DESERT WATER AGENCY
JUNE 28, 2023

BOARD OF DIRECTORS
SPECIAL 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.

SUPPLEMENTAL

Toll Free: (253) 215-8782
Meeting ID: 872 7620 4163
Passcode: 511293

or Via Computer:
https://dwa-org.zoom.us/j/87276204163?pwd=emcwbTNPNG1VT1BKRFpkaW1WNEkxZz09
Meeting ID: 872 7620 4163

Members of the public who wish to comment on 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: 872 7620 4163
código de acceso: 511293

o a través de la computadora:
https://dwa-org.zoom.us/j/87276204163?pwd=emcwbTNPNG1VT1BKRFpkaW1WNEkxZz09
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Los miembros del público que deseen comentar sobre cualquier tema de 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/PLEDGE OF ALLEGIANCE** — **ORTEGA**
2. **ROLL CALL** — **BACA**
3. **PRESENTATION**
   A. DWA Rate Study/Proposition 218 Notice & Hearing — **STAFF**
4. **PUBLIC HEARING:**
   A. Explanation of Public Hearing and Protest Requirements Under Proposition 218 for Rate Adjustments for Domestic Water, Sewer Service and Recycled Water Service — **RIDDELL**
   B. Take Oral Testimony and Additional Written Protests
   C. Tally Written Protests Received — **BACA**

5. ACTION ITEM:

A. Board Adoption of Resolution No's. 1307, 1308 and 1309 Establishing Rates and Fees for Domestic Water, Recycled Water & Sewer Service and Budget Augmentation **SAENZ**

6. 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 24 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 24 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, Assistant Secretary of the Board

DESERT WATER

Proposed

Rate increase

Our costs

- Water system maintenance and repairs
  - Pipelines
  - Reservoirs
  - Booster stations
  - Electrical systems
  - And more
- New infrastructure and equipment
- Water treatment, sampling, testing and reporting
- Long-term planning and sustainability
- Water conservation programs
- Staff
- And others

How DWA pays for its costs

- Monthly bills for water, wastewater and recycled water
- Property taxes collected
  - Small amount can be used for almost anything
  - Most can only be used for one specific set of costs
- Grants
- Investment returns

What's changed

WATER RATE DRIVERS

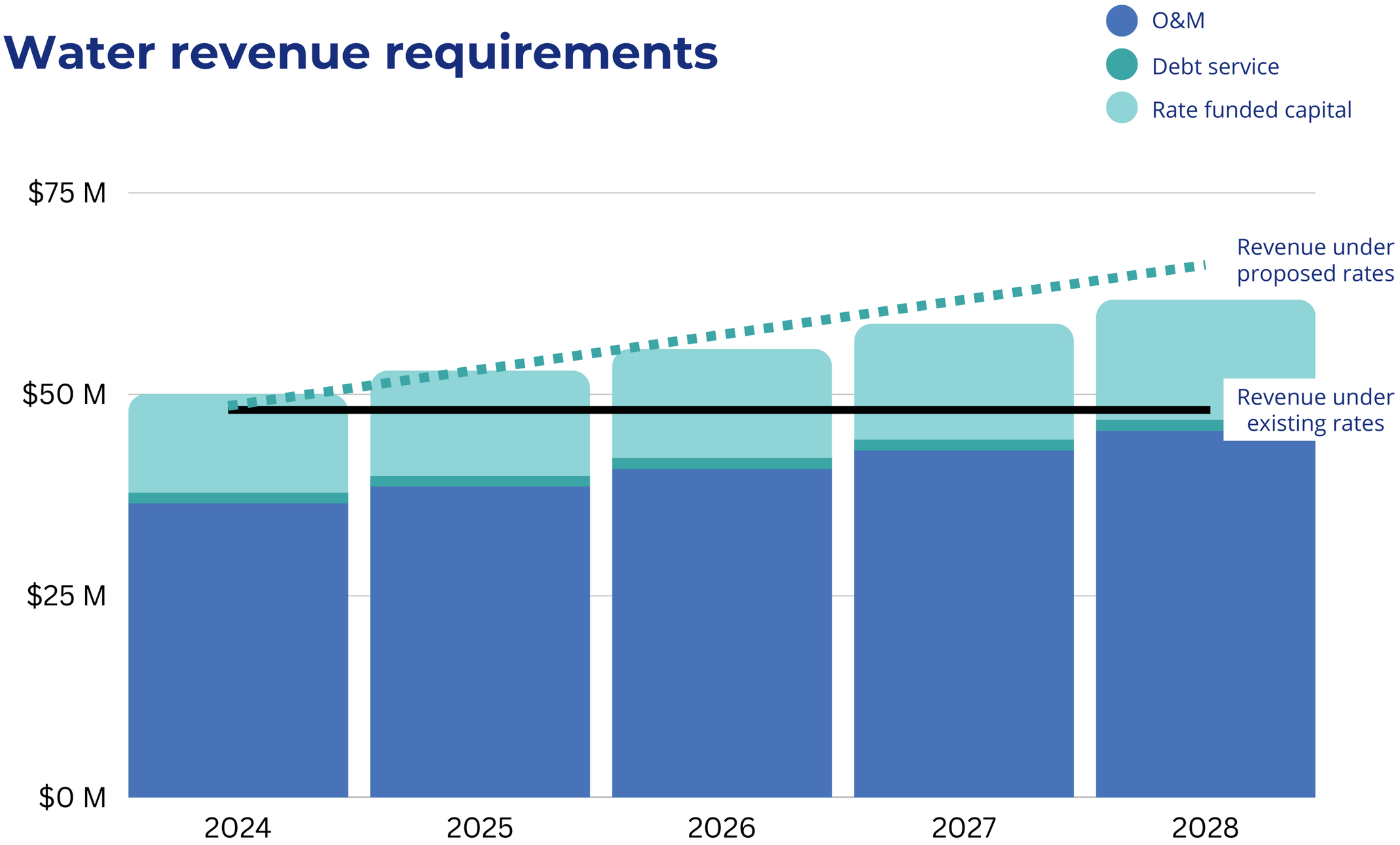
- **Inflation**: The cost of everything has risen for operations like DWA - just like you've noticed at home.
- **Pipeline replacement**: DWA has aging pipelines that it needs to replace to avoid catastrophic failure.
- **New regulations**: There have been new laws and regulations that make it more expensive for DWA to deliver water.
- **New reserve funding targets:** DWA needs to more aggressively fund reserves to reduce risk.

The bottom line

- Independent study using American Water Works Association standard methods determined that DWA is not charging enough to cover its costs.
- By law, DWA can only charge the cost of service.

To remain financially sound and continue to provide the same services, DWA will need to increase rates.

Water revenue requirements



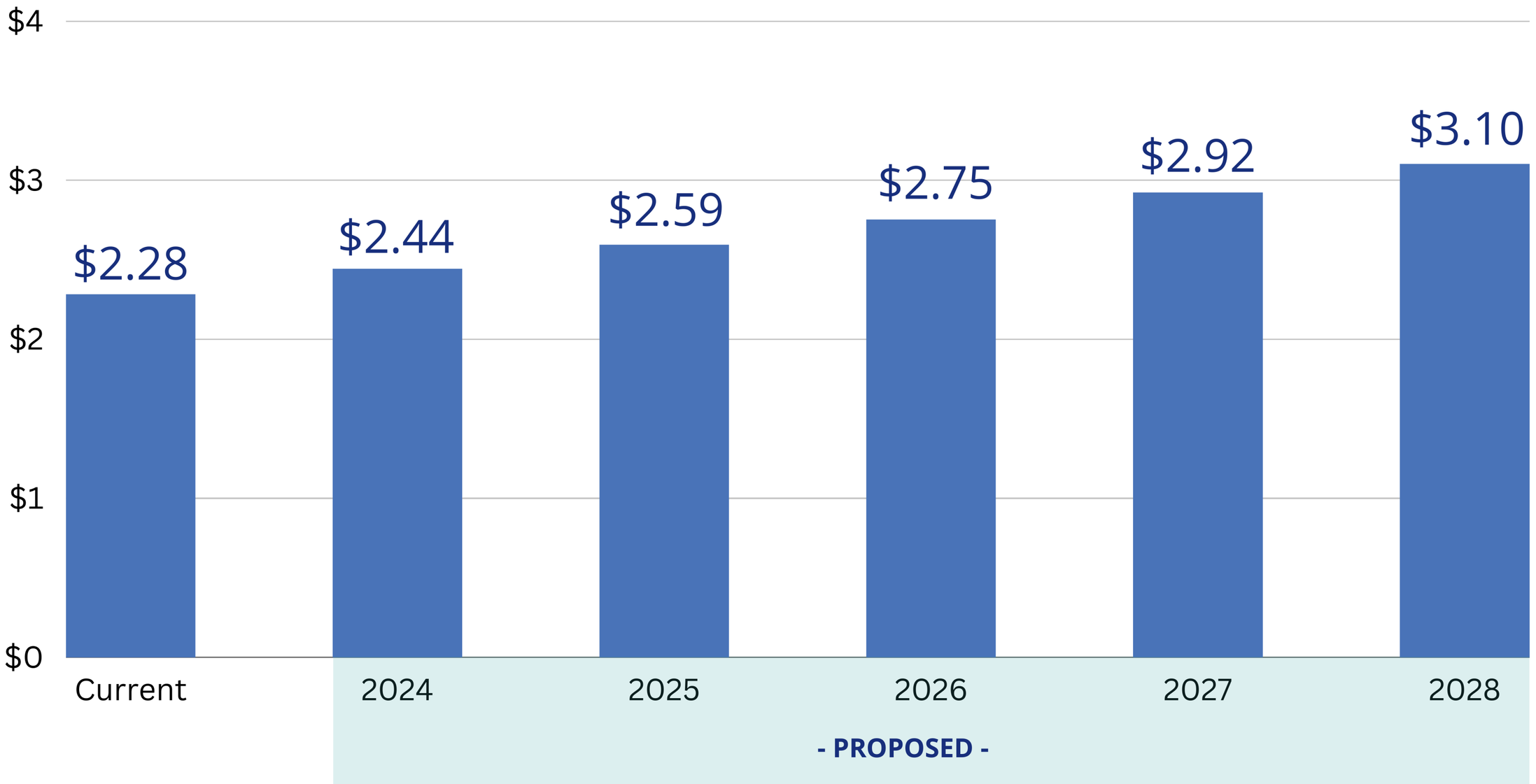
Proposed monthly service charge

Fixed charge (same every month)

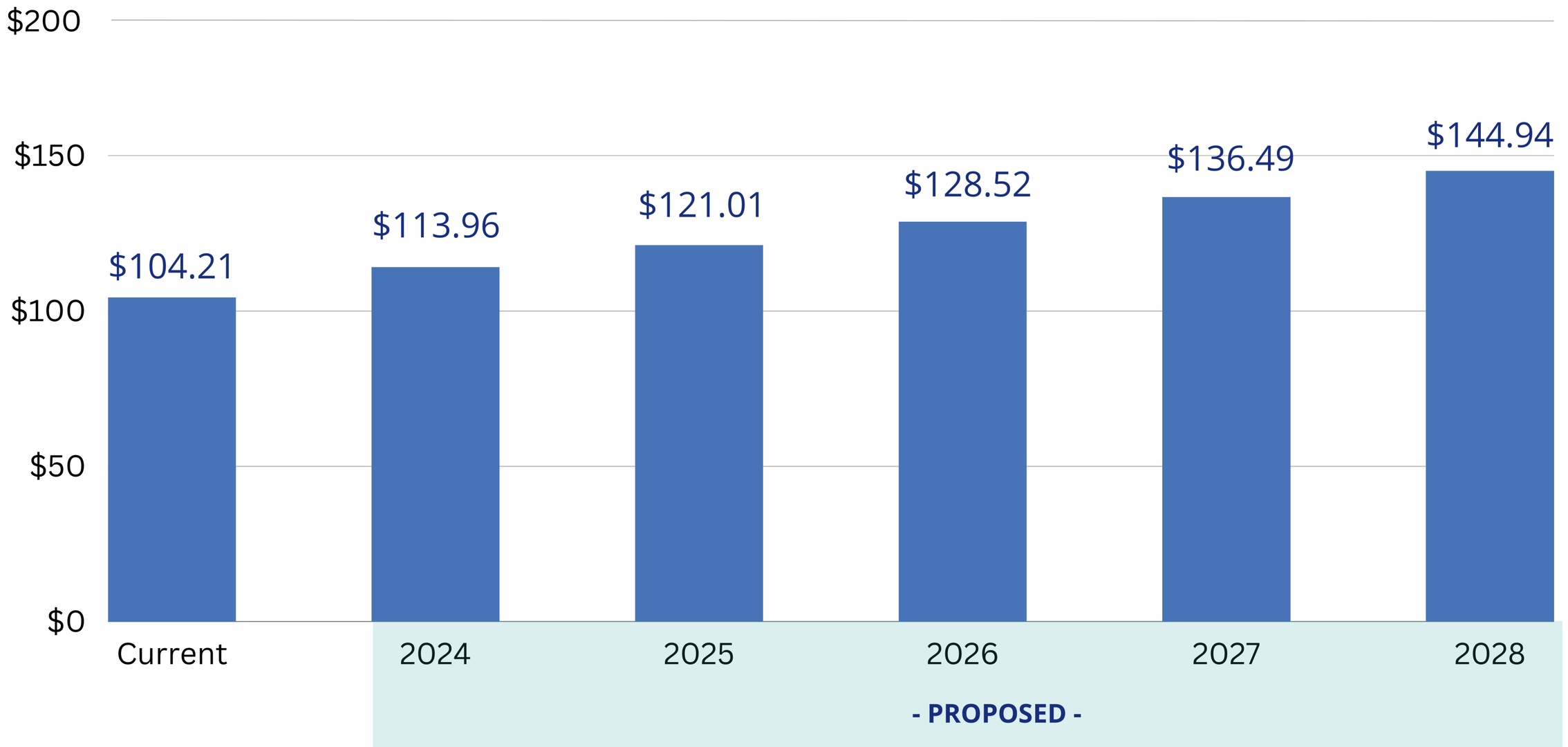
Meter size *Tamaño del contador*	Current *Actual*	Proposed/Propuestas				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
5/8"-3/4"	$33.53	$38.32	$40.72	$43.27	$45.97	$48.84
1"	$33.53	$38.32	$40.72	$43.27	$45.97	$48.84
1 1/2"	$64.02	$72.02	$76.52	$81.30	$86.38	$91.78
2"	$100.61	$112.46	$119.49	$126.96	$134.90	$143.33
3"	$198.18	$240.53	$255.56	$271.53	$288.50	$306.53
4"	$307.94	$429.27	$456.10	$484.61	$514.90	$547.08
6"	$612.85	$880.88	$935.94	$994.44	$1,056.59	$1,122.63
8"	$978.73	$1,622.34	$1,723.74	$1,831.47	$1,945.94	$2,067.56
10"	$2,564.22	$2,566.01	$2,726.39	$2,896.79	$3,077.84	$3,270.21
12"	$3,235.01	$3,374.87	$3,585.80	$3,809.91	$4,048.03	$4,301.03

Proposed charges per unit (1 HCF = 748 gallons)

Variable charges (depends on use)



TOTAL water bill for an average residential customer (31 HCF, 5/8-3/4" meter)



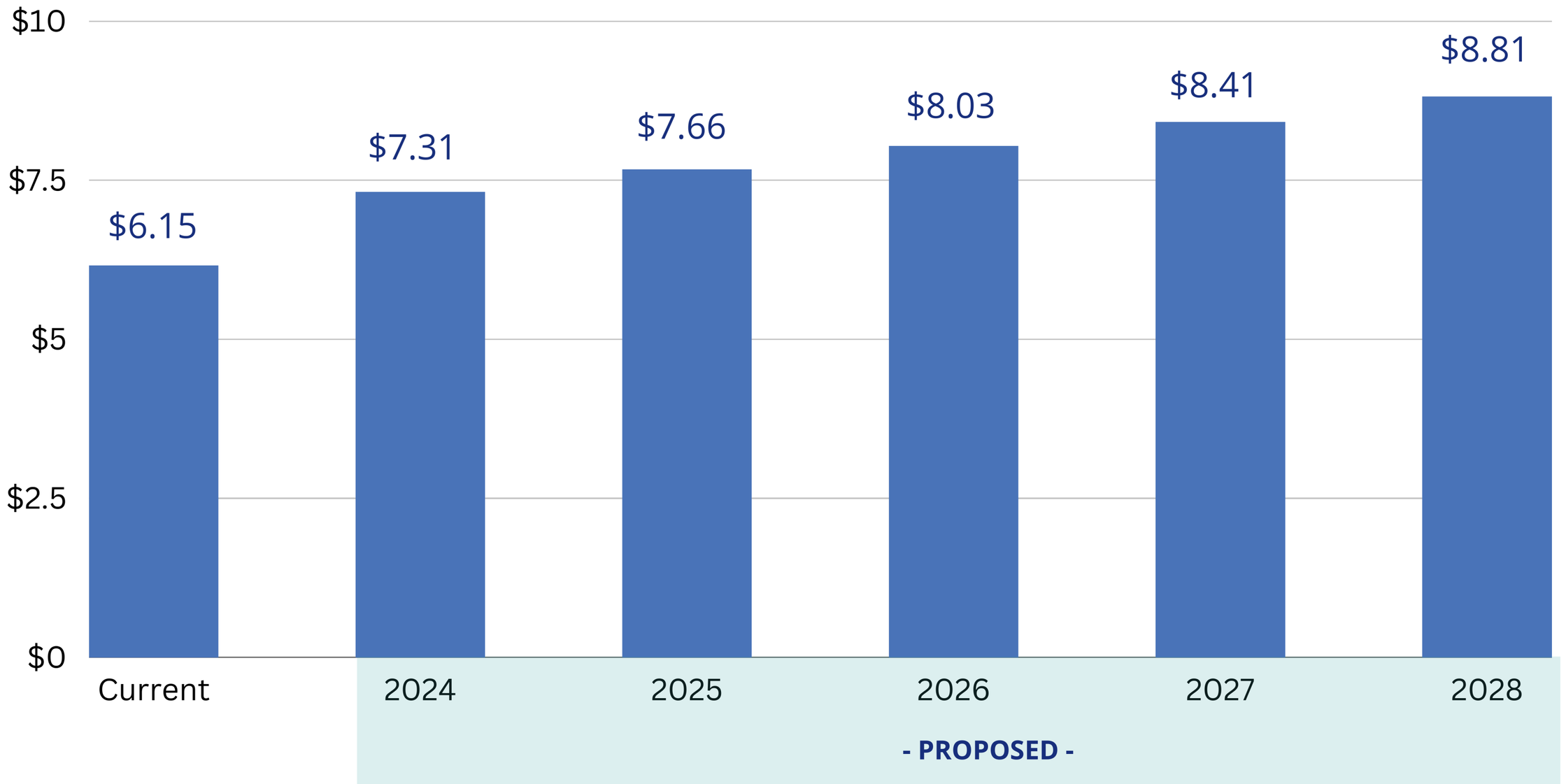
Wastewater charge

This DWA charge covers the collection and delivery of wastewater to treatment entities only for its wastewater customers in Cathedral City. DWA also passes along the treatment charges.

- Dream Homes neighborhood wastewater goes to City of Palm Springs treatment plant
- Cathedral City Cove and business corridor goes to Coachella Valley Water District

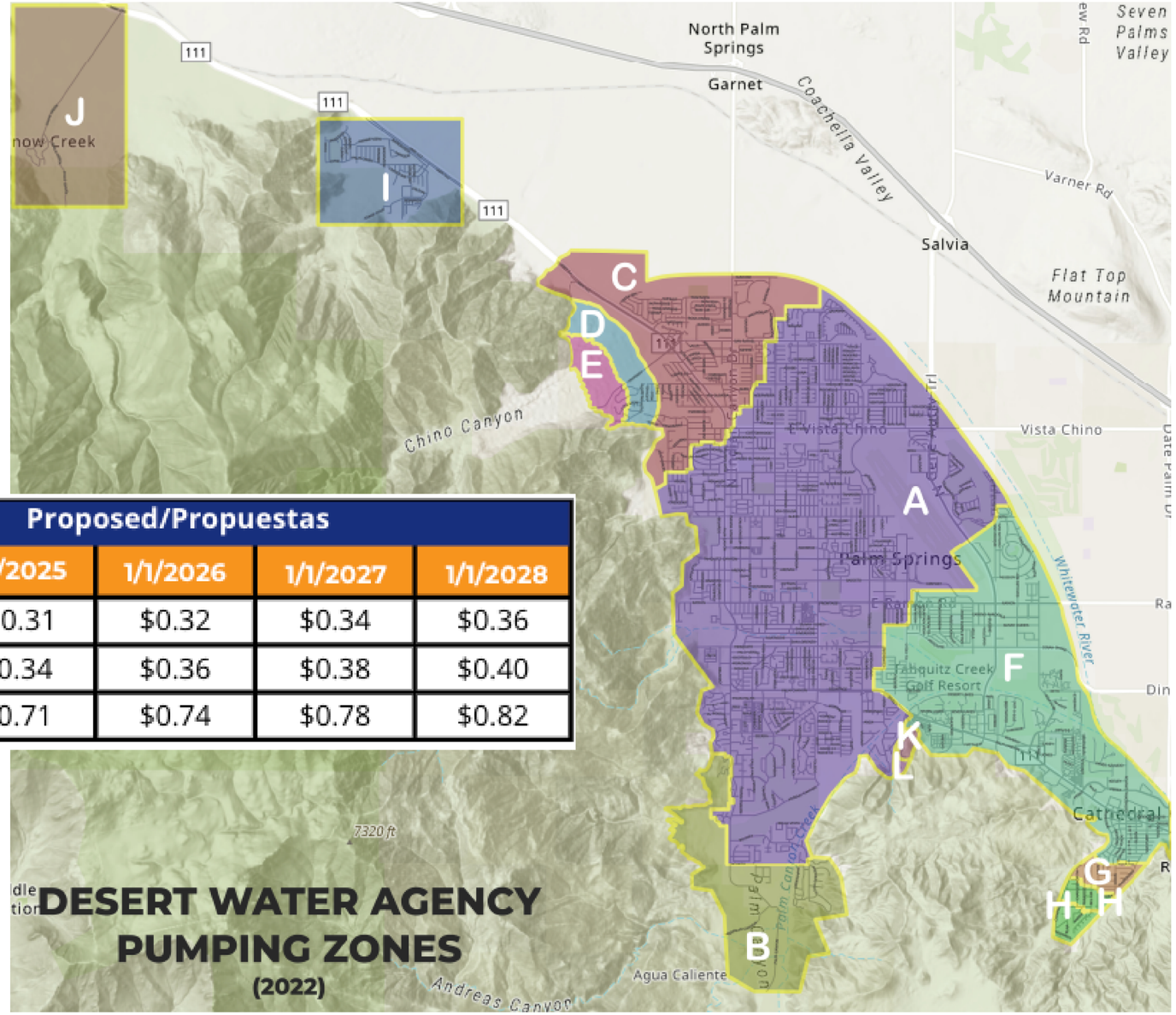
The City of Palm Springs charges, conveys and treats wastewater for Palm Springs residents.

Wastewater charges (added by DWA for conveyance)



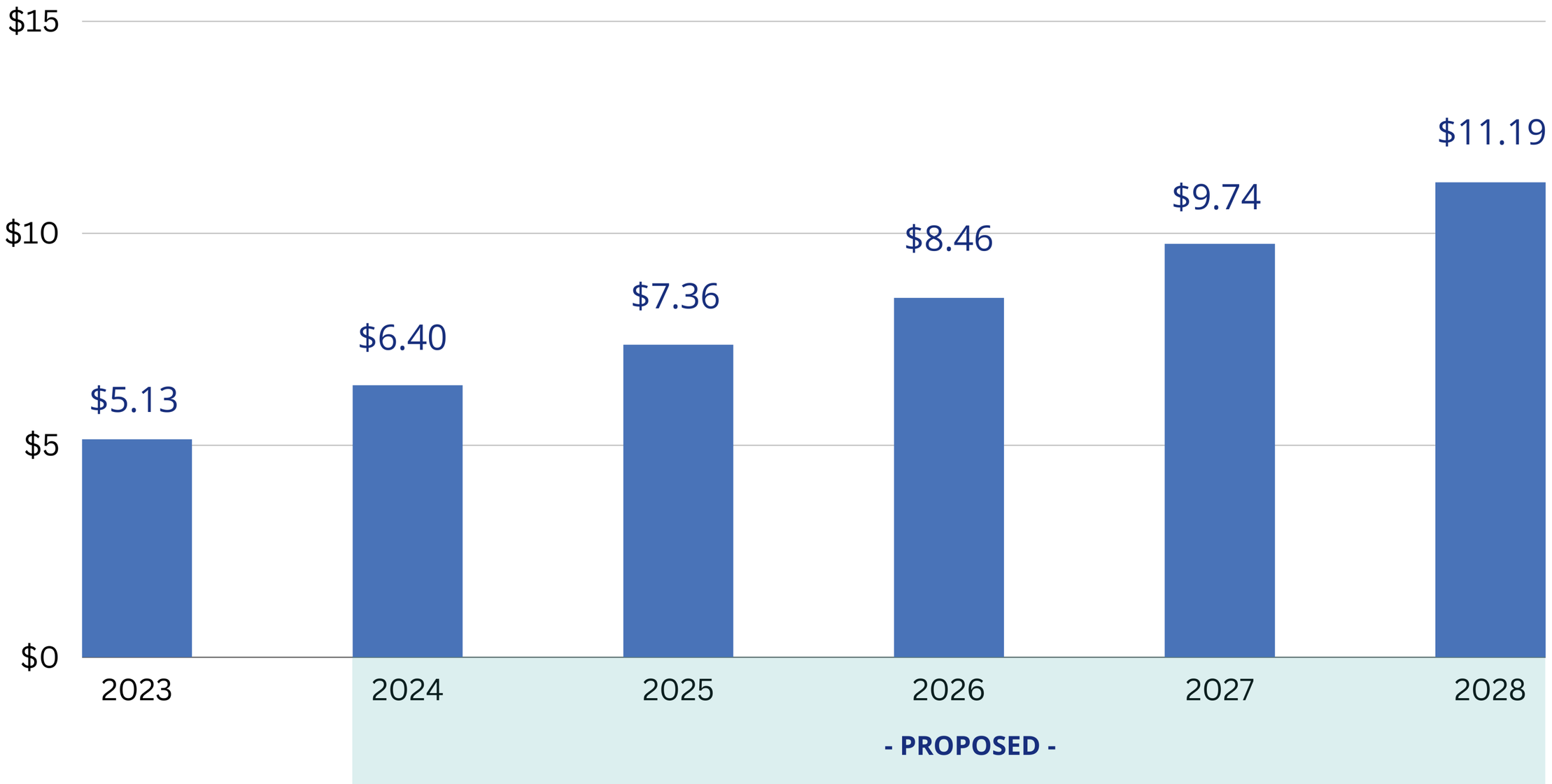
Proposed zone pumping charges

Zone *Zona*	Current *Actual*	Proposed/Propuestas				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Zones/*Zonas* B, D, G, I	$0.28	$0.29	$0.31	$0.32	$0.34	$0.36
Zones/*Zonas* E, H, K	$0.31	$0.33	$0.34	$0.36	$0.38	$0.40
Zone/*Zona* L	$0.64	$0.67	$0.71	$0.74	$0.78	$0.82

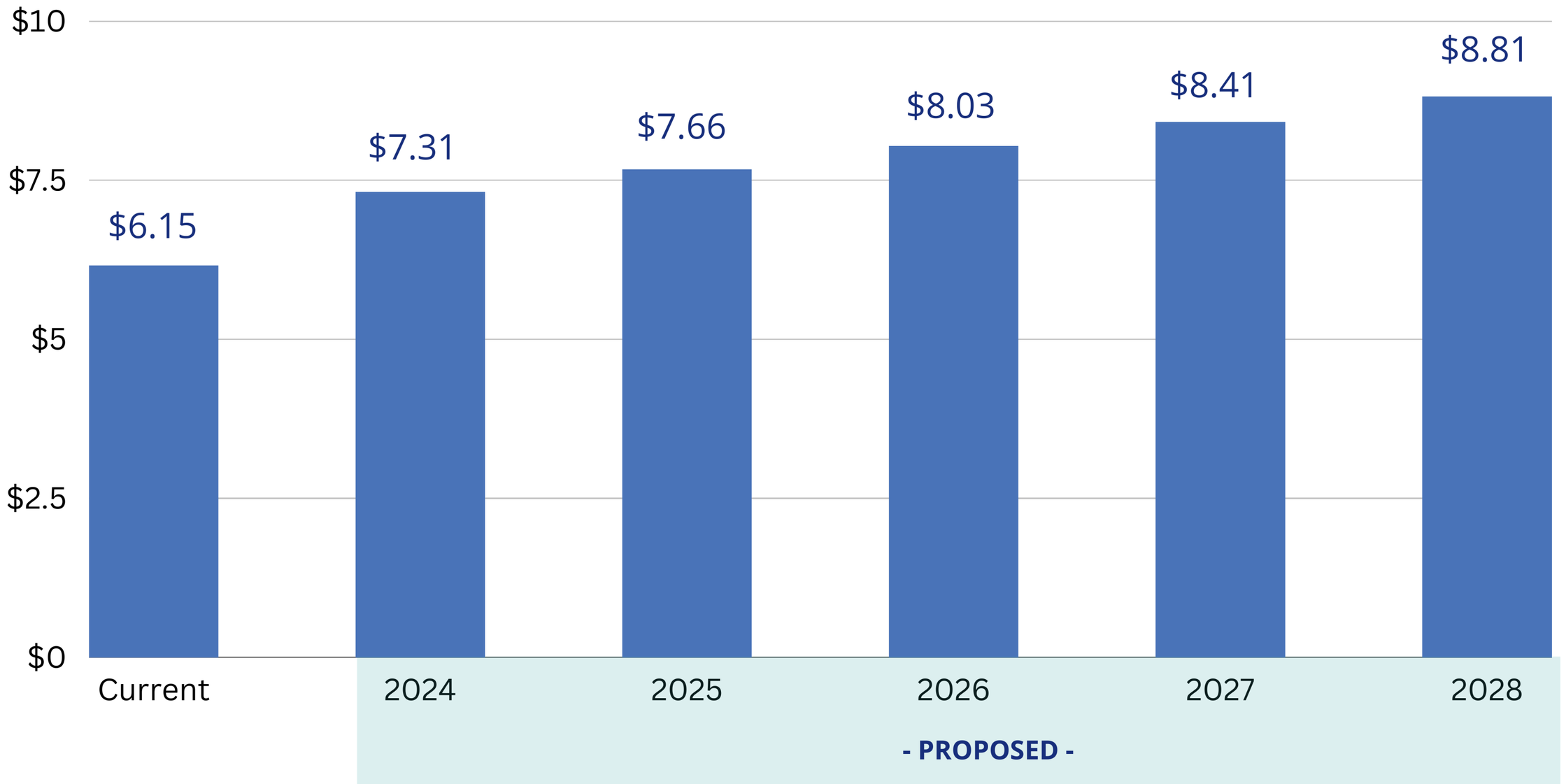


Chino Canyon water rate (per HCF)

Palm Springs Aerial Tramway



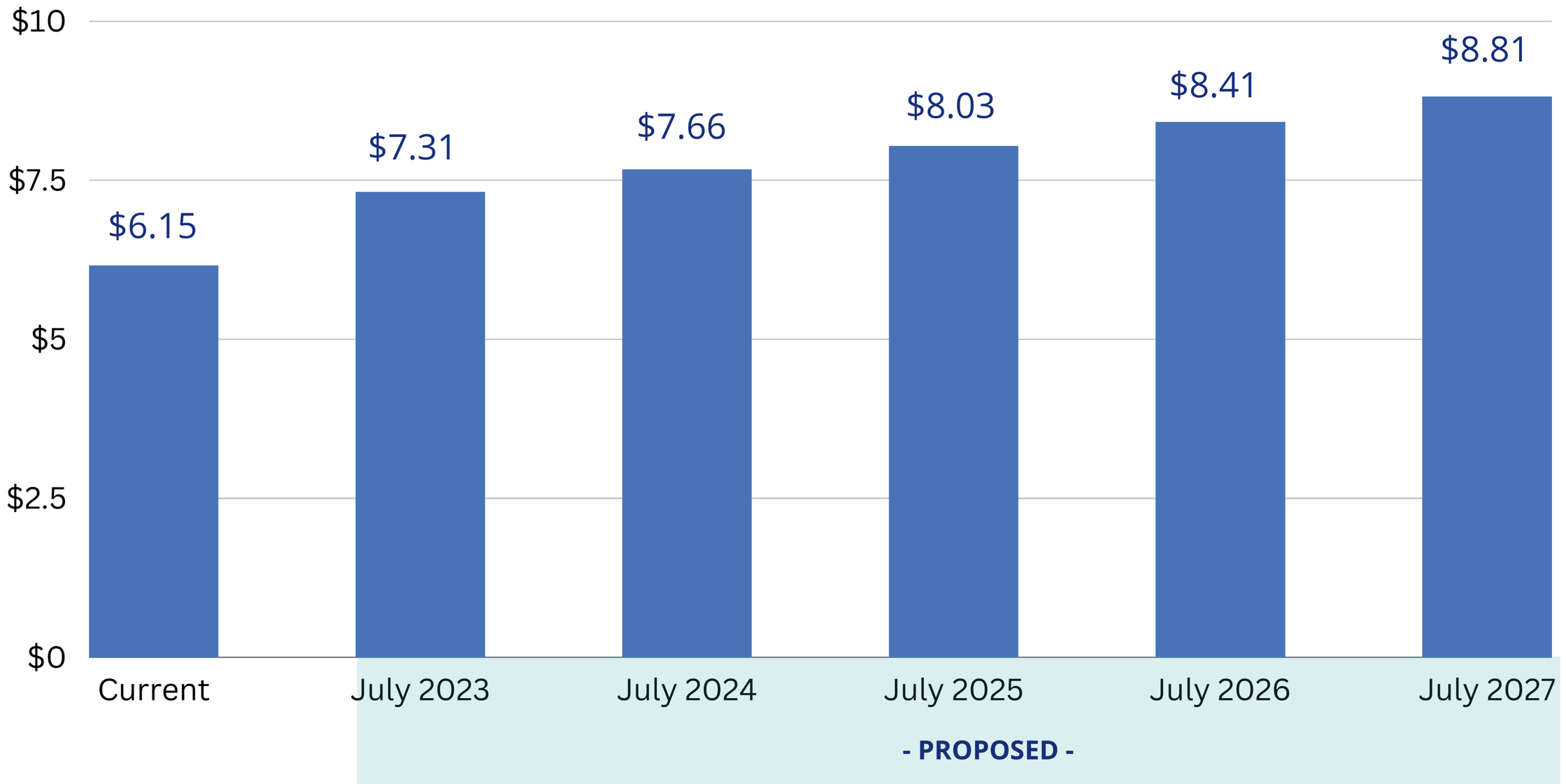
Wastewater charges (added by DWA for conveyance)



Recycled water monthly charges

Meter size *Tamaño del contador*	Current *Actual*	Proposed/Propuestas				
		7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027
2"	$15.00	$22.26	$23.65	$25.13	$26.70	$28.37
3"	$26.97	$44.52	$47.30	$50.26	$53.40	$56.74
4"	$40.43	$69.56	$73.91	$78.53	$83.44	$88.66
6"	$77.83	$139.12	$147.82	$157.06	$166.88	$177.31
8"	$122.71	$222.59	$236.50	$251.28	$266.99	$283.68
10"	$317.19	$584.29	$620.81	$659.61	$700.84	$744.64
12"	$399.47	$737.32	$783.40	$832.36	$884.38	$939.65

Recycled water rate



What has DWA done to reduce costs?

- 17 state and federal grants totaling $10.2M in recent years
- Renegotiated contracts to get more revenue from our hydropower plants
- Entered into new contracts to generate revenue from vacant land
- Have not filled some vacant positions

What if I can't afford a higher bill?

Help2Others Customer Assistance Program

- Low-income residents may qualify for $200 in bill credits each year

Riverside County LIHWAP program

- Low income residents can qualify for bill assistance

www.dwa.org/h2o

Are rates going up because of water conservation?

Yes and no.

In the long run, conservation helps us reduce the need for major investments.

In the short run, it can impact our financial stability, which is why drought rates and revenue stabilization rates are included.

Remember: *if you use less water, your bill will be lower*

Drought rate

- In times of water shortage
- An amount added to every HCF of water sold for all customers
- Will NOT be added to water bills unless approved by a vote of the DWA Board
- Once activated, the Board will determine every 6 months whether the rate is still needed

Conservation required *Conservación necesaria*	Current *Actual*	Proposed/Propuestas				
		1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
Less than/*menos de* 10%	$0.16	$0.00	$0.00	$0.00	$0.00	$0.00
10-20%	$0.37	$0.24	$0.13	$0.18	$0.22	$0.28
20-30%	$0.63	$0.53	$0.43	$0.50	$0.57	$0.65
30-40%	$0.98	$0.91	$0.82	$0.92	$1.02	$1.13
40-50%	$1.46	$1.37	$1.33	$1.47	$1.62	$1.78
More than/*mas de* 50%	$2.20	$2.07	$2.05	$2.24	$2.45	$2.68

Revenue stabilization rate

- Can be used when water sales drop suddenly for reasons other than drought
- The drop is compared to what DWA has projected in its budget
- An amount added to every HCF of water sold for all customers
- Will NOT be added to water bills unless approved by a vote of the DWA Board
- Automatically removed if revenue recovers (or by a vote of the DWA Board)

Percent reduction *Porcentaje de reducción*	Proposed/Propuestas				
	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
10%	$0.28	$0.30	$0.32	$0.34	$0.36
15%	$0.44	$0.46	$0.50	$0.53	$0.56
20%	$0.61	$0.66	$0.70	$0.74	$0.79
25%	$0.82	$0.87	$0.93	$0.99	$1.05
30%	$1.05	$1.12	$1.19	$1.27	$1.35

Community outreach

- Comprehensive Proposition 218 notice
- 2 workshops
  - Hybrid/on-demand, Desert Water Agency
  - Cathedral City Senior Center
- Updates at ONE-PS meeting
- 2 segments on KESQ noon newscast
- Joey English radio interview
- DWA website Latest News
- Direct outreach to and meetings with large users

Affordability

Help2Others
ASSISTANCE PROGRAM
www.dwa.org/h2o

- $200 bill credit available annually to income-eligible customers
- $16.66 a month
- Managed by United Way of the Desert
- Other County resources also available

The process

- Third party prepared rate study using standard best practice methods
- DWA adopted rate study in April
- Notice mailed out to all DWA customers on May 12
- Public workshops May 26 & June 10
- Public hearing TODAY, Board to consider adoption with resolutions
- Recycled water rates slated to go into effect July 1, 2023
- Remaining rates scheduled to into effect January 1, 2024

DESERT WATER

Questions?

4-A

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

JUNE 28, 2023

RE: PUBLIC HEARING – PROPOSITION 218 NOTICE REGARDING RATE ADJUSTMENTS FOR DOMESTIC WATER, RECYCLED WATER, WASTEWATER SERVICE

On May 12, Desert Water Agency notified customers of a public hearing date of June 28, 2023 to consider adjustments to rates, fees and charges for water and wastewater services to become effective January 1, 2024 and recycled water services to become effective July 1, 2023. (For wastewater service, the pass-through of the Coachella Valley Water District's increase in wastewater treatment service would take effect sooner, on July 1, 2023.)

Per Article 13D of the California Constitution (Proposition 218), notices (34,288) were mailed to all affected property owners of record, per Riverside County's last equalized assessment roll, regarding the proposed rate adjustments and informing them of today's public hearing.

Staff requests the Board conduct the public hearing for questions and to accept comments and written protests, if any, on the proposed rates, fees and charges.

4-B

Take Oral Testimony and Additional Written Protests

4-C

Tally Written Protests Received

5-A

STAFF REPORT
TO
DESERT WATER AGENCY
BOARD OF DIRECTORS

JUNE 28, 2023

RE: REQUEST FOR ADOPTION OF RESOLUTION NO. 1307, 1308 AND 1309 ESTABLISHING RATES AND FEES FOR DOMESTIC WATER SERVICE, SEWER SERVICE AND RECYCLED WATER SERVICE AND REQUEST FOR BUDGET AUGMENTATION

After a comprehensive rate study process with financial expert NBS, staff is asking for the Board of Directors to take action on three resolutions to update the domestic water, sewer (wastewater) and recycled water rates. Recycled water rates and sewer pass through charge to CVWD to be effective July 1, 2023 and domestic water and Agency sewer rates to be effective on January 1, 2024. Staff recommends that all future rate adjustments be evaluated closer to the implementation date in conjunction with the annual budget.

Resolution No. 1307 Establishing Rates, Fees and Charges for Domestic Water Service

The resolution increases the quantitative rate for water from $2.28 per hundred cubic feet to $2.44 per hundred cubic feet and updates the water service charges for domestic water customers in accordance with what NBS proposed in its final rate study report.

Monthly Service Charge

Meter Size	Current	Effective 01/01/24
5/8”-3/4”	$33.53	$38.32
1”	$33.53	$38.32
1 ½”	$64.02	$72.02
2”	$100.61	$112.46
3”	$198.18	$240.53
4”	$307.94	$429.27
6”	$612.85	$880.88
8”	$978.73	$1,622.34
10”	$2,564.22	$2,566.01
12”	$3,235.01	$3,374.87

Resolution No. 1307 updates the name of the current Drought Rate Surcharge to Drought Rate. The Drought Rate Use Reduction Required categories have been updated to Conservation Requirement ranges that align with the Agency's Water Shortage Contingency Plan. Additionally, the Drought Rate has been updated to reflect the proposed rate required per hundred cubic feet of water. The Drought Rate would be implemented if later adopted by the Board of Directors in the case of extreme shortage. The Board would vote to adopt the Drought Rate, which would only remain in place for six months unless increased or renewed by the Board. Staff will be monitoring consumption levels and revenues to determine when to recommend implementation of the Drought Rate to the Board.

Drought Rate (per hcf)

Current		**Proposed**	
Use Reduction Required	**Drought Rate Surcharge**	**Conservation Required**	**Drought Rate**
10%	$0.16	Less than 10%	$0.00
20%	$0.37	10-20%	$0.24
30%	$0.63	20-30%	$0.53
40%	$0.98	30-40%	$0.91
50%	$1.46	40-50%	$1.37
60%	$2.20	More than 50%	$2.07

Resolution No. 1307 establishes the new Revenue Stabilization Rate. The Revenue Stabilization Rate would be implemented if later adopted by the Board of Directors in the case of events, other than drought or other water shortages, that cause revenues to fall well below projected levels. The Board would vote to adopt the Revenue Stabilization Rate, which would only remain in place until water revenues return to fiscal year to date projected levels or until rescinded by the Board for any other reason, whichever occurs first.

Revenue Stabilization Rate (per hcf)

Revenue Shortfall	**Revenue Stabilization Rate**
Less than 10%	$0.00
10%	$0.28
15%	$0.44
20%	$0.61
25%	$0.82
30%	$1.05

Resolution No. 1307 adjusts the zone charges per hundred cubic feet necessary to cover the costs associated with pumping water to higher elevations. The proposed zone charges are as follows:

Zone Charges

Zone	Current	Effective 01/01/24
B, D, G, I	$0.28	$0.29
E, H, K	$0.31	$0.33
L	$0.64	$0.67
M	$2.20	N/A

Resolution No. 1307 removes Zone M which is currently applied to the quantitative water rate per hundred cubic feet for the Chino Creek Potable Water System and replaces it with a Quantitative Rate Charge specifically for the Chino Creek Potable Water System. Currently, the Palm Springs Aerial Tramway is the only customer in this system.

Chino Creek Potable Water Rate

	Current	Effective 01/01/24
Zone Charge (M)	$2.85	N/A
Quantitative Rate Charge	$2.28	$6.40
Total Rate (hcf)	$5.13	$6.40

Resolution No. 1307 includes adjustments to monthly fire service charge.

Monthly Fire Service Charge

Meter Size	Current	Effective 01/01/24
2”	$7.99	$12.00
4”	$30.15	$33.70
6”	$64.99	$69.25
8”	$111.46	$115.41
10”	$173.41	$180.04
12”	$208.26	$235.44

Resolution No. 1307 updates the Backflow Protection Device Repair Charge.

Backflow Protection Device Repair Charge

Meter Size	Current	Effective 01/01/24
3/4”	$3.00	$3.36
1” to 3”	$3.50	$3.91
4” to 6”	$5.80	$6.49
8” to 10”	$7.00	$7.83
Const. Mtr	$34.15	$38.19

Resolution No. 1307 also includes adjustments to the quantitative rate for Temporary Construction Meters from $2.60 per hundred cubic feet to $2.48 per hundred cubic feet. The Temporary Construction Meter quantitative rate includes the base quantitative rate plus an additional $0.04 per hcf for revenue requirements attributable to capacity not generated by the monthly fixed charge.

Resolution No. 1308 Establishing Rates, Fees and Charges for Recycled Water

In July 2022, the Agency reduced the recycled water rate from $0.79 per hundred cubic feet to $0.60 per hundred cubic feet (hcf) and implemented a multi-year strategy to increase the quantitative rate by $0.05 per hundred cubic feet per year through 2028 in order to make the cost of recycled water comparable to the cost of pumping groundwater from a private well including the replenishment assessment charge levied by DWA. After 2028, a new rate study will be performed to determine the new recycled water rate. NBS incorporated this quantitative rate strategy into its review of DWA's recycled water costs and revenues. NBS has recommended adjusting the fixed meter charge to continue to generate 0.5% of Recycled Water revenue requirements from the fixed charge and the remaining 99.5% from the variable rate.

Quantitative Recycled Water Rate (per hcf)

Current	Effective 07/01/23
$0.60	$0.65

Recycled Water Monthly Service Charge

Meter Size	Current	Effective 07/01/23
2”	$15.00	$22.26
3”	$26.97	$44.52
4”	$40.43	$69.56
6”	$77.83	$139.12
8”	$112.71	$222.59
10”	$317.19	$584.29
12”	$399.47	$737.32

Resolution No. 1309 Establishing Rates, Fees and Charges for Sewer Service

In addition to the Agency's charge for sewer services, the Agency passes through the treatment charges imposed by the Coachella Valley Water District (CVWD) and the City of Palm Springs for sewage treatment. CVWD imposes a charge for sewer customers located in Cathedral City; the City of Palm Springs imposes a charge for sewer customers located in the Palm Oasis and Dream Homes communities within Cathedral City. These charges are collected by the Agency on customer's monthly bills and remitted in full to CVWD and to the City of Palm Springs.

On June 13, 2023, the Coachella Valley Water Districted adopted a rate increase, effective July 1, 2023. With CVWD's adoption of this rate increase, DWA must also adopt the same rate increase in order to pass the charge through to DWA customers whose sewage is collected by DWA and then delivered to CVWD for treatment.

CVWD Monthly Sewer Service Charge

Sewer Rate	Current	Effective 07/01/23
Per EDU	$23.04	$27.10

Total Cathedral City Sewer Service Charge per EDU
Effective July 1, 2023

DWA	$ 6.15
CVWD	27.10
TOTAL	**$33.25**

NBS also studied the sewer charges that DWA imposes on its sewer customers. NBS determined that the charges currently collected are sufficient to cover DWA's current costs but will require future adjustment to account for inflation in the coming years. In addition to the rate listed below, DWA also passes through the charges for sewer treatment from either CVWD (Cathedral City) or City of Palm Springs (Palm Oasis and Dream Homes). This is the only change proposed to existing Resolution No. 1278, which Resolution No. 1309 will replace if adopted.

DWA Monthly Sewer Rate

Sewer Rate	Current	Effective 01/01/24
Per EDU	$6.15	$7.31

Total Cathedral City Sewer Service Charge per EDU
Effective January 1, 2024

DWA	$ 7.31
CVWD	27.10
TOTAL	**$34.41**

Total Palm Oasis / Dream Homes Sewer Service Charge per EDU
Effective January 1, 2024

DWA	$ 7.31
City of PS	20.00
TOTAL	**$27.31**

Legal Review:

Legal Counsel has reviewed this staff report and resolutions.

Fiscal Impact:

Operating Fund:

The monthly fire service rate increases will result in an additional $28,200 per year in fire protection revenues.

The quantitative, zone and monthly service charge rate increases will result in an additional $1,450,000 per year in water sales revenues.

The recycled water rate increase will result in an additional $76,000 per year in revenues and has already been incorporated into the 2023/2024 Operating Fund Budget.

Wastewater Fund:

The sewer rate increase effective July 1, 2023, attributable to CVWD's rate increase will have no net fiscal impact on the Agency as it is a pass through charge collected on behalf of and remitted to CVWD. The new rate has already been included in the Wastewater Fund Budget for 2023/2024.

The sewer rate increase effective January 1, 2024 will result in an additional $24,000 per year in DWA sewer revenues.

Recommendation:

Staff recommends that the Board of Directors:

1. Adopt Resolution No. 1307 for domestic water rates, fees and charges effective January 1, 2024.
2. Adopt Resolution No. 1308 for recycled water rates, fees and charges effective July 1, 2023.
3. Adopt Resolution No. 1309 for sewer rates, fees and charges with the CVWD pass through rate effective July 1, 2023 and DWA's monthly service rate effective January 1, 2024.
4. Augment the 2023/2024 Operating Fund Budget adding $1,450,000 to Water Sales Revenue, $28,200 to Fire Protection Revenue and $1,478,200 to the Reserve for Operations.
5. Augment the 2023/2024 Wastewater Fund Budget adding $24,000 to Wastewater Service Revenue.

Attachments:

1. Resolution No. 1307 – Domestic Water Rates
2. Resolution No. 1308 – Recycled Water Rates
3. Resolution No. 1309 – Sewer Service (Wastewater) Rates

RESOLUTION NO. 1307

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

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

WHEREAS, it is appropriate at this time to revise the Agency's Rates, Fees & Charges for Domestic Water Service, while restating all other rates, fees and charges which remain unchanged; and

WHEREAS, in June 2023 this Board conducted a majority protest hearing for the proposed revision of the Agency's monthly charges for domestic water service over the next subsequent five years, as required by law, and has determined that a majority protest does not exist;

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

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

SNOW CREEK VILLAGE ZONE (Zone J)

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

Backup Facility Charges (Cont.)

PALM OASIS ZONE (Zone I)

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

BASE ZONE (Zone A)

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

CHINO ZONE (Zone C)

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

CHINO "A" ZONE (Zone D)

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

CHINO "B" ZONE (Zone E)

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

Backup Facility Charges (Cont.)

ACANTO ZONE (Zone B)

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

SOUTHRIDGE "A" ZONE (Zone K)

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

SOUTHRIDGE "B" ZONE (Zone L)

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

EAST ZONE (Zone F)

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

EAST "A" ZONE (Zone G)

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

Backup Facility Charges (Cont.)

EAST "B" ZONE (Zone H)

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

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

Meter Size Residential	Charge
5/8 x 3/4 inch	$ 1,370.00
1 inch	$ 2,250.00
1-1/2 inch	$ 4,440.00
2 inch	$ 10,960.00
3 inch	$ 72,070.00
Commercial	**Charge**
5/8 x 3/4 inch	$ 1,250.00
1 inch	$ 2,740.00
1-1/2 inch	$ 8,830.00
2 inch	$ 15,090.00
3 inch	$ 21,350.00
6 inch	$ 677,430.00
Irrigation	**Charge**
5/8 x 3/4 inch	$ 1,720.00
1 inch	$ 6,530.00
1-1/2 inch	$ 25,210.00
2 inch	$ 23,970.00

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

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

5. Accounting of Funds. All revenues collected from backup facility charges shall be deposited with other such fees in a separate capital facilities account or fund in a manner to avoid any commingling of the charges with other revenues and funds of the Agency, except for temporary investments, and such revenues may be expended solely for the purpose for which the backup facility charges are collected. Any interest income earned by moneys in said account or fund shall also be deposited in that account or fund and may be expended only for the purpose for which the backup facility charges are imposed. The Agency shall make findings once each fiscal year with respect to any portion of the backup facility charges remaining unexpended or uncommitted in the account five or more years after deposit of the charges. The findings shall identify the purpose to which the backup facility charges are to be put, and will demonstrate a reasonable relationship between the charges and the purpose for which the charges were imposed.

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

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

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

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

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

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

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

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

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

11. Plan Check Fees. The plan check fees for Agency installed water facilities with no mains shall be $280. For developer installed facilities with mains, the fee shall be $280, plus $0.35 per lineal foot of main installed. There is no charge for single residences not falling within the above categories.

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

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

13. Fire Flow Model and Verification Fees. The following charges shall be imposed for fire flow model analysis and verification within our domestic water service area;

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

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

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

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

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

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

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

a.) Double Check Device

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

b.) Reduced Pressure Principal Device Assemblies

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

c.) Double Check Device with Fire Service Outlet

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

d.) Reduced Pressure Device with Fire Service Outlet

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

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

a.) Monthly Service Charge

Size	Charge
5/8 x 3/4 inch	$ 38.32
1 inch	$ 38.32
1-1/2 inch	$ 72.02
2 inch	$ 112.46
3 inch	$ 240.53
4 inch	$ 429.27
6 inch	$ 880.88
8 inch	$ 1,622.34
10 inch	$ 2,566.01
12 inch	$ 3,374.87

Metered Service Charge. (Cont.)

b.) Quantitative Rate Charge
The base rate charge for all metered and unmetered water used for all purposes other than through temporary service facilities and the Chino Creek potable water system facilities shall be $2.44 per 100 cubic feet.

c.) Chino Creek Quantitative Rate Charge
The base rate charge for all metered and unmetered water used within the Chino Creek Potable Water System facilities shall be $6.40 per 100 cubic feet.

d.) Temporary Service Quantitative Rate Charge
The base rate charged for all metered and unmetered water used for construction and temporary service shall be $1,080.29 ($2.48 per 100 cubic feet) per acre-foot.

e.) Zone Charge
The Zone Charge, which is assessed in addition to the Quantitative Rate Charge, per 100 cubic feet is as follows:

Zone	Zone Charge
A, C, F, J	$ 0.00
B, D, G, I	$ 0.29
E, H, K	$ 0.33
L	$ 0.67

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

Use Reduction Required	Addition to Quantitative Rate Charge
10-20%	$ 0.24
20-30%	$ 0.53
30-40%	$ 0.91
40-50%	$ 1.37
More than 50%	$ 2.07

g.) Revenue Stabilization Rate

The Revenue Stabilization Rate is in addition to the Quantitative Rate Charge but shall not be applied if the Drought Rate is being applied. It may be applied when the monthly volumetric rate revenue falls 10% or more below the fiscal year-to-date projected monthly volumetric revenue.

Revenue Shortfall	Revenue Stabilization Rate
10%	$ 0.28
15%	$ 0.44
20%	$ 0.61
25%	$ 0.82
30%	$ 1.05

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

Service Size	Charge
2 inch	$ 12.00
4 inch	$ 33.70
6 inch	$ 69.25
8 inch	$ 115.41
10 inch	$ 180.04
12 inch	$ 235.44

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

Size	Charge
3/4 inch	$ 3.36
1 inch	$ 3.91
1-1/4 inch	$ 3.91
1-1/2 inch	$ 3.91
2 inch	$ 3.91
2-1/2 inch	$ 3.91
3 inch	$ 3.91
4 inch	$ 6.49
6 inch	$ 6.49
8 inch	$ 7.83
10 x 12 inch	$ 7.83

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

    a. Monthly Service Charges
    To be in accordance with Item 17-a of this Resolution

    b. Quantitative Charges
    To be in accordance with Item 17-b and 17-c of this Resolution

    c. Zone Pumping Charges
    To be in accordance with Item 17-e of this Resolution

    d. Backflow Protection Device Charge: $38.19

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

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

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

    a.) Will Serve Letter
    b.) Development Bond Amount Letter
    c.) Response to Initial Study
    d.) Non-Interference Letter

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

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

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

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

27. Effective Date: The charges set forth herein shall become effective on January 1, 2024 and as of that date shall replace the charges set forth in Resolution No. 1264.

ADOPTED this 28th day of June 2023.

_____
Paul Ortega, President

ATTEST:

_____
Gerald McKenna, Secretary-Treasurer

BACKUP FACILITY CHARGES
FOR WATER SERVICE
October 16, 2018

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

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

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

All new development requiring water service will be charged for Backup Facilities. The charge is based upon the capacity/service size ratio of the service provided and the proportional potential demand placed upon the available water production, transmission, treatment, pressure boosting and storage facilities within the appropriate pressure zone. The charge is not based upon the type of service connection (i.e., residential, commercial, and industrial). The amount of the charge for any particular development is based on the number of services, service size, meter size and the assigned number of capacity units per service as determined by the Agency. The capacity unit (C.U.) is based on the capacity/service size ratio of the service connection.

Service capacity ratios have historically been based on the relationship between capacity and pipe diameter. Originally established in 1973, the service capacity/diameter relationship for the Agency was based on a 1" service size capacity ratio of Q=KD^2.54. Depending on the specific hydraulic formula selected the service size relationship can range from D^2.5 to D^2.667. These hydraulic formula and capacity/diameter relationships are empirical and therefore approximate. The selected relationship of D^2.54 is reasonable in that it is slightly less than the median relationship of D^2.58.

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

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

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

SYSTEM CAPACITY UNITS – SNOW CREEK VILLAGE ZONE

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

SYSTEM CAPACITY UNITS – PALM OASIS ZONE

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

SYSTEM CAPACITY UNITS – BASE ZONE

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

SYSTEM CAPACITY UNITS – CHINO ZONE

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

SYSTEM CAPACITY UNITS – CHINO "A" ZONE

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

SYSTEM CAPACITY UNITS – CHINO "B" ZONE

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

SYSTEM CAPACITY UNITS – ACANTO ZONE

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

SYSTEM CAPACITY UNITS – SOUTHRIDGE "A" ZONE

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

SYSTEM CAPACITY UNITS – SOUTHRIDGE "B" ZONE

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

SYSTEM CAPACITY UNITS – EAST ZONE

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

SYSTEM CAPACITY UNITS – EAST "A" ZONE

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

SYSTEM CAPACITY UNITS – EAST "B" ZONE

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

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

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

SNOW CREEK VILLAGE ZONE

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

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

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

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

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

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

SNOW CREEK VILLAGE ZONE PRODUCTION COST

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

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

* Actual project costs, unadjusted for present value.

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

SNOW CREEK VILLAGE WATER TREATMENT COSTS

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

UV TREATMENT

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

*Actual project costs.

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

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

SNOW CREEK VILLAGE ZONE WATER STORAGE COSTS

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

SNOW CREEK VILLAGE ZONE WATER STORAGE COSTS

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.024 MG, or (0.032 x 0.75). The fire flow requirement for the zone is 0.12 MG, or (1,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.024 MG. Adding all of these

components equates to 0.168 MG of storage. The current storage capacity for the system is 1.15 MG.

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

SNOW CREEK VILLAGE ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x

[Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

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

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

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

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

SNOW CREEK VILLAGE ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

COST PER ZONE SUMMARY

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

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

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

SNOW CREEK VILLAGE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

PALM OASIS ZONE

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

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

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

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

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

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

PALM OASIS PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

PALM OASIS ZONE PUMPING COSTS

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

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

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

PALM OASIS ZONE WATER TREATMENT COSTS

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

FOREBAY TREATMENT

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

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

CHLORINE INJECTION TREATMENT

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

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

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

PALM OASIS ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

PALM OASIS ZONE WATER STORAGE COSTS

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.105 MG (0.14 x 0.75). The fire flow requirement for the zone is 0.12 MG (1,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.105 MG. Adding all of these components equates to 0.33 MG of storage. The current storage capacity for the zone is 2.0 MG.

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

PALM OASIS ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

PALM OASIS ZONE WATER TRANSMISSION MAIN COSTS

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

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

COST PER ZONE SUMMARY

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

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

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

PALM OASIS ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

BASE ZONE

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

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

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

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

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

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

BASE ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

BASE ZONE PUMPING COSTS

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

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

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

BASE ZONE WATER TREATMENT COSTS

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

FOREBAY TREATMENT

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

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

CHLORINE INJECTION TREATMENT

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

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

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

UV TREATMENT

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

*Actual project costs.

The UV treated surface water not only benefits the Base Zone, the water is also used by Snow Creek Village Zone and Chino Zone. The Base Zone and Chino Zones will use 38% of the total

stream capacity (0.69 ÷ 1.81); therefore, the cost per capacity unit for the UV treatment per capacity unit is $317,142 (0.38) ÷ 30,494 C.U. = **$4/C.U.**

BASE ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

BASE ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

BASE ZONE WATER STORAGE COSTS

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

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

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 13.9 MG, or (18.6 x 0.75). The fire flow requirement for the zone is 1.92 MG (8,000 GPM for 4 hours per General Plan) and the equalization, or operational

storage is 40% of the MDD and is therefore equal to 13.6 MG. Adding all of these components equates to 29.42 MG of storage. The current storage capacity for the system is 34.5 MG.

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

BASE ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x

[Diameter (inch) ^-0.309]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

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

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

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

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

BASE ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

BASE ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

CHINO ZONE

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

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

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

The current pumping capacity for the Chino Zone is 10 MGD (The total of Chino Zone well capacity and the Chino Booster capacity minus the Chino "A" booster capacity). Since all service capacity must be met by the Chino Zone pumping capacity, all of the existing units are using 57%

of the total capacity of the Chino Zone (5.7 MGD ÷ 10 MGD). The total maximum capacity units for the zone is then equal to 5,064, or (2,887 ÷ 0.57).

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

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

CHINO ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

CHINO ZONE PUMPING COSTS

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

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

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

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

CHINO ZONE WATER TREATMENT COSTS

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

CHINO ZONE CHLORINE INJECTION TREATMENT

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

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

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

UV TREATMENT

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

*Actual project costs.

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

CHINO ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

CHINO ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

CHINO ZONE WATER STORAGE COSTS

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

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

BASE ZONE WATER STORAGE COSTS

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

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

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 2.3 MG (3.1 x 0.75). The fire flow requirement for the zone is 0.96 MG (4,000 GPM for 4 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 2.28 MG. Adding all of these components equates to 5.54 MG of storage. The current storage capacity for the system is 7.0 MG.

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

CHINO ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x

[Diameter (inch) $^{\wedge -0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

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

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

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

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

CHINO ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

CHINO ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

CHINO "A" ZONE

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

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

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

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

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

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

CHINO "A" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

of each plant and the zone's booster pumping cost is determined. Since Chino "A" Zone is provided water by booster pumps only, we will only be using the booster pump costs.

CHINO "A" ZONE PUMPING COSTS

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

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

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

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

CHINO "A" ZONE WATER TREATMENT COSTS

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

CHINO ZONE CHLORINE INJECTION TREATMENT

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

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

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

U.V TREATMENT

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

*Actual project costs.

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

CHINO "A" ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

The surface water not only benefits the Chino "A" Zone, the water also serves the Snow Creek Village Zone and Base Zone. The Base Zone and Chino Zones will use 38% of the total stream

capacity (0.69 ÷ 1.81); therefore, the component cost per capacity unit is $3,300,000 (0.38) ÷ 30,494 C.U. = **$41/C.U.**

CHINO "A" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

CHINO "A" ZONE WATER STORAGE COSTS

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

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

CHINO ZONE WATER STORAGE COSTS

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

BASE ZONE WATER STORAGE COSTS

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

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

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

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods is 0.09 MG (0.13 x 0.75). The fire flow requirement for the system is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational storage is 40% of the MDD and is therefore equal to 0.09 MG. Adding all of these components equates to 0.42 MG of storage. The current storage capacity for the system is 0.50 MG.

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

CHINO "A" WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

CHINO "A" ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

CHINO "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

CHINO "B" ZONE

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

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

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

The current pumping capacity for the Chino "B" Zone is 1.1 MGD. Since all service capacity must be met by the Chino "B" Zone pumping capacity, all of the current units would use 6.45% of the

total capacity of the Chino "B" Zone (0.071 MGD÷1.1 MGD). The total maximum capacity units for the zone is then equal to 837, or (54÷0.0645).

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

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

CHINO "B" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

CHINO "B" ZONE PUMPING COSTS

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

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

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

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

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

CHINO "B" ZONE WATER TREATMENT COSTS

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

CHINO ZONE CHLORINE INJECTION TREATMENT

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

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

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

UV TREATMENT

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

*Actual project costs.

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

CHINO "B" ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

CHINO "B" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

CHINO "A" ZONE WATER STORAGE COSTS

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

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

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

CHINO ZONE WATER STORAGE COSTS

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

BASE ZONE WATER STORAGE COSTS

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

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

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

Since the Chino Booster provides 43% of the water to the Chino Zone, only 43% of the required storage will be provided from the Chino Booster. The percentage of water from the Base Zone is

0.3% or (0.28 x 43%) ÷ 34.5, therefore, the component cost of storage per capacity unit for the Chino "B" Zone is $23,450,000 (0.003) ÷ 837 C.U. = **$84/C.U.**.

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

FUTURE STORAGE CAPACITY REQUIREMENTS

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

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

CHINO "B" WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

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

CHINO "A" ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

CHINO "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

ACANTO ZONE

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

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

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

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

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

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

ACANTO ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

ACANTO ZONE PUMPING COSTS

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

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

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

ACANTO ZONE WATER TREATMENT COSTS

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

UV TREATMENT

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

*Actual project costs.

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

ACANTO ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

ACANTO ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

ACANTO ZONE WATER STORAGE COSTS

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

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

BASE ZONE WATER STORAGE COSTS

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

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

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

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

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

ACANTO ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

ACANTO ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

ACANTO ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

SOUTHRIDGE "A" ZONE

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

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

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

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

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

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

SOUTHRIDGE "A" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

SOUTHRIDGE "A" ZONE PUMPING COSTS

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

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

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

SOUTHRIDGE "A" ZONE WATER TREATMENT COSTS

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

U.V TREATMENT

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

*Actual project costs.

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

SOUTHRIDGE "A" ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

SOUTHRIDGE "A" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

SOUTHRIDGE "A" ZONE WATER STORAGE COSTS

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

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

BASE ZONE WATER STORAGE COSTS

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

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

The required storage for the Southridge "A" Zone is 0.80% of the Base Zone total storage capacity (0.30 ÷ 34.5); therefore, the component cost of storage per capacity unit for Southridge "A" Zone is $23,450,000 (0.008) ÷ 100 C.U.= **$1,876/C.U.**.
The component cost of storage per capacity for the Equalization Reservoir is equal to $700,000 (0.83) ÷ 30,494 = **$19/C.U.**

FUTURE STORAGE CAPACITY REQUIREMENTS

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

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

SOUTHRIDGE "A" ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

SOUTHRIDGE “A” ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

SOUTHRIDGE "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

SOUTHRIDGE "B" ZONE

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

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

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

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

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

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

SOUTHRIDGE "B" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

of each plant and the zone's booster pumping cost is determined. Since Southridge "B" Zone is provided water by booster pumps, we will only be using the booster pump costs.

SOUTHRIDGE "B" ZONE PUMPING COSTS

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

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

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

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

SOUTHRIDGE "B" ZONE WATER TREATMENT COSTS

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

BASE ZONE FOREBAY TREATMENT

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

BASE ZONE CHLORINE INJECTION TREATMENT

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

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

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

UV TREATMENT

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

*Actual project costs.

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

SOUTHRIDGE "B" ZONE SURFACE WATER COST

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

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

* Actual project costs, unadjusted for present value.

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

SOUTHRIDGE "B" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

SOUTHRIDGE "B" ZONE WATER STORAGE COSTS

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

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

BASE ZONE WATER STORAGE COSTS

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

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

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

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

The existing pumping capacity of the system will accommodate an additional 410 capacity units (428 - 18). These additional units will add 0.42 MGD to the MDD. This additional demand will

increase the storage requirement to 0.58 MG requiring 0.18 MG of additional storage (0.58 – 0.40). The cost for the additional storage will be $126,000, or ($0.70/gal x 0.18 MG). The cost of future storage per capacity unit is therefore, $126,000 ÷ 428 C.U. = **$294/C.U.**

SOUTHRIDGE "B" ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

SOUTHRIDGE “B” ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

SOUTHRIDGE "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

EAST ZONE

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

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

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

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

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

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

EAST ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

EAST ZONE PUMPING COSTS

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

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

EAST ZONE WATER TREATMENT COSTS

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

CHLORINE INJECTION TREATMENT

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

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

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

EAST ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

EAST ZONE WATER STORAGE COSTS

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

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

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

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

EAST ZONE WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern

Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{-0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

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

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

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

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

EAST ZONE WATER TRANSMISSION MAIN COSTS

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

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

COST PER ZONE SUMMARY

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

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

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

EAST ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

EAST "A" ZONE

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

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

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

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

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

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

EAST "A" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

of each plant and the zone's booster pumping cost is determined. Since East "A" Zone is provided water by booster pumps, we will only be using the booster pump costs.

EAST "A" ZONE PUMPING COSTS

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

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

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

EAST "A" ZONE WATER TREATMENT COSTS

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

EAST ZONE CHLORINE INJECTION TREATMENT

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

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

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

EAST "A" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

EAST "A" ZONE WATER STORAGE COSTS

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

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

EAST ZONE WATER STORAGE COSTS

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

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

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

EAST "A" WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

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

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

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

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

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

EAST “A” ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

COST PER ZONE SUMMARY

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

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

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

EAST "A" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

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

EAST "B" ZONE

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

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

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

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

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

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

EAST "B" ZONE PUMPING/WATER PRODUCTION COST

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

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

* Current Capital Improvement Budget Amounts for Pumping Plants.

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

Similarly, the cost of pressure boosting facilities is determined.

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

* Actual project costs, unadjusted for present value.

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

of each plant and the zone's booster pumping cost is determined. Since East "B" Zone is provided water by booster pumps, we will only be using the booster pump costs.

EAST "B" ZONE PUMPING COSTS

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

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

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

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

EAST "B" ZONE WATER TREATMENT COSTS

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

EAST ZONE CHLORINE INJECTION TREATMENT

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

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

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

EAST "B" ZONE WATER STORAGE COSTS

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

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

*Revised Budget Amount for project.

** Actual project costs, unadjusted for present value.

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

EAST "B" ZONE WATER STORAGE COSTS

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

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

EAST "A" ZONE WATER STORAGE COSTS

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

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

EAST ZONE WATER STORAGE COSTS

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

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

FUTURE STORAGE CAPACITY REQUIREMENTS

The General Plan requires that the Agency have 18 hours ADD emergency storage, along with fire flow and equalization storage during energy Time of Use (T.O.U.) periods. The 18 hour ADD during T.O.U periods for the zone is 0.187 MG (0.25 x 0.75). The fire flow requirement for the zone is 0.24 MG (2,000 GPM for 2 hours per General Plan) and the equalization, or operational

storage is 40% of the MDD and is therefore equal to 0.184 MG. Adding all of these components equates to 0.61 MG of storage. The current storage capacity for the system is 0.60 MG.

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

EAST "B" WATER TRANSMISSION MAIN COSTS

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

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

* Actual project cost, unadjusted for present value.

Due to the lack of current data available for the varying sizes of transmission mains in our system, the Agency has opted to utilize a "unit construction cost for pipelines" equation used by Eastern Municipal Water District (EMWD) in their 2015 rate study (study conducted by Kennedy/Jenks

Consultants). Said equation assumes that unit cost ($/linear foot) = Diameter (inch) x 40.47 x [Diameter (inch) $^{-0.309}$]. Utilization of said equation allows the Agency to determine uniform unit construction estimates for all sizes of transmission mains in our system.

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

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

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

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

EAST "B" ZONE WATER TRANSMISSION MAIN COSTS

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

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

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

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

COST PER ZONE SUMMARY

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

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

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

EAST "B" ZONE FINAL BACKUP FACILITY CHARGE COST SUMMARY

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,030
1	**1.0**	**$7,575**
1.5	2.0	$15,150
2	3.2	$24,240

FINAL BACKUP FACILITY CHARGE COST SUMMARY

SNOW CREEK VILLAGE FINAL BACKUP FACILITY CHARGE COST

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

PALM OASIS ZONE FINAL BACKUP FACILITY CHARGE COST

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

BASE ZONE FINAL BACKUP FACILITY CHARGE COST

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

CHINO ZONE FINAL BACKUP FACILITY CHARGE COST

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

CHINO "A" ZONE FINAL BACKUP FACILITY CHARGE COST

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

CHINO "B" ZONE FINAL BACKUP FACILITY CHARGE COST

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

ACANTO ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$4,108
1	**1.0**	**$10,271**
1.5	2.0	$20,542
2	3.2	$32,867

SOUTHRIDGE "A" ZONE FINAL BACKUP FACILITY CHARGE COST

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

SOUTHRIDGE "B" ZONE FINAL BACKUP FACILITY CHARGE COST

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

EAST ZONE FINAL BACKUP FACILITY CHARGE COST

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

EAST "A" ZONE FINAL BACKUP FACILITY CHARGE COST

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

EAST "B" ZONE FINAL BACKUP FACILITY CHARGE COST

METER SIZE	AWWA METER FACTOR	BACKUP FACILITY CHARGE
3/4 X 5/8	0.4	$3,030
1	**1.0**	**$7,575**
1.5	2.0	$15,150
2	3.2	$24,240

RESOLUTION NO. 1308

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

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

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

WHEREAS, in June 2023 this Board conducted a majority protest hearing for the proposed revision of the Agency's monthly charges for recycled water service over the next subsequent five years, as required by law, and has determined that a majority protest does not exist;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Desert Water Agency as follows:

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

Meter Size	Charge
2 inch	$ 8,300.00
4 inch	33,300.00
6 inch	75,000.00
8 inch	125,000.00
10 inch	166,700.00
12 inch	250,000.00

2. Backup Facility Charges for Increased Service. Backup Facility Charges for recycled water service shall be imposed for all existing recycled water service connections for which increased capacity is requested and larger meters are installed. The charges shall apply to the difference in service capacity between (a) the new meter and (b) the meter which is being replaced.

3. Accounting of Funds. All revenues collected from Backup Facility Charges for recycled water service shall be deposited with other such fees in a separate capital facilities account or fund in a manner to avoid any commingling of the charges with other revenues and funds of the Agency, except for temporary investments, and such revenues may be expended solely for the purpose for which the Backup Facility Charges are collected. Any interest income earned by moneys in said account or fund shall also be deposited in that account or fund and may be expended only for the purpose for which the Backup Facility Charges are imposed. The Agency shall make findings once each fiscal year with respect to any portion of the Backup Facility Charges remaining unexpended or uncommitted in the account five or more years after deposit of the charges. The findings shall identify the purpose to which the Backup Facility Charges are to be put, and will demonstrate a reasonable relationship between the charges and the purpose for which the charges are imposed.

4. Meter Installation Charge. The charge for meter installation for recycled water service shall be the actual cost plus any applicable overhead charges.

5. Flow Control Valve Charge. The charge for installation of a flow control valve for any recycled water service connection shall be the actual cost of the device, its installation and any applicable overhead charges.

6. Service Connection Charge. The charge for the recycled water service connection shall be the actual cost of connection to an existing main plus any applicable overhead charges.

7. Meter Test Deposit. The required deposit for testing a recycled water service meter shall vary according to the size of the meter, as follows:

Meter Size	Charge
5/8 x 3/4 to 2 inch	$ 70.00
3 inch or larger	$140.00

8. Plan Check Fees. Plan check fees for Agency-installed recycled water facilities with no mains shall be $140. For developer-installed facilities with main, the fees shall be $140 plus $0.10 per lineal foot of main installed.

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

a.) Agency Engineering Department	$140 per hour
b.) Engineering Consultants	Actual cost plus 15%
c.) Legal Consultants	Actual cost plus 15%

10. Restoration of Service. For restoring recycled water service during Agency's normal working hours, on normal working days, the charge shall be $140. After normal working hours, or on days other than normal working days, the charge shall be $280.

11. Metered Service Charges. Service charges for recycled water service shall include a monthly service charge and a quantitative charge as follows:

a.) Monthly Service Charge.

Meter Size	Charge
2 inch	$22.26
3 inch	$44.52
4 inch	$69.56

a.) Monthly Service Charge. (Cont.)

Meter Size	Charge
6 inch	$139.12
8 inch	$222.59
10 inch	$584.29
12 inch	$737.32

b.) Quantitative Charge. The base rate charge for all metered and unmetered recycled water used for all purposes shall be $0.65 per 100 cubic feet, and shall increase $0.05 per year on the anniversary date of this resolution through the year 2029, at which time a rate study will be performed to establish a new recycled water quantitative charge.

12. Monthly Flow Control Valve Charges (8" – 12"). A charge of $35.00 per flow control valve per month will be added to the billing for testing and annual maintenance.

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

Meter Size	Deposit
5/8 x 3/4 inch	$ 100.00
1 inch	100.00
1-1/2 inch	150.00
2 inch	200.00
3 inch	250.00
4 inch	300.00
6 inch	350.00
8 inch	400.00
10 inch	450.00
12 inch	500.00

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

a) Will Serve Letter

b) Development Bond Amount Letter

c) Response to Initial Study

15. Effective Date. The charges set forth herein shall become effective July 1, 2023, and as of that date shall replace the charges set forth in Resolution No. 1279.

ADOPTED this 28th day of June 2023.

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Paul Ortega, President

ATTEST:

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Gerald McKenna, Secretary-Treasurer

RESOLUTION NO. 1309

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

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

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

WHEREAS, in June 2023 this Board conducted a majority protest hearing for the proposed revision of the Agency's monthly charges for sewer service over the next subsequent five years, as required by law, and has determined that a majority protest does not exist; and

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

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

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

WHEREAS, this resolution reflects the current City rates for sewage treatment and disposal services, which are subject to change by that entity, the increased rate charged by CVWD

for sewage treatment and disposal services, to effect on July 1, 2023, the Agency's new rates for sewage collection to take effect on January 1, 2024, and restates other Agency rates, fees and charges which remain unchanged;

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

1. Capacity Charges

	CVWD Treatment Cathedral City (Effective 06/21/22)	City Treatment Palm Oasis / Dream Homes (Effective 09/21/21)
A.) Residential (including single family, apartments, condos and mobile home park spaces (1 EDU=1 Unit or Space)	Total Charge: $4,879.67/EDU a. $3,829.67/EDU (CVWD) b. $1,050.00/EDU (DWA)	Total Charge: $ 1,006.00/Unit a. $1,006.00/Unit (CPS)
B.) Commercial, Industrial, Institutional	Total Charge: $4,879.67/EDU a $3,829.67/EDU (CVWD) b. $1,050.00/EDU (DWA)	Total Charge: $100.00/ Fixture Unit (FU) a. $100.00/FU (CPS)
C.) Hotel /Motel (1/2 EDU = 1 Room)	Total Charge: $4,879.67/EDU a. $3,829.67/EDU (CVWD b. $1,050.00/EDU (DWA)	Total Charge: 1. $663.00/Room (with kitchen-CPS) 2. $343.00/Room (without kitchen-CPS)
D.) R.V. Park (1/2) EDU = 1 Space)	Total Charge: $4,879.67/EDU a. $3,829.67/EDU (CVWD) b. $1,050.00/EDU (DWA)	Total Charge: $246.00/Space a. $246.00/Space (CPS)

2. Accounting of Funds. All revenues collected from capacity charges shall be deposited with other such fees in a separate capital facilities account or fund in a manner to avoid any commingling of the charges with other revenues and funds of the Agency, except for the temporary investments, and such revenues may be expended solely for the purpose for which the capacity charges are collected. Any interest income earned by moneys in said account or fund shall also be deposited in that account or fund and may be expended only for the purpose for which the capacity charges are imposed. The Agency shall make findings once each fiscal year with respect to any portion of the capacity charges remaining

unexpended or uncommitted in the account five or more years after deposit of the charges. The findings shall identify the purpose to which the capacity charges are to be put, and will demonstrate a reasonable relationship between the charges and the purpose for which the charges were imposed.

3. Connection Fee.

   a.) Single Family Residence - $1,700

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

4. Plan Check Fees.

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

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

5. Design Review Fees.

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

6. Monthly Service Charges

	CVWD Treatment Cathedral City (Effective 07/01/23)	CVWD Treatment Cathedral City (Effective 01/01/24)	City Treatment Palm Oasis/Dream Homes (Effective 01/01/22)	City Treatment Palm Oasis/Dream Homes (Effective 01/01/24)
A. Residential				
Single Family, Condo (1 EDU = 1 Unit)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (1)***	Total Charge: $34.10/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (1)***	Total Charge: $26.15/Unit a. $20.00/Unit (CPS) b. $6.15/Unit (DWA) ***Rate (5)***	Total Charge: $27.31/Unit a. $20.00/Unit (CPS) b. $7.31/Unit (DWA) ***Rate (5)***
Mobile Home Park (1 EDU = 1 Space)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (1)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (1)***	Total Charge: $26.15/Spc. plus $1.98/FU a. $20.00/Unit (CPS) b. $6.15/Unit (DWA) c. $1.98/FU (CPS) ***Rate (6)***	Total Charge: $27.31/Spc. plus $1.98/FU a. $20.00/Unit (CPS) b. $7.31/Unit (DWA) c. $1.98/FU (CPS) ***Rate (6)***
Apartments (1 EDU = 1 Unit)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (4)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (4)***	Total Charge: $26.15/Unit a. $20.00/Unit (CPS) b. $6.15/Unit (DWA) ***Rate (7)***	Total Charge: $27.31/Unit a. $20.00/Unit (CPS) b. $7.31/Unit (DWA) ***Rate (7)***
B. Hotel / Motel (1/2 EDU = 1 Room)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (4)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (4)***	N/A	N/A
C. R.V. Park (1/2 EDU = 1 Space)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (4)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (4)***	N/A	N/A
D. Commercial, Industrial, or Institutional (Other than Schools)	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (4)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (4)***	Total Charge: $1.98/FU (Minimum $20.00) plus $6.15/EDU a. $1.98/FU (CPS) (minimum $20.00) b. $6.15/EDU (DWA) ***Rate (8)***	Total Charge: $1.98/FU (Minimum $20.00) plus $7.31/EDU a. $1.98/FU (CPS) (minimum $20.00) b. $7.31/EDU (DWA) ***Rate (8)***

6. Monthly Service Charges (Cont.)

	CVWD Treatment Cathedral City (Effective 07/01/23)	CVWD Treatment Cathedral City (Effective 01/01/24)	City Treatment Palm Oasis/Dream Homes (Effective 01/01/22)	City Treatment Palm Oasis/Dream Homes (Effective 01/01/24)
E. Schools and Colleges Kindergarten Elementary Schools & Colleges	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (3)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (3)***	(See Commercial) ***Rate (8)***	(See Commercial) ***Rate (8)***
All Other Schools	Total Charge: $33.25/EDU a. $27.10/EDU (CVWD) b. $6.15/EDU (DWA) ***Rate (2)***	Total Charge: $34.41/EDU a. $27.10/EDU (CVWD) b. $7.31/EDU (DWA) ***Rate (2)***	N/A	N/A
*The number of students to be used in calculating the monthly sewer charges shall be based on the previous year's average monthly attendance.				
F. Interceptor/ Separator Surcharge	$14.00 ***Rate (4)***	$14.00 ***Rate (4)***	N/A	N/A

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

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

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

a.) Will Serve Letter
b.) Development Bond Amount Letter
c.) Response to Initial Study
d.) Non-Interference Letter

10. Effective Date: This resolution shall become effective immediately upon adoption and shall replace Resolution No. 1278.

ADOPTED this 28th day of June 2023.

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Paul Ortega, President

ATTEST:

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Gerald McKenna, Secretary-Treasurer