DESERT WATER AGENCY
SEPTEMBER 3, 2024

BOARD OF DIRECTORS
REGULAR MEETING AGENDA

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

This meeting will be held virtually and in person. The link and the telephone option provided is for the convenience of the public.

Toll Free: (253) 215-8782
Meeting ID: 833 2141 6242
Passcode: 683622
or Via Computer:
https://dwa-org.zoom.us/j/83321416242?pwd=XOSGNVaEYsVb1GD5KOpf0KnPxBCvkm.1
Meeting ID: 833 2141 6242

Members of the public who wish to comment on any item within the jurisdiction of the Agency or any item on the agenda may submit comments by emailing sbaca@dwa.org or may do so during the meeting. Comments will become part of the Board meeting record.

**In order to reduce feedback, please mute your audio when you are not speaking.*

Esta reunión se llevará a cabo virtualmente y en persona. El enlace y la opción telefónica proporcionada es para la comodidad del público.

Número gratuito: (253) 215-8782
ID de reunión: 833 2141 6242
código de acceso: 683622
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https://dwa-org.zoom.us/j/83321416242?pwd=XOSGNVaEYsVb1GD5KOpf0KnPxBCvkm.1
ID de reunión: 833 2141 6242

Los miembros del público que deseen comentar sobre cualquier tema dentro de la jurisdicción de la Agencia o cualquier tema en la agenda pueden enviar comentarios por correo electrónico a sbaca@dwa.org o pueden hacerlo durante la reunión. Los comentarios pasarán a formar parte del registro de la reunión de la Junta.

*Para reducir los comentarios, silencia el audio cuando no estés hablando.

1. CALL TO ORDER — ORTEGA
2. PLEDGE OF ALLEGIANCE — ORTEGA
3. ROLL CALL — BACA
4. PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA: Members of the public may comment on any item not listed on the agenda, but within the jurisdiction of the Agency. 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.
5. PUBLIC COMMENT ON ITEMS LISTED ON THE AGENDA: Members of the public may also comment on items listed on the agenda that are not the subject of a public hearing at this time. Again, speakers are requested to keep their comments to no more than three (3) minutes.

6. CONSENT CALENDAR ITEMS: Items listed under the Consent Calendar are considered to be routine and will be acted upon by one motion of the Board without discussion. There will be no separate discussion on these items unless a Board Member requests a specific item to be discussed and/or removed from the Consent Calendar for separate action.

   A. Approve Minutes of the August 20, 2024 Regular Board Meeting
   B. Receive and File Minutes of the August 29, 2024 Executive Committee Meeting
   C. Receive and File the Water Use Reduction Figures for July 2024

7. ACTION ITEM:
   A. Request Board Adoption of the Desert Water Agency Domestic Water System General Plan 2020 JOHNSON

8. SECRETARY-TREASURER'S REPORT – JULY 2024 MCKENNA

9. GENERAL MANAGER'S REPORT JOHNSON

10. DIRECTORS REPORTS ON MEETINGS/EVENTS ATTENDED ON BEHALF OF THE AGENCY

11. DIRECTORS COMMENTS/REQUESTS

12. CLOSED SESSION

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

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

   C. PUBLIC EMPLOYMENT
   Pursuant to Government Code Section 54957
   Unrepresented Employee: General Manager

13. RECONVENE INTO OPEN SESSION – REPORT FROM CLOSED SESSION

14. 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 that relate to any agenda item to be discussed in open session may be obtained from the Agency at the address indicated on the agenda.

DECLARATION OF POSTING

Pursuant to Government Code Section 54954.2, I certify that this agenda has been posted at least 72 hours prior to the meeting on the Agency's website at www.dwa.org and at the Agency's office located at 1200 South Gene Autry Trail, Palm Springs, CA.

Sylvia Baca, MMC, Asst. Secretary of the Board

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

6-A

August 20, 2024

Board: Paul Ortega, President
Jeff Bowman, Vice President
Kristin Bloomer, Director
Gerald McKenna, Secretary-Treasurer
Steve Grasha, Director

DWA Staff: David Tate, Assistant General Manager
Esther Saenz, Finance Director
Kris Hopping, Human Resources Director
Victoria Llort, Public Affairs & Conservation Director
Sylvia Baca, Asst. Secretary of the Board
Jamie Hoffman, Senior Admin. Assistant

Consultants via Teleconference: Mike Riddell, Best Best & Krieger

Pledge of Allegiance

President Ortega opened the meeting at 8:00 a.m. and asked Director Bloomer to lead the Pledge of Allegiance.

Roll Call

President Ortega called upon Assistant Secretary of the Board Baca to conduct the roll call:

Present: Grasha, Bloomer, McKenna, Bowman, Ortega

Public Comment on Items Not Listed on the Agenda

President Ortega opened the meeting for public comment for items not listed on the Agenda.

There was no one from the public wishing to address the Board for items not listed on the Agenda.

Public Comment on Items Listed on the Agenda

President Ortega opened the meeting for public comment for items listed on the Agenda.

There was no one from the public wishing to address the Board for items listed on the Agenda.

Approval of the Consent Calendar

A. Approve Minutes of the 08/06/24 Regular Board Meeting
B. Receive & File Minutes of the 08/15/24 Exec. Comm. Mtg.
C. Receive & File July 2024 PA & C Activities & Events

President Ortega called for approval of the Consent Calendar. He noted that Consent Calendar Items 6-A through 6-C are expected to be routine and to be acted upon by the Board of Directors at one time without discussion. If any Board member requests that an item be removed from the consent calendar, it will be removed so that it may be presented separately.

A. Approve Minutes of the August 6, 2024 Regular Board Meeting
B. Receive and File Minutes of the August 15, 2024 Executive Committee Meeting
C. Receive and File July 2024 Public Affairs & Conservation Activities & Events

Director Grasha moved for approval of Consent Calendar Items 6A through 6C. After a second by Director Bloomer, the motion carried by the following roll call vote:

AYES: Grasha, Bloomer, McKenna, Bowman, Ortega
NOES: None
ABSENT: None
ABSTAIN: None

Finance Director Saenz presented the staff report.

Action Item:
7A – Request Board Authorization for Finance Director to Execute Consulting Agreement with The Centre for Organization Effectiveness for Strategic Planning Facilitation Services

Director Bloomer moved to authorize the Finance Director to execute the Consulting Agreement with The Centre for Organization Effectiveness for Strategic Planning Facilitation Services. After a second from Secretary-Treasurer McKenna the motion carried by the following roll call vote:

AYES: Grasha, Bloomer, McKenna, Bowman, Ortega
NOES: None
ABSENT: None
ABSTAIN: None

7B – Request Board Approval of Addition of New Position Titles to the Classification and Salary Chart

Human Resource Director Hopping presented the staff report.

Director Grasha complimented the Facilities team for an excellent job on the visitor parking lot upgrades.

Secretary-Treasurer McKenna stated that he is in favor of the new Safety and Training Specialist position.

In response to President Ortega's inquiry, Human Resources Director Hopping stated that the changes are to re-classify current staff.

Action Items: (Cont.) 7B – Request Board Approval of Addition of New Position Titles to the Classification and Salary Chart

Director Grasha moved to approve the Classification and Salary Chart effective 8/23/2024 for RDO 1 employees and 8/30/2024 for RDO 2 employees. After a second from Director Bloomer the motion carried by the following roll call vote:

AYES: Grasha, Bloomer, McKenna, Bowman, Ortega
NOES: None
ABSENT: None
ABSTAIN: None

7C – Request Board Authorization for GM to sign the Flume Master Data Sharing Agreement to Participate in the CA Department of Water Resources Indoor Water Use Study

Public Affairs & Conservation Director Llort presented the staff report.

In response to Director Grasha's concern on the Agency's privacy policy and the Flume data sharing, Public Affairs & Conservation Director Llort assured that no confidential information will be shared, just the APN number. Legal Counsel Riddell explained that Flume will only be sharing aggregated data and not customer specific data.

Discussion ensued between Board and Staff on who Flume is being offered to and if they are made aware of the data sharing and what it entails.

Director Bloomer moved for the Board to authorize the General Manager to sign the Flume Master Data Sharing Agreement. After a second from Secretary-Treasurer McKenna the motion carried by the following roll call vote:

AYES: Bloomer, McKenna, Bowman, Ortega
NOES: Grasha
ABSENT: None
ABSTAIN: None

General Manager's Report

Assistant General Manager Tate provided an update on Agency operations for the past several weeks.

In response to President Ortega's request for an update on the August 19 Sites hearing, Public Affairs & Conservation Director Llort stated that she will provide the Board with comments that were read into the record and will additionally provide the Board with a summary after the next 2 hearings.

Directors Reports on Mtgs/Events Attended on Behalf of the Agency

Director Grasha noted his attendance at the August 7 Association of California Water Agencies (ACWA) Webinar, the August 12 DWA IT training, the August 13 ACWA Region 9 event, the August 13

Directors Reports on Mtg/Events Attended on Behalf of the Agency

Coachella Valley Water District (CVWD) Board meeting, and the August 14 ACWA Webinar.

Director Bloomer noted her attendance at the August 13 ACWA Region 9 event.

Secretary-Treasurer McKenna noted his attendance at the August 15 Mission Springs Water District (MSWD) study session, and the August 19 MSWD Board meeting.

Vice President Bowman noted his attendance at the August 13 ACWA Region 9 event, and the August 15 Executive Committee meeting.

President Ortega noted his attendance at the August 13 ACWA Region 9 event.

Directors Comments/Requests

Director Grasha noted that the employee development issue will be ongoing and more difficult in the future.

Secretary-Treasurer McKenna stated that the Imperial Irrigation District entitlement to Colorado River water must be addressed.

Vice President Bowman commended Staff on their weekly KESQ news segments and congratulated Director Bloomer and President Ortega on their election results.

Closed Session:
A. Existing Litigation - PacBell vs. County of Riverside
B. Existing Litigation – ACBCI vs. CVWD, et al. (2 Cases)
C. Public Employment – Unrepresented Employee: General Manager

At 9:00 a.m., President Ortega convened into Closed Session for the purpose of Conference with Legal Counsel, (A) Conference with Legal Counsel, Existing Litigation, Pursuant to Government Code Section 54956.9 (d) (1), PacBell vs. County of Riverside; (B) Conference with Legal Counsel, Existing Litigation, Pursuant to Government Code Section 54956.9 (d) (1), Agua Caliente Band of Cahuilla Indians vs. Coachella Valley Water District, et al (Two Cases); and (C) Public Employment, Pursuant to Government Code Section 54957, Unrepresented Employee: General Manager.

Reconvene

At 10:26 a.m., President Ortega reconvened the meeting into open session and announced there was no reportable action.

Adjournment

In the absence of any further business, President Ortega adjourned the meeting at 10:27 a.m.

_____
Sylvia Baca, MMC
Assistant Secretary of the Board

Executive Committee Meeting Minutes

August 29, 2024

Directors Present: Paul Ortega, Jeff Bowman
Staff Present: Steve Johnson, David Tate, Esther Saenz, Victoria Llort, Sylvia Baca, Jamie Hoffman

1. Call to Order

2. Public Comments
   None

3. Discussion Items

   A. Review Agenda for September 3, 2024 Board Meeting
      The proposed agenda for the September 3, 2024 meeting was reviewed.

   B. Expense Reports
      The July expense reports were reviewed.

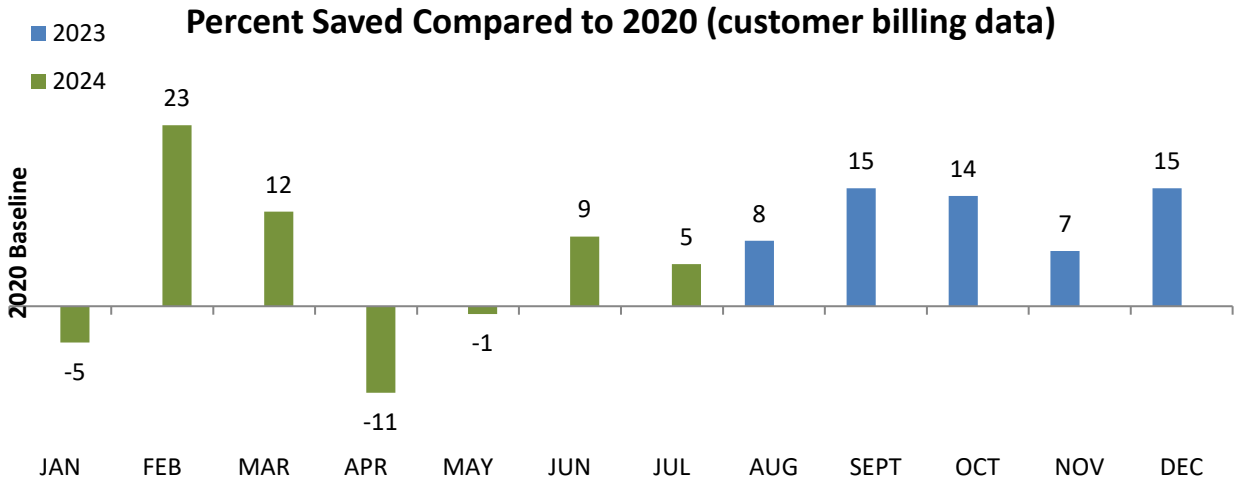
4. Adjourn

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

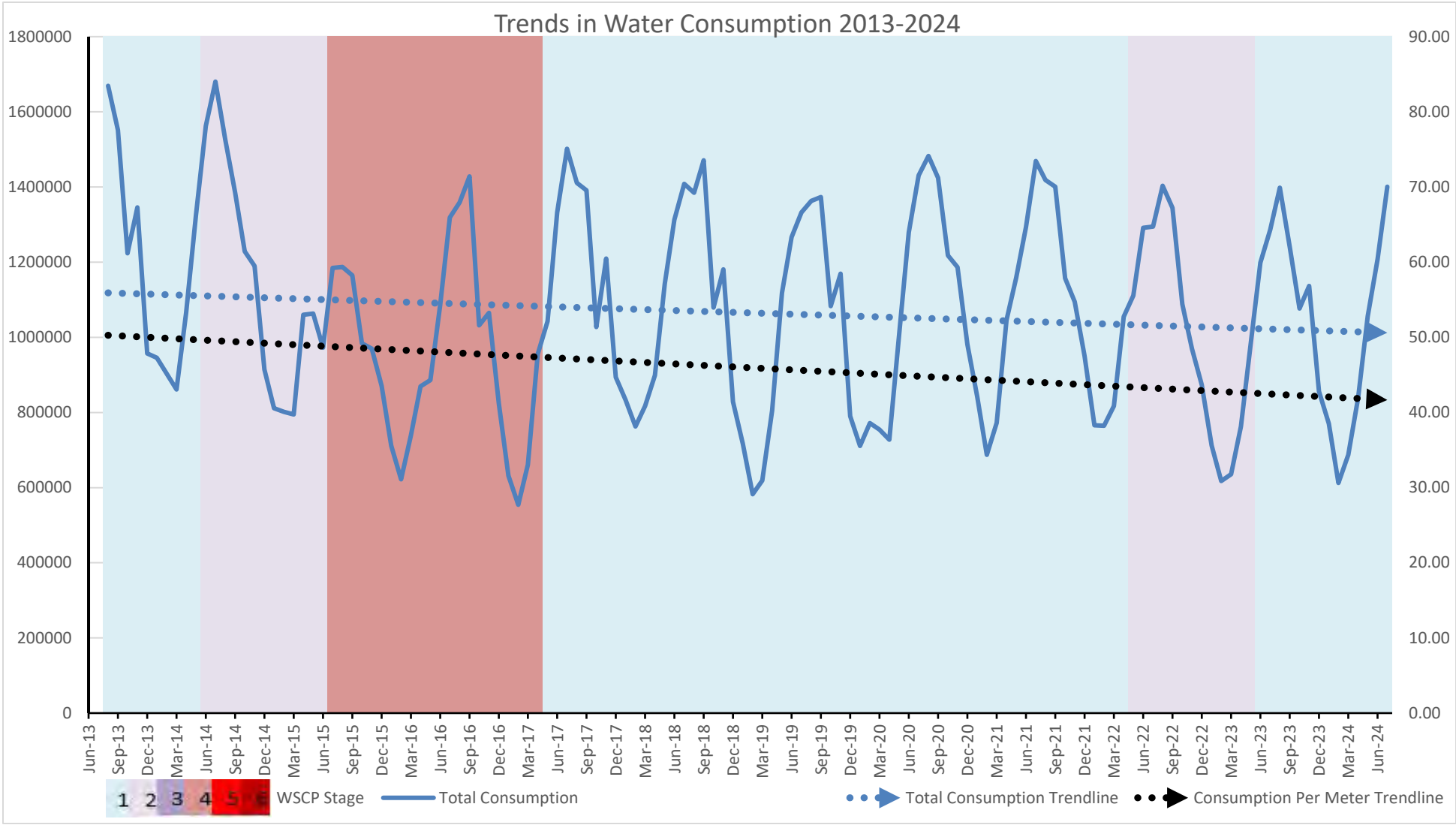
SEPTEMBER 3, 2024

RE: JULY 2024 WATER USE REDUCTION FIGURES

Desert Water Agency customers decreased water consumption per meter by 5% during July 2024 compared to the same month in 2020 – the baseline year the State Water Resources Control Board (State Water Board) used to measure statewide conservation achievements during the 2020-2022 drought. This is despite July 2024 having record breaking average temperatures according to the National Weather Service. The decrease may be explained by the success of outreach programs, results of incentive programs, or early response to the new Making Conservation a California Way of Life regulation. There is also a notable uptick in water waste reports and citations over the last few months compared to 2023.



Over the past 12 months, consumption per meter has been trending 8% lower compared to 2020. DWA is committed to conservation and has met the goals of many voluntary and mandatory calls for conservation such as SB X7-7 (20% by 2020). The Making Water Conservation a California Way of Life regulation (unanimously approved on July 3, 2024) will provide DWA with a water use objective – in essence, an agency-wide water budget. This will inform DWA's future water conservation objectives.



The graph above shows total monthly water consumption trending downward over time. It also shows that water use *per meter* is trending downward even faster. This indicates significant conservation gains given that population and business grew while water consumption continued to decline. The graph also highlights Water Shortage Contingency Plan (WSCP) levels.

July 2024 conservation per meter percentage	Down 5%
July 2024 consumption per meter	58 HCF
July 2020 consumption per meter	61 HCF
July 2024 gross consumption conservation percentage	Down 2%
July 2024 metered potable consumption	3215 AF
July 2020 metered potable consumption	3285 AF
The percentage of the Total Monthly Potable Water Consumption going to residential use only for the reporting month	76%
Population (estimated and inclusive of seasonal residents)	75,197
Estimated R-GPCD	344
Number of public complaints of water waste or violation of conservation rules received during the reporting month.	108
Number of contacts with customers for actual/alleged water waste or for a violation of conservation rules.	38
Number of field visits for water waste follow up.	54
Number of citations for violation of conservation rules.	29

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS
SEPTEMBER 3, 2024

RE: REQUEST BOARD ADOPTION OF THE DESERT WATER AGENCY DOMESTIC WATER SYSTEM GENERAL PLAN 2020

The purpose of the General Plan is to serve as a guide for system improvements during the next 20 years, or until a subsequent General Plan Update is prepared. The 2020 Water System General Plan, the sixth General Plan, supersedes the earlier General Plans, and reflects more current conditions within the Agency's service area based on time-dependent trends which have developed in the intervening years, and presents projected water requirements and recommended system improvements based on said conditions and trends.

The Board is only approving the 2020 Water System General Plan, not any specific proposed improvement within the Plan. Any future improvement within the Plan will require future Board approval and CEQA analysis.

With adoption granted today, Staff will file a Notice of Exemption in Riverside County. Adopting the Plan is exempt from CEQA for the following reasons:

- The activity will not result in a direct or reasonably foreseeable indirect physical change in the environment.
- The activity is not a project as defined in Section 15378, Cal. Code Reg.
- The activity is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment.

Fiscal Impact:
None. Finance Director Saenz has reviewed this report.

Legal Review:
Legal Counsel has reviewed this report.

Recommendation:
Staff recommends Board adoption of the Desert Water Agency Domestic Water System General Plan 2020.

Attachments:
Attachment #1 – Desert Water Agency Domestic Water System General Plan 2020
Attachment #2 - NOE

DESERT WATER

DOMESTIC WATER SYSTEM GENERAL PLAN
2020

Prepared By:

K&S KRIEGER & STEWART
Engineering Consultants

DESERT WATER

(760) 323-4971

POST OFFICE BOX 1710
PALM SPRINGS, CALIFORNIA 92263

1200 GENE AUTRY TRAIL SOUTH
PALM SPRINGS, CALIFORNIA 92264

DESERT WATER AGENCY

DOMESTIC WATER SYSTEM GENERAL PLAN 2020

Prepared by

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RIVERSIDE, CALIFORNIA 92501
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REGISTERED PROFESSIONAL ENGINEER
DAVID F. SCRIVEN
No. 42922
CIVIL
STATE OF CALIFORNIA

David F. Scriven
R.C.E. No. 42922

5/15/2024
Date

101-78.1
(DFS/NRW/nr)
(REPORTS/101-89P1)

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Maps

The following abbreviations and definitions are used in this report:

ABBREVIATIONS

(See also standard list following)

Abbreviation	Explanation
22 CCR	California Code of Regulations, Title 22
2016 RTP/SCS	2016 Regional Transportation Plan/Sustainable Communities Strategy
ACP	Asbestos Cement Pipe
ADD	Average Day Demand
ADMM	Average Day Maximum Month Demand
AF/person	Acre-Feet per Person
AF/Yr	Acre-Feet per Year
AP-1	Agricultural and Pumping Interruptible Program
AS	Air Sparge
Basin	Coachella Valley Groundwater Basin
Ca-D/DBPR	California Disinfectants and Disinfection Byproducts Rule
Ca-IESWTR	California Interim Enhanced Surface Water Treatment Rule
cfs	Cubic Feet per Second
CML/CMC/WSP	Cement Mortar Lined and Cement Mortar Coated Welded Steel Pipe
CPP	Critical Peak Pricing
CPS WTP	City of Palm Springs Wastewater Treatment Plant
CRA	Colorado River Aqueduct
CVA	Coachella Valley Aqueduct
CVWD	Coachella Valley Water District
DBP(s)	Disinfection Byproduct(s)
DDW	State Water Resources Control Board, Division of Drinking Water
DIP	Ductile Iron Pipe
DWA	Desert Water Agency
DWR	California Department of Water Resources
EWR	East Whitewater River Subbasin Management Area
fps	Feet per Second
Giardia	*Giardia Lamblia*
gpm	Gallons per Minute
GWUDI	Groundwater Sources Under the Direct Influence of Surface Water
HAA5	Haloacetic Acids
IDSE	Initial Distribution System Evaluation
IER	Influent Equalizing Reservoir
IESWTR	Interim Enhanced Surface Water Treatment Rule

Abbreviation	Explanation
kW	Kilowatt(s)
LF	Linear Feet
LT2ESWTR	Long Term 2 Enhanced Surface Water Treatment Rule
LRAA	Locational Running Annual Averages
MC	Mission Creek Subbasin Management Area
MCL(s)	Maximum Contaminant Level(s)
MCLG(s)	Maximum Contaminant Level Goal(s)
MDD	Maximum Day Demand
MDMM	Maximum Day Maximum Month Demand
MG/Year	Million Gallons per Year
MGD	Million Gallons per Day
MRDL	Maximum Residual Disinfectant Levels
MSWD	Mission Springs Water District
MWD	The Metropolitan Water District of Southern California
PCE	Tetrachloroethylene (formerly Perchloroethylene)
PFAS	Perfluorinated Alkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
ppb	Parts per Billion
ppm	Parts per Million
ppt	Parts per Trillion
PWS(s)	Public Water System(s)
RW	Recycled Water
RW MDD	Recycled Water Maximum Day Demand
RWPS	Recycled Water Pump Station
RWQCB	California Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SC/FC	Snow Creek/Falls Creek
Stage 1 D/DBPR	Stage 1 Disinfectants and Disinfection Byproducts Rule
Stage 2 D/DBPR	Stage 2 Disinfectants and Disinfection Byproducts Rule
SVE	Soil Vapor Extraction
SWP	State Water Project
SWFP	Surface Water Filtration Plant
SWTR	Surface Water Treatment Rule
TCE	Trichloroethylene
TDS	Total Dissolved Solids

Abbreviation	Explanation
TOU	Time-of-Use
TT	Treatment Technique
TTHM(s)	Total Trihalomethane(s)
USGS	United States Geological Survey
VOC(s)	Volatile Organic Carbon(s)
WWR	West Whitewater River Subbasin Management Area
WRF	Desert Water Agency's 10 MGD Water Recycling Facility
WTP	City of Palm Springs Wastewater Treatment Plant

DEFINITIONS

Term	Explanation
Agency	Desert Water Agency (DWA)
Capital Cost	The value in 2020 dollars for facilities including allowances for engineering services, construction engineering services, and, where applicable, financing costs
Consumption	Water delivered to customer, measured at service connection
(Groundwater) Overdraft	Groundwater pumping in excess of groundwater replenishment
Gross (Groundwater) Overdraft	Total net groundwater production in excess of net natural groundwater replenishment
Net (Groundwater) Overdraft	Gross Groundwater Overdraft offset by artificial replenishment
Cumulative Gross Overdraft	Total Gross Overdraft that has accumulated since the specific year that marks estimated commencement of gross overdraft conditions
Cumulative Net Overdraft	Cumulative Gross Overdraft offset by Cumulative Artificial Replenishment
Per Capita Consumption	Water consumption per permanent resident served
Per Capita Production	Water production per permanent resident served
Production	Stream diversions (gravity water) and groundwater extractions (pumped water), measured at source of supply
Project Cost	The value in 2020 dollars for facilities including 15% allowance for construction contingencies and 15% allowance for administration, legal, and engineering costs
Service Area	That portion of Agency territory identified as the Domestic water system Service Area, shown by Figure II-1
Service Connection	Connections between domestic water system and customer facility plumbing, consisting of valves, piping, and meter
Unit Consumption	Water consumption per active service connection

Term	Explanation
Unit Production	Water production per active service connection

CHAPTER I

EXECUTIVE SUMMARY

CHAPTER I
EXECUTIVE SUMMARY

The following represents a summary of the 2020 Water System General Plan Update for the Desert Water Agency (DWA). This summary's format approximates that of the general text, and emphasizes the most important elements of each chapter of the General Plan.

A. INTRODUCTION

The purpose of the General Plan is to serve as a guide for system improvements during the next 20 years, or until a subsequent General Plan Update is prepared. The General Plan sets forth evaluations of existing water demands and supply sources, existing water system deficiencies, and future water demands and supply sources. The results of the evaluations serve as the basis for establishing recommended facilities required to meet current and future customer water demands within DWA's Service Area.

Recommended system improvements are based on certain planning assumptions with regard to unit consumption and community development. If unit consumption and community development vary from the planning assumptions relied upon herein, DWA may have to advance the construction schedule in order to meet actual demands if they exceed projected demands. Conversely, it may be possible for DWA to defer construction of those same facilities if actual demands are less than projected demands.

DWA's Service Area is currently bounded on the north (from west to east) by Interstate 10 to Highway 111 to Chino Canyon and the Whitewater River, on the east by the Whitewater River and the Coachella Valley Water District (CVWD), on the south by the rugged Santa Rosa Mountains, and on the west by the rugged San Jacinto Mountains. There are currently estimated to be about 22,800 total service connections within DWA's Service Area (See **Table III-1**).

DWA's domestic water system currently consists of 23 active wells, 1 well site booster pumping plant, 8 interzone booster pumping plants, 25 water storage reservoirs, and over 411 miles of transmission and distribution pipelines.

B. WATER REQUIREMENTS

Individual water demand rates have decreased substantially over the past ten years, due to the implementation of conservation measures mandated by the State of California during the 2011-2015 drought. After the drought, it increased slightly and is now at approximately 1.34 acre-feet per connection (AF/connection), down considerably from 1.98 AF/connection in 2008. Future unit production is not expected to change significantly in future years, due to the largely permanent nature of the conservation measures, along with the trends toward infill development and for development to transition from large resort and commercial development to residential development. Therefore, for planning purposes, the annual unit production for the 2020 General Plan is set at 1.49 AF/connection, conservatively based on 2017/2018 consumption.

Based on projected buildout in 2050, annual water supply requirements may increase from about 30,600 acre-feet per year (AF/Yr) in 2020 to about 37,600 AF/Yr by 2030 and to about 44,600 AF/Yr by 2040 and 51,600 at buildout. Supply requirements fluctuate throughout the year, influenced primarily by seasonal temperatures and, in the case of DWA, a seasonal influx of part-time residents. The necessary water supply, storage, and transmission capabilities of the water system are dictated by various factors, including current and projected demands, fire flow requirements, equalization and emergency storage requirements, and conveyance requirements.

C. WATER SUPPLY

DWA's water supply consists of groundwater, stream water, and recycled water. By 2045, groundwater (local, imported, and replenished with diverted surface water) will constitute about 93% of DWA's water supply, stream water will constitute about 2%, and recycled water will constitute about 5% .

Surface Water

DWA has licenses to divert 7.0 cubic feet per second (cfs) of stream water from Snow Creek and Falls Creeks (SC/FC), and adjudicated rights to divert 2.0 cfs from Chino Creek, and 10.0 cfs from the Whitewater River, for a total capacity of 13,756 AF/Yr. Due to limited long-term yields from small tributary drainage areas, the existing surface water supplies are at their hydrologic and economic capacity. Due to filtration avoidance regulations, DWA has been bypassing surface water from SC/FC such that the average diversion has been about 1,000 AF/Yr. A study of the

surface water available on SC/FC determined that 4.0 cfs (2,900 AF/Yr) is available for diversion from SC/FC during an average year when filtration is provided.

DWA currently has two shallow wells at the Whitewater River diversion which, together with water from springs, produce approximately 2,000 gpm (3,226 AF/Yr).

DWA recently completed construction of a 40 gpm surface water filtration facility to provide approximately 32 AF/Yr of filtered water from the SC/FC diversions to Snow Creek Village. DWA intends to use the remainder of the diverted SC/FC water for groundwater replenishment at the Whitewater River Subbasin Groundwater Replenishment Facility.

Groundwater

DWA's wells are situated within the Whitewater River Subbasin of the Upper Coachella Valley Groundwater Basin. DWA extracts water from the northwesterly portion of the Subbasin and CVWD extracts water from the southeasterly portion of the Subbasin. DWA and CVWD jointly operate and maintain the water resources within the Subbasin.

Since 1973, imported replenishment water has been and continues to be infiltrated into the groundwater aquifer at the Whitewater River Subbasin Groundwater Replenishment Facility near Windy Point. DWA's existing and proposed domestic water system wells are, with few exceptions, situated downstream of the replenishment facility. The groundwater underlying DWA's domestic water system reached its lowest levels during the five-year period 1976 through 1980; however, as a result of artificial recharge with CVWD and DWA exchange deliveries, augmented by The Metropolitan Water District of Southern California (MWD) advanced deliveries, the underlying average groundwater levels rose by approximately 54 feet between 1980 and 1988. Since 1988, average groundwater levels have declined by about 32 feet throughout the domestic water system Service Area; however, average groundwater levels in 2020 are still about 63 feet higher than they were in 1978.

Since groundwater is its primary source of supply, DWA should continue to develop its groundwater supplies to meet increasing demands on its domestic water system. DWA should continue to secure lands for future well construction while they are available and should construct new wells on lands previously acquired for this purpose. DWA should also investigate existing well sites where wells have been removed from service (for reasons unrelated to water quality) to

determine whether the sites are suitable for new wells (such as Well Site 3). Although the best producing wells tend to be located along the Whitewater River, there are system hydraulic advantages to locating new wells in the southern portion of DWA's Service Area.

Recycled Water Supply

DWA's recycled water supply is secondary effluent from the City of Palm Springs Wastewater Treatment Plant (CPS WTP). Currently, the average daily flow from the CPS WTP is between 5.5 million gallons per day (MGD) and 6.0 MGD. The current design capacity of the CPS WTP is 10.9 MGD. The CPS WTP is not expected to require additional capacity until after 2040. Recycled water demand is limited to a maximum of approximately 4,000 AF/Yr for the foreseeable future.

D. EXISTING WATER SYSTEM FACILITIES

DWA's existing Service Area is comprised of five sub-areas, namely: Snow Creek, Palm Oasis (Palm Springs Oasis), Chino Canyon, Palm Springs Main, and Palm Springs East. Currently, within the existing domestic water system, there are 13 separate pressure zones. About 94% of the water produced is delivered to three primary pressure zones: Zone 860 (Chino East), Zone 680 (Palm Springs Main), and Zone 580 (Palm Springs East).

DWA's existing domestic water system consists of 23 active well pumping plants with a combined production capacity of approximately 48,000 gallons per minute (gpm), 1 well site booster pumping plant and 8 interzone booster pumping plants with a combined production capacity of 23,000 gpm, 25 water storage reservoirs with a combined storage capacity of 59.3 MG, and over 411 miles of transmission and distribution pipelines. As of June 2020, there were an average of 22,763 active service connections within DWA.

E. RECYCLED WATER SYSTEM

DWA's existing recycled water system facilities consist of a 10.0 MGD Water Recycling Facility (WRF), two booster pumping plants, and recycled water transmission pipelines.

DWA serves recycled water to the DWA Operations Center, Water Recycling Facility, Demuth Park, Mesquite Country Club (18 holes), Tahquitz Creek East Golf Course (18 holes), Tahquitz Creek West Golf Course (18 holes), Mid-Valley Parkway, Palm Springs High School, and Escena Golf Club (18 holes), and Palm Springs Animal Shelter (Dual-Plumbed Building). As of

June 2020, the Indian Canyons South and North Golf Courses are no longer accepting recycled water.

DWA's recycled water supply is secondary effluent from the CPS WTP. The existing average daily flow from the CPS WTP ranges from approximately 5.5 to 6.0 MGD. The current design capacity of the CPS WTP is 10.9 MGD. The CPS WTP is not expected to require additional capacity until after 2040.

As set forth in **Chapter VI**, DWA's current recycled water maximum day demand (RW MDD) from existing customers is approximately 5.8 MGD. The existing CPS WTP supply is approximately 6.0 MGD; therefore, DWA is not required to provide supplemental water from its shallow groundwater wells and/or potable water system in summer months to meet RW MDD, as it has in the past. The need for supplemental water to meet RW MDD in summer months is not anticipated for the foreseeable future. However, DWA does operate the shallow groundwater wells to allow the plant to operate 24 hours/day; because operating the plant without shutting down is more efficient and provides more run time per filter.

Proposed recycled system improvements include upgrades to the existing WRF, and installing new transmission pipelines and connections to serve Sunrise Park.

F. RECOMMENDED WATER SYSTEM IMPROVEMENTS

A hydraulic network model was created for DWA's water system to evaluate the capabilities of the existing system and identify facilities needed to meet future demands. Existing demands were established and distributed based on DWA billing records. Future demands were established based on the quantity of vacant land available for development in each pressure zone through review of aerial photos, and then assigning land uses and densities to the vacant land utilizing City and County land use maps. Water use factors were assigned to the number of potential housing units and the quantity of available commercial property to arrive at the associated water requirements. Vacant land was assumed to be built-out by 2050, and consumption projections for the intervening years were interpolated accordingly.

The hydraulic network model was used to identify recommended future system facilities for Normal Operation (24-hour pumping) and Time-of-Use (TOU) Operation (with TOU Operation

defined as one half of the wells and all of the booster plants shutting down during the five-hour period between 4:00 PM and 9:00 PM).

The following criteria were used to identify facilities necessary to serve anticipated future demands:

- Groundwater wells and booster pumping plants must be capable of supplying customer demands for the highest day demand of the year (maximum day maximum month demand (MDMM)).

- Gravity storage volume is the sum of four components: equalization storage, fire storage, emergency storage, and TOU storage. Equalization storage is 20% to 40% of MDD (depending on the zone), fire storage is based on fire flow and duration requirements set forth in the Uniform Fire Code, emergency storage is 12 to 24 hours of ADD (depending on the zone), and TOU storage is three to six hours of MDD (depending on the zone).

- Pipeline capacities must be adequate to meet various demand scenarios while generally limiting velocities to 5 feet per second (fps), except during fire events wherein a velocity of 10 fps is acceptable.

The following recommendations pertain to the years up to and including 2030. Additional improvements for the years beyond 2030 are set forth in **Chapter VII**.

DWA has adequate production capacity to operate in Normal mode until 2030. However, in order to meet current maximum day water supply requirements for TOU Operation and/or to have redundant supply, DWA would have to construct or complete construction of the following production wells and related pumping plants and facilities (unless standby wells are returned to active service):

- Three well plants in Palm Springs Main (Well 44, Well 3, and Well 6)

In addition, DWA should consider constructing volatile organic carbon (VOC) treatment facilities for Well 6.

DWA has adequate storage capacity to operate in Normal mode and provide emergency storage equal to 12 hours of ADD until 2030, unless development commences in the Palm Oasis Specific Plan area, in which case, additional storage will be needed for that isolated area. DWA has adequate storage capacity to operate in TOU mode and provide emergency storage equal to 12 hours of ADD until 2030, except in the Foothill Zone, where 0.5 MG of additional storage will be needed. In 2030, to provide 12 hours of emergency storage while operating in TOU mode, DWA will need to construct 1.5 MG of storage in Chino East and 0.5 MG of storage in Palm Springs East.

Existing booster stations are capable of meeting projected pumping demands until 2030, except for the Terrace and Vista Miller booster stations, where additional pumping capacity will be required to meet current demands in both Normal and TOU modes.

In order to improve transmission capacity between the reservoirs within the Palm Springs Main Zone, DWA should construct 6,000± linear feet (LF) of 30" diameter pipeline in Avenida Caballeros. In order to improve general water circulation and increase redundancy in the system, DWA should construct several new segments of transmission pipeline in various locations of the DWA Service Area as set forth in **Chapter VII**, including approximately 5,500± LF of 16" diameter pipeline, and 26,000± LF of 12" diameter pipeline.

Estimated project costs for Normal Operation amount to $16 million for the four-year period from 2022 through 2025, inclusive. They amount to $9 million for the five-year period between 2026 and 2030, $16 million for the ten-year period between 2031 and 2040, and $10 million for the ten-year period between 2041 and 2050 (assumed buildout).

Estimated project costs for TOU Operation amount to $22 million for the four-year period from 2022 through 2025; $13 million for the five-year period between 2026 and 2030, $30 million for the ten-year period between 2031 and 2040, and $23 million for the ten-year period between 2041 and 2050 (assumed buildout).

The estimated project costs are based on 2008 cost levels escalated to 2022 costs.

CHAPTER II

INTRODUCTION

CHAPTER II
INTRODUCTION

A. PURPOSE AND SCOPE

Krieger & Stewart prepared each of DWA's five previous General Plans (1971, 1980, 1988, 1998, and 2008). This General Plan, the sixth, supersedes the earlier General Plans. It reflects current conditions within the Service Area based on time dependent trends which have developed in the intervening years. It also presents projected water requirements and recommended system improvements based on these conditions and trends.

This General Plan is intended to serve as a guide for system improvements during the next 10 to 30 years, just as the earlier General Plans served as guides for system improvements during the past 49 years. Recommended system improvements have been projected to satisfy ultimate development (assumed to occur in 2050); however, it should be kept in mind that ultimate development may occur well past 2050; and that projections beyond 10 to 20 years decrease in certainty. Required system improvements presented herein are considered reasonably accurate, particularly for the next 10 years; however, this General Plan should be revised from time to time as conditions and trends change.

In serving as a guide, the specific projects and their locations and schedules herein indicated may be altered or relocated during project design. For example, well pumping plants are shown generally; however, they will be located and scheduled specifically based on available sites, underlying groundwater aquifer characteristics, system conveyance facilities, development growth, water demand, and other factors. Similarly, pipelines may be specifically located and scheduled differently from generally planned facilities to accommodate rights-of-way, development, redevelopment, road work, traffic, natural features, and other factors.

B. SERVICE AREA

DWA was formed in 1961 to assure an adequate water supply for the northwesterly portion of the Upper Coachella Valley. The area encompassed by its institutional boundary has increased from an initial 72 square miles to the current 335 square miles and its population has increased from about 18,000 persons to about 73,000 persons (including seasonal population). Its total assessed value has increased from approximately $74 million (based on one quarter market value) to nearly

$16.5 billion (based on full market value). The median age of the population within the Service Area is about 49, which is above the national average of about 38.

In this General Plan, the "Service Area" constitutes that portion of DWA territory where it provides or will provide domestic water service. DWA's Service Area is currently bounded on the north (from west to east) by Interstate 10 to Highway 111 to Chino Canyon and the Whitewater River, on the east by the Whitewater River and CVWD, on the south by the rugged Santa Rosa Mountains, and on the west by the rugged San Jacinto Mountains. The Service Area limits are illustrated on **Figure II-1**.

DWA makes imported groundwater replenishment water available to groundwater pumpers within its own institutional boundary as well as those within the institutional boundary of Mission Springs Water District (MSWD). However, DWA and MSWD each separately provide domestic water service within their respective domestic water system service areas. DWA's domestic water service area is southerly of Interstate 10 and MSWD's domestic water service area is northerly of Interstate 10.

Ground surface elevations within DWA range from about 260 feet to 5,000 feet. Ground surface elevations within DWA's service area range from about 280 feet to about 2,800 feet above sea level. However, water service is currently limited to elevations of about 1,330 feet or less (excluding the Palm Springs Aerial Tramway operated by the Mount San Jacinto Winter Park Authority, the highest reservoir being situated at elevation 1,436 feet (Snow Creek Village Reservoir at high water level). Most water service is provided to land situated below elevation 700 feet.

The climate is unusually hot and dry, even for Southern California (daily high temperatures commonly exceed 100°F, frequently reach 110°F, and periodically reach 120°F during the months of June, July, August, and September) and annual precipitation (most of which falls in February and March, except for summer thundershowers) averages less than 5 inches per year.

The winter season, which is pleasantly mild, attracts winter residents and is responsible for the vacation and tourism-oriented economy of Palm Springs. The mild winters and dry climate make year-round landscape irrigation necessary. Periodically, strong winds, predominantly from the northwest, cause erosion of surface soils and blowing sand conditions. These conditions are

particularly acute in exposed areas northerly of the City of Palm Springs, such as the Palm Oasis community.

The area is subject to occasional seismic activity. The southern branch of the San Andreas Fault, commonly called the Banning Fault, passes within 10 miles of downtown Palm Springs. The northern branch, commonly called the Mission Creek Fault, lies several miles northerly of the Banning Fault. Another branch, commonly called the Garnet Hill Fault, lies a few miles southerly of the Banning Fault. The area experienced relatively high seismic activity between the years of 1986 and 1992, wherein the North Palm Springs earthquake (5.6 Richter magnitude on the Banning or Garnet Hill Fault) and the Landers earthquake (7.3 Richter magnitude on the "Mojave Block" of faults) occurred. Seismic activity has been relatively quiet since the Landers earthquake; however, seismologists estimate that a significant earthquake in the Palm Springs area is likely overdue.

Existing development primarily occupies the Valley floor and is situated in Palm Springs, Cathedral City, Palm Springs Oasis (commonly known as Palm Oasis), and Snow Creek Village. Future development will consist of infill within the local communities and expansion into canyons and coves.

Although large portions of the Service Area are near ultimate development, there is still land within the Service Area available for future development. The Service Area is now about 65% developed.

Significant undeveloped areas include the Chino Cone Special Policy Area near the north end of the City of Palm Springs and the Palm Hills Special Policy Area in south Palm Springs. The City of Palm Springs 2007 General Plan estimated a total of 2,577 dwelling units and a population of 5,093 at buildout for both of these areas combined. However, due to recent efforts by conservation groups (including large land purchases in the Chino Cone), it is unlikely that the Chino Cone area will be developed beyond an approved residential community known as Desert Palisades. The City of Palm Springs Planning Department has confirmed that there are no approved or pending applications for developments in the Chino Cone area other than Desert Palisades, which is a 112-acre community comprising 110 residential lots for custom homes, most of which have not yet been constructed.

Development trends have shifted within the Service Area from time to time. In the 1950s, development occurred in northern Palm Springs, and in the 1960s, it occurred in southern and

eastern Palm Springs as well as Cathedral City. In the 1970s and 1980s, development returned to northern Palm Springs and continued in southern and eastern Palm Springs as well as western Cathedral City.

In the 1990s, little development occurred within the Service Area due to an extended economic recession; minor infilling occurred in both Palm Springs and Cathedral City. In addition, certain areas within Palm Springs were redeveloped, resulting in higher density land use. In the early 2000s, most development occurred on the north end of Palm Springs, with large developments at the Highway 111 gateway to the City and at the north end of Sunrise Way. Some development occurred south of South Palm Canyon Drive in the Andreas Hills zone, small in number (about 120 homes) but high in water demand (the homes are larger and higher priced). There are several approved large developments, such as those at the Escena Golf Club (600 homes northeast of the airport), Miralon (several hundred homes at the north end of Sunrise Way), and the Palm Oasis Development (650 homes) that are graded but only partially constructed due to the downturn in the housing market in 2007. The residential development at Escena is approximately 70% complete. Construction of the residential development at Palm Oasis has not yet begun.

In addition to being a resort destination community, the City of Palm Springs is a popular destination for seasonal visitors and a place where many have second homes. The seasonal population consists primarily of people from areas such as the northeastern and midwestern United States and Canada, who spend a large portion of the winter in warmer locales such as Southern California. This seasonal population significantly increases the total population in the winter months (November through April).

In addition to new developments, some of the projected population increase within the Service Area is likely to come from future redevelopment projects that replace low-density housing with higher-density housing.

The domestic water system must be capable of meeting water demands for existing and continuing land development and corresponding increases in water usage. System improvements will be needed for continuing service to existing customers as well as for expanded service to future customers. Facilities will need to accommodate weather and terrain extremes, meet existing seismic requirements, and provide basic, efficient water service. The system improvements set forth herein are intended for development of water supply facilities and construction of water

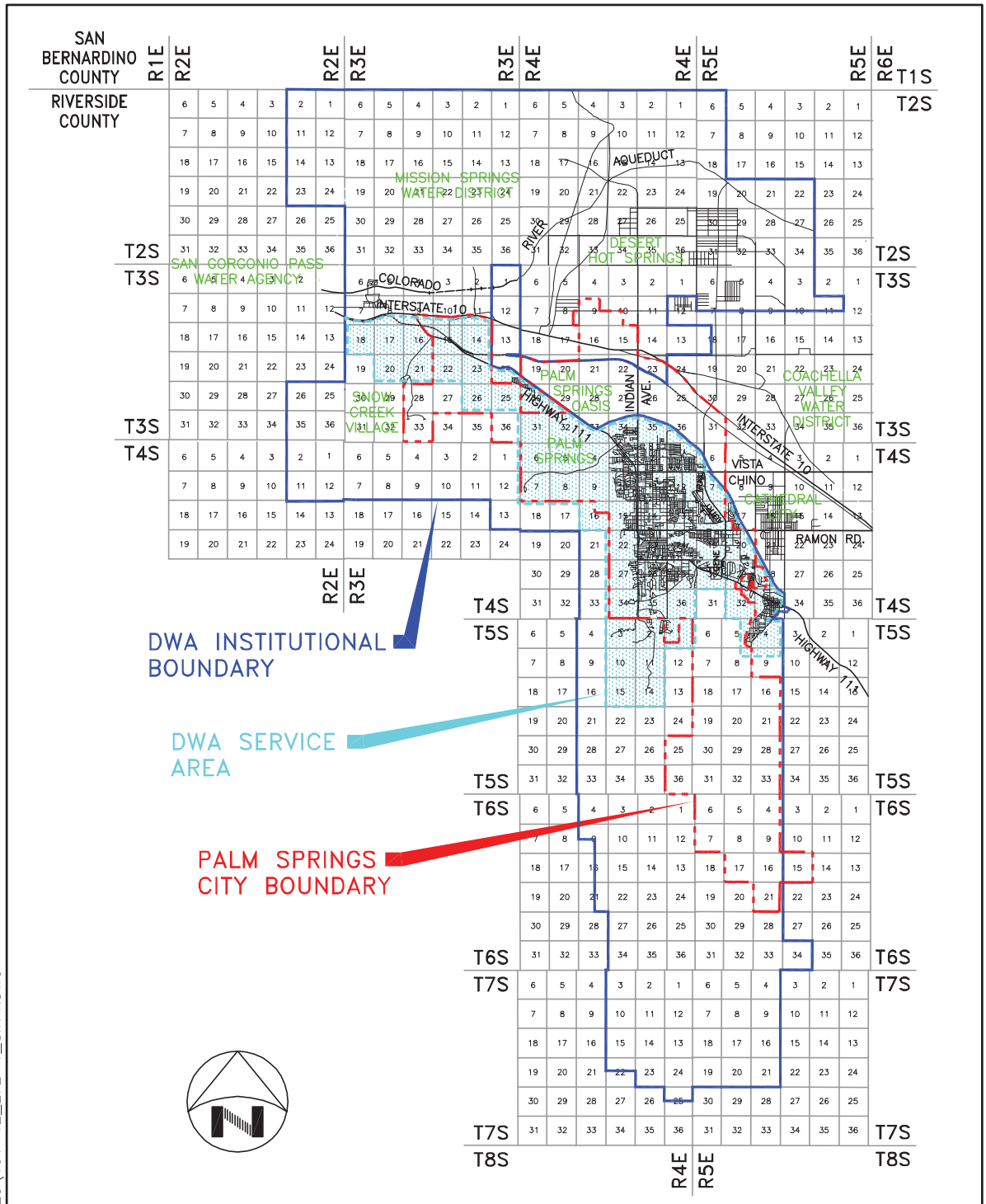
service facilities required to efficiently meet immediate as well as long range demands, all in accordance with current City and County General Plans and Zoning Maps.

This General Plan sets forth improvements which will be required to meet estimated water demands within the Service Area based on anticipated land development and estimated unit consumption. From time to time, especially as various areas develop and certain system improvements are made, this General Plan should be reviewed to ensure that development is occurring as anticipated and facilities are being constructed as required. If actual development and unit consumption vary substantially from anticipated development and unit consumption, this General Plan should be revised accordingly.

C. PLAN PREPARATION

Preparation of the General Plan involved the following:

- Conferences with Agency staff
- Review of Agency data and records
- Review of available population data including projections
- Review of existing and proposed land use data
- Determination of future water requirements
- Evaluation of existing water system facilities
- Determination of required water system improvements (including hydraulic modeling)
- Development of estimated improvement capital costs
- Establishment of improvement construction schedule
- Summary of findings



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DESERT WATER AGENCY

2020 GENERAL PLAN UPDATE

SERVICE AREA AND INSTITUTIONAL BOUNDARY

FIGURE

II-1

CHAPTER III

POTABLE WATER REQUIREMENTS

CHAPTER III
POTABLE WATER REQUIREMENTS

A. GENERAL

According to 2010 and 2020 Census data, the year-round residential population within DWA's Service Area has declined by about 0.3%. Water production within the same area has decreased by about 20%, partially as a result of decreased year-round population, but primarily as a result of DWA's continued conservation efforts, a greater use of recycled water, and the transition from large resort and commercial development to residential development within DWA's Service Area. Water restrictions mandated by the state also accounted for some of the decrease in water production during certain years, particularly 2014 through 2016. Historic water production together with consumption and related information is set forth in **Table III-1** below.

TABLE III-1
HISTORIC ANNUAL WATER PRODUCTION AND CONSUMPTION

Year	Average Number of Active Service Connections[1]	Production (AF)[1]	Consumption (AF)[1]	Production/ Consumption Ratio	Unit Production (AF/Connection)
1940	--------	1,200	--------	--------	--------
1950	--------	4,000	--------	--------	--------
1960	7,500	10,800	9,200	1.17	1.44
1970	10,500	20,600	17,000	1.21	1.96
1980	16,600	31,400	28,866	1.09	1.89
1989/1990	18,585	42,000	39,314	1.07	2.26
1997/1998	18,884	37,869	36,612	1.03	2.01
2000/2001	19,425	41,659	40,749	1.02	2.14
2001/2002	19,589	42,962	42,500	1.01	2.19
2002/2003	19,709	42,261	41,476	1.02	2.14
2003/2004	20,057	43,882	42,742	1.03	2.19
2004/2005	20,642	42,479	42,049	1.01	2.06
2005/2006	21,153	43,390	42,869	1.01	2.05
2006/2007	21,575	46,373	44,886	1.03	2.15
2007/2008	21,675	42,957	41,286	1.04	1.98
2008/2009	21,675	42,957	41,286	1.04	1.98
2009/2010	21,721	38,303	36,488	1.05	1.76
2010/2011	21,515	37,523	36,108	1.04	1.74
2011/2012	21,598	36,588	35,803	1.02	1.69
2012/2013	21,725	36,485	36,181	1.01	1.68
2013/2014	21,872	37,701	35,209	1.07	1.72
2014/2015	22,055	32,736	31,208	1.05	1.48
2015/2016	22,201	27,037	26,256	1.03	1.22
2016/2017	22,352	30,138	28,374	1.06	1.35
2017/2018	22,526	33,568	30,826	1.09	1.49
2018/2019	22,580	30,966	29,344	1.06	1.37
2019/2020	22,763	30,495	29,144	1.05	1.34

Notes:
(1) Data for average number of active service connections, production quantities, and consumption quantities were obtained from DWA's annual Operating Statistics (OPSTAT) Reports.

In **Table III-1**, water production is the quantity of water entering DWA's potable water distribution system, while water consumption is the sum of quantity of water sold to customers and DWA's usage.

As mentioned in **Chapter II**, the City of Palm Springs is a popular destination for seasonal visitors and a place where many have second homes for winter residency. This seasonal population significantly increases the total population in the winter months (November through April), with a corresponding increase in water consumption. In previous General Plans, water needs were, in part, based on population growth estimates multiplied by then-current, estimated per-capita water demands. However, due to the significant seasonal population variations noted above, DWA has struggled for the past ten years to develop accurate and meaningful assessments and future projections of its service area population.

To complicate matters, the results of the 2020 Census indicated a 0.3% *decrease* in service area population between 2010 and 2020, from 51,868 to 51,710, a decrease of 158 persons—despite the fact that the number of active service connections has increased by approximately 1,040 over the same time period. There are several possible explanations for an increase in active service connections while population estimates are in decline, including shifting patterns of municipal development in the area (such as a rise in hosted and un-hosted short-term vacation rentals). Such patterns are difficult to accurately characterize, and even more difficult to predict. Furthermore, growth cannot be projected into the future when the past ten years of census data have shown a decline in population; and DWA is not in a position to assume that growth will continue to decline or will remain stagnant indefinitely.

It has become clear that population estimates are no longer useful as an indicator metric of water needs in the Palm Springs area.

Therefore, estimates of population and per-capita demands are not included in this General Plan, and projections of future water needs are based on development potential coupled with historic data for active service connections, water production, and water consumption per connection.

Water production increased from about 1,200 AF in 1940 to about 46,000 AF in 2007, and is about 31,000 AF today. After reaching a high of 46,000 AF in fiscal year 2006/2007, annual water production dropped to as low as 27,000 AF (fiscal year 2015/2016), increased to 33,500 AF (fiscal

year 2017/2018), then dropped again to 31,000 AF (2018/2019). As a conservative assumption, current water demands used herein are based on 2017/2018 numbers, since the current relatively low demands cannot be guaranteed to persist into the future. The recent decreases in water production are due partly to decreased population; but predominantly to two factors: (1) a focus on water conservation; and (2) increased use of recycled water for irrigation, which was previously accomplished using potable water.

Projected water requirements set forth herein are based on current water demands (conservatively estimated at 2017/2018 levels) as distributed throughout the service area, coupled with current water use goals, and projections of full service area development of all currently-available vacant land, currently estimated for 2050 (see **Table III-3)**.

Projections of service area development were based existing and planned land uses, land currently available for development, and current development trends. Substantial redevelopment of the service area was not considered. The projected water requirements, which are considered representative of expected future water uses, were used to determine existing system deficiencies and to establish recommendations for system improvements, both present and future. The projected water requirements presented herein do not include demands met through the recycled water system; recycled water requirements are presented separately in **Chapter VI**.

B. ANNUAL WATER REQUIREMENTS

Historic water production rates presented in **Table III-1** show that the unit production reached a peak between 2001 and 2004 at 2.19 AF/connection (although the highest unit production occurred in 1989/90, at 2.26 AF/Connection). By 2013/2014, unit production had gradually dropped to 1.72 AF/connection, and then decreased significantly to 1.22 AF/connection by 2015/2016 due to the implementation of conservation measures mandated by the State of California during the 2011-2015 drought. After the drought, it increased slightly to approximately 1.49 AF/connection in 2017/2018. It decreased further in 2018/2019 to 1.37 AF/connection and 1.34 AF/connection in 2019/2020; however, as a conservative assumption, current water demands used herein are based on 2017/2018 numbers.

Future unit production is not expected to change significantly in future years, due to the largely permanent nature of the conservation measures, along with the trends toward infill development and for development to transition from large resort and commercial development to residential

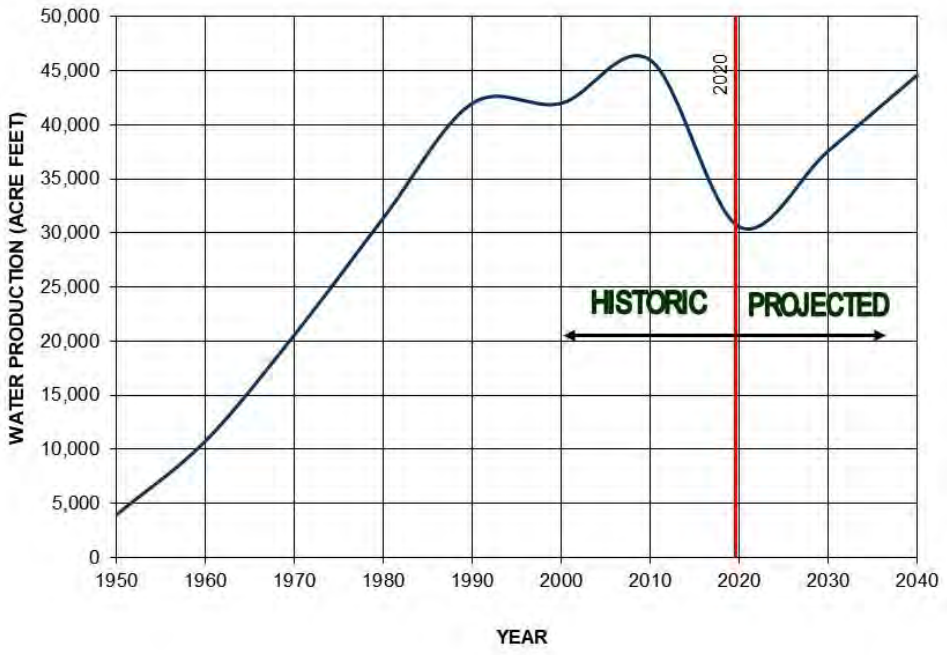
development. Therefore, for planning purposes, the annual unit production for the 2020 General Plan is set at 1.49 AF/connection.

Projected water requirements are set forth in **Table III-2**, along with projected Service Area annual water requirements for the previous five General Plans for comparison. The annual water requirements set forth in the 1980 and 1988 General Plans are essentially the same. Annual water requirements set forth in the 1998 General Plan were significantly less than the water requirements presented in the 1980 and 1988 General Plans, due to the large reduction in the ultimate population projection. Annual water requirements for the 2008 General Plan were based on population projections and planned uses, and were lower through 2035, but higher at ultimate development due to the City of Palm Springs' 2007 buildout population projection of 95,000 persons. Annual water requirements for this 2020 General Plan as shown in **Table III-2** are planned uses and unit production, with unit production assumed to remain constant from 2018 forward. The projection for ultimate water requirements is based on available area for future development, land use maps, and probable densities and assigned water use factors (see **Table III-3)**. The 2020 requirements are lower than the 2008 projections due to lower population projections, the implementation of water conservation measures, and the elimination of planned developments in the Chino Cone area. Historic and projected annual water requirements (based on population projections) for the Service Area are illustrated in **Figure III-1**.

TABLE III-2
GENERAL PLAN COMPARISON
PROJECTED SERVICE AREA ANNUAL WATER REQUIREMENTS
(ACRE-FEET)

Year	1971 General Plan	1980 General Plan	1988 General Plan	1998 General Plan	2008 General Plan	2020 General Plan
1970	16,600	----	----	----	----	----
1980	24,500	29,400	----	----	----	----
1990	35,000	44,600	45,000	42,000	----	----
2000	----	60,200	60,000	47,000	42,000	
2010	----	----	74,000	60,000	46,000	
2020	----	----	85,000	67,000	53,000	30,600
2030	----	----	----	----	61,000	37,600
2040	----	----	----	----	----	44,600
Ultimate	104,800	113,800	114,000	79,000	86,000	51,600

FIGURE III-1
ANNUAL WATER REQUIREMENTS



The water requirements set forth in **Table III-2** and **Figure III-1** are generally based on current water requirements and corresponding water requirements for full development of all currently-available vacant land, currently estimated for 2050 (see **Table III-3)**. Projections for the years between 2020 and 2050 are interpolated.

Table III-3 sets forth projected annual water requirements by service area and pressure zone. The water requirements were established by determining the quantity of vacant land available for development in each pressure zone through use of aerial photos, and then assigning land use and densities to the vacant land utilizing land use maps from the City of Palm Springs 2007 General Plan and City of Cathedral City 2019 Draft General Plan. Water use factors were assigned to the number of potential housing units and the quantity of available commercial property to arrive at the associated water requirements. For planning purposes, each new dwelling unit was assigned an annual water consumption factor of 1.5 AF, each acre of commercial land was assigned an annual water consumption factor of 4.5 AF (approximately 4,000 gallons per acre per day), and each acre of mixed-use land (commercial plus high-density residential) was assigned an annual

water consumption factor of 18 AF (projected demands for RV and hotel occupancy are included in demands for commercial and mixed-use land). The vacant land was assumed to be built-out by 2050, and the consumption projections for the intervening years were extrapolated accordingly. Currently, the Chino Canyon (Chino East and Desert Palisades), Palm Springs Main, and Palm Springs East service areas comprise 99% of the annual demand.

TABLE III-3
PROJECTED WATER REQUIREMENTS
BY SERVICE AREA AND PRESSURE ZONE
(ACRE-FEET)

Service Area Description		2020	2030	2040	2050
Snow Creek Service Area					
Elevation	Zone Name				
1440	Snow Creek Village	27	55	84	112
	Total	27	55	84	112
Palm Oasis Service Area					
Elevation	Zone Name				
1150	Palm Oasis	159	892	1,626	2,360
	Total	159	892	1,626	2,360
Chino Canyon Service Area					
Elevation	Zone Name				
860	Chino East	2,793	3,935	5,078	6,220
1040	Desert Palisade	119	185	251	317
1240	Desert Palisade-Pressurized	4	63	121	179
	Total	2,916	4,183	5,449	6,716
Palm Springs Main Service Area					
Elevation	Zone Name				
680	Palm Springs Main	20,072	23,344	26,615	29,887
880	Andreas Hills	703	804	904	1,005
920	Southridge	36	40	45	49
1120	Southridge-Pressurized	26	27	28	29
	Total	20,837	24,215	27,592	30,970
Palm Springs East Service Area					
Elevation	Zone Name				
580	Palm Springs East	4,660	5,892	7,125	8,357
600	Terrace	228	252	276	300
830	Foothill	292	306	321	336
	Total	5,179	6,451	7,722	8,993
Higher Elevation Service Areas (Tram)		26	29	29	29
	Total	29,144	35,825	42,502	49,180
	Misc (5%)*	1,457	1,791	2,125	2,459
	TOTAL	**30,600**	**37,600**	**44,600**	**51,600**

* Construction Meters, Losses, Etc.

C. MONTHLY WATER DEMANDS

Monthly water demands vary seasonally with population and weather. Temperature increases in summer months result in high summer demands. However, population increases in winter months also cause relatively high winter demands; thus reducing relative seasonal variations in demand. Monthly water demands for the last ten years are set forth in **Table III-4**.

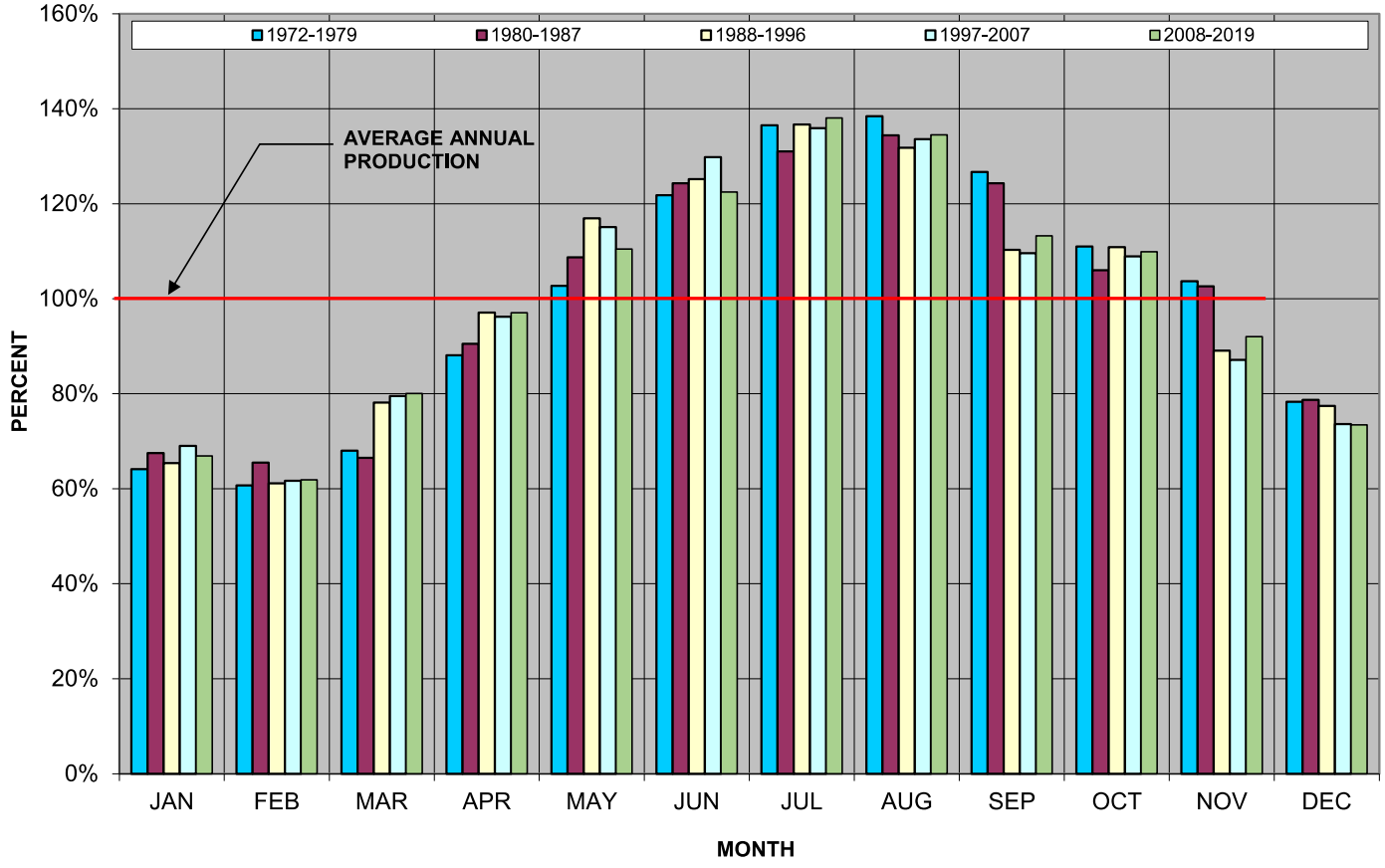
Historically, high demands have occurred June through September with maximum demands normally occurring in July and August, but occasionally in June. Low demands have normally occurred December through March with minimum demands normally occurring in February or March, but occasionally in December or January. Summer demands have varied from slightly below 11% to slightly above 12% of average annual demands. Winter demands have generally ranged between 5% and 6% of these same annual demands.

For analysis and planning purposes, maximum monthly demands are assumed to be 12.5% of average annual demands (maximum during past ten years, rounded), and minimum monthly demands are assumed to approximate 5% of average annual demands. Variations in average monthly demands for five separate periods of record beginning in 1972 (1972 through 1979, 1980 through 1987, 1988 through 1996, 1997 through 2007, and 2008 through 2019) are illustrated in **Figure III-2**. The variations in demand are very similar for the different time periods. During the 2008-2019 period, average monthly demands ranged from a high of 138% to a low of 62% of average annual demands.

TABLE III-4
HISTORIC MONTHLY PRODUCTION
2008/2009 THROUGH 2018/2019

Month	2008/2009		2009/2010		2010/2011		2011/2012		2012/2013		2013/2014		2014/2015		2015/2016		2016/2017		2017/2018		2018/2019		2008-2019 Average		Average Monthly Production
	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	Prod (AF)	%	
Jan	2,212	5.8	1,891	4.9	2,200	5.9	1,951	5.3	1,993	5.5	2,273	6.0	2,030	6.2	1,401	5.2	1,420	4.7	2,027	6.0	1,729	5.6	1,921	5.6	66.9%
Feb	1,520	4.0	1,780	4.7	1,936	5.2	1,973	5.4	1,771	4.9	2,135	5.7	1,865	5.7	1,695	6.3	1,605	5.3	1,956	5.8	1,306	4.2	1,777	5.2	61.9%
Mar	2,626	6.9	2,642	6.9	2,518	6.7	2,345	6.4	1,887	5.2	2,533	6.7	2,676	8.2	1,930	7.1	2,111	7.0	2,131	6.4	1,873	6.1	2,297	6.7	80.0%
Apr	3,011	8.0	3,021	7.9	2,869	7.7	2,956	8.1	3,112	8.5	3,104	8.2	2,810	8.6	1,951	7.2	2,255	7.5	2,855	8.5	2,702	8.7	2,786	8.1	97.1%
May	3,439	9.1	3,321	8.7	3,704	9.9	3,534	9.7	3,639	10.0	3,520	9.3	2,431	7.4	2,374	8.8	3,068	10.2	3,107	9.3	2,739	8.9	3,171	9.2	110.5%
Jun	4,322	11.4	4,152	10.8	3,847	10.3	3,891	10.6	3,619	9.9	3,911	10.4	2,850	8.7	2,787	10.3	3,258	10.8	3,243	9.7	2,793	9.0	3,516	10.2	122.5%
Jul	4,290	11.3	4,528	11.8	4,204	11.2	4,013	11.0	4,529	12.4	4,451	11.8	4,056	12.4	2,812	10.4	3,094	10.3	3,863	11.5	3,751	12.1	3,963	11.5	138.1%
Aug	4,167	11.0	4,606	12.0	4,543	12.1	4,460	12.2	4,016	11.0	3,933	10.4	3,084	9.4	2,946	10.9	3,697	12.3	3,573	10.6	3,450	11.1	3,861	11.2	134.5%
Sep	3,503	9.3	3,712	9.7	3,493	9.3	3,472	9.5	3,231	8.9	3,523	9.3	3,421	10.5	2,587	9.6	2,873	9.5	2,907	8.7	3,038	9.8	3,251	9.5	113.2%
Oct	3,569	9.4	3,444	9.0	3,085	8.2	3,394	9.3	3,550	9.7	3,363	8.9	3,174	9.7	2,270	8.4	2,760	9.2	3,102	9.2	2,985	9.6	3,154	9.2	109.9%
Nov	2,942	7.8	3,054	8.0	3,029	8.1	2,556	7.0	2,771	7.6	2,471	6.6	2,375	7.3	2,333	8.6	2,303	7.6	2,570	7.7	2,653	8.6	2,642	7.7	92.0%
Dec	2,267	6.0	2,152	5.6	2,095	5.6	2,043	5.6	2,367	6.5	2,484	6.6	1,964	6.0	1,951	7.2	1,694	5.6	2,235	6.7	1,946	6.3	2,109	6.2	73.5%
TOTAL	**37,868**	**100.0**	**38,303**	**100.0**	**37,523**	**100.0**	**36,588**	**100.0**	**36,485**	**100.0**	**37,701**	**100.0**	**32,736**	**100.0**	**27,037**	**100.0**	**30,138**	**100.0**	**33,569**	**100.0**	**30,966**	**100**	**34,448**	**100.0**	

FIGURE III-2
MONTHLY PRODUCTION AS PERCENT OF AVERAGE ANNUAL PRODUCTION



D. DAILY WATER DEMANDS

Daily water demands vary with human activity and weather conditions. Said demands are normally very low during the early morning hours and are very high during the late morning hours. Maximum daily demands normally occur during months of maximum demand, normally July or August and infrequently June, but occasionally they occur during months other than months of maximum demand. DWA currently reads customer meters on a monthly basis, but in 2006 and 2007, the maximum daily demand occurred in September.

Maximum daily temperatures for June, July, August, and September for 2017, 2018, and 2019 are shown by **Figure III-3**. Based on these maximum daily temperatures, there appear to be several periods during of the months indicated where maximum daily demands could occur. For the most part, extremely high temperatures last for relatively short periods, two to three days at most; however, at somewhat more moderate temperatures, hot spells last for several days, perhaps a week or more.

In the 1988 General Plan, the maximum day hourly demands ranged from 160% to 66% of average demand. In the 1998 General Plan, the maximum day hourly demands ranged from 145% to 72% of average demand. In the 2008 General Plan, the maximum day hourly demands ranged from 160% to 62% of average demand. These analyses were based on measured water production and recorded reservoir level fluctuations in the Palm Springs Main Zone, using 24 hour days. Maximum day hourly demands are shown in **Figure III-4** as a percentage of average demand (it is assumed that this pattern of demand has remained constant since 2007).

FIGURE III-3
MAXIMUM DAILY TEMPERATURES
(JUNE, JULY, AUGUST, AND SEPTEMBER 2017, 2018, AND 2019)

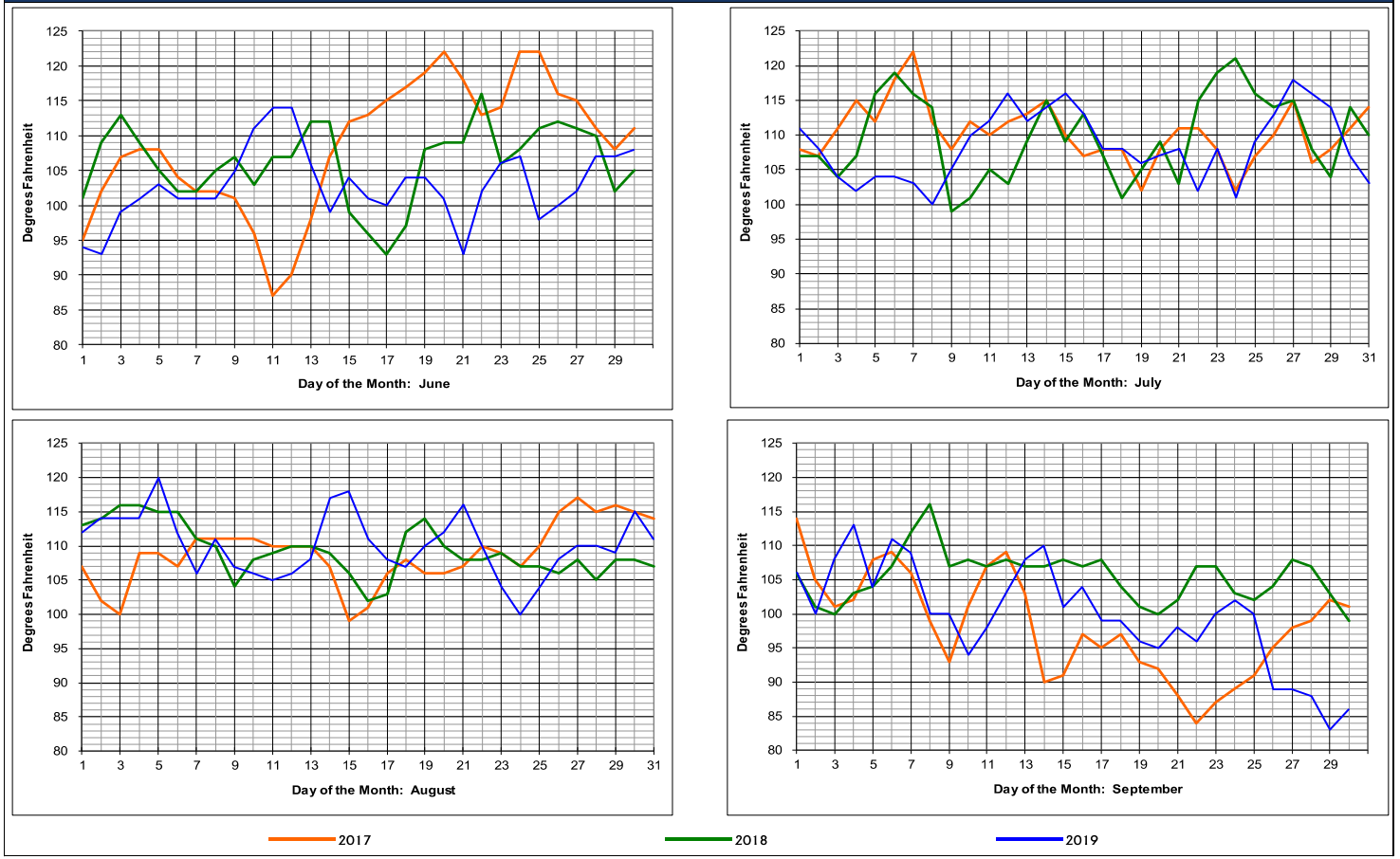
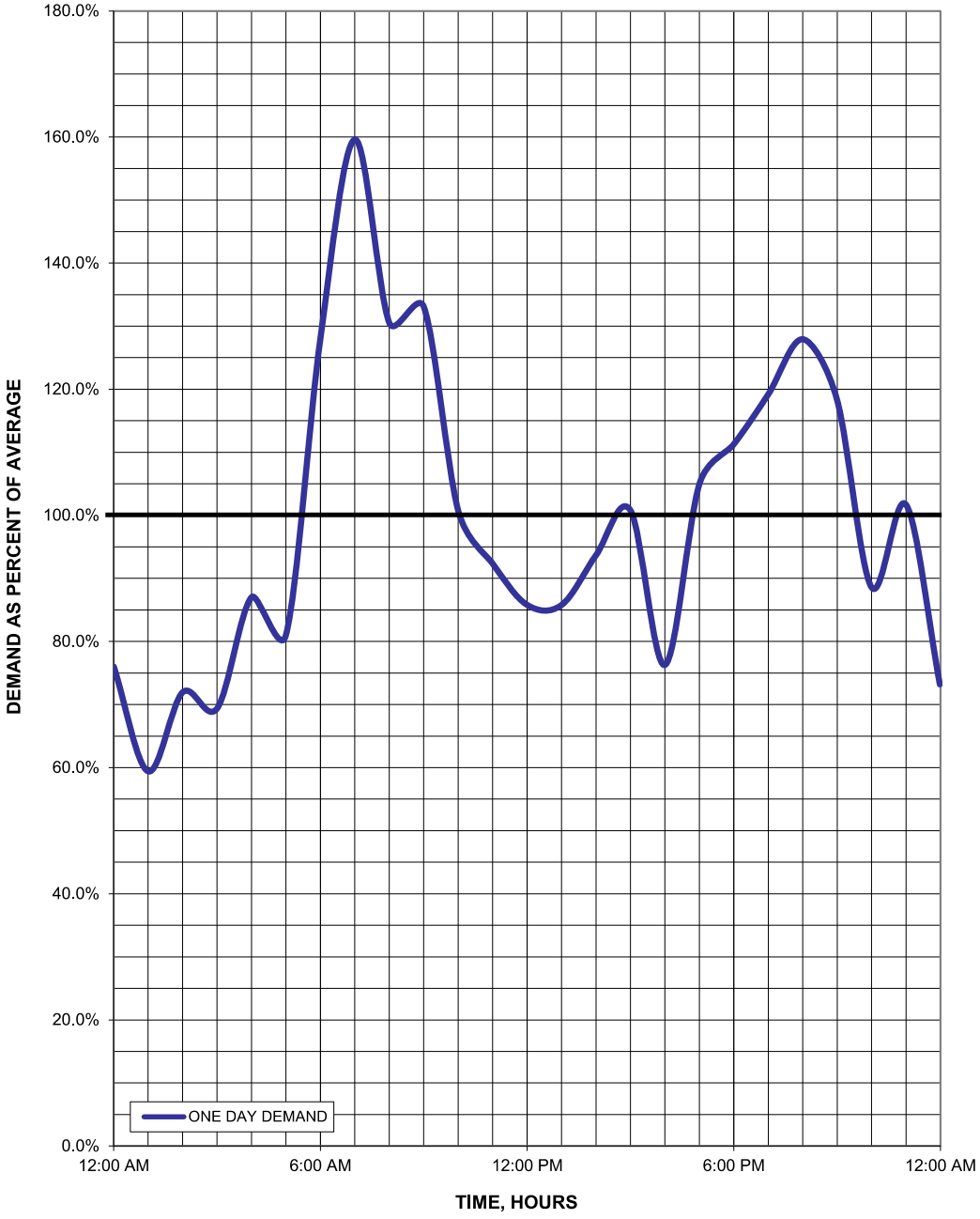


FIGURE III-4
MAXIMUM DAY HOURLY DEMAND
PALM SPRINGS MAIN SYSTEM



E. UNIT DEMAND FACTORS

Unit demand factors are rounded, proportional factors used for simulation and planning purposes. The unit demand factors set forth herein are based on those computed for the 2008 General Plan, using ratios of average annual demands, maximum day maximum month demands, and peak and minimum hour demands as described herein. Unit Demand Factors were not re-computed for this Plan because more recent metering data were not available in hourly or daily format; and, as discussed in sections C and D above, fluctuations in monthly and daily demand ratios have not varied significantly from year to year since 1988.

Unit demand factors have been developed for the basic systems, the 680 Main Zone and the 580 East Zone, and other systems, such as the 860 Chino East Zone, the 600 Terrace Zone, and all other zones higher than the basic system.

Demand factors used in system analysis for existing and proposed facilities are as follows:

Base Systems (680 Main Zone and 580 East Zone):

Average Day Maximum Month Demand	=	1.50	Average Day Annual Demand
Maximum Day Maximum Month Demand	=	1.85	Average Day Annual Demand
Peak Hour Maximum Day Demand	=	1.50	Maximum Day Maximum Month Demand
Minimum Hour Maximum Day Demand	=	0.70	Maximum Day Maximum Month Demand
Equalization Storage	=	0.20	Maximum Day Maximum Month Demand
Emergency Storage	=	0.5	Average Day Annual Demand

Other Systems (860 Chino East Zone and 1040 Desert Palisades Zone, Andreas Hills Zone, Terrace Zone, and Foothill Zone):

Average Day Maximum Month Demand	=	1.50	Average Day Annual Demand
Maximum Day Maximum Month Demand	=	2.00	Average Day Annual Demand
Peak Hour Maximum Day Demand	=	1.50	Maximum Day Maximum Month Demand
Minimum Hour Maximum Day Demand	=	0.50	Maximum Day Maximum Month Demand
Equalization Storage	=	0.30	Maximum Day Maximum Month Demand
Emergency Storage	=	0.5	Average Day Annual Demand

Isolated System Segments or Independent Systems (Snow Creek, Palm Oasis, and Desert Palisades Pressurized 1240 Zone):

Average Day Maximum Month Demand	=	1.50	Average Day Annual Demand
Maximum Day Maximum Month Demand	=	2.00	Average Day Annual Demand
Peak Hour Maximum Day Demand	=	2.00	Maximum Day Maximum Month Demand
Minimum Hour Maximum Day Demand	=	0.50	Maximum Day Maximum Month Demand
Equalization Storage	=	0.40	Maximum Day Maximum Month Demand
Emergency Storage	=	1.00	Average Day Annual Demand

The demand factors for the existing systems and zones are based on system-wide and zone-wide applications. Higher factors apply to isolated segments of the various systems or zones. These factors are based on restricted service areas and limited source and use diversity.

F. FIRE FLOW REQUIREMENTS

Fire flow requirements within the Service Area vary drastically. Palm Springs, Cathedral City, and Riverside County use the Uniform Fire Code or Insurance Services Office standards and guidelines for determining fire flows. Generally, fire flows are greater within the cities due to higher density of large commercial and industrial developments.

The City of Palm Springs utilizes the Uniform Fire Code to establish its fire flow requirements, except in special circumstances. The maximum fire flow required by the Uniform Fire Code is 8,000 gpm for a four-hour period.

Based on City Land Use Maps and the potential development within the various zones, the following fire flow requirements were established for analysis of existing and proposed water system facilities:

Service Area	Zone	Flow (gpm)	Duration (hrs)
Snow Creek	All	1,000	2
Palm Oasis	All	1,000	2
Chino Canyon	860 1,060 and Up	4,000 2,000	4 2
Palm Springs Main	680 880 and Up	8,000 2,000	4 2
Palm Springs East	580 600 and Up	4,000 2,000	4 2

The above fire flow requirements are the same as those set forth in the 2008 General Plan. These requirements are considered conservative since developers are being required to install fire sprinkler systems in new commercial and industrial developments. The Fire Department's requirement for sprinklers in new commercial and industrial buildings greatly reduces potential demand on the water system.

G. PRODUCTION AND STORAGE REQUIREMENTS

Production requirements for Normal and TOU Operation consist of surface water capture and groundwater extraction to meet maximum day demands.

Storage requirements for Normal Operation consist of three components, namely: equalization (operational) storage, which equals 20% to 40% of maximum day demand, depending on the zone; fire storage, which is the volume needed to meet a specified fire flow and duration; and emergency storage, which provides continuity of storage during periods when production has been interrupted. When utilized, TOU storage becomes a fourth component, as described in Section H hereinafter.

In the 2008 Water General Plan, emergency storage volumes of 24 hours of ADD for isolated system segments and independent systems (Snow Creek, Palm Oasis, and Desert Palisades 1240), and 12 hours of ADD for other systems were selected to develop recommendations for proposed storage facilities. Pursuant to discussions with DWA, this standard continues to be used for the current effort.

Production requirements based on projected annual water requirements and calculated unit demand factors are set forth in **Table III-5A** for Normal Operation and **Table III-5B** for TOU Operation. Storage requirements are set forth in **Table III-6A** for Normal Operation and **Table III-6B** for TOU Operation.

Production and storage requirements are presented by service area and by pressure zone. Since the indicated requirements are minimum requirements, facilities should be constructed as required to at least provide the stated production and storage requirements.

The projected production and storage requirements are based on existing service areas and pressure zones. The existing service areas and pressure zones will remain the same, except for the Chino

Cone (Desert Palisades) and the Palm Hills Specific Plan. The existing Desert Palisades pressure zones are the 1040 and 1240 pressure zones. Due to the termination of planned Chino Cone development projects, the higher Desert Palisades pressure zones are no longer being considered. The Palm Hills Specific Plan is included in the City's 2007 General Plan and covers the area south of Andreas Hills. The development is projected to occur at higher elevations than the Andreas Hills zone, thus requiring higher, additional pressure zones. The projected production and storage requirements for these future, additional pressure zones in the Palm Hills Plan are included in the current 880 Pressure Zone.

H. TIME-OF-USE (TOU) PRODUCTION AND STORAGE

TOU production and storage are intended to maintain service to customers during periods when wells and boosters are turned off to avoid high on-peak electrical pumping rates and, correspondingly, to take advantage of lower off-peak electrical pumping rates. TOU production is production in excess of MDD needed to meet MDD with wells and boosters turned off during on-peak electrical service periods. TOU storage is storage in excess of equalizing storage needed to store TOU production. Electrical rates are essentially unpredictable since the industry was deregulated, but Southern California Edison (SCE) has stipulated for 2019 that the TOU period (highest electrical rates) will be five hours, between 4:00 PM and 9:00 PM. This may change in future years.

DWA's goal is to have enough production and storage capacity to be able to shut down one-half of its wells and all of its booster stations during the TOU period. Therefore, in order to meet maximum day demands (one-half of production during the available five-hour peak period), TOU production must equal or exceed 112% MDD production, TOU booster pumping must equal or exceed 126% MDD production, and, correspondingly, TOU storage must equal or exceed 2.5 hours of MDD for reservoirs filled by well plants, and five hours of MDD for reservoirs filled by booster stations (Andreas Hills, Southridge, Terrace, and Foothill).

TABLE III-5A
PROJECTED PRODUCTION REQUIREMENTS
BY SERVICE AREA AND PRESSURE ZONE
IN GALLONS PER MINUTE
(NORMAL OPERATION)

Zone	Production Demand	2020	2030	2040	2050
Snow Creek Service Area					
Snow Creek Village	Average Day	17	34	52	69
(1160-1440)	Maximum Day	33	68	104	139
Total	Average Day	17	34	52	69
	Maximum Day	33	68	104	139
Palm Oasis Service Area					
Palm Oasis	Average Day	98	553	1,008	1,463
(1150)	Maximum Day	197	1,106	2,016	2,926
Total	Average Day	98	553	1,008	1,463
	Maximum Day	197	1,106	2,016	2,926
Chino Canyon Service Area					
Chino East	Average Day	1,731	2,439	3,148	3,856
(860)	Maximum Day	3,462	4,879	6,295	7,712
Desert Palisade	Average Day	74	115	156	197
(1040)	Maximum Day	148	230	311	393
Desert Palisade-Pressurized	Average Day	3	39	75	111
(1240)	Maximum Day	6	78	150	222
Total	Average Day	1,808	2,593	3,378	4,163
	Maximum Day	3,616	5,186	6,756	8,326
Palm Springs Main Service Area					
Palm Springs Main	Average Day	12,443	14,471	16,499	18,527
(680)	Maximum Day	23,019	26,771	30,523	34,275
Andreas Hills	Average Day	436	498	561	623
(880)	Maximum Day	872	997	1,121	1,246
Southridge	Average Day	22	25	28	30
(920)	Maximum Day	44	50	55	61
Southridge-Pressurized	Average Day	16	17	17	18
(1120)	Maximum Day	32	33	35	36
Total	Average Day	12,917	15,011	17,104	19,198
	Maximum Day	23,967	27,851	31,734	35,618
Palm Springs East Service Area					
Palm Springs East	Average Day	2,888	3,652	4,416	5,181
(580)	Maximum Day	5,344	6,757	8,171	9,584
Terrace	Average Day	141	156	171	186
(600)	Maximum Day	283	313	342	372
Foothill	Average Day	181	190	199	208
(830)	Maximum Day	361	380	398	417
Total	Average Day	3,211	3,999	4,787	5,575
	Maximum Day	5,988	7,450	8,911	10,372
Higher Elevation Service Areas (Tram)	Average Day	16	18	18	18
	Maximum Day	32	36	36	36
SYSTEM TOTAL	**Average Day**	**18,100**	**22,200**	**26,300**	**30,500**
	Maximum Day	**33,800**	**41,700**	**49,500**	**57,400**

TABLE III-5B
PROJECTED PRODUCTION REQUIREMENTS
BY SERVICE AREA AND PRESSURE ZONE
IN GALLONS PER MINUTE
(TIME-OF-USE OPERATION)

Zone	Production Demand	2020	2030	2040	2050
Snow Creek Service Area					
Snow Creek Village	Average Day	21	43	65	88
(1160-1440)	Maximum Day	42	86	131	175
Total	Average Day	21	43	65	88
	Maximum Day	42	86	131	175
Palm Oasis Service Area					
Palm Oasis	Average Day	124	699	1,273	1,848
(1150)	Maximum Day	249	1,398	2,547	3,696
Total	Average Day	124	699	1,273	1,848
	Maximum Day	249	1,398	2,547	3,696
Chino Canyon Service Area					
Chino East	Average Day	2,187	3,081	3,976	4,870
(860)	Maximum Day	4,373	6,162	7,952	9,741
Desert Palisade	Average Day	94	145	197	248
(1040)	Maximum Day	187	290	393	496
Desert Palisade-Pressurized	Average Day	3	49	95	140
(1240)	Maximum Day	7	98	189	280
Total	Average Day	2,284	3,275	4,267	5,259
	Maximum Day	4,567	6,551	8,534	10,518
Palm Springs Main Service Area					
Palm Springs Main	Average Day	15,717	18,279	20,841	23,402
(680)	Maximum Day	29,076	33,816	38,555	43,295
Andreas Hills	Average Day	551	630	708	787
(880)	Maximum Day	1,102	1,259	1,416	1,574
Southridge	Average Day	28	31	35	38
(920)	Maximum Day	56	63	70	77
Southridge-Pressurized	Average Day	20	21	22	23
(1120)	Maximum Day	40	42	44	45
Total	Average Day	16,316	18,961	21,606	24,250
	Maximum Day	30,274	35,180	40,085	44,991
Palm Springs East Service Area					
Palm Springs East	Average Day	3,649	4,614	5,579	6,544
(580)	Maximum Day	6,750	8,535	10,321	12,106
Terrace	Average Day	179	197	216	235
(600)	Maximum Day	357	395	432	470
Foothill	Average Day	228	240	251	263
(830)	Maximum Day	457	480	503	526
Total	Average Day	4,056	5,051	6,046	7,042
	Maximum Day	7,564	9,410	11,256	13,102
Higher Elevation Service Areas (Tram)	Average Day	20	23	23	23
	Maximum Day	40	45	45	45
SYSTEM TOTAL	**Average Day**	**22,800**	**28,000**	**33,300**	**38,500**
	Maximum Day	**42,700**	**52,600**	**62,600**	**72,500**

TABLE III-6A
PROJECTED STORAGE REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(NORMAL OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage
Snow Creek Service Area						
Snow Creek Village	Equalization	0.02	0.04	0.06	0.08	
(1160-1440)	Fire	0.12	0.12	0.12	0.12	
	Emergency	0.02	0.05	0.07	0.10	
	Total	0.16	0.21	0.25	0.30	1.15
Palm Oasis Service Area						
Palm Oasis	Equalization	0.11	0.64	1.16	1.69	
(1150)	Fire	0.12	0.12	0.12	0.12	
	Emergency	0.14	0.80	1.45	2.11	
	Total	0.38	1.55	2.73	3.91	2.00
Chino Canyon Service Area						
Chino East	Equalization	1.50	2.11	2.72	3.33	
(860)	Fire	0.96	0.96	0.96	0.96	
	Emergency	1.25	1.76	2.27	2.78	
	Total	3.70	4.82	5.95	7.07	7.30
Desert Palisade	Equalization	0.06	0.10	0.13	0.17	
(1040)	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.05	0.08	0.11	0.14	
	Total	0.36	0.42	0.49	0.55	0.50
Desert Palisade-Pressurized	Equalization	0.00	0.04	0.09	0.13	
(1240)	Fire	0.00	0.24	0.24	0.24	
	Emergency	0.00	0.06	0.11	0.16	
	Total	0.01	0.34	0.43	0.53	0.00
Service Area Totals	Equalization	1.56	2.25	2.94	3.63	
	Fire	1.20	1.44	1.44	1.44	
	Emergency	1.30	1.89	2.49	3.08	
	TOTAL	4.07	5.59	6.87	8.15	7.80

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE III-6A (Continued)
PROJECTED STORAGE REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(NORMAL OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage
Palm Springs Main Service Area						
Palm Springs Main (680)	Equalization	6.63	7.71	8.79	9.87	
	Fire	1.92	1.92	1.92	1.92	
	Emergency	8.96	10.42	11.88	13.34	
	Total	17.51	20.05	22.59	25.13	33.80
Andreas Hills (880)	Equalization	0.38	0.43	0.48	0.54	
	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.31	0.36	0.40	0.45	
	Total	0.93	1.03	1.13	1.23	3.00
Southridge (920)	Equalization	0.02	0.02	0.02	0.03	
	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.02	0.02	0.02	0.02	
	Total	0.28	0.28	0.28	0.29	0.40
Southridge-Pressurized (1120)	Equalization	0.01	0.01	0.01	0.02	
	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.01	0.01	0.01	0.01	
	Total	0.27	0.27	0.27	0.27	0.00
Service Area Totals	Equalization	7.04	8.18	9.31	10.45	
	Fire	2.64	2.64	2.64	2.64	
	Emergency	9.30	10.81	12.32	13.82	
	TOTAL	18.98	21.62	24.27	26.91	37.20
Palm Springs East Service Area						
Palm Springs East (580)	Equalization	1.54	1.95	2.35	2.76	
	Fire	0.96	0.96	0.96	0.96	
	Emergency	2.08	2.63	3.18	3.73	
	Total	4.58	5.54	6.49	7.45	10.00
Terrace (600)	Equalization	0.12	0.14	0.15	0.16	
	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.10	0.11	0.12	0.13	
	Total	0.46	0.49	0.51	0.53	0.70
Foothill (830)	Equalization	0.16	0.16	0.17	0.18	
	Fire	0.24	0.24	0.24	0.24	
	Emergency	0.13	0.14	0.14	0.15	
	Total	0.53	0.54	0.56	0.57	0.60
Service Area Totals	Equalization	1.82	2.25	2.67	3.10	
	Fire	1.44	1.44	1.44	1.44	
	Emergency	2.31	2.88	3.45	4.01	
	TOTAL	5.57	6.56	7.56	8.55	11.30

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE III-6B
PROJECTED STORAGE REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(TIME-OF-USE OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage
Snow Creek Service Area						
Snow Creek Village	Equalization	0.02	0.04	0.06	0.08	
(1160-1440)	Fire	0.12	0.12	0.12	0.12	
	TOU	0.01	0.02	0.03	0.04	
	Emergency	0.02	0.05	0.07	0.10	
	Total	0.17	0.23	0.29	0.34	1.15
Palm Oasis Service Area						
Palm Oasis	Equalization	0.11	0.64	1.16	1.69	
(1150)	Fire	0.12	0.12	0.12	0.12	
	TOU	0.06	0.33	0.60	0.88	
	Emergency	0.14	0.80	1.45	2.11	
	Total	0.43	1.89	3.34	4.79	2.00
Chino Canyon Service Area						
Chino East	Equalization	1.50	2.11	2.72	3.33	
(860)	Fire	0.96	0.96	0.96	0.96	
	TOU	1.04	1.46	1.89	2.31	
	Emergency	1.25	1.76	2.27	2.78	
	Total	4.74	6.29	7.83	9.38	7.30
Desert Palisade	Equalization	0.06	0.10	0.13	0.17	
(1040)	Fire	0.24	0.24	0.24	0.24	
	TOU	0.04	0.07	0.09	0.12	
	Emergency	0.05	0.08	0.11	0.14	
	Total	0.40	0.49	0.58	0.67	0.50
Desert Palisade-Pressurized	Equalization	0.00	0.04	0.09	0.13	
(1240)	Fire	0.00	0.24	0.24	0.24	
	TOU	0.00	0.02	0.04	0.07	
	Emergency	0.00	0.06	0.11	0.16	
	Total	0.01	0.36	0.48	0.59	0.00
Service Area Totals	Equalization	1.56	2.25	2.94	3.63	
	Fire	1.20	1.44	1.44	1.44	
	TOU	1.08	1.56	2.03	2.50	
	Emergency	1.30	1.89	2.49	3.08	
	TOTAL	5.15	7.14	8.89	10.64	7.80

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE III-6B (Continued)
PROJECTED STORAGE REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(TIME-OF-USE OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage
Palm Springs Main Service Area						
Palm Springs Main (680)	Equalization	6.63	7.71	8.79	9.87	
	Fire	1.92	1.92	1.92	1.92	
	TOU	6.91	8.03	9.16	10.28	
	Emergency	8.96	10.42	11.88	13.34	
	Total	24.41	28.08	31.75	35.41	33.80
Andreas Hills (880)	Equalization	0.38	0.43	0.48	0.54	
	Fire	0.24	0.24	0.24	0.24	
	TOU	0.26	0.30	0.34	0.37	
	Emergency	0.31	0.36	0.40	0.45	
	Total	1.19	1.33	1.46	1.60	3.00
Southridge (920)	Equalization	0.02	0.02	0.02	0.03	
	Fire	0.24	0.24	0.24	0.24	
	TOU	0.01	0.01	0.02	0.02	
	Emergency	0.02	0.02	0.02	0.02	
	Total	0.29	0.29	0.30	0.31	0.40
Southridge-Pressurized (1120)	Equalization	0.01	0.01	0.01	0.02	
	Fire	0.24	0.24	0.24	0.24	
	TOU	0.01	0.01	0.01	0.01	
	Emergency	0.01	0.01	0.01	0.01	
	Total	0.28	0.28	0.28	0.28	
Service Area Totals	Equalization	7.04	8.18	9.31	10.45	
	Fire	2.64	2.64	2.64	2.64	
	TOU	7.19	8.36	9.52	10.69	
	Emergency	9.30	10.81	12.32	13.82	
	TOTAL	26.17	29.98	33.79	37.60	37.20
Palm Springs East Service Area						
Palm Springs East (580)	Equalization	1.54	1.95	2.35	2.76	
	Fire	0.96	0.96	0.96	0.96	
	TOU	1.60	2.03	2.45	2.88	
	Emergency	2.08	2.63	3.18	3.73	
	Total	6.18	7.56	8.94	10.33	10.00
Terrace (600)	Equalization	0.12	0.14	0.15	0.16	
	Fire	0.24	0.24	0.24	0.24	
	TOU	0.08	0.09	0.10	0.11	
	Emergency	0.10	0.11	0.12	0.13	
	Total	0.55	0.58	0.61	0.65	0.70
Foothill (830)	Equalization	0.16	0.16	0.17	0.18	
	Fire	0.24	0.24	0.24	0.24	
	TOU	0.11	0.11	0.12	0.12	
	Emergency	0.13	0.14	0.14	0.15	
	Total	0.63	0.65	0.67	0.69	0.60
Service Area Totals	Equalization	1.82	2.25	2.67	3.10	
	Fire	1.44	1.44	1.44	1.44	
	TOU	1.80	2.23	2.67	3.11	
	Emergency	2.31	2.88	3.45	4.01	
	TOTAL	7.37	8.80	10.23	11.67	11.30

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

CHAPTER IV
WATER SUPPLY

CHAPTER IV
WATER SUPPLY

A. GENERAL

In the 1920s and 1930s, DWA's domestic water supply was derived entirely from stream diversions. In 2019, stream diversions constituted about 3.5% of the domestic water supply, groundwater extractions constituted about 84% of the domestic water supply, and recycled water used for irrigation water deliveries constituted about 12.5% of the domestic water supply.

The groundwater basin, which has been historically recharged from natural runoff, and which has also been recharged with imported water during the past 46 years, is capable of meeting the demands that will be placed on it, provided the groundwater basin continues to be replenished with sufficient quantities of imported water to meet future needs.

Unless direct use of imported water becomes economical or required, domestic water supply for potable use and landscape irrigation is expected to be derived from stream diversions, groundwater extractions, and recycled water, as it has during the past 30 years.

B. SURFACE WATER SUPPLY

1. General

DWA has historically diverted surface water from four diversion points on streams situated within relatively small and very rugged watersheds: Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West.

Although the quantities of the various surface water supplies are limited to a long-term average of roughly 6,400 AF/Yr due to variations in meteorological conditions, and some of them are subject to periodic bacteriological contamination requiring treatment, the mineral qualities of these various surface water supplies are excellent.

Until recently, surface water diverted from Snow Creek and Falls Creek (SC/FC) was utilized for water supply to Snow Creek Village, Palm Oasis, and the portion of Palm Springs served by the Palm Springs North and Chino Reservoirs.

In 1993, DWA began operating the SC/FC diversions without filtration in accordance with Federal and State Surface Water Filtration Avoidance criteria, as set forth in the California Code of Regulations, Title 22 (22 CCR), Section 64652.5. In September of 2018, due to reliability concerns with respect to fecal coliform concentrations, the DDW notified DWA that the SC/FC diversions no longer met the criteria for Surface Water Filtration Avoidance, and filtration treatment would need to be provided if DWA intended to continue using the SC/FC diversions for potable water.

Delivery of surface water to Palm Oasis and Palm Springs North was discontinued on September 9, 2020. On October 6, 2020, DWA completed and began operating a small surface water filtration facility to provide potable water service to Snow Creek Village. The remainder of the SC/FC diversion flows is now being utilized for generation of electricity and for groundwater replenishment, by discharging it into the West Whitewater River Subbasin Groundwater Replenishment Facility.

Surface water diverted from Chino Creek West is utilized exclusively for water supply to the Palm Springs Aerial Tramway. Due to low turbidity water and watershed protection, filtration has not historically been required by DDW for the Chino Creek West diversion. Therefore, disinfection has been historically provided as the only form of treatment. However, storms in early 2019 resulted in fluctuations of fecal coliform in the Chino Creek West surface water supply. As a result, DWA is proposing to install a small surface water filtration facility at the Chino Creek West diversion.

The Chino Creek North diversion was formerly used for domestic water supply, but was taken out of service in 2000 due to turbidity spikes in the source water, and cannot be restored to potable service without filtration. Stream water which has been diverted in the past now infiltrates the creek bed below the diversion, recharging the groundwater basin. If filtration and disinfection treatment were provided, Chino Creek North water could be used for potable water service. DWA has performed pilot testing of a cartridge (bag) filter system to evaluate the capital cost and labor cost required for operation; however, if filtration treatment at the Chino Creek North diversion were implemented, the treatment technology would most likely be pressure sand filtration similar to that currently being implemented for Snow Creek Village. DWA does not currently have plans to install such treatment at Chino Creek North.

DWA acquired the Whitewater Mutual Water Company in 2009, along with its adjudicated rights to divert surface water from the Whitewater River. Surface water diverted from the Whitewater River serves non-potable uses at the CalTrans Rest Stop, the Whitewater Rock Company, and Tribal (irrigation) customers at Whitewater Ranch. The DDW does not require treatment for existing uses of water from the Whitewater River diversion.

By 2045, groundwater (local, imported, and replenished with diverted surface water) will constitute about 93% of DWA's water supply, stream water will constitute about 2%, and recycled water will constitute about 5%.

2. Surface Water Quantity

DWA has licenses to divert specific quantities of surface water, measured in cubic feet per second (cfs) from SC/FC, and adjudicated water rights to divert specific quantities of surface water, measured in cfs, from both Chino Creek North and Chino Creek West, and from the Whitewater River, as shown in the following table:

DWA Licenses to Divert Surface Water				
		Quantity		
Diversion	Type of Right	cfs	gpm	AF/Yr
Snow Creek	License	5.5	2,468	3,982
Falls Creek	License	1.5	673	1,086
Chino Creek (North and West)	Adjudicated	2	898	1,448
Whitewater	Adjudicated	10	4,488	7,240
Total		**19**	**8,527**	**13,756**

The diversion and conveyance systems have capacity to accommodate the full permitted and adjudicated supply.

Due to limited long-term yields from small tributary drainage areas, the existing surface water supplies are at their hydrologic and economic capacity. Due to filtration avoidance regulations, DWA has historically bypassed surface water from SC/FC such that the average diversion has been about 1,000 AF/Yr. Based on monthly mean flows from October 1959 through July 2020, flows greater than or equal to DWA's 7.0 cfs water right have been available in Snow and Falls Creeks combined approximately 38% of the time.

A portion of said quantity is now being provided to Snow Creek Village by the Snow Creek Village Surface Water Filtration Plant, as described below.

DWA currently has two shallow wells at the Whitewater River diversion which, together with water from springs, produce approximately 2,000 gpm (3,226 AF/Yr). A portion of the water is currently provided to the Whitewater Ranch, the CalTrans Rest Stop, and the Whitewater Rock Company, and the rest is used for groundwater replenishment.

On October 9, 2020, DWA completed and began operating a 40 gpm surface water filtration plant to provide approximately 32 AF/Yr of filtered water from the SC/FC diversions to Snow Creek Village. Rather than construct additional surface water filtration facilities to treat additional water from the SC/FC diversion, DWA is using the remainder of the diverted SC/FC flow for generation of electricity and for groundwater replenishment by discharging it into the Whitewater River Subbasin Groundwater Replenishment Facility. DWA is licensed to divert approximately 12,308 AF/Yr of surface water from SC/FC and the Whitewater River (5,086 AF/Yr from SC/FC and 7,240 AF/Yr from Whitewater River), and intends to increase overall surface water diversions to an average of approximately 6,425 AF/Yr (2,900 AF/Yr from SC/FC and 3,525 AF/Yr from Whitewater River).

3. Surface Water Quality

Based on DWA's Watershed Sanitary Survey Update No. 4 (December 2017), there are no significant contaminant sources within the tributary watersheds. Currently, there are no residences within these watersheds.

The Snow Creek watershed consists of federal lands within the San Jacinto National Wilderness and Black Mountain Scenic Area of the San Bernardino National Forest (approximately 5,300 acres), state lands within the Mount San Jacinto State Wilderness (approximately 1,300 acres), and DWA lands (approximately 390 acres).

The Falls Creek watershed consists of DWA lands (approximately 190 acres), federal lands within the San Jacinto National Wilderness of the San Bernardino National Forest

(approximately 1,500 acres), and state lands within the Mount San Jacinto State Wilderness (approximately 900 acres).

There are currently no residential facilities within the Snow Creek and Falls Creek watersheds. In June 1994, DWA purchased the West Fork property (120 acres) to prevent development thereof and to protect the Snow Creek watershed. The residential units that existed at the time of purchase were destroyed by fire and DWA has cleaned up the site; only a shed remains.

The Chino Creek watershed consists of federal lands within the San Jacinto National Wilderness of the San Bernardino Forest (approximately 800 acres), state lands within the Mount San Jacinto State Wilderness (approximately 1,400 acres), and approximately 94 acres of private lands owned by eight private landowners.

Use of the DWA property within the watersheds is restricted and no overnight camping is allowed. Use of the federal lands is restricted primarily to recreation, including overnight camping (permit not required) and minor logging for maintenance of Forest Service trails and roads (permits required). Use of the State Park lands is restricted to recreation (permit required); however, no overnight camping is allowed. Use of private lands is restricted by Riverside County zoning regulations.

The nearest community to the SC/FC Watersheds is Snow Creek Village, located approximately one mile northerly and downstream of the combined Snow and Falls Creek Headworks. The nearest major city is Palm Springs, located approximately seven miles easterly and downstream of the combined Snow and Falls Creek Headworks.

No population centers or towns are located within the watersheds. The nearest city or community to the Chino Creek Watershed is Palm Springs, located approximately three miles easterly and downstream of the Chino Creek Headworks. Although the Palm Springs Aerial Tramway Upper Tram Station (operated by the Mount San Jacinto Winter Park Authority) is located near the top of the Chino Creek Watershed at an elevation of approximately 8,560 feet, the subsurface domestic waste disposal system for the facility is located in the Tahquitz Creek Watershed (to the east and outside of the Chino Creek Watershed).

No significant anticipated growth or projected changes in the sources of contaminants are expected in the watersheds since approximately 99% of watershed land is owned by public agencies and, based on comments received in discussions with Forest Service, State Parks, California Regional Water Quality Control Board (RWQCB), and Riverside County Planning Department representatives, no new developments are proposed or feasible within the watersheds.

The water produced by the surface water diversions is of high mineral quality and, after treatment, it complies with safe drinking water standards. Total dissolved solids (TDS) and total hardness are on the order of 40 parts per million (ppm) and 10 ppm for Snow Creek, 20 ppm and 10 ppm for Falls Creek, 120 ppm and 120 ppm for Chino Creek West, and 200 ppm and 140 ppm for Chino Creek North. The chemical, mineral, and physical quality of produced water is not expected to change significantly. However, microbial quality has deteriorated as more hikers gain access to the watershed and control of microbial water quality has become more difficult with increasing population within the Upper Coachella Valley. Therefore, the recently-completed 40 gpm surface water filtration plant is necessary for DWA to provide filtered and disinfected water from the SC/FC diversions to Snow Creek Village. DWA intends to utilize the remaining water from the SC/FC and Chino Creek North diversions for generation of electricity and for groundwater replenishment.

4. Applicable Water Quality Rules and Regulations

Federal and California rules regarding the use of surface water include the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 D/DBPR, adopted 1998, effective 2002), the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 D/DBPR, adopted 2004, effective 2005), the California Disinfectants and Disinfection Byproducts Rule (Ca-D/DBPR, adopted 2006), the Interim Enhanced Surface Water Treatment Rule (IESWTR, adopted 1998, effective 2002), and the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR, adopted 2006, effective 2010).

Each of the above-listed rules is discussed in the following paragraphs.

Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 D/DBPR) and California Disinfectants and Disinfection Byproducts Rule (Ca-D/DBPR)

The Federal Stage 1 D/DBPR was intended to protect the public against toxic disinfection byproducts (DBPs), which result from reactions between organic matter in the surface water and disinfectants added during treatment, particularly chlorine. It was published in the Federal Register on December 16, 1998, and became effective on January 1, 2002 for systems serving more than 10,000 people. The Stage 1 D/DBPR reduces the allowable level of Total Trihalomethanes (TTHMs) and establishes new limits for the sum of five Haloacetic Acids (HAA5) for all community water systems that disinfect their water.

The Ca-D/DBPR (22 CCR, Chapter 15.5), adopted in June 2006, implements the provisions of the Stage 1 D/DBPR in California.

The maximum contaminant levels (MCLs) for disinfection byproducts in the Stage 1 D/DBPR and the Ca-D/DBPR are set forth in Section 64533 of CCR 22, and are as follows:

Disinfection By-Product	MCL (mg/L)	Basis for Compliance
Total Trihalomethanes (TTHMs)	0.080	Running Annual Average (RAA)
Haloacetic Acids (five) (HAA5)	0.060	RAA
Bromate	0.010	RAA
Chlorite	1.0	Monthly Average

TTHMs and HAAs result from disinfection with chlorine, bromate results from disinfection with ozone, and chlorite results from disinfection with chlorine dioxide. Bromate monitoring is required monthly for water systems that use ozone, and chlorite monitoring is required for water systems that use chlorine dioxide.

In addition to the above-listed limits, the Stage 1 and Ca-D/DBPR include requirements for "enhanced coagulation" if product water levels of THMs and HAAs equivalent to 50% of the MCLs (i.e., 40 and 30 µg/L, respectively) cannot be achieved without it. "Enhanced coagulation" consists of pH adjustment coupled with increased coagulant dosages and sedimentation prior to filtration, in order to remove DBP pre-cursors. Since THMs and HAAs are caused by chlorination, systems using ozonation for disinfection are not likely to be subject to enhanced coagulation requirements.

Approved surface water systems serving 10,000 persons or more are required to take four samples per quarter per treatment plant for disinfection byproducts monitoring. At least 25% of all samples collected each quarter are required to be taken from locations representing maximum residence time. Remaining samples will be required at locations representative of at least average residence time in the distribution system. There are also provisions for reduced monitoring under certain conditions.

Maximum residual disinfectant levels (MRDL) for the disinfectants, applicable at the consumer's tap, are as follows:

Disinfectant Residual	MCL (mg/L)	Basis for Compliance
Chlorine	4.0 (as Cl2)	RAA
Chloramines	4.0 (as Cl2)	RAA
Chlorine Dioxide	0.8 (as ClO2)	Daily Samples

Community water systems that use chlorine or chloramines are required to measure residual disinfectant levels at the same points in the distribution system and at the same time as total coliforms are sampled.

All systems required to monitor are required to develop and implement a monitoring plan.

Stage 2 Disinfectant/Disinfection Byproducts Rule (Stage 2 D/DBPR)

The Stage 2 D/DBPR was published in the Federal Register on January 4, 2006, and is applicable to all community water systems that add a disinfectant other than UV or deliver water that has been disinfected. Its primary effect was to tighten compliance monitoring requirements for TTHMs and HAA5s by requiring performance of an Initial Distribution System Evaluation (IDSE) and basing TTHM and HAA5 compliance on Locational Running Annual Averages (LRAA). Various provisions of the Stage 2 D/DBPR became effective from 2007 through 2013.

Under the Stage 2 D/DBPR, DWA was required to submit a plan for IDSE monitoring by April 1, 2007, and to begin collecting samples in accordance with said monitoring plan by April 1, 2008. The monitoring plan was required to designate 16 sampling sites (3 near entry points, 4 at points of average residence time, 5 at high TTHM locations, and 4 at high

HAA5 locations), and each site was required to be sampled every 60 days for one year (i.e., 6 times). Existing compliance monitoring sites were not eligible for use in IDSE monitoring. One set of samples was required to be collected during the peak historical month, which is the month with the highest historical TTHM or HAA5 concentrations, or the highest water temperature. DWA's monitoring plan was approved by DDW (then California Department of Public Health (CDPH)) on April 9, 2008. In DDW's Approval Notice, the number of sampling sites was reduced by DDW based on the population served by DWA's chlorinated sources. Results of Stage 2 D/DBPR sampling performed by DWA in accordance with DDW directions during 2009 and 2010 were in compliance for TTHM and HAA5 levels as running annual averages. Four (4) existing compliance monitoring sites used for Stage 1 D/DBPR monitoring were not used for IDSE monitoring.

On August 5, 2013, based on the IDSE results, DWA submitted a Stage 2 D/DBPR Monitoring Plan as a Schedule 4 System, with an updated distribution system map identifying approved sample locations, monitoring schedule, and process for calculating the operational evaluation levels for compliance with TTHM and HAA5 MCLs. The monitoring plan also included procedures to address public notification and other triggered follow up actions pursuant to the Federal Stage 2 D/DBPR. The plan was approved by DDW on August 13, 2013.

DWA began complying with the 80/60 TTHM/HAA5 location running annual average (LRAA) MCLs in July 2014.

California Disinfectants/Disinfection Byproducts Rule (Ca-D/DBPR)

The Ca-D/DBPR (22 CCR, Chapter 15.5), adopted in June 2006 and amended in June 2012 and July 2014, implements the provisions of the Stage 1 and Stage 2 D/DBPR in California.

Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), and California Interim Enhanced Surface Water Treatment Rule (Ca-IESWTR)

The original Surface Water Treatment Rule (SWTR) was published in the Federal Register in June 1989, and was applicable to all public water systems (PWSs) using surface water sources or groundwater sources under the direct influence of surface water (GWUDI), required most water systems to filter and disinfect water from surface water sources or

GWUDI; established maximum contaminant level goals (MCLGs) for viruses, bacteria and *Giardia lamblia (Giardia),* and included treatment technique (TT) requirements for filtered and unfiltered systems to protect against adverse health effects of exposure to pathogens.

The original SWTR stated that "Each supplier using an approved surface water source shall provide multibarrier treatment necessary to reliably protect users from the adverse health effects of microbiological contaminants …". "Multibarrier treatment" is defined as "a series of water treatment processes that provide for both removal and inactivation of waterborne pathogens", which reliably ensures at least:

a. A total of 99.9 percent (3-log) reduction of *Giardia* cysts through filtration and disinfection; and

b. A total of 99.99 (4-log) percent reduction or viruses through filtration and disinfection.

The IESWTR was published in the Federal Register on December 16, 1998 and became effective on January 1, 2002 for systems serving surface water or groundwater under the influence of surface water to more than 10,000 people. The IESWTR was an amendment and enhancement of the original SWTR, and its primary purposes were to improve public health and the control of microbial contaminants in drinking water, particularly *Cryptosporidium*, and to guard against significant increases in microbial risk that might otherwise occur when systems implement the Stage 1 D/DBPR (see below).

Suppliers serving at least 10,000 people must also either filter surface water supplies to achieve at least 99 percent (2-log) removal of *Cryptosporidium*, or achieve *Cryptosporidium* control under a watershed control plan. For water systems that serve more than 10,000 people and qualify for filtration avoidance, *Cryptosporidium* is included in the watershed control provisions whenever *Giardia* is mentioned.

In DWA's original Watershed Sanitary Survey (July 1994), it was stated "the level of *Giardia* cysts in a surface water is directly related to the presence of human population and certain animal populations (e.g. beavers and muskrats), which are known to carry high levels of *Giardia*, in the watersheds." Likewise, the level of *Cryptosporidium* is directly related to the presence of human populations and certain animal populations.

The Original Survey concluded for the Falls Creek, Snow Creek, and Chino Creek Watersheds that improper disposal of domestic wastes by recreational users of the watersheds and animal wastes from mammals which inhabit the watersheds could cause microbial contamination of the surface waters. Based on historic records, it does not appear that there is a significant risk of microbial contamination to surface waters from human or animal sources, provided these sources remain controlled.

The Ca-IESWTR, adopted in 2004, amending portions of 22 CCR, Chapter 17, promulgates essentially the same requirements as the IESWTR, but with more stringent monitoring requirements for filtration systems.

Until recently, DWA was exempt from the multibarrier (filtration) requirement for Snow Creek, Falls Creek, and Chino Creek West potable water supplies based on DWA's control of the watershed, the water supplies' low turbidity, and DWA's ongoing monitoring program. Compliance with SWTR removals for *Giardia* and viruses was achieved by disinfection. Control of *Cryptosporidium* was achieved under a watershed control plan.

On September 12, 2018, due to reliability concerns with respect to fecal coliform (*E. coli)* concentrations, DDW notified DWA that the SC/FC diversions no longer met the criteria for Surface Water Filtration Avoidance, and filtration treatment would need to be provided if DWA intended to continue using the SC/FC diversions for potable water. DWA's Snow Creek Village Surface Water Filtration Plant was constructed, in response to DDW's action, to provide treated, potable water service to Snow Creek Village. The facility was put into operation on October 6, 2020. DDW issued an amendment to DWA's water distribution permit (Amendment No. 05-20-20PA-020), to cover the operation of the Snow Creek Village Surface Water Filtration Plant. The remainder of the surface water diverted from SC/FC is being utilized for generation of electricity and for groundwater replenishment.

Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)

The LT2ESWTR was published in the Federal Register on January 5, 2006, and is applicable to all community water systems that serve surface water or groundwater under the influence of surface water to more than 10,000 people. Various provisions of the LT2ESWTR became effective from 2008 through 2009. It was adopted in California in

May 2013, amending portions of 22 CCR, Chapters 12 (funding, now repealed) and 17 (treatment), and made effective July 1, 2013.

Under the LT2ESWTR, DWA, as an unfiltered system, was required to continue to meet filtration avoidance criteria (including 4-log virus inactivation and 3-log *Giardia* inactivation) and, ultimately, to provide 2- to 3-log *Cryptosporidium* inactivation depending on the results of *Cryptosporidium* monitoring.

In accordance with the LT2ESWTR, DWA was required to:

- Submit a plan for the source water *Cryptosporidium* monitoring by January 1, 2007 and perform 24 months of monthly Source Water *Cryptosporidium* Monitoring commencing in April 2007.
- Commit in writing to providing at least the default 2-log (99.9%) *Cryptosporidium* inactivation.

Data collected during the source water *Cryptosporidium* monitoring period was used by DDW to determine the level of additional *Cryptosporidium* inactivation required, according to the following criteria:

a. If the mean source water *Cryptosporidium* concentration is 0.01 oocysts/l or less, then 2-log inactivation would be required.

b. If the mean source water *Cryptosporidium* concentration is greater than 0.01 oocysts/l, or if DWA failed to complete the source water monitoring requirements, then 3-log inactivation would be required.

All samples taken as part of the 24-month *Cryptosporidium* monitoring were ≤0.01 oocysts/L. Therefore, a minimum of 2-log *Cryptosporidium* inactivation was required for DWA's surface water sources. Based on the LT2ESWTR, a 2-log *Cryptosporidium* inactivation requires the use of at least two (2) of the following disinfectants: chlorine dioxide, ozone, or UV. Even though the LT2ESWTR does not list chlorine as a disinfectant suitable for *Cryptosporidium* inactivation, discussions with DDW

(then CDPH) indicated that chlorine in conjunction with either chlorine dioxide, ozone, or UV would satisfy the treatment requirements for *Giardia* viruses and *Cryptosporidium*.

New equipment to provide a minimum of 2-log *Cryptosporidium* inactivation by chlorine dioxide, ozone, or UV treatment was required to be installed and operational by September 30, 2014. (Chlorine dioxide and ozone can provide up to a 2-log inactivation and UV can provide a 2.5 log inactivation or more. Chlorine, independently, has been shown to be ineffective against *Cryptosporidium*.) Based on considerations of cost effectiveness and simplicity of operation, DWA selected UV as the second disinfectant, and UV treatment equipment was installed at the SC/FC and Chino Creek West surface water diversions to augment the existing chlorination facilities in the fall of 2014 (see **Chapter V** of this General Plan).

As mentioned previously, in September 2018, DDW notified DWA that the SC/FC diversions no longer met the criteria for Surface Water Filtration Avoidance, and filtration treatment would need to be provided if DWA intended to continue using the SC/FC diversions for potable water. In response, DWA constructed the Snow Creek Village Surface Water Treatment Plant to provide treated, potable water service to Snow Creek Village. The facility was put into operation on October 6, 2020. The remainder of the surface water diverted from SC/FC is being utilized for generation of electricity and for groundwater replenishment. DWA has also budgeted the installation of a 50 gpm capacity package surface water filtration facility at the Chino Creek West diversion.

C. GROUNDWATER SUPPLY

1. General

The Coachella Valley Groundwater Basin (Basin) is subdivided into several subbasins and subareas. The designation of the Basin subdivisions was performed differently in publications of the United States Geological Survey (USGS) and DWR. The largest subdivision of the Basin is designated the Whitewater River Subbasin by the USGS and the Indio Subbasin by DWR. The next largest subdivision is the Mission Creek Subbasin (so designated by both USGS and DWR). The other subdivision of interest herein is termed the Garnet Hill (GH) Subbasin by the USGS and the Garnet Hill Subarea of the Indio Subbasin by DWR.

The Whitewater River Subbasin is divided into westerly and easterly components for purposes of groundwater management. The West Whitewater River Subbasin Management Area (WWR) coincides largely with what is designated by DWR as the Palm Springs and Garnet Hill Subareas of the Indio Subbasin. The East Whitewater River Subbasin Management Area (EWR) coincides largely with what is designated by DWR as the Thermal Subarea of the Indio Subbasin. The Mission Creek Subbasin Management Area (MC) lies to the northeast of the WWR.

DWA's wells are situated within the WWR. CVWD also extracts water from the WWR; in addition to extracting water from the EWR. Both CVWD and the MSWD extract water from the MC. DWA and CVWD jointly manage the groundwater resources within the Whitewater River (Indio) Subbasin; and along with MSWD, jointly participate in a Management Committee to exchange information, express ideas, and otherwise discuss in a free, comprehensive, and frank manner any and all matters pertinent to the management of the water resources within the Mission Creek Subbasin and the WWR.

Most water production within the Westerly Coachella Valley has and continues to occur within the WWR. In 1998, approximately 95% of production occurred within the WWR, currently approximately 92% occurs there, with the remainder occurring within the Mission Creek Subbasin located on the northeast side of the Upper Coachella Valley. Of water currently produced within the WWR, about 23% is within DWA and about 77% is within CVWD. At ultimate development, approximately 78% of total production within the Westerly Coachella Valley is projected to occur within the WWR, with about 23% being produced within DWA and 77% being produced within CVWD.

The WWR is replenished with water from the San Gorgonio River, the Whitewater River, Snow, Falls, and Chino Creeks, and other smaller tributary creeks; along with imported water from the Colorado River Aqueduct (CRA) obtained in exchange for State Water Project (SWP) water pursuant to agreements among CVWD, DWA, and MWD.

Water production (groundwater extractions plus surface water diversions) in the WWR has averaged about 151,000 AF/Yr during the past five years (2016-2020), about 23% occurring within DWA and about 77% occurring within CVWD. Groundwater extractions

from the WWR have averaged about 150,000 AF/Yr, the difference being attributable to the surface water diversions within DWA.

Natural recharge includes precipitation, surface water runoff, and subsurface inflow. It is currently (2020) estimated that natural inflow into the WWR is approximately 34,000 AF/Yr, while natural outflow is currently estimated at approximately 1,000 AF/Yr (based on projections by Woodard, et al., for SGMA Reporting). Thus, approximately 32,000 AF (2020 natural inflow less 2020 natural outflow) of natural, or native, groundwater was available in 2020; and approximately 30,500 AF is available for water supply each year based on an average of the past five years (2016-2020).

Consumptive use of water represents the use of water that is not returned to the aquifer (for example, water that is transpired by vegetation into the atmosphere, water that is incorporated into biomass or manufactured products, and water that is exported). Non-consumptive return water is water that is ultimately returned to the aquifer after use (for example, irrigation water percolating beyond the root zone or treated wastewater discharged to percolation ponds or leach fields) or water used for public parks or golf course irrigation (wastewater recycled for irrigation use).

Although non-consumptive return in the WWR has been estimated at approximately 40% (USGS 1974) and 35% (USGS 1992), Woodard, et al., estimate the 2020 non-consumptive return at approximately 54,000 AF (35%).

Recent average annual total production of 151,000 AF has therefore been met with approximately 32,000 AF of net natural recharge, 54,000 AF of non-consumptive return, and the balance from artificial recharge and, when imported water supplies were insufficient, such as during droughts, from groundwater in storage.

2. Artificial Recharge

Artificial recharge augments natural replenishment, which approximates 32,000 AF/Yr excluding non-consumptive return; therefore, imported water is the most significant component of the DWR's source of water.

In the early 1960s, CVWD and DWA entered into contracts with DWR to secure entitlements of SWP water to meet increasing groundwater replenishment requirements of the Upper Coachella Valley. Since SWP water cannot be delivered directly to the Coachella Valley at this time, CVWD and DWA have entered into a series of agreements with MWD, whereby CVWD and DWA exchange their SWP entitlements for equal quantities of MWD CRA water which is then delivered to Groundwater Replenishment Facilities within the Westerly Coachella Valley.

The SWTR and amendments apply to Colorado River water and SWP water. These regulations require that the water be treated prior to placing it directly into DWA's domestic water system. Presently, treatment by conventional processes includes coagulation, flocculation, sedimentation, and rapid rate sand, dual media, or mixed media filtration.

The DDW does not currently require that CRA water be treated after groundwater extraction. The filtration which occurs as CRA water infiltrates through the soil is considered adequate.

Between 1973 and 2019, CVWD and DWA replenished the WWR with approximately 3,753,893 AF of imported CRA water pursuant to exchange agreements with MWD. Between 2002 and 2019, CVWD and DWA replenished the MC with approximately 165,086 AF of imported CRA water pursuant to the aforementioned exchange agreements with MWD. CVWD and DWA have therefore recharged the WWR and MC with about 3,644,495 AF through exchange and advance deliveries since 1973.

CVWD's and DWA's joint replenishment activities, including historical quantities of artificial replenishment from imported water since commencement of the replenishment program in 1973, are described in detail in the annual *Engineer's Report: Groundwater Replenishment and Assessment Program for the West Whitewater River Subbasin, Mission Creek Subbasin, and Garnet Hill Subbasin Areas of Benefit*.

CVWD and DWA own and operate production wells within the WWR and they jointly manage production and recharge activities therein. CVWD operates the Whitewater River Groundwater Replenishment Facilities in the WWR. DWA does not own or operate production wells within the MC, but participates with CVWD and MSWD in the

management of production and recharge activities within the MC. DWA operates the Mission Creek Groundwater Replenishment Facilities in the MC.

CPV Sentinel Energy, LLC (CPV Sentinel) operates a natural gas-fired, 850-megawatt (MW) electrical generating facility within the MC, within MSWD, and near the City of Desert Hot Springs. The facility requires an average of 550 AF/Yr of water for cooling purposes (maximum 1,100 AF in any calendar year).

CPV Sentinel has made satisfactory arrangements with DWA to import sufficient water to meet the demands of the facility. Since CPV Sentinel's water will be recharged before being extracted and will be consumptively used following extraction, and since CPV Sentinel's activities are limited to the MC, CPV Sentinel's activities are not herein considered further.

Although artificial recharge with imported water, augmenting natural replenishment, has met increasing average annual groundwater demands during the past 40 years and has resulted in stabilization of groundwater levels, it has not, for all practical purposes, reduced or diminished cumulative gross groundwater overdraft, which existed prior to artificial recharge of the groundwater basin. In effect, the cumulative gross groundwater overdraft condition that existed prior to imported water becoming available for groundwater replenishment has not been significantly altered, but the trend that existed has been arrested.

Future projections of the quantities of natural inflow, natural outflow, non-consumptive return flows, groundwater production, and artificial replenishment are not included in this plan; for such projections, please refer to the *2022 Indio Subbasin Water Management Plan Update* and the *2021 Mission Creek Subbasin Alternative Plan Update* and future updates thereto.

3. Historic WWR Production

The following paragraphs present milestones of the history of water production in the WWR.

Annual water production (groundwater extractions plus surface water diversions) within the WWR averaged about 93,000 AF from 1965 through 1967, and then increased to approximately 187,000 AF in 1990. It then decreased to approximately 174,000 AF in 1991, coincident with the initiation of significant deliveries of recycled water by CVWD and DWA to irrigation users within the Management Area (which had the effect of temporarily reversing the trend toward steadily increasing production of groundwater therein).

Due to development, production increased sharply to about 187,000 AF in 1997 and to about 208,000 AF in 1999. It then averaged about 211,000 AF during the three-year period 2000 through 2002 and remained relatively stable through 2007, likely as a result of water conservation and increased use of recycled water, and (within CVWD's Area of Benefit) conversion of agricultural land to residential development, which leveled off in 2000. Production decreased following 2007 due to water conservation programs implemented by both agencies and also partly to poor economic conditions reducing demands.

During the past five calendar years (2016 through 2020), average annual total water production within the WWR has been about 151,000 AF/Yr, approximately three-fourths of which took place within CVWD's Service Area within the WWR and approximately one-fourth within DWA's Service Area within the WWR.

4. Historic WWR Water Importation

The following paragraphs present milestones of the history of water importation for groundwater replenishment in the WWR.

CVWD and DWA commenced the WWR groundwater replenishment program in 1973 with SWP Table A water allocations amounting to 61,200 AF/Yr. During subsequent years, to meet increasing water demands and to alleviate cumulative overdraft conditions, CVWD and DWA have secured additional SWP Table A water allocations, increasing their combined maximum Table A water allocations from their original 61,200 AF/Yr from 1990 through 2003 to 194,100 AF/Yr beginning in 2010.

CVWD and DWA initiated the Mission Creek Subbasin Groundwater Replenishment Program in 2002. The *Mission Creek Groundwater Replenishment Agreement* includes

provisions that link the distribution of replenishment allocations between the Whitewater River and Mission Creek Groundwater Replenishment Facilities to relative groundwater production between the WWR and the MC. Based on that production relationship and projected production in the two areas, about 81% to 87% of future imported Table A water deliveries will be directed to the WWR. In addition, CVWD and DWA continue to pursue the acquisition of more Table A water allocation and the purchase of surplus water.

The first purchase of additional Table A allocations was by CVWD for an additional 9,900 AF/Yr of Table A water allocation from Tulare Lake Basin Water Storage District, another SWP contractor, thus increasing its annual Table A water allocation to 33,000 AF/Yr, effective January 1, 2004.

CVWD and DWA obtained an additional 100,000 AF/Yr (88,100 AF/Yr for CVWD and 11,900 AF/Yr for DWA) of Table A water allocation through a new exchange agreement (the 2003 Exchange Agreement) among CVWD, DWA, and MWD, all SWP contractors. The 2003 exchange agreement, which became effective January 1, 2005, permitted MWD to call-back or recall the assigned annual Table A water allocation of 100,000 AF/Yr in 50,000 AF/Yr increments during periods of constrained, limited, or low water supply conditions; however, it gave CVWD and DWA opportunity to secure increased quantities of surplus water in addition to increased quantities of Table A water during normal or high water supply conditions. MWD did recall 100,000 AF in 2005, but has not recalled any water since then.

The 2003 Exchange Agreement was substantially amended, restated, and consolidated in 2019 as the 2019 Exchange Agreement. The 2019 Exchange Agreement provides more certainty of water supplies for DWA and CVWD, and more operational flexibility to MWD. Key elements of the 2019 Exchange Agreement include:

1) Ending MWD's right to call back 100,000 AF of the Table A Quantity,

2) Preserving MWD's ability to advance deliver water to the Whitewater River and Mission Creek Groundwater Replenishment Facilities when conditions allow,

3) Enabling MWD to conditionally defer Colorado River water deliveries during drier periods,

4) Increasing reliability of supplemental State Water Project and non-State Water Project water deliveries,

5) Allowing DWA and CVWD access to Article 21 supplies when available (in proportion to Table A quantities), and

6) Allowing DWA and CVWD access to MWD's water storage accounts, and defining the cost-sharing structure.

In 2010, CVWD and DWA negotiated transfer of an additional 16,000 AF/Yr (12,000 AF/Yr for CVWD and 4,000 AF/Yr for DWA) of Table A water allocation from Kern County Water Agency and an additional 7,000 AF/Yr (5,250 AF/Yr for CVWD and 1,750 AF/Yr for DWA) from Tulare Lake Basin Water Storage District, both SWP contractors, with deliveries commencing in 2010.

In 2010, CVWD's and DWA's Table A water allocations were, therefore, increased to 138,350 AF/Yr and 55,750 AF/Yr, respectively, for a combined total of 194,100 AF/Yr (71% CVWD and 29% DWA).

5. Continued Availability of Table A Allocations

With full deliveries of the 2010 Table A water allocations (with no MWD recall, and with no DWR reductions in Table A deliveries), plus natural supply and non-consumptive return flow, annual water supply would be significantly greater than annual water requirements. With reduced deliveries of Table A water allocations, annual water supply may be insufficient to meet annual water requirements without groundwater from storage. In the long-term, groundwater replenishment is expected to exceed groundwater extraction such that the cumulative overdraft will be reduced.

Continuous availability of maximum Table A allocations will require complete development of the SWP, which currently has only about half of the water supply capacity needed to meet maximum Table A allocation obligations during droughts; available water supplies are being further threatened by new and increasing constraints on the development of new water supply facilities and on the operation of existing facilities.

In particular, the rulings by Federal Judge Oliver Wanger (2007-2010) regarding protection of the Delta Smelt, concerns about reliability of the delta levees, and other concerns led the DWR to issue a revision in June 2012 of *The State Water Project Delivery Reliability Report 2009*, dated August 2010, wherein the long-term reliability of SWP supplies was reduced from an estimated 75% to 85% of maximum Table A allocations to approximately 60% of maximum allocations. *The State Water Project Delivery Reliability Report 2013*, dated December 2014, further reduced the long-term reliability of SWP supplies to 58%.

In July 2015, DWR issued *The Final State Water Project Deliverability Capability Report 2015*. Beginning with said Report, DWR stopped making long-term future reliability projections, and instead evaluated the SWP's delivery capability ("deliverability") based on existing and historical conditions. Said report estimated the median deliverability of SWP supplies at approximately 64%, and long-term deliverability (82-year average value) at 62% of maximum Table A quantities 50% of the time over the historic long-term (based on a computer model simulation of hydrologic conditions from 1922-2003). In August 2020, DWR issued its *Final State Water Project Delivery Capability Report 2019*, which includes an evaluation of deliveries through calendar year 2018. The 2019 Report continues to use the same 82-year hydrologic record used for the 2015 Report (1922 through 2003) for its computer model simulations of potential hydrologic conditions (runoff and precipitation patterns) for long-term average delivery, and deliveries during typical wet years and typical dry years. However, the analysis accounts for land use, upstream flow regulations, and sea levels characteristic of 2019 and DWR judges this 82-year period to be sufficient to provide a reasonable range of potential hydrologic conditions from wet years to critically dry years. The 2019 Report estimates the long-term average deliverability at 58% of maximum Table A quantities, essentially returning to the figure presented in the 2013 Report. Woodard, et al., currently estimate the SWP reliability at 45% through the planning horizon.

Without the construction of additional Sacramento-San Joaquin Delta facilities and certain water storage reservoirs, the water supply capability of the SWP will remain limited and contractors will have to share the reduced available supplies, especially during droughts.

The State of California is proposing a program of improvements to the SWP. The program was originally called *California WaterFix*, and is now called the *Delta Conveyance Project*.

The California WaterFix program originally involved the construction and operation of new water diversion facilities near Courtland to convey water from the Sacramento River through two tunnels to the existing state and federal pumping facilities near Tracy. In addition to other federal, state, and local approvals, California WaterFix required changes to the water rights permits for the SWP and the federal Central Valley Project to authorize the proposed new points of water diversion and rediversion.

The capital cost of the full California WaterFix Project was estimated at about $17 billion for two tunnels. However, in his first State of the State address on February 12, 2019, Governor Gavin Newsom announced that he supports only the single-tunnel alternative, known as the "Delta Conveyance Project", or DCP, and the California WaterFix project was officially halted in May, 2019.

The planning and environmental review process for the DCP commenced on January 15, 2020 with the release of the Notice of Preparation (NOP) for the development of an Environmental Impact Report (EIR), which would evaluate several project alternatives. Scoping for the EIR has been completed. The Draft EIR is anticipated to be released for public review and comment in mid-2022. The Delta Conveyance Project is expected to cost about $16 billion, with construction expected to begin in 2024 and continue to about 2034.

Eventually, SWP water supply reliability, quality, and delivered quantities and the overall health of the Delta may improve upon implementation of the DCP; however, it is unlikely that the costs for Delta improvements will be allocated to the State Water Contractors before 2030.

6. Imported Water Supply Delivery Alternatives

Alternatives for delivering supplemental (exchange or entitlement) water to the DWA Service Area were addressed in the 1988 General Plan. The 1988 General Plan presented a comparison of alternatives for conveyance of CRA water from the CRA or SWP

Coachella Valley Aqueduct (CVA) (Pass Alternative) to the DWA and CVWD Service Areas. Due to increases in construction, operation, and pumping energy costs, energy generation revenues, and contractor demands on SWP water supplies, said alternatives were re-evaluated in the 1998 General Plan.

Both the 1988 and 1998 General Plans recommended that DWA continue recharging the Upper Coachella Valley Groundwater Basin with CRA water (SWP exchange water in accordance with agreements between DWA and MWD) and pumping groundwater to meet water supply demands. They also recommended that DWA defer construction of any supplemental water supply facilities to full capacity (except groundwater pumping facilities) until the water supply for the SWP is secured and is capable of meeting full entitlement obligations.

The recommendations were based on cost and risk. Costs were determined for single DWA projects and combined CVWD/DWA projects. Risks were based on water supply availability and reliability. Because the SWP was not capable of supplying all of the water needed to meet full entitlement obligations, recharge and pump alternatives were considered more reliable, with groundwater in storage being available for continuous supply. Direct delivery alternatives were considered less reliable since imported water will not be available on a continuous basis during shortages or droughts.

The 1998 General Plan recommended that DWA monitor the "penalty cost" of CRA water to determine when, or if, SWP water should be substituted for CRA water, and, if so, when the CVA should be constructed. Currently, the CRA is being re-evaluated by a consortium of MWD, CVWD, and DWA.

Since the SWP is still not capable of meeting full entitlement obligations, the recommendations of the 1988 and 1998 General Plans remain valid. Should conditions change, the alternatives should be reevaluated based on then-current costs.

7. Groundwater Levels

Since 1973, recharge water has been and continues to be infiltrated in the West Whitewater River Subbasin Groundwater Replenishment Facility (WWR Replenishment Facility) near Windy Point. It then percolates to the groundwater basin underlying the WWR

Replenishment Facility. The groundwater levels underlying the recharge basins reached their lowest levels during the three-year period 1978 through 1980. With artificial recharge from CVWD and DWA exchange deliveries, augmented by MWD advanced deliveries, the groundwater levels underlying the WWR Replenishment Facility reached their highest levels during year 1986. Water levels rose about 430 feet from 1978 to 1986, increasing up to 275 feet during an 18-month period (November 1984 to May 1986) when MWD advance deliveries were being recharged. The groundwater mound underlying the Replenishment Facility dissipated following the introduction of the advance deliveries and the water levels declined up to about 110 feet in the vicinity of the WWR Replenishment Facility until 2010, when additional advance deliveries resulted in increased water levels of approximately 95 feet. The largest advance delivery to date occurred in 2017, with corresponding increases in water levels of up to 250 feet near the replenishment facilities.

DWA's existing and proposed domestic water system wells are, with few exceptions, situated downstream of the WWR Replenishment Facility. The groundwater levels underlying the domestic water system reached their lowest levels during the five-year period 1976 through 1980; however, as a result of artificial recharge of CVWD and DWA exchange deliveries, augmented by MWD advanced deliveries, the underlying groundwater levels increased by up to 150 feet between 1980 and 1989. Recorded depths to groundwater from 1978 to 2019 showing the fluctuations in groundwater depths are set forth in **Appendix B, Table 2**. Since 1988, average groundwater levels have declined by about 32 feet throughout the domestic water system Service Area; however, average groundwater levels in 2020 are still about 63 feet higher than they were in 1978. **Figure A-1** in **Appendix A** of this General Plan shows groundwater level fluctuations for selected wells from 2008 to 2020.

5. Groundwater Quality

Mineral Quality and Replenishment with CRA Water

The water produced by groundwater extractions which is used in the domestic water system is of high quality and it complies with Safe Drinking Water Standards without any treatment. In 2018, the reported range for TDS in groundwater sources was 160 to 600 ppm, with an average of 370 ppm. Although water produced by the domestic water wells is of high quality, some increases in mineral content are being recorded in the immediate vicinity of the spreading basins. Between 1980 and 1990, water produced by nearby shallower Wells 9 and 17 shows increases in TDS, chlorides, and sulfates from approximately 200, 20, and 20 ppm to approximately 400-600, 60, and 200 ppm, respectively. Concentrations of these minerals in Wells 9 and 17 remained relatively stable from 1990 through 2010. Water quality measurements in Well 9 ceased after 2010, but concentrations of TDS, chlorides, and sulfates in Well 9 increased and Well 17 increased to 610, 78, and 210 respectively, in 2013 (during the drought). By 2016, these concentrations had returned to much lower levels of 300, 20, and 71, respectively. Water produced by nearby deeper wells, specifically Wells 22 and 30, situated in the same general area as Well 9 relative to the spreading basins, shows similar increases in mineral concentrations over a longer period of time. These increases in mineral content are directly attributable to recharged CRA water. **Figure A-2** in **Appendix A** of this General Plan shows concentrations of TDS, chlorides, and sulfates in selected DWA wells and other sources since 2008.

Wells 14 and 16

Wells 14 and 16 have experienced a number of water quality-related problems since their construction, including high iron content, the presence of iron bacteria (*Gallionella ferruginea*, a non-pathogenic organism which is difficult to completely eradicate), air entrainment, and high levels of radionuclides (Gross Alpha and Uranium). In July 2018, Wells 14 and 16 were placed on Standby status. They cannot be restored to active service without a permit amendment from DDW.

Wells 17 and 43

Well 17 was found to contain Gross Alpha at a level of 17.2 picocuries per liter of air (pCi/L) in December 2005 and 16.6 pCi/L in December 2010 (the MCL is 15 pCi/L as a four-quarter running average) and Uranium at a level of 17.2 pCi/L in March 2004 (the MCL is 20 pCi/l as a four-quarter running average). Well 43 was found to contain Gross Alpha at a level of 21 pCi/L and Uranium at a level of 15 pCi/L in November 2006. Further sampling at both wells has not indicated a radionuclides compliance issue.

Dissolved Air

Well 24, which is located in the central portion of the system, has produced air intermittently since it was constructed about 35 years ago. Wells 21, 30, and 35, which are located in the northerly portion of the system, have produced dissolved air, at times continuously and at other times intermittently. Wells 25 and 26, which are located in the easterly portion of the system and which were constructed about 30 years ago, have produced dissolved air intermittently. Well 21, which is situated within one-quarter mile of Well 30, produces significantly more air than Well 30.

Currently, the air produced by Wells 21, 24, 25, 26, 30, and 35 is discharged directly into the distribution system, at times creating a nuisance to certain users. Some users experience rushes of air followed by air induced "white water" when they turn on their faucets.

Well 6/Meaders Cleaners

Well 6 was officially removed from service in February 1987 after it had been in production for 32 years. Water quality tests of water produced by Well 6 indicated the water contained the following VOC contaminants: trichloroethylene (TCE) and tetrachloroethylene (formerly perchloroethylene, PCE). These organic contaminants exceeded MCLs when they were first detected; therefore, Well 6 was immediately removed from service.

Following extensive investigations of all production and monitoring wells, these same contaminants were detected in Well 2, which is located about 500 feet northerly of Well 6. Over the last ten years, these contaminants have not been detected in any other domestic water wells within DWA. The source of the contaminants was traced to Meaders Dry

Cleaners, which was issued Clean-Up and Abatement Orders by the RWQCB in 1996 and 1997. Between 1996 and 2012, 14 groundwater monitoring wells, three Soil Vapor Extraction (SVE) wells and three Air Sparge (AS) wells were installed in the area for monitoring, assessment, and pilot testing purposes. SVE activities were conducted at the Meaders Cleaners site between 2002 and 2004, which removed sufficient VOCs from the soil that the RWQCB issued a No Further Action letter for soil beneath the site in April 2004. An AS/SVE pilot test was conducted between January and October of 2015 for the vadose zone and groundwater beneath the site. As of January 2014, the PCE concentration in Well 6 was below the MCL of 5.0 parts per billion (ppb), and TCE and toluene concentrations were non-detectable. However, in 2013, PCE was detected at Well 32 at a concentration of 0.5 ppb, which rose to 0.75 ppb in 2015. A second phase of AS/SVE pilot testing was conducted from June 2017 through May 2018.

Concentrations of PCE in monitoring wells located upgradient of the Meaders Cleaners site continued to have concentrations of PCE of approximately 10 ppb in 2018, indicating that there may be one or more additional contaminated sites to the north of Meaders Cleaners.

Several treatment technologies can remove the VOCs from the water produced by Well 6, which would help provide source protection against migration to other production wells. DWA is evaluating the possibility of reactivating Well 6 with various well-head treatment alternatives.

Groundwater Disinfection

In 2013, DWA began installing facilities at its wells for injection of sodium hypochlorite solution. Currently, 14 wells have been equipped with chlorination facilities, with typical dosages of approximately 0.5 ppm.

Polyfluorinated Alkyl Substances (PFAS)

On March 12, 2019, DDW issued DWA an order regarding sampling for per-and polyfluorinated alkyl substances (PFAS), specifically Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). DDW has established public notification levels at concentrations of 13 parts per trillion (ppt) for PFOS, and 14 ppt for PFOA. DWA is required to collect and analyze quarterly samples for PFOA and PFOS from Wells 11, 14,

18, 20, 23, 24, 26, 29, 31, 32, 36, 39, 40, and 41. During the first round of sampling, PFOA and PFOS were detected in the water in Well 26 at concentrations above the notification levels on May 21, 2019. PFOA and PFOS were not detected in any of the other wells sampled during the first round of sampling. Repeat sampling at Well 26 indicated that PFOA and PFOS detections in the initial sample were false positives.

6. Ground Surface Subsidence

In early 2008, over concerns that decreasing groundwater levels might be resulting in ground surface subsidence (as has taken place in the southern Coachella Valley), DWA performed an extensive GPS Control Survey of benchmarks within DWA's boundaries. The new control survey data were compared to historical (record) data to evaluate whether ground surface subsidence has taken place. The comparison indicated that there is no evidence for significant subsidence to have taken place within the study area.

D. WELL FIELD DEVELOPMENT

Since DWA should continue to recharge the groundwater basin with CRA water, DWA should also continue to develop its groundwater supplies to meet increasing demands on its domestic water system.

Historically, wells were located within the domestic water system near high demand areas, near larger pipelines, and on available land without much attention being given to groundwater aquifer characteristics and conditions. Producing wells could be located almost anywhere within the domestic water system.

In the late 1970s, DWA began to give more consideration to groundwater aquifer characteristics and conditions in addition to well plant discharge of nuisance water. Currently, DWA attempts to locate wells in better aquifers and adjacent to storm drains or flood channels. In the future, with increasing groundwater extractions, DWA will need to place even more emphasis on groundwater aquifer characteristics and conditions.

In an effort to better define the groundwater basin underlying its domestic water system, DWA engaged Geotechnical Consultants to conduct a groundwater investigation. Geotechnical Consultants presented its findings in a report entitled "Hydrogeologic Investigation of Groundwater Basins Serving Palm Springs for Desert Water Agency", dated October 1978.

Geotechnical Consultants recommended specific areas for well development, primary areas being essentially within DWA and secondary areas being entirely within CVWD. These areas were selected to avoid mountain fronts, large canyons, major active faults, and the migrating plumes of recharged wastewater and recharged CRA water. Geotechnical Consultants also recommended that wells be aligned perpendicular to groundwater flow lines, that is, on northeast to southwest alignments, with wells spaced 1,000 to 1,500 feet apart to minimize mutual drawdown interference.

Lands recommended for well sites by Geotechnical Consultants which are situated within DWA are located in the northerly and easterly portions of DWA's Service Area, along the Whitewater River. Of the ten well sites acquired between 1998 and 2008 along the Whitewater River, four remain undeveloped. Over the past ten years, DWA has constructed no new wells. Wells 44 and 45 (located at the Escena Golf Club), drilled and cased in 2005, have not yet been equipped.

DWA should continue to secure lands for future well construction while they are available and should construct new wells on lands previously acquired for this purpose. DWA should also investigate existing well sites where wells have been removed from service (for reasons unrelated to water quality) to determine whether the sites are suitable for new wells (such as Well Site 3). Although the best producing wells tend to be located along the Whitewater River, there are system hydraulic advantages to locating a few new wells in the southern portion of the Service Area. Historically, wells located south of Murray Canyon Drive have not produced satisfactorily (witness Well 15); however, the area north of Murray Canyon Drive and south of Ramon Road should be reviewed for potential sites, although the water quality problems experienced at Wells 14 and 16 may preclude any new well construction near those existing sites.

E. RECYCLED WATER SUPPLY

The recycled water supply is secondary effluent from the CPS WTP. Currently, CPS WTP has a capacity of 10.9 MGD and an average daily flow of 5.9 MGD. Of that average daily flow, approximately 2 MGD is discharged to the City's percolation ponds. According to the City's Wastewater Capital Improvement Plan, the 10.9 MGD capacity is not anticipated to be exceeded until after 2040; implying that the average daily flow will ultimately be on the order of 11 MGD. DWA's WRF has recently been distributing recycled water to customers at a rate of approximately 2.9 MGD (3,250 AF/Yr), but recycled water production will decrease due to the closure of the Indian Canyon Golf Courses. Future recycled water production is currently anticipated at a maximum of approximately 4,000 AF/Yr. If DWA were able to intercept all the secondary effluent currently being percolated, then approximately 6,400 AF/Yr of recycled water could hypothetically be provided to customers. At ultimate capacity of the CPS WTP, approximately 12,000 AF/Yr of recycled water could theoretically be provided to customers, if there were sufficient demand.

CHAPTER V

EXISTING POTABLE WATER SYSTEM FACILITIES

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A. GENERAL

The existing domestic water system consists of water production facilities including surface water systems and well pumping plants, booster pumping plants, pressure control stations, water storage reservoirs, water distribution facilities, and an Operations Center. The existing Domestic Water System is shown schematically by **Map 1** and planimetrically by **Map 2**.

Administration, engineering, operations, and maintenance functions are situated at the Operations Center, which includes customer service facilities, offices, warehouse, maintenance shop, a solar energy cogeneration facility, and meter test facilities.

B. SERVICE AREAS

The existing domestic water system Service Area comprises the following five segments: Snow Creek, Palm Oasis, Chino Canyon, Palm Springs Main, and Palm Springs East. The Snow Creek service area is situated in the vicinity of Snow Creek Canyon and includes Snow Creek Village. The Palm Oasis service area is limited to the Palm Springs Oasis development and its immediate surroundings. The Chino Canyon service area includes the northwesterly portion of Palm Springs and Chino Canyon to the Palm Springs Aerial Tramway (the City's General Plan now refers to this area as the Chino Cone). The Palm Springs Main service area extends from the northerly portion of Palm Springs to the southerly portion of Palm Springs extending to the Andreas Hills and Southridge developments. The Palm Springs East service area is situated contiguous to and easterly of the Palm Springs Main service area and includes Cathedral Canyon. Each service area contains one or more pressure zones, depending on elevations served.

C. PRESSURE ZONES

Currently, within the existing domestic water system there are 13 separate pressure zones. Service is provided between elevation 280 feet in Cathedral City at DWA's easterly boundary to elevation 1,340 feet in Snow Creek Canyon at Snow Creek Village. Pressure zone data such as approximate range of elevation served, and approximate static pressure are set forth in **Table V-1**. The current pressure zones are shown by **Map 1** and **Map 2**.

TABLE V-1 EXISTING PRESSURE ZONES			
Pressure Zone		Approximate Range of Elevations Served (Feet)	Approximate Static Pressure Range (psi)
Name	Elevation		
Snow Creek	1440	1130 - 1340	40 - 130
Palm Oasis	1150	900 - 1050	40 - 110
Chino East	860	550 - 760	40 - 130
Desert Palisade	1040	700 - 940	40 - 150
Desert Palisade Pressurized	1240	940 - 1140	40 - 130
Palm Springs Main	680	380 - 580	40 - 130
Andreas Main	880	560 - 722	40 - 140
Southridge	900	630 - 820	40 - 120
Southridge Pressurized	1030	800 - 930	40 - 100
Palm Springs East	580	280 - 480	40 - 130
Terrace	600	350 - 520	35 - 110
Foothill	830	560 - 730	40 - 115
Foothill Reduced	784	520 - 670	65 - 110

Currently, about 94% of the water produced is delivered to three primary pressure zones: Zone 860 (Chino East), Zone 680 (Palm Springs Main), and Zone 580 (Palm Springs East). About 6% of the water produced is delivered to the remaining ten pressure zones, with about 75% of that going to three secondary pressure zones: Zone 880 (Andreas Hills), Zone 600 (Terrace), and Zone 830 (Foothill).

D. WATER PRODUCTION FACILITIES

During 2019, produced water was derived from two stream diversion systems, SC/FC and Chino Creek, and numerous extraction wells. In, 2019, about 3% of produced water was derived from the surface diversions and about 97% of the produced water was obtained from 23 well pumping plants, namely: Wells 17, 21 through 41, and 43.

1. Surface Water Supply Systems

The Snow Creek system originally consisted of a reinforced concrete diversion dam, a division box, a chlorinator, and 8" to 14" pipelines. Most of the Snow Creek system was expanded and replaced in conjunction with the Snow Creek Power Project. The Snow Creek diversion, reconstructed and improved, consists of reinforced concrete diversion

dam with mechanical screen for debris removal, 24" pipeline to a reinforced concrete settling basin, chlorination station, and 1.0 MG Snow Creek Equalization Reservoir (No. 22). Thereafter, a 20" penstock connects the equalization reservoir with the 300kW Snow Creek hydroelectric plant. In 2014, a Trojan Swift D-30 Ultraviolet Light Disinfection unit with automatic controls and telemetry was added to the treatment facilities downstream of the settling basin and chlorination facilities.

The original Falls Creek system consisted of a concrete and rock diversion dam, a chlorinator, and 4" and 6" pipelines; bit it has been replaced entirely. The current Falls Creek diversion consists of a reinforced concrete diversion dam and screening facility. Thereafter, a 12" pipeline connects the diversion to a booster pumping station and an 8" pipeline connects the booster station to the Snow Creek diversion 24" pipeline upstream of the settling basin.

Due to requirements set forth by DDW, surface water from Snow Creek and Falls Creek must now undergo filtration treatment per the requirements set forth in the SWTR by June 12, 2020, to be used for potable water service. A filtration plant was constructed to serve Snow Creek Village in 2020. The filtration plant's influent is directed from the 20" penstock connecting the equalization reservoir and the 300kW Snow Creek hydroelectric plant. From the 20" penstock, the influent is sent through filter units, then chlorinated and conveyed into the existing Snow Creek Village system. The filtration plant is designed to treat a current maximum day demand of 40 gpm, with a maximum capacity of 140 gpm. The commissioning of the filtration plant rendered the Ultraviolet Light Disinfection unit at the Snow Creek/Falls Creek treatment facilities unnecessary; therefore, the Ultraviolet Light Disinfection unit was decommissioned in late 2020, and physically removed in fall 2021.

From the hydroelectric plant, a 24" pipeline continues to Windy Point, where a pressure sustaining and rate of flow control valve is located. At Palm Oasis, the water in the 24" pipeline is, as of October 2020, diverted via a 16" pipeline into the West Whitewater River Groundwater Replenishment Facility.

The system is capable of diverting DWA's licensed entitlement of 3,141 gpm (7.0 cfs) from Snow Creek (5.5 cfs) and Falls Creek (1.5 cfs). The settling basin, penstock, and 24" pipeline are capable of conveying 10.0 cfs of surface water. However, due to the

aforementioned requirements from DDW, DWA is now required to filter the water per the requirements set forth in the SWTR for potable water service. DWA has decided against construction of filtration facilities to treat the Snow Creek and Falls Creek flows below Snow Creek Village, and is now using that water for groundwater replenishment.

The Chino Creek West system consists of an aboveground rock and mortar diversion dam, a cylindrical settling tank, a chlorination station, ultraviolet (UV) disinfection system, and 2" and 4" pipelines. All produced water is conveyed to the Palm Springs Aerial Tramway's storage reservoir, a 100,000 gallon redwood tank, which was constructed with the Palm Springs Aerial Tramway in 2015/2016, replacing a 60,000 gallon redwood tank that had been installed in early 1962.

Due to concerns about erratic fecal coliform counts in Chino Creek, DWA is now proposing to install a small, package filtration system at the Chino Creek West Diversion.

The Chino Creek North diversion was improved in 1991 and consists of reinforced concrete diversion dam, screening, and 12" pipeline from the diversion which reduces to an 8" pipeline. The 8" pipeline then connects to the original Chino Creek diversion pipeline (8", 6" and 4") which continues to Chino Reservoir. Presently, Chino Creek North water is not diverted to the Chino Reservoir because of high turbidity spikes, and there is currently no plan to filter the water to allow it to be placed into the system.

2. Groundwater Extraction Systems

During 2018/2019, DWA operated 23 well pumping plants, namely: Wells 17, 21 through 41, and 43. These wells are described in **Table V-2** and in **Appendix B, Table 1**. Wells 44 and 45 were constructed in 2005, but have yet to be equipped.

TABLE V-2
OPERATIONAL WATER WELL DESCRIPTIVE DATA

Number		Date	Casing Dimensions			Perforation Data					Driller's	Well
								Interval				
DWA	DWR	Constructed	Depth (ft)	Diameter (in)	Thickness	Type	Size (in)	From (ft)	To (ft)	Length (ft)	Log	Status
2	-23D1	1926	425	16	8 Gauge	Knife	.375	190	408	218	Yes	Monitoring
3	4S/5E-19D1	1947	450	16	---	---	-	340	440	100	Yes	Inactive
5	4S/4E-11Q1	1948	600	16	10 Gauge	Louvers	.250	302	402	100	Yes	Inactive
6	4S/4E-23E1	1954	488	20	8 Gauge	Louvers	.312	240	472	232	Yes	Monitoring
9	3S/4E-36M1	1960	400, 703	16, 12	1/4", 3/16"	Louvers	.200	403	703	300	Yes	Inactive
10	4S/4E-1N2	1962	525, 800	14, 14	1/4", 1/4"	Louvers	.094	525	800	275	Yes	Monitoring
11	4S/4E-14R1	1963	492, 800	16, 14	1/4", 1/4"	Louvers	.125	560	800	240	Yes	Standby
14	4S/4E-26A1	1964	780	16	5/16"	Louvers	.125	450	780	330	Yes	Standby
16	4S/4E-26G1	1968	800	16	1/4"	Louvers	.125	450	800	350	Yes	Standby
17	3S/4E-30C1	1955	750	20	8 Gauge	Louvers	.250	530	726	196	Yes	Active
18	4S/4E-11Q2	1970	948	16	1/4"	Louvers	.125	535	948	413	Yes	Standby
19	4S/5E-33B4	1972	843	16	1/4"	Louvers	.125	429	843	414	Yes	Inactive
20	4S/4E-14Q1	1972	850, 928, 958	16, 12, 10	1/4", 1/4", 1/4"	Louvers	.125	622	958	316 (1)	Yes	Monitoring
21	3S/4E-34R1	1973	830	16	1/4"	Louvers	.125	506	830	324	Yes	Active
22	4S/4E-2B1	1973	1003	16	1/4"	Louvers	.125	570	1,003	433	Yes	Active
23	4S/4E-13C1	1973	912	16	1/4"	Louvers	.125	512	912	400	Yes	Active
24	4S/4E-24D1	1973	1002	20	5/16"	Louvers	.125	580	980	400	Yes	Active
25	4S/5E-29A2	1974	1000	16	1/4"	Louvers	.094	600	1,000	400	Yes	Active
26	4S/5E-29H1	1975	990	16	1/4"	Louvers	.094	590	990	400	Yes	Active
27	3S/4E-35R1	1979	920	16	1/4"	Louvers	.125	600	900	300	Yes	Active
28	4S/4E-35R2	1980	1020	20	5/16"	Louvers	.219	600	1,000	400	Yes	Active
29	4S/4E-24H1	1981	1000	20	5/16"	Louvers	-	600	1,000	400	Yes	Active
30	3S/4E-34H1	1984	1123	16	1/4"	Wire-Wrap Screen	.100	900	1,100	200	Yes	Active
31	4S/5E-17Q1	1986	1020	20	5/16"	Wire-Wrap Screen	.035	600	1,000	330 (2)	Yes	Active
32	4S/4E-24E1	1986	1020	20	5/16"	Louvers	.080	600	1,000	400	Yes	Active
33	3S/4E-35J1	1991	1120	20	5/16"	Wire-Wrap Screen	.080	700	1,100	400	Yes	Active
34	3S/4E-35J2	1991	1120	20	5/16"	Wire-Wrap Screen	.080	600	1,100	420 (3)	Yes	Active
35	4S/4E-34H2	1998	1020	20	5/16"	Wire-Wrap Screen	.075	600	1,000	400	Yes	Active
36	4S/5E-17P1	1998	1020	20	5/16"	Wire-Wrap Screen	.035	600	1,000	380 (4)	Yes	Active
37	3S/4E-36Q2	2001	1020	20	5/16"	Louvers	.050	620	1,000	380	Yes	Active
38	3S/4E-36Q1	2001	1020	20	5/16"	Louvers	.050	600	1,000	400	Yes	Active
39	4S/4E-25C1	2007	1020	20	5/16"	Louvers	.045	580	1,000	390 (5)	Yes	Active
40	4S/4E-25D2	2007	1020	20	5/16"	Louvers	.060	600	1,000	400	Yes	Active
41	4S/5E-8N1	2004	1020	20	5/16"	Louvers	.050	610	1,000	390	Yes	Active
42	3S/4E-33H1	2006	900	20	5/16"	Louvers	-	550	880	330	Yes	Inactive
43	3S/4E-19L1	2006	920	20	5/16"	Louvers	-	500	900	400	Yes	Active
44	4S/5E-8M1	2005	1020	20	5/16"	Louvers	-	580	1,000	360 (6)	Yes	Not Yet in Service
45	4S/5E-7H1	2005	1020	20	5/16"	Louvers	-	600	1,000	370	Yes	Not Yet in Service
Mission	2S/4E-21	1998	1020	8	3/16"	Wire-Wrap Screen	.040	600	1,000	400 (7)	Yes	Monitoring

Notes:
(1) No perforations from 830' to 850'
(2) No perforations from 720' to 745', from 795' to 815', or from 895' to 920'
(3) No perforations from 880' to 920', or from 1040' to 1080'
(4) No perforations from 680' to 700'
(5) No perforations from 750' to 780'
(6) No perforations from 800' to 840', or from 950' to 970'
(7) No perforations from 630' to 670', or from 790' to 850'

In July 2017, the status of Wells 3, 5, and 18 was changed from Active to Standby. These wells had not operated for potable water distribution since July 2004, September 2012, and July 2006, respectively. In July 2018, the status of Wells 3, 5, and 9 was changed from Standby to Inactive; the status of Well 42 was changed from Active to Inactive; and the status of Wells 11, 14, and 16 was changed from Active to Standby. Wells 3, 5, 9, and 42 were physically disconnected from the water distribution system, and cannot be returned to active service without an amendment to DWA's water distribution permit.

All well pumping plants are equipped with electric motor driven deep well turbine pumping units and are controlled automatically and remotely.

a. Well Data

DWA and its predecessors, the Palm Springs Water Company and the Cathedral City Water Company, have owned 50 wells. These wells are identified and described in **Appendix B, Table 1**. The oldest wells were constructed in 1926, the newest well (Well 43) in 2016. The older wells ranged from 156 feet to 600 feet in depth and the newer wells range from 600 feet to 1,123 feet in depth. The older wells ranged from 10" to 16" in diameter and the newer wells range from 16" to 20" in diameter. Most of the wells were equipped with louvered screens; however, several of the older wells were equipped with slotted screens, and two of the newer wells were equipped with shaped wire screens. Generally, the older wells were equipped with less perforated intervals. The data set forth in **Appendix B, Table 1** illustrates the changes which have occurred in well construction over the years. It also indicates the status of each well.

b. Water Levels

Water levels, which had been declining for 20 or 30 years, began to rise in the late 1970s following artificial groundwater recharge with imported water. Water levels stabilized in the late 1980s, but then began dropping again in the late 1990s. Between 2007 and 2017, the average change in water level at each continuously-monitored well site was an increase of 23'. Static water levels obtained during SCE hydraulic tests, which are performed annually, are set forth in **Appendix B, Table 2**. These water levels were obtained by measuring depth from ground surface to water table during the winter. They essentially reflect annual changes

in groundwater levels. Static water levels obtained during routine well soundings by DWA staff are graphically indicated on **Map 1 of 5**.

c. Old Wells and Well Sites

Of the twenty wells (Wells 1 through 16, 18, 19, 20, and 42) which are no longer significant production wells, four have been placed on Standby status (Wells 11, 14, 16, 18), five have been placed on Inactive status (Wells 3, 5, 9, 19, and 42), four are being used for groundwater monitoring purposes (Wells 2, 6, 10 and 20), seven have been abandoned (Wells 1, 4, 7, 8, 12, 13, 15), and four sites have been discarded (Well sites 1, 12, 13, and 15).

Well 2, which is used as a monitoring well, is situated in a public street and development has occurred around it. The site cannot accommodate a replacement production well. Well 2 should continue to be used as a monitoring well until it fails; it should then be destroyed and the site abandoned and discarded.

The Well 3 site, being about 100 feet by 100 feet, would likely accommodate a replacement production well, depending on confirmation of existing facilities on site, and provided the master planned 12 x 7 RCB storm drain (RCFC&WCD Lateral 20C) is constructed in El Cielo Road. The site is within the area recommended for new wells and it is located strategically within the system. The Well 3 site should be retained for continued use.

The Well 4 site is about 100 feet by 135 feet. It would likely accommodate a new production well, depending on confirmation of existing facilities on site, once the master planned 78" storm drain (RCFC&WCD Lateral 13A) is constructed in Avenida Caballeros. Although it is not within the area recommended for new wells, the Well 4 site should be retained for possible future use as a production well site.

The Well 5 site, being about 100 feet by 135 feet, would also likely accommodate a replacement production well, depending on confirmation of existing facilities on site. It is already connected to a storm drain through a 14" drain line. Unfortunately, the Well 5 site is situated adjacent to and too close to the Well 18

site. It is also not within the area recommended for new wells. Well 5 should be destroyed and the Well 5 site should be merged with the Well 18 site.

Well 6 is currently being used for groundwater monitoring purposes. The site is more than large enough to accommodate a new production well. Much of the VOCs in the vicinity have been removed as part of a groundwater remediation effort coordinated by the RWQCB, Colorado River Basin Region. Low levels of certain VOCs still remain in the water at Well 6, but these could be removed by well-head treatment. Once contamination is controlled or eliminated, Well 6 should be returned to service. When Well 6 is replaced in the future, the replacement well should be constructed to greater depth. Also, the existing 8" drain line from the plant site to Tahquitz Creek should be replaced with a larger drain line.

The Well 8 site, being about 40 feet by 90 feet, may be too small to accommodate a replacement production well. It is also not within the area recommended for new wells. The equipment has been removed but the original vault is still in place. The well site should be abandoned.

The Well 9 site, being 80 feet by 80 feet, is too small to accommodate a replacement production well; however, it can be expanded by the addition of the adjacent lot. The well site is situated within the area recommended for new wells and the underlying groundwater basin has proven to be productive. The Well 9 site should be retained for future use.

Well 10 was removed from service after the last pumping unit (a submersible pumping unit) failed, and is currently used for groundwater monitoring and sampling. The well was determined to be too crooked to accommodate a submersible pumping unit, let alone a line shaft pumping unit. The site, being about 60 feet by 60 feet, is too small to accommodate a replacement production well; however, it can be expanded to about 110 feet by 130 feet with the addition of the surrounding, contiguous lot or parcel. Although the well site is not within the area recommended for new wells, it has accommodated two well pumping plants which, when active, were considered reasonably productive. Also, an 8 x 7.5 RCB storm drain (RCFC&WCD Line 6) has been constructed in Vista Chino

and it can accommodate water pumped to waste from the well plant. Therefore, the well site should be retained for future use.

Wells 11, 14, 16, and 18 remain connected to the distribution system on Standby status. They cannot be used for potable water production without a formal change of status to Active, but must be maintained in a sanitary condition.

Well 19 has been disconnected from the distribution system.

Well 20 was deactivated due to a damaged casing and poor production, and was converted to a monitoring well in 2019. The site should be retained for possible future use for replacement wells.

Well 42 was never placed into service due to excessive sand production. DWA is considering transferring the pumping unit to either Well 44 or 45. The site should be retained for possible future use for replacement wells.

d. Specific Capacities and Specific Capacity Factors

Specific capacities (well production in gallons per minute per foot of water table drawdown) and specific capacity factors (specific capacity per foot of perforated well casing) based on data collected during SCE tests of DWA well pumping plants, together with selected water well data are presented in **Appendix B, Table 2**. Although specific capacities, and therefore specific capacity factors, have fluctuated with time, they differ significantly by well location. They may also differ as a result of the test data, but they certainly differ as a result of aquifer characteristics, well construction techniques, and well screen sizes and dimensions.

Regardless, the specific capacities indicate better well production conditions along the Whitewater River, evidenced by higher historic specific capacity values for Wells 19, 25, 26, 27, 28, 30, 33, 34, 35, 37, and 38, and along Tahquitz Wash as evidenced by the higher values for Wells 24, 29, and 32. The lower historic specific capacity values for Wells 8, 11, 18, 20, and 39 indicate poorer water production conditions further away from the Whitewater River and Tahquitz

Wash. The specific capacity factors generally confirm the specific capacity data with higher historic values for Wells 9, 19, 25, 26, 28, 30, 33, 34, 35, 37, and 38 along the Whitewater River and Well 32 along Tahquitz Wash.

3. Well Pumping Plants

The well pumping plants are well maintained and in good working condition. Items of repair, remedial work, or improvements to the well pumping plants, as outlined in the 2008 General Plan, have been performed or addressed by DWA staff. Basic performance and operating data are set forth in **Appendix B, Table 3**.

The well pumping plants are operated as required to meet demands. Fewer than half the plants are needed during winter, but nearly all plants are needed during summer. Currently, they are operated during off-peak electrical energy periods when possible. They are operated during on-peak electrical energy periods only when absolutely necessary.

Operators check operating plants daily to verify that they are in order and are operating properly. Operators secure weekly water samples for analysis. They have SCE hydraulically test the pumping units annually. If a pumping unit is not used during the year, operators manually rotate it following the pumping season, usually in September.

As time and funds permit, the operators modify and upgrade the old plants to meet current standards. They add more control and protective devices that are normally installed in new plants to ensure that pumping units and related equipment are not damaged by operating in adverse or abnormal conditions.

Well pump performance data is set forth in **Table V-3**. The data indicates that, of the 23 operational well pumping plants 6 are operating below 60% efficiency range, 4 are operating above 70% efficiency, and the other 13 are operating between 60% and 70% efficiency. As groundwater levels change, either rise or fall, the indicated efficiencies will also change.

Wells operating below 60% efficiency should be renovated to increase plant efficiency to 70% or higher.

TABLE V-3
EXISTING WELL PUMPING PLANTS
DESCRIPTIVE DATA

Well Plant	HP	2007 (1)			2019 (14)			Pressure Zone
		gpm	Efficiency	kWh/AF	gpm	Efficiency	kWh/AF	
11	300	1,751	90	--- (4)	---	---	--- (9)	P.S. Main
14	200	1,949	64	463	---	---	--- (9)	P.S. Main
16	250	2,071	56	530 (3)	---	---	--- (9)	P.S. Main
17	100	826	51	779 (5)	985	53	699 (11)	Palm Oasis
18	300	1,445	58	919 (5)	1,460	59	--- (12)	P.S. Main
21	300	1,192	57	1,087	1,394	76	815 (10)	Chino East
22	500	2,950	68	741 (4)	3,065	67	604 (12)	P.S. Main
23	300	1,453	62	784 (5)	1,450	68	747	P.S. Main
24	500	2,760	69	810	2,840	67	772	P.S. Main
25	400	2,320	68	753 (5)	2,271	63	771 (12)	P.S. East
26	400	2,470	65	744 (4)	2,254	72	801 (12)	P.S. East
27	400	2,392	66	752 (4)	2,464	55	720 (12)	P.S. Main
28	400	2,260	62	747 (5)	2,409	61	658 (12)	P.S. Main
29	400	2,160	68	840 (5)	2,080	59	864	P.S. Main
30	400	1,952	69	893 (5)	2,071	64	802 (12)	Chino East
31	400	2,514	74	672 (4)	2,538	71	667 (12)	P.S. East
32	400	2,147	65	784	2,172	71	736 (12)	P.S. Main
33	400	2,143	64	714	2,282	59	665 (12)	P.S. Main
34	400	2,430	71	650	2,362	60	651 (12)	P.S. Main
35	400	1,885	70	870 (5)	1,776	64	923 (11)	Chino East
36	400	2,621	71	675	2,400	59	744 (11)	P.S. East
37	450	2,652	74	639 (5)	2,462	66	672	P.S. Main
38	450	2,547	71	663 (5)	2,578	68	629 (12)	P.S. Main
39	200 (2)	1,183	69	748	2,335	71	709 (12)	P.S. Main
40	450	1,930	---	---	2,101	69	814 (11)	P.S. Main
41	450	2,250	---	---	2,810	70	577	P.S. East
43	250	2,000 (7)	---	---	1,211	63	737 (12)	Palm Oasis
44	---	2,400 (8)	---	---	---	---	--- (13)	P.S. Main (Escena)
45	---	2,400 (8)	---	---	---	---	--- (13)	P.S. Main (Escena)

Notes:

(1) Data obtained from 2007 SCE hydraulic tests, unless noted otherwise
(2) Temporary pumping unit
(3) Pumping unit tested in 2005
(4) Pumping unit tested in 2006
(5) Pumping unit tested in 2008
(6) Pumping unit tested in 2002
(7) Projected flow based on well development pumping test
(8) Projected flow based on capacities of nearby wells
(9) Pumping unit in standby
(10) Pumping unit tested in 2016
(11) Pumping unit tested in 2017
(12) Pumping unit tested in 2020
(13) Pumping unit not yet in service
(14) Data obtained from 2019 SCE hydraulic tests, unless noted otherwise

E. BOOSTER PUMPING FACILITIES

During 2019, DWA operated nine booster pumping plants, namely: Booster Pumping Plants 3 (Southridge), 4 (Janis Tuscany), 5 (Araby), 6 (Terrace), 7 (Vista Miller), 12 (Chino), 13 (Palm Oasis), 14 (Acanto), and 15 (Desert Palisade Hydropneumatic Booster Station). Booster Pumping Plant 1 (Chino) was replaced by Booster Pumping Plant 12 (Chino) and Booster Pumping Plant 9 (Palm Oasis) was replaced by Booster Pumping Plant 13 (Palm Oasis). Booster Pumping Plant 2 (Valley Vista) and Booster Pumping Plant 8 (Andreas Hills) were abandoned. Booster Pumping Plant 10 (Well 14) and 11 (Well 16) will be returned to active service if and when their associated wells are returned to active service.

All booster pumping plants are equipped with electric motor driven pumping units with close coupled vertical turbine pumping units. All plants are controlled automatically and remotely.

Booster Pumping Plants 3, 4, and 15 pump to hydropneumatic tanks which maintain system pressure. Booster Pumping Plants 5 through 7, and 10 through 14 pump to storage reservoirs through system pipelines. Booster Pumping Plant 13 pumps from a forebay tank at Well Plant 17 to the Palm Oasis Reservoirs, respectively, through the pipeline system. Booster Pumping Plants 10 and 11 pump from forebay tanks at Well Plants 14 and 16, when they were active, to the Palm Springs Main Pressure Zone, through the pipeline system.

1. Booster Pumping Plants

The Booster Pumping Plants are well maintained and in good working condition. Basic performance and operating data are set forth in **Table V-4**. The plants are described more specifically as follows:

a. Booster 3 (Southridge)

Booster Pumping Plant 3 pumps from the Southridge 900 Pressure Zone) to the Southridge Pressurized 1030 Pressure Zone. In 1993, the original Booster Pumping Plant 3 was removed from service and a new Booster Pumping Plant 3 was constructed at the existing site, along with a new hydropneumatic tank. Booster Pumping Plant 3 contains three close coupled vertical turbine pumping units, two 15 hp and one 60 hp. Pumping plant capacity is on the order of 1,000 gpm. The capacities of the two 15 hp units are 303 gpm and 308 gpm,

according to testing performed in 1995. The plant capacity can be increased by replacing the existing pumping units with larger units. The plant is capable of meeting the domestic water requirements and fire flow requirements well into the future. The pumping units and related electrical equipment are situated within a block building with a concrete roof. The pumping units are set in buried cans. The suction piping is situated belowground while the discharge piping is situated above the concrete floor.

b. Booster Pumping Plant 4 (Janis Tuscany)

Booster Pumping Plant 4 pumps from the Chino East 860 Pressure Zone to the Desert Palisade Storage Reservoir (Desert Palisade Pressure Zone). In 1993 the original Booster Pumping Plant 4 was removed from service and a new Booster Pumping Plant 4 was constructed at the existing site, along with a new hydropneumatic tank. At that time, Booster Pumping Plant 4 contained three close coupled vertical turbine pumping units, two 15 hp and one 50 hp. Plant pumping capacity was on the order of 2,100 gpm. The capacity of the 50 hp unit was 1,347 gpm, and the capacities of the two 15 hp units were 363 gpm and 384 gpm. In 2015, in anticipation of development of the Chino Cone area, the plant capacity was increased by replacing the existing pumping units with larger, 75 hp units, along with installation of a new surge tank. The nominal capacity of each of the three new units is 950 gpm, although the units have not yet been tested. Plant pumping capacity is now on the order of 2,850 gpm. The pumping units and related electrical equipment are situated inside a block building with a concrete roof. The pumping units are set in buried cans. The suction piping is situated belowground, while the discharge piping is situated above the concrete floor.

c. Booster Pumping Plant 5 (Araby)

Booster Pumping Plant 5 pumps from the Palm Springs Main 680 Pressure Zone to the Southridge Storage Reservoir (Southridge 900 Pressure Zone), and contains two 25 hp close coupled vertical turbine pumping units. Plant pumping capacity is about 300 gpm, based on tests of the pumping units. The pumping units are identical, and were individually tested at 254 gpm and 270 gpm in 2015, a slight increase in capacity from 2007 data. The pumping units and related electrical equipment are situated within a block building having a composition wood roof.

The pumping units are set in partially buried cans. If necessary, a third pumping unit can be installed in the third suction can, as demand increases. The suction and discharge piping are both situated above the concrete floor.

d. Booster Pumping Plant 6 (Terrace)

Booster Pumping Plant 6 pumps from the Palm Springs East 580 Pressure Zone to the Cathedral Canyon North (Terrace) and Vista Miller Storage Reservoirs (Terrace 600 Pressure Zone). In 2005, the original Booster Pumping Plant 6 pumps were removed and replaced with three 15 hp close coupled vertical turbine pumping units. Pumping plant capacity is on the order of 1,000 gpm. The units were individually tested in 2013 at 298 gpm, 336 gpm, and 276 gpm, respectively. Plant pumping capacity can be increased by adding a fourth pumping unit, or by replacing the existing units. The pumping units and related electrical equipment are situated within a block building having a composition wood roof. The pumping units are set in buried cans. The suction piping is situated belowground, while the discharge piping is situated above the concrete floor.

e. Booster Pumping Plant 7 (Vista Miller)

Booster Pumping Plant 7 pumps from the Terrace 600 Pressure Zone to the Foothill Reservoirs (Foothill 830 Pressure Zone). In 2005, the original Booster Pumping Plant 7 pumps were removed and replaced with three 20 hp close coupled vertical turbine pumping units. Pumping plant capacity is on the order of 600 gpm. The units were individually tested in 2013 at 175gpm, 179 gpm, and 179 gpm, respectively. The pumping units may need to be replaced with larger pumping units as demand increases. There is no provision for a fourth pumping unit at the booster plant. The pumping units and related electrical equipment are situated within a block building having a composition wood roof. The pumping units are set in buried cans. The suction piping is situated belowground, while the discharge piping is situated above the concrete floor.

f. Booster Pumping Plant 10 (Well 14)

Booster Pumping Plant 10 pumps from the Well 14 Forebay into the Palm Springs Main 680 Pressure Zone. It operates if and when Well 14 is in operation. Since Well 14 has been placed in standby service, Booster Pumping Plant 10 is also

currently in standby service. Booster Pumping Plant 10 contains two close coupled vertical turbine pumping units, one 150 hp and one 60 hp. These pumping units have capacities of 1,652 gpm and 880 gpm, according to the results of testing in 2010. When operating, Well 14 produces about 2,000 gpm; therefore, when Well 14 is operating, the 150 hp pumping unit operates continuously and the 60 hp pumping unit modulates so that the water pumped by the boosters matches the water produced by the well.

g. Booster Pumping Plant 11 (Well 16)

Booster Pumping Plant 11 pumps from the Well 16 Forebay into the Palm Springs Main 680 Pressure Zone. It operates if and when Well 16 is in operation. Since Well 16 has been placed in standby service, Booster Pumping Plant 11 is also currently in standby service. Booster Pumping Plant 11 contains two close coupled vertical turbine pumping units, one 150 hp and the other 60 hp. These pumping units have capacities of 1,891 gpm and 812 gpm, according to the results of testing in 2014. When operating, Well 16 produces about 2,100 gpm; therefore, when Well 16 is operating, the 150 hp pumping unit operates continuously and the 60 hp pumping unit operates only when pressures in the system are high, effectively reducing the pumping capacity of the 150 hp unit to less than 2,100 gpm.

h. Booster Pumping Plant 12 (Chino)

Booster Pumping Plant 12 pumps from the Palm Springs Main 680 Pressure Zone into the Chino 1, 2, and 3 Storage Reservoirs (Chino East 860 Pressure Zone). Booster Pumping Plant 12 contains four close coupled vertical turbine pumping units, one 200 hp, one 150 hp, one 75 hp, and one 50 hp. Pumping plant capacity is on the order of 7,000 gpm. The units were individually tested in 2016 at 2,462 gpm, 2,211 gpm, 1,268 gpm, and 955 gpm, respectively. The plant was designed for a capacity of 8,000 gpm, which can be achieved by installing 200 hp units in place of one or both of the smaller existing units. Currently, Booster Pumping Plant 12 capacity is used to supplement well production (Wells 21, 30, and 35) as needed to meet the demands of the Chino East 860 Pressure Zone.

i. Booster Pumping Plant 13 (Palm Oasis)

Booster Pumping Plant 13 pumps from the Palm Oasis 1150 Pressure Zone into the Palm Oasis Storage Reservoir, in the same pressure zone. Booster Pumping Plant 13 contains two close coupled vertical turbine pumping units, both 40 hp. Pumping plant capacity is on the order of 1,000 gpm. The units were individually tested in 2017 at 515 gpm and 501 gpm, respectively. The two pumping units and related electrical equipment are situated within a block building having a composition wood roof. The pumping units are set in buried cans. The suction piping is situated belowground and the discharge piping is situated above the concrete floor. There are two spare suction cans; therefore, two additional pumping units can be added to the plant.

j. Booster Pumping Plant 14 (Acanto)

Booster Pumping Plant 14 pumps from the Palm Springs Main 680 Pressure Zone into the Andreas Hills Storage Reservoirs (Andreas Main 880 Pressure Zone). Booster Pumping Plant 14 was constructed in 1990 to serve the Andreas Hills zone. The Booster Pumping Plant originally contained two close coupled 100 hp vertical turbine pumping units; a third 100 hp unit was added in 2004. Pumping plant capacity is on the order of 3,200 gpm. The units were individually tested in 2016 at 1,030 gpm, 1,074 gpm, and 969 gpm. The plant pumping capacity can be increased with the addition of a fourth 100 hp pumping unit. Pumping units and related electrical equipment are situated in a semi-buried block building with a concrete roof. The pumping units are set in buried cans. The suction piping is situated belowground, while the discharge piping is situated above the concrete floor.

k. Booster Pumping Plant 15 (Desert Palisade Hydropneumatic Booster Station)

Booster Pumping Plant 15 was designed to pump from the Desert Palisade 1040 Pressure Zone into the Desert Palisade Pressurized 1240 Pressure Zone. Booster Pumping Plant 15 was constructed in 2017 to serve developments in the Chino Cone area which have now been cancelled, with the exception the Desert Palisade. The Booster Pumping plant includes three vertical turbine pumping units, a 50 hp and two 15 hp units. Pumping plant capacity is on the order of 750 gpm. The units were relocated from Booster Pumping Plant 4 (Janis Tuscany) after that plant was upgraded. As of the preparation of this report, the units have not yet been individually tested.

TABLE V-4
EXISTING BOOSTER PUMPING PLANTS
DESCRIPTIVE DATA

Booster Plant	Name	Pumping Unit	HP 2007	HP 2017	Pumps from Zone	Pumps to Zone	2007 [1] gpm	2007 [1] Eff	2007 [1] kWH/AF	2019 [14] gpm	2019 [14] Eff	2019 [14] kWH/AF
3	Southridge	1	15		Southridge	Southridge	308 [2]	61	192	---	---	---
		2	15			Pressurized	303 [2]	58	192	---	---	---
		3	60				384	50	153	---	---	---
4	Janis	1	15	75	Chino East	Desert	384 [3]	50	153	950 [13]	---	---
	Tuscany	2	15	75	(860)	Palisade	363 [3]	49	156	950 [13]	---	---
		3	50	75		(140)	1,347 [3]	45	135	950 [13]	---	---
5	Araby	1	25		P.S. Main	Southridge	180 [6]	48	582	254 [10]	62	421
		2	25				229 [6]	56	496	270 [10]	65	400
6	Terrace	1	15		P.S. East	Terrace	261	40	94	298 [8]	55	82
		2	15				239	40	107	336 [8]	52	74
		3	15				351	50	70	276 [8]	44	81
7	Vista Miller	1	20		Terrace	Foothill	165	55	418	175 [8]	58	400
		2	20				160	54	428	179 [8]	57	394
		3	20				165	55	421	179 [8]	58	394
10	Well #14	1	150		P.S. Main	P.S. Main	1,716	77	335	1,652 [7]	74	347
		2	60				933	77	332	880 [7]	72	351
11	Well #16	1	150		P.S. Main	P.S. Main	2,105 [4]	66	367	1,891 [9]	61	382
		2	60				872 [4]	68	354	812 [9]	71	375
12	Chino	1	150		P.S. Main	Chino East	2,321	77	246	2,211 [11]	73	260
		2	200				2,664	73	261	2,462 [11]	68	285
		3	75				1,188	61	297	1,268 [11]	67	277
		4	50				848	59	302	955 [11]	66	275
13	Palm Oasis	1	40		Palm Oasis	Palm Oasis	503 [5]	66	319	515 [12]	67	309
	Well #17	2	40				553 [5]	61	354	501 [12]	56	372
14	Acanto	1	100		P.S. Main	Andreas	1,071	64	335	1,030 [11]	61	343
		2	100			Hills	1,131	67	317	1,074 [11]	64	335
		3	100				1,064	64	327	969 [11]	59	356
15	Desert Palisade	1	15		Desert	Desert Palisade	---	---	---	350 [13]	---	---
	Hydropneumatic	2	15		Palisade	Pressurized	---	---	---	350 [13]	---	---
		3	50		(1040)	(1240)	---	---	---	1,350 [13]	---	---

Notes:
(1) Data obtained from 2007 SCE hydraulic tests, unless noted otherwise
(2) Pumping unit tested in 1995
(3) Pumping unit tested in 1996
(4) Pumping unit tested in 2004
(5) Pumping unit tested in 2006
(6) Pumping unit tested in 2008
(7) Pumping Unit tested in 2010
(8) Pumping Unit tested in 2013
(9) Pumping Unit tested in 2014
(10) Pumping Unit tested in 2015
(11) Pumping Unit tested in 2016
(12) Pumping Unit tested in 2017
(13) Pumping units not yet tested. Pumping units relocated from Janis Tuscany
(14) Data obtained from 2019 SCE hydraulic tests, unless noted otherwise

2. Booster Pumping Plant Operations

The booster pumping plants are operated as required to meet demands. The booster pumping plants which discharge to hydropneumatic systems are operated on demand, but the booster pumping plants which discharge to service zone storage reservoirs are operated during off-peak electrical energy periods when possible. They are operated during on-peak electrical energy periods only when absolutely necessary.

Operators have SCE hydraulically test all pumping units annually and they also rehabilitate hydraulic control valves and regulators annually. Standby pumping units are inspected and run monthly.

As time and funds permit, the operators modify and renovate old plants to meet current standards. They add control and protective devices that are normally installed in new plants to ensure that pumping units and related equipment are not damaged by operating in adverse or abnormal conditions.

Booster pumping unit performance data is set forth in **Table V-4** (historic performance data is contained in **Appendix B, Table 4**). The data indicates that, of the eleven operational booster pumping plants containing 30 pumping units, one pumping unit is operating below 50% efficiency, seven are in the 50% to 60% efficiency range, nine are in the 60% to 70% efficiency range, and four are above 70% efficiency. Any pumping unit operating at less than 50% efficiency needs immediate attention. The pumping units operating within the 50% to 60% efficiency range need attention within the next year or two. The other pumping units are operating at acceptable efficiencies.

F. WATER STORAGE RESERVOIRS

There are 25 water storage reservoirs in the existing system, excluding well pumping plant forebay tanks. They have a combined capacity of about 60 MG. They are located on 15 separate sites and their capacities range from 100,000 gallons (Foothill No. 1 and Southridge No. 1) to 12 MG (Palms Springs North). All reservoirs, except The Snow Creek Settling Reservoir, are welded steel tanks. The Snow Creek Settling Reservoir is a reinforced concrete structure that originally had a composition wood roof; which has since been replaced with a steel roof. It is the oldest reservoir in the system; it is also the last of the reinforced concrete water storage reservoirs in the system. The existing water storage reservoirs are described in **Table V-5**.

The Agency has historically experienced a condition wherein the reservoirs in the southern portion of the main system (Tahquitz and Palm Springs South) fill at a slower rate than Palm Springs North, due to higher overall well production in the north than in the south, and limitations in conveyance pipelines connecting the two areas. DWA has historically been able to mitigate this condition by setting wells to run in response to water levels in nearby reservoirs. However, during the summer months or when operating in TOU, the southern reservoirs have not always filled to full capacity; thus reducing emergency storage. This condition has been exacerbated by the removal of several southerly wells (Wells 11, 14, and 16) from active service. Recommended facilities to alleviate this condition are set forth in **Chapter VII.**

TABLE V-5
EXISTING WATER STORAGE RESERVOIRS
DESCRIPTIVE DATA

Pressure Zone	Reservoir Name	Reservoir No.	Year Built	Type of Construction	Nominal Height (ft)	Diameter (ft)	Floor Elevation (ft)	Overflow Elevation (ft)	Nominal Capacity (MG)	Zone Storage
Andreas Hills	Andreas Hills No. 1	25	1994	Steel	32	93	849.00	880.00	1.5	
880	Andreas Hills No. 2	31	2002	Steel	32	93	849.00	880.00	1.5	3.00
Chino East	Chino No. 1	7	1956	Steel	15	63	840.00	855.00	0.3	
860	Chino No. 2	20	1982	Steel	16	206	841.00	856.00	3.5	
	Chino No. 3	27	1999	Steel	16	206	841.00	856.00	3.5	7.30
Desert Palisade (1040)	Desert Palisade		2016	Steel	34	55	1010.00	1040.00	0.5	0.50
Foothill	Foothill No. 1	94	1959	Steel	24	27	800.00	823.00	0.1	
830	Foothill No. 2	16	1978	Steel	24	62	805.00	828.00	0.5	0.60
Palm Oasis	Palm Oasis No. 1	21	1982	Steel	32	76	1119.00	1150.00	1.0	
1150	Palm Oasis No. 2	26	1999	Steel	32	76	1119.00	1150.00	1.0	2.00
Palm Springs East	Palm Springs East 1	14	1975	Steel	40	150	541.00	580.00	5.0	
580	Palm Springs East 2	23	1987	Steel	40	150	541.00	580.00	5.0	10.00
Palm Springs Main	Araby	6	1955	Steel	21	50	630.00	650.00	0.3	
680	Palm Springs North 12.0 MG	19	1982	Steel	40	232	641.00	680.00	12.0	
	Palm Springs North (Snow Creek Settling)	5	1941	Concrete	18	132	684.20	699.00	1.5	
	Palm Springs South No. 1	13	1975	Steel	40	150	641.00	680.00	5.0	
	Palm Springs South No. 2	30	2002	Steel	40	150	641.00	680.00	5.0	
	Tahquitz No. 1	8	1960	Steel	40	147	642.00	681.00	5.0	
	Tahquitz No. 2	32	2005	Steel	40	150	642.00	681.00	5.0	33.80
Snow Creek	Snow Creek Equalization	22	1985	Steel	24	88	1951.00	1974.00	1.0	
1440	Snow Creek Village	18	1978	Steel	16	42	1420.67	1436.17	0.15	1.15
Southridge	Southridge No. 1	9	1961	Steel	11	40	900.00	---	0.1	
900	Southridge No. 2	17	1978	Steel	12	72	904.31	915.31	0.3	0.40
Terrace	Cathedral Canyon North (Terrace)	15	1978	Steel	24	62	582.00	605.00	0.5	
600	Vista Miller	93	1960	Steel	24	40	580.00	---	0.2	0.70

Note: Reservoirs exclude Well 14, Well 16, and Well 17 Forebays

In 1980, there were twenty reservoirs within the existing system with a combined capacity of about 22 MG. Four of the reservoirs were reinforced concrete with wood composition roofs. One of these reservoirs, Snow Creek No. 1, which had been constructed in 1927 and which had been discovered to be cracked and leaking, was destroyed. Two of these reservoirs, South Palm Canyon (Mesa) and Chino No. 1, the former constructed about 1937 and the latter constructed about 1936, were abandoned. These reservoirs, each being of limited capacity, were eliminated because of their questionable ability to withstand relatively significant seismic events.

The Snow Creek Settling Reservoir was constructed in 1941 as a reinforced concrete settling structure and chlorine contact tank with a composition wood roof. It was rehabilitated in 1996. The rehabilitated structure consists of a reinforced concrete wall and footing surrounding the reinforced concrete tank, a welded steel roof, and hypalon baffles. It meets current seismic standards.

Four new reservoirs were constructed between 1997 and 2018: Andreas Hills No. 2 (1.5 MG capacity constructed in 2002), Palm Springs South No. 2 (5.0 MG capacity constructed in 2002), Tahquitz No. 2 (5.0 MG capacity constructed in 2005), and Desert Palisade (0.5 MG capacity constructed in 2017). All are constructed from welded steel.

Operators inspect and clean plant sites monthly. They verify water levels and visit the plant sites daily. They read the water level indicators from advantageous locations. They visit the plant sites weekly, if possible.

G. PRESSURE REGULATOR PLANTS

There are only two operational pressure regulator plants within the existing system. They are located in the Foothill 830 Pressure Zone. They reduce the system hydraulic grade from elevation 830 to elevation 770, elevation 830 being high water level in the Foothill Reservoirs. The Vista Miller Pressure Regulator Plant, which is located on the same site as the Vista Miller Reservoir and the Vista Miller Booster Plant, maintains downstream pressure at 80 psi. It reduces the Zone 830 pressure by about 28 psi. The Valley Vista Elna Way Pressure Regulator Plant, located at the intersection of Valley Vista Drive and Elna Way, maintains downstream pressure at 30 psi. It is intended primarily to meet fire flow demands in the Foothill Reduced 784 Pressure Zone.

In recent years, DWA has been replacing inadequate and defective pipelines within Cathedral City, including the majority of the pipelines in the Foothill 830 and Foothill Reduced 784 Pressure Zones.

As stated in the 2008 Water General Plan, the pressure regulator plants should be evaluated for abandonment once said inadequate and defective pipelines in the Foothill Reduced 784 Pressure Zone have been replaced and the system is able to withstand higher pressures. The majority of the pipelines within the Foothill Reduced 784 Pressure Zone have now been replaced; therefore, the Vista Miller and Valley Vista Elna Way Pressure Regulator Plants can now be evaluated for abandonment. However, it should be noted that if these pressure regulators are abandoned, all the service connections in the Foothill Reduced 784 Pressure Zone will need to be fitted by the Agency with individual pressure regulators.

H. PIPELINE SYSTEM

According to DWA's 2018/2019 Operating Statistics Report, there are 2,170,158 feet (about 411 miles) of pipelines in the domestic water system. DWA is systematically eliminating small diameter pipeline from its inventory based on repair records and pipeline condition, age, size, composition, and location in order to improve operating conditions and increase fire flow capability. DWA now requires, as it has for the past several decades, new pipelines to be at least 8" in diameter.

Pipelines constructed using ductile iron pipe (DIP), cement mortar lined and cement mortar coated welded steel pipe (CML/CMC/WSP), and asbestos cement pipe (ACP) generally provide service lives of 50 years or more. Service lives are much shorter (up to a full order of magnitude) for unlined cast iron pipe or bare steel pipe. Older portions of the system are composed of unlined and uncoated steel pipe. New pipelines are composed of CML/CMC/WSP and cement mortar lined DIP, exclusively.

Currently, the potable water pipeline system comprises the following:

Diameter (In)	Length (Ft)
24 and Larger	230,450
14 to 20	115,222
8 to 12	1,301,170
6 and Smaller	523,316

CHAPTER VI
RECYCLED WATER

CHAPTER VI
RECYCLED WATER

A. GENERAL

The recycled water system facilities consist of the WRF, two booster pumping plants, and recycled water transmission pipelines.

Recycled water from the WRF is currently served to ten users:

1. DWA Operations Center (1 service)
2. WRF (1 service)
3. Demuth Park (1 service)
4. Mesquite Country Club (1 service)
5. Tahquitz Creek East Golf Course (1 service)
6. Tahquitz Creek West Golf Course (1 service)
7. Mid-Valley Parkway (1 service)
8. Palm Springs High School (4 services)
9. Escena Golf Club (1 service)
10. Palm Springs Animal Shelter (dual-plumbed building, 1 service)

Recycled water was also served to the Indian Canyon South and Indian Canyon North Golf Courses until June 2020, when these facilities discontinued use of recycled water.

The existing recycled water system is shown on **Map 5** and described in the following sections.

Recycled water treatment criteria are specified in 22 CCR, Division 4, Chapter 3. Since recycled water from the WRF is used for golf course irrigation in areas where the public has access or exposure (where private dwellings are located adjacent to golf courses), recycled water must conform to 22 CCR, Section 60305 for non-restricted recreational impoundments. Specifically, it must be adequately disinfected, oxidized, coagulated, clarified, and filtered, or treated by a sequence of other unit processes that will provide an equivalent degree of treatment and reliability.

Recycled water delivered to dual-plumbed buildings additionally conforms to 22 CCR, Sections 60313-60316.

The average turbidity of the filtered water must not exceed 2.0 turbidity units. The maximum turbidity must not exceed 5.0 turbidity units more than 5% of the time during any 24-hour period.

Disinfection is considered adequate if the median number of coliform organisms in the treated effluent does not exceed 2.2/100 ml as determined by bacteriological tests for seven days, provided the maximum number of coliform organisms does not exceed 23/100 ml in any sample.

DWA WRF is capable of meeting 22 CCR reclamation criteria. All recycled water can be used to irrigate areas accessible to the public including municipal parks, golf courses, and green belts.

The recycled water also meets the discharge requirements as specified in the Discharge Requirements, Order No. R7-2014-0008 as issued by the RWQCB, Colorado River Basin Region.

B. EXISTING RECYCLED WATER FACILITIES

1. Recycled Water Treatment Facility

The WRF treats secondary effluent from the CPS WTP. The WRF was constructed in 1989 with an initial capacity of 5.0 MGD with provisions to expand in 5.0 MGD increments to its ultimate capacity of 15.0 MGD. The facility was expanded in 1995 to its present capacity of 10.0 MGD. Since 2008, the following improvements have been added:

a. Adding a second influent storage reservoir with provisions for solids settling and removal and with the reservoir operating in series with the existing influent reservoir.

b. Replaced hydropneumatic tank.

c. Installed ventilation fan on Effluent Reservoir No. 1.

At this time, any additional expansions will be dependent upon CPS WTP flow and recycled water demands.

Secondary effluent discharged from the CPS WTP is diverted by gravity to the WRF Influent Equalizing Reservoirs No. 1 and No. 2 (IER #1 and IER #2) for storage and balancing to permit constant and continuous pumping to process units. Once these reservoirs are full, secondary effluent from the CPS WTP is automatically diverted to the CPS WTP Percolation Ponds by weir overflow. Secondary effluent is normally diverted to IER #2 first, where additional settling and solids removal is achieved, along with storage. The settled secondary effluent is then diverted to IER #1 for additional storage.

Secondary effluent is injected with alum and then polymer while being pumped from the influent equalizing reservoirs to the mix, flocculation, and splitter structures where flow is split equally to six Microfloc Products Trident Modules (treatment modules). Trident modules each consist of a fully automated Microfloc adsorption clarifier followed by a deep bed "Mixed Media" filter. The filtered effluent is chlorinated, mixed, and then discharged to two 2.3 MG chlorine contact and recycled water storage reservoirs that operate in series. Thereafter, recycled water is delivered to recycled water users through recycled water transmission pipelines.

The WRF turns on and off automatically depending upon the level in the effluent reservoirs. When reservoirs are full and the WRF shuts down, the secondary effluent from CPS WTP continues to fill the influent equalizing reservoir. An automatic valve closes once the reservoir is full and the secondary effluent is automatically diverted to the CPS WTP percolation ponds via a weir overflow structure.

The WRF continuously monitors the treatment modules influent turbidity, filter effluent turbidity, and filter effluent chlorine residual just upstream of the chlorine contact reservoirs. The chemical dosage of alum is automatically adjusted based on filter effluent turbidity. The WRF is equipped with alarm set points and automatic controls for plant shutdown due to high filter effluent turbidity or low filter effluent chlorine residual. Alarms are telemetered to DWA's Operation Center for 24-hour emergency service. DWA also has the ability to continuously monitor the turbidity of secondary effluent being diverted into the influent equalization reservoir and to take composite samples for analyses.

There are standby pumps for influent, backwash, surface wash, and effluent pumping and standby chemical feed pumps for alum and polymer. Standby chlorine cylinders are

equipped with automatic switchover devices. In addition, a standby chlorinator is available.

Six Trident modules have a combined capacity of 10.0 MGD. If any modules are out of service, the flow through the plant can be adjusted to match the capacity of the remaining modules in service.

When recycled water is not available in sufficient quantities, water can be supplied from two supplemental sources:

- Chlorinated groundwater from two shallow groundwater recovery (SGR) wells (1,200 gpm capacity each) located just easterly of the WRF, conveyed to the Reclaimed Effluent Storage Reservoir No. 2 via a 12" diameter pipeline with an air gap at the connection point. Up to 3.4 MGD of supplemental supply is available from these wells.
- Water from DWA's domestic water system conveyed via an 8" pipeline connected to the 12" SGR pipeline with an 8" reduced pressure backflow prevention device. A minimum of 3 MGD of supplemental supply is available from the domestic water system.

2. Recycled Water Pumping and Booster Stations

Currently, there are one pumping station and two booster stations in the recycled water system. The Recycled Water Pump Station (RWPS) is located at the WRF plant site. The booster stations, Canyon South and Palm Springs High School, are located remotely from the WRF. Further, the WRF-RWPS consists of four 100 hp vertical turbine pumping units with a capacity of 7,000 gpm (10.0 MGD). The delivery system pressure is maintained and controlled by a hydropneumatic tank with pumps starting and stopping based on pressure.

Each recycled water system user has a service connection equipped with an automatic operated flow control facility. Each flow control facility consists of a flow meter and an automatic rate of flow control valve, which is equipped with an upstream pressure sustaining feature set to deliver a specific flow when activated. Recycled water is delivered

to golf course storage ponds depending upon storage pond level. When pond level is below full and the rate of flow control facility is activated by DWA's telemetry system, recycled water is delivered at the preset flow. When the storage pond has filled, the flow control facility shuts off.

The Canyon South Booster Station formerly boosted recycled water to the Indian Canyons Golf Courses. The Canyon South Booster Station, located on the westerly side of El Cielo Road southerly of Mesquite Avenue, contains two 125 hp horizontal pumping units and one 10 hp jockey pump. The capacity of each 125 hp pumping unit is 2,000 gpm. Because the Indian Canyon Golf Courses are no longer accepting recycled water, the Canyon South Booster Station is no longer in active service. As discussed in **Chapter VII**, the Canyon South Booster Station is proposed to be converted to potable use to supplement potable water supply in the southern half of the Palm Springs Main pressure zone.

The Palm Springs High School Booster Station boosts recycled water to Palm Springs High School. It is located on the southerly side of Baristo Road easterly of Farrell Drive, and contains two 40 hp horizontal pumping units and one 1.5 hp jockey pump. The capacity of each 40 hp pumping unit is 350 gpm.

3. Recycled Water Transmission Pipelines

DWA's existing recycled water transmission pipelines consist of 8" to 30" pipelines. All of the pipelines are CML/CMC/WSP, except for the 12" pipeline which is DIP.

Currently, the recycled water transmission pipeline system comprises the following:

Pipeline Diameter	Approximate Length
8"	500± LF
12"	4,500± LF
16"	2,000± LF
20"	2,600± LF
24"	37,400± LF
30"	500± LF

Locations of existing recycled water transmission pipelines are shown on **Map 5**.

C. RECYCLED WATER SUPPLY

The recycled water supply consists of secondary effluent from the CPS WTP. The existing average daily flow from the CPS WTP is approximately 5.5 to 6.0 MGD. The current design capacity of the CPS WTP is 10.9 MGD. The CPS WTP is not expected to require additional capacity until after 2040.

Until June 2020, the WRF treated approximately half of the secondary effluent from the CPS WTP in the winter months and all of the secondary effluent from the CPS WTP in the summer months. In addition, water from the shallow groundwater extraction wells and potable water supplemented recycled water in the summer months. Since the Indian Canyon Golf Courses discontinued use of recycled water, recycled water production has decreased by approximately 25%, and the continued use of supplemental water from the shallow groundwater extraction wells and potable water during the summer months is not anticipated.

If, in the future, flows increase to the CPS WTP, and additional recycled water demands (currently unanticipated) also increase, the WRF will be expanded to its ultimate capacity of 15 MGD.

D. RECYCLED WATER UNIT DEMAND FACTORS

1. Monthly Recycled Water Demand Requirements

Current recycled water demands (2018, excluding demands for the Indian Canyon Golf Courses) are set forth in **Table VI-1** as follows:

TABLE VI-1
RECYCLED WATER DEMANDS
(MG)

Month	Mesquite Country Club (18 Holes)	Tahquitz Creek Golf Resort (36 Holes)	Escena Golf Club (18 Holes)	Demuth Park	Palm Springs High School	Mid-Valley Parkway Median	Desert Water Agency	Total Monthly Demand	Percent of Annual Demand (Rounded)
January	8.97	8.32	6.91	22.83	1.26	0.20	0.13	48.61	4.6
February	18.34	18.31	9.47	10.74	1.98	0.22	0.15	59.20	5.5
March	17.15	23.47	16.76	16.21	2.62	0.27	0.17	76.64	7.2
April	22.13	39.63	21.98	16.78	3.76	0.17	0.27	104.72	9.8
May	25.22	43.56	28.35	23.20	4.70	0.08	0.31	125.41	11.8
June	27.35	48.78	29.47	29.77	5.04	0.05	0.27	140.72	13.2
July	16.70	49.68	25.31	13.29	5.81	0.02	0.34	111.14	10.4
August	10.09	55.07	17.22	12.05	4.51	0.02	0.39	99.34	9.3
September	3.88	41.24	4.33	14.96	2.73	0.02	0.54	67.70	6.3
October	35.92	31.93	22.09	13.15	2.14	0.01	0.65	105.89	9.9
November	28.25	25.97	8.67	26.19	2.47	0.00	0.29	91.84	8.6
December	10.81	12.69	1.86	8.91	0.93	0.00	0.23	35.42	3.3
Total:	224.80	398.63	192.42	208.08	37.93	1.06	3.73	1,066.64	100

As shown in **Table VI-1**, high recycled water demands have occurred from May through August and in October. Low recycled water demands have occurred in January, February, and December. Summer recycled water demands have been approximately 11% to 12% of total annual recycled water demands, while winter recycled water demands have been approximately 5% of total annual recycled water demands.

It should be noted that total monthly demand has decreased substantially for each golf course, likely due to water conservation efforts by the golf courses.

2. Daily Recycled Water Demand Requirements

Based on the recycled water demands for the Mesquite Country Club, Tahquitz Creek Golf Resort, Escena Golf Club, and Indian Canyons Golf Resort Courses as set forth in **Table VI-1**, the ADD and the ADMM for an 18-hole golf course are approximately 0.6 MGD and 0.87 MGD, respectively.

In the 2008 General Plan, DWA estimated MDD for an 18-hole golf course at approximately 1,200 gpm (1.73 MGD). At that time, the ADD for an 18-hole golf course was 0.8 MGD, and the ratio of MDD to ADD was 2.0. Due to conservation efforts on the part of the golf courses, the average golf course ADD has decreased from 0.8 MGD to 0.6 MGD. It is reasonable to assume that golf course conservation efforts are uniform; therefore, for purposes of this report, the ratio of MDD to ADD is assumed to have remained constant at 2.0.

The unit demand factors for the recycled water system are assumed to be as follows:

ADMM	=	1.5 x Average Day Demand
MDD	=	2.0 x Average Day Demand

3. Seasonal Recycled Water Demand Requirements

The challenge with the recycled water system is that the supply (CPS WTP) is fairly uniform throughout the year, yet the recycled water demands vary considerably between winter and summer; therefore, excess supply generated in the winter months cannot be utilized and is discharged to the City's percolation ponds. In the summer months, there is insufficient supply to meet recycled water demands and water pumped from the shallow groundwater wells, or delivered from the potable water system, must augment or supplement recycled water supplies.

Based on existing recycled water demands, the potential discharge of supply to the City's percolation ponds in winter months and the potential supplemental water requirements in summer months for various CPS WTP flows are set forth in **Table VI-2** as follows:

TABLE VI-2
POTENTIAL WINTER SUPPLY DISCHARGE AND POTENTIAL SUPPLEMENTAL WATER REQUIREMENTS FOR EXISTING CONDITIONS

CPS Supply (MGD)	Existing Recycled Water Demands		Winter Discharge			Required Summer Supplemental Water for MDD	
	ADD (1)	MDD (2)	Winter Demand (3)	Winter Discharge			
	(MGD)	(MGD)	(MGD)	(MGD)	(gpm)	(MGD)	(gpm)
5	2.9	5.8	1.8	3.2	2,200	0.84	600
6	2.9	5.8	1.8	4.2	2,900	0	0
7	2.9	5.8	1.8	5.2	3,600	0	0
8	2.9	5.8	1.8	6.2	4,300	0	0
9	2.9	5.8	1.8	7.2	5,000	0	0

Notes:
(1) Based on recycled water demands as set forth in Table VI-1.
(2) MDD = 2.0 x ADD
(3) Based on a monthly demand of 5% of the annual recycled water demand.

Since the existing CPS WTP supply is approximately 6.0 MGD, DWA is not currently required to provide supplemental water from its shallow groundwater wells and/or its potable water system in summer months to meet MDD.

E. EXISTING AND POTENTIAL FUTURE RECYCLED WATER DEMANDS

Existing and potential future recycled water demands are set forth in **Table VI-3** as follows:

TABLE VI-3
EXISTING AND POTENTIAL FUTURE RECYCLED WATER DEMANDS

Demand	Average Day Demand (MGD)	Average Day Maximum Month[2] Demand (MGD)	Maximum Day Demand[3] (MGD)
Existing Demands [1]	2.9	4.4	5.8
Potential Future Demands			
Escena Golf Club (additional contracted capacity)	0.3	0.45	0.6
Seven Lakes Country Club (9 holes)	0.4	0.6	0.8
Sunrise Park	0.1	0.15	0.2
Total:	3.7	5.6	7.4

Notes:
(1) Based on recycled water demands as set forth in Table VI-1
(2) ADMM = 1.5 x ADD
(3) MDD = 2.0 x ADD

The Escena Golf Club is currently (2020) contracted with DWA to take 45% of its water supply as recycled water, and increase its recycled water use by 5% every year until it takes 95% of its water as recycled water (2030). Escena's current average water use is approximately 318 million gallons per year (MG/Year), 95% of which is 302 MG/Yr, 109 MG/Year (0.3 MGD) beyond its 2018 recycled water use of 193 MG/Yr.

In the future, with recycled water being delivered to all of potential future users as set forth in **Table VI-3**, the potential supply discharge to the City's percolation ponds in winter months and the

potential supplemental water requirements in summer months for various CPS WTP flows will be as set forth in **Table VI-4** as follows:

TABLE VI-4
POTENTIAL WINTER SUPPLY DISCHARGE AND POTENTIAL SUPPLEMENTAL WATER REQUIREMENTS FOR FUTURE CONDITIONS

CPS Supply (MGD)	Existing Recycled Water Demands		Winter Discharge			Required Summer Supplemental Water for MDD	
	ADD [1] (MGD)	MDD [2] (MGD)	Winter Demand [3] (MGD)	Winter Discharge (MGD)	(gpm)	(MGD)	(gpm)
6	3.7	7.44	2.26	3.74	2,600	1.44	1,000
7	3.7	7.44	2.26	4.74	3,300	0.44	300
8	3.7	7.44	2.26	5.74	4,000	0.00	0
9	3.7	7.44	2.26	6.74	4,700	0.00	0
10	3.7	7.44	2.26	7.74	5,400	0.00	0
11	3.7	7.44	2.26	8.74	6,100	0.00	0
12	3.7	7.44	2.26	9.74	6,800	0.00	0
13	3.7	7.44	2.26	10.74	7,500	0.00	0
14	3.7	7.44	2.26	11.74	8,100	0.00	0
15	3.7	7.44	2.26	12.74	8,800	0.00	0

Notes:
(1) Based on recycled water demands as set forth in Table VI-1.
(2) MDD = 2.0 x ADD
(3) Based on a monthly demand of 5% of the annual recycled water demand.

Even with recycled water deliveries to all potential future users and with CPS WTP supply increasing to 10.0 MGD, DWA will still not be required to provide supplemental water from shallow groundwater wells and/or the potable water system in summer months to augment recycled water supplies to meet MDD.

F. PROPOSED FACILITIES

The recycled water system improvements presented in this section are intended to enable DWA to continue to provide recycled water over the next 10 to 20 years. The proposed facilities are based on flows increasing at the CPS WTP and sufficient recycled water demands to warrant construction of the necessary facilities. Proposed facilities include improvements to the WRF and improvements to the transmission facilities.

1. Recycled Water Treatment Facility Improvements

WRF improvements include replacement of the PLC, relocation of the chlorine sample station, and recoating of Effluent Reservoirs No. 1 and No. 2.

2. Transmission Facility Improvements

Transmission facility improvements required to deliver recycled water to known potential future users are summarized in **Table VI-6** as follows:

TABLE VI-5
TRANSMISSION FACILITY IMPROVEMENTS FOR
POTENTIAL FUTURE USERS

Potential Future Users	System Improvements
Seven Lakes Country Club (9 holes)	2,000± LF - 12" Pipeline
Sunrise Park	N/A

As of January 2022, DWA has declined to commit funds to constructing the transmission facility improvements required to deliver recycled water to Seven Lakes Country Club.

CHAPTER VII

PROPOSED WATER SYSTEM IMPROVEMENTS

CHAPTER VII
PROPOSED WATER SYSTEM IMPROVEMENTS

A. GENERAL

DWA's existing domestic water system will have to be expanded and improved to meet increasing water system demands, although not to the extent recommended in the 2008 Water General Plan. Proposed water system improvements will consist of well pumping plants, booster pumping plants, water storage reservoirs, water system pipelines, and related facilities.

The proposed water system improvements (expansions and additions) presented herein are intended to permit DWA to meet expected water demands for the next 20 years. The proposed construction schedule should be advanced or deferred based on development within the Service Area. The improvements recommended herein are predicated on continued use of groundwater as the primary source of water to meet increasing system demands, and continued service of water complying with Federal, State, and DWA standards.

B. SERVICE AREA SEGMENTS

DWA's domestic water system service area will continue to comprise five segments, namely: Snow Creek, Palm Oasis, Chino Canyon, Palm Springs Main, and Palm Springs East. The Snow Creek and Palm Oasis segments will be expanded as required to accommodate development. Said development is expected to occur between the Valley floor and the mountain front. Development in the Chino Canyon segment has been restricted by the reservation of significant portions of the Chino Cone area for conservation purposes, and the Chino Canyon segment is not anticipated to expand significantly in the future. The Palm Springs Main segment will extend further into Tahquitz Canyon and South Palm Canyon as development occurs. The Palm Springs East segment will extend further into Cathedral Canyon.

C. PRESSURE ZONES

Pressure zone data, such as approximate range of elevations served and approximate range of static pressures, are set forth in **Table VII-1**. The proposed pressure zones are shown by **Map 3**.

TABLE VII-1
PROPOSED PRESSURE ZONES

Pressure Zone		Approximate Range of Elevations Served (Feet)	Approximate Static Pressure Range (psi)
Name	Elevation		
Snow Creek	1440	1130 - 1340	40 - 130
Palm Oasis	1150	850 - 1050	40 - 130
Chino East	860	550 - 760	40 - 130
Desert Palisade	1040	740 - 940	40 - 130
Desert Palisade Pressurized	1240	940 - 1140	40 - 130
Palm Springs Main	680	380 - 580	40 - 130
South Palm Canyon	880	580 - 780	40 - 130
Southridge	900	610 - 820	40 - 130
Southridge Pressurized	1030	800 - 930	40 - 100
Palm Springs East	580	280 - 480	40 - 130
Terrace	600	350 - 500	40 - 110
Reduced Foothill	770	520 - 670	40 - 115
Foothill	830	560 - 730	40 - 140

Previously anticipated development of substantial portions of the Chino Cone area has been eliminated due to activities by conservation groups. Therefore, the Chino 1440, 1640, 1840, and 2040 Pressure Zones that were proposed in the 2008 Water General Plan are no longer proposed.

Although pressure zone intervals are inconsistent from one service area segment to another, DWA has adopted a uniform pressure zone elevation differential of 200 feet. All future pressure zones will be established on the basis of the adopted elevation interval, except where rugged terrain may warrant a pressure zone elevation differential of up to 400 feet.

D. POWER CONSIDERATIONS

Power can be conserved and power costs reduced by implementing a TOU operational strategy, in which well and booster pumping plants are turned off during periods subject to high on-peak electrical pumping rates to take advantage of lower, off-peak, electrical pumping rates. To implement a TOU operational strategy, storage, transmission, and production capacity must be increased to maintain service to customers in a shorter period of time. The increased production and storage required are termed TOU production and storage. TOU production is production in excess of MDD needed to meet MDD with wells and boosters turned off during on-peak electrical service periods. TOU storage is storage in excess of equalizing storage needed to store TOU production. Electrical rates are essentially unpredictable since the industry was deregulated, but SCE has stipulated for 2019 that the high on-peak period (highest electrical rates) will be the five hours between 4:00 PM and 9:00 PM. This may change in future years.

DWA's goal is to have enough production and storage capacity to be able to shut down one-half of its wells and all of its booster stations during the high on-peak period. Therefore, in order to meet MDDs (one-half of production during the available five hour on-peak period), TOU production must equal or exceed 112% MDD production, TOU booster pumping must equal or exceed 126% MDD production, and, correspondingly, TOU storage must equal or exceed 2.5 hours of MDD for reservoirs filled by well pumping plants, and five hours of MDD for reservoirs filled by booster stations (Desert Palisade, Andreas Hills, Southridge, Terrace, and Foothill).

SCE also offers several programs for reducing power costs that involve reduced rates for interruptible power service. The Agricultural and Pumping Interruptible Program (AP-I) is a program in which SCE is permitted to temporarily interrupt electric service during periods of high energy demand. Interruptions can occur at any time: seven days a week, 365 days a year. Interruption events are limited to:

- One event per day (six hours)
- 25 events per calendar year
- 150 hours per calendar year

Because high water demands are likely to occur during SCE's interruption events, participation in the AP-I program could entail risk of failure to meet customer demands during some high-demand periods, especially if TOU is implemented. Combined, pumping facilities could be unavailable for

up to a total of eleven hours (five hours for TOU and six hours for AP-I) in one day; therefore, we do not recommend participation in the AP-I program.

SCE also offers a program of Critical Peak Pricing (CPP) which is an optional rate that offers a discount on summer electricity rates in exchange for higher prices during twelve CPP event days per year, usually occurring on the hottest summer days. The twelve CPP events occur between 4:00 PM and 9:00 PM. CPP events can be called year-round on non-holiday weekdays. The current TOU schedule conflicts with these CPP events, so TOU and CPP are not compatible.

E. WATER TREATMENT FACILITIES

1. Surface Water

Surface water from SC/FC is used as domestic water supply for the Caretaker's and Hick's Cabins, and Snow Creek Village. As discussed in **Chapter IV**, the DDW notified DWA in September 2018 that SC/FC surface water diversions no longer met the criteria for Surface Water Filtration Avoidance, and filtration treatment would need to be provided by June 12, 2020 if DWA intended to continue using the SC/FC diversions for potable water. On October 6, 2020, DWA completed construction of a small surface water filtration facility to provide potable water service to Snow Creek Village

Surface water from Chino Creek North was formerly diverted and used for domestic water supply, until DWA removed it from service due to turbidity spikes in the source water. Without filtration, Chino Creek North raw water could be utilized for golf course and turf area irrigation, for groundwater recharge, or for construction water. With filtration, Chino Creek North water could be used for potable water service. DWA has performed pilot testing of a cartridge (bag) filter system to evaluate the capital cost and labor cost required for operation; however, if filtration treatment at the Chino Creek North diversion were implemented, the treatment technology would most likely be pressure sand filtration similar to that currently being used for Snow Creek Village.

Chino Creek West is the sole source of domestic supply for the Palm Springs Aerial Tramway and is not likely to be replaced with another source. Due to low turbidity water and watershed protection, filtration has not historically been required by DDW, so disinfection has been the only form of treatment. However, storms in early 2019 resulted in fluctuations of fecal coliform in the Chino Creek West surface water supply; and as a

result, DWA has budgeted the installation of a 50 gpm capacity package surface water filtration facility at the Chino Creek West diversion.

DWA acquired the Whitewater Mutual Water Company in 2009, along with its adjudicated rights to divert surface water from the Whitewater River. Surface water diverted from the Whitewater River provides non-potable water to the CalTrans Rest Stop, the Whitewater Rock Company, and Tribal customers at Whitewater Ranch. Treatment is not presently required by DDW for existing uses.

Estimated costs for proposed surface water treatment facilities are set forth in **Table VII-2**. At present, only one such facility is proposed.

TABLE VII-2
SURFACE WATER TREATEMENT FACILITIES
PROJECT COSTS
(2020 DOLLARS)

Facility	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Chino Creek West Surface Water Filtration Plant	$590,000						
TOTAL:	$590,000	$0	$0	$0	$0	$0	$0

2. Groundwater

Generally, the water produced by groundwater extractions which is used in the domestic water system is of high quality and it complies with Safe Drinking Water Standards without any treatment. There are a few exceptions, as described below.

a. Well 14 and 16

Water quality issues at Wells 14 and 16 were described in the 2008 Water General Plan. Wells 14 and 16 were placed on Standby status in July 2017, and treatment/blending is no longer proposed. In order to fill the Palm Springs South and Tahquitz Reservoirs during periods of high demand, Wells 14 and 16 must be replaced with wells in the southerly half of the Palm Springs Main Pressure Zone.

b. Well 6

Well 6 is currently being used for groundwater monitoring purposes. Much of the VOCs in the vicinity have been removed as part of a groundwater remediation

effort coordinated by the RWQCB, Colorado River Basin Region. Low levels of certain VOCs still remain in the water at Well 6, but these could be removed by well-head treatment, enabling Well 6 to be returned to active service. Returning Well 6 to active service will have the added benefit of helping fill the Palm Springs South and Tahquitz Reservoirs during periods of high demand. If Well 6 is not returned to active service, the well should be replaced with a new well in the southerly half of the Palm Springs Main Pressure Zone.

Removing the VOC contamination will improve the quality of the local groundwater and further mitigate the contamination plume, thereby restricting migration of the contamination to other wells in the area. Air stripping is no longer commonly used to treat VOC contamination in wells, so granular activated carbon filtration is likely to be the most appropriate treatment method. Proposed treatment facilities would be subject to approval by both DDW and the Regional Board. Project costs may vary from $950,000 to $1,600,000 (2022 dollars). For budget purposes, a cost of $1,600,000 is assumed (costs are included in **Tables VII-4C and VII-4D**).

F. WATER PRODUCTION FACILITIES

Water production requirements are expected to increase from about 34,000 AF/Yr in 2018 to about 37,000 AF/Yr in 2030, and to about 40,000 AF/Yr in 2040. Snow Creek, Falls Creek, and the Whitewater River are expected to produce an average of 6,425 AF/Yr; however, surface water supplies are highly dependent on meteorological and climatological factors, and the bulk of diverted surface water flows will be utilized for groundwater replenishment. Therefore, most of the water supply is expected to continue to be derived from groundwater, so DWA's groundwater extraction facilities need to be expanded.

Well Pumping Plants

DWA well pumping plants have generally consisted of a single pumping unit to pump water from the underlying groundwater basin to the transmission and distribution pipeline system and to storage reservoirs. Wells 14, 16, and 17 are exceptions. These well pumping units pump groundwater to forebays at ground surface and boosters pump water from the forebays into the distribution system. Well Pumping Plants 14 and 16 were equipped with forebays and booster pumping plants to permit dissolved gas (air) to escape from the extracted groundwater before being injected into the pipeline system. Other wells in DWA's system also produce water containing dissolved gas (air) but the occurrence is intermittent and the quantity is limited so it is injected directly into the pipeline system.

The proposed well pumping plants are shown on **Maps 3 and 4** in a well field arrangement. A well field is a group of two or more wells located in the same geographic location with wells discharging to a common point in the pipeline system. The well field facility offers advantages in operation, maintenance, and lower capital costs. If, in the future, deaeration basins become necessary to remove dissolved gas or if treatment of groundwater is required, fewer deaeration basins, treatment facilities, and booster pumping plants will need to be constructed and maintained. Since the well field discharges to a common point, only one common deaeration basin, treatment facility, and booster station would be required for each well field. If these facilities are required in the future, the project cost of each well field would increase by approximately $4,000,000 to $5,500,000. Variance in cost would depend on number and capacity of wells supplying the common facility.

Single pumping unit pumping plants are proposed in five separate well fields, namely: Chino East, Palm Springs North, Palm Springs Main (Northerly, Main, and Southerly), Palm Springs South, and Palm Springs East. The locations of the well fields shown are based on proximity to existing wells, anticipated land availability, higher quality wells, and flexibility for common deaeration basins, treatment facilities, and booster pumping plants, if required in the future. The exact location of proposed wells should be determined during design based on Service Area development and current land availability. Each proposed well pumping plant is planned to consist of a single 450 hp pumping unit capable of direct discharge into the system with belowground concrete vault and associated electrical and mechanical equipment. The estimated project cost for a well and well pumping plant is $2,000,000; and the estimated project cost for installing a well pumping plant on an existing well is $1,200,000 (2022 dollars).

Hydraulically, new wells in the southern portion of the main system help balance the reservoir levels and reduce the filling lag between Palm Springs North and the southern reservoirs, which will be exacerbated somewhat by the lack of demands from anticipated development in the Chino Cone area. Wells 11, 14, and 16 in the southern portion of the main system have been placed on Standby status, further exacerbating the southern reservoir filling lag time. Property for additional wells is difficult to obtain in the southern portion, and generally the wells in that vicinity do not produce as much water as wells in other areas. Nevertheless, DWA should continue to procure well sites in the southern portion of the main system whenever possible; and should utilize existing well sites in that area where wells are not currently in operation, either by rehabilitating the existing wells or constructing new wells at the existing sites. Two such sites are Well 3 and Well 6.

Well 3 should be abandoned and destroyed, and a new well constructed in its place, or on a nearby site owned by DWA. The existing Well 3 is shallow (450 feet), but can produce up to 1,000 gpm. A new well drilled to 1,000 feet would be expected to produce at a higher rate.

Well 6 can be restored to service by constructing treatment facilities to remove VOC contaminants in the underlying groundwater, as described above in **Section VII.D.2**. It appears that the size of the existing site is adequate for both the required treatment facilities and a new well, if the existing well were to be retired.

Future production requirements by service area and pressure zone are presented in **Tables VII-3A (Normal Operation) and VII-3B (TOU Operation)**. Said tables provide the required production to meet projected MDMM. Proposed well field facilities are set forth in **Tables VII-3C and VII-3D**. For TOU, the required production and production facilities to meet MDMM demands is based on DWA's goal of shutting down one-half of the wells during peak hours (this may change in future years). Given SCE's designated off-peak hours of 4:00 PM to 9:00 PM, off-peak operation would occur during a 19-hour period each day; therefore, in order to meet TOU production goals, normal production would have to be increased by 12%. Proposed wells shown on **Maps 3 and 4** were determined based on increased production requirements while maintaining existing production facilities. They also show potential locations for replacement wells if existing wells are taken out of service or a reduction in surface water supply occurs.

TABLE VII-3A
PRODUCTION FACILITY REQUIREMENTS
BY SERVICE AREA AND PRESSURE ZONE
IN GALLONS PER MINUTE
(NORMAL OPERATION)

Zone	Production Demand	2020	2030	2040	2050	Existing Production	Required Production Increase 2020	2030	2040	2050
Snow Creek Service Area										
Snow Creek Village	Average Day	17	34	52	69					
(1160-1440)	Maximum Day	33	68	104	139					
Total	Average Day	17	34	52	69					
	Maximum Day	33	68	104	139	140	0	0	0	0
		Wells Required @ 1000 gpm					0	0	0	0
Palm Oasis Service Area										
Palm Oasis	Average Day	98	553	1,008	1,463					
(1150)	Maximum Day	197	1,106	2,016	2,926					
Total	Average Day	98	553	1,008	1,463					
	Maximum Day	197	1,106	2,016	2,926	800	0	307	1,217	2,126
		Wells Required @ 2000 gpm					0	1	1	2
Chino Canyon Service Area										
Chino East	Average Day	1,731	2,439	3,148	3,856					
(860)	Maximum Day	3,462	4,879	6,295	7,712					
Desert Palisade	Average Day	74	115	156	197					
(1040)	Maximum Day	148	230	311	393					
Desert Palisade-Pressurized	Average Day	3	39	75	111					
(1240)	Maximum Day	6	78	150	222					
Total	Average Day	1,808	2,593	3,378	4,163					
	Maximum Day	3,616	5,186	6,756	8,326	5,300	0	0	1,457	3,027
		Wells Required @ 2000 gpm					0	0	0 (1)	1 (1)
Palm Springs Main Service Area										
Palm Springs Main	Average Day	12,443	14,471	16,499	18,527					
(680)	Maximum Day	23,019	26,771	30,523	34,275					
Andreas Hills	Average Day	436	498	561	623					
(880)	Maximum Day	872	997	1,121	1,246					
Southridge	Average Day	22	25	28	30					
(920)	Maximum Day	44	50	55	61					
Southridge-Pressurized	Average Day	16	17	17	18					
(1120)	Maximum Day	32	33	35	36					
Total	Average Day	12,917	15,011	17,104	19,198					
	Maximum Day	23,967	27,851	31,734	35,618	28,600 (2)	0	651	4,535	8,418
		Wells Required @ 2400 gpm					0	1	2	4
Palm Springs East Service Area										
Palm Springs East	Average Day	2,888	3,652	4,416	5,181					
(580)	Maximum Day	5,344	6,757	8,171	9,584					
Terrace	Average Day	141	156	171	186					
(600)	Maximum Day	283	313	342	372					
Foothill	Average Day	181	190	199	208					
(830)	Maximum Day	361	380	398	417					
Total	Average Day	3,211	3,999	4,787	5,575					
	Maximum Day	5,988	7,450	8,911	10,372	12,000	0	0	0	0
		Wells Required @ 2400 gpm					0	0	0	0
Higher Elevation Service Areas (Tram)	Average Day	16	18	18	18					
	Maximum Day	32	36	36	36					
SYSTEM TOTAL	**Average Day**	**18,050**	**22,190**	**26,329**	**30,469**					
	Maximum Day	**33,801**	**41,661**	**49,521**	**57,381**	**46,840** (3)	**0**	**958**	**7,209**	**13,571**

Notes:
(1) Provide 200 to 1,600 gpm from Chino Booster Station
(2) Does not include Well 44 and Well 45
(3) Includes Snow Creek Village Surface Water Filtration Plant, does not include inactive, standby or monitoring wells

TABLE VII-3B
PRODUCTION FACILITY REQUIREMENTS
BY SERVICE AREA AND PRESSURE ZONE
IN GALLONS PER MINUTE
(TIME-OF-USE OPERATION)

Zone	Production Demand	2020	2030	2040	2050	Existing Production	Required Production Increase 2020	2030	2040	2050
Snow Creek Service Area										
Snow Creek Village	Average Day	21	43	65	88					
(1160-1440)	Maximum Day	42	86	131	175					
Total	Average Day	21	43	65	88					
	Maximum Day	42	86	131	175	140	0	0	0	36
		Wells Required @ 1000 gpm					0	0	0	1
Palm Oasis Service Area										
Palm Oasis	Average Day	124	699	1,273	1,848					
(1150)	Maximum Day	249	1,398	2,547	3,696					
Total	Average Day	124	699	1,273	1,848					
	Maximum Day	249	1,398	2,547	3,696	800	0	598	1,747	2,896
		Wells Required @ 2000 gpm					0	1	1	2
Chino Canyon Service Area										
Chino East	Average Day	2,187	3,081	3,976	4,870					
(860)	Maximum Day	4,373	6,162	7,952	9,741					
Desert Palisade	Average Day	94	145	197	248					
(1040)	Maximum Day	187	290	393	496					
Desert Palisade-Pressurized	Average Day	3	49	95	140					
(1240)	Maximum Day	7	98	189	280					
Total	Average Day	2,284	3,275	4,267	5,259					
	Maximum Day	4,567	6,551	8,534	10,518	5,300	0	1,251	3,235	5,218
		Wells Required @ 2000 gpm					0	0 (1)	1 (1)	2 (1)
Palm Springs Main Service Area										
Palm Springs Main	Average Day	15,717	18,279	20,841	23,402					
(680)	Maximum Day	29,076	33,816	38,555	43,295					
Andreas Hills	Average Day	551	630	708	787					
(880)	Maximum Day	1,102	1,259	1,416	1,574					
Southridge	Average Day	28	31	35	38					
(920)	Maximum Day	56	63	70	77					
Southridge-Pressurized	Average Day	20	21	22	23					
(1120)	Maximum Day	40	42	44	45					
Total	Average Day	16,316	18,961	21,606	24,250					
	Maximum Day	30,274	35,180	40,085	44,991	28,600 (2)	1,705	6,610	12,886	17,791
		Wells Required @ 2400 gpm					1	3	6	8
Palm Springs East Service Area										
Palm Springs East	Average Day	3,649	4,614	5,579	6,544					
(580)	Maximum Day	6,750	8,535	10,321	12,106					
Terrace	Average Day	179	197	216	235					
(600)	Maximum Day	357	395	432	470					
Foothill	Average Day	228	240	251	263					
(830)	Maximum Day	457	480	503	526					
Total	Average Day	4,056	5,051	6,046	7,042					
	Maximum Day	7,564	9,410	11,256	13,102	12,000	0	0	0	1,103
		Wells Required @ 2400 gpm					0	0	0	1
Higher Elevation Service Areas (Tram)	Average Day	20	23	23	23					
	Maximum Day	40	45	45	45					
SYSTEM TOTAL	**Average Day**	**22,800**	**28,029**	**33,258**	**38,487**					
	Maximum Day	**42,696**	**52,625**	**62,553**	**72,482**	**46,840 (3)**	**0**	**8,459**	**17,868**	**27,044**

Notes:
(1) Provide 200 - 1,600 gpm from Chino Booster Station
(2) Does not include Well 44 and Well 45
(3) Includes Snow Creek Village Surface Water Filtration Plant, does not include inactive, standby or monitoring wells

TABLE VII-3C
WELL PUMPING FACILITIES
PROJECT COSTS (NORMAL OPERATION)
(2022 DOLLARS)

Well Field		2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Chino East Well Field								
Well Plant 42	450 hp							$1,600,000
Palm Springs Main Well Fields								
Southerly Unit								
Well Plant 44	450 hp						$1,600,000	
Palm Springs South Well Fields								
New Well Plant	450 hp					$2,600,000		
Restore Well 6							$2,100,000	
New Well 3								$2,600,000
Palm Springs East Well Fields								
Well Plant 41							$90,000	
Individual Wells								
Palm Oasis								
Well Plant 43	200 hp						$1,600,000	
Well Plant 2	200 hp		$2,000,000					
Connection Piping	12"						$100,000	
Connection Piping	16"		$200,000				$390,000	
GRAND TOTAL:		$0	$2,200,000	$0	$0	$2,600,000	$5,880,000	$4,200,000

TABLE VII-3D
WELL PUMPING FACILITIES
PROJECT COSTS (TIME-OF-USE OPERATION)
(2022 DOLLARS)

Well Field		2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Chino East Well Field								
Well Plant 42	450 hp						$1,600,000	
Well Plant 1	450 hp							$2,600,000
Palm Springs North Well Field								
Well Plant 1	450 hp						$2,000,000	
Connection Piping 1	12"						$140,000	
Palm Springs Main Well Fields								
Main Unit								
Well Plant 1	450 hp							$2,600,000
Well Plant 2	450 hp							$2,600,000
Connection Piping 1	16"							$260,000
Connection Piping 2	12"							$140,000
Connection Piping 3	12"							$140,000
Southerly Unit								
Well Plant 44	450 hp					$1,600,000		
Well Plant 3	450 hp						$2,600,000	
Well Plant 4	450 hp						$2,600,000	
Palm Springs South								
New Well Plant	450 hp					$2,600,000		
Restore Well 6		$2,100,000						
New Well 3						$2,600,000		
Palm Springs East Well Fields								
New Well Plant	450 hp							$2,600,000
Well Plant 41	450 hp						$90,000	
Individual Wells								
Palm Oasis								
Well Plant 43	200 hp						$1,600,000	
Well Plant 2	200 hp		$2,000,000					
Connection Piping 1	12"						$110,000	
Connection Piping 2	16"		$200,000				$530,000	
Snow Creek								
Well Plant 1	200 hp							$2,200,000
	TOTAL:	$2,100,000	$2,200,000	$0	$0	$6,800,000	$11,270,000	$13,140,000

G. BOOSTER PUMPING PLANTS

Table VII-4A presents future production requirements for each pressure zone, which were used to determine proposed booster station capacities.

TABLE VII-4A
REQUIRED BOOSTER PUMPING CAPACITY

Booster Plant	Name	Existing Station Unit	Existing Station hp	Existing Capacity[1] (gpm)	Pumps from Zone	Pumps to Zone	Pumping Requirement (gpm) Normal Operation 2020	Normal Operation 2030	Normal Operation 2040	Normal Operation 2050	TOU Operation 2020	TOU Operation 2030	TOU Operation 2040	TOU Operation 2050
3	Southridge	1 2 3	15 15 60	308 303 384	Southridge	Southridge Pressurized	40	40	40	40	50	50	50	50
4	Janis Tuscany	1 2 3	75 75 75	950 950 950	Chino East	Desert Palisade	180	300	450	620	230	380	570	780
5	Araby	1 2	25 25	180 229	P.S. Main	Southridge	90	90	90	100	110	110	120	120
6	Terrace	1 2 3	15 15 15	261 239 351	P.S. East	Terrace	730	750	770	790	920	940	970	1,000
7	Vista Miller	1 2 3	20 20 20	165 160 165	Terrace	Foothill	410	410	410	420	510	520	520	530
10	Well #14	1 2	150 60	1,716 933	P.S. Main	P.S. Main	NA				NA			
11	Well #16	1 2	150 60	2,105 872	P.S. Main	P.S. Main	NA				NA			
12	Chino	1 2 3 4	150 200 75 50	2,321 2,664 1,188 848	P.S. Main	Chino East	0	30	1,400	1,400	0	1,400	1,400	1,400
13	Palm Oasis Well # 17	1 2	40 40	515 501	Palm Oasis	Palm Oasis	220	520	1,200	2,900	280	660	1,600	3,700
14	Acanto	1 2 3	100 100 100	1,071 1,131 1,064	P.S. Main	Andreas Hills	990	1,100	1,200	1,300	1,300	1,400	1,500	1,600
15	Desert Palisade Hydro	1 2 3	15 15 50	384 363 1,347	Desert Palisade	Desert Palisade Pressurized	10	70	150	220	10	90	190	280
16	South Canyon[2]	1 2 3	- - -	- - -	P.S. East	P.S. Main			2,000	2,000			2,000	2,000

Notes:
(1) Capacity based on SCE testing.
(2) Existing recycled w ater booster station to be converted to potable use.

The Desert Palisade Hydropneumatic Booster Station was constructed, and the existing Janis Tuscany Booster Station pumping units and electrical equipment were replaced, in anticipation of continuing development of the Chino West service area segment. However, development of the Chino West segment has been halted. Booster stations previously proposed for the 1440, 1640, and 1840 pressure zones are no longer necessary, and the Janis Tuscany and Desert Palisade Hydropneumatic Booster Station should now have sufficient capacity to serve through buildout.

The Canyon South Booster Station (recycled water) should be converted to potable use by 2040 to supplement supply in the southern half of the Palm Springs Main Pressure Zone, and to help fill the Palm Springs South and Tahquitz Reservoirs during periods of high demand. The existing pumping units are capable of delivering 2,000 gpm to the recycled system; however, the pumps, valves and other appurtenances may need to be replaced to supply 2,000 gpm to the potable system, if required by DDW for approval for potable use.

Palm Oasis Booster Station capacity should be increased by 2040 to match the projected production requirements for the zone. The pumping units should be replaced with new 75 hp pumping units as development dictates. Terrace and Vista Miller Booster Stations will need increased capacity to perform off-peak pumping year around. Araby, Chino, and Acanto Booster Stations should have sufficient capacity to serve through buildout. As demand increases, the zones served by these booster stations have sufficient storage capacity to offset minor deficiencies in pumping capacity. Proposed booster stations additions and improvements are set forth in **Tables VII-4B and VII-4C**. Construction of said facilities may be accelerated or deferred based on actual development and corresponding demands within the Service Area. Costs set forth in **Tables VII-4B and VII-4C** include pumping unit replacement, electrical equipment modifications, and minor piping modifications.

TABLE VII-4B
BOOSTER PUMPING FACILITIES
PROJECT COSTS (NORMAL OPERATION)
(2022 DOLLARS)

Booster Pumping Plant	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Booster 6 (Terrace)	$90,000 (1)						
Booster 7 (Vista Miller)	$90,000 (2)						
Booster 13 (Palm Oasis)						$170,000 (3)	$170,000 (4)
Canyon South Booster						$700,000 (5)	
TOTAL:	**$180,000**	**$0**	**$0**	**$0**	**$0**	**$870,000**	**$170,000**

Notes:
(1) Replace one 15 hp 260 gpm pumping unit w ith one 15 hp 400 gpm pumping unit
(2) Replace one 20 hp pumping unit w ith one 30 hp pumping unit
(3) Replace 40 hp pumping unit w ith 100 hp pumping unit
(4) Replace 40 hp pumping unit w ith 100 hp pumping unit
(5) Convert South Canyon Booster Station from recycled to potable

TABLE VII-4C
BOOSTER PUMPING FACILITIES
PROJECT COSTS (TIME-OF-USE OPERATION)
(2022 DOLLARS)

Booster Pumping Plant	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Booster 6 (Terrace)	$170,000 (1)						
Booster 7 (Vista Miller)	$170,000 (2)						
Booster 13 (Palm Oasis)						$260,000 (3)	$260,000 (4)
Canyon South Booster						$700,000 (5)	
TOTAL:	**$340,000**	**$0**	**$0**	**$0**	**$0**	**$260,000**	**$260,000**

Notes:
(1) Replace tw o 15 hp 260 gpm pumping units w ith tw o 20 hp 500 gpm pumping units
(2) Replace tw o 20 hp pumping units w ith tw o 30 hp pumping units
(3) Replace 40 hp pumping unit w ith 150 hp pumping unit
(4) Replace 40 hp pumping unit w ith 150 hp pumping unit
(5) Convert existing South Canyon Booster Station from recycled to potable

H. STORAGE RESERVOIRS

Required storage consists of three components, namely: equalization storage, which equals 20% to 40% of MDD, depending on the zone; fire storage, which is the volume needed to meet a specified fire flow and duration; and emergency storage, which provides continuity of storage during periods when production has been curtailed or interrupted. If TOU Operation is desired, TOU storage is a fourth component.

In the 2008 Water General Plan, emergency storage volumes of 24 hours of ADD for isolated system segments and independent systems (Snow Creek, Palm Oasis, and Desert Palisade Pressurized), and 12 hours of ADD for other systems were selected to develop recommendations for proposed storage facilities (see **Chapter III, Section F**). Pursuant to discussions with DWA, this standard continues to be used for the current effort.

Tables VII-5A (Normal Operation) and VII-5B (TOU Operation) present future storage requirements for each pressure zone. **Table VII-5B** includes TOU storage, which is equal to 2.5 hours of MDD for reservoirs filled by wells (assumes one-half of wells are turned off during SCE peak rate periods), and five hours of MDD for reservoirs filled by booster stations (Desert Palisade, Andreas Hills, Southridge, Terrace, and Foothill Reservoirs).

Proposed storage reservoirs are set forth in **Tables VII-5C and VII-5D** and shown on **Maps 3 and 4.**

The existing site at Palm Springs North is adequate to accommodate a proposed storage reservoir. Site acquisition will be required for proposed storage reservoirs at other sites.

TABLE VII-5A
STORAGE FACILITY REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(NORMAL OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage	Required Storage Increase 2020	2030	2040	2050
Snow Creek Service Area										
Snow Creek Village	Equalization	0.02	0.04	0.06	0.08					
(1160-1440)	Fire	0.12	0.12	0.12	0.12					
	Emergency	0.02	0.05	0.07	0.10					
	Total	0.16	0.21	0.25	0.30	1.15	0.00	0.00	0.00	0.00
Palm Oasis Service Area										
Palm Oasis	Equalization	0.11	0.64	1.16	1.69					
(1150)	Fire	0.12	0.12	0.12	0.12					
	Emergency	0.14	0.80	1.45	2.11					
	Total	0.38	1.55	2.73	3.91	2.00	0.00	0.00	0.73	1.91
Chino Canyon Service Area										
Chino East	Equalization	1.50	2.11	2.72	3.33					
(860)	Fire	0.96	0.96	0.96	0.96					
	Emergency	1.25	1.76	2.27	2.78					
	Total	3.70	4.82	5.95	7.07	7.30	0.00	0.00	0.00	0.00
Desert Palisade	Equalization	0.06	0.10	0.13	0.17					
(1040)	Fire	0.24	0.24	0.24	0.24					
	Emergency	0.05	0.08	0.11	0.14					
	Total	0.36	0.42	0.49	0.55	0.50	0.00	0.26	0.42	0.58
Desert Palisade-Pressurized	Equalization	0.00	0.04	0.09	0.13					
(1240)	Fire	0.00	0.24	0.24	0.24	IN DESERT PALISADE (1040) TANK				
	Emergency	0.00	0.06	0.11	0.16					
	Total	0.01	0.34	0.43	0.53					
Service Area Totals	Equalization	1.56	2.25	2.94	3.63					
	Fire	1.20	1.44	1.44	1.44					
	Emergency	1.30	1.89	2.49	3.08					
	TOTAL	4.07	5.59	6.87	8.15	7.80	0.00	0.26	0.42	0.58

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE VII-5A (Continued)
STORAGE FACILITY REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(NORMAL OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage	Required Storage Increase 2020	2030	2040	2050
Palm Springs Main Service Area										
Palm Springs Main	Equalization	6.63	7.71	8.79	9.87					
(680)	Fire	1.92	1.92	1.92	1.92					
	Emergency	8.96	10.42	11.88	13.34					
	Total	17.51	20.05	22.59	25.13	33.80	0.00	0.00	0.00	0.00
Andreas Hills	Equalization	0.38	0.43	0.48	0.54					
(880)	Fire	0.24	0.24	0.24	0.24					
	Emergency	0.31	0.36	0.40	0.45					
	Total	0.93	1.03	1.13	1.23	3.00	0.00	0.00	0.00	0.00
Southridge	Equalization	0.02	0.02	0.02	0.03					
(920)	Fire	0.24	0.24	0.24	0.24					
	Emergency	0.02	0.02	0.02	0.02					
	Total	0.28	0.28	0.28	0.29	0.40	0.00	0.00	0.00	0.00
Southridge-Pressurized	Equalization	0.01	0.01	0.01	0.02					
(1120)	Fire	0.24	0.24	0.24	0.24	IN SOUTHRIDGE TANK				
	Emergency	0.01	0.01	0.01	0.01					
	Total	0.27	0.27	0.27	0.27					
Service Area Totals	Equalization	7.04	8.18	9.31	10.45					
	Fire	2.64	2.64	2.64	2.64					
	Emergency	9.30	10.81	12.32	13.82					
	TOTAL	18.98	21.62	24.27	26.91	37.20	0.00	0.00	0.00	0.00
Palm Springs East Service Area										
Palm Springs East	Equalization	1.54	1.95	2.35	2.76					
(580)	Fire	0.96	0.96	0.96	0.96					
	Emergency	2.08	2.63	3.18	3.73					
	Total	4.58	5.54	6.49	7.45	10.00	0.00	0.00	0.00	0.00
Terrace	Equalization	0.12	0.14	0.15	0.16					
(600)	Fire	0.24	0.24	0.24	0.24					
	Emergency	0.10	0.11	0.12	0.13					
	Total	0.46	0.49	0.51	0.53	0.70	0.00	0.00	0.00	0.00
Foothill	Equalization	0.16	0.16	0.17	0.18					
(830)	Fire	0.24	0.24	0.24	0.24					
	Emergency	0.13	0.14	0.14	0.15					
	Total	0.53	0.54	0.56	0.57	0.60	0.00	0.00	0.00	0.00
Service Area Totals	Equalization	1.82	2.25	2.67	3.10					
	Fire	1.44	1.44	1.44	1.44					
	Emergency	2.31	2.88	3.45	4.01					
	TOTAL	5.57	6.56	7.56	8.55	11.30	0.00	0.00	0.00	0.00

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE VII-5B
STORAGE FACILITY REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(TIME-OF-USE OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage	Required Storage Increase 2020	2030	2040	2050
Snow Creek Service Area										
Snow Creek Village	Equalization	0.02	0.04	0.06	0.08					
(1160-1440)	Fire	0.12	0.12	0.12	0.12					
	TOU	0.01	0.02	0.03	0.04					
	Emergency	0.02	0.05	0.07	0.10					
	Total	0.17	0.23	0.29	0.34	1.15	0.00	0.00	0.00	0.00
Palm Oasis Service Area										
Palm Oasis	Equalization	0.11	0.64	1.16	1.69					
(1150)	Fire	0.12	0.12	0.12	0.12					
	TOU	0.06	0.33	0.60	0.88					
	Emergency	0.14	0.80	1.45	2.11					
	Total	0.43	1.89	3.34	4.79	2.00	0.00	0.00	1.34	2.79
Chino Canyon Service Area										
Chino East	Equalization	1.50	2.11	2.72	3.33					
(860)	Fire	0.96	0.96	0.96	0.96					
	TOU	1.04	1.46	1.89	2.31					
	Emergency	1.25	1.76	2.27	2.78					
	Total	4.74	6.29	7.83	9.38	7.30	0.00	0.00	0.53	2.08
Desert Palisade	Equalization	0.06	0.10	0.13	0.17					
(1040)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.04	0.07	0.09	0.12					
	Emergency	0.05	0.08	0.11	0.14					
	Total	0.40	0.49	0.58	0.67	0.50	0.00	0.35	0.56	0.76
Desert Palisade	Equalization	0.00	0.04	0.09	0.13					
(1240)	Fire	0.00	0.24	0.24	0.24					
	TOU	0.00	0.02	0.04	0.07	IN DESERT PALISADE (1040) TANK				
	Emergency	0.00	0.06	0.11	0.16					
	Total	0.01	0.36	0.48	0.59					
Service Area Totals	Equalization	1.56	2.25	2.94	3.63					
	Fire	1.20	1.44	1.44	1.44					
	TOU	1.08	1.56	2.03	2.50					
	Emergency	1.30	1.89	2.49	3.08					
	Total	5.15	7.14	8.89	10.64	7.80	0.00	0.35	1.09	2.84

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE VII-5B (Continued)
STORAGE FACILITY REQUIREMENTS BY SERVICE AREA AND PRESSURE ZONE
IN MILLION GALLONS (MG)
(TIME-OF-USE OPERATION)

Zone	Storage Component	Required Storage 2020	2030	2040	2050	Existing Storage	Required Storage Increase 2020	2030	2040	2050
Palm Springs Main Service Area										
Palm Springs Main	Equalization	6.63	7.71	8.79	9.87					
(680)	Fire	1.92	1.92	1.92	1.92					
	TOU	6.91	8.03	9.16	10.28					
	Emergency	8.96	10.42	11.88	13.34					
	Total	24.41	28.08	31.75	35.41	33.80	0.00	0.00	0.00	1.61
Andreas Hills	Equalization	0.38	0.43	0.48	0.54					
(880)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.26	0.30	0.34	0.37					
	Emergency	0.31	0.36	0.40	0.45					
	Total	1.19	1.33	1.46	1.60	3.00	0.00	0.00	0.00	0.00
Southridge	Equalization	0.02	0.02	0.02	0.03					
(920)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.01	0.01	0.02	0.02					
	Emergency	0.02	0.02	0.02	0.02					
	Total	0.29	0.29	0.30	0.31	0.40	0.00	0.00	0.00	0.00
Southridge-Pressurized	Equalization	0.01	0.01	0.01	0.02					
(1120)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.01	0.01	0.01	0.01	IN SOUTHRIDGE TANK				
	Emergency	0.01	0.01	0.01	0.01					
	Total	0.28	0.28	0.28	0.28					
Service Area Totals	Equalization	7.04	8.18	9.31	10.45					
	Fire	2.64	2.64	2.64	2.64					
	TOU	7.19	8.36	9.52	10.69					
	Emergency	9.30	10.81	12.32	13.82					
	Total	26.17	29.98	33.79	37.60	37.20	0.00	0.00	0.00	1.61
Palm Springs East Service Area										
Palm Springs East	Equalization	1.54	1.95	2.35	2.76					
(580)	Fire	0.96	0.96	0.96	0.96					
	TOU	1.60	2.03	2.45	2.88					
	Emergency	2.08	2.63	3.18	3.73					
	Total	6.18	7.56	8.94	10.33	10.00	0.00	0.00	0.00	0.33
Terrace	Equalization	0.12	0.14	0.15	0.16					
(600)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.08	0.09	0.10	0.11					
	Emergency	0.10	0.11	0.12	0.13					
	Total	0.55	0.58	0.61	0.65	0.70	0.00	0.00	0.00	0.00
Foothill	Equalization	0.16	0.16	0.17	0.18					
(830)	Fire	0.24	0.24	0.24	0.24					
	TOU	0.11	0.11	0.12	0.12					
	Emergency	0.13	0.14	0.14	0.15					
	Total	0.63	0.65	0.67	0.69	0.60	0.03	0.05	0.07	0.09
Service Area Totals	Equalization	1.82	2.25	2.67	3.10					
	Fire	1.44	1.44	1.44	1.44					
	TOU	1.80	2.23	2.67	3.11					
	Emergency	2.31	2.88	3.45	4.01					
	Total	7.37	8.80	10.23	11.67	11.30	0.03	0.05	0.07	0.42

Notes: Emergency Storage = 24 hours of ADD for Snow Creek Village and Palm Oasis service areas, and 12 hours of ADD for other service areas.

TABLE VII-5C
STORAGE RESERVOIR [1]
PROJECT COSTS (NORMAL OPERATION)
(2022 DOLLARS)

Storage Reservoir	Capacity (MG)	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Palm Oasis System								
Palm Oasis No. 3	2.0						$3,800,000	
Chino System								
Desert Palisade No. 2 (1040)	0.5					$940,000		
TOTAL:		**$0**	**$0**	**$0**	**$0**	**$940,000**	**$3,800,000**	**$0**

Notes:
(1) Storage Volume is based on 12 hours of ADD

TABLE VII-5D
STORAGE RESERVOIR [1]
PROJECT COSTS (TIME-OF-USE OPERATION)
(2022 DOLLARS)

Storage Reservoir	Capacity (MG)	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Palm Oasis System								
Palm Oasis No. 3	1.5						$2,800,000	
Palm Oasis No. 4	1.5							$2,800,000
Chino System								
Chino East (860)	1.5						$2,800,000	
	1.5							$2,800,000
Desert Palisade No. 2 (1040)	0.6					$1,100,000		
Palm Springs Main System								
Palm Springs North No. 3	2.0							$3,700,000
Palm Springs East System								
Palm Springs East No. 3	0.5						$900,000	
Foothill R-94[2]	0.5	$900,000						
TOTAL:		**$900,000**	**$0**	**$0**	**$0**	**$1,100,000**	**$6,500,000**	**$9,300,000**

Notes:
(1) Storage Volume is based on 12 hours of ADD
(2) Replace existing 0.1 MG tank.

I. PIPELINE SYSTEM

A hydraulic network computer model of the pipeline system was used to analyze existing conditions and predict future conditions. Areas of deficiency were identified by analyzing various flow conditions. Improvements eliminating deficiencies were then developed and modeled. Future flow conditions were evaluated in the same manner, enabling the development of a system improvement program.

As part of the 2008 Water General Plan effort, the distribution system network was input in detail into the hydraulic network model to simulate the actual network. For the current effort, the network was reviewed and modified to reflect changes to the distribution system, land use, and water consumption.

The distribution system network model consists of all pipelines 8" in diameter and larger, and all pipelines 6" in diameter and smaller pipelines where necessary for continuity. Deficient pipelines such as 4" and 6" pipelines in cul-de-sacs were not included in the model.

Water demands set forth in **Chapter III** were allocated among the nodes throughout the distribution system. Large water users, specifically located by meter records, were set as point demands at the nearest node(s). For modeling future conditions, aerial mapping was utilized to identify vacant land within the Agency boundaries, and then potential demands were determined based on City and County land use maps and densities. Those demands were then distributed amongst the nodes surrounding the vacant land.

All nodes, pipelines, connections, pumping plants, storage reservoirs, and pressure reducing stations were numerically identified and characterized. MDD, peak hour demand, and minimum hour demand were simulated pursuant to the appropriate demand factors.

Evaluation of the water system required comparing analyses with specific design guidelines indicative of a properly sized, efficient water system. Pressure, headloss, and velocity data generated under different demand conditions were compared to the design criteria to identify system deficiencies.

The demand criteria listed in **Chapter III**, along with the design criteria listed below, were used to develop requirements for water production facilities, storage facilities, pipeline sizes, and other facilities to meet current and future demands.

Design Pipeline Velocity	=	5 fps
Maximum Pipeline Velocity (MDD plus FF)	=	10 fps
Maximum Nodal Pressure (Normal)	=	120 psi
Minimum Nodal Pressure (Normal)	=	40 psi
Residual Nodal Pressure (Fire)	=	20 psi

Each pressure zone of the existing distribution system was analyzed statically under average day demand, maximum day demand, minimum hour demand, and peak hour demand conditions. Each pressure zone was then re-analyzed for future demands (through year 2050) under each of the same conditions. Fire flow requirements, as set forth in **Chapter III**, were imposed at various locations under MDDs to evaluate fire flow conditions. Lastly, an extended period simulation was run to analyze the system over a 24-hour period for existing and future MDMM demand under Normal and TOU Operations, primarily to compare filling and emptying rates of the reservoirs.

The results of the static hydraulic analyses show that the system piping network is capable of meeting domestic and fire flow demands through 2050 with only minor improvements. System pressures and velocities for the future scenario were above desired maximums in a few areas; however, since MDMM demand will only occur for a one to three-day period during the year, increased pipeline velocity (and the resultant increase in power consumption) was considered acceptable for this short duration. Older, smaller diameter piping (4" and 6" diameter) should be replaced to be able to convey flows to meet current fire flow standards.

The results of the 24-hour extended period simulation for current conditions show that the reservoirs in the southern portion of the main system (Tahquitz and Palm Springs South) fill at a slower rate than Palm Springs North. This matches the condition the Agency is currently experiencing, and is a result of having more production near the Palm Springs North Reservoir. Depending on which sources are operating to meet MDMM demands, the filling lag could reach 10 to 11 feet by 2050 if system improvements are not made. The effective result is that the southern reservoirs do not fill to capacity during the summer months or when operating in TOU, thus reducing the emergency storage. As demands increase, and new well and filtered surface water sources are added in the north, the lag will become greater. To reduce the filling lag in the south,

additional sources would need to be constructed in the southern part of the main system, or large diameter pipelines would need to be constructed from the northern well fields to the southern reservoirs, or both. The analysis indicates that completing the 30" pipeline located in Avenida Caballeros from Vista Chino to Ramon Road would provide the most benefit. Parallel pipelines up to the Tahquitz and Palm Springs South reservoir sites would be particularly important if the system is operated in TOU; otherwise they are of marginal benefit.

Proposed distribution system improvements are set forth in **Tables VII-6A (Normal Operation)** and **VII-6B (TOU Operation)** and shown on **Maps 3 and 4**. Pipeline improvements proposed for TOU operation that are not proposed for normal operation are intended to accommodate the additional well production capacity required for TOU operation. Proposed distribution system pipeline replacements are not shown on **Maps 3 and 4**. Pipeline replacement should be performed as needed, based on age and condition of existing pipelines and should be minimum 8" diameter. The proposed improvements are scheduled to accommodate increasing distribution demands and to coincide with construction of the proposed production and storage facilities that utilize the proposed pipelines to connect to the system.

TABLE VII-6A
PIPELINE PROJECT COSTS (NORMAL OPERATION)
(2022 DOLLARS)

Distribution Pipelines	Length (LF)	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Chino East Zone								
16" Las Vegas Road	2,800					$1,260,000		
Palm Springs Main Zone								
30" Avenida Caballeros	6,000	$1,650,000			$2,340,000			
24" La Mirada Road	2,400							$1,344,000
24" La Verne Way	6,600							$3,696,000
24" Canyon South Booster Pipeline(1)	18,000						$200,000	
16" Whitew ater Club Drive	0							
16" Amado Road	900	$405,000						
16" Tahquitz Canyon Way	600	$270,000						
16" Sunny Dunes Road	4,000					$1,800,000		
12" Racquet Club Drive	1,200		$396,000					
12" Via Miralestie Road	1,300		$429,000					
12" Via Miralestie Road	400		$132,000					
12" Tachevah Drive	2,300			$759,000				
12" Tachevah Drive	1,300			$429,000				
12" Alejo Road	2,100			$693,000				
12" Indian Canyon Drive	200	$66,000						
12" Tahquitz Canyon Way North	2,300		$759,000					
12" Tahquitz Canyon Way South	6,700		$2,211,000					
12" Arenas Road	650			$215,000				
12" Calle Amigos	1,300					$429,000		
12" Indian Trail	1,300					$429,000		
12" South Palm Canyon Drive	400					$132,000		
12" Mesquite Avenue	2,000					$660,000		
Palm Springs East Zone								
16" Crossley Road	2,800						$1,260,000	
16" Golf Club Drive	4,400						$1,980,000	
12" El Cielo Rd	1,000							$330,000
12" Recycling Plant to Crossley	1,100					$363,000		
Foothill and Foothill (Reduced) Zone								
12" Vista Drive	1,200	$396,000						
Palm Oasis Zone								
16" from 111 to Alpine Way	300						$135,000	
12" Palm Oasis Avenue	2,000						$660,000	
Total:		**$2,787,000**	**$2,970,000**	**$2,096,000**	**$2,340,000**	**$5,073,000**	**$4,235,000**	**$5,370,000**

(1) Existing recycled pipeline converted to potable.

TABLE VII-6B
PIPELINE PROJECT COSTS (TIME-OF-USE OPERATION)
(2022 DOLLARS)

Distribution Pipelines	Length (LF)	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Chino East Zone								
24" Las Vegas Road	2,100					$1,176,000		
16" Las Vegas Road	700					$315,000		
Palm Springs Main Zone								
30" Avenida Caballeros	6,000	$1,650,000			$2,340,000			
24" La Mirada Road	2,400						$1,344,000	
24" La Verne Way	6,600						$3,696,000	
24" Canyon South Booster Pipeline(1)	18,000						$200,000	
16" Whitew ater Club Drive	2,800			$1,260,000				
16" Amado Road	900	$405,000						
16" Tahquitz Canyon Way	600	$270,000						
16" Sunny Dunes Road	4,000					$1,800,000		
12" Racquet Club Drive	1,200		$396,000					
12" Via Miralestie Road	1,300		$429,000					
12" Via Miralestie Road	400		$132,000					
12" Tachevah Drive	2,300			$759,000				
12" Tachevah Drive	1,300			$429,000				
12" Alejo Road	2,100			$693,000				
12" Indian Canyon Drive	200	$66,000						
12" Tahquitz Canyon Way North	2,300		$759,000					
12" Tahquitz Canyon Way South	6,700		$2,211,000					
12" Arenas Road	650			$215,000				
12" Calle Amigos	1,300					$429,000		
12" Indian Trail	1,300					$429,000		
12" South Palm Canyon Drive	400					$132,000		
12" Mesquite Avenue	2,000					$660,000		
Palm Springs East Zone								
24" Crossley Road	4,000						$2,240,000	
24" Golf Club Drive	4,400						$2,464,000	
12" El Cielo Rd	1,000							$330,000
12" Recycling Plant to Crossley	1,000					$330,000		
Foothill and Foothill (Reduced) Zone								
12" Vista Drive	1,200	$396,000						
Palm Oasis Zone								
16" From 111 to Alpine Way	300						$135,000	
12" Palm Oasis Avenue	2,000						$660,000	
Total:		**$2,787,000**	**$3,927,000**	**$3,356,000**	**$2,340,000**	**$5,271,000**	**$10,739,000**	**$330,000**

(1) Existing recycled pipeline converted to potable.

J. RECYCLED WATER SYSTEM

Chapter VI describes the facilities required for the recycled water system. Proposed facilities and costs are set forth in **Table VII-7**.

TABLE VII-7
RECYCLED WATER SYSTEM
PROJECT COSTS
(2022 DOLLARS)

Plant	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Recoating of Effluent Reservoir No. 1, replacement of PLC, and elocation of Cl_2 sample station	$1,600,000						
Recoating of Effluent Reservoir No. 2				$1,400,000			
Pipeline to Seven Lakes Country Club (2,000± LF - 12")						$1,500,000	
TOTAL:	**$1,600,000**	**$0**	**$0**	**$1,400,000**	**$0**	**$1,500,000**	**$0**

K. SUMMARY OF ESTIMATED PROJECT COSTS

Proposed water system facilities, their estimated project costs, and their scheduled year of construction are set forth in **Tables VII-3 through VII-7**. A summary of project costs is set forth in **Tables VII-8A (Normal Operation) and VII-8B (TOU Operation)**. No distinction was made between facilities which will be financed by DWA or facilities that will be financed by developers or users. Facilities are scheduled for construction on or before their expected need.

The estimated project costs include a 15% allowance for construction contingencies and a 20% allowance for administrative, legal, environmental, and engineering costs. The project costs are based on 2008 cost levels escalated to 2022 levels.

Estimated project costs for Normal Operation amount to $16 million for the four-year period from 2022 through 2025, inclusive. They amount to $9 million for the five-year period between 2026 and 2030, and $16 million for the ten-year period between 2031 and 2040.

Estimated project costs for TOU Operation amount to $22 million for the four-year period from 2022 through 2025, inclusive. They amount to $13 million for the five-year period between 2026 and 2030, and $30 million for the ten-year period between 2031 and 2040.

TABLE VII-8A PROJECT COSTS (NORMAL OPERATION) SUMMARY (2022 DOLLARS)							
System Component	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Water Treatment Facilities	$590,000	$0	$0	$0	$0	$0	$0
Well Pumping Facilities	$0	$2,200,000	$0	$0	$2,600,000	$5,880,000	$4,200,000
Booster Pumping Facilities	$180,000	$0	$0	$0	$0	$870,000	$170,000
Storage Reservoirs	$0	$0	$0	$0	$940,000	$3,800,000	$0
Distribution Pipelines	$2,787,000	$2,970,000	$2,096,000	$2,340,000	$5,073,000	$4,235,000	$5,370,000
Recycled Water Facilities	$1,600,000	$0	$0	$1,400,000	$0	$1,500,000	$0
TOTAL:	**$5,200,000**	**$5,200,000**	**$2,100,000**	**$3,700,000**	**$8,600,000**	**$16,300,000**	**$9,700,000**

TABLE VII-8B PROJECT COSTS (TIME-OF-USE OPERATION) SUMMARY (2022 DOLLARS)							
System Component	2022	2023	2024	2025	2026-2030	2031-2040	2041-2050
Water Treatment Facilities	$590,000	$0	$0	$0	$0	$0	$0
Well Pumping Facilities	$2,100,000	$2,200,000	$0	$0	$6,800,000	$11,270,000	$13,140,000
Booster Pumping Facilities	$340,000	$0	$0	$0	$0	$260,000	$260,000
Storage Reservoirs	$900,000	$0	$0	$0	$1,100,000	$6,500,000	$9,300,000
Distribution Pipelines	$2,787,000	$3,927,000	$3,356,000	$2,340,000	$5,271,000	$10,739,000	$330,000
Recycled Water Facilities	$1,600,000	$0	$0	$1,400,000	$0	$1,500,000	$0
TOTAL:	**$8,300,000**	**$6,100,000**	**$3,400,000**	**$3,700,000**	**$13,200,000**	**$30,300,000**	**$23,000,000**

APPENDIX A

FIGURE A-1
WATER LEVEL DATA FOR DWA WELLS

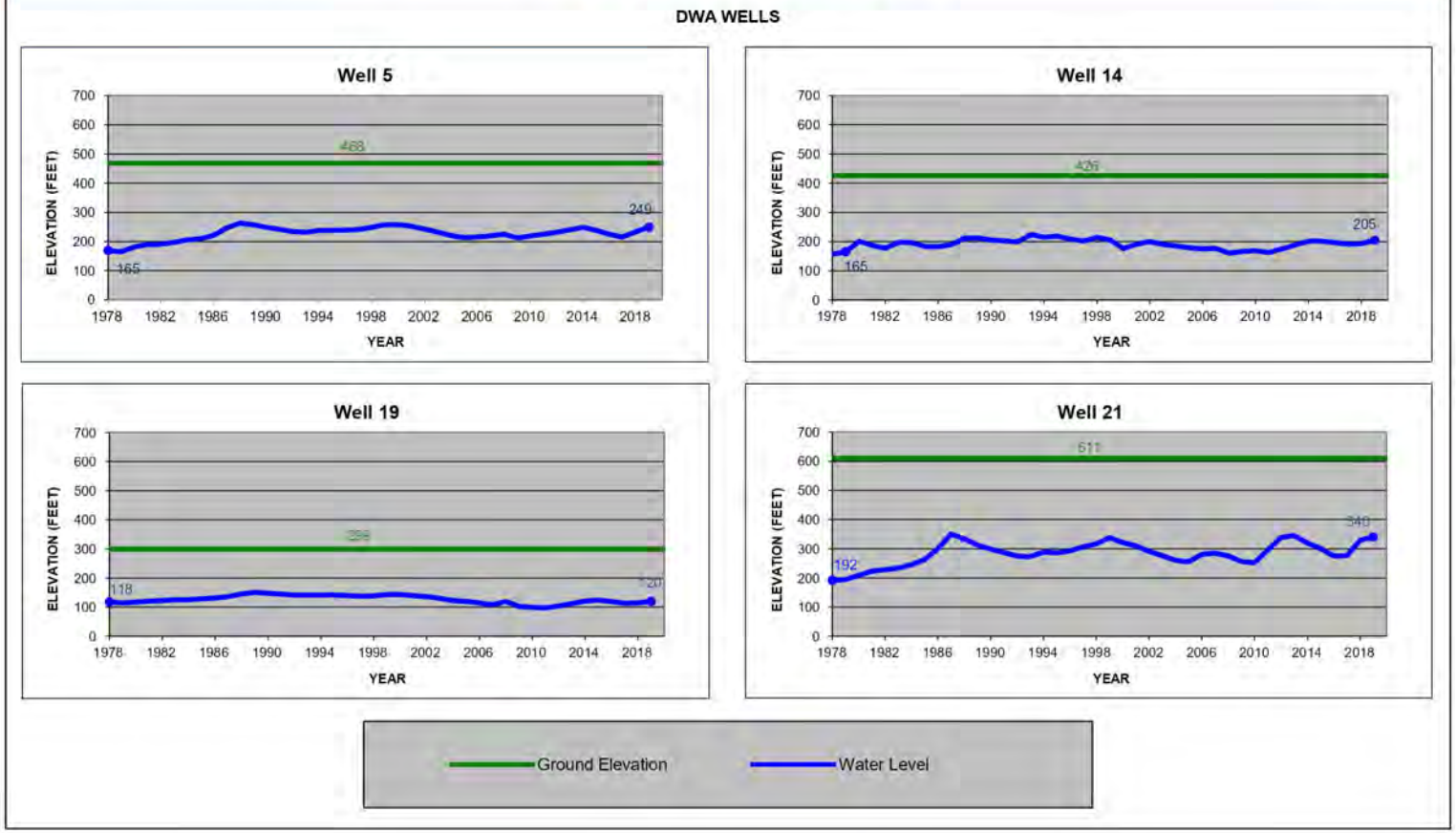
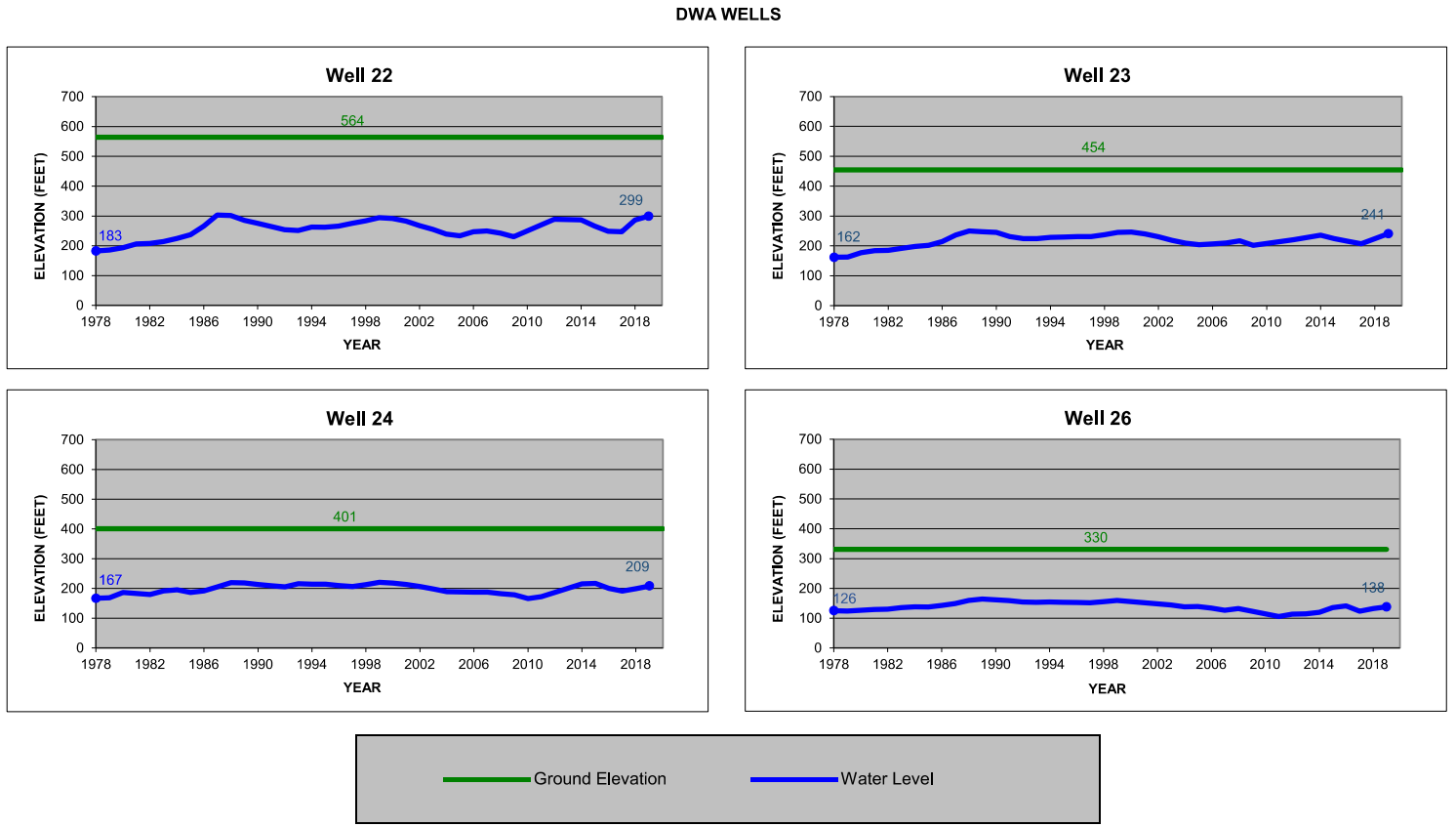


FIGURE A-1
WATER LEVEL DATA FOR DWA WELLS



APPENDIX B

TABLE B-1
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
HISTORIC WATER WELL DATA
(AS OF AUGUST 31, 2019)

Number		Date	Casing Dimensions			Perforation Data				Length	Driller's	Well Status
								Interval				
DWA	DWR	Constructed	Depth (ft)	Diameter (in)	Thickness	Type	Size (in)	From (ft)	To (ft)	(ft)	Log	
1	4S/4E-25H1	1941	565	14	---	Slots	.375	175	330	60 [1]	No	Destroyed
2	-23D1	1926	425	16	8 Gauge	Knife	.375	190	408	218	Yes	Monitoring
3	4S/5E-19D1	1947	450	16	---	---	-	340	440	100	Yes	Inactive
4	-11K1	1947	470	-	---	---	-	-	-	-	No	Abandoned
5	4S/4E-11Q1	1948	600	16	10 Gauge	Louvers	.250	302	402	100	Yes	Inactive
6	4S/4E-23E1	1954	488	20	8 Gauge	Louvers	.312	240	472	232	Yes	Monitoring
7	-1N1	1946	400	16	---	---	.500	274	396	62 [2]	No	Destroyed
8	-11R1	1960	403, 700	16, 12	1/4", 3/16"	Louvers	.200	526	700	174	Yes	Abandoned
9	3S/4E-36M1	1960	400, 703	16, 12	1/4", 3/16"	Louvers	.200	403	703	300	Yes	Inactive
10	4S/4E-1N2	1962	525, 800	14, 14	1/4", 1/4"	Louvers	.094	525	800	275	Yes	Monitoring
11	4S/4E-14R1	1963	492, 800	16, 14	1/4", 1/4"	Louvers	.125	560	800	240	Yes	Standby
12	4S/5E-29R1	-	---	---	---	---	-	-	-	-	No	Destroyed
13	-29A1	1952	300	10	3/16"	Louvers	.500	166	300	134	Yes	Destroyed
14	4S/4E-26A1	1964	780	16	5/16"	Louvers	.125	450	780	330	Yes	Standby
15	-35K1	1967	612	16	1/4"	Louvers	-	435	600	165	Yes	Destroyed
16	4S/4E-26G1	1968	800	16	1/4"	Louvers	.125	450	800	350	Yes	Standby
17	3S/4E-30C1	1955	750	20	8 Gauge	Louvers	.250	530	726	196	Yes	Active
18	4S/4E-11Q2	1970	948	16	1/4"	Louvers	.125	535	948	413	Yes	Standby
19	4S/5E-33B4	1972	843	16	1/4"	Louvers	.125	429	843	414	Yes	Standby
20	4S/4E-14Q1	1972	850, 928, 958	16,12,10	1/4", 1/4", 1/4"	Louvers	.125	622	958	316 [3]	Yes	Monitoring
21	3S/4E-34R1	1973	830	16	1/4"	Louvers	.125	506	830	324	Yes	Active
22	4S/4E-2B1	1973	1,003	16	1/4"	Louvers	.125	570	1,003	433	Yes	Active
23	4S/4E-13C1	1973	912	16	1/4"	Louvers	.125	512	912	400	Yes	Active
24	4S/4E-24D1	1973	1,002	20	5/16"	Louvers	.125	580	980	400	Yes	Active
25	4S/5E-29A2	1974	1,000	16	1/4"	Louvers	.094	600	1,000	400	Yes	Active
26	4S/5E-29H1	1975	990	16	1/4"	Louvers	.094	590	990	400	Yes	Active
27	3S/4E-35R1	1979	920	16	1/4"	Louvers	.125	600	900	300	Yes	Active
28	4S/4E-35R2	1980	1,020	20	5/16"	Louvers	.219	600	1,000	400	Yes	Active
29	4S/4E-24H1	1981	1,000	20	5/16"	Louvers	-	600	1,000	400	Yes	Active
30	3S/4E-34H1	1984	1,123	16	1/4"	Wire-Wrap Screen	.100	900	1,100	200	Yes	Active
31	4S/5E-17Q1	1986	1,020	20	5/16"	Wire-Wrap Screen	.035	600	1,000	330 [4]	Yes	Active
32	4S/4E-24E1	1986	1,020	20	5/16"	Louvers	.080	600	1,000	400	Yes	Active
33	3S/4E-35J1	1991	1,120	20	5/16"	Wire-Wrap Screen	.080	700	1,100	400	Yes	Active

TABLE B-1
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
HISTORIC WATER WELL DATA
(AS OF AUGUST 31, 2019)

Number		Date	Casing Dimensions			Perforation Data				Length	Driller's	Well Status
								Interval				
DWA	DWR	Constructed	Depth (ft)	Diameter (in)	Thickness	Type	Size (in)	From (ft)	To (ft)	(ft)	Log	
34	3S/4E-35J2	1991	1,120	20	5/16"	Wire-Wrap Screen	.080	600	1,100	420 (5)	Yes	Active
35	4S/4E-34H2	1998	1,020	20	5/16"	Wire-Wrap Screen	.075	600	1,000	400	Yes	Active
36	4S/5E-17P1	1998	1,020	20	5/16"	Wire-Wrap Screen	.035	600	1,000	380 (6)	Yes	Active
37	3S/4E-36Q2	2001	1,020	20	5/16"	Louvers	.050	620	1,000	380	Yes	Active
38	3S/4E-36Q1	2001	1,020	20	5/16"	Louvers	.050	600	1,000	400	Yes	Active
39	4S/4E-25C1	2007	1,020	20	5/16"	Louvers	.045	580	1,000	390 (9)	Yes	Active
40	4S/4E-25D2	2007	1,020	20	5/16"	Louvers	.060	600	1,000	400	Yes	Active
41	4S/5E-8N1	2004	1,020	20	5/16"	Louvers	.050	610	1,000	390	Yes	Active
42	3S/4E-33H1	2006	900	20	5/16"	Louvers	-	550	880	330	Yes	Inactive
43	3S/4E-19L1	2006	920	20	5/16"	Louvers	-	500	900	400	Yes	Active
44	4S/5E-8M1	2005	1,020	20	5/16"	Louvers	-	580	1,000	360 (10)	Yes	Not Yet in Service
45	4S/5E-7H1	2005	1,020	20	5/16"	Louvers	-	600	1,000	370	Yes	Not Yet in Service
Mission Creek	2S/4E-21	1998	1,020	8	3/16"	Wire-Wrap Screen	.040	600	1,000	400 (7)	Yes	Monitoring
CC-1	4S/5E-33B1	1926	156	14	---	–	-	-	-	-	-	Destroyed
CC-2	-33B2	1938	363	14	12 Gauge	–	1/2	292	345	53	-	Abandoned
CC-3	-33B3	1946	342	14	12 Gauge	–	-	268	338	54 (8)	-	Abandoned
CC-4	-33G1	1956	168,171,435	12,12,10	3/16"	Slots	1/8	171	435	264	Yes	Abandoned

Notes:
(1) No perforations from 205' to 300'
(2) No perforations from 302' to 362'
(3) No perforations from 830' to 850'
(4) No perforations from 720' to 745', from 795' to 815', or from 895' to 920'
(5) No perforations from 880' to 920', or from 1040' to 1080'
(6) No perforations from 680' to 700'
(7) No perforations from 630' to 670', or from 790' to 850'
(8) No perforations from 288' to 292', or from 314' to 326'
(9) No perforations from 750' to 780'
(10) No perforations from 800' to 840', or from 950' to 970'

TABLE B-2
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
HISTORIC WELL STATIC WATER LEVEL AND SPECIFIC CAPACITY [1]

WELL	WELL STATIC WATER LEVEL DEPTH FROM GROUND SURFACE (FT)					WELL SPECIFIC CAPACITY (PRODUCTION IN GPM/FT OF DRAWDOWN)					WELL SPECIFIC CAPACITY FACTOR (SPECIFIC CAPACITY/FT OF PERFORATION) (14)				
PLANT	1978	1988	1997	2007	2019	1978	1988	1997	2007	2019	1978	1988	1997	2007	2019
2	259	-	-	-	-	58	-	-	-	-	0.27	-	-	-	-
3	231	-	-	-	-	93	-	-	-	-	0.93	-	-	-	-
4	311	-	-	-	-	76	-	-	-	-	-	-	-	-	-
5	291	198	-	240	-	91	140	-	124	-	0.91	1.40	-	1.24	
6	276	-	-	-	-	99	-	-	-	-	0.43	-	-	-	-
8	288	-	-	-	-	24	-	-	-	-	0.14	-	-	-	-
9	356	224	271	-	-	182	176	160	-	-	0.61	0.59	0.53	-	-
10	328	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	246	196	194	- [5,8]	- [9]	50	-	-	- [5,8]	- [9]	0.21	-	-	- [5,8]	- [9]
14	266	211	218	246	- [9]	97	59	127	85	- [9]	0.29	0.18	0.39	0.26	- [9]
16	277	230	232	247 [4]	- [9]	65	80	58	104 [4]	- [9]	0.19	0.23	0.16	0.30 [4]	- [9]
17	564	287	274	373 [6]	188	40	70	69	64 [6]	84	0.20	0.36	0.35	0.33 [6]	0.43
18	293	191	221	242 [6]	228 [10]	20	17	19	20 [6]	20 [10]	0.05	0.04	0.05	0.05 [6]	0.05 [10]
19	171	144	148	151 [3]	- [9]	177	155	153	139 [3]	- [9]	0.43	0.37	0.37	0.34 [3]	- [9]
20	252	186	202	215	- [12]	57	49	41	1,892 [2]	- [12]	0.18	0.16	0.13	5.99 [2]	- [12]
21	405	255	311	327	323 [10]	114	90	91	82	84 [10]	0.35	0.28	0.28	0.25	0.26 [10]
22	372	247	277	314 [5]	251 [16]	72	124	118	85 [5]	166 [16]	0.17	0.29	0.27	0.20 [5]	0.38 [16]
23	282	193	213	236 [6]	223 [17]	129	29	44	828 [2,6]	53 [17]	0.32	0.07	0.11	2.07 [2,6]	0.13 [17]
24	231	171	176	201	190 [17]	152	150	90	71	96 [17]	0.38	0.38	0.23	0.18	0.24 [17]
25	193	159	167	195 [6]	175 [16]	226	207	125	141 [6]	162 [16]	0.56	0.51	0.31	0.35 [6]	0.41 [16]
26	194	161	166	193 [5]	201 [16]	164	42	1,951 [2]	1,616 [2,5]	31 [16]	0.41	0.10	4.88	4.04 [2,5]	0.07 [16]
27	-	234	274	292 [5]	224 [16]	-	84	394	72 [5]	297 [16]	-	0.28	1.31	0.24 [5]	0.99 [16]
28	-	229	262	296 [6]	228 [16]	-	175	168	173 [6]	153 [16]	-	0.43	0.42	0.43 [6]	0.38 [16]
29	-	156	165	193 [6]	186	-	84	98	85 [6]	876	-	0.21	0.25	0.21 [6]	2.19
30	-	261	291	323 [6]	241 [16]	-	91	194	764 [2,6]	170 [16]	-	0.45	0.97	3.82 [2,6]	0.85 [16]
31	-	171	179	204 [5]	189 [16]	-	91	33	77 [5]	88 [16]	-	0.27	0.10	0.23 [5]	0.27 [16]
32	-	178	186	204	179 [16]	-	167	88	398	59 [16]	-	0.41	0.22	1.00	0.15 [16]
33	-	-	259	294	228 [16]	-	-	176	233	231 [16]	-	-	0.44	0.58	0.58 [16]
34	-	-	268	298	235 [16]	-	-	264	202	285 [16]	-	-	0.63	0.48	0.68 [16]
35	-	-	279	330 [6]	241 [17]	-	-	246	190 [6]	197 [17]	-	-	0.61	0.48 [6]	0.49 [17]
36	-	-	175	206	190 [10]	-	-	146	60	82 [10]	-	-	0.38	0.16	0.21 [10]
37	-	-	-	274 [6]	219 [17]	-	-	-	244.6 [17]	- [15]	-	-	-	0.59 [6]	0.64 [17]
38	-	-	-	275 [6]	219 [16]	-	-	-	154 [6]	133 [16]	-	-	-	0.39 [6]	0.33 [16]
39	-	-	-	249 [6]	194 [16]	-	-	-	69 [6]	117 [16]	-	-	-	0.18 [6]	0.30 [16]

TABLE B-2
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
HISTORIC WELL STATIC WATER LEVEL AND SPECIFIC CAPACITY (1)

WELL	WELL STATIC WATER LEVEL DEPTH FROM GROUND SURFACE (FT)					WELL SPECIFIC CAPACITY (PRODUCTION IN GPM/FT OF DRAWDOWN)					WELL SPECIFIC CAPACITY FACTOR (SPECIFIC CAPACITY/FT OF PERFORATION) (14)				
PLANT	1978	1988	1997	2007	2019	1978	1988	1997	2007	2019	1978	1988	1997	2007	2019
40	-	-	-	-	214 (10)	-	-	-	-	42 (10)	-	-	-	-	0.10 (10)
41	-	-	-	-	187	-	-	-	-	156	-	-	-	-	0.40
43	-	-	-	-	244 (16)	-	-	-	-	136 (16)	-	-	-	-	0.34 (16)
44	-	-	-	-	- (11)	-	-	-	-	- (11)	-	-	-	-	- (11)
45	-	-	-	-	- (11)	-	-	-	-	- (11)	-	-	-	-	- (11)

NOTES:
(1) Data obtained from SCE Tests
(2) Drawdown understated, therefore Specific Capacity overstated
(3) Pumping Unit Tested in 2002
(4) Pumping Unit Tested in 2005
(5) Pumping Unit Tested in 2006
(6) Pumping Unit Tested in 2008
(7) Temporary Pumping Unit
(8) Sounder stuck in casing during testing, therefore no drawdown was recorded
(9) Pumping Unit in Standby
(10) Pumping Unit Tested in 2016
(11) Pumping Unit Not Yet in Service
(12) Monitoring Well
(13) Pumping Unit Tested in 2017
(14) See Table B-1 for perforation length and data
(15) Drawdown not provided
(16) Pumping Unit Tested in 2020

TABLE B-3
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
EXISTING WELL PUMPING PLANTS
HISTORIC PERFORMANCE DATA [1]

WELL		1978			1988			1997			2007			2019		
PLANT	HP	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF
3	150	915	67	814	962	-	-	-	-	-	-	-	-	-	-	- [9]
5	150	-	-	-	1,060	62	702	-	-	-	1,029	65	752	-	-	- [9]
9	200	1,236	66	834	1,513	59	681	1,395	62	735	-	-	-	-	-	- [9]
11	300	1,889	67	858	2,232	-	727	2,271	-	721	1,751	90	- [4]	-	-	- [7]
14	200	2,042	68	436	2,138	63	427	2,162	65	407	1,949	64	463	-	-	- [7]
16	250	2,226	64	513	2,785	71	399	2,603	71	428	2,071	56	530 [3]	-	-	- [7]
17	100	523	63	954	912	66	485	814	55	558	826	51	779 [5]	985	53	699 [17]
18	300	1,563	70	880	1,618	63	825	1,532	60	884	1,445	58	919 [5]	1,460	59	- [6]
19	300	1,063	65	639	1,845	67	688	1,778	67	709	1,800	67	714 [2]	-	-	- [7]
20	300	1,583	64	893	1,805	66	755	1,811	69	761	1,670	60	834	-	-	- [18]
21	300	1,200	70	1,119	1,336	57	953	1,308	61	978	1,192	57	1,087	1,394	76	815 [6]
22	500	2,560	72	831	3,178	65	664	3,123	64	704	2,950	68	741 [4]	3,065	67	604 [19]
23	300	1,725	71	792	1,892	67	766	1,816	62	805	1,453	62	784 [5]	1,450	68	747
24	500	2,907	72	788	3,323	71	702	2,968	67	784	2,760	69	810	2,840	67	772
25	400	2,375	67	741	2,418	66	709	2,418	67	715	2,320	68	753 [5]	2,271	63	771 [19]
26	400	2,461	70	728	2,407	69	745	2,536	66	711	2,470	65	744 [4]	2,254	72	801 [19]
27	400	-	-	-	2,362	59	714	2,440	60	740	2,392	66	752 [4]	2,464	55	720 [19]
28	400	-	-	-	2,431	59	662	2,346	62	689	2,260	62	747 [5]	2,409	61	658 [19]
29	400	-	-	-	2,534	60	697	2,514	60	699	2,160	68	840 [5]	2,080	59	864
30	400	-	-	-	2,189	70	777	1,974	67	839	1,952	69	893 [5]	2,071	64	802 [19]
31	400	-	-	-	2,732	75	625	2,399	68	750	2,514	74	672 [4]	2,538	71	667 [19]
32	400	-	-	-	2,597	76	645	2,364	72	713	2,147	65	784	2,172	71	736 [19]
33	400	-	-	-	-	-	-	2,322	61	675	2,143	64	714	2,282	59	665 [19]
34	400	-	-	-	-	-	-	2,379	61	677	2,430	71	650	2,362	60	651 [19]
35	400	-	-	-	-	-	-	2,115	69	796	1,885	70	870 [5]	1,776	64	923 [17]
36	400	-	-	-	-	-	-	2,643	66	642	2,621	71	675	2,400	59	744 [17]
37	450	-	-	-	-	-	-	-	-	-	2,652	74	639 [5]	2,462	66	672
38	450	-	-	-	-	-	-	-	-	-	2,547	71	663 [5]	2,578	68	629 [19]
39	200	-	-	-	-	-	-	-	-	-	1,183	69	748 [5]	2,335	71	709 [19]
40	450	-	-	-	-	-	-	-	-	-	-	-	-	2,101	69	814 [17]
41	450	-	-	-	-	-	-	-	-	-	-	-	-	2,810	70	577
43	250	-	-	-	-	-	-	-	-	-	-	-	-	1,211	63	737 [19]
44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- [8]
45	-													-	-	- [8]
TOTAL		**26,268**			**46,269**			**52,031**			**54,572**			**50,310**		

NOTES:

(1) Data obtained from SCE Tests
(2) Pumping Unit Tested in 2002
(3) Pumping Unit Tested in 2005
(4) Pumping Unit Tested in 2006
(5) Pumping Unit Tested in 2008
(6) Pumping Unit Tested in 2016
(7) Pumping Unit in Standby
(8) Pumping Unit Not Yet in Service
(9) Pumping Unit Inactive
(10) Pumping Unit Data Not Recorded
(17) Pumping Unit Tested in 2017
(18) Converted to Monitoring Well

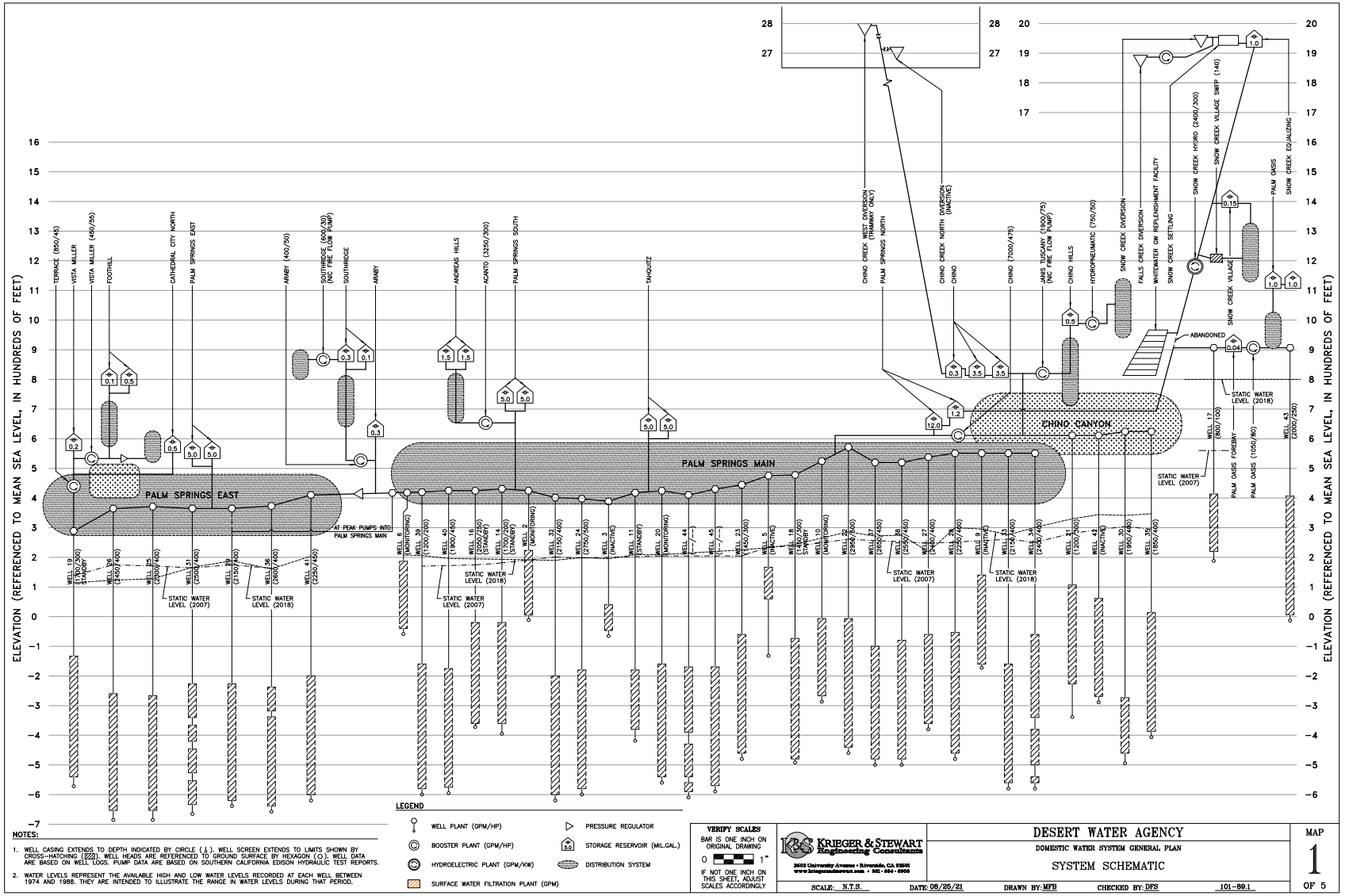
TABLE B-4
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM
EXISTING BOOSTER PUMPING PLANTS
HISTORIC PERFORMANCE DATA [1]

Booster Plant No.	Name	Pump No.	HP	Pumps From Zone	Pumps To Zone	1988			1997			2007			2019		
						gpm	EFF	kWh/AF	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF	gpm	EFF	kWh/AF
3	Southridge	1	15	Southridge	Southridge	-	-	-	303	58	192	308 [2]	60.8	192	-	-	-
		2	15		Pressurized	-	-	-	308	61	192	303 [2]	58	192	-	-	-
		3	60			-	-	-	-	-	-	384	50	153	-	-	-
4	Janis Tuscany	1	15	Chino East	Chino West	-	-	-	384	50	153	384 [3]	50	153	-	-	-
		2	15	(860)	Pressurized	-	-	-	363	49	156	363 [3]	49	156	-	-	-
		3	50		(1040)	-	-	-	1,347	45	135	1,347 [3]	45	135	-	-	-
5	Araby	1	25	P.S. Main	Southridge	123	42	729	174	49	565	180 [6]	48	582	254 [10]	62	421
		2	25			127	44	697	208	51	538	229 [6]	56	496	270 [10]	65	400
6	Terrace	1	15	P.S. East	Terrace	460	46	100	411	50	83	261	40	94	298 [8]	55	82
		2	15			358	47	77	396	53	88	239	40	107	336 [8]	52	74
		3	15			460	61	83	336	45	103	351	50	70	276 [8]	44	81
7	Vista Miller	1	20	Terrace	Foothill	160	52	489	184	53	437	165	55	418	175 [8]	58	400
		2	20			170	51	450	160	51	479	160	54	428	179 [8]	57	394
		3	20			269	54	434	250	50	467	165	55	421	179 [8]	58	394
10	Well No. 14	1	150	P.S. Main	P.S. Main	1,695	77	336	1,641	75	340	1,716	77	335	1,652 [7]	74	347
		2	60			654	67	423	547	61	407	933	77	332	880 [7]	72	351
11	Well No. 16	1	150	P.S. Main	P.S. Main	2,199	72	345	2,034	63	381	2,105 [4]	66	367	1,891 [9]	61	382
		2	60			856	68	345	809	64	371	872 [4]	68	354	812 [9]	71	375
12	Chino	1	150	P.S. Main	Chino East	2,499	70	277	2,546	76	275	2,321	77	246	2,211 [11]	73	260
		2	200			2,565	71	268	2,535	75	273	2,664	73	261	2,462 [11]	68	285
		3	75			1,140	61	303	1,141	67	298	1,188	61	297	1,268 [11]	67	277
		4	50			987	68	271	902	71	279	848	59	302	955 [11]	66	275
13	Palm Oasis	1	40	Palm Oasis	Palm Oasis	545	65	321	503	62	335	503 [5]	66	319	515 [12]	67	309
	Well No. 17	2	40			627	67	313	545	60	357	553 [5]	61	354	501 [12]	56	372
14	Acanto	1	100	P.S. Main	Andreas	-	-	-	1,053	66	329	1,071	64	335	1,030 [11]	61	343
		2	100		Hills	-	-	-	1,044	63	336	1,131	67	317	1,074 [11]	64	335
		3	100			-	-	-	-	-	-	1,064	64	327	969 [11]	59	356
	Hydropneumatic	1	15	Chino West	Chino West	-	-	-	-	-	-	-	-	-	-	-	-
15	Booster	2	15	(1040)	(1240)	-	-	-	-	-	-	-	-	-	-	-	-
	Station	3	50			-	-	-	-	-	-	-	-	-	-	-	-

NOTES:

(1) Data obtained from SCE Tests
(2) Pumping Unit Tested in 1995
(3) Pumping Unit Tested in 1996
(4) Pumping Unit Tested in 2004
(5) Pumping Unit Tested in 2006
(6) Pumping Unit Tested in 2008
(7) Pumping Unit Tested in 2010
(8) Pumping Unit Tested in 2013
(9) Pumping Unit Tested in 2014
(10) Pumping Unit Tested in 2015
(11) Pumping Unit Tested in 2016
(12) Pumping Unit Tested in 2017

MAPS



NOTES:

1. WELL CASING EXTENDS TO DEPTH INDICATED BY CIRCLE (). WELL SCREEN EXTENDS TO LIMITS SHOWN BY CROSS-HATCHING (ZZZZ). WELL HEADS ARE REFERENCED TO GROUND SURFACE BY HEXAGON (). WELL DATA ARE BASED ON WELL LOGS. PUMP DATA ARE BASED ON SOUTHERN CALIFORNIA EDISON HYDRAULIC TEST REPORTS.
2. WATER LEVELS REPRESENT THE AVAILABLE HIGH AND LOW WATER LEVELS RECORDED AT EACH WELL BETWEEN 1974 AND 1988. THEY ARE INTENDED TO ILLUSTRATE THE RANGE IN WATER LEVELS DURING THAT PERIOD.

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DESERT WATER AGENCY

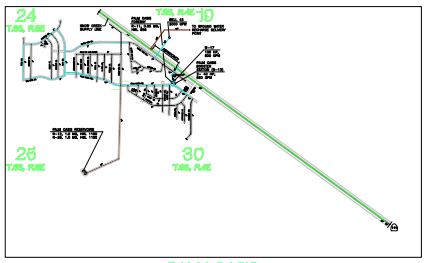
DOMESTIC WATER SYSTEM GENERAL PLAN

SYSTEM SCHEMATIC

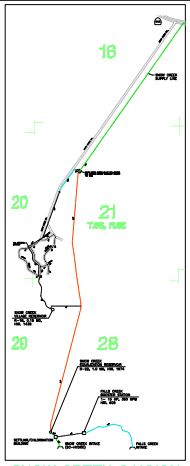
SCALE: N.T.S. DATE: 08/25/21 DRAWN BY: MFB CHECKED BY: DFS 101-89.1

MAP 1 OF 5

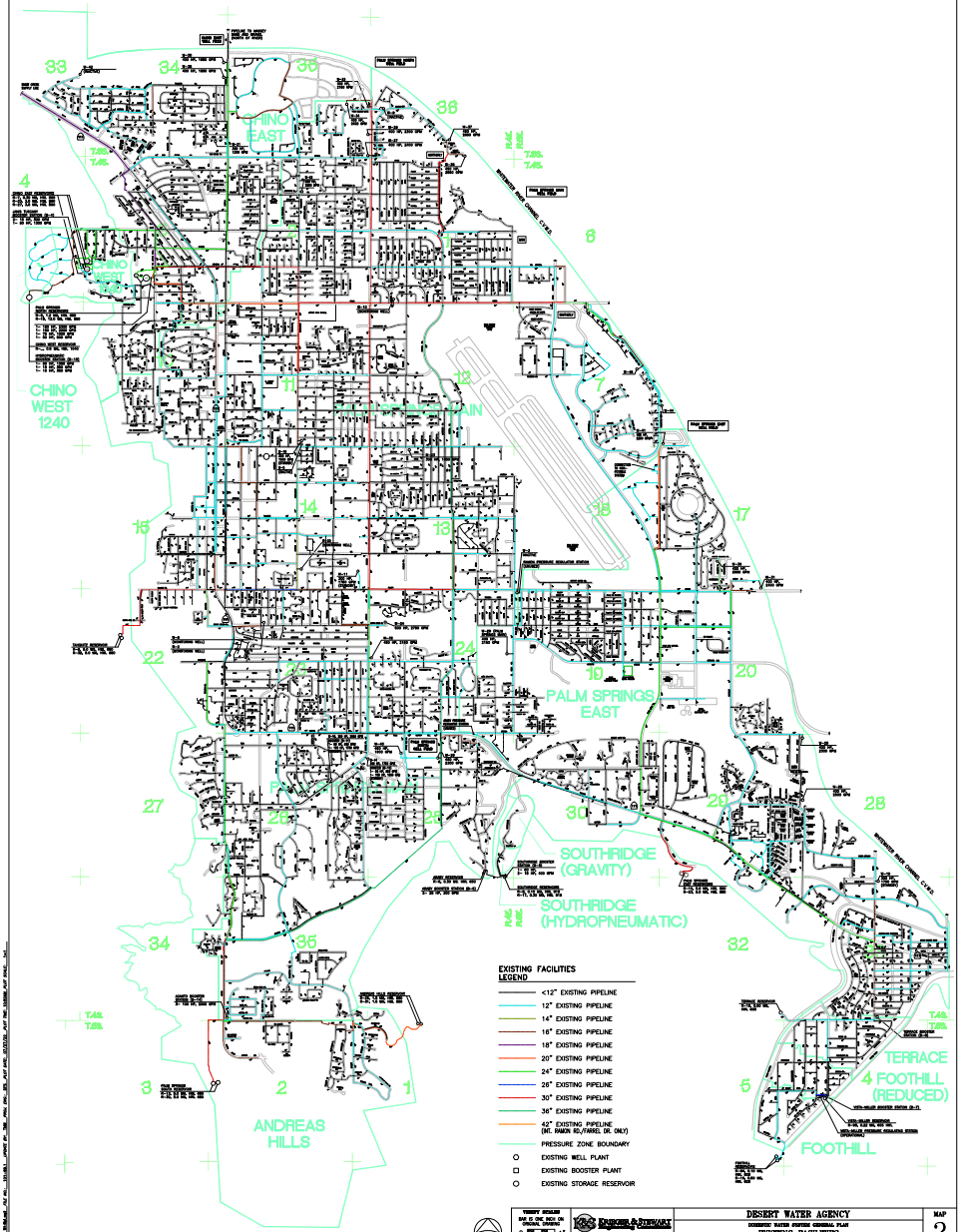
DWG NO.: 101-89.1DWG FILE NO.: UPDATE BY: JEPS PROJ. ENG.: DFS PLOT DATE: 08/25/21 PLOT TIME: 9:35AM PLOT SCALE: 1=1



PALM OASIS



SNOW CREEK CANYON

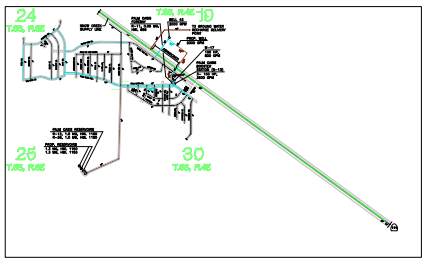


DESERT WATER AGENCY

DOMESTIC WATER SYSTEM GENERAL PLAN

EXISTING FACILITIES
NORMAL OPERATION

MAP 2 OF 5



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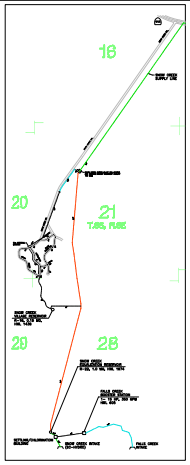
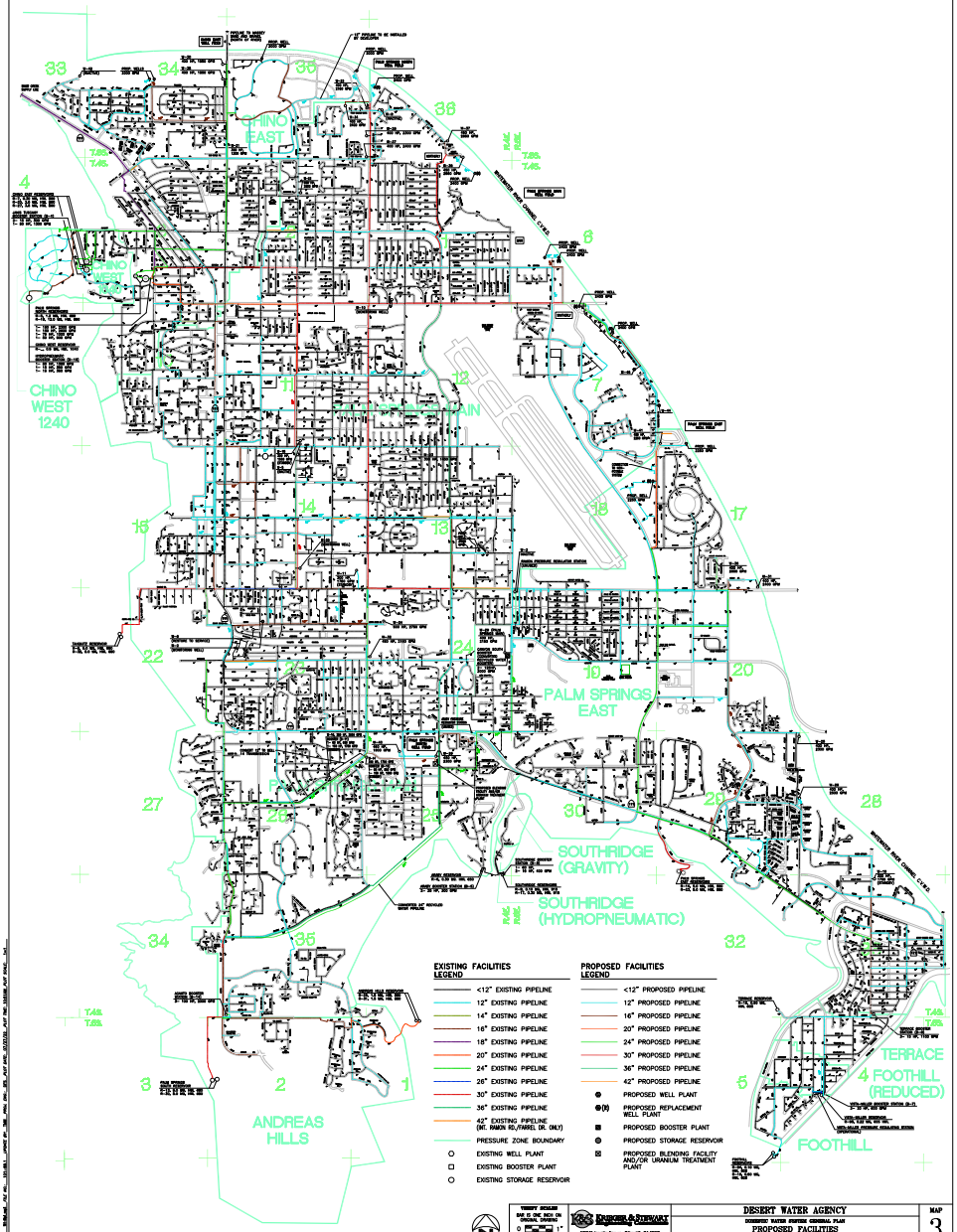


SNOW CREEK CANYON



EXISTING FACILITIES LEGEND

- <12" EXISTING PIPELINE
- 12" EXISTING PIPELINE
- 14" EXISTING PIPELINE
- 16" EXISTING PIPELINE
- 18" EXISTING PIPELINE
- 20" EXISTING PIPELINE
- 24" EXISTING PIPELINE
- 26" EXISTING PIPELINE
- 30" EXISTING PIPELINE
- 36" EXISTING PIPELINE
- 42" EXISTING PIPELINE (MT. VIEW RD./FARREL DR. ONLY)
- PRESSURE ZONE BOUNDARY
- EXISTING WELL PLANT
- EXISTING BOOSTER PLANT
- EXISTING STORAGE RESERVOIR

PROPOSED FACILITIES LEGEND

- <12" PROPOSED PIPELINE
- 12" PROPOSED PIPELINE
- 16" PROPOSED PIPELINE
- 20" PROPOSED PIPELINE
- 24" PROPOSED PIPELINE
- 30" PROPOSED PIPELINE
- 36" PROPOSED PIPELINE
- 42" PROPOSED PIPELINE
- PROPOSED WELL PLANT
- PROPOSED REPLACEMENT WELL PLANT
- PROPOSED BOOSTER PLANT
- PROPOSED STORAGE RESERVOIR
- PROPOSED BLENDING FACILITY AND/OR URANIUM TREATMENT PLANT

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING
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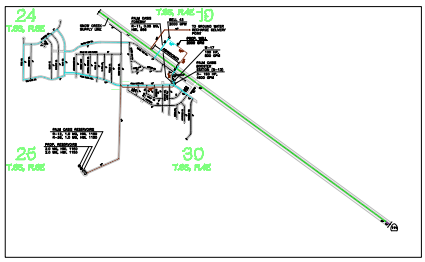
RANCHO CUCAMONGA

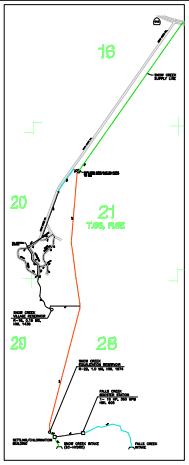
DESERT WATER AGENCY
DOMESTIC WATER SYSTEM GENERAL PLAN
PROPOSED FACILITIES
NORMAL OPERATION

MAP 3 OF 5

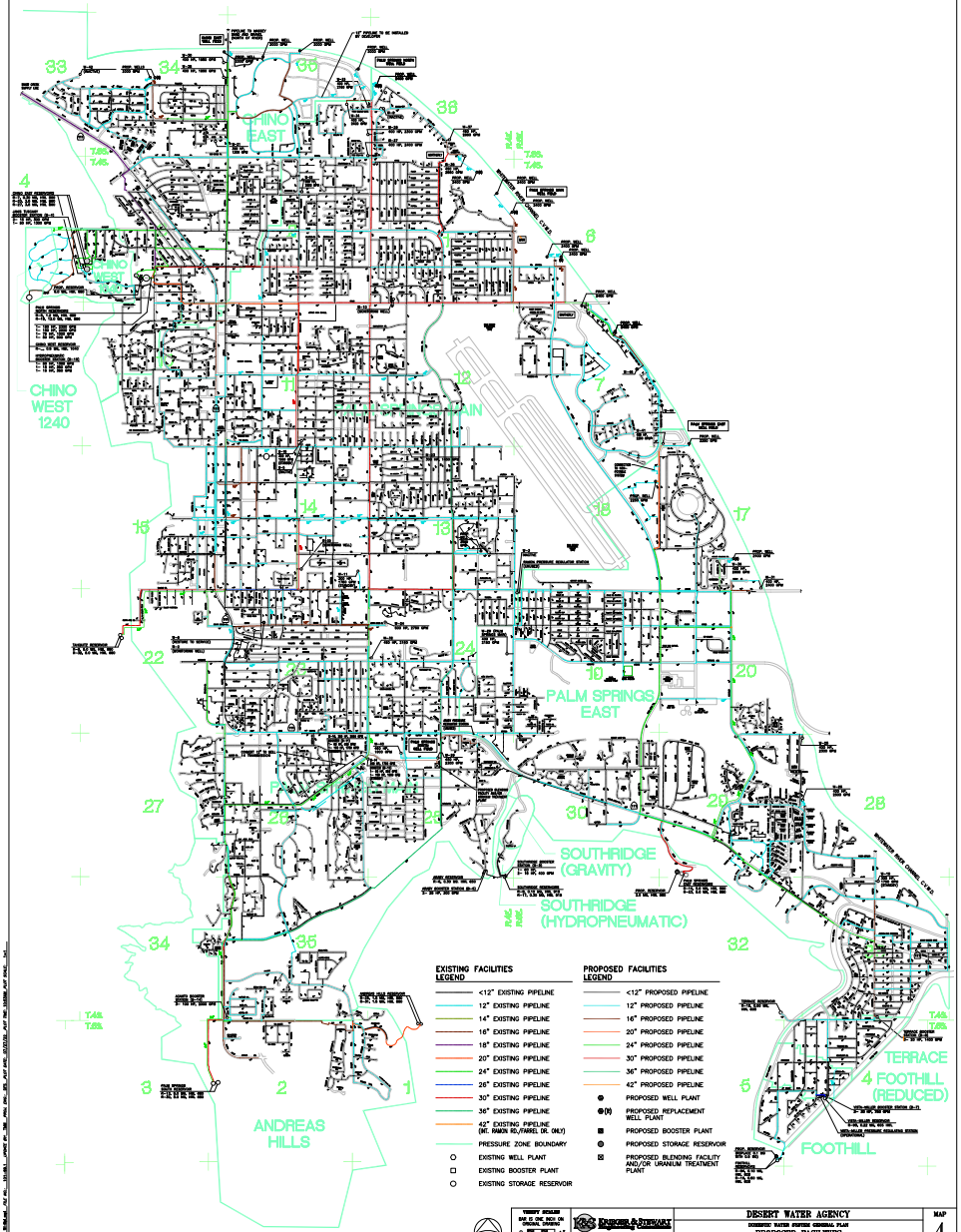
SCALE: 1"=1000' DATE: 07/01/08 DRAWN BY: RTK CHECKED BY: RRR W.O.: 301-08.1



PALM OASIS



SNOW CREEK CANYON



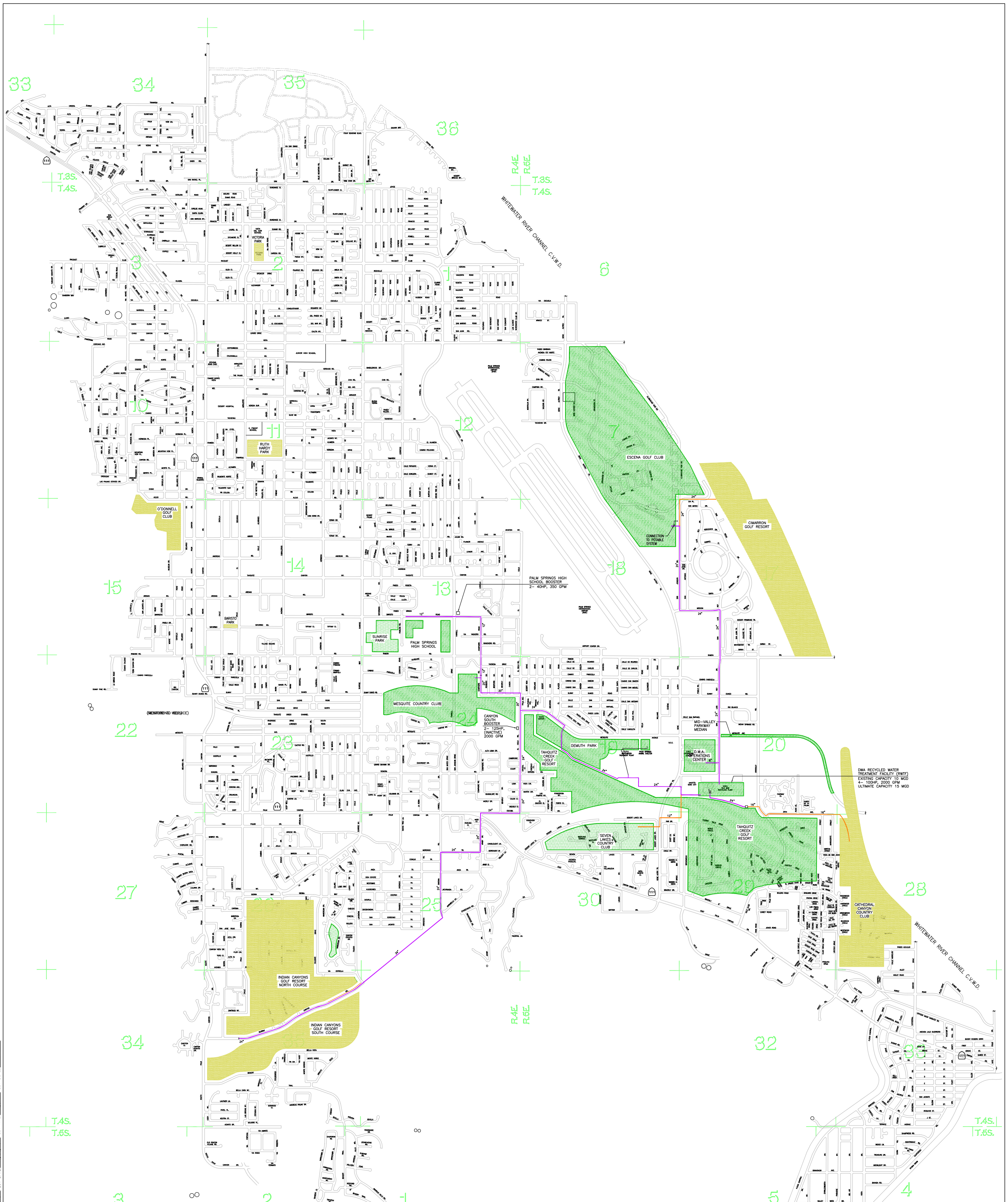
EXISTING FACILITIES LEGEND	PROPOSED FACILITIES LEGEND
<12" EXISTING PIPELINE	<12" PROPOSED PIPELINE
12" EXISTING PIPELINE	12" PROPOSED PIPELINE
14" EXISTING PIPELINE	16" PROPOSED PIPELINE
16" EXISTING PIPELINE	20" PROPOSED PIPELINE
18" EXISTING PIPELINE	24" PROPOSED PIPELINE
20" EXISTING PIPELINE	30" PROPOSED PIPELINE
24" EXISTING PIPELINE	36" PROPOSED PIPELINE
26" EXISTING PIPELINE	42" PROPOSED PIPELINE
30" EXISTING PIPELINE	PROPOSED WELL PLANT
36" EXISTING PIPELINE	PROPOSED REPLACEMENT WELL PLANT
42" EXISTING PIPELINE (MT. BARN ID./FARREL DR. ONLY)	PROPOSED BOOSTER PLANT
PRESSURE ZONE BOUNDARY	PROPOSED STORAGE RESERVOIR
EXISTING WELL PLANT	PROPOSED BLENDING FACILITY AND/OR URANIUM TREATMENT PLANT
EXISTING BOOSTER PLANT	
EXISTING STORAGE RESERVOIR	

DESERT WATER AGENCY

DOMESTIC WATER SYSTEM GENERAL PLAN

PROPOSED FACILITIES
TIME-OF-USE OPERATION

MAP 4 OF 5



LEGEND

- PRESSURE ZONE BOUNDARY
- EXISTING GOLF COURSE, PARK, OR SCHOOL WITH RECYCLED WATER
- EXISTING GOLF COURSE, PARK, OR SCHOOL PROPOSED FOR RECYCLED WATER
- GOLF COURSE OR PARK NOT PROPOSED FOR RECYCLED WATER
- EXISTING RECYCLED WATER PIPELINE, DIAMETER AS NOTED
- PROPOSED RECYCLED WATER FACILITIES

VERIFY SCALES
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DESERT WATER AGENCY
DOMESTIC WATER SYSTEM GENERAL PLAN
EXISTING AND PROPOSED
RECYCLED WATER SYSTEM FACILITIES

SCALE: 1"=1000' DATE: 11/06/20 DRAWN BY: SPK CHECKED BY: DFS W.O.: 101-89.1

MAP 5 OF 5

NOTICE OF EXEMPTION

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

Riverside County Clerk
2720 Gateway Drive
Riverside, CA 92507

From: Desert Water Agency
1200 S. Gene Autry Trail
Palm Springs, CA 92264

Project Title:

Desert Water Agency Domestic Water System General Plan 2020 ("2020 Water General Plan").

Project Location:

The project planning area constitutes Desert Water Agency's institutional boundary, which encompasses approximately 335 square miles in and around the City of Palm Springs in Riverside County, California. The institutional boundary includes Desert Water Agency's service area, which constitutes that portion of Desert Water Agency territory where it provides or will provide domestic water service.

Description of Nature, Purpose, and Beneficiaries of Project:

The 2020 Water General Plan is a planning tool and is intended to serve as a guide for system improvements over the next 10 to 30 years. The 2020 Water General Plan reflects current conditions within the Desert Water Agency's service area based on time-dependent trends which have developed in the intervening years, and also presents projected water requirements and recommended system improvements based on said conditions and trends. The beneficiaries of the 2020 Water General Plan are the rate payers and customers of the Desert Water Agency, as the result will be improved and more efficient facilities to serve Desert Water Agency customers.

Public Agency Approving Project:

Desert Water Agency

Agency Carrying Out Project:

Desert Water Agency

Exempt Status:

No Physical Change in Environment: State CEQA Guidelines Section 15060(c)(2)

Not a Project Defined in Section 15378: State CEQA Guidelines Section 15060(c)(3)

General Rule Exemption: State CEQA Guidelines Section 15061(b)(3)

Reasons Why Project is Exempt:

14 Cal. Code Reg. § 15060(c)(2) states as follows: "The activity will not result in a direct or reasonably foreseeable indirect physical change in the environment". Here, the Board is only approving the 2020 Water General Plan, not any specific proposed improvement within the Plan. Any future improvement within the Plan will require future Board approval and CEQA analysis. No direct activity is authorized by Board approval of the 2020 Water General Plan.

14 Cal. Code Reg. § 15060(c)(3) states as follows: "The activity is not a project as defined in Section 15378". 14 Cal. Code Reg. § 15378(b)(5) lists a non-project as "Organizational or administrative activities of governments that will not result in direct or indirect physical changes in the environment". For the same reasons listed above, Board approval is not an activity subject to CEQA.

14 Cal. Code Reg. § 15061(b)(3) states as follows: "(b) A project is exempt from CEQA if: … (3) The activity is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA."

Here, the Board is approving only the 2020 Water General Plan, not any specific proposed improvement within the Plan. Any future improvement within the Plan will require future Board approval and CEQA analysis. No direct activity is authorized by Board approval of the 2020 Water General Plan.

Agency Contact Person:	**Telephone**
Steve L. Johnson	(760) 323-4971

Date: _____ Signature:_____
Steve L. Johnson, General Manager

DESERT WATER AGENCY

Financial Highlights

July 2024

OPERATING FUND

Received

- $4,284,790 in Water Sales Revenue Receipts
- $98,390 in Recycled Water Sales Revenue Receipts
- $23,358 included in the Miscellaneous Receipts from the City of Indio for the DWR Urban and Multi-benefit Drought Grant

Paid

- $7,875,742 in Accounts Payable

Year to date

- YTD Water Sales are 1% under budget
- YTD Total Revenues are 1% under budget
- YTD Total Expenses are 14% under budget

Active Potable Water Accounts

- There were 23,578 active potable water accounts billed in July 2024
- Compared to 23,588 active potable water accounts billed in June 2024
- Net decrease of 10 active accounts billed
- There were 32 water accounts disconnected for non-payment in July 2024. Over the past twelve months, there were an average of 22 accounts per month disconnected for non-payment.

DESERT WATER AGENCY

Financial Highlights

July 2024

GENERAL FUND

Received

- $2,510,249 in Property Taxes
- $45,513 in Replenishment Assessments from Private Pumpers
- $47,250 in Power Sales from Southern California Edison for Whitewater Hydro

Paid

- $4,017,806 in State Water Project charges
  (YTD SWP Payments = $4,017,806)

WASTEWATER FUND

Paid

- $82,641 in Accounts Payable

DESERT WATER AGENCY

Statement of Cash Receipts and Expenditures

OPERATING FUND

			Invested Reserve Funds
BEGINNING BALANCE JULY 1, 2024		**(3,202,914.36)**	**65,217,982.14**
Receipts			
Water Sales	4,284,789.99		
Recycled Water Sales	98,390.01		
Wastewater Receipts	107,547.28		
Power Sales	11,941.88		
Meters, Services, Etc	106,147.00		
Reimb - General Fund	29,250.00		
Reimb - Wastewater Fund	2,846.00		
Accounts Receivable - Other	28,374.38		
Customer Deposits - Surety	17,004.00		
Customer Deposits - Const	2,000.00		
Lease Revenue	4,061.24		
Interest Received on Invstd Fnds	344,690.14		
Front Footage Fees	-		
Bond Service & Reserve Fund Int	-		
Misc	36,368.84		
TOTAL RECEIPTS	**5,073,410.76**		
Payments			
Payroll Checks	669,945.76		
Payroll Taxes	295,124.36		
Electronic Transfers	3,116,899.17		
Checks Under $10k	411,449.95		
Checks Over $10k	4,347,392.78		
Cancelled Checks and Fees	5,016.39		
TOTAL PAYMENTS	**8,845,828.41**		
NET INCOME		**(3,772,417.65)**	
Invested Reserve Funds			
Funds Matured (CIA)	9,234,852.22		
Funds Invested (C/I)	5,611,892.36		
NET TRANSFER		**3,622,959.86**	**(3,622,959.86)**
ENDING BALANCE JULY 31, 2024		**(3,352,372.15)**	**61,595,022.28**

DESERT WATER AGENCY

Operating Fund

Schedule #1 - Checks Over $10,000

DESERT WATER

July 2024

Check #	Name	Description	Amount
2517	ACWA/Joint Powers Ins Author	Health, Dental & Vision Insurance Premiums-July 2024	$ 282,078.05
2529	Beck Oil Inc	Fuel Purchase	$ 14,155.49
2531	Chase Card Member Services	Credit Card Purchases	$ 17,733.44
2535	Core & Main Lp	Water Service Supplies	$ 10,977.23
2557	Deep Well Ranch Homeowners Association	Grass Removal Rebate	$ 159,494.00
2558	El Dorado Palms Estates Community	Grass Removal Rebate	$ 65,405.00
2568	Sundance li Owners Association	Grass Removal Rebate	$ 150,148.00
2573	Fiesta Ford Lincoln Corp	Purchase-Unit #60 (Project #E-231020M00-20)	$ 59,140.96
2583	Krieger & Stewart Inc	Engineering	$ 73,902.84
2584	Landmark Consultants Inc	Inventory Items	$ 36,781.20
2587	LM Technology Consulting	I.T. Governance & Oversight	$ 31,933.68
2604	Social And Environmental Entp	CADC FY 24-25 Membership	$ 11,000.00
2609	Thatcher Company Of California	Water Service Supplies	$ 25,927.76
2610	The ADT Security Corporation	Security Camera Service	$ 20,318.57
2621	Venture Pacific Insurance Inc	Earthquake/Flood Insurance	$ 108,581.13
2624	Weka, Inc.	Pipeline Replacement -300/30" Avenida Caballeros (W/O #201060030)	$ 32,819.18
2627	Z&L Paving, Inc.	Paving	$ 31,820.50
2647	A&N Technical Services, Inc	CVRWMG Regional Water Conservation Study	$ 21,287.50
2648	Acwa/Joint Powers Ins Author	Health, Dental & Vision Insurance Premiums-August 2024	$ 219,730.51
2659	Beck Oil Inc	Fuel Purchase	$ 13,669.37
2660	Best Best & Krieger Llp	Legal Fees	$ 91,641.50
2621	Chase Card Member Services	Credit Card Purchases	$ 55,597.52
2624	Desert Water Agency	Ground Water Billing	$ 1,442,655.64
2627	Desert Water Agency	Wastewater Revenue & Wastewater Reimbursement June 2024	$ 45,120.17
2647	Down To Earth Landscaping	Landscape Maintenance	$ 46,751.95
2648	Elms Equipment Rentals Inc	Equipment Purchase	$ 35,107.75
2659	Esri	GIS Mapping Software	$ 28,400.00

DESERT WATER AGENCY

Operating Fund

Schedule #1 - Checks Over $10,000

DESERT WATER

July 2024

2660	Krieger & Stewart Inc	Engineering	$	46,721.41
2621	Landmark Consultants Inc	Consulting Services -Soil Testing	$	15,358.80
2735	Okta, Inc	Single Sign On Service	$	12,420.00
2742	Polydyne Inc	Water Service Supplies	$	10,095.23
2752	Southern Californnia Edison	Power	$	536,559.34
2755	Stone Roofing CO., INC.	Roofing Service & Repair	$	118,998.00
2757	Thatcher Company Of California	Water Service Supplies	$	107,212.35
2760	The Works Floor & Wall	Replacing Carpet in Agency	$	50,497.23
2763	Tyler Technologies Inc	Tyler Software (Project # 201078M)	$	195,368.28
2766	United Water Works Inc	Water Service Supplies	$	39,037.95
2770	Vasquez & Company Llp	23/24-Audit Services	$	24,000.00
2778	Z&L Paving, Inc.	Paving	$	44,545.25
2228	TeamViewer Germany Gmbh	TeamViewer Software	$	14,400.00
Total			**$**	**4,347,392.78**

CLEARWATER ANALYTICS®

Monthly Investment Portfolio Report

As of 07/31/2024

AGG- Operating Fund (213426)

Dated: 08/27/2024

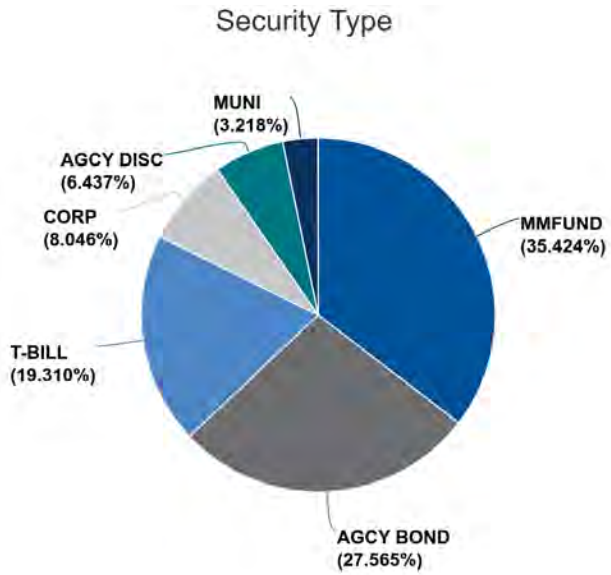


Chart calculated by: PAR Value

MMFUND

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
LAIF Money Market Fund LAIF - OP	---	---	07/31/2024	07/31/2024	22,013,835.44	22,013,835.44	22,013,835.44	---
LAIF Money Market Fund LAIF - OP	**---**	**---**	**07/31/2024**	**07/31/2024**	**22,013,835.44**	**22,013,835.44**	**22,013,835.44**	**---**

AGCY BOND

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
FEDERAL FARM CREDIT BANKS FUNDING CORP US Wealth OP	04/29/2021	08/17/2024	04/28/2025	04/28/2025	1,000,000.00	999,500.00	967,922.00	5.070%
FEDERAL HOME LOAN BANKS US Wealth OP	09/30/2021	09/30/2024	09/30/2026	09/30/2026	1,000,000.00	1,000,000.00	931,389.00	4.373%
FEDERAL HOME LOAN BANKS US Wealth OP	04/29/2022	---	04/29/2027	04/29/2027	2,000,000.00	2,000,000.00	1,943,796.00	4.163%
FEDERAL HOME LOAN BANKS US Wealth OP	05/24/2022	---	05/24/2027	05/24/2027	2,000,000.00	2,000,000.00	1,955,590.00	4.143%
FEDERAL HOME LOAN BANKS US Wealth OP	09/24/2021	---	09/13/2024	09/13/2024	1,130,000.00	1,125,513.90	1,123,277.63	5.499%
FEDERAL HOME LOAN BANKS US Wealth OP	06/28/2021	---	09/30/2024	09/30/2024	1,000,000.00	1,000,000.00	991,787.00	5.365%
FEDERAL HOME LOAN BANKS US Wealth OP	05/23/2022	08/23/2024	05/23/2025	05/23/2025	2,000,000.00	2,000,000.00	1,973,762.00	4.964%
FEDERAL HOME LOAN BANKS US Wealth OP	06/26/2024	06/26/2026	06/26/2026	06/26/2029	2,000,000.00	2,000,000.00	2,009,328.00	4.791%
FEDERAL HOME LOAN MORTGAGE CORP US Wealth OP	08/20/2020	---	08/20/2025	08/20/2025	1,000,000.00	1,000,000.00	957,011.00	4.863%

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
FEDERAL HOME LOAN MORTGAGE CORP US Wealth OP	05/26/2022	---	08/26/2024	08/26/2024	2,000,000.00	2,000,000.00	1,996,498.00	5.509%
FEDERAL NATIONAL MORTGAGE ASSOCIATION US Wealth OP	08/12/2020	11/12/2024	08/12/2025	08/12/2025	1,000,000.00	1,000,000.00	957,378.00	4.850%
FEDERAL NATIONAL MORTGAGE ASSOCIATION US Wealth OP	06/30/2020	09/30/2024	06/30/2025	06/30/2025	1,000,000.00	1,000,000.00	962,659.00	4.946%
--- US Wealth OP	**---**	**---**	**11/29/2025**	**04/09/2026**	**17,130,000.00**	**17,125,013.90**	**16,770,397.63**	**4.839%**

T-BILL

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
UNITED STATES TREASURY US Wealth OP	02/14/2024	---	08/08/2024	08/08/2024	2,000,000.00	1,951,502.22	1,997,958.34	4.675%
UNITED STATES TREASURY US Wealth OP	04/16/2024	---	09/19/2024	09/19/2024	2,000,000.00	1,956,233.33	1,985,708.34	5.254%
UNITED STATES TREASURY US Wealth OP	04/16/2024	---	08/13/2024	08/13/2024	2,000,000.00	1,966,217.22	1,996,476.66	4.955%
UNITED STATES TREASURY US Wealth OP	04/16/2024	---	10/10/2024	10/10/2024	2,000,000.00	1,950,538.33	1,979,855.56	5.231%
UNITED STATES TREASURY US Wealth OP	06/18/2024	---	12/12/2024	12/12/2024	2,000,000.00	1,950,194.17	1,963,277.22	5.095%
UNITED STATES TREASURY US Wealth OP	06/18/2024	---	12/05/2024	12/05/2024	2,000,000.00	1,952,258.33	1,964,720.00	5.161%
UNITED STATES TREASURY US Wealth OP	**---**	**---**	**10/06/2024**	**10/06/2024**	**12,000,000.00**	**11,726,943.60**	**11,887,996.12**	**5.061%**

CORP

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
AMAZON.COM INC US Wealth OP	05/16/2022	03/13/2027	04/13/2027	04/13/2027	2,000,000.00	1,987,040.00	1,944,236.00	4.405%
JPMORGAN CHASE BANK, NATIONAL ASSOCIATION US Wealth OP	06/22/2021	---	12/23/2024	12/23/2024	1,000,000.00	1,000,000.00	977,080.00	6.374%
MASSMUTUAL GLOBAL FUNDING II US Wealth OP	06/14/2023	---	06/14/2028	06/14/2028	2,000,000.00	2,021,800.00	2,025,780.00	4.680%
--- US Wealth OP	**---**	**---**	**04/23/2027**	**04/23/2027**	**5,000,000.00**	**5,008,840.00**	**4,947,096.00**	**4.904%**

AGCY DISC

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
FEDERAL HOME LOAN BANKS US Wealth OP	05/15/2024	---	11/08/2024	11/08/2024	2,000,000.00	1,949,456.67	1,971,588.00	5.274%
FEDERAL HOME LOAN BANKS US Wealth OP	05/15/2024	---	08/09/2024	08/09/2024	2,000,000.00	1,975,012.22	1,997,646.00	4.792%
FEDERAL HOME LOAN BANKS US Wealth OP	**05/15/2024**	**---**	**09/23/2024**	**09/23/2024**	**4,000,000.00**	**3,924,468.89**	**3,969,234.00**	**5.032%**

MUNI

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
UNIVERSITY CALIF REVS US Wealth OP	05/16/2022	03/15/2027	05/15/2027	05/15/2027	2,000,000.00	1,795,920.00	1,840,580.00	4.383%

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
UNIVERSITY CALIF REVS US Wealth OP	**05/16/2022**	**03/15/2027**	**05/15/2027**	**05/15/2027**	**2,000,000.00**	**1,795,920.00**	**1,840,580.00**	**4.383%**

Summary

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
--- ---	**---**	**---**	**04/10/2025**	**05/15/2025**	**62,143,835.44**	**61,595,021.83**	**61,429,139.19**	**4.912%**

* Grouped by: Security Type. * Groups Sorted by: Ending Market Value + Accrued. * Filtered By: Description ≠ "Receivable". * Weighted by: Ending Market Value + Accrued.

DESERT WATER AGENCY

Statement of Cash Receipts and Expenditures

GENERAL FUND

			Invested Reserve Funds
BEGINNING BALANCE JULY 1, 2024		**(2,169,350.98)**	**263,303,824.65**
Receipts			
Taxes - Riv County	2,510,248.80		
Interest	1,088,892.19		
Groundwater	45,512.94		
Reimb OP	-		
Reimb CVWD	-		
State Water Proj Refunds	-		
Reimb CVWD Whitewater Hydro	-		
Power Sales - Whitewater	47,250.17		
Misc	-		
TOTAL RECEIPTS	**3,691,904.10**		
Payments			
Checks Under $10k	9,762.00		
Checks Over $10k	4,077,785.94		
Electronic Transfers	-		
TOTAL PAYMENTS	**4,087,547.94**		
NET INCOME		**(395,643.84)**	
Invested Reserve Funds			
Funds Matured (CIA)	6,007,000.00		
Funds Invested (C/I)	3,511,164.04		
NET TRANSFER		**2,495,835.96**	**(2,495,835.96)**
ENDING BALANCE JULY 31, 2024		**(69,158.86)**	**260,807,988.69**

	TAXES	**INTEREST**
Receipts in Fiscal Year	2,510,248.80	1,088,892.19
Receipts in Calendar Year	36,085,483.39	2,854,567.59

DESERT WATER AGENCY

General Fund

Schedule #1 - Checks Over $10,000

DESERT WATER

July 2024

Check #	Name	Description	Amount
2045	State of California Department of Water Resources	State Water Project - July 2024 Fixed Water Delivery Charges	$ 4,017,806.00
2046	Coachella Valley Water District	Water Management Cost Share- Whitewater	$ 18,114.82
2047	County Of Riverside	LAFCO FY25 Admin Fees	$ 17,286.37
2049	United States Geological Survey	Quaterly Billing -Joint Funding Agreement	$ 24,578.75
Total			**$ 4,077,785.94**

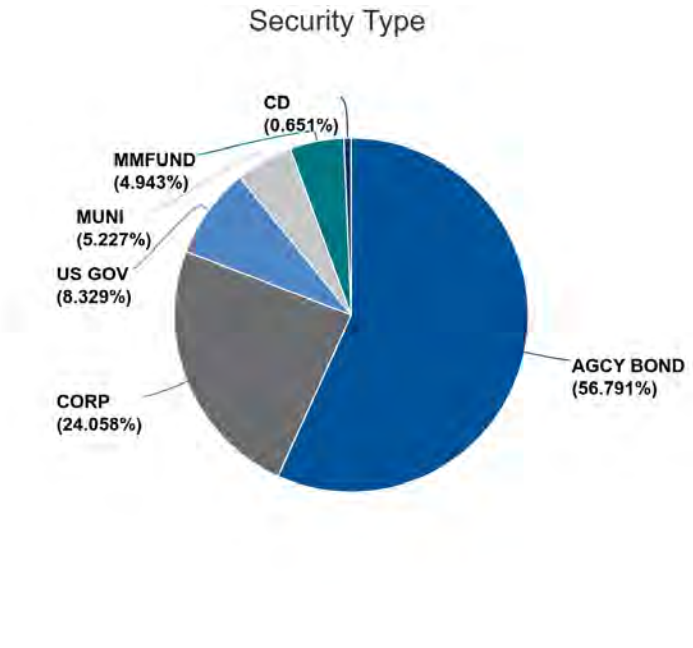
CLEARWATER ANALYTICS®

Monthly Investment Portfolio Report

As of 07/31/2024

AGG- General Fund (213428)

Dated: 08/27/2024



AGCY BOND

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
FEDERAL AGRICULTURAL MORTGAGE CORP Alamo Capital	09/14/2022	---	04/21/2025	04/21/2025	1,000,000.00	977,400.00	983,112.00	5.030%
FEDERAL AGRICULTURAL MORTGAGE CORP Piper Sandler	02/23/2022	08/23/2024	02/23/2027	02/23/2027	3,000,000.00	3,000,000.00	2,843,964.00	4.265%
FEDERAL FARM CREDIT BANKS FUNDING CORP Alamo Capital	08/04/2020	08/18/2024	08/04/2025	08/04/2025	3,000,000.00	3,000,005.00	2,876,685.00	4.898%
FEDERAL FARM CREDIT BANKS FUNDING CORP Alamo Capital	10/15/2020	08/18/2024	10/15/2024	10/15/2024	3,000,000.00	2,995,500.00	2,969,529.00	5.390%
FEDERAL FARM CREDIT BANKS FUNDING CORP Alamo Capital	02/12/2021	08/18/2024	11/12/2024	11/12/2024	3,000,000.00	3,000,000.00	2,958,498.00	5.301%
FEDERAL FARM CREDIT BANKS FUNDING CORP US Wealth GF	12/22/2020	08/18/2024	12/22/2025	12/22/2025	3,000,000.00	3,000,000.00	2,831,655.00	4.682%
FEDERAL FARM CREDIT BANKS FUNDING CORP Piper Sandler	11/05/2021	08/19/2024	10/20/2026	10/20/2026	3,000,000.00	2,988,000.00	2,797,008.00	4.371%
FEDERAL FARM CREDIT BANKS FUNDING CORP Piper Sandler	02/16/2022	---	02/16/2027	02/16/2027	3,000,000.00	2,999,286.00	2,829,312.00	4.183%
FEDERAL FARM CREDIT BANKS FUNDING CORP Piper Sandler	06/26/2023	---	06/21/2028	06/21/2028	4,000,000.00	3,963,160.00	3,977,248.00	4.034%
FEDERAL FARM CREDIT BANKS FUNDING CORP Piper Sandler	10/15/2020	08/19/2024	10/15/2024	10/15/2024	3,000,000.00	3,000,000.00	2,969,709.00	5.390%
FEDERAL FARM CREDIT BANKS FUNDING CORP Piper Sandler	04/30/2024	---	04/10/2029	04/10/2029	3,000,000.00	2,958,390.00	3,053,508.00	3.954%
FEDERAL HOME LOAN BANKS Alamo Capital	09/30/2021	09/30/2024	09/30/2026	09/30/2026	3,000,000.00	3,000,000.00	2,792,946.00	4.373%
FEDERAL HOME LOAN BANKS Alamo Capital	04/09/2021	---	11/18/2024	11/18/2024	3,000,000.00	2,989,263.00	2,956,500.00	5.282%
FEDERAL HOME LOAN BANKS Alamo Capital	12/30/2021	---	12/30/2024	12/30/2024	3,000,000.00	3,000,005.00	2,954,781.00	5.189%

Monthly Investment Portfolio Report

As of 07/31/2024

AGG- General Fund (213428)

Dated: 08/27/2024

Description, Broker	Settle Date	Next Call Date	Effective Maturity	Final Maturity	PAR Value	Original Cost	Market Value	Yield to Maturity
FEDERAL HOME LOAN BANKS US Wealth GF	12/30/2020	08/18/2024	12/30/2025	12/30/2025	3,000,000.00	3,000,000.00	2,831,541.00	4.662%
FEDERAL HOME LOAN BANKS US Wealth GF	09/30/2021	09/30/2024	09/30/2026	09/30/2026	3,000,000.00	3,000,000.00	2,794,167.00	4.373%
FEDERAL HOME LOAN BANKS US Wealth GF	04/29/2022	---	04/29/2027	04/29/2027	3,000,000.00	3,000,000.00	2,915,694.00	4.163%
FEDERAL HOME LOAN BANKS US Wealth GF	06/23/2022	08/18/2024	06/23/2026	06/23/2026	3,000,000.00	3,000,000.00	2,967,981.00	4.804%
FEDERAL HOME LOAN BANKS US Wealth GF	02/28/2023	02/28/2025	02/28/2028	02/28/2028	3,000,000.00	2,999,250.00	2,988,807.00	5.114%
FEDERAL HOME LOAN BANKS US Wealth GF	06/23/2023	---	06/09/2028	06/09/2028	5,000,000.00	4,986,500.00	4,993,860.00	4.034%
FEDERAL HOME LOAN BANKS US Wealth GF	06/28/2021	---	09/30/2024	09/30/2024	3,000,000.00	3,000,000.00	2,975,361.00	5.365%
FEDERAL HOME LOAN BANKS Piper Sandler	02/17/2021	11/17/2024	02/17/2026	02/17/2026	3,000,000.00	3,000,000.00	2,825,031.00	4.579%
FEDERAL HOME LOAN BANKS Piper Sandler	09/30/2021	09/30/2024	09/30/2026	09/30/2026	3,000,000.00	3,000,000.00	2,794,779.00	4.373%
FEDERAL HOME LOAN BANKS Piper Sandler	09/30/2021	09/30/2024	09/30/2026	09/30/2026	3,000,000.00	3,000,000.00	2,792,946.00	4.373%
FEDERAL HOME LOAN BANKS Piper Sandler	02/26/2021	08/26/2024	11/26/2024	11/26/2024	3,000,000.00	3,000,000.00	2,953,758.00	5.229%
FEDERAL HOME LOAN BANKS Piper Sandler	01/31/2024	---	01/15/2027	01/15/2027	3,000,000.00	2,999,640.00	2,995,260.00	4.193%
FEDERAL HOME LOAN BANKS Piper Sandler	06/18/2024	12/15/2025	12/15/2025	06/15/2028	2,000,000.00	2,000,000.00	2,003,586.00	4.947%
FEDERAL HOME LOAN BANKS Piper Sandler	04/25/2022	---	07/25/2025	07/25/2025	3,000,000.00	3,000,000.00	2,985,195.00	4.819%
FEDERAL HOME LOAN BANKS Stifel	04/24/2023	08/19/2024	04/24/2028	04/24/2028	3,000,000.00	3,000,000.00	2,983,875.00	5.028%
FEDERAL HOME LOAN BANKS Stifel	03/30/2021	---	09/30/2024	09/30/2024	2,000,000.00	2,000,000.00	1,983,924.00	5.367%
FEDERAL HOME LOAN BANKS Stifel	02/25/2021	08/25/2024	11/25/2024	11/25/2024	3,000,000.00	3,000,000.00	2,954,508.00	5.242%
FEDERAL HOME LOAN BANKS Stifel	02/28/2024	08/28/2024	08/28/2024	02/28/2029	3,000,000.00	3,000,000.00	3,000,432.00	5.745%
FEDERAL HOME LOAN BANKS Stifel	03/28/2024	03/28/2025	03/28/2029	03/28/2029	3,000,000.00	3,000,000.00	2,999,997.00	5.248%
FEDERAL HOME LOAN BANKS Stifel	05/30/2024	05/30/2025	05/30/2025	05/30/2028	3,000,000.00	3,000,000.00	3,010,395.00	5.347%
FEDERAL HOME LOAN BANKS Stifel	06/27/2024	06/27/2025	06/27/2025	06/27/2029	5,000,000.00	5,000,000.00	5,011,080.00	5.347%
FEDERAL HOME LOAN BANKS Stifel	06/27/2024	06/27/2025	06/27/2025	06/27/2029	5,000,000.00	5,000,000.00	5,011,080.00	5.347%
FEDERAL HOME LOAN MORTGAGE CORP Alamo Capital	09/30/2020	09/30/2024	09/30/2025	09/30/2025	3,000,000.00	3,000,000.00	2,852,043.00	4.797%
FEDERAL HOME LOAN MORTGAGE CORP Alamo Capital	05/12/2022	---	11/12/2024	11/12/2024	3,000,000.00	3,000,000.00	2,980,629.00	5.301%
FEDERAL HOME LOAN MORTGAGE CORP US Wealth GF	08/20/2020	---	08/20/2025	08/20/2025	3,000,000.00	3,000,000.00	2,871,033.00	4.863%
FEDERAL HOME LOAN MORTGAGE CORP US Wealth GF	05/16/2024	05/16/2025	05/16/2025	05/16/2028	3,000,000.00	3,000,000.00	3,008,769.00	5.212%
FEDERAL HOME LOAN MORTGAGE CORP Piper Sandler	08/26/2020	---	08/26/2024	08/26/2024	3,000,000.00	3,000,000.00	2,989,581.00	5.508%
FEDERAL HOME LOAN MORTGAGE CORP Piper Sandler	06/25/2020	---	06/25/2025	06/25/2025	3,000,000.00	3,000,000.00	2,890,629.00	4.889%
FEDERAL HOME LOAN MORTGAGE CORP Stifel	05/26/2022	08/26/2024	05/26/2027	05/26/2027	3,000,000.00	3,000,000.00	2,969,736.00	5.372%
FEDERAL HOME LOAN MORTGAGE CORP Stifel	05/03/2023	11/03/2024	05/03/2027	05/03/2027	3,000,000.00	3,000,000.00	2,996,016.00	5.399%
FEDERAL HOME LOAN MORTGAGE CORP Stifel	10/28/2020	---	10/28/2024	10/28/2024	3,000,000.00	3,000,000.00	2,964,963.00	5.299%

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
FEDERAL NATIONAL MORTGAGE ASSOCIATION Alamo Capital	08/25/2020	---	08/25/2025	08/25/2025	3,000,000.00	2,985,965.00	2,864,172.00	4.779%
FEDERAL NATIONAL MORTGAGE ASSOCIATION US Wealth GF	08/12/2020	11/12/2024	08/12/2025	08/12/2025	3,000,000.00	3,000,000.00	2,872,134.00	4.850%
FEDERAL NATIONAL MORTGAGE ASSOCIATION US Wealth GF	07/15/2020	10/15/2024	07/15/2025	07/15/2025	3,000,000.00	3,000,000.00	2,883,759.00	4.931%
FEDERAL NATIONAL MORTGAGE ASSOCIATION Stifel	01/23/2024	01/17/2025	01/17/2029	01/17/2029	3,000,000.00	3,000,000.00	2,997,420.00	5.021%
--- **---**	**---**	**---**	**03/29/2026**	**10/07/2026**	**150,000,000.00**	**149,842,364.00**	**146,708,596.00**	**4.898%**

CORP

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
APPLE INC Alamo Capital	09/16/2019	08/23/2024	09/11/2024	09/11/2024	1,000,000.00	990,552.00	995,764.00	5.597%
APPLE INC Alamo Capital	04/05/2024	02/11/2027	05/11/2027	05/11/2027	2,000,000.00	1,919,899.70	1,936,892.00	4.418%
APPLE INC US Wealth GF	01/27/2021	08/23/2024	09/11/2024	09/11/2024	3,000,000.00	3,150,000.00	2,987,292.00	5.597%
APPLE INC Stifel	03/26/2021	01/08/2026	02/08/2026	02/08/2026	1,000,000.00	986,200.00	943,691.00	4.578%
APPLE INC Stifel	06/21/2022	11/09/2026	02/09/2027	02/09/2027	3,000,000.00	2,953,920.00	2,924,748.00	4.411%
APPLE INC Stifel	09/24/2020	04/11/2025	05/11/2025	05/11/2025	2,000,000.00	2,055,740.00	1,941,480.00	5.005%
BANK OF NEW YORK MELLON CORP Alamo Capital	05/06/2020	03/24/2025	04/24/2025	04/24/2025	1,000,000.00	1,020,005.00	975,214.00	5.096%
BERKSHIRE HATHAWAY FINANCE CORP Stifel	02/24/2023	02/15/2027	03/15/2027	03/15/2027	3,000,000.00	2,778,750.00	2,846,151.00	4.391%
EXXON MOBIL CORP US Wealth GF	08/11/2022	12/01/2025	03/01/2026	03/01/2026	3,000,000.00	2,976,180.00	2,924,583.00	4.708%
EXXON MOBIL CORP Stifel	12/15/2022	12/01/2025	03/01/2026	03/01/2026	2,000,000.00	1,928,640.00	1,949,722.00	4.708%
GUARDIAN LIFE GLOBAL FUNDING US Wealth GF	03/03/2023	---	11/19/2027	11/19/2027	3,000,000.00	2,522,160.00	2,687,967.00	4.688%
JOHN DEERE CAPITAL CORP Alamo Capital	02/08/2021	---	01/15/2026	01/15/2026	3,000,000.00	3,000,000.00	2,829,021.00	4.800%
JOHN DEERE CAPITAL CORP Alamo Capital	04/18/2023	---	03/09/2027	03/09/2027	2,000,000.00	1,829,101.63	1,862,228.00	4.584%
JOHNSON & JOHNSON Piper Sandler	03/28/2024	10/15/2027	01/15/2028	01/15/2028	3,000,000.00	2,844,090.00	2,874,990.00	4.208%
MASTERCARD INC Stifel	03/08/2024	01/26/2027	03/26/2027	03/26/2027	3,000,000.00	2,903,490.00	2,914,971.00	4.443%
METROPOLITAN LIFE GLOBAL FUNDING I US Wealth GF	05/15/2024	---	01/08/2029	01/08/2029	5,000,000.00	4,947,400.00	5,041,560.00	4.640%
MICROSOFT CORP Stifel	02/10/2021	08/03/2025	11/03/2025	11/03/2025	3,000,000.00	3,337,530.00	2,943,372.00	4.687%
NEW YORK LIFE GLOBAL FUNDING US Wealth GF	03/08/2024	---	01/29/2029	01/29/2029	5,000,000.00	4,990,150.00	5,021,535.00	4.593%
PROCTER & GAMBLE CO US Wealth GF	02/24/2023	---	01/26/2028	01/26/2028	3,000,000.00	2,951,160.00	2,972,406.00	4.236%
TOYOTA MOTOR CREDIT CORP Alamo Capital	04/18/2023	---	04/06/2028	04/06/2028	2,000,000.00	1,799,880.37	1,827,080.00	4.473%
TOYOTA MOTOR CREDIT CORP Alamo Capital	10/21/2019	---	10/07/2024	10/07/2024	1,500,000.00	1,499,994.00	1,490,077.50	5.610%
TOYOTA MOTOR CREDIT CORP Alamo Capital	07/18/2022	---	04/14/2025	04/14/2025	2,044,000.00	2,035,824.00	2,019,005.97	5.187%
WALMART INC Alamo Capital	06/20/2024	07/22/2028	09/22/2028	09/22/2028	5,000,000.00	4,489,500.00	4,496,590.00	4.172%

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
WALMART INC Stifel	06/18/2020	10/15/2024	12/15/2024	12/15/2024	2,000,000.00	2,173,300.00	1,979,938.00	5.381%
--- ---	**---**	**---**	**02/04/2027**	**02/04/2027**	**63,544,000.00**	**62,083,466.69**	**61,386,278.47**	**4.679%**

US GOV

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
UNITED STATES TREASURY US Wealth GF	11/17/2023	---	11/15/2028	11/15/2028	3,000,000.00	2,815,781.25	2,899,687.50	3.979%
UNITED STATES TREASURY Piper Sandler	05/15/2023	---	05/31/2027	05/31/2027	3,000,000.00	2,901,780.00	2,883,281.25	4.092%
UNITED STATES TREASURY Piper Sandler	08/17/2023	---	07/31/2028	07/31/2028	3,000,000.00	2,974,080.00	3,015,937.50	3.980%
UNITED STATES TREASURY Piper Sandler	12/21/2023	---	04/30/2028	04/30/2028	3,000,000.00	2,943,984.38	2,948,437.50	3.997%
UNITED STATES TREASURY Piper Sandler	01/31/2024	---	01/31/2029	01/31/2029	4,000,000.00	4,007,192.00	4,008,750.00	3.946%
UNITED STATES TREASURY Piper Sandler	06/18/2024	---	06/30/2028	06/30/2028	3,000,000.00	2,961,501.00	3,001,875.00	3.982%
UNITED STATES TREASURY Stifel	09/01/2023	---	07/15/2026	07/15/2026	3,000,000.00	2,997,726.30	3,011,718.75	4.289%
UNITED STATES TREASURY ---	**---**	**---**	**03/24/2028**	**03/24/2028**	**22,000,000.00**	**21,602,044.93**	**21,769,687.50**	**4.034%**

MMFUND

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
LAIF Money Market Fund LAIF - GF	---	---	07/31/2024	07/31/2024	13,055,313.80	13,055,313.80	13,055,313.80	---
LAIF Money Market Fund LAIF - GF	**---**	**---**	**07/31/2024**	**07/31/2024**	**13,055,313.80**	**13,055,313.80**	**13,055,313.80**	**---**

MUNI

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
CALIFORNIA ST UNIV REV Alamo Capital	09/09/2022	---	11/01/2026	11/01/2026	1,000,000.00	909,590.00	925,670.00	4.655%
HEMET CALIF UNI SCH DIST Alamo Capital	12/12/2023	---	08/01/2028	08/01/2028	1,105,000.00	967,062.85	988,267.80	4.495%
MONTEREY PK CALIF PENSION OBLIG US Wealth GF	02/16/2021	---	06/01/2025	06/01/2025	400,000.00	403,156.00	385,700.00	5.328%
SAN FRANCISCO CALIF MUN TRANSN AGY REV Alamo Capital	09/14/2023	---	03/01/2028	03/01/2028	1,200,000.00	1,028,748.00	1,076,724.00	4.434%
SANTA CLARA CNTY CALIF Alamo Capital	04/05/2024	---	08/01/2027	08/01/2027	2,075,000.00	1,922,570.50	1,939,129.00	4.352%
UNIVERSITY CALIF REVS Alamo Capital	06/23/2023	03/15/2027	05/15/2027	05/15/2027	5,000,000.00	4,486,800.00	4,601,450.00	4.383%
YOSEMITE CALIF CMNTY COLLEGE DIST Alamo Capital	12/12/2023	---	08/01/2027	08/01/2027	3,025,000.00	2,786,872.00	2,837,722.25	4.304%
--- ---	**---**	**---**	**07/07/2027**	**07/07/2027**	**13,805,000.00**	**12,504,799.35**	**12,754,663.05**	**4.422%**

CD

CLEARWATER ANALYTICS®

Monthly Investment Portfolio Report

As of 07/31/2024

AGG- General Fund (213428)

Dated: 08/27/2024

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
Ally Bank Piper Sandler	06/02/2022	---	06/02/2026	06/02/2026	245,000.00	245,000.00	237,992.76	4.737%
Capital One Bank (USA), National Association Piper Sandler	06/08/2022	---	06/08/2027	06/08/2027	245,000.00	245,000.00	235,617.48	4.593%
Capital One, National Association Piper Sandler	06/08/2022	---	06/08/2027	06/08/2027	245,000.00	245,000.00	235,617.48	4.593%
Discover Bank Piper Sandler	06/07/2022	---	06/07/2027	06/07/2027	245,000.00	245,000.00	235,625.81	4.593%
JPMorgan Chase Bank, National Association Alamo Capital	02/08/2021	10/16/2024	01/16/2026	01/16/2026	250,000.00	250,000.00	235,105.25	4.842%
Morgan Stanley Bank, N.A. Piper Sandler	06/09/2022	---	06/09/2027	06/09/2027	245,000.00	245,000.00	234,966.76	4.592%
Morgan Stanley Private Bank, National Association Piper Sandler	06/09/2022	---	06/09/2027	06/09/2027	245,000.00	245,000.00	234,966.76	4.592%
--- **---**	**---**	**---**	**02/02/2027**	**02/02/2027**	**1,720,000.00**	**1,720,000.00**	**1,649,892.29**	**4.649%**

Summary

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
--- **---**	**---**	**---**	**08/03/2026**	**11/20/2026**	**264,124,313.80**	**260,807,988.77**	**257,324,431.11**	**4.740%**

* Grouped by: Security Type. * Groups Sorted by: Ending Market Value + Accrued. * Filtered By: Description ≠ "Receivable". * Weighted by: Ending Market Value + Accrued.

DESERT WATER AGENCY

Statement of Cash Receipts and Expenditures

WASTEWATER FUND

			Invested Reserve Funds
BEGINNING BALANCE JULY 1, 2024		**48,277.37**	**1,621,428.23**
Receipts			
Accounts Receivable Other	-		
Customer Deposits-Construction	-		
Interest Earned-Invested Funds	18,619.46		
Wastewater Revenue	-		
Sewer Capacity Charges	-		
Miscellaneous	-		
TOTAL RECEIPTS	**18,619.46**		
Payments			
Checks Under $10k	9,235.83		
Checks Over $10k	73,405.16		
Cancelled Checks and Fees	-		
TOTAL PAYMENTS	**82,640.99**		
NET INCOME		**(64,021.53)**	
Invested Reserve Funds			
Funds Matured (CIA)	-		
Funds Invested (C/I)	66,619.46		
NET TRANSFER		**(66,619.46)**	**66,619.46**
ENDING BALANCE JULY 31, 2024		**(82,363.62)**	**1,688,047.69**

DESERT WATER AGENCY

Wastewater Fund

Schedule #1 - Checks Over $10,000

July 2024

Check #	Name	Description	Amount
3015	Coachella Valley Water District	Wastewater Revenue Billing for June 2024	$ 73,405.16
Total			**$ 73,405.16**

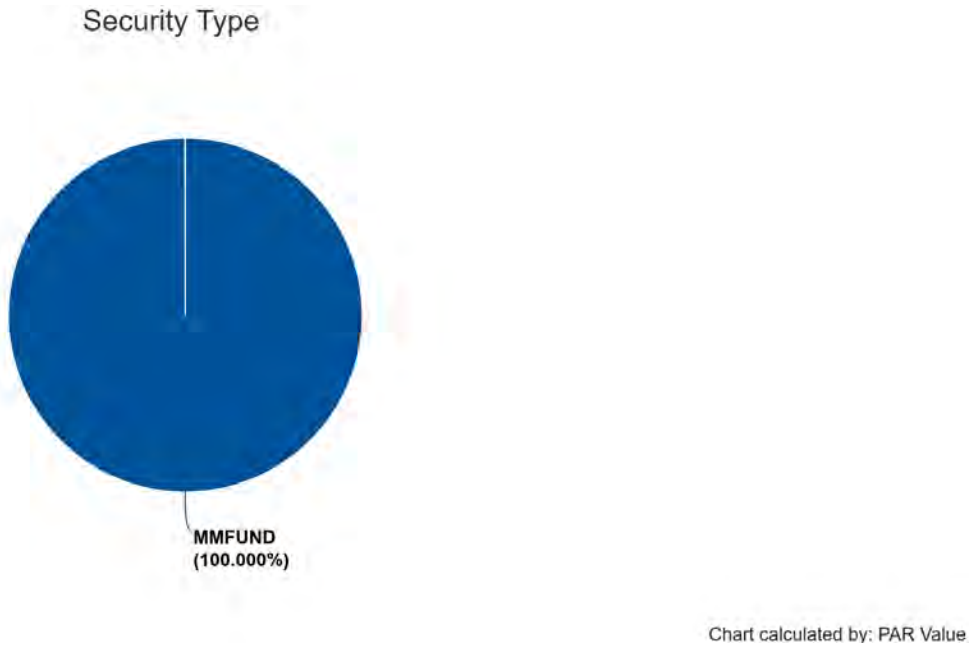
CLEARWATER ANALYTICS

Monthly Investment Portfolio Report

As of 07/31/2024

AGG- Wastewater Fund (213427)

Dated: 08/27/2024



MMFUND

Description, Broker	*Settle Date*	*Next Call Date*	*Effective Maturity*	*Final Maturity*	*PAR Value*	*Original Cost*	*Market Value*	*Yield to Maturity*
LAIF Money Market Fund LAIF - WW	---	---	07/31/2024	07/31/2024	1,688,047.69	1,688,047.69	1,688,047.69	---
LAIF Money Market Fund LAIF - WW	**---**	**---**	**07/31/2024**	**07/31/2024**	**1,688,047.69**	**1,688,047.69**	**1,688,047.69**	**---**

* Grouped by: Security Type. * Groups Sorted by: Ending Market Value + Accrued. * Filtered By: Description ≠ "Receivable". * Weighted by: Ending Market Value + Accrued.

DESERT WATER AGENCY

Investment Portfolio Reporting Requirements

as required by DWA Resolution 1301, Section VII
& California Government Code Section 53646

as of

July 30, 2024

Statement of Compliance

The Desert Water Agency portfolio is in compliance with the Agency's investment policy and guidelines for investment of Agency funds as outlined in DWA Resolution 1301.

Statement of Agency's Ability to Meet Six-Month Expenditure Requirements

Desert Water Agency has the ability to meet its expenditure requirements for the next six months.

Description of Investments

Agency Bonds

Securities issued by a government-sponsored enterprise or by a federal government department other that the U.S. Treasury.

Bank Deposits

Agency funds on deposit in the General Fund, Operating Fund and Wastewater Fund active checking accounts for use in meeting the daily cash flow requirements of the Agency.

Certificate of Deposits (CD)

Interest bearing time deposit. FDIC insured up to $250,000 per depositor, per FDIC-insured bank.

Corporate Notes

Debt securities issued by a for-profit company.

Money Market Funds

High quality, short-term debt instruments, cash and cash equivalents. Utilized for overnight holding of investment proceeds prior to reinvesting or transferring to Agency checking accounts.

Municipal Bonds

Fixed income securities issued by states, cities, counties, special districts and other governmental entities.

Treasury Notes

Fixed income securities issued by the federal government with maturities between two and ten years backed by the full faith and credit of the United States government.

Funds Managed by Contracted Parties - LAIF

The Desert Water Agency has contracted with the California Local Agency Investment Fund (LAIF) for investment of Agency funds. LAIF is a voluntary program created by Section 16429.1 et seq. of the California Government Code. LAIF is an investment alternative for California's local governments and special districts. This program offers local agencies the opportunity to participate in a major portfolio, which invests hundreds of millions of dollars, using the investment expertise of the state Treasurer's Office professional investment staff at no additional cost to the taxpayer or ratepayer. All Agency funds invested with LAIF are available for withdrawal upon demand and may not be altered, impaired or denied in any way (California Government Code Section 16429.4).

Market Value Source

Current market values are provided by Clearwater Analytics for all investment types other than LAIF. LAIF market values are recorded at PAR value.

Esther Saenz
Finance Director
Desert Water Agency

CLEARWATER ANALYTICS

Effective Maturity Distribution Summary

AGG-ALL (219610)

As of 07/31/2024

Dated: 08/27/2024

0 (Liquid)

DWA Fund	*Account*	*Identifier*	*Description*	*Security Type*	*PAR Value*	*Ending Effective Maturity*	*Final Maturity*
General Fund	LAIF - GF	LAIFMMF	LAIF Money Market Fund	MMFUND	13,055,313.80	07/31/2024	07/31/2024
Operating Fund	LAIF - OP	LAIFMMF	LAIF Money Market Fund	MMFUND	22,013,835.44	07/31/2024	07/31/2024
Wastewater Fund	LAIF - WW	LAIFMMF	LAIF Money Market Fund	MMFUND	1,688,047.69	07/31/2024	07/31/2024
---	**---**	**LAIFMMF**	**LAIF Money Market Fund**	**MMFUND**	**36,757,196.93**	**07/31/2024**	**07/31/2024**

0-1 Years

DWA Fund	*Account*	*Identifier*	*Description*	*Security Type*	*PAR Value*	*Ending Effective Maturity*	*Final Maturity*
General Fund	---	---	---	---	76,944,000.00	01/26/2025	01/07/2026
Operating Fund	US Wealth OP	---	---	---	25,130,000.00	11/08/2024	11/08/2024
---	**---**	**---**	**---**	**---**	**102,074,000.00**	**01/07/2025**	**09/24/2025**

1-2 Years

DWA Fund	*Account*	*Identifier*	*Description*	*Security Type*	*PAR Value*	*Ending Effective Maturity*	*Final Maturity*
General Fund	---	---	---	---	44,495,000.00	12/21/2025	02/02/2026
Operating Fund	US Wealth OP	---	---	AGCY BOND	4,000,000.00	01/24/2026	08/09/2027
---	**---**	**---**	**---**	**---**	**48,495,000.00**	**12/24/2025**	**03/20/2026**

CLEARWATER ANALYTICS

Effective Maturity Distribution Summary

As of 07/31/2024

AGG-ALL (219610)

Dated: 08/27/2024

2-3 Years

DWA Fund	Account	Identifier	Description	Security Type	PAR Value	Ending Effective Maturity	Final Maturity
General Fund	---	---	---	---	56,225,000.00	02/14/2027	02/14/2027
Operating Fund	US Wealth OP	---	---	---	9,000,000.00	04/12/2027	04/12/2027
---	**---**	**---**	**---**	**---**	**65,225,000.00**	**02/22/2027**	**02/22/2027**

3-4 Years

DWA Fund	Account	Identifier	Description	Security Type	PAR Value	Ending Effective Maturity	Final Maturity
General Fund	---	---	---	---	38,300,000.00	03/06/2028	03/06/2028
Operating Fund	US Wealth OP	57629W6H8	MASSMUTUAL GLOBAL FUNDING II	CORP	2,000,000.00	06/14/2028	06/14/2028
---	**---**	**---**	**---**	**---**	**40,300,000.00**	**03/11/2028**	**03/11/2028**

4-5 Years

DWA Fund	Account	Identifier	Description	Security Type	PAR Value	Ending Effective Maturity	Final Maturity
General Fund	---	---	---	---	35,105,000.00	12/23/2028	12/23/2028
General Fund	**---**	**---**	**---**	**---**	**35,105,000.00**	**12/23/2028**	**12/23/2028**

Summary

Account	Identifier	Description	Security Type	PAR Value	Ending Effective Maturity	Final Maturity
---	**---**	**---**	**---**	**327,956,196.93**	**04/27/2026**	**07/30/2026**

* Grouped by: Effective Maturity Distribution -> DWA Fund. * Groups Sorted by: Effective Maturity Distribution -> DWA Fund. * Filtered By: Security Type not in "CASH". * Weighted by: Ending Market Value + Accrued.

DESERT WATER AGENCY

Monthly Investment Portfolio Report

Abbreviations & Definitions

Investment Type Abbreviations	
AGCY BOND	US Agency Obligation [1]
AGCY DISC	Discounted US Agency Obligation [1 & 8]
CORP	Medium Term Notes (Corporate Notes) [2]
MMFUND	Local Agency Investment Fund (LAIF) [3] & Cash Funds in Transit [4]
MUNI	Municipal Bonds/Local Agency Bonds [5]
CD	Negotiable Certificates of Deposit [6]
US GOV	U.S. Treasury notes, bills bonds or other certificates of indebtedness [7]

Definitions	
Settle Date	The date of original purchase
Next Call Date	The next eligible date for the issuer to refund or call the bond or note
Effective Maturity	The most likely date that the bond will be called based on current market conditions
Final Maturity	The date the bond matures, DWA receives the full PAR value plus the final interest payment
PAR Value	The principal amount DWA will receive when a bond is either called or matures
Original Cost	The original cost to purchase the bond (includes premium/discount)
Market Value	The current value of the bond at current market rates
Yield to Maturity	The total anticipated return on a bond if the bond is held to maturity

NOTES:

1 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 2*

2 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 14*

3 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 9*

4 *Cash funds in transit are a result of maturities/calls/coupon payments that are held in the Agency's money market account with the broker/custodian until transferred to the Agency's bank. DWA Investment Policy, Resolution 1301, Schedule 1, Item 15*

5 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 3*

6 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 10*

7 *DWA Investment Policy, Resolution 1301, Schedule 1, Item 1*

8 *US Agency Obligation that does not bear an interest rate, but purchased at a discount, held to maturity and redeemed at PAR.*

DESERT WATER AGENCY - OPERATING FUND
COMPARATIVE EARNINGS STATEMENT

MONTH 24-25	THIS MONTH			FISCAL YEAR TO DATE			VARIANCE	
JULY	THIS YEAR	LAST YEAR	BUDGET	THIS YEAR	LAST YEAR	BUDGET	YTD	PCT
OPERATING REVENUES								
WATER SALES	4,527,039.96	4,008,287.64	4,576,200.00	4,527,039.96	4,008,287.64	4,576,200.00	-49,160.04	-1%
RECYCLED WATER SALES	98,511.39	108,581.19	128,300.00	98,511.39	108,581.19	128,300.00	-29,788.61	-23%
POWER SALES	11,941.88	10,584.09	7,200.00	11,941.88	10,584.09	7,200.00	4,741.88	66%
OTHER OPER REVENUE	198,837.84	284,646.74	199,100.00	198,837.84	284,646.74	199,100.00	-262.16	0%
TOTAL OPER REVENUE	4,836,331.07	4,412,099.66	4,910,800.00	4,836,331.07	4,412,099.66	4,910,800.00	-74,468.93	-2%
OPERATING EXPENSES								
SOURCE OF SUPPLY EXP	13,417.76	7,607.67	102,100.00	13,417.76	7,607.67	102,100.00	-88,682.24	-87%
PUMPING EXPENSE	529,079.57	26,012.90	640,700.00	529,079.57	26,012.90	640,700.00	-111,620.43	-17%
REGULATORY WATER TREAT	94,900.53	44,857.32	102,900.00	94,900.53	44,857.32	102,900.00	-7,999.47	-8%
TRANS & DIST EXPENSE	281,489.93	154,365.88	352,180.00	281,489.93	154,365.88	352,180.00	-70,690.07	-20%
CUSTOMER ACT EXPENSE	71,202.94	42,253.29	109,800.00	71,202.94	42,253.29	109,800.00	-38,597.06	-35%
ADMIN & GEN EXPENSE	3,854,544.72	2,533,401.15	3,763,550.00	3,854,544.72	2,533,401.15	3,763,550.00	90,994.72	2%
REGULATORY EXPENSE	16,789.49	10,515.00	51,400.00	16,789.49	10,515.00	51,400.00	-34,610.51	-67%
SNOW CREEK HYDRO EXP	6,279.63	657.34	3,600.00	6,279.63	657.34	3,600.00	2,679.63	74%
RECYCLED WATER PLNT EXP	68,718.83	43,826.34	186,710.00	68,718.83	43,826.34	186,710.00	-117,991.17	-63%
SUB-TOTAL	4,936,423.40	2,863,496.89	5,312,940.00	4,936,423.40	2,863,496.89	5,312,940.00	-376,516.60	-7%
OTHER OPER EXPENSES								
DEPRECIATION	766.58	528,317.17	0.00	766.58	528,317.17	0.00	766.58	0%
SERVICES RENDERED	24,459.96	5,806.92	17,000.00	24,459.96	5,806.92	17,000.00	7,459.96	44%
DIR & INDIR CST FOR WO	-626,065.97	-425,399.35	-293,600.00	-626,065.97	-425,399.35	-293,600.00	-332,465.97	113%
TOTAL OPER EXPENSES	4,335,583.97	2,972,221.63	5,036,340.00	4,335,583.97	2,972,221.63	5,036,340.00	-700,756.03	-14%
NET INCOME FROM OPERATIONS	500,747.10	1,439,878.03	-125,540.00	500,747.10	1,439,878.03	-125,540.00	626,287.10	-499%
NON-OPERATING INCOME (NET)								
RENTS	4,061.24	4,007.58	17,900.00	4,061.24	4,007.58	17,900.00	-13,838.76	-77%
INTEREST REVENUES	135,305.72	116,841.24	125,000.00	135,305.72	116,841.24	125,000.00	10,305.72	8%
INVESTMENT AMORT.	49,147.78	-576.00	0.00	49,147.78	-576.00	0.00	49,147.78	0%
OTHER REVENUES	28,244.36	140.00	29,500.00	28,244.36	140.00	29,500.00	-1,255.64	-4%
GAINS ON RETIREMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
DISCOUNTS	0.00	0.00	100.00	0.00	0.00	100.00	-100.00	-100%
PR. YEAR EXPENSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
OTHER EXPENSES	0.00	0.00	-3,800.00	0.00	0.00	-3,800.00	3,800.00	-100%
LOSS ON RETIREMENTS	-13,782.44	0.00	-5,300.00	-13,782.44	0.00	-5,300.00	-8,482.44	160%
TOTAL NON-OPER INCOME	202,976.66	120,412.82	163,400.00	202,976.66	120,412.82	163,400.00	39,576.66	24%
TOTAL NET INCOME	703,723.76	1,560,290.85	37,860.00	703,723.76	1,560,290.85	37,860.00	665,863.76	1759%

GENERAL MANAGER'S REPORT
SEPTEMBER 3, 2024

Date Palm Lift Station 400-amp Switchgear Replacement

On Thursday August 29, the Operations Department removed and replaced the 400-amp switchgear at the Date Palm Sanitary Sewer Lift station. The switchgear is the connection to Southern California Edison, which enables Operations technicians to safely disconnect power when needed.

The site was offline for approximately 4 hours while Operations technicians worked to remove the old unit, pull new 250mcm wire, and crimp on new connections.

The switchgear was originally installed in 1998 and was replaced due to its age. Most components of this kind have a 20-year life cycle. The new unit was designed and built by Sulzer Electric, whom DWA's Operations Department uses to build our well and booster station motor control centers and switchgears. This helps to maintain standardization at our sites.

To protect against a sewage spill at the site during the work, the lift station pumps were powered by the site's backup diesel generator. For redundancy, a portable 50kw generator was at the site. A sewage pumper truck, backhoe, and dump truck loaded with sand were also onsite for emergency containment purposes, if needed.

The new switchgear cost $19,000 and was purchased under the wastewater maintenance account.

Date Palm Lift Station

Old Edison Switchgear

New Edison Switchgear

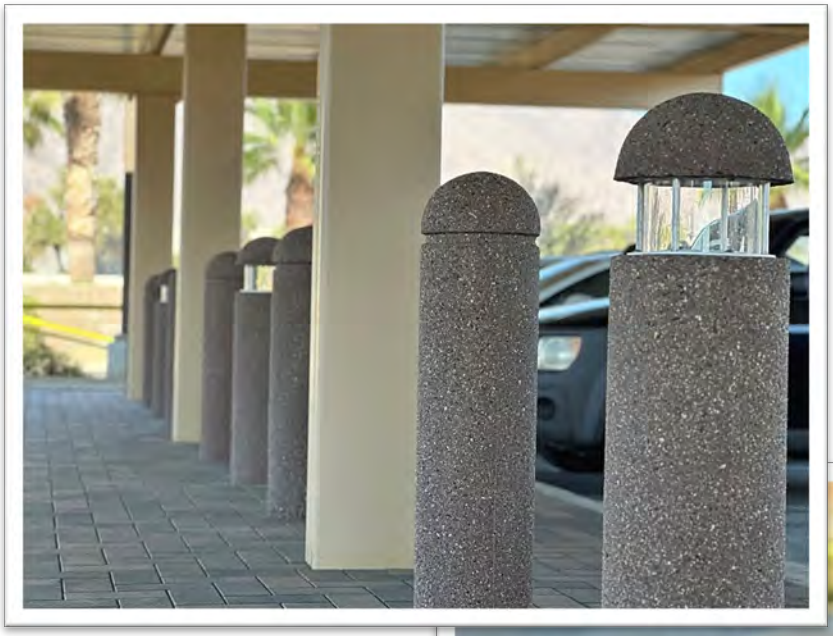
Visitor Parking Shade Structure Bollards & Pavers Project

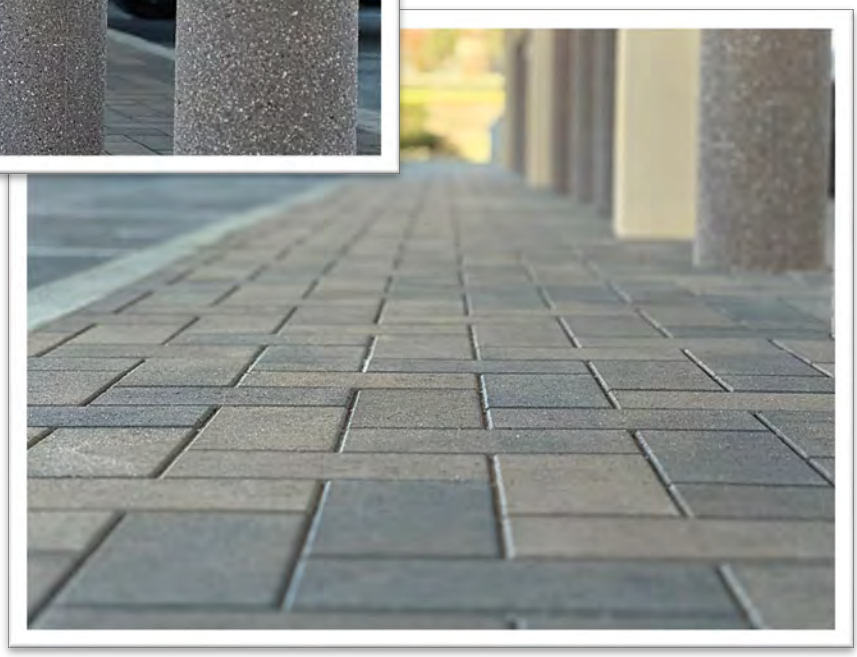
Earlier this year, the Agency had a shade structure built in the Visitor parking lot. The project included revamping of the center island that separates the north side of the parking lot from the south.

The design included static and illuminated bollards to light up the parking area during low light hours, and to prevent vehicles from crossing the center island.

The bollards were installed by DWA's Construction Department, and the electrical wiring was installed and connected by DWA's Operations Department.

DWA contracted Farley Interlocking Paving Company in Palm Desert, to install pavers, creating a decorative, solid walking surface for pedestrians to use for crossing the island.





SYSTEM LEAK DATA 2024

Aug 16, 2024 - Aug 26, 2024

Street Name	Number of Leaks	Pipe Diameter (inches)	Install Date	Material	Coatling/Linning	Planned Replacement
INDIAN CANYON DR	4	8"	1938	Steel - SP	UL	
PATENCIO RD	2	4"	1954	Steel - SP	UL	W2024
INDIAN CANYON DR	2	6"	1951	Steel - SP	UL	
CAMINO REAL	1	12"	1953	Steel - SP	UL	W2024
ARENAS RD W	1	10"	1952	Steel - SP	UL	
INDIAN TR	1	3	1935	Steel - SP	UL	
PALM CANYON DR S	1	10"	1938	Steel - SP	UL	
ALEJO RD	1	8"	1958	Steel - SP	UL	
TAHQUITZ CYN WY	1	8"	1946	Steel - SP	UL	

Total Leaks In System
14

Planned Replacement

- Not Planned
- W2024

SYSTEM INFORAMTION

Oldest Pipe in the System (Year of Installation): 1935, 89 years old

Average Year of Installation of Unlined Steel Pipe (Systemwide): 1954, 70 years old

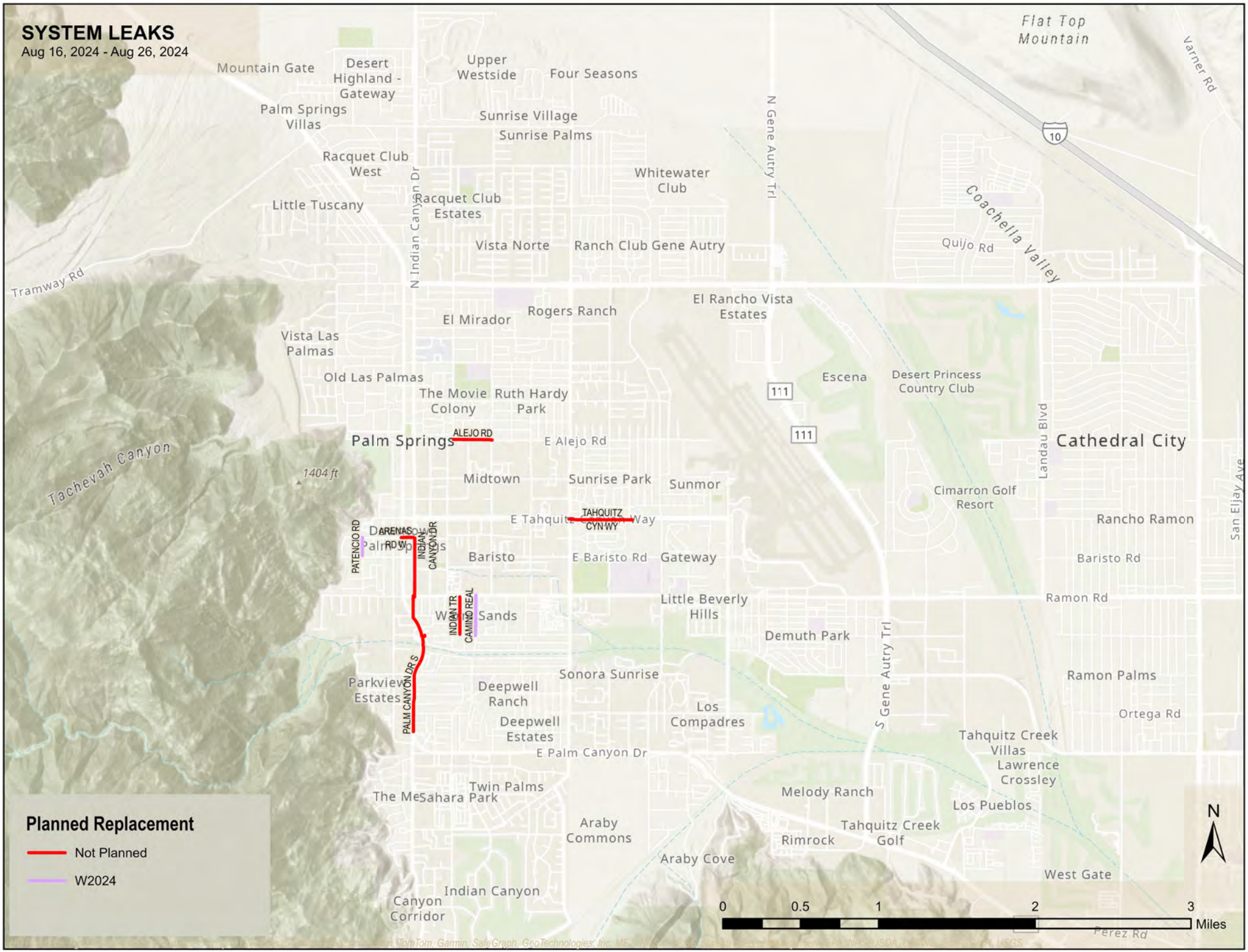
Total Length of Unlined Pipe Systemwide (Linear Feet): 247,174 ft

*Average Length of Pipe Replaced Annually (Linear Feet): 15,000 ft

***Projected Time Frame for 100% Replacement of Unlined Steel Pipe: 16 years**

Year Agency Transitioned to Cement Lined Steel Pipe: 1960

*Please note this figure represents the average linear footage of pipeline replaced annually given an average annual budget of $3 million


SYSTEM LEAKS
Aug 16, 2024 - Aug 26, 2024
Mountain Gate
Desert Highland - Gateway
Upper Westside
Four Seasons
Palm Springs Villas
Sunrise Village
Sunrise Palms
Racquet Club West
Whitewater Club
Little Tuscany
Racquet Club Estates
Vista Norte
Ranch Club Gene Autry
Tramway Rd
N Indian Canyon Dr
N Gene Autry Trl
Flat Top Mountain
Varner Rd
10
Coachella Valley
Quijo Rd
El Mirador
Rogers Ranch
El Rancho Vista Estates
Vista Las Palmas
Old Las Palmas
Escena
Desert Princess Country Club
The Movie Colony
Ruth Hardy Park
111
Palm Springs
ALEJO RD
E Alejo Rd
Cathedral City
Landau Blvd
Tachevah Canyon
1404 ft
Midtown
Sunrise Park
Sunmor
Cimarron Golf Resort
TAHQUITZ CYN WY
E Tahquitz Canyon Way
Rancho Ramon
PATENCIO RD
ARENAS RD W
INDIAN CANYON DR
Baristo
E Baristo Rd
Gateway
Baristo Rd
Little Beverly Hills
Ramon Rd
INDIAN TR
CAMINO REAL
Demuth Park
S Gene Autry Trl
Sonora Sunrise
Ramon Palms
Parkview Estates
PALM CANYON DR S
Deepwell Ranch
Los Compadres
Ortega Rd
Deepwell Estates
Tahquitz Creek Villas
E Palm Canyon Dr
Lawrence Crossley
Twin Palms
Sahara Park
Melody Ranch
Los Pueblos
Araby Commons
Tahquitz Creek Golf
Rimrock
Araby Cove
West Gate
Indian Canyon Corridor
Perez Rd
Planned Replacement
Not Planned
W2024
0
0.5
1
2
3
Miles
N

General Manager's Meetings and Activities

Meetings:

08/26/24	DWA Weekly Department Head Meeting	DWA
08/26/24	Tribal Mediation Small Group Meeting	Conf Call
08/26/24	SWP Climate Adaptation Planning Meeting	Conf Call
08/26/24	DWA Legislative Update Meeting	Conf Call
08/27//24	Tribal Mediation Pre-Meeting Coordination	Conf Call
08/28/24	Tibal Mediation In-Person Principal Meeting	Conf Call
08/28/24	DCP Participants Meeting	Conf Call
08/28/24	Tribal Mediation Small Group Meeting	Conf Call
08/29/24	Executive Committee Meeting	DWA
09/03/24	DWA Bi-Monthly Board Meeting	DWA

Activities:

1) Sites Reservoir Finance
2) DCP Financing
3) Recycled Water Supply - Strategic Planning
4) AQMD Rule 1196
5) DWA Organizational Restructuring
6) DWA Remote Meter Reading Fixed Network
7) DC Project – Finance JPA Committee (Standing)
8) DWA/CVWD/MWD Operations Coordination (Standing)
9) DWA/CVWD/MWD Exchange Agreement Coordination Committee (Standing)
10) ACBCI Water Rights Lawsuit
11) Whitewater Hydro Operations Coordination with Recharge Basin O&M
12) Delta Conveyance Project Cost Allocation
13) MCSB Delivery Updates
14) SWP East Branch Enlargement Cost Allocation
15) RWQCB Update to the SNMP