DESERT WATER AGENCY
JANUARY 21, 2020

BOARD OF DIRECTORS
REGULAR MEETING AGENDA

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

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 - A. December 17, 2019 — STUART
   B. January 7, 2020

3. GENERAL MANAGER'S REPORT — KRAUSE

4. COMMITTEE REPORTS – A. Conservation & Public Affairs – January 6, 2020 — STUART
   B. Executive – January 14, 2020 — STUART

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 (DECEMBER 2019) — EWING

7. ACTION ITEMS
   A. Request Adoption of Resolution No. 1229 Establishing Rates, Fees & Charges for Sewer Service — JOHNSON
   B. Request Adoption of Resolution No. 1230 Establishing Rates, Fees & Charges for Domestic Water Service, Backup Facility, Supplemental Water Supply Development & Service Connection Charges — JOHNSON
   C. Request Amendment of the 2019-2020 Operating & General Fund Budgets Regarding Palm Oasis Area Land Purchase Budget — SAENZ

8. DISCUSSION ITEMS
   A. December Water Use Reduction Figures — KRAUSE
   B. Report on GMDA Conference Attendance — CIOFFI

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: Mission Springs Water District vs. Desert Water Agency

   C. 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

   D. 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

   E. CONFERENCE WITH LEGAL COUNSEL – EXPOSURE TO LITIGATION
   Pursuant to Government Code Section 54956.9 (d) (2)
   Alan Neil Freiman, et al vs. Safari Park, Inc.
   Riverside County Superior Court Case No. PSC1806308

11. RECONVENE INTO OPEN SESSION – REPORT FROM CLOSED SESSION

12. ADJOURN

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, as required by Section 202 of the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting is asked to contact Desert Water Agency's Assistant Secretary of the Board, at (760) 323-4971, at least 48 working hours prior to the meeting to enable the Agency to make reasonable arrangements. Copies of records provided to Board members which relate to any agenda item to be discussed in open session may be obtained from the Agency at the address indicated on the agenda.

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

2-A

December 17, 2019

DWA Board:	Joseph K. Stuart, President	)
	Kristin Bloomer, Vice President	)
	Craig Ewing, Secretary-Treasurer	)
	Patricia G. Oygar, Director	)
	James Cioffi, Director	)
DWA Staff:	Mark S. Krause, General Manager	)
	Steve Johnson, Assistant General Manager	)
	Esther Saenz, Finance Director	)
	Sylvia Baca, Asst. Secretary of the Board	)
	Ashley Metzger, Outreach & Cons. Manager	)
	Kris Hopping, Human Resources Manager	)
	Samantha Lopez, Accounting Supervisor	)
Consultant:	Michael T. Riddell, Best Best & Krieger	)
	Chad Halliday, Singer Lewak, LLP	)
Public:	David Freedman, P.S. Sustainability Commission	)

Pledge of Allegiance

18609. President Stuart opened the meeting at 8:00 a.m. and asked everyone to join Vice President Bloomer in the Pledge of Allegiance.

Employee Introduction

18610. General Manager Krause introduced newly hired employee Samantha Lopez (Accounting Supervisor).

Approval of 11/19/19 Regular Board Mtg. Minutes

18611. President Stuart called for approval of the November 19, 2019 Regular Board Meeting Minutes.

Director Oygar moved for approval. After a second by Secretary-Treasurer Ewing, the minutes were approved by the following vote:

AYES:	Oygar, Ewing, Stuart, Bloomer, Cioffi
NOES:	None
ABSENT:	None
ABSTAIN:	None

General Manager's Report

18612. President Stuart called upon General Manager Krause to provide an update on Agency operations.

Mr. Krause provided an update on Agency operations and noted his meetings and activities for the past several weeks.

Committee Reports – Executive 12/12/19

18613. President Stuart noted the minutes for the December 12, 2019 Executive Committee meeting were provided in the Board's packet.

In response to Director Oygar regarding Item 1-C (Developer Installed Water Sanitary Sewer Facilities Agreement), Mr. Krause explained there are several projects that involve developer agreements in which the Agency disagrees with some wording. The Agency is working with legal counsel on this item.

Public Comment

18614. President Stuart opened the meeting for public comment.

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

Items for Action: Request Acceptance of FY 2018/2019 Singer Lewak LLP Annual Audit

18615. President Stuart asked Finance Director Saenz to present staff's request for Acceptance of Fiscal Year 2018-2019 Singer Lewak, LLP Annual Audit.

Mrs. Saenz welcomed Chad Halliday of Singer Lewak, LLP and invited him to present the report.

Mr. Halliday gave an overview of the financial highlights. He noted the following: The Agency's net position increased $27.2 million, Deferred outflows increased $.4 million while deferred inflows increased $1.0 million. Current year operating revenues increased $1.9 million while operating expenses decreased $3.1 million. Total revenues were $72.9 million and total expenses were $47.2 million.

Director Oygar made a motion to accept Singer Lewak, LLP's audit for Fiscal Year 2018-2019. After a second by Secretary-Treasurer Ewing, the motion carried by the following vote:

AYES:	Oygar, Ewing, Stuart, Bloomer, Cioffi
NOES:	None
ABSENT:	None
ABSTAIN:	None

Secretary-Treasurer Ewing and Director Cioffi stated that they look forward to an upgraded financial system.

Items for Action: (Cont.)
Request Adoption of Resolution No. 1224 Policy on Discontinuation of Residential Water Service for Nonpayment

18616. President Stuart called upon Finance Director Saenz to present staff's request for Adoption of Resolution No. 1224, Policy on Discontinuation of Residential Water Service for Nonpayment.

Mrs. Saenz reported that Senate Bill 998 (SB 998) was signed into law by Governor Brown on September 28, 2018 and Desert Water Agency is required to comply with the Act by February 1, 2020. The purpose of the Act is to provide additional procedural protections to residential water customers before the discontinuation of water service for nonpayment. She noted SB 998 requires community water systems with more than 200 water service connections to have a written policy on the discontinuation of residential water service for nonpayment and make it available on the Agency's website. The policy must be available in English, Spanish, Chinese, Tagalog, Vietnamese, and Korean, and any other language spoken by at least 10 percent of the Agency's population. The Agency Policy has been reviewed by legal counsel and determined to be compliant with Senate Bill 998.

Secretary-Treasurer Ewing moved to adopt Resolution No. 1224. After a second by Director Cioffi, the motion carried by the following vote:

AYES: Ewing, Cioffi, Stuart, Bloomer, Oygar
NOES: None
ABSENT: None
ABSTAIN: None

Resolution No.1224 Adopted

RESOLUTION NO. 1224
A RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY POLICY ON DISCONTINUATION OF RESIDENTIAL WATER SERVICE FOR NONPAYMENT

Request Adoption of Ordinance No. 70, Adopting Regulations Governing Water Service

18617. President Stuart called upon Finance Director Saenz to present staff's request for Adoption of Ordinance No. 70, Adopting Regulations Governing Water Service.

Mrs. Saenz explained Ordinance No. 70 replaces Ordinance No. 66 noting the only changes are regarding SB998.

Items for Action: (Cont.) Request Adoption of Ordinance No. 70, Adopting Regulations Governing Water Service

Secretary-Treasurer Ewing moved to adopt Ordinance No. 70. After a second by Director Oygar, the motion carried by the following roll call vote:

AYES: Ewing, Oygar, Stuart, Bloomer, Cioffi
NOES: None
ABSENT: None
ABSTAIN: None

Assistant General Manager Johnson noted there were changes to the wording in Ordinance No. 70 in addition to two charges to developers, 1) Fire Flow testing fee, and 2) Inspection costs.

Secretary-Treasurer Ewing recommended that the developer fees mentioned above be listed in the Resolution instead of the Ordinance. He suggested amending Ordinance No. 70, page 16 Section 6-2.3, removing the wording "equal to twenty percent of the estimated construction costs as determined by the Agency" to read: "as established by Resolution of the Board".

Secretary-Treasurer Ewing then made a motion to adopt Ordinance No. 70 with the above-mentioned revision. After a second by Director Oygar, the motion carried by the following roll call vote:

AYES: Ewing, Oygar, Stuart, Bloomer, Cioffi
NOES: None
ABSENT: None
ABSTAIN: None

Ordinance No. 70 Adopted

ORDINANCE NO. 70
AN ORDINANCE OF DESERT WATER AGENCY
ADOPTING REGULATIONS GOVERNING WATER SERVICE

18618. President Stuart called upon Finance Director Saenz to present staff's request for Adoption of Ordinance No. 71, Regulations Governing Sewer Service.

Mrs. Saenz explained Ordinance No. 71 is in compliance with SB998. She noted that the sewer charges are on the Agency's water bill.

Secretary-Treasurer Ewing suggested amending Ordinance No. 71, page 13 Section 5-2.3, removing the wording "equal to twenty percent of the estimated construction costs as determined by the Agency" to read: "as established by Resolution of the Board".

Items for Action: (Cont.)

Secretary-Treasurer Ewing then made a motion to adopt Ordinance No. 71 with the above-mentioned revision. After a second by Director Oygar, the motion carried by the following roll call vote:

Request Adoption of Ordinance No. 71, Adopting Regulations Governing Sewer Service

AYES: Ewing, Oygar, Stuart, Bloomer, Cioffi
NOES: None
ABSENT: None
ABSTAIN: None

Ordinance No. 71 Adopted

ORDINANCE NO. 71
AN ORDINANCE OF DESERT WATER AGENCY REGULATIONS GOVERNING SEWER SERVICE

18619. President Stuart called upon Finance Director Saenz to present staff's request for Adoption of Resolution No. 1225, Establishing Rates, Fees & Charges for Sewer Service and No. 1226, Establishing Rates, Fees & Charges for Domestic Water Service, Backup Facility, Supplemental Water Supply Development & Service Connection Charges.

Request Adoption of Resolution's No. 1225 Establishing Rates, Fees & Charges for Sewer Service and No. 1226, Establishing Rates, Fees & Charges for Domestic Water Service

Mrs. Saenz reported the additional changes to Resolution No. 1225 are regarding SB998, establishing the reduced reconnection fee for customers demonstrating financial hardship.

Assistant General Manager Johnson noted there are additional changes not associated with SB998 in Resolution No. 1225. The changes include plan check fees and adding a Non-Interference letter to developmental review fees.

Adoption of Resolution No. 1225 and No. 1226 Continued

After a brief discussion, Secretary-Treasurer Ewing motioned to continue adoption of Resolution No.'s 1225 and 1226 to a future Board Meeting in order for staff to revise the Resolutions with the additional word and updated fee amounts. After a second by Director Oygar, the motion carried by the following vote:

AYES: Ewing, Oygar, Stuart, Bloomer, Cioffi
NOES: None
ABSENT: None
ABSTAIN: None

18621. President Stuart called upon Assistant General Manager Johnson to Request Approval of Budget Augmentation for Work Order 13-119-L.

Request Approval of Budget Augmentation for W/O 13-119-L

Items for Action: (Cont.)
Request Approval of Budget Augmentation for W/O 13-119-L

Mr. Johnson noted the current fiscal budget includes work order 13-119-L for the purchase of land within the Agency's service area for future surface water and wastewater treatment facilities. The existing budget for said work order is $675,000 for the purchase of approximately 5.9 acres in the Palm Oasis area. Staff is requesting a budget augmentation of $110,000, allowing staff to acquire an additional acre of land for future facilities.

Director Cioffi moved to approve staff's request. After a second by Secretary-Treasurer Ewing, the motion carried by the following vote:

AYES:	Cioffi, Ewing, Stuart, Bloomer, Oygar
NOES:	None
ABSENT:	None
ABSTAIN:	None

Request Approval of Reallocation of a Portion of Regulatory Compliance Reserve General Fund Acct. for Surface Water Treatment Facility in Chino Canyon

18622. President Stuart called upon Assistant General Manager Johnson to Request Approval of Reallocation of a portion of Regulatory Compliance Reserve General Fund Account for Surface Water Treatment Facility in Chino Canyon.

Mr. Johnson reported for decades the Agency has provided water service to the Palm Springs Aerial Tram lower and upper stations using surface water within the west Chino Canyon watershed. He noted a September 2019 thunderstorm that produced a significant amount of water that damaged and washed away part of the pipe and washed silt and debris into the Agency stream intake facility. He then explained that the water quality from the canyon has become inconsistent but continues to meet the State's filtration avoidance criteria. Mr. Johnson noted at this time the tram station water demands are being met, however, staff is concerned that the inconsistent water quality may prevent the Agency from meeting the future tram station water demands. If that occurs, the Agency will be forced to haul water to the lower tram station reservoir which is costly and unsustainable.

Continuing, Mr. Johnson indicated that to ensure the Agency is able to meet all of the tram water demands, staff recommends installing a surface water multi-media filtration system for the Chino Canyon water source at an estimated cost of $450,000. Staff is requesting re-allocating $450,000 of the regulatory compliance reserve general fund money to a new work order for the construction of the Chino West Canyon surface water treatment facility.

Items for Action: (Cont.)
Request Approval of Reallocation of a Portion of Regulatory Compliance Reserve General Fund Acct. for Surface Water Treatment Facility in Chino Canyon

Director Cioffi moved to approve staff's request. After a second by Secretary-Treasurer Ewing, the motion carried by the following vote:

AYES:	Cioffi, Ewing, Stuart, Bloomer, Oygar
NOES:	None
ABSENT:	None
ABSTAIN:	None

Request Board Action on Claim for Damages filed by Vanessa Spaeth

18623. President Stuart called upon General Manager Krause to present staff's request for Board Action Regarding Claim filed by Vanessa Spaeth.

Mr. Krause reported Vanessa Spaeth filed a claim on December 2, 2019 stating that on October 24, 2019 at 10:30 a.m., a DWA fire hydrant burst, completely flooding her house. At this time, the exact amount of the claim is not known, however, the initial amount listed in the claim totals $11,798.74. He noted that DWA staff and ACWA-JPIA representatives have been working with Ms. Spaeth over the past several weeks to determine the damages. Staff requests that the Board deny the claim for damages filed by Vanessa Spaeth and forward to ACWA-JPIA for continued handling.

Secretary-Treasurer Ewing moved to approve staff's request. After a second by Director Oygar, the motion carried by the following vote:

AYES:	Ewing, Oygar, Stuart, Bloomer, Cioffi
NOES:	None
ABSENT:	None
ABSTAIN:	None

Request Adoption of Resolution No. 1227 & No. 1228 to File Application for Sustainable Groundwater Mgmt. Grant Program

18624. President Stuart called upon General Manager Krause to Request Adoption of Resolution No. 1227 & No. 1228 to File Application for Sustainable Groundwater Management Grant Program – Round 3 Planning Grant for Indio and Mission Creek Subbasins Modeling, Data Collection and Alternative Plan Update.

Mr. Krause reported Resolution No's. 1227 and No.1228 provide authorization for the Coachella Valley Water District to prepare and execute an application for a Department of Water Resources Sustainable Groundwater Management Planning Grant for the Indio and Mission Creek Subbasins. He noted that the adoption of these Resolutions is one of many requirements the Agency is obligated to fulfill in the process for obtaining grant monies from DWR. With their adoption, the resolutions will be filed along with the application for grant funds totaling $1,999,998 for the Indio Subbasin, and $1,957,281 for the Mission Creek Subbasin, with the requested grant funds to be used to update the Approved Alternative (to Groundwater

Sustainability Plan) Plans, in compliance with the Sustainable Groundwater Management Act and additionally to construct monitoring wells to fill data gaps for said plans. He noted that in order to meet the requirements as outlined by DWR through its Sustainable Groundwater Management Act Grant Program, staff request that Board adopts Resolution No. 1227 and Resolution No. 1228 Authorizing the Coachella Valley Water District to apply for grant funds for the Alternative Plan Updates.

Items for Action: (Cont.) Request Adoption of Resolution No. 1227 & No. 1228

Director Oygar moved to approve staff's request. After a second by Secretary-Treasurer Ewing, the motion carried by the following vote:

AYES:	Oygar, Ewing, Stuart, Bloomer, Cioffi
NOES:	None
ABSENT:	None
ABSTAIN:	None

Resolution No.1227 Adopted

RESOLUTION NO. 1227
RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY TO FILE AN APPLICATION FOR A SUSTAINABLE GROUNDWATER MANAGEMENT GRANT PROGRAM – ROUND 3 PLANNING GRANT FOR THE INDIO SUBBASIN MODELLING, DATA COLLECTION, AND ALTERNATIVE PLAN UPDATE

Resolution No.1228 Adopted

RESOLUTION NO. 1228
RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY TO FILE AN APPLICATION FOR A SUSTAINABLE GROUNDWATER MANAGEMENT GRANT PROGRAM – ROUND 3 PLANNING GRANT FOR THE MISSION CREEK SUBBASIN MODELLING, DATA COLLECTION, AND ALTERNATIVE PLAN UPDATE

18625. President Stuart called upon General Manager Krause to Request Approval of First Amendment to 2019 Reservoir Project Agreement.

Request Approval of First Amendment to 2019 Reservoir Project Agreement

Mr. Krause reported at the September 2019 Sites Reservoir Committee Meeting, Project Agreement Members considered approval of a revised Phase 2 (2019) work plan supporting a revised completion date moving it from December 3, 2019 to March 31, 2020 (90 days). This extension was approved. He noted it was determined that a 90 day extension was not sufficient to accomplish everything that needed to be done. The primary focus is defining a permittable and affordable project and updating the project description. Mr. Krause noted that the committee considered the

Items for Action: (Cont.) Request Approval of First Amendment to 2019 Reservoir Project Agreement

impact of the extension on such issues as cash flow reductions (burn rate), placing certain work on hold, bank RFP's, available funding, critical tasks and deliverables. Continuing, he noted it was agreed that a draft permittable project description by March 31, 2020, was needed. A possible cash call was discussed that may be necessary to help advance critical deliverables. Mr. Krause continued by reporting there are no additional costs to the participants. The Project Agreement Members agreed to extend the term of the agreement from December 31, 2019 to June 30, 2020 (180 days). Staff requests approval of the first amendment to the 2019 Reservoir Agreement dated January 1, 2020.

Director Cioffi moved to approve staff's request. After a second by Director Oygar, the motion carried by the following vote:

AYES:	Oygar, Cioffi, Stuart, Bloomer, Ewing
NOES:	None
ABSENT:	None
ABSTAIN:	None

Discussion Items: Directors Report on ACWA Fall Conference Attendance

Secretary-Treasurer Ewing

18626. Secretary-Treasurer Ewing provided his notes on his attendance at the ACWA Fall Conference noting two points of interest; 1) Water Industry Trends Program: On Target for Urban Water Use Efficiency Targets?, and 2) Attorneys Program: What's the Big Deal about PFAS and Why Should You Care.

Vice President Bloomer

Vice President Bloomer reported her attendance at the ACWA Fall Conference noting she attended the sessions Secretary-Treasurer Ewing noted above, a session on Energy and power shut-offs, and another session on Digital Solutions Use Cases for Data Analytics and other Advanced Technologies.

Director Cioffi

Director Cioffi reported he attended the JPIA session noting the Captive Fund is now in place and JPIA is self-insured in the liability portion of its coverage.

President Stuart

President Stuart reported he attended several sessions, one being the General Session with regards to the elections of the new officers and he attended the President's breakfast.

November Water Use Reduction Figures

18627. President Stuart called upon Outreach & Conservation Manager Metzger to provide a report on the November Water Use Reduction Figures.

Mrs. Metzger reported that the Agency and its customers achieved an 13.1% reduction in potable water production during November

2019 compared to the same month in 2013. She noted the cumulative savings over the last twelve months is 19.5%.

Discussion Items: (Cont.)

18628. President Stuart called upon Agency Counsel Riddell to provide a report on the November 21, 2019 Board of Directors of the State Water Contractors meeting.

11/21/19 SWC Mtg.

Mr. Riddell provided a report on the following items: 1) Closed Session, 2) Business Process Objectives, 3) Statement of Charges, 4) SWC put on a Long Thin Smelt Symposium, 5) Water Operations and Quality Reports.

18629. President Stuart noted that Board packets included Outreach & Conservation reports for November 2019.

Outreach & Conservation – November 2019

18630. President Stuart noted he attended the employees Christmas Dinner, and he received correspondence regarding a vacancy on the JPIA Board.

Director's Comments/Requests President Stuart

18631. At 10:39 a.m., President Stuart 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), Mission Springs Water District vs. Desert Water Agency; (C) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Albrecht et al vs. County of Riverside; (D) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Abbey et al vs. County of Riverside; (E) Exposure to Litigation, pursuant to Government Code Section 54956.9 (d) (2), Alan Neil Freiman et al vs. Safari Park, Inc.; (F) Anticipated Litigation, pursuant to Government Code Section 54956.9 (d) (2), Claim submitted by Driscoll & Omens.

Closed Session:
A. Existing Litigation – ACBCI vs. CVWD, et al.
B. Existing Litigation – MSWD vs. DWA
C. Existing Litigation – Albrecht et al vs. Riverside County
D. Existing Litigation – Abbey et al vs. Riverside County
E. Exposure to Litigation – Alan Neil Freiman, et al vs. Safari Park, Inc.
F. Anticipated Litigation – Driscoll & Omens

At 12:52 p.m. President Stuart left Closed Session.

18632. At 12:54 p.m., Vice President Bloomer reconvened the meeting into open session.

Reconvene –No Reportable Action on Items No. 11-A thru No. 11-E.

Regarding Item 11F, Legal Counsel Riddell explained that this is the same claim that was received on October 29, 2019 and subsequently rejected by the Board on November 19, 2019. He explained that this new claim covers the period from the rejection of the first claim to the receipt of this claim, which was on December 3, 2019. He then advised the Board to reject the claim for the period of time November 19 through December 3, 2019.

Item No. 11-F

Closed Session
(Cont.)
Item No. 11-F
Reportable Action

Secretary-Treasurer Ewing made a motion to reject the claim. After a second by Director Oygar, the motion carried by the following vote:

AYES: Cioffi, Oygar, Bloomer, Ewing
NOES: None
ABSENT: Stuart
ABSTAIN: None

Adjournment

18633. In the absence of any further business, Vice President Bloomer adjourned the meeting at 12:55 p.m.

_____
Joseph K. Stuart, President

ATTEST:

_____
Craig Ewing, Secretary-Treasurer

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

2-B

January 7, 2020

DWA Board:	Joseph K. Stuart, President	)
	Kristin Bloomer, Vice President	)
	Craig Ewing, Secretary-Treasurer	)
	James Cioffi, Director	)
Absent:	Patricia G. Oygar, Director	)
DWA Staff:	Mark S. Krause, General Manager	)
	Steve Johnson, Assistant General Manager	)
	Esther Saenz, Finance Director	)
	Sylvia Baca, Asst. Secretary of the Board	)
	Kris Hopping, Human Resources Director	)
	Ashley Metzger, Outreach & Cons. Manager	)
Consultant:	Michael T. Riddell, Best Best & Krieger	)
Public:	David Freedman, P.S. Sustainability Commission	)
	Brian Macy, Mission Springs Water District	)

Pledge of Allegiance

18634. President Stuart opened the meeting at 8:00 a.m. and asked everyone to join Secretary-Treasurer Ewing in the Pledge of Allegiance.

General Manager's Report

18635. President Stuart called upon General Manager Krause to provide an update on Agency operations.

Mr. Krause provided an update on Agency operations and noted his meetings and activities for the past several weeks.

Committee Reports – Executive 01/06/20

18636. President Stuart noted the minutes for the January 6, 2020 Executive Committee meeting were provided in the Board's packet.

Public Comment

18637. President Stuart opened the meeting for public comment.

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

Secretary-Treasurer's Report (November)

18638. President Stuart called upon Secretary-Treasurer Ewing to present an overview of financial activities for the month of November 2019.

Operating Fund

Secretary-Treasurer Ewing reported that the Operating Fund received $3,058,338 in Water Sales Revenue, $149,732 in Reclamation Sales Revenue, $46,403 from Construction Deposits, and $9,898.80 from City of Coachella for CV Water Counts cost share. $1,351,560 was paid out in Accounts Payable. Year-to-date Water Sales are 6% under budget, Year-to-date Total Revenues are 3% under budget and Year-to-date Total Expenses are 14% under budget. There were 23,316 active services as of November 30, 2019 compared to 23,265 active services as of October 31, 2019.

General Fund

Reporting on the General Fund, Mr. Ewing stated that $26,238 was received in Groundwater Assessments (private pumpers), $24,172 in State Water Project refunds, and $38,351 was received from SCE for Whitewater Hydro Power Sales for the month of October 2019. $554,642 was paid in State Water Project charges (YTD $6,027,442).

Wastewater Fund

Reporting on the Wastewater Fund, Mr. Ewing reported $3,280 was received in Sewer Capacity Charges, and $1,527 was received in Sewer Contract payments. There are a total of 30 contracts with no delinquents. $73,680 was paid out in Accounts Payable.

Items for Action:
Request Authorization for Board Attendance at Irrigation Leader Operations & Management Workshop

18639. President Stuart called upon General Manager Krause to Request Authorization for Board Attendance at Irrigation Leader's Operations & Management Workshop.

Mr. Krause noted that President Stuart has expressed interest in attending the 8th Annual Irrigation Leader Operations and Management Training Workshop, which will be held on January 29 – 30, 2020 at the Crowne Plaza Phoenix Airport Hotel. Staff recommends that the Board approve and authorize those Board Members who are interested in attending the workshop as in service to the Board

Director Cioffi moved to approve staff's request. After a second by Secretary-Treasurer Ewing, the motion carried by the following vote:

AYES:	Cioffi, Ewing, Stuart, Bloomer
NOES:	None
ABSENT:	Oygar
ABSTAIN:	None

Secretary-Treasurer Ewing noted that this be a one-time approval after a report back from President Stuart indicating if this is a worthwhile workshop to continue to attend in the future.

President Stuart noted he will be meeting with Kris Polly, Washington DC Lobbyist during this workshop.

Items for Action: (Cont.) Board Attendance at Irrigation Leader

18640. President Stuart called upon Agency Counsel Riddell to provide a report on the December 18, 2019 Board of Directors of the State Water Contractors meeting.

Discussion Item: 12/18/19 SWC Mtg.

Mr. Riddell provided a report on the following: 1) Robert Cheng of Coachella Valley Water District was appointed as the second Class 8 (East Branch) Director on SWC Board of Directors, 2) DWR is modernizing its fire system at all Field Division locations due to the fire event at the Thermolito Power Plant, 3) The SWC Board authorized an expenditure of $128,000 to fund a second year study of Longfin Smelt habitat study and MWD will contribute $100,000, and 4) Late November and December storms ended record dry conditions in the SWP watershed. As of the December 19 meeting, the snow pack was average and total precipitation was just below average.

In response to Secretary-Treasurer Ewing regarding DWR's modernization of its fire system, General Manager Krause noted the Thermolito Power Plant is on a much larger scale but he will look into whether there is a need of updating the Agency's power plant's fire system.

18641. President Stuart noted that Board packets included Outreach & Conservation reports for December 2019.

Outreach & Conservation – December 2019

Outreach & Conservation Manager Metzger noted additional upcoming events; January 11, Farmers Market; January 17, Water Counts Academy sign up deadline; February 22, Modernism Week; February 29, Black History Parade, and March 22, Butterfly Block Party at the Agency.

18642. Director Cioffi thanked Outreach & Conservation Manager Metzger for information she provided at their Conservation and Public Affairs Committee meeting yesterday.

Director's Comments/Requests Director Cioffi

18643. At 8:35 a.m., President Stuart 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), Mission Springs Water District vs. Desert Water Agency; (C) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Albrecht et al vs. County of Riverside; (D) Existing Litigation, pursuant to Government Code Section 54959.9 (d) (1), Abbey et al vs. County of Riverside; (E) Exposure to Litigation, pursuant to Government Code Section 54956.9 (d) (2), Alan Neil Freiman et al vs. Safari Park, Inc.

Closed Session:
A. Existing Litigation – ACBCI vs. CVWD, et al.
B. Existing Litigation – MSWD vs. DWA
C. Existing Litigation – Albrecht et al vs. Riverside County
D. Existing Litigation – Abbey et al vs. Riverside County
E. Exposure to Litigation – Alan Neil Freiman, et al vs. Safari Park, Inc.

Reconvene – No Reportable Action

18644. At 10:29 a.m., President Stuart reconvened the meeting into open session and announced there was no reportable action taken.

Adjournment

18645. In the absence of any further business, President Stuart adjourned the meeting at 10:30 a.m.

_____
Joseph K. Stuart, President

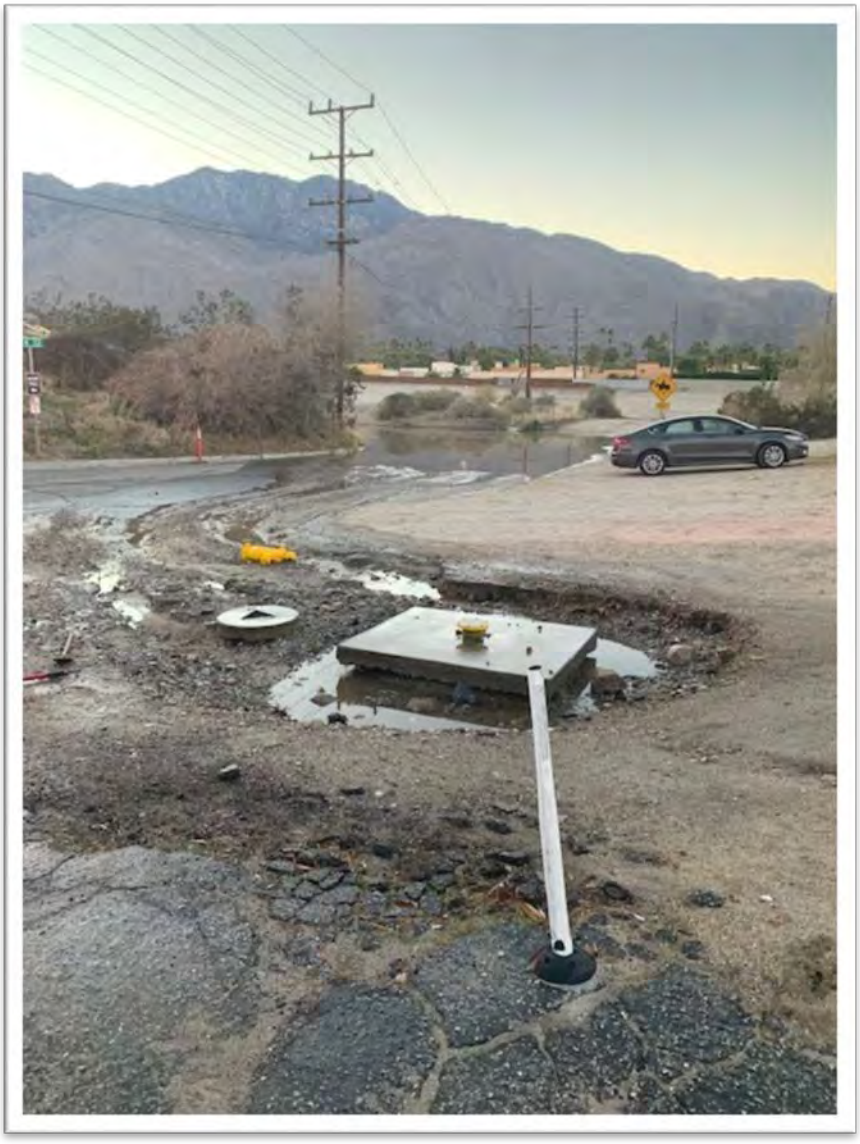
ATTEST:

_____
Craig Ewing, Secretary-Treasurer

GENERAL MANAGER'S REPORT
JANUARY 21, 2020

1245 Southridge Rd./Hit Fire Hydrant

On January 10 at 4:45 p.m., Construction responded to a hit fire hydrant at 1245 Southridge Dr. Staff replaced the gasket and bolts and placed the hydrant back in service. A police report was made. The water loss was from a fully open 6-inch fire hydrant bury which ran for approximately 30 minutes.



Human Resources Meetings and Activities

Meetings:

12/18/19	United Way Board Meeting	UWD Offices
12/19/19	DWA Safety Meeting	DWA
01/06/20	Weekly Staff Meeting	DWA
01/07/20	DWA Board Meeting	DWA
01/08/20	United Way Executive Board Meeting	UWD Offices
01/13/20	Weekly Staff Meeting	DWA
01/15/20	United Way Board Meeting	UWD Offices

Activities:

12/18/19	Read at the United Way Readers Are Leaders Event
01/06/20	Engineering Technician Intern Orientation
01/14/20	Outreach and Conservation Intern Orientation
01/15/20	Customer Service Training On-Site for Employees and Supervisors
01/16/20	Water Service Worker I Interviews

Customer Costs – Stolen/Repaired/Replaced Fire Hydrants – Annual Report 2019

The Agency does not track damage costs to fire hydrants unless the costs are recovered by insurance. In 2019, out of all the fire hydrants damaged, the costs were recovered through insurance on six occasions. The total cost recovered was $7,413.10 and the water waste was estimated at 122,200 C.F. or 914,056 Gal.

In 2020 we will start tracking the cost of all stolen, repaired, and replaced fire hydrants and all the water waste associated.

Customer Costs – Stolen/Repaired/Replaced Backflow Devices – Annual Report 2019

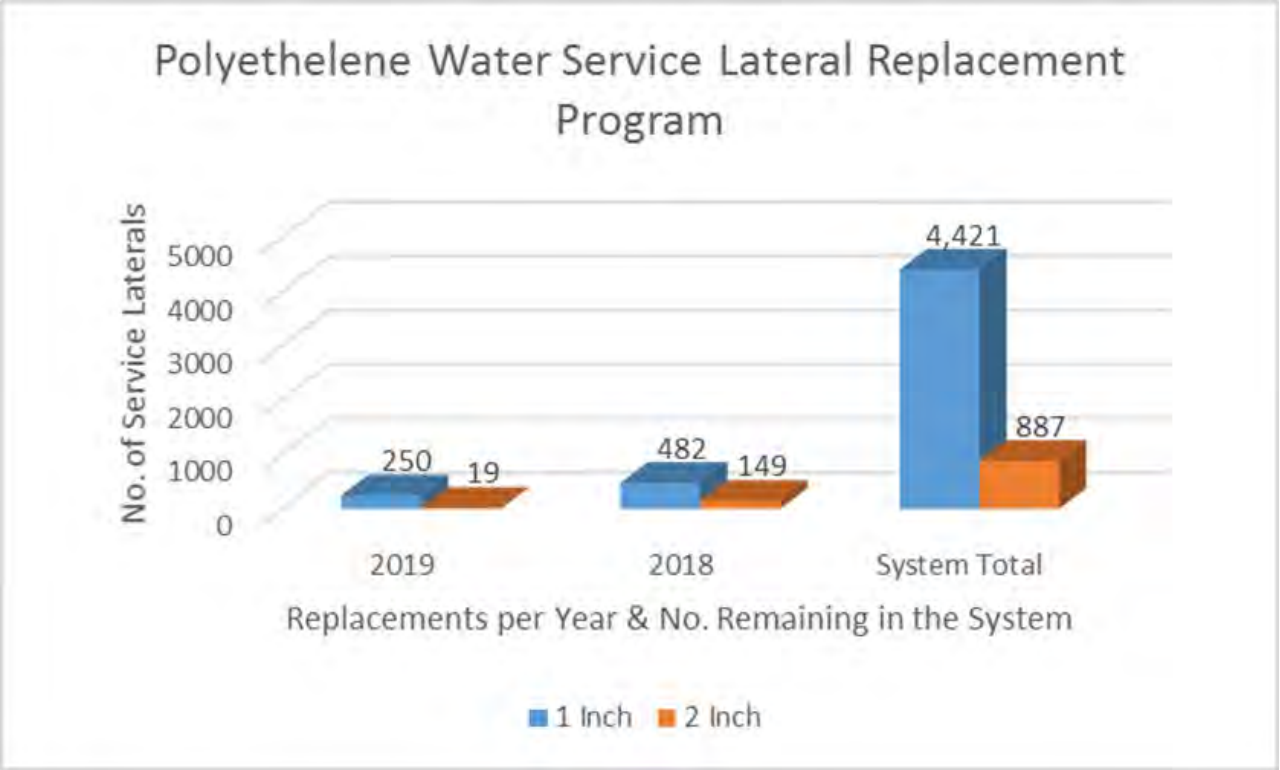
Backflows are the property of the customer and therefore their responsibility to purchase, install and maintain. The total number of backflows stolen, repaired and replaced in 2019 is sixty-six in total with a total cost of $44,336.90. This cost is recovered from the affected customer. Although the Agency's costs are recovered, we spent 340.7 hours devoted to this task. All water waste associated with this issue is metered and the costs are recovered, therefore we do not have a statistic for water waste for this issue.

Colorado River Aqueduct Annual Shutdown

MWD has scheduled a 25-day shutdown of its Colorado River Aqueduct from the Whitsett Intake Pumping Plant to Lake Mathews. The shutdown is scheduled to begin on Tuesday, February 4. The purpose of the shutdown is to perform repair and maintenance work along the CRA at various locations, as well as continue the 6.9 kV cable replacement project.

Polyethylene Water Service Lateral Replacement Program

In 2019, one hundred and forty-nine, 1" polyethylene services were replaced with copper pipe and nineteen 2" polyethylene services were also replaced. It is our goal to replace all of the polyethylene service laterals in the system within the next 10 years. That will require replacement of 442, 1-inch PE services and 87, 2-inch PE services annually. The construction and engineering departments are working on the annual budget and man power requirements to achieve this goal. It may be necessary to use an outside contractor for part of the work to insure the goal is achieved each year.



Snow Creek Intake:

During the February 14, 2019 Storm (the Valentine's Day Storm), a storm surge occurred in the Snow Creek Drainage, delivering over 3,100 cfs of water to stream that normally see 10-15 cfs. During the storm, the riprap rock downstream of the diversion was removed and the stream sidewalls were undermined.

The Agency contracted with G&M Construction to make the repairs to the diversion. The Contractor replaced the riprap rock and grouted between the rocks, locking the rocks together to form a spillway; the Contractor used 135 cubic yards of grout to fill the voids between the rocks.

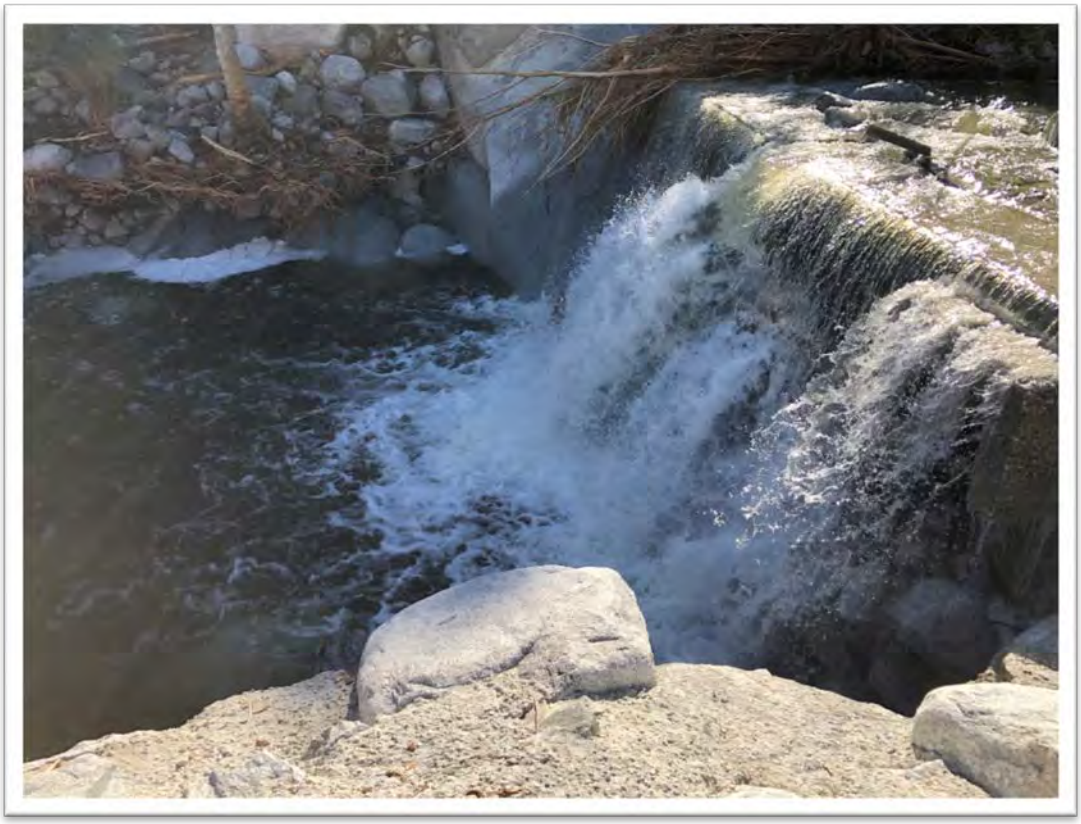


Photo 1: Below the Snow Creek Diversion after the 2/14/19 storm event.

Photo 2: Below the Snow Creek Diversion after the repair work.

Photo 3: Below the Snow Creek Diversion after the repair work. Contractor is pouring slurry to lock the rocks in place.

Photo 4: Below the Snow Creek Diversion after the 2/14/19 storm event.

Photo 5: Below the Snow Creek Diversion after the repair.

Falls Creek Bridge Over Snow Creek:

During the February 14, 2019 Storm (the Valentine's Day Storm), a storm surge occurred in the Snow Creek Drainage, delivering over 3,100 cfs of water to stream that normally see 10-15 cfs. The east and west approach to the Falls Creek Bridge (over Snow Creek) and the Bridge sustained damage that needed to be repaired.

The Agency contracted with G&M Construction to perform the repair work, in conjunction with the Snow Creek Intake repairs.

The approaches were reconstructed with steel reinforced high strength concrete. To alleviate concerns of the structural integrity of the Bridge after the storm damage, a portion of the decking timber was removed to access the I-beams for inspection and repair. A structural engineer from Krieger and Stewart inspected the Bridge. During the inspection, additional damage to the Bridge structure was found, additional reinforcement was recommended. The Bridge was reinforced by fully welding cross bracing between the outside I-beams, fully welding cross bracing between the end of the I-beams, and fully welding the cross strapping between all of the I-beams.

Photo 1: The west approach to the Falls Creek Bridge during the storm.

Photo 2: The west approach to the Falls Creek Bridge after the storm.

Photo 3: The west approach to the Falls Creek Bridge mid-construction.

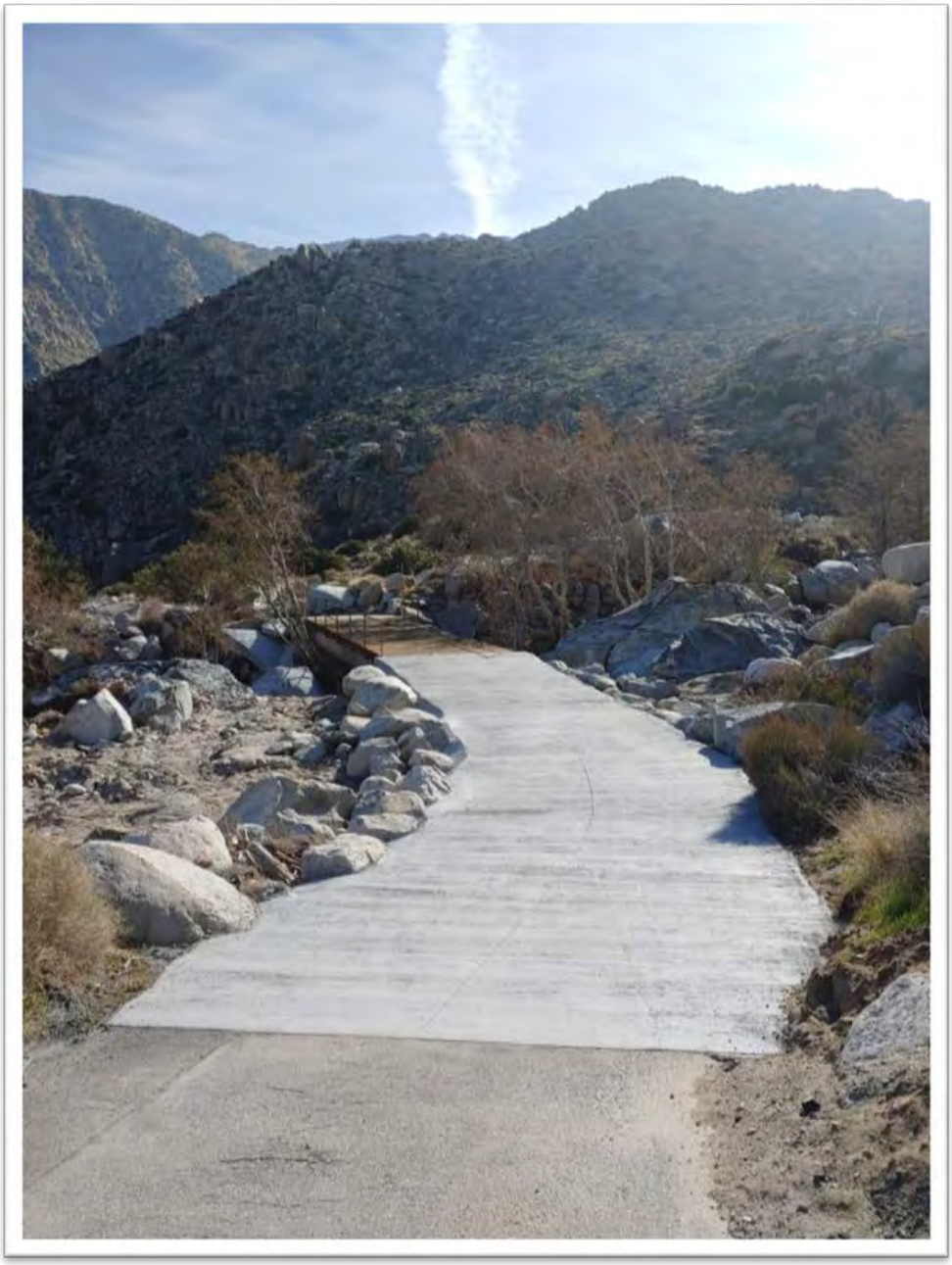


Photo 4: The west approach to the Falls Creek Bridge after repairs.

Photo 5: Falls Creek Bridge deck after the storm.

Photo 6: Falls Creek Bridge after construction.

SYSTEM LEAK DATA

(PERIOD BEGINNING DECEMBER 31, 2019 THRU JANUARY 14, 2020)

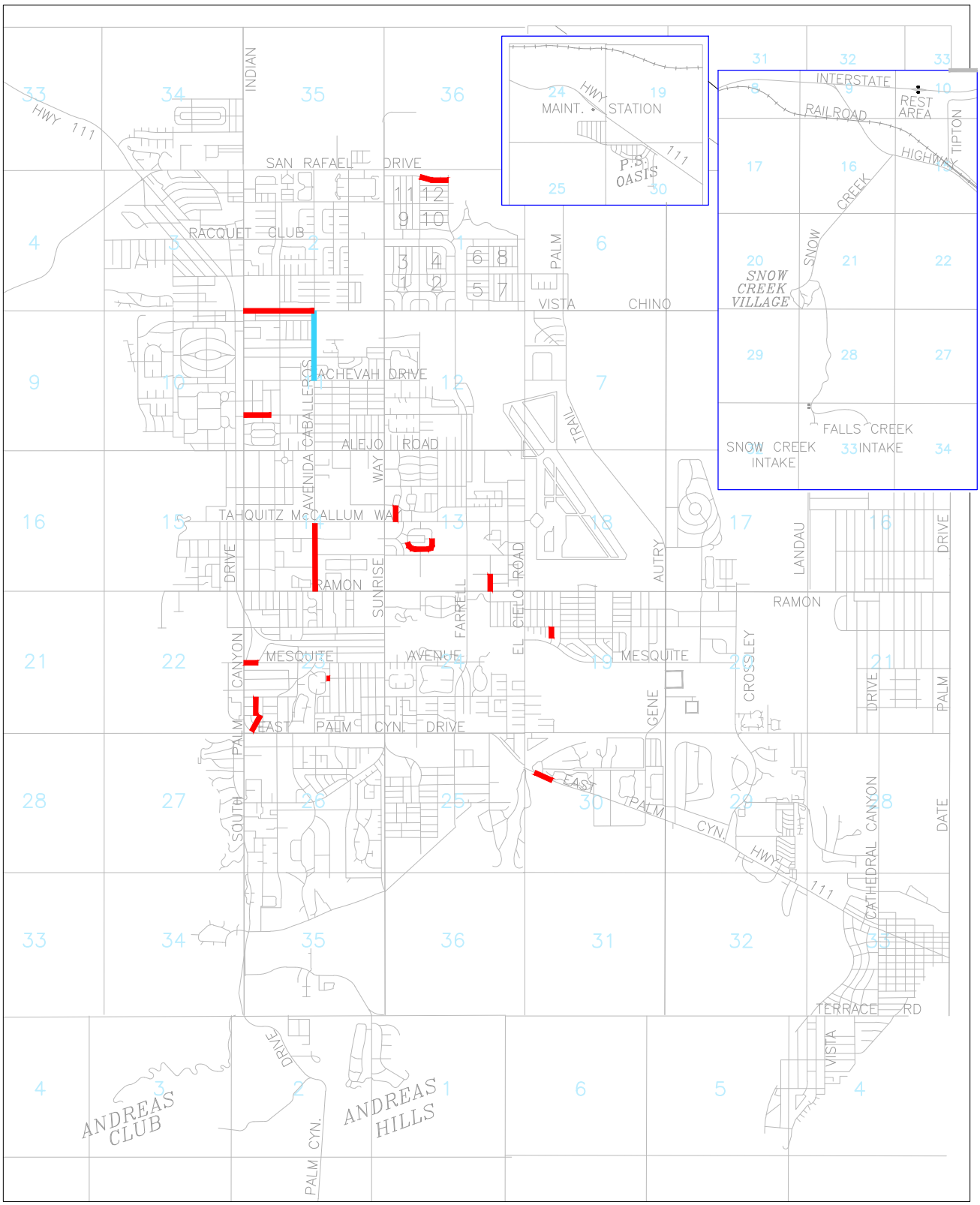
STREET NAME	NUMBER OF LEAKS	PIPE DIAMETER (INCHES)	YEAR INSTALLED	PIPE MATERIAL	PIPE CONSTRUCTION
COMPADRE RD	2	6	1958	STEEL	BARE/UNLINED
AVENIDA CABALLEROS	1	20	1949	STEEL	BARE/UNLINED
VISTA CHINO	1	20	1949	STEEL	BARE/UNLINED
AVENIDA CABALLEROS	1	14	1953	STEEL	BARE/UNLINED
TAMARISK RD	1	10	1942	STEEL	BARE/UNLINED
E PALM CANYON DR	1	6	1953	STEEL	BARE/UNLINED
MESQUITE AVE	1	6	1956	STEEL	BARE/UNLINED
JOYCE DR	1	6	1958	STEEL	BARE/UNLINED
VIA ENTRADA	1	4	1937	STEEL	BARE/UNLINED
PASEO GRACIA	1	4	1946	STEEL	BARE/UNLINED
CACTUS DR	1	4	1952	STEEL	BARE/UNLINED
VIA SOLEDAD	1	4	1955	STEEL	BARE/UNLINED
MOUNTAIN VIEW DR	1	4	1957	STEEL	BARE/UNLINED
LURING DR	1	4	1957	STEEL	BARE/UNLINED
TOTAL LEAKS IN SYSTEM:	**15**				

Streets highlighted in blue are being proposed as part of the
2019/2020 Replacement Pipeline Project

SYSTEM INFORMATION:	
*OLDEST PIPE IN THE SYSTEM (YEAR OF INSTALLATION):	1935
AVERAGE YEAR OF INSTALLATION OF UNLINED STEEL PIPE (SYSTEMWIDE):	1952
AVERAGE AGE OF UNLINED STEEL PIPE (SYSTEMWIDE):	66 YEARS
AVERAGE AGE OF PIPELINE AT THE TIME OF REPLACEMENT:	68 YEARS
TOTAL LENGTH OF PIPE IN SYSTEM OLDER THAN 68 YEARS (LINEAR FEET):	**142,113**
TOTAL LENGTH OF UNLINED PIPE SYSTEMWIDE (LINEAR FEET):	303,391
**AVERAGE LENGTH OF PIPE REPLACED ANNUALLY (LINEAR FEET):	14,500
PROJECTED TIME FRAME FOR 100% REPLACEMENT OF UNLINED STEEL PIPE:	21 YEARS
PROJECTED TIME FRAME FOR 100% REPLACEMENT OF PIPE OLDER THAN 68 YEARS:	**10 YEARS**
YEAR AGENCY TRANSITIONED TO CEMENT LINED STEEL PIPE:	1960

*** THIS PIPELINE IS BEING REPLACED AS PART OF THE 2018/2019 REPLACEMENT PIPELINES PROJECT.**

**** PLEASE NOTE THIS FIGURE REPRESENTS THE AVERAGE LINEAR FOOTAGE OF PIPELINE REPLACED ANNUALLY GIVEN AN AVERAGE ANNUAL BUDGET OF $3 MILLION.**



SYSTEM LEAKS

(Period beginning December 31, 2019 thru January 14, 2020)

DESERT WATER AGENCY

PALM SPRINGS, CALIFORNIA

LEGEND

- LEAK(S) RECORDED
- LEAK(S) RECORDED; INCLUDED IN PROPOSED LIST OF STREETS FOR 2019/2020 REPLACEMENT PIPELINES

DWG. BY	DATE	SCALE
SR	01/20	NTS

EXHIBIT "A"

General Manager's Meetings and Activities

Meetings:

01/07/20	DWA Bi-Monthly Board Meeting	DWA
01/09/20	SGP Sub-basin GSA Meeting	SGPWA
01/13/20	DWA Weekly Staff Meetings	DWR
01/14/20	SWC Class 8 (East Branch Contractors) Meeting	SBVMWD
01/15/20	SWC Delta Committee Meetings	SAC
01/15/20	SWC Policy Meeting	SAC
01/16/20	SWC SWC Monthly Board Meeting	SAC
01/16/20	SWC DC Finance Authority Board Meeting	SAC
01/17/20	Sites Reservoir Committee Monthly Board Meeting	MAX
01/20/20	DWA Weekly Staff Meetings	DWA
01/20/20	MWD/CVWD/DWA Coordination Call	Conf. Call
01/21/20	DWA Bi-Monthly Board Meeting	DWA

Activities:

1) SWP – CWF Voluntary Settlement Agreement Framework
2) SWP Contract Extension Amendment
3) DWA Remote Meter Reading Fixed Network
4) Whitewater Hydro – Automatic Re-start
5) State and Federal Contractors Water Authority and Delta Specific Project Committee (Standing)
6) Whitewater River Surface Water Recharge
7) ACBCI Section 14 Facilities & Easements
8) Lake Oroville Spillway Damage
9) Replacement Pipelines 2019-2020
10) DC Project – Finance JPA Committee (Standing)
11) DWA/CVWD/MWD Operations Coordination/Article 21/Pool A/Pool B/Yuba Water
12) DWA/CVWD/MWD Agreements Meetings (Meeting #8)
13) SWP 2019 Water Supply
14) ACBCI Water Rights Lawsuit
15) Whitewater Hydro Operations Coordination with Recharge Basin O&M
16) SGMA Tribal Stakeholder Meetings
17) Whitewater Spreading Basins – BLM Permits
18) Lake Perris Dam Seepage Recovery Project Participation
19) Delta Conveyance Project Cost Allocation
20) DWA Surface Water Filtration Feasibility Snow Creek Village/Palm Oasis
21) MCSB Delivery Updates
22) Well 6 Meaders Cleaners RWQB Meetings
23) SGMA – Indio Subbasin Classification
24) SGMA – San Gorgonio Pass Subbasin
25) UWMP Population Calculation Update/Valley-Wide UWMP
26) RWQCB Update to the SNMP

Minutes
Conservation & Public Affairs Committee Meeting
January 6, 2020

Directors Present: Joe Stuart, Jim Cioffi
Staff Present: Mark Krause, Ashley Metzger

1. Discussion Items

A. Low-income Programs & Outreach
The Committee discussed the budgeted program to assist low-income customers that experience leaks and extremely high water use. The Committee directed staff to proceed with a water bill credit approach rather than contracting plumbers or irrigation technicians.

Staff overviewed plans to increase outreach on the Help2Others program with efforts including a Mizell open house on January 28, targeted postcards and/or digital advertising, posting in community centers and work with CV Water Counts partners.

B. Landscape Design Rebate
The Committee determined that the $500 front-yard design rebates were appropriate to market to customers that applied for the grass removal rebate but did not yet have a landscape plan.

The Committee suggested staff reach out to landscape design professionals with program details once the program launches.

C. City Turf Removal Projects
Staff informed the Committee that the City's proposed airport grass removal project will likely be pushed to next fiscal year pending grant approval. Staff overviewed other projects the City has expressed interest in.

D. Rebate Outreach
The Committee discussed rebate outreach strategy including breaking down information by neighborhood.

E. Student Outreach
Staff updated the Committee on DWA involvement in OneFuture CV program and educational outreach to schools.

F. Tour Feedback
The Committee discussed tentative dates and options for the upcoming tour. Staff also mentioned plans to add tour displays and signage in the coming fiscal year.

G. Mission/Vision Statement
Chair Stuart directed Staff to explore options to create a mission/vision statement and bring it to the Executive Committee for discussion.

2. Other

A. Lion's Club
Chair Stuart mentioned an upcoming Lion's Club meeting that would be a speaking opportunity for DWA.

B. Outreach & Conservation Internship
The Committee discussed the possibility of onboarding a temporary intern for the department.

C. Water Audits
The Committee discussed upcoming training for water audits.

D. Customer Bills
Staff updated the Committee on plans to change the graphs and visuals on the bills.

3. Adjourn

Minutes
Executive Committee Meeting
January 14, 2020

Directors Present: Joe Stuart, Kristin Bloomer
Staff Present: Mark Krause, Esther Saenz, Sylvia Baca

1. Discussion Items

A. Review Agenda for January 21, 2020 Regular Board Meeting
The proposed agenda for the January 21, 2020 meeting was reviewed.

2. Other - None

3. Adjourn

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

OPERATING ACCOUNT

DECEMBER 2019

				INVESTED RESERVE FUNDS
BALANCE	DECEMBER 1, 2019		($239,971.57)	$26,079,937.14
	WATER SALES	$3,216,394.42		
	RECLAMATION SALES	118,256.42		
	WASTEWATER RECEIPTS	123,487.90		
	POWER SALES	4,953.21		
	METERS, SERVICES, ETC.	39,447.00		
	REIMBURSEMENT – GENERAL FUND	67,995.50		
	REIMBURSEMENT – WASTEWATER FUND	4,211.85		
	ACCOUNTS RECEIVABLE – OTHER	75,419.34		
	CUSTOMER DEPOSITS – SURETY	6,742.00		
	CUSTOMER DEPOSITS – CONST.	1,297.63		
	LEASE REVENUE	3,727.53		
	INTEREST RECEIVED ON INV. FDS.	0.00		
	FRONT FOOTAGE FEES	0.00		
	BOND SERVICE & RESERVE FUND INT	0.00		
	MISCELLANEOUS	101,860.86		
	TOTAL RECEIPTS		$3,763,793.66	
PAYMENTS				
	PAYROLL CHECKS	$565,819.26		
	PAYROLL TAXES	236,063.64		
	ELECTRONIC TRANSFERS	164,791.74		
	CHECKS UNDER $10,000.00	282,031.26		
	CHECKS OVER $10,000.00 – SCH. #1	1,002,735.29		
	CANCELLED CHECKS AND FEES	49,657.78		
	TOTAL PAYMENTS		$2,301,098.97	
NET INCOME			$1,462,694.69	
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	$100,000.00		
	FUNDS INVESTED – SCH. #3	1,931,310.00		
	NET TRANSFER		($1,831,310.00)	$1,831,310.00
BALANCE	DECEMBER 31, 2019		($608,586.88)	$27,911,247.14

DECEMBER 2019 DESERT WATER AGENCY

OPERATING ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
124307	CDW DIRECT	I/S - HARDWARE MAINTENANCE / SUPPLIES	$17,982.82
124323	Z&L PAVING, INC	PAVING	$13,792.50
124334	ACWA/JPIA	HEALTH, DENTAL & VISION INSURANCE PREMIUMS - DECEMBER 2019	$214,815.59
124355	DESERT WATER AGENCY - WASTEWATER	WASTEWATER REVENUE BILLING - NOVEMBER 2019	$94,800.76
124358	SOUTHERN CALIFORNIA EDISON	POWER	$248,667.16
124370	BEST BEST & KRIEGER LLP	LEGAL FEES	$59,748.44
124389	BACKFLOW APPARATUS & VALVE CO.	WATER SERVICE SUPPLIES	$12,314.88
124391	BADGER METER INC.	WATER SERVICE SUPPLIES	$34,070.49
124405	DOWN TO EARTH LANDSCAPING	LANDSCAPE MAINTENANCE	$34,470.63
124413	G&M CONSTRUCTION	SNOWCREEK ROAD REPAIR - PROGRESS PAYMENT #1	$42,075.50
124428	KRIEGER & STEWART INC	ENGINEERING	$110,159.97
124431	MCKEEVER WATERWELL & PUMP INC	MAINTENANCE - WELL #23 & #31	$28,285.00
124441	OUTFLOW TECHNOLOGIES	PROGRAMMING - CORE BACKOFFICE PROJECT	$33,725.00
124459	SC FUELS	FUEL PURCHASE	$14,913.87
124463	THATCHER COMPANY OF CALIFORNIA	WATER SERVICE SUPPLIES	$24,444.68
124477	Z&L PAVING, INC	PAVING	$18,468.00
		** TOTAL	$1,002,735.29

DESERT WATER AGENCY
OPERATING FUND - LISTING OF INVESTMENTS
December 31, 2019

PURCH DATE	NAME	DESCRIPTION	CALLABLE	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
	Local Agency Investment Fund								
06-30-83	State of California	LAIF		Open	$ 21,910,537.14	$ 21,910,537.14	$ 21,910,537.14	2.030%	-
	Certificates of Deposit								
				Total Certificates of Deposit	$ -	$ -	$ -		
	Medium Term Notes								
10-04-19	Union Bank	Wells Fargo	09-09-21	09-09-22	$ 1,000,710.00	$ 1,000,000.00	$ 1,001,550.00	2.044%	1 Time
				Total Medium Term Notes	$ 1,000,710.00	$ 1,000,000.00	$ 1,001,550.00		
	Government Agency								
09-29-17	Union Bank	FHLMC	03-29-20	09-29-20	$ 500,000.00	$ 500,000.00	$ 500,000.00	1.700%	Quarterly
07-15-19	Union Bank	FHLMC	01-15-20	01-15-21	$ 500,000.00	$ 500,000.00	$ 500,020.00	2.100%	1 Time
08-26-19	Union Bank	FHLMC	02-26-20	08-26-22	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,350.00	2.050%	Quarterly
09-13-19	Union Bank	FHLB	03-13-20	03-13-24	$ 1,000,000.00	$ 1,000,000.00	$ 997,230.00	2.100%	Quarterly
09-13-19	Union Bank	FHLMC	03-13-20	09-13-24	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,430.00	2.200%	Quarterly
10-17-19	Union Bank	FHLMC	01-17-19	10-17-22	$ 1,000,000.00	$ 1,000,000.00	$ 998,460.00	2.000%	Quarterly
				Total Government Agency	$ 5,000,000.00	$ 5,000,000.00	$ 4,996,490.00		
							Weighted Mean YTM	2.034%	
				TOTAL INVESTED @ 12/31/19	$ 27,911,247.14	$ 27,910,537.14	$ 27,908,577.14		
				BALANCE @ 06/30/19	$ 23,936,118.14				
				INCREASE (DECREASE)	$3,975,129.00				

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

GENERAL ACCOUNT

DECEMBER 2019

				INVESTED RESERVE FUNDS
BALANCE	DECEMBER 1, 2019		$44,918.13	$144,182,391.81
*	TAXES - RIVERSIDE COUNTY	5,367,631.14		
*	INTEREST EARNED - INV. FUNDS	105,081.08		
	GROUNDWATER REPLEN. ASSESSMENT	77,382.73		
	REIMBURSEMENT - OPERATING FUND	0.00		
	REIMBURSEMENT - CVWD MGMT	1,303.46		
	STATE WATER PROJECT REFUNDS	0.00		
	REIMB - CVWD - WHITEWATER HYDRO	0.00		
	POWER SALES - WHITEWATER	0.00		
	MISCELLANEOUS	2,572.00		
	TOTAL RECEIPTS		$5,553,970.41	
PAYMENTS				
	CHECKS UNDER $10,000.00	22,975.14		
	CHECKS OVER $10,000.00 - SCH. #1	938,377.50		
	CANCELLED CHECKS AND FEES	0.00		
	TOTAL PAYMENTS		$961,352.64	
NET INCOME			$4,592,617.77	
INVESTED RESERVE FUNDS				
	FUNDS MATURED	23,044,043.00		
	FUNDS INVESTED – SCH. #2	26,675,620.00		
	NET TRANSFER		($3,631,577.00)	$3,631,577.00
BALANCE	DECEMBER 31, 2019		$1,005,958.90	$147,813,968.81

*	INCLUSIVE TO DATE	TAXES	INTEREST
	RECEIPTS IN FISCAL YEAR	$6,389,786.22	$1,502,520.82
	RECEIPTS IN CALENDAR YEAR	$31,300,222.53	$3,445,472.76

DECEMBER 2019 DESERT WATER AGENCY

GENERAL ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
9320	COACHELLA VALLEY WATER DISTRICT	WHITEWATER HYDRO REVENUE - SEPTEMBER 2019	$20,110.50
9321	STATE OF CA. DEPT. OF WATER RESOURCES	STATE WATER PROJECT ENTITLEMENT - DECEMBER 2019	$70,307.00
9324	COACHELLA VALLEY WATER DISTRICT	WHITEWATER MANAGEMENT AGREEMENT - QUARTER ENDING: SEPTEMBER 2019	$57,855.00
9326	CORA CONSTRUCTORS INC	SNOWCREEK VILLAGE VILLAGE FILTRATION (W/O # 18-101-M)	$145,445.00
9328	US GEOLOGICAL SURVEY	JOINT FUNDING AGREEMENT QUARTERLY BILLING - (8/1/19-10/31/19)	$22,022.50
9331	STATE OF CA. DEPT. OF WATER RESOURCES	STATE WATER PROJECT - DECEMBER 2019	$554,642.00
9332	DESERT WATER AGENCY - OPERATING	OPERATING FUND REIMBURSEMENT FOR NOVEMBER 2019	$67,995.50
		** TOTAL	$938,377.50

DESERT WATER AGENCY
GENERAL FUND - LISTING OF INVESTMENTS
December 31, 2019

PURCHASE DATE	NAME	DESCRIPTION	CALLABLE	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
	Local Agency Investment Fund								
06-30-83	State of California	LAIF	Bullet	Open	$ 34,692,042.81	$ 34,692,042.81	$ 34,692,042.81	2.030%	-
	Certificates of Deposit								
06-14-17	RBC Wealth Mgmt	Capital One Bullet	Bullet	06-15-20	$ 250,000.00	$ 250,000.00	$ 250,277.50	1.900%	Bullet
06-14-17	RBC Wealth Mgmt	Capital One Bank USA	Bullet	06-15-20	$ 250,000.00	$ 250,000.00	$ 250,277.50	1.900%	Bullet
06-19-17	RBC Wealth Mgmt	First Priority Bank	Bullet	06-19-20	$ 250,000.00	$ 250,000.00	$ 250,107.50	1.750%	Bullet
05-29-19	Ladenburg Thalmann	Sallie Mae Bank	Bullet	05-31-22	$ 245,000.00	$ 245,000.00	$ 249,285.05	2.500%	Bullet
05-30-19	Ladenburg Thalmann	Ally bank	Bullet	05-31-22	$ 245,000.00	$ 245,000.00	$ 249,285.05	2.500%	Bullet
06-05-19	Ladenburg Thalmann	Goldman Sachs	Bullet	06-05-22	$ 245,000.00	$ 245,000.00	$ 249,302.20	2.500%	Bullet
06-06-19	Ladenburg Thalmann	Morgan Stanley Bank	Bullet	06-06-22	$ 245,000.00	$ 245,000.00	$ 249,593.75	2.550%	Bullet
06-06-19	Ladenburg Thalmann	Morgan Stanley Private Bank	Bullet	06-06-22	$ 245,000.00	$ 245,000.00	$ 249,593.75	2.550%	Bullet
06-07-19	Ladenburg Thalmann	Synchrony Bank (GE)	Bullet	06-07-22	$ 245,000.00	$ 245,000.00	$ 248,721.55	2.400%	Bullet
			Total Certificates of Deposit		$ 2,220,000.00	$ 2,220,000.00	$ 2,246,443.85		
	Medium Term Notes								
09-19-18	Stifel	Wells Fargo MTN Step	12-19-20	09-19-21	$ 1,000,000.00	$ 1,000,000.00	$ 994,180.00	3.250%	Quarterly
02-19-19	Alamo Capital	Toyota Motor Corp MTN	Bullet	07-13-22	$ 1,399,076.00	$1,400,000.00	$ 1,433,026.00	2.800%	Bullet
03-04-19	Alamo Capital	Apple Inc. MTN	Bullet	05-11-20	$ 991,160.00	$1,000,000.00	$ 999,100.00	2.560%	Bullet
04-04-19	Alamo Capital	Toyota Motor Corp MTN	Bullet	04-17-20	$ 994,400.00	$1,000,000.00	$ 999,980.00	2.500%	Bullet
07-18-19	Alamo Capital	Toyota Motor Corp MTN	Bullet	09-08-22	$ 1,000,000.00	$1,000,000.00	$ 1,007,790.00	2.150%	Bullet
09-16-19	Alamo Capital	Apple Inc. MTN	08-11-24	09-11-24	$ 990,552.00	$1,000,000.00	$ 993,800.00	2.000%	1 Time
10-04-19	Union Bank	Wells Fargo Bank NA	09-09-21	09-09-22	$ 2,001,420.00	$2,000,000.00	$ 2,003,100.00	2.044%	1 Time
10-21-19	Alamo Capital	Toyota Motor Corp MTN	Bullet	10-07-24	$ 1,499,994.00	$1,500,000.00	$ 1,500,210.00	2.000%	Bullet
10-23-19	Alamo Capital	American Honda Finance	Bullet	09-10-24	$ 3,011,474.00	$3,000,000.00	$ 3,002,370.00	2.000%	Bullet
11-01-19	Stifel	Boeing Co	04-15-23	06-15-23	$ 991,630.00	$1,000,000.00	$ 993,750.00	2.116%	Continuous
11-22-19	Union Bank	Exxon Mobile Corp	01-01-23	03-01-23	$ 2,055,180.00	$2,000,000.00	$ 2,048,560.00	1.809%	Continuous
12-20-19	Stifel	Microsoft	02-01-23	05-01-23	$ 2,034,620.00	$2,000,000.00	$ 2,034,340.00	2.375%	Continuous
			Total Medium Term Notes		$ 17,969,506.00	$ 17,900,000.00	$ 18,010,206.00		
	Government Agency								
03-23-16	Ladenburg Thalmann	FNMA	Bullet	03-23-20	$ 1,000,000.00	$ 1,000,000.00	$ 999,730.00	1.500%	Qrtrly
04-26-16	Ladenburg Thalmann	FHLB	Continuous	10-26-20	$ 999,500.00	$ 1,000,000.00	$ 999,370.00	1.550%	Continuous
06-16-16	Stifel	FFCB	Continuous	03-16-20	$ 1,000,000.00	$ 1,000,000.00	$ 999,830.00	1.400%	Continuous
07-13-16	Union Bank	FFCB	Continuous	01-13-20	$ 1,000,000.00	$ 1,000,000.00	$ 999,880.00	1.240%	Continuous
07-27-16	Stifel	FNMA STEP	01-27-20	07-27-21	$ 1,000,000.00	$ 1,000,000.00	$ 997,310.00	1.500%	Qrtrly
08-10-16	Ladenburg Thalmann	FHLMC	02-10-20	08-10-20	$ 1,000,000.00	$ 1,000,000.00	$ 999,240.00	1.450%	Qrtrly
10-06-16	Ladenburg Thalmann	FHLMC	01-06-20	07-06-20	$ 1,000,000.00	$ 1,000,000.00	$ 998,970.00	1.375%	Qrtrly
10-17-16	Stifel	FNMA	Bullet	04-17-20	$ 1,000,000.00	$ 1,000,000.00	$ 998,990.00	1.250%	1 Time
11-03-16	Ladenburg Thalmann	FFCB	Continuous	05-03-21	$ 999,250.00	$ 1,000,000.00	$ 994,170.00	1.490%	Continuous
12-14-16	Ladenburg Thalmann	FHLMC	03-14-20	12-14-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,030.00	1.750%	Qrtrly
01-27-17	Ladenburg Thalmann	FNMA	Bullet	01-27-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,020.00	1.650%	Qrtrly
01-30-17	Union Bank	FHLB	01-30-20	04-30-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,090.00	1.750%	Qrtrly
04-20-17	Stifel	FHLMC STEP	Bullet	04-20-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,001,820.00	2.250%	Bullet
06-29-17	Ladenburg Thalmann	FHLMC	03-29-20	09-29-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,620.00	1.750%	Qrtrly
07-11-17	Ladenburg Thalmann	FHLMC	01-11-20	01-11-21	$ 1,000,000.00	$ 1,000,000.00	$ 997,930.00	1.800%	Qrtrly
08-07-17	Ladenburg Thalmann	FFCB	Continuous	11-23-20	$ 999,850.00	$ 1,000,000.00	$ 1,000,000.00	1.770%	Continuous
09-29-17	Union Bank	FHLMC	03-29-20	09-29-20	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,000.00	1.700%	Qrtrly
10-26-17	Ladenburg Thalmann	FNMA	01-26-20	07-26-21	$ 1,000,000.00	$ 1,000,000.00	$ 999,130.00	2.000%	Qrtrly

DESERT WATER AGENCY
GENERAL FUND - LISTING OF INVESTMENTS
December 31, 2019

PURCHASE DATE	NAME	DESCRIPTION	CALLABLE	MATURITY DATE	COST	PAR VALUE	MARKET VALUE	YIELD TO MATURITY	CALLABLE STATUS
02-26-19	Stifel	FHLMC	02-26-20	08-26-22	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,950.00	2.750%	Qrtrly
07-08-19	Union Bank	FHLMC	01-08-20	01-08-21	$ 1,000,000.00	$ 1,000,000.00	$ 998,920.00	2.000%	1 Time
07-15-19	Ladenburg Thalmann	FHLMC STEP	01-15-20	07-15-24	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,030.00	3.223%	Qrtrly
07-15-19	Union Bank	FHLMC	01-15-20	01-15-21	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,040.00	2.100%	1 Time
07-22-19	Union Bank	FHLMC	01-22-20	07-22-21	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,080.00	2.080%	1 Time
07-26-19	Alamo Capital	FHLMC	01-24-20	01-24-22	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,080.00	2.125%	Qrtrly
07-29-19	Stifel	FHLB	01-29-20	04-29-21	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,130.00	2.100%	Qrtrly
07-29-19	Union Bank	FHLMC	01-29-20	07-29-21	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,010.00	2.150%	Qrtrly
08-05-19	Alamo Capital	FHLB	02-05-20	08-05-24	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,010.00	2.400%	Continuous
08-06-19	Stifel	FHLMC	02-06-20	02-06-23	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,020.00	2.250%	Qrtrly
08-12-19	Alamo Capital	FHLMC	02-12-20	08-12-24	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,240.00	2.200%	Qrtrly
08-12-19	Union Bank	FFCB	08-12-20	08-12-24	$ 1,000,000.00	$ 1,000,000.00	$ 989,800.00	2.120%	Continuous
08-19-19	Alamo Capital	FHLB	02-19-20	08-19-22	$ 999,500.00	$ 1,000,000.00	$ 998,240.00	2.030%	Continuous
08-15-19	Union Bank	FHLMC	02-15-20	08-15-23	$ 1,000,000.00	$ 1,000,000.00	$ 988,960.00	2.200%	Qrtrly
08-27-19	Stifel	FHLMC	02-27-20	08-27-21	$ 1,000,000.00	$ 1,000,000.00	$ 997,350.00	1.875%	Qrtrly
08-28-19	Union Bank	FHLB	02-26-20	08-26-22	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,070.00	2.000%	Qrtrly
09-09-19	Alamo Capital	FHLMC	03-09-20	03-09-23	$ 2,000,000.00	$ 2,000,000.00	$ 1,991,080.00	1.950%	Qrtrly
09-06-19	Alamo Capital	FNMA	Bullet	09-06-22	$ 996,520.00	$ 1,000,000.00	$ 993,420.00	1.494%	Bullet
09-10-19	Stifel	FHLMC	03-10-20	09-10-24	$ 2,000,000.00	$ 2,000,000.00	$ 2,000,440.00	2.100%	Qrtrly
09-11-19	Ladenburg Thalmann	FFCB	03-06-20	09-06-22	$ 999,800.00	$ 1,000,000.00	$ 997,840.00	2.037%	Continuous
09-11-19	Stifel	FFCB	09-11-20	09-11-23	$ 1,000,000.00	$ 1,000,000.00	$ 1,000,120.00	1.900%	Continuous
09-13-19	Ladenburg Thalmann	FFCB	09-23-20	09-23-22	$ 1,000,000.00	$ 1,000,000.00	$ 999,840.00	2.000%	Continuous
09-27-19	Alamo Capital	FHLB	03-27-20	09-27-23	$ 2,000,000.00	$ 2,000,000.00	$ 1,997,420.00	2.125%	Continuous
09-30-19	Ladenburg Thalmann	FHLB	02-26-20	08-26-22	$ 1,950,000.00	$ 1,950,000.00	$ 1,950,136.50	2.000%	Qrtrly
10-15-19	Stifel	FFCB	10-15-20	10-15-24	$ 3,000,000.00	$ 3,000,000.00	$ 2,979,300.00	1.920%	Continuous
10-15-19	Piper Jaffray	FHLMC	10-15-20	10-15-24	$ 3,000,000.00	$ 3,000,000.00	$ 2,977,500.00	1.875%	Quarterly
10-16-19	Stifel	FHLB	10-16-20	10-16-24	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,630.00	2.000%	Annual
10-17-19	Ladenburg Thalmann	FFCB	04-17-20	04-17-23	$ 3,000,000.00	$ 3,000,000.00	$ 2,985,240.00	1.980%	Quarterly
10-17-19	Union Bank	FHLMC	01-17-20	10-17-22	$ 3,000,000.00	$ 3,000,000.00	$ 2,995,380.00	2.000%	Quarterly
11-01-19	Alamo Capital	FHLB	04-30-20	10-30-24	$ 1,993,000.00	$ 2,000,000.00	$ 1,988,540.00	1.874%	Quarterly
11-04-19	Ladenburg Thalmann	FHLB	11-04-21	11-04-24	$ 3,000,000.00	$ 3,000,000.00	$ 2,979,030.00	1.875%	Continuous
11-25-19	Piper Jaffray	FFCB	11-25-20	11-25-22	$ 3,000,000.00	$ 3,000,000.00	$ 2,989,920.00	1.710%	Continuous
11-27-19	Stifel	FFCB	11-27-20	11-27-23	$ 3,000,000.00	$ 3,000,000.00	$ 2,990,160.00	1.790%	Continuous
11-27-19	Alamo Capital	FHLMC	05-27-20	11-27-24	$ 1,997,000.00	$ 2,000,000.00	$ 1,994,720.00	1.832%	Quarterly
12-11-19	Ladenburg Thalmann	FHLB	12-11-20	06-11-24	$ 3,000,000.00	$ 3,000,000.00	$ 2,991,300.00	1.850%	Continuous
12-17-19	Alamo Capital	FFCB	03-03-20	06-03-24	$ 1,998,000.00	$ 2,000,000.00	$ 2,000,080.00	1.963%	Continuous
12-18-19	Ladenburg Thalmann	FHLMC	06-18-20	12-18-23	$ 3,000,000.00	$ 3,000,000.00	$ 2,996,430.00	1.930%	Quarterly
12-18-19	Stifel	FHLMC	06-18-20	12-18-23	$ 2,000,000.00	$ 2,000,000.00	$ 1,997,620.00	1.930%	Quarterly
12-19-19	Union Bank	FHLMC	06-19-20	06-19-23	$ 3,000,000.00	$ 3,000,000.00	$ 2,995,050.00	1.875%	Quarterly
12-30-19	Union Bank	FHLMC	12-28-20	12-28-23	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,810.00	1.900%	Quarterly
12-30-19	Piper Jaffray	FHLMC	12-28-20	12-28-23	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,570.00	1.850%	Annual
			Total Government Agency		$ 92,932,420.00	$ 92,950,000.00	$ 92,754,636.50		
							Weighted Mean YTM	1.981%	
				TOTAL INVESTED @ 12/31/19	$ 147,813,968.81	$ 147,762,042.81	$ 147,703,329.16		
				BALANCE @ 06/30/19	$ 143,271,503.26				
				INCREASE OR (DECREASE)	$ 4,542,465.55				

DESERT WATER AGENCY
STATEMENT OF CASH RECEIPTS AND EXPENDITURES

WASTEWATER ACCOUNT

DECEMBER 2019

				INVESTED RESERVE FUNDS
BALANCE	DECEMBER 1, 2019		($70,088.10)	$1,465,849.60
	ACCOUNTS RECEIVABLE - OTHER	$0.00		
	CUSTOMER DEPOSITS - CONSTRUCTION	0.00		
	INTEREST EARNED - INVESTED FUNDS	3.02		
	WASTEWATER REVENUE	94,800.76		
	SEWER CAPACITY CHARGES	2,031.85		
	MISCELLANEOUS	168.00		
	TOTAL RECEIPTS		$97,003.63	
PAYMENTS				
	CHECKS UNDER $10,000.00	$4,043.85		
	CHECKS OVER $10,000.00 - SCH. #1	71,505.87		
	CANCELLED CHECKS AND FEES	0.00		
	TOTAL PAYMENTS		$75,549.72	
NET INCOME			$21,453.91	
INVESTED RESERVE FUNDS				
	FUNDS MATURED	$70,500.00		
	FUNDS INVESTED – SCH. #2	21,233.00		
	NET TRANSFER		$49,267.00	($49,267.00)
BALANCE	DECEMBER 31, 2019		$632.81	$1,416,582.60

DECEMBER 2019

DESERT WATER AGENCY

WASTEWATER ACCOUNT

SCHEDULE #1-CHECKS OVER $10,000

CHECK #	NAME	DESCRIPTION	AMOUNT
3326	COACHELLA VALLEY WATER DISTRICT	WASTEWATER REVENUE BILLING FOR NOVEMBER 2019	$60,965.27
3327	CITY OF PALM SPRINGS	WASTEWATER REVENUE BILLING FOR NOVEMBER 2019	$10,540.60
		** TOTAL	$71,505.87

DESERT WATER AGENCY
WASTEWATER FUND - LISTING OF INVESTMENTS
December 31, 2019

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	$ 1,416,582.60	$ 1,416,582.60	$ 1,416,582.60	2.030%	$ -
		TOTAL INVESTED @ 12/31/19		$ 1,416,582.60	$ 1,416,582.60	$ 1,416,582.60		
		BALANCE @ 06/30/19		$ 1,400,362.63				
		INCREASE OR (DECREASE)		$ 16,219.97				

DESERT WATER AGENCY - OPERATING FUND
COMPARATIVE EARNINGS STATEMENT

MONTH 19-20 DECEMBER	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	2,440,286.01	2,209,756.29	2,696,100.00	19,209,438.66	17,663,673.37	20,604,900.00	1,395,461.34-	7-
RECLAMATION SALES	123,853.48	132,866.07	115,425.00	994,607.25	940,114.33	879,950.00	114,657.25	13
POWER SALES	4,953.21	2,568.84	1,800.00	28,991.15	7,242.94	9,000.00	19,991.15	222
OTHER OPER REVENUE	44,655.75	124,119.40	184,850.00	1,329,155.00	990,601.63	1,109,100.00	220,055.00	20
TOTAL OPER REVENUES	2,613,748.45	2,469,310.60	2,998,175.00	21,562,192.06	19,601,632.27	22,602,950.00	1,040,757.94-	5-
OPERATING EXPENSES								
SOURCE OF SUPPLY EXP	1,164,182.70	1,076,011.73	1,278,550.00	2,746,001.71	2,756,965.62	3,084,100.00	338,098.29-	11-
PUMPING EXPENSE	287,818.69	257,680.91	297,200.00	1,479,450.60	1,661,332.44	1,926,200.00	446,749.40-	23-
REGULATORY WATER TREAT	39,681.78	35,128.01	47,275.00	292,722.04	271,275.31	283,650.00	9,072.04	3
TRANS & DIST EXPENSE	231,715.84	222,101.78	408,975.00	1,514,843.22	1,623,720.44	2,453,850.00	939,006.78-	38-
CUSTOMER ACT EXPENSE	83,178.93	66,804.90	85,625.00	491,142.69	453,089.27	515,550.00	24,407.31-	5-
ADMIN & GEN EXPENSE	918,644.29	674,205.80	856,925.00	6,472,364.56	5,472,913.21	6,712,600.00	240,235.44-	4-
REGULATORY EXPENSE	13,711.44	53,309.13	39,700.00	205,619.29	86,160.50	238,200.00	32,580.71-	14-
SNOW CREEK HYDRO EXP	3,331.50	705.78	3,000.00	14,586.90	4,779.26	18,000.00	3,413.10-	19-
RECLAMATION PLNT EXP	122,009.46	79,834.01	131,150.00	573,208.32	555,477.26	777,500.00	204,291.68-	26-
SUB-TOTAL	2,864,274.63	2,465,782.05	3,148,400.00	13,789,939.33	12,885,713.31	16,009,650.00	2,219,710.67-	14-
OTHER OPER EXPENSES								
DEPRECIATION	501,043.40	479,859.92	508,550.00	3,030,026.11	2,902,346.88	3,051,300.00	21,273.89-	1-
SERVICES RENDERED	16,177.86	10,265.10	15,000.00	66,998.32	79,113.76	90,000.00	23,001.68-	26-
DIR & INDIR CST FOR WO	197,126.43-	144,518.56-	183,200.00-	1,256,625.74-	1,107,230.09-	1,099,200.00-	157,425.74-	14
TOTAL OPER EXPENSES	3,184,369.46	2,811,388.51	3,488,750.00	15,630,338.02	14,759,943.86	18,051,750.00	2,421,411.98-	13-
NET INCOME FROM OPERATIONS	570,621.01-	342,077.91-	490,575.00-	5,931,854.04	4,841,688.41	4,551,200.00	1,380,654.04	30
NON-OPERATING INCOME (NET)								
RENTS	77,862.53	3,397.91	6,100.00	94,591.09	52,245.46	36,600.00	57,991.09	158
INTEREST REVENUES	46,706.76	40,960.92	40,000.00	281,835.84	225,493.15	240,000.00	41,835.84	17
OTHER REVENUES	.00	420.00	.00	9,781.72	32,070.00	.00	9,781.72	0
GAINS ON RETIREMENT	.00	.00	2,000.00	.00	.00	8,000.00	8,000.00-	100-
DISCOUNTS	18.48	302.37	100.00	183.34	351.62	600.00	416.66-	69-
PR. YEAR EXPENSES	292.11	.00	.00	292.11	15,816.25	.00	292.11	0
OTHER EXPENSES	.00	.00	1,650.00-	20,000.00-	.00	9,900.00-	10,100.00-	102
LOSS ON RETIREMENTS	.00	.00	4,100.00-	24,948.81-	6,260.71-	24,600.00-	348.81-	1
TOTAL NON-OPER INCOME	124,879.88	5,638.80-	42,450.00	341,735.29	319,715.77	250,700.00	91,035.29	36
TOTAL NET INCOME	445,741.13-	347,716.71-	448,125.00-	6,273,589.33	5,161,404.18	4,801,900.00	1,471,689.33	31

DESERT WATER AGENCY
OPERATING FUND
WATER CONSUMPTION

QUARTER ENDING DECEMBER 2019

	THIS QUARTER			FISCAL YEAR TO DATE		
	LAST YEAR	THIS YEAR	% UP (DOWN)	LAST YEAR	THIS YEAR	% UP (DOWN)
WATER REVENUE	$7,803,773	$8,727,702	12	$17,663,673	$19,209,439	9
TOTAL CONSUMPTION (100 CU FT)	3,086,526	3,042,498	(1)	7,351,963	7,141,285	(3)
AVERAGE CONSUMPTION PER CONSUMER (100 CU FT)	137	134	(2)	326	315	(3)
NUMBER OF CONNECTIONS	11	* 121		22,620	C 22,807	1

* = ADDED THIS QUARTER

C = TOTAL ACTIVE DECEMBER 2019

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

JANUARY 21, 2020

RE: REQUEST ADOPTION OF RESOLUTION NO. 1229 ESTABLISHING RATES, FEES & CHARGES FOR SEWER SERVICE; AND RESOLUTION NO. 1230 ESTABLISHING RATES, FEES & CHARGES FOR DOMESTIC WATER SERVICE, BACKUP FACILITY, SUPPLEMENTAL WATER SUPPLY DEVELOPMENT & SERVICE CONNECTION CHARGES

With the signing of Senate Bill 998 (SB 998) by Governor Brown on September 28, 2018 the Agency must comply with the Act by February 1, 2020. The purpose of the Act is to provide additional procedural protections to residential water customers before the discontinuation of water service for nonpayment. One step in complying with SB 998 was to develop a policy for discontinuation of residential water service for nonpayment, which the Agency satisfied with the adoption of Resolution No. 1224 at the December 17, 2019 Board Meeting.

As a result of adopting Resolution No. 1224, the Agency must also revise Resolution No. 1211 (Resolution establishing Rates, Fees & Charges for Domestic Water Service, Backup Facility, Supplemental Water Supply Development & Service Connection Charges). Staff proposes to replace Resolution No. 1211 with Resolution No. 1230, to include the following language to address SB 998:

- *Customers demonstrating financial hardship, as outlined in the Agency's Policy on Discontinuation of Residential Water Service, shall pay a reduced service restoration fee of $50 during Agency normal working days and during normal working hours.*

It should be noted that a customer can demonstrate financial hardship by signing a declaration that he or she has a household income below 200% of the federal poverty level.

Other Resolution Changes, Revisions, and Additions

Along with the revision to satisfy SB 998, staff has also taken this opportunity to recommend other changes, revisions, and additions that will affect Resolution No. 1211 (water) and Resolution No. 1212 (sewer). The following summary outlines the proposed changes, revision, and additions that are proposed for Resolution No. 1229 (sewer) and Resolution No. 1230 (water):

- **Supplemental Imported Water Capacity Charges (SIWCC) Change**

  - For Resolution No. 1230, staff proposes changing SIWCC to Supplemental Water Supply Development Charges. This name change was approved by the Board in July 2018, however, staff did not make the name change to Resolution No. 1211.

- **Backup Facility Charge Zone Designation Change**

  - For Resolution No. 1230, staff is proposing to change the Backup Facility Charges Zone designations from a number system to a letter system. This change is consistent with the Agency's billing system zone designation.

- **Plan Check Fee Revisions**

  - For Resolution No. 1229 and 1230, staff is proposing a plan check rate of $280 (4 hours at $70 per hour, the current Agency hourly rate) plus $0.35 per 1,000 lineal feet of pipe designed. The proposed plan check fee rate revisions are based on the following specifics:

    - In 1980, Desert Water Agency established a plan check rate for developments with mains at $100 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $100.

    - In 2007, Desert Water Agency established a plan check rate for developments with mains at $120 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $120.

    - In 2016, Desert Water Agency established a plan check rate for developments with mains at $140 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $140.

    - Desert Water Agency staff is proposing a plan check rate for developments with mains at $280 plus $0.35 per foot of pipeline. For Agency only installed facilities, the proposed rate is $280. (An example of an Agency only required facility would be a development plan that only requires water services, fire hydrants, or fire services).

    - Currently, the Agency charges a developer a total of $240 for plan checking a design with 1,000 feet of new pipeline. This cost is a flat rate and is not based on the hours spent plan checking or the number of sheets in the design set. The number of hours required by staff to plan check a typical set of development plans varies. The quality of the plans and experience of the engineer seems to have a great effect on the time spent in plan checking. Staff have noted that it may take approximately 3 hours per sheet to complete a plan check for an experienced engineering design firm, however, for a less experienced firm it may take approximately 24 hours per sheet. These times are based on plan checks that staff have performed over the past two to three years. With the proposed rate revisions, an engineering plan with 1,000 feet of pipe design would cost a developer a total of $630 for plan checking.

- How do the proposed rate revisions compare with other water agency plan check rates?

    - EMWD plan check fees are $1,000 per design sheet, with an additional charge of $1,500 for checking private street easements. This amount is taken as a deposit and refunded or charged as needed. A development with 1,000 feet of pipe design may require, as a minimum, two engineering design drawing sheets. Based on a two sheet design, it will cost a developer an initial deposit of $3,500 for plan checking. The final amount will be determined based on the total hours spent on plan checking by staff.

    - WMWD plan check fees are $2,000 per design sheet, and is taken as a deposit and refunded or charged as needed. A two design sheet plan check will cost a developer an initial deposit of $4,000. The final amount will be determined based on the total hours spent on plan checking by staff.

    - CVWD plan check fees are $2,500 for a single design sheet and $7,500 for a design plan set and is taken as a deposit and refunded or charged as needed. A two design sheet plan check will cost a developer an initial deposit of $7,500. The final amount will be determined based on the total hours spent on plan checking by staff.

- **Development Review Fee Revision**

    - For Resolution No. 1229 and No. 1230, staff is proposing to add a "Non-Interference Letter" to the Development Review Fee list. A "Non-Interference Letter" is typically requested by a developer as part of conditions when recording a tract map. This type of letter requires staff to perform easement research which may take several hours. Currently, the Agency does not charge the developer for said time to research and prepare the letter.

    - Currently, the Agency collects $140 for the following letter requests:

        - Will Serve Letter
        - Development Bond Amount Letter
        - Response to Initial Study

- **Fire Flow Model and Verification Fees Addition**

    - For Resolution No. 1230, staff is proposing a $500 Fire Flow Model and Verification Letter Fee, and a $70 Verification Letter Only Fee. These additional fees are based on the following specifics:

        - For commercial developments, the City of Palm Springs or City of Cathedral City require specific fire flow values from the existing water distribution system that will provide service to the proposed development. Currently, developers are required to arrange for field fire flow tests with the local fire department to determine the existing fire flows from specific hydrants located near the proposed project. The tests are performed by the fire department and require the assistance of Agency construction crews for the

purpose of operating the hydrant valves. Currently, the Agency does not charge the developer for Agency labor or for the water used during a test.

- Recently, the City of Palm Springs fire department notified the Agency that they are no longer able to provide manpower for field fire flow testing and asked if the Agency would provide the service. As a result of this request, Agency staff contacted several water agencies to determine how they perform fire flow testing. After contacting several agencies, including CVWD, WMWD, EMWD, and MSWD, staff discovered that the other agencies do not perform field fire flow tests and instead utilize a hydraulic computer model to calculate the system flows for specific hydrants within their domestic water system. The other agencies charge the following for fire flow models:

    - CVWD - $350 for fire flow model and letter
    - WMWD - $500 for fire flow model and letter
    - EMWD - Different options ranging from a $155 fee to a $1,200 deposit
    - MSWD - $191 for fire flow model and letter

- Desert Water Agency would be required to have its consulting engineer, Krieger & Stewart (K&S), perform the model calculation. Staff contacted K&S and were advised that they would perform the work for an estimated cost between $400 and $600. This work would be performed by a GIS computer model staff technician at a current rate of $149 per hour, with an estimated time between 3 to 4 hours to prepare the model, run the calculations, and then prepare the report. The benefits of using a model include:

    - The water system can be analyzed during peak demand conditions.
    - Saves water which reduces the amount of water loss the Agency must report.
    - Less field manpower.

- The City of Cathedral City does not perform fire flow testing for most of their area because it falls within CVWD boundaries. For the areas that fall within the Agency's boundary, the fire department currently performs a field test, however, the department prefers the hydraulic model testing. Although the Cathedral City Fire Department has not indicated they can no longer perform the field tests, staff recommends notifying Cathedral City of the proposed fire flow model procedures and requests that the fire department stop field fire flow testing.

- Based on the estimated cost provided by K&S, staff proposes a cost of $500 for a fire flow model and verification letter and $70 for the letter only to be added to Resolution No. 1230.

- Staff estimates that it would cost the Agency, on average, $420 to perform a field test and prepare a report and letter. Also, staff estimates that the amount of water used for a field test may require 5,000 to 6,000 gallons (7 to 8 units) of water per test.

- **Main Extension By Applicant Inspection Deposit Addition**

  - At the December 17, 2019 Board Meeting, the Board adopted Ordinance No. 70 and No. 71 (Regulations Governing Water and Sewer Service). The new ordinances modified the language for the main extension by applicant section, removing the specified deposit dollar amount for applicant installed mainline extensions. The Board requested that the specified deposit amount for the applicant be added to the sewer and water resolutions. Staff is proposing the following additions to Resolution No. 1229 and No. 1230:

    - ***Main Extension By Applicant Deposit.*** *The applicant shall deposit with the Agency a sum in the amount equal to 20% of the estimated main extension construction costs, as determined by the Agency, for inspection and incidental costs. The Agency shall refund the applicant any deposit above the final inspection and incidental costs. The Agency shall also collect additional money from the applicant, as required, if the initial deposit amount does not cover the final inspection and incidental costs.*

  - Staff is proposing that the deposit amount increase from 10% to 20% (Currently it is 10% of estimated construction costs).

  - Staff has determined that collecting 10% of the estimated construction costs does not provide the necessary funding for inspection and incidental costs. The following are examples of recent projects where 10% did not cover the inspection costs:

    - **Enclave –** Tract with approximately 1,300 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $39,000. The actual inspection costs were $52,040. A deficit of $13,040.

    - **Icon –** Tract with approximately 1,950 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $52,400. The actual inspection costs were $80,752. A deficit of $28,352.

    - **Skye –** Tract with approximately 2,200 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $65,300. The actual inspection costs were $87,275. A deficit of $21,975.

    - **Vibe –** Tract with approximately 4,950 lineal feet of 8" ductile iron and 490 lineal feet of 12" ductile iron pipelines. The 10% deposit amount for the project was $89,684. The actual inspection costs were $110,698. A deficit of $21,014.

    - **The District –** Tract with approximately 2,170 lineal feet of 8" ductile iron water and 1,900 lineal feet of 8" VCP sewer pipelines installed by the developer. The 10% deposit amount for the project was $80,000. The actual inspection costs were $159,805. A deficit of $79,805.

On December 17, 2019, staff notified both the Desert Valleys Building Association (DVBA) and the BIA of Southern California - Riverside County Chapter of the proposed developer fee revisions that are being considered. Both groups requested additional information that support the proposed fee revisions, and on January 2, 2020, staff provided a summary that outlined and provided supporting facts for the fee revisions. On January 6, 2020, the Agency received a letter from DVBA stating that the "Association finds that the anecdotal information and comparisons reasonably support these fee and policy changes."

To comply with SB 998 and to implement the proposed changes, revisions, and additions as summarized, staff requests the adoption of Resolution No. 1229 Establishing Rates, Fees & Charges for Sewer Service; and Resolution No. 1230 Establishing Rates, Fees & Charges for Domestic Water Service, Backup Facility, Supplemental Water Supply Development & Service Connection Charges.

DESERT WATER

The Desert Water Agency is proposing revisions to the existing developer fees associated with services provided by this agency. The following summary outlines and provides supporting facts for the proposed fee changes that Agency staff are recommending for Board approval:

Plan Check Fees (Resolution No. 1225 and 1226):

- In 1980, Desert Water Agency Resolution 00523 established a plan check rate for developments with mains at $100 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $100.
- In 2007, Desert Water Agency Resolution 00943 established a plan check rate for developments with mains at $120 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $120.
- In 2016, Desert Water Agency Resolution 1144 established a plan check rate for developments with mains at $140 plus $0.10 per foot of pipeline. For Agency only installed facilities, the rate was set at $140.
  - In 2020, Desert Water Agency staff is proposing a plan check rate for developments with mains at $280 plus $0.35 per foot of pipeline. For Agency only installed facilities, the proposed rate is $280. An example of an Agency only required facility would be a development plan that only requires water services, fire hydrants, or fire services (no new pipelines).
- The proposed changes will apply to Resolution 1225 and 1226 (Sewer Rates and Water Rates).

This proposal is based on the following facts:

- Currently, it costs a developer a total of $340 for the Agency to plan check engineering plans. This cost a flat rate and is not based on the number of sheets in the design set.
- The number of hours required to plan check a typical set of development plans varies. The quality of the plans and experience of the engineer seems to have a great effect on the time spent in plan checking. Our engineering technicians have noted that it may take approximately 3 hours per sheet to complete a plan check for an experienced engineering design firm, however, for a less experienced firm it may take approximately 24 hours per

sheet. These times are based on plan checks that have occurred have the past two to three years.

- Staff is proposing a plan check fee of $280 (4 hours at $70 per hour, the current Agency hourly rate) plus $0.35 per 1,000 lineal feet of pipe designed. A development with 1,000 feet of pipe design would cost a developer $630 total for plan checking.
  - How does this compares with other water agencies?
    - EMWD plan check fees are $1,000 per design sheet, with an additional charge of $1,500 for checking private street easements. This amount is taken as a deposit and refunded or charged as needed. A development with 1,000 feet of pipe design may require, as a minimum, two engineering design drawing sheets. Based on a two sheet design, it will cost a developer an initial deposit of $3,500 for plan checking. The final amount will be determined based on the total hours spent on plan checking by staff.
    - WMWD plan check fees are $2,000 per design sheet, and is taken as a deposit and refunded or charged as needed. A two design sheet plan check will cost a developer an initial deposit of $4,000. The final amount will be determined based on the total hours spent on plan checking by staff.
    - CVWD plan check fees are $2,500 for a single design sheet and $7,500 for a design plan set and is taken as a deposit and refunded or charged as needed. A two design sheet plan check will cost a developer an initial deposit of $7,500. The final amount will be determined based on the total hours spent on plan checking by staff.

Development Review Fee (Resolution No. 1225 and 1226)

- Currently, Desert Water Agency collects $140 for the following letter requests:
  - Will Serve Letter
  - Development Bond Amount Letter
  - Response to Initial Study
- Agency staff is proposing to add "Non-Interference Letter" to the list. A "Non-Interference Letter" is typically requested by a developer as part of conditions when recording a tract map. This type of letter requires staff to perform easement research which may take several hours. Currently, the Agency does not charge the developer for said letter. The proposed change will apply to Resolution 1225 and 1226 (Sewer Rates and Water Rates).

Fire Flow Model and Verification Fees (Ordinance 70 and Resolution 1226)

- For commercial developments, the City of Palm Springs or City of Cathedral City require specific fire flow values from the existing water distribution system that will provide service to the proposed development. Currently, developers are required to arrange for field fire flow

tests with the local fire department to determine the existing fire flows from specific hydrants that are located near the proposed project. The tests are performed by the fire department and require the assistance of Agency construction crews for the purpose of operating the hydrant valves. Currently, the Agency does not charge the developer for Agency labor or for the water used to perform the test.

- Recently, the City of Palm Springs fire department notified the Agency that they are no longer able to provide manpower for field fire flow testing and asked if the Agency would provide the service. As a result of this request, Agency staff contacted several water agencies to determine how they perform fire flow testing. After contacting several agencies, including CVWD, WMWD, EMWD, and MSWD, staff discovered that the other agencies do not perform field fire flow tests and instead utilize a hydraulic computer model to calculate the system flows for specific hydrants within their domestic water system. The other agencies charge the following for fire flow models:
  - CVWD - $350 for fire flow model and letter
  - WMWD - $500 for fire flow model and letter
  - EMWD – Several different options ranging from a $155 fee to a $1,200 deposit
  - MSWD - $191 for fire flow model and letter
- Desert Water Agency would be required to have its consulting engineer, Krieger & Stewart (K&S), perform the model calculation. Staff contacted K&S and were advised that they would perform the work for an estimated cost between $400 and $600. This work would be performed by a GIS computer model staff technician at a current rate of $149 per hour, with an estimated time between 3 to 4 hours to prepare the model, run the calculations, and then prepare the report.
- The benefits of using a model include:
  - The system can be analyzed during peak demand conditions
  - Saves water and helps with water loss reporting
  - Less field manpower
- The City of Cathedral City does not perform fire flow testing for most of their area because it falls within CVWD boundaries. For the area that falls within Desert Water Agency boundary, the fire department will perform a field test, however, the department prefers the hydraulic model testing. Although the Cathedral City Fire Department has not indicated that they can no longer perform the field tests, staff recommends notifying Cathedral City of the proposed fire flow model procedures and requests that the fire department stop field fire flow testing.
- Based on the estimated cost provided by K&S, staff proposes a cost of $500 for a fire flow model and verification letter and $70 for the letter only.
- The proposed changes will apply to Resolution 1226 (Water Rates) and Ordinance 70 (Water Services).

- Staff have estimated that it would costs the Agency, on average, $420 to perform the field test and prepare the report and letter. The amount of water used for a field test varies. A typical test may require 5,000 to 6,000 gallons of water.

Main Extension By Applicant Inspection Deposit (Ordinance 70 and 71; Resolution 1225 and 1226)

- Currently, the Agency's Ordinances of Regulations Governing Water and Sewer Service specify that an applicant that will be installing a main extension shall provide a deposit in the amount of 10% of the estimated construction costs, as determined by the Agency, for the purpose of covering the cost of inspection and incidentals.
- Staff is proposing that the deposit amount increase from 10% to 20%. Any unused deposit shall be refunded to the developer.
- Staff has determined that collecting 10% of the estimated construction costs does not provide the necessary funding for inspection and incidental costs. The following are examples of recent projects where 10% did not cover the inspection costs:
  - **Enclave** – Tract with approximately 1,300 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $39,000. The actual inspection costs were $52,040. A deficit of $13,040.
  - **Icon** – Tract with approximately 1,950 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $52,400. The actual inspection costs were $80,752. A deficit of $28,352.
  - **Skye** – Tract with approximately 2,200 lineal feet of 8" ductile iron pipeline installed by the developer. The 10% deposit amount for the project was $65,300. The actual inspection costs were $87,275. A deficit of $21,975.
  - **Vibe** – Tract with approximately 4,950 lineal feet of 8" ductile iron and 490 lineal feet of 12" ductile iron pipelines. The 10% deposit amount for the project was $89,684. The actual inspection costs were $110,698. A deficit of $21,014.
  - **The District** – Tract with approximately 2,170 lineal feet of 8" ductile iron water and 1,900 lineal feet of 8" VCP sewer pipelines installed by the developer. The 10% deposit amount for the project was $80,000. The actual inspection costs were $159,805. A deficit of $79,805.
- Staff is also proposing to remove the language describing the amount of deposit from Ordinance 70 and 71 and instead, add a new item to Resolutions 1225 and 1226 titled **Main Extension By Applicant Deposit**, with the following language:

DESERT WATER

- **Main Extension By Applicant Deposit.** The applicant shall deposit with the Agency a sum in the amount equal to 20% of the estimated main extension construction costs, as determined by the Agency, for inspection and incidental costs. The Agency shall refund the applicant any deposit above the final inspection and incidental costs. The Agency shall also collect additional money from the applicant, as required, if the initial deposit amount does not cover the final inspection and incidental costs.

- The proposed changes will apply to Resolution 1225 and 1226 (Sewer Rates and Water Rates); and Ordinance 70 and 71 (Water Services and Sewer Services).

The above summary was prepared to provide supporting documentation for the proposed developer fee changes. If you should have any additional questions regarding the proposed changes, please do not hesitate to contact me.

Sincerely,

Steve L. Johnson
Assistant General Manager

RESOLUTION NO. 1229

RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY ESTABLISHING RATES, FEES AND CHARGES FOR SEWER SERVICE

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

WHEREAS, it is appropriate at this time to revise the Agency's monthly charge for sewer service, while restating all other rates, fees and charges which remain unchanged; and

WHEREAS, on December 15, 2016, this Board conducted a majority protest hearing for the proposed revision of the Agency's monthly charge for sewer service, over the next subsequent five years, as required by law, and has determined that a majority protest does not exist; and

WHEREAS, in addition to the Agency's charges for sewer services, charges imposed by Coachella Valley Water District (CVWD) must also be collected by the Agency, as CVWD's collection agent, for sewer service and treatment in Cathedral City; and

WHEREAS, in addition to the charges collected for CVWD in the Cathedral City area, the Agency has also entered into an agreement with the City of Palm Springs (City) to provide wastewater treatment and disposal service to the Agency's customers receiving sewage collection service from the Agency in the Dream Homes and Palm Oasis areas; and

WHEREAS, said agreement requires the Agency to collect from those customers the City's sewer capacity and customer service charges for wastewater treatment and disposal provided by the City, in addition to collecting the Agency's charges for sewer services; and

WHEREAS, this resolution reflects the current CVWD and adjusted City rates for sewage treatment and disposal services, which are subject to change by those entities, while adjusting the Agency's monthly sewer service charge and restating other Agency charges already in effect;

NOW, THEREFORE, be it resolved by the Board of Directors of Desert Water Agency that the rates, fees and charges assessed by the Agency for sewer services by the Agency shall be, and that those currently charged by CVWD and the City for sewer service within the Agency's sewer service areas are, as follows:

1. Capacity Charges

	CVWD Treatment Cathedral City (Effective 07/01/14)	City Treatment Palm Oasis / Dream Homes (Effective 07/01/15)
A.) Residential (including single family, apartments, condos and mobile home park spaces (1 EDU=1 Unit or Space)	1. Total Charge: $5,240.00 per EDU a. $4,190.00/EDU (CVWD) b. $1,050.00/EDU (DWA)	2. Charge: $ 3,000.00/Unit/Space a. $3,000.00/Unit/Space (CPS)
B.) Commercial, Industrial, Institutional	1. Total Charge: $5,240.00 per EDU a $4,190.00/EDU (CVWD) b. $1,050.00/EDU (DWA)	2. Charge: $306.00/FU (Fixture Unit) a. $306.00/FU (CPS)
C.) Hotel /Motel (1/2 EDU = 1 Room)	1. Total Charge: $5,240.00 per EDU a. $4,190.00/EDU (CVWD b. $1,050.00/EDU (DWA)	2. Charge: $1,500.00/Room (with kitchen) a. $1,500.00/Room (CPS) 3. Charge: $1,290.00/Room (without kitchen) a. $1,290.00/Room (CPS)
D.) R.V. Park (1/2 EDU = 1Space)	1. Total Charge: $5,240.00 per EDU a. $4,190.00/EDU (CVWD) b $1,050.00/EDU (DWA)	2. Charge: $2,340.00/Space a. $2,340.00/Space (CPS)

2. Accounting of Funds. All revenues collected from capacity 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 the temporary investments, and such revenues may be expended solely for the purpose for

which the capacity 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 capacity charges are imposed. The Agency shall make findings once each fiscal year with respect to any portion of the capacity 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 capacity charges are to be put, and will demonstrate a reasonable relationship between the charges and the purpose for which the charges were imposed.

3. Connection Fee.

a.) Single Family Residence - $1,700

b.) Other than Single Family Residence:
A charge for all new connections based on the front footage served thereby shall be levied and collected at the rate of $70 per lineal foot of frontage, or the actual rate in accordance with a valid main extension refund agreement, whichever is greater.

4. Plan Check Fees.

a.) Existing Main Available (lateral installation only)
1) Single Family Residence (1-4" Lateral) - no fee
2) Single Family Residence (other than above) and all other types of development - $140

b.) The Plan Check fee for Agency-installed sewer facilities with no mains shall be $280. For developer-installed facilities with mains, the fee shall be $280 plus $0.35 per lineal foot of main installed.

5. Design Review Fees.

a.) Desert Water Agency Engineering Department - $140/Hour
b.) Engineering Consultants - Actual Cost plus 15%
c.) Legal Consultants - Actual Cost plus 15%

6. Monthly Service Charges

	CVWD Treatment Cathedral City (Effective 07/01/19)	City Treatment Palm Oasis / Dream Homes (Effective 07/01/19)
A. Residential		
Single Family, Condo (1 EDU = 1 Unit)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (1)***	2. Total Charge: $28.94/Unit a. $23.00/Unit (CPS) b. $5.94/Unit (DWA) ***Rate (5)***
Mobile Home Park (1 EDU = 1 Space)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (1)***	2. Total Charge: $28.94/Space plus $2.18/FU a. $23.00/Space (CPS) b. $5.94/Space (DWA) c. $2.28/FU (CPS) ***Rate (6)***
Apartments (1 EDU = 1 Unit)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (4)***	2. Total Charge: $28.94/Unit a. $23.00/Unit (CPS) b. $5.94/Unit (DWA) ***Rate (7)***
B. Hotel / Motel (1/2 EDU = 1 Room)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (4)***	N/A
C. R.V. Park (1/2 EDU = 1 Space)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (4)***	N/A

6. Monthly Service Charges (Cont.)

	CVWD Treatment Cathedral City (Effective 07/01/19)	City Treatment Palm Oasis / Dream Homes (Effective 07/01/19)
D. Commercial, Industrial, or Institutional (0ther than schools)	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (4)***	2. Total Charge: $2.28/FU (Minimum $23.00) plus $5.94/EDU a. $2.28/FU (CPS) (minimum $23.00) b. $5.94/EDU (DWA) ***Rate (8)***
E. Schools and Colleges Kindergarten Elementary Schools & Colleges	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (3)***	2. (See Commercial) ***Rate (8)***
All Other Schools	1. Total Charge: $28.98/EDU a. $23.04/EDU (CVWD) b. $5.94/EDU (DWA) ***Rate (2)***	N/A
*The number of students to be used in calculating the monthly sewer charges shall be based on the previous year's average monthly attendance.		
F. Interceptor/Separator Surcharge	$14.00 ***Rate (4)***	N/A

7. Sewer Lateral Inspection. The charge for inspection of all new sewer laterals installed on existing mains shall be $140 per lateral.

8. Main Extension By Applicant Deposit. The applicant shall deposit with the Agency a sum in the amount equal to twenty percent (20%) of the estimated main extension construction costs, as determined by the Agency, for inspection and incidental costs. The Agency shall refund the applicant any deposit amount above the final inspection and incidental costs. The Agency shall also collect additional money, as required, if the initial deposit amount does not cover the final inspection and incidental costs.

9. 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
d.) Non-Interference Letter

10. Effective Date: The charges set forth herein shall become effective February 1, 2020 and as of that date this Resolution shall replace Resolution No. 1212.

ADOPTED this 21st day of January 2020.

_____
Joseph K. Stuart, President

ATTEST:

_____
Craig Ewing, Secretary-Treasurer

RESOLUTION NO. 1230

A RESOLUTION OF THE BOARD OF DIRECTORS OF DESERT WATER AGENCY ESTABLISHING RATES, FEES & CHARGES FOR DOMESTIC WATER SERVICE, BACKUP FACILITY, SUPPLEMENTAL WATER SUPPLY DEVELOPMENT 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 Rates, Fees & Charges for Domestic Water Service, 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 J)

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

PALM OASIS ZONE (Zone I)

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

Backup Facility Charges (Cont.)

BASE ZONE (Zone A)

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 C)

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 D)

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

CHINO "B" ZONE (Zone E)

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

Backup Facility Charges (Cont.)

ACANTO ZONE (Zone B)

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 K)

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 L)

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

EAST ZONE (Zone F)

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

Backup Facility Charges (Cont.)

EAST "A" ZONE (Zone G)

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 H)

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 Water Supply Development Charges. Every applicant for a regular service connection shall, in addition to other charges, pay a Supplemental Water Supply Development 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 Water Supply Development Charges for Increased Service. A Backup Facility Charge and a Supplemental Water Supply Development 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 $280. For developer installed facilities with mains, the fee shall be $280, plus $0.35 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. Fire Flow Model and Verification Fees. The following charges shall be imposed for fire flow model analysis and verification within our domestic water service area;

a.) Fire Flow Model and Letter	$500.00
b.) Fire Flow Verification Letter	$70.00

14. 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

15. 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.

Customers demonstrating financial hardship, as outlined in the Agency's Policy on Discontinuation of Residential Water Service, shall pay a reduced service restoration fee of $50 during Agency normal working Days and during normal working hours.

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.

16. 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

17. 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	$27.60
1 inch	$27.60
1-1/2 inch	$52.70
2 inch	$82.82
3 inch	$163.14
4 inch	$253.50
6 inch	$504.50
8 inch	$805.69
10 inch	$2,110.87
12 inch	$2,663.06

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 $2.08 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 $1,030.48 ($2.37 per 100 cubic feet) per acre foot.

d.) Zone Charges

Zone	Charge per 100 Cubic Feet
A, C, F, J	$0.00
B, D, G, I	$0.24
E, H, K	$0.28
L	$0.61
M	$2.70

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%	$0.14
20%	$0.32
30%	$0.55
40%	$0.85
50%	$1.28
60%	$1.92

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

Service Size	Charge
2 inch	$7.99
4inch	$26.48
6 inch	$57.31
8 inch	$98.42
10 inch	$153.23

19. 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

20. 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

21. 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

22. 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
    d.) Non-Interference Letter

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

24. 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.

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

26. Main Extension By Applicant Deposit. The applicant shall deposit with the Agency a sum in the amount equal to twenty percent (20%) of the estimated main extension construction costs, as determined by the Agency, for inspection and incidental costs. The Agency shall refund the applicant any deposit amount above the final inspection and incidental costs. The Agency shall also collect additional money, as required, if the initial deposit amount does not cover the final inspection and incidental costs.

27. Effective Date: The charges set forth herein shall become effective on February 1, 2020 and as of that date shall replace the charges set forth in Resolution No. 1211.

ADOPTED this 21st day of January 2020.

_____
Joseph K. Stuart, President

ATTEST:

_____
Craig Ewing, Secretary-Treasurer

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	TRANSMISSION 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	TRANSMISSION 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	TRANSMISSION 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) ^-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	TRANSMISSION 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.**

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 "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 Zone 1060	2004 2016	5,000,000 gallons 500,000 gallons	$2,299,785** $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	TRANSMISSION 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 Zone 1060	2004 2016	5,000,000 gallons 500,000 gallons	$2,299,785** $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	TRANSMISSION 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) ^-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) ^-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	TRANSMISSION 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.**

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 "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 Zone 1060	2004 2016	5,000,000 gallons 500,000 gallons	$2,299,785** $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	TRANSMISSION 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 Zone 1060	2004 2016	5,000,000 gallons 500,000 gallons	$2,299,785** $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	TRANSMISSION 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 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	TRANSMISSION 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	TRANSMISSION 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	2004	5,000,000 gallons	$2,299,785**
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	TRANSMISSION 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

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

JANUARY 21, 2020

RE: REQUEST AMENDMENT OF THE 2019-2020 OPERATING AND GENERAL FUND BUDGETS REGARDING PALM OASIS AREA LAND PURCHASE BUDGET

In 2013, the Agency sought to purchase a parcel of land in the Palm Oasis area for the construction of future facilities and established work order 13-119-L in the Operating Fund for $78,300. Then, with the adoption of the 2019/2020 Operating Fund Fiscal Budget, work order 13-119-L was increased from $78,300 to $675,000 for the purpose of purchasing a larger parcel for future treatment facilities. Finally, on December 17, 2019, the Board authorized a budget augmentation to work order 13-119-L in the amount of $110,000 for the purchase of an additional acre parcel. This $110,000 budget augmentation was not funded by the Operating Fund, and was instead funded by the General Fund Reserve for Land Acquisitions.

The intended use of the land started out as general purpose and has now been specified for the purposes of constructing water treatment facilities. In accordance with past practices and policy, the construction of these future facilities will be funded by the General Fund, therefore, it is appropriate that the land purchase should also be funded by the General Fund.

Staff is requesting that in the General Fund, $675,000 will be allocated from the General Fund Reserve for Land Acquisitions to a new General Fund work order for the Palm Oasis area land purchase. The new General Fund work order budget will be $785,000, to include the $675,000 reallocated funds and the recent Board approved $110,000 budget augmentation.

Staff is also requesting reallocation of $675,000 from Operating Fund work order 13-119-L to the Operating Fund Reserve for Operations.

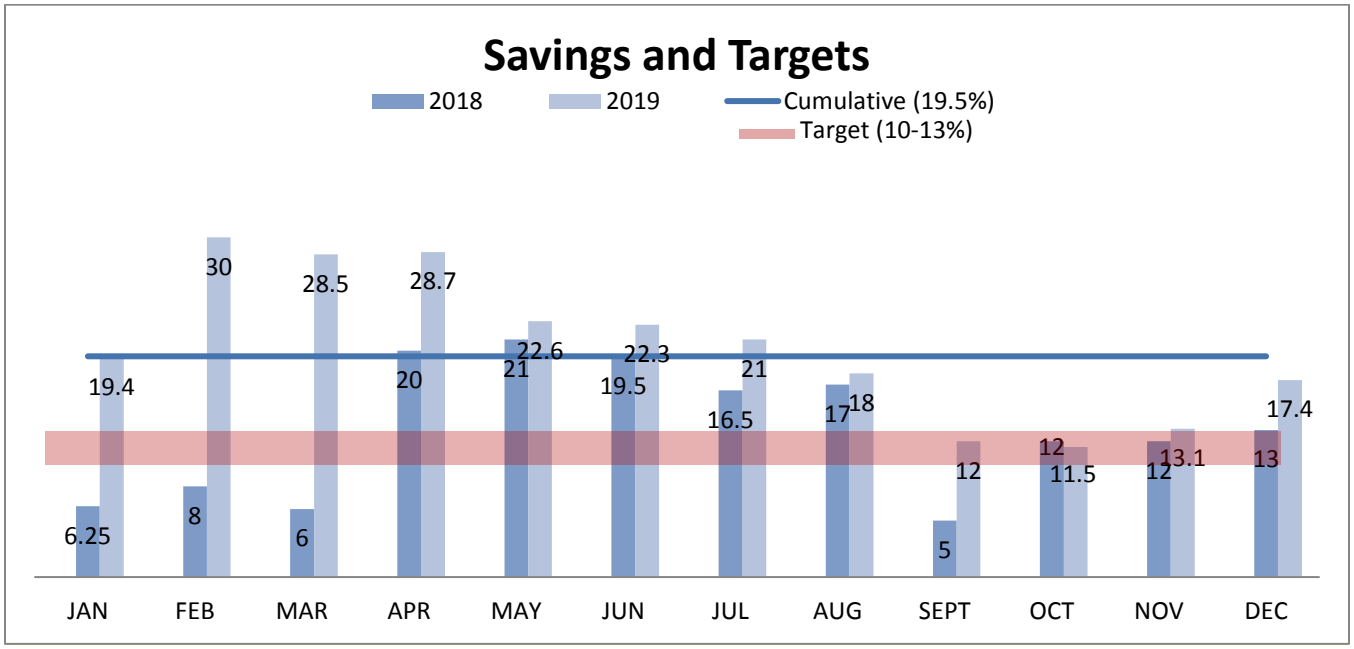
8-A

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

JANUARY 21, 2020

RE: DECEMBER 2019 WATER USE REDUCTION FIGURES

Desert Water Agency and its customers achieved a 17.4% reduction in potable water production during December 2019 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 19.7%. The cumulative savings beginning in June of 2016 when we put our 10-13% target in place is 17.3%.

On the following page is additional information for this month.

December 2019 water production	1,814.59 AF
December 2013 water production	2,196.86 AF
Percent changed in this month per drought surcharge baseline (December 2015)	-9.72%
Quantity of potable water delivered for all commercial, industrial, and institutional users for the reporting month	615.05 AF
The percentage of the Total Monthly Potable Water Production going to residential use only for the reporting month	66.11%
Population (inclusive of seasonal residents)	108,186
Estimated R-GPCD	116.55
How many public complaints of water waste or violation of conservation rules were received during the reporting month?	6
How many contacts (written/ verbal) were made with customers for actual/ alleged water waste or for a violation of conservation rules?	3
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?	3
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 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. We are currently submitting a calculation reviewed by the State Water Board. We plan to update our population figures once the Department of Water Resources accepts our technical memo on seasonal population. Since Desert Water Agency began recycling water, the agency has reclaimed 103,553 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.	