; and

WHEREAS, each Member desires to enter into an agreement to create a separate public entity pursuant to the provisions of the Joint Powers Act for the purpose set forth herein and desires that such separate public entity have the powers provided herein in connection with such purpose;

NOW, THEREFORE, the Members, for and in consideration of the mutual promises and agreements herein contained, do hereby agree as follows:

SECTION 1. PURPOSE. This Agreement is made pursuant to the provisions the Joint Powers Act, to create a separate public entity to: (1) exercise Common Powers, and (2) exercise Additional Powers; in each case as determined from time to time by the Board. It is explicitly recognized that it is intended that the Finance Authority, in exercising its powers, will serve as an issuer of Bonds for the benefit of a Member or Members in implementing the Conveyance Project in the public interest.

SECTION 2. DEFINITIONS. In addition to the other terms defined herein, the following terms, whether in the singular or in the plural, when used herein and initially capitalized, shall have the meanings specified.

(a) **Additional Powers**. Such powers, in addition to the Common Powers, as are granted or otherwise available to the Finance Authority pursuant to the Joint Powers Act or any other applicable law, whether currently in force or hereafter enacted. Such powers include those provided in the Marks-Roos Local Bond Pooling Act of 1985, as amended, constituting Article 4 of the Joint Powers Act, including but not limited to, the power to issue and purchase debt obligations issued by, or to make loans to, the Members or other agencies or enter into various other financing arrangements as authorized under the Joint Powers Act, and to sell bonds so issued or purchased to public or private purchasers at public or negotiated sale. To the extent not already constituting Common Powers, the Additional Powers shall include without limitation, the Powers described in Section 6 hereof.

(b) **Additional Project Amounts**. The term "Additional Project Amounts" means the amount of payments made by a Member to the California Department of Water Resources for the construction of California WaterFix "CWF") in exchange for a right to use capacity in CWF

("CWF Capacity Right") (other than any payments made under a State Water Contract relating to the State Water Project); provided, however, if any Member is assigned any CWF Capacity Right from another Member and the assignee Member makes payments to the assignor Member for such CWF Capacity Right, then the amount of such payments shall constitute the Member Support Amount of solely the assignee Member.

(c) **Bonds**. Bonds, notes and any other evidence of indebtedness issued or incurred by the Finance Authority pursuant to any applicable provision of the Joint Powers Act or any other lawful authority.

(d) **Central Valley Project.** The term "Central Valley Project" means the federal reclamation project operated by the United States Bureau of Reclamation pursuant to federal reclamation law (Act of June 17, 1902 (32 Stat. 388)) and acts amendatory or supplementary thereto.

(e) **Common Powers**. The legal powers which are common to the Members under applicable laws of the State, including but not limited to, those powers of the Members in connections with the issuance of Bonds, the expenditure of proceeds of Bonds and the borrowing and lending of money.

(f) **Conveyance Project.** The term "Conveyance Project" shall mean the project described in Section 2(a) of the JEPA, including facilities for conveying and delivering water for public or private uses and all rights, properties and improvements necessary therefor, including fuel and energy facilities and resources, and buildings, structures, improvements and facilities appurtenant thereto or provided therefor together with land necessary therefor

(g) **DCA Agreement**. The term "DCA Agreement" shall mean the Joint Powers Agreement, dated May 14, 2018, which formed the Delta Conveyance Design and Construction Joint Powers Authority.

(h) **DCA**. The term "DCA" shall mean the joint exercise of powers agency formed by the DCA Agreement.

(i) **Finance Authority**. The term "Finance Authority" shall mean the separate public entity created by this Agreement.

(j) **Financial Commitment Amount**. The term "Financial Commitment Amount" shall mean, initially, one (1), and from and after the first issuance of Bonds by the Finance Authority, a fraction, the numerator of which is the total Member Support Amount of the Member selecting the applicable Director, and the denominator of which is the sum of the total principal amount of Bonds then outstanding and the aggregate amount of all Additional Project Amounts of all Members.

(k) **Fiscal Year**. The term "Fiscal Year" shall mean the Fiscal Year of the Finance Authority as established from time to time by the Board of Directors, being at the date of this Agreement the period from July 1 to and including the following June 30.

(l) **JEPA**. The term "JEPA" shall mean the Joint Exercise of Powers Agreement, between the Department of Water Resources, State of California and the DCA to design and construct the California WaterFix conveyance facilities.

(m) **Joint Powers Act**. The Joint Exercise of Powers Act, constituting Articles 1 through 4 (commencing with Section 6500) of Chapter 5 of Division 7 of Title 1 of the California Government Code as in effect on the effective date of this Agreement, as the same may be amended and supplemented.

(n) **Member**. The term "Member" shall mean (1) the Public Water Agencies that execute this Agreement on or before the date first above written; (2) a Public Water Agency which shall have met the requirements of Section 15 hereof; or (3) a successor of a Public Water Agency referred to in Section 21. The term "Member" shall, however, exclude any Public Water Agency which shall have withdrawn or been excluded from the Finance Authority pursuant to Section 16 hereof.

(o) **Member Support Amount**. The term "Member Support Amount" shall mean, with respect to any Member, the sum of (1) the original principal amount of Bonds that a Member has undertaken by agreement to pay by installment purchase agreement, and (2) without duplication with amounts described in clause 1 of this definition, any Additional Project Amounts of such Member.

(p) **Powers**. Collectively, the Common Powers and the Additional Powers.

(q) **Public Water Agency**. The term "Public Water Agency" shall mean (1) a public agency that has entered into an agreement with the California Department of Water Resources for water supply from the State Water Project or an agreement with the Federal Bureau of Reclamation for water supply from the Central Valley Project or (2) a member unit of Kern County Water Agency.

(r) **State Water Project**. The term "State Water Project" means the State Water Facilities, as defined in California Water Code section 12934(d).

SECTION 3. CREATION OF AUTHORITY. Pursuant to the Joint Powers Act, there is hereby created a public entity, to be known as the "Finance Authority", and said Finance Authority shall be a public entity separate and apart from the Members. The effective date of this Agreement shall be July 3, 2018.

Within 30 days after the effective date of this Agreement or any amendment hereto, the Secretary shall cause a notice of this Agreement or amendment hereto to be prepared and filed with the office of the Secretary of State of the State of California in the manner set forth in Section 6503.5 of the Joint Powers Act.

SECTION 4. PLACE OF BUSINESS. The business office of the Finance Authority shall be at 1121 L Street, Suite 1045, Sacramento, CA 95814, Sacramento, CA 95814, or at such other place as may later be designated by the Board of Directors.

SECTION 5. TERM. This Agreement shall become effective as of the date hereof and, subject to the right to rescind provided by Section 9 hereof, shall continue in full force and effect for a period of fifty (50) years from the date hereof or until such later date as all bonds and notes of the Finance Authority and the interest thereon shall have been paid in full or adequate provision for such payment shall have been made in accordance with the instruments governing such bonds and notes.

SECTION 6. POWERS. The Finance Authority has all Powers necessary or convenient, specified or implied, to the accomplishment of the purposes of this Agreement, subject to the restrictions set for in this Section. The enumeration of any Powers herein shall not limit the generality or scope of the Powers granted to the Authority pursuant to this Section, the definition of Common Powers, the definition of Additional Powers, or the grant of any other powers otherwise available to the Authority as a separate public entity pursuant to the Joint Powers Act or any other applicable law whether currently in force or hereafter enacted. Without limiting the generality of the Powers conferred in this Section, the Finance Authority is hereby authorized, in its own name, to do all acts necessary or convenient to the accomplishment of the purposes of this Agreement and the full exercise of the Powers conferred in this Section, including, but not limited to, any or all of the following:

(a) To finance or assist in the financing of the planning, development, acquisition, construction, improvement, management, maintenance or operation of the Conveyance Project, or any interest therein, to act as agent, and to sell, deliver, exchange, and otherwise dispose of any interest the Authority may have or acquire in the Conveyance Project, including without limitation, any capacity or other interest in the Conveyance Project; and to purchase, lease or otherwise acquire and equip, maintain, operate, sell, assign, convey, lease and otherwise dispose of facilities or systems, or interests therein, together with all lands, buildings, equipment, and all other real or personal property, tangible or intangible, necessary or incidental thereto.

(b) To acquire (by exercise of the power of eminent domain or otherwise), hold, lease (as lessor or lessee), sell, or otherwise dispose of any real or personal property, commodity, or service including, without limitation, to buy, lease, construct, appropriate, contract for, invest in, and otherwise acquire, and to own, hold, maintain, equip, operate, manage, improve, develop, and deal in and with, and to sell, lease, exchange, transfer, convey and otherwise dispose of, real and personal property of every kind, tangible and intangible, commodities (including fuel and water) and services; provided that the power to acquire property shall not include the power of condemnation of property owned or otherwise subject to use or control by any public utility within the State of California.

(c) To make and enter into contracts with any Member or Members, or any other entity, public or private, with respect to the planning, design, ownership, location, acquisition, financing, construction, operation or disposal of the Conveyance Project or any interest therein, and with respect to any other matters relating to the Conveyance Project, or the financing thereof, on such terms and conditions as shall be determined by the Board of Directors.

(d) To establish or agree to establish, pursuant to any contract with respect to the Conveyance Project, management or other committees composed of representatives of

participating entities and to agree to the powers, duties, procedures and responsibilities of any such committee.

(e) To make and enter into other contracts of every kind with the Members, the United States, any state or political subdivision thereof, and any individual, firm, association, partnership, corporation or any other organization of any kind.

(f) To apply for, accept, receive and disburse state, federal or local licenses, permits, grants, loans, or other aid from any agency of the United States, the State or other public or private entities as the Finance Authority deems necessary for the full exercise of its powers.

(g) To employ full-time and part-time employees, assistants and independent contractors that may be necessary from time to time to accomplish the purpose of the Finance JPA, including interagency agreements with Members.

(h) To issue Bonds and otherwise to incur debts, liabilities or obligations provided that no such Bond, debt, liability or obligation shall constitute a debt, liability or obligation of any Member.

(i) To sue and be sued in its own name.

(j) To purchase for investment or otherwise such bonds, notes, commercial paper or other evidences of indebtedness issued by the Department of Water Resources of the State of California or any other governmental agency or entity as may be legal investments for the Finance Authority and to pledge any such indebtedness to the payment of any debts, liabilities or obligations of the Finance Authority.

(k) To apply for letters of credit or other forms of financial guarantees in order to secure the repayment of Bonds and enter into agreements in connection therewith.

(l) To engage the services of private consultants to render professional and technical assistance and advice in carrying out the purposes of the Finance Authority.

(m) To employ and compensate counsel including general counsel, bond counsel and disclosure counsel, as well as financial consultants, municipal advisors and other advisers, in each case as determined appropriate by the Finance Authority in the accomplishment of the purposes of the Authority, including without limitation in connection with the issuance and sale of any Bonds.

(n) To contract for engineering, construction, architectural, accounting, environmental, land use, or other services determined necessary or convenient by the Finance Authority in connection with the accomplishment of the purposes of the Finance Authority.

(o) To take title to, and transfer, sell by installment sale or otherwise, lands, structures, real or personal property, rights, capacity interests, rights-of-way, easements, and other interests in real or personal property which the Finance Authority determines are necessary or convenient in connection with the accomplishment of the purposes of the Finance Authority.

(p) To exercise any other power permitted by the Joint Powers Act.

To the extent required under Government Code section 6509, in the event that the Metropolitan Water District of Southern California becomes a party to this Agreement, and upon approval of the Board, the Finance Authority shall exercise its powers in the manner and according to the methods provided under the laws applicable to the Metropolitan Water District of Southern California. Prior to such event, to the extent required under Government Code section 6509, the Finance Authority shall exercise its powers in the manner and according to the methods provided under the laws applicable to the San Gorgonio Pass Water Agency.

SECTION 7. BONDS AND NOTES. The Finance Authority shall also have the power to issue, sell and deliver, in accordance with the provisions of the Joint Powers Act, (1) bonds, notes or other obligations to provide funds for the acquisition, construction and/or financing of the Conveyance Project, including, without limitation, the financing of the purchase, lease or other acquisition by one or more Members of an interest in the Conveyance Project, and (2) refunding bonds for the purpose of redeeming or retiring any bonds issued by the Finance Authority and any other indebtedness incurred by the Finance Authority. The terms and conditions of the issuance of any such bonds, refunding bonds or notes shall be set forth in such resolution, indenture or other instrument, shall include such security provisions and shall specify such source or sources of payment, as in accordance with law shall be determined by the Board of Directors.

SECTION 8. LIMITATIONS AND CONTRIBUTION.

(a) Bonds or notes issued by the Finance Authority under Section 6, and contracts or obligations which are entered into by the Finance Authority to carry out the purposes for which such bonds or notes are issued and which are payable in whole or in part from the proceeds of said bonds or notes, shall not constitute a debt, liability or obligation of any Member. Pursuant to Section 6508.1 of the Government Code of the State of California, as amended, no debt, liability or obligation of the Finance Authority shall be a debt, liability or obligation of any Member except as provided by Section 895.2 of the Government Code of the State of California in the case of injury caused by a negligent or wrongful act or omission occurring in the performance of this Agreement.

(b) Nothing in this Section contained shall in any way diminish the liability of any Member or other party with respect to any contract between such Member or other party and the Finance Authority

SECTION 9. TERMINATION OF POWERS; LIQUIDATION; DISTRIBUTION. This Agreement shall continue in full force and effect, and the Finance Authority shall continue to possess the powers herein conferred upon it, until the expiration (pursuant to Section 5 of this Agreement) of the term of this Agreement or until the Members shall have rescinded this Agreement (pursuant to this Section 9). Rescission of this Agreement may only be accomplished by a writing or writings executed by each Member and approved by resolution of each Member's governing body. In no event shall this Agreement or the powers herein granted to the Authority be rescinded until (1) all bonds and notes of the Finance Authority and the interest thereon shall have been paid or adequate provision for such payment shall have been made in accordance with the instruments governing such bonds and notes and (2) all other obligations and liabilities of the Finance Authority shall have been met or adequately provided for.

Upon any such expiration or rescission, the Board of Directors shall liquidate the business and assets and property of the Finance Authority as expeditiously as possible, and distribute any net proceeds to any Members in such manner in accordance with law as shall be determined by the Board of Directors.

SECTION 10. BOARD OF DIRECTORS.

(a) The Finance Authority shall be administered by a governing board (the "Board of Directors") which shall consist of one Director representing each Member. The Director representing each Member shall be a director, officer or employee of such Member. Each Director will serve in his individual capacity as a member of the Board of Directors. The Board of Directors shall have the general management of the affairs, property and business of the Authority and may adopt and modify from time to time such by-laws and other rules and regulations for that purpose and for the conduct of its meetings as it may deem proper. The Board of Directors may exercise and shall be vested with all powers of the Finance Authority insofar as not inconsistent with law or this Agreement.

(b) The Board of Directors may adopt an annual budget for administrative expenses, which shall include all expenses not included in any financing issue or Conveyance Project Matter of the Finance Authority, on or about July 1st of each year.

(c) Directors may receive reasonable compensation for serving as a Director, and shall be entitled to reimbursement for any expenses actually incurred in connection with serving as such, if the Board of Directors determines that such expenses shall be reimbursed and there are unencumbered funds available for such purpose.

SECTION 11. EXECUTIVE COMMITTEE AND EXECUTIVE DIRECTOR

(a) The Board of Directors shall establish an Executive Committee comprised of the President, Vice President, and Secretary of the Board of Directors and shall serve at the pleasure of the Board. The Board of Directors by majority vote may appoint additional Members to the Executive Committee.

(b) The Executive Committee shall be responsible and is delegated authority to manage the administration of the affairs, property and business of the Authority, and shall carry out such other responsibilities as are delegated to it by the Board of Directors. The Executive Committee shall study and recommend to the Board of Directors changes in procedures, plans, and programs as appropriate. Notwithstanding the foregoing, the Executive Committee shall have no authority to approve any matter that requires the unanimous vote of the Directors under Section 12(g) of this Agreement.

(c) The Executive Committee shall hold at least one regular meeting quarterly. The date, time and place upon which such regular meetings shall be held, shall be fixed by the Executive Committee, and notice of such meetings shall be provided to each Member of the Authority.

(d) The presence of a majority of the Members of the Executive Committee shall constitute a quorum, except that less than a quorum may adjourn from time to time. An affirmative vote of three (3) Members of the Executive Committee shall be necessary to constitute action and to transact business.

(e) The Executive Committee shall develop or cause to be developed and recommend to the Board of Directors for approval an annual budget for the Finance Authority.

(f) Recommendations of the Executive Committee to the Board of Directors shall be established upon a majority vote of the Executive Committee Members.

(g) The Board may hire an Executive Director to assist the Executive Committee in carrying out its responsibilities, and/or other duties and responsibilities as delegated by the Board of Directors. The Executive Director shall serve at the pleasure of the Board of Directors, and shall be compensated for his/her services, as determined by the Board of Directors.

SECTION 12. MEETINGS OF BOARD OF DIRECTORS.

(a) **Regular Meetings**. The Board of Directors shall hold a regular meeting not less than once each calendar year. The date upon which, and the hour and place at which, each regular meeting shall be held shall be set by the Board of Directors.

(b) **Special Meetings**. Special meetings of the Board of Directors may be called in accordance with the provisions of Section 54956 of the Government Code of the State of California, as amended.

(c) **Legal Notice**. All meetings of the Board of Directors shall be held subject to the provisions of the laws of the State of California requiring notice of meetings of public bodies to be given in the manner in such laws provided.

(d) **Minutes**. The Secretary of the Finance Authority shall cause to be kept minutes of the meetings of the Board of Directors, both regular and special, and shall, as soon as possible after each meeting, cause a copy of the minutes to be forwarded to each Director.

(e) **Quorum**. Those Directors representing a majority of the votes of the Board of Directors for all non-administrative matters, as calculated under subsection (f) below, shall constitute a quorum for the transaction of business, except that, if less than a majority of votes is present at a meeting, Directors representing a majority of votes that are present may adjourn the meeting from time to time. At no time shall a quorum consist of fewer than two Directors.

(f) **Voting**. When a quorum is present at a meeting of the Board of Directors, the vote of the Directors present at such meeting shall decide any question brought before such meeting and such decision shall be deemed to be the action of the Board. Each Director shall have the number of votes equal to 1,000 multiplied by its Financial Commitment Amount. Except as provided in subsections (g) and (h) of this Section 12 and in Section 15(c) of this Agreement, the majority of votes shall decide any question. Notwithstanding any other provision of this Agreement, all administrative matters shall be decided by a majority vote, with each Director having one vote. Administrative matters include, but are not limited to, actions such as, selecting

Board Officers, selecting additional Executive Committee Members, selecting an Executive Director, setting agendas, designating meeting times and places and other general matters related to the basic functions of the Finance Authority.

(g) **Super Majority Voting Provisions**. Any of the following matters shall require a vote of not less than all of the Directors:

(i) The addition of any Public Water Agency as a new Member under Section 15(c) of this Agreement;

(ii) The termination of this Agreement; and

(iii) Any action, the taking of which would cause the Finance Authority to breach its obligations under the contractual arrangements among the Members relating to the issuance of Bonds and the Conveyance Project.

(h) **Other Voting Arrangements**. No provision of this Agreement shall in any way restrict the ability of the Finance Authority to make and enter into from time to time contracts providing for representation on management or other committees with respect to the Conveyance Project and/or voting by the parties to such contracts on matters related thereto, on the terms provided therein.

SECTION 13. OFFICERS.

(a) At its first meeting in each calendar year, the Board of Directors shall elect a President, Vice President and Secretary, and appoint or reappoint a Treasurer/Controller who may, but need not, be selected from among the Directors. In the event that the President, Vice President, Secretary or Treasurer/Controller so elected or appointed ceases (in the case of the President or the Vice President) to be a Director, resigns from such office or is otherwise unable to perform the duties of such office, the resulting vacancy shall be filled at the next regular meeting of the Board of Directors held after such vacancy occurs. In the absence or inability of the President to act, the Vice President shall act as President. The President, or in his absence the Vice President, shall preside at and conduct all meetings of the Board of Directors.

(b) The Treasurer/Controller is designated as the treasurer and the controller of the Finance Authority and as such (1) shall be the depositary of the Finance Authority to have custody of all the money of the Finance Authority, from whatever source, (2) shall draw warrants to pay demands against the Finance Authority when the demands have been approved by the President or the Vice President of the Finance Authority, and (3) shall have the other powers, duties and responsibilities of such officers as specified in Section 6505.5 of the Government Code of the State of California, as amended, except insofar as such powers, duties and responsibilities are assigned to a trustee appointed, as is provided for and authorized by Section 6558 of the Government Code of the State of California, as amended, pursuant to any resolution, indenture or other instrument providing for the issuance of bonds or notes of the Finance Authority pursuant to Section 6 of this Agreement.

(c) The President, the Vice President and (to the extent such officer's duties and responsibilities pursuant to the Joint Powers Act require) the Treasurer/Controller are designated

as the public officers or persons who have charge of, handle, or have access to any property of the Finance Authority, and each such officer shall file an official bond with the Secretary of the Finance Authority in the amount of $100,000.

(d) In addition to the powers, duties and responsibilities provided herein or by law, the President, the Vice President and the Secretary shall have such powers, duties and responsibilities as are provided in the by-laws of the Finance Authority. The Treasurer/Controller shall have such powers, duties and responsibilities as are provided herein or by law.

(e) The Board of Directors shall have the power to appoint an Executive Director, who shall have such powers, duties and responsibilities as may be provided in the by-laws of the Finance Authority and as specified in section 11(g) of this Agreement.

(f) The Board of Directors shall have the power to appoint a General Counsel. The General Counsel will report to the Board of Directors.

(g) The Board of Directors shall have the power to appoint such other officers and employees as it may deem necessary, any of whom may be employees of a Member, and who shall have such powers, duties and responsibilities as are determined by the Board of Directors.

SECTION 14. CONTRIBUTIONS; PAYMENTS; ADVANCES. In accordance with Section 6504 of the Government Code of the State of California, as amended, the Members shall make such contributions, payments and advances to the Finance Authority as are approved from time to time by the Board of Directors, provided that only Members who vote to approve such contribution, payment and advance by a Member shall be obligated to make any such contribution, payment or advance. The Finance Authority may make such arrangements relative to the repayment or return to the Members of such contributions, payments and advances as are approved from time to time by the Board of Directors. Notwithstanding this section, any administrative action taken under section 12(f) that would require the Finance Authority to incur costs will be allocated equally amongst the Members. Costs of non-administrative matters, which include, but are not limited to, costs related to financing such as costs of bond counsel, financial advisors, underwriting costs, custodian costs, rating agency costs, and arbitrage consultant costs, shall be apportioned based on the Members' Financial Commitment Amount.

Any Member which fails to make or pay when due any required contribution, payment or advance to the Finance Authority, may have its rights under this Agreement terminated and may be excluded from participation in the Authority as provided in Section 16 of this Agreement.

SECTION 15. ADDITIONAL MEMBERS. Any Public Water Agency may become a Member as follows:

(a) Within five months of the effective date of this Agreement, any Public Water Agency may execute this Agreement and become a Member if the governing body of the Public Water Agency adopts a resolution (at or before the time of its execution of this Agreement) which, (1) authorizes such Public Water Agency to commit to financially supporting any Bonds issued by the Finance Authority or which expresses an intention to do so at later date, and (2) approves the execution by such Public Water Agency of this Agreement.

(b) Except for Public Water Agencies that become Members pursuant to the provisions of subparagraph (a) above, a Public Water Agency may become a Member by filing with the Board of Directors a certified copy of a resolution of its governing body whereby the Public Water Agency (1) agrees to the provisions of this Agreement and (2) requests to become a Member.

(c) Except for Public Water Agencies that become Members pursuant to the provisions of subparagraph (a) above, if a Public Water Agency requests to be a Member under subparagraph (b), such Public Water Agency will not become a Member until its admission is approved at a regular or special meeting of the Board of Directors by unanimous vote.

(d) Upon satisfying the requirements of subparagraph (a) or the requirements of subparagraph (b) and (c), the Public Water Agency shall become a Member for all purposes of this Agreement.

SECTION 16. WITHDRAWAL OR EXCLUSION OF MEMBER

(a) Any Member may withdraw from the Finance Authority upon the following conditions: (1) the Member shall have filed with the Board of Directors a certified copy of a resolution of its governing body expressing its desire to so withdraw and (2) if the Finance Authority, prior to the filing of such resolution, shall have incurred any obligation payable from contributions, payments or advances in accordance with Section 14 hereof which obligation matures after the date of such filing, the withdrawing Member shall have paid, or made arrangements satisfactory to the Board of Directors to pay, to the Finance Authority its *pro rata* portion of such obligation.

(b) Upon compliance with the conditions specified in subsection (a) of this Section 16, the withdrawing Member shall no longer be considered a Member for any reason or purpose under this Agreement and its rights and obligations under this Agreement shall terminate. The withdrawal of a Member shall not affect any obligations of such Member under any contract between the withdrawing Member and the Finance Authority.

SECTION 17. ACCOUNTS AND REPORTS. There shall be strict accountability of all funds and reporting of all receipts and disbursements of the Finance Authority. The Finance Authority shall establish and maintain such funds and accounts as may be required by good accounting practice or by any provision of any resolution, indenture or other instrument of the Finance Authority securing its bonds or notes, except insofar as such powers, duties and responsibilities are assigned to a trustee appointed pursuant to such resolution, indenture or other instrument. The books and records of the Finance Authority shall be open to inspection at all reasonable times to each Member and its representatives. The Finance Authority, within 180 days after the close of each Fiscal Year, shall give a complete written report of all financial activities for such Fiscal Year to the Members.

The Board of Directors shall cause an annual independent audit of the accounts and records of the Finance Authority to be made by a certified public accountant or public accountant, all in accordance with, and at the time or times required by, law.

All the books, records, accounts and files referred to in this Section 17 shall be open to the inspection of holders of bonds or notes of the Finance Authority to the extent and in the manner

provided in the resolution, indenture or other instrument providing for the issuance of such bonds or notes.

SECTION 18. BREACH. If default shall be made by any Member in any undertaking contained in this Agreement, such default shall not excuse such Member or any other Member from fulfilling its obligations under this Agreement and each Member shall continue to be liable for the payment of contributions, payments and advances pursuant to Section 14 hereof and the performance of all conditions herein contained. Each Member hereby declares that this Agreement is entered into for the benefit of the Finance Authority created hereby and each Member hereby grants to the Finance Authority the right to enforce by whatever lawful means the Finance Authority deems appropriate all of the obligations of each of the Members hereunder. Each and all of the remedies given to the Finance Authority hereunder or by any law now or hereafter enacted are cumulative and the exercise of one right or remedy shall not impair the right of the Finance Authority to any or all other remedies.

SECTION 19. INDEMNITY

(a) Indemnity by Finance Authority for Litigation Expenses of Officer, Director or Employee. To the extent permitted by law, the Board of Directors may authorize indemnification by the Finance Authority of any person who is or was a member of the Board of Directors, or an officer, employee or other agent of the Finance Authority, and who was or is a party or is threatened to be made a party to a proceeding by reason of the fact that such person is or was such a member of the Board, or officer employee or other agent of the Authority, against expenses, judgments, fines, settlements and other amounts actually and reasonably incurred in connection with such proceedings

(b) Indemnity by Finance Authority for Litigation Expenses of a Member. To the full extent permitted by law, the Board of Directors may authorize indemnification by the Finance Authority of a Member who was or is a party or is threatened to be made a party to a proceeding by reason of the fact that such entity is or was a Member of the Finance Authority against expenses, judgments, fines settlements and other amounts and reasonably incurred in connection with such proceedings. Any obligations pursuant to this Section shall be borne by the Finance Authority and shall be a charge against any unencumbered funds of the Finance Authority available for the purpose.

SECTION 20. SEVERABILITY. In the event that any term, covenant or condition of this Agreement or the application of such term, covenant or condition, shall be held invalid as to any person or circumstance by any court having jurisdiction in the premises, all other terms, covenants or conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect unless a court holds that the provisions are not separable from all other provisions of this Agreement.

SECTION 21. SUCCESSORS AND ASSIGNS; AMENDMENTS. This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the Members. No Member may assign its rights or obligations as a Member of the Finance Authority without the consent of all other Members. The immediately preceding sentence shall not affect, in any respect, any right of assignment under any contract between any Member and the Finance

Authority. Subject to any requirements of law (including Section 6573 of the Government Code of the State of California, as amended), this Agreement may be amended at any time and from time to time by a writing or writings executed by each Member and approved by resolution of each Member's governing body.

SECTION 22. NOTICES.

(a) Any notice, demand or request provided for in this Agreement shall be in writing and shall be deemed properly served, given, or made if delivered in person or sent by registered or certified mail, postage prepaid, to the persons specified below:

if to the Finance Authority:	c/o Executive Director 1121 L Street, Suite 1045 Sacramento, CA 95814
if to Alameda County Water Agency:	c/o General Manager 43885 S Grimmer Blvd. Fremont, CA 94538
if to Alameda County Flood Control and Water Conservation District, Zone 7	c/o General Manager 100 N. Canyons Parkway Livermore, CA 94551
if to San Gorgonio Pass Water Agency:	c/o General Manager 1210 Beaumont Ave Beaumont, CA 92223

(b) A Member may, at any time, by written notice to each other Member and the Finance Authority, designate different or additional persons or different addresses for giving of notices, demands or requests to it hereunder.

(c) The Finance Authority may, at any time, by written notice to each Member, designate a different or additional person or a different address for giving of notices, demands or requests to it hereunder.

SECTION 23. OTHER OBLIGATIONS. The Members acknowledge that contractual arrangements outside of this Agreement, but not inconsistent to the terms of this Agreement, may be made among the Members relating to the assignment and disposition of any security or assignable interests in the Conveyance Project and the study, planning, development, acquisition, construction, reconstruction, improvement, or betterment of the Conveyance Project.

SECTION 24. EXECUTION OF COUNTERPARTS. This Agreement may be executed in any number of counterparts. All such counterparts shall be deemed to be originals and shall together constitute but one and the same instrument.

IN WITNESS WHEREOF, the Members hereto have caused this Agreement to be executed and attested by their proper officers thereunto duly authorized, and their official seals to be hereto affixed, as of the day and year first above written.

Date	Alameda County Water Agency 43885 S Grimmer Blvd. Fremont, CA 94538
Date	Alameda County Flood Control and Water Conservation District, Zone 7 100 N. Canyons Parkway Livermore, CA 94551
Date	San Gorgonio Pass Water Agency 1210 Beaumont Ave Beaumont, CA 92223