



AGENDA

Meeting of the Scotts Valley City Council

Remote Access Only

Date: August 17, 2022

Time: 6:00 PM

CONTACT INFORMATION	MEETING LOCATION	POSTING
City of Scotts Valley 1 Civic Center Drive Scotts Valley, CA 95066 (831) 440-5600	Zoom Videoconference https://us02web.zoom.us/j/86840689632 <i>See information below for how to participate.</i>	The agenda was posted 8/12/2022 at City Hall and on the Internet at www.scottsvally.org .

PUBLIC ADVISORY REGARDING COVID-19 AND PUBLIC PARTICIPATION

On September 16, 2021, Governor Newsom signed Assembly Bill 361 ("AB 361"), an urgency measure effective upon adoption, amending the Brown Act to allow legislative bodies to continue teleconferencing during a proclaimed State of Emergency, and either state or local officials have imposed or recommended measures to promote social distancing, or the legislative body determines that meeting in person would present imminent risks to the health or safety of attendees. In accordance with AB 361, the Scotts Valley City Council adopted Resolution No. 2007.10 on July 26, 2022, authorizing the continued use of teleconferenced meetings pursuant to AB 361. Elected Officials and City Staff Members will be participating remotely via videoconference.

Public Participation:

The meeting will be available on Zoom and broadcast through Community Television of Santa Cruz on Channel 25 and via their website at the following link: <https://communitytv.org/watch/> (be sure to click on Channel 25). For those wishing to participate via Zoom you can join the following ways:

- Join from a PC, Mac, iPad, iPhone or Android device:
Please click this URL to join. <https://us02web.zoom.us/j/86840689632>
- Or One tap mobile:
US: +16694449171,,86840689632#
+16699009128,,86840689632#
- Or Telephone:
Dial (for higher quality, dial a number based on your current location):
US: +1 669 444 9171 or +1 669 900 9128 or +1 253 215 8782
or +1 346 248 7799 or +1 719 359 4580 or +1 386 347 5053
or +1 564 217 2000 or +1 646 558 8656 or +1 646 931 3860
or +1 301 715 8592 or +1 309 205 3325 or +1 312 626 6799

Webinar ID: 868 4068 9632

You will be given opportunities to provide public comment at the appropriate times throughout the meeting via Zoom. If you are participating via dial-up only, use *9 to raise your hand at the requested time.

How to comment via Zoom:

1. At the appropriate times during the meeting for public comment, on items not on the agenda, and on specific agenda items, the Mayor will announce that public comment will be accepted. Our usual time limits of 3 minutes per individual, or 5 minutes for an individual who is representing a group of three or more, will apply. Please note that per our standard practice, this is not a question and answer time, but simply a time for you to provide your comments to the Council.
2. There is an option on Zoom to raise your hand. Please click on this option when the Mayor announces that public comment will be taken. Zoom places people in line automatically. If you are participating via dial-up, you can raise your hand at the appropriate time by pressing *9. When it is your turn, the City Clerk will unmute you, and you will be able to make your comments based on the above time frames. Once your time is up, you will once again be muted and the next person in line will be given their opportunity to speak.

How to comment via email:

1. Members of the public may provide public comment by sending comments to the City Clerk via email at cityhall@scottsvalley.org.
2. Additional materials and emails must be received by 5:30 PM the day of the meeting and will be distributed to agenda recipients prior to the meeting.
3. Emails received after 5:30 PM the day of the meeting will not be included in the record.

ELECTED OFFICIALS	CITY STAFF MEMBERS
Donna Lind, Mayor Jim Reed, Vice Mayor Jack Dilles, Council Member Randy Johnson, Council Member Derek Timm, Council Member	Mali LaGoe, City Manager Casey Estorga, Administrative Services Director Kirsten Powell, City Attorney Steve Walpole, Chief of Police Taylor Bateman, Community Development Director Chris Lamm, Public Works Director Cathie Simonovich, City Clerk

MEETING NOTICE AND AGENDA PACKET MATERIALS

Notice regarding City Council Meetings:

The City Council meets regularly on the 1st and 3rd Wednesday of each month at 6:00 PM.

Agenda and Agenda Packet Materials:

The City Council agenda and the complete agenda packet are available for review by 5:00 PM the Friday before the Wednesday meeting on the Internet at the City's website: <http://scottsvalley.org/AgendaCenter>. Due to COVID-19, City Hall is closed to the public therefore, the agenda is only available for viewing online.

Televised Meetings:

City Council meetings are cablecast "Live" on Community Television of Santa Cruz County on Comcast Channel 25 and are also available livestream on the Community TV website at the following link: <https://communitytv.org/watch/>

Zoom Meetings/Webinars:

For those wishing to participate via Zoom you can join from a PC, Mac, iPad, iPhone or Android device by entering or clicking on the following URL:

<https://us02web.zoom.us/j/86840689632>

CALL TO ORDER 6:00 PM**MOMENT OF SILENCE****ROLL CALL****COMMITTEE REPORTS**

Council members are appointed to committees which are either City committees or committees dealing with other jurisdictions. This portion of the agenda allows the committee member to present oral or written reports to the Council regarding their committee assignments. It also allows the Council to make comments and give the committee member direction, as required.

CITY MANAGER REPORT**PUBLIC COMMENT TIME**

This is the opportunity for individuals to make and/or submit written or oral comments to the Council on any items within the purview of the Council, which are NOT part of the Agenda. No action on the item may be taken, but the Council may request the matter be placed on a future agenda.

ALTERATIONS TO CONSENT AGENDA

Council can remove or add items to the Consent Agenda.

CONSENT AGENDA

The Consent Agenda is comprised of items which appear to be non-controversial. Persons wishing to speak on any items may do so raising their hand to be recognized by the Mayor.

- A. Approve City Council minutes of 08-03-2022
- B. Approve check registers dated 08-02-2022, 08-03-2022, and 08-11-2022
- C. Ratify the appointment of Heidi Denger to serve on the Parks and Recreation Commission, with an effective date of August 17, 2022
- D. Adopt Vision Zero Safety Policy
- E. Proposed staffing changes to the Fiscal Year 2022-23 Adopted Budget Position Summary

ALTERATIONS TO REGULAR AGENDA

Council can remove or add items to the Regular Agenda.

REGULAR AGENDA

Persons wishing to speak on any item may do so by raising their hand to be recognized by the Mayor.

1. CalPERS unfunded pension liability cost management strategies
2. Wastewater Reclamation Facility options study
3. Future Council agenda items
(This portion of the Regular Agenda allows the Council to determine items to be placed on a future agenda and to choose a date, if so desired.)

CONVENE TO CLOSED SESSION

CLOSED SESSION SUBJECT

1. Conference with legal counsel regarding real property negotiations pursuant to Government Code Section 54956.8
Location: APN 022-721-07, 022-721-08, and 022-721-09
City Negotiator: Mali LaGoe, City Manager
Staff Present: City Manager, City Attorney

RECONVENE TO OPEN SESSION

REPORT ON ACTION TAKE DURING CLOSED SESSION

ADJOURNMENT

ADA NOTICE

The City of Scotts Valley does not discriminate against persons with disabilities. The City Council Chambers is an accessible facility. If you wish to attend a City Council meeting and require assistance such as sign language, a translator, or other special assistance or devices in order to attend and participate at the meeting, please call the City Clerk's office at (831) 440-5602 five to seven days in advance of the meeting to make arrangements for assistance. If you require the agenda of a City Council meeting be available in an alternative format consistent with a specific disability, please call the City Clerk's Office. The California State Relay Service (TTY/VCO/HCO to Voice: English 1-800-735-2929, Spanish 1-800-855-3000; or, Voice to TTY/VCO/HCO: English 1-800-735-2922, Spanish 1-800-855-3000), provides Telecommunications Devices for the Deaf and Disabled and will provide a link between the TDD caller and users of telephone equipment.

PROCEDURAL INFORMATION FOR THE PUBLIC

**THE FOLLOWING IS THE PROCEDURE COUNCIL SHOULD TAKE IN
APPROVAL OF A RESOLUTION:**

1. Move the Resolution number for approval.
2. Second the motion.
3. Vote by body, a roll call vote is not required.

**THE FOLLOWING IS THE PROCEDURE COUNCIL SHOULD TAKE IN
INTRODUCTION/ADOPTION OF AN ORDINANCE:**

1. Move the Ordinance number for introduction (or adoption).
2. Move the Ordinance be introduced by title only and waive the reading of the text.
3. Read the Ordinance title.
4. Second the motion.
5. Vote by body, a roll call vote is not required.

**THE FOLLOWING IS THE PROCEDURE COUNCIL SHOULD TAKE IN
PUBLIC COMMENT/PUBLIC HEARINGS:**

Unless otherwise determined by the presiding officer of the meeting:

1. Three minutes allowed per individual to speak.
2. Five minutes allowed per individual representing a group of three or more.



The City of Scotts Valley does not discriminate against persons with disabilities. The City Council Chambers is an accessible facility. If you wish to attend a City Council meeting and require assistance such as sign language, a translator, or other special assistance or devices in order to attend and participate at the meeting, please call the City Clerk's office at (831) 440-5602 five to seven days in advance of the meeting to make arrangements for assistance. If you require the agenda of a City Council meeting be available in an alternative format consistent with a specific disability, please call the City Clerk's Office. The California State Relay Service (TTY/VCO/HCO to Voice: English 1-800-735-2929, Spanish 1-800-855-3000; Voice to TTY/VCO/HCO: English 1-800-735-2922, Spanish 1-800-855-3000; or, from or to Speech-to-Speech, English & Spanish 1-800-854-7787), provides Telecommunications Devices for the Deaf and Disabled and will provide a link between the TDD caller and users of telephone equipment.



MINUTES

Meeting of the Scotts Valley City Council

Date: August 3, 2022

Time: 6:00 PM

CONTACT INFORMATION	MEETING LOCATION	POSTING
City of Scotts Valley 1 Civic Center Drive Scotts Valley, CA 95066 (831) 440-5600	Zoom Video Conference	The agenda was posted at City Hall, SV Senior Center, SV Library and on the Internet at www.scottsvally.org .

CALL TO ORDER 6:00 PM

The City Council meeting was called to order at 6:15 pm.

MOMENT OF SILENCE

ROLL CALL

ELECTED OFFICIALS PRESENT:

Donna Lind, Mayor
Jim Reed, Vice Mayor (absent for
Roll Call - arrived at 6:23 PM)
Jack Dilles, Council Member
Randy Johnson, Council Member
Derek Timm, Council Member

CITY STAFF MEMBERS PRESENT:

Mali LaGoe, City Manager
Kirsten Powell, City Attorney
Steve Walpole, Chief of Police
Taylor Bateman, Community Development Director
Casey Estorga, Administrative Services Director
Chris Lamm, Public Works Director/City Engineer
Cathie Simonovich, City Clerk

COMMITTEE REPORTS

CM Dilles attended a meeting of the Santa Margarita Groundwater Agency where they reviewed and discussed responses to the Grand Jury report. They also discussed sharing excess water and other projects that could put more water into the ground.

CM Timm attended the Town Center subcommittee meeting, and this was the first meeting with Dara Sanders from Good City. She is helping to organize the strategy going forward, not only for how we are going to consolidate the land, but also helping to finalize the remediation strategy.

CM Timm reported that the work the Library Subcommittee has done over the last few years, using the Measure S funds, will be on display at the grand re-opening ceremony on Saturday. The Scotts Valley Library grand re-opening festivities are scheduled for Saturday, August 6th from 10:00 AM to 2:00 PM. Members of Council and Staff are scheduled to speak at the event.

CM Johnson clarified that the City Manager and the Town Center Subcommittee will bring the Town Center project to the Council at a later date to share ideas and proposals.

Mayor Lind attended the Local Agency Formation Commission (LAFCO) meeting where they discussed an annexation, and they approved a countywide water service and sphere influence review.

Mayor Lind attended the Criminal Justice Council Executive meeting and they worked on a behavioral health study. Law enforcement agencies will begin collecting data to support the study.

Mayor Lind attended a Youth Action Network (YAN) meeting where they discussed goals and partnerships. She noted that the City of Scotts Valley is one of two agencies with an internship program.

Mayor Lind attended a Santa Cruz Metropolitan Transit District (METRO) board meeting, and they approved the fiscal year 2023-24 budget, they adopted an updated Conflict of Interest Code, and discussed other budget related issues. They noted a CalPERS bond savings of \$1.8 million.

Mayor Lind, along with Captain Rutherford, attended a meeting of the Scotts Valley Historical Society to recognize Julie and Chuck Fetter for their many years serving the Historical Society.

Mayor Lind noted that the Art, Wine & Beer Festival will be on August 20-21, and they are looking for volunteers.

Mayor Lind and City Manager LaGoe met with Senator Laird where they discussed the recycled water project, funding for housing, and the organic waste disposal challenges.

Mayor Lind attended the National Night Out event at Macdorsa Park. She thanked Chief Walpole and his staff for coordinating it. She also thanked Togo's for providing sandwiches.

Mayor Lind thanked everyone for their hard work on the Independence Day festivities. She was able to present the ribbons to all the parade winners, and she attended the check presentation at the Moose Lodge. The Moose Lodge members raised money by operating the BBQ booth at the fireworks, and they were able to present checks to the Scotts Valley Boys & Girls Club, Camp Ross, and the Scout Troop 614.

CITY MANAGER REPORT

New Staff Members: City Manager LaGoe introduced two new staff members: Corie Stocker, Assistant to the City Manager; and Ali Robinson, Recreation Division Manager. Both Ms. Stocker and Ms. Robinson also said a few words to introduce themselves. The new Senior Civil Engineer will start on August 8th.

School Starts on August 11th: A change for this year is that the high school students will all start at 8:30 AM, which means that there will be an increase in traffic on Scotts Valley Drive. City Manager LaGoe and Chief Walpole met with school administration to discuss the traffic issues, as well as the relationship between the Police Department and the School District, specifically how the City supports the schools with the School Resource Officer (SRO) and other training opportunities that the Police Department can provide for the School District. The School District is appreciative of the SRO and his relationship with the community.

Library Re-opening: As Councilmember Timm mentioned, the grand re-opening festivities are Saturday, August 6th starting at 10:00 AM.

FlashVote Text Campaign: Community members will be receiving texts from FlashVote soon. We are looking forward to people signing up to answer short surveys to provide valuable community input.

Website Redesign: Staff recently kicked off a website redesign project and are looking forward to developing the website into a robust tool to serve the community.

Scotts Valley's Birthday: Happy Birthday (Incorporation) Day to the City of Scotts Valley, August 2, 1966!

Technology Improvements: Efforts continue to move forward on technology improvements throughout the City's buildings.

PUBLIC COMMENT TIME

No one from the public came forward to speak.

CONSENT AGENDA APPROVAL WITH NO ALTERATIONS

M/S: Dilles/Johnson

To approve the Consent Agenda.

Carried 5/0 (AYES: Dilles, Johnson, Lind, Reed, Timm)

- A. Approve City Council minutes of 6-15-2022 and 7-26-2022
- B. Approve check registers dated 6-17-2022, 6-23-2022, 6-30-2022, 7-07-2022,

7-14-2022, 7-21-2022 and 7-28-2022

- C. Approve designation of voting delegate and alternate for 2022 League of California Cities Annual Conference
- D. Approve Resolution No. 514.18 amending the Conflict of Interest Code for designated positions and incorporating by reference the Fair Political Practices Commission's standard model Conflict of Interest Code
- E. Approve cancellation of September 7, 2022 City Council meeting
- F. Ratify the appointment of Rebecca Sorci-Murray to serve on Parks and Recreation Commission, with an effective date of August 3, 2022
- G. Approve Professional Services Agreement with Environmental Innovations for environmental compliance services
- H. Approve budget expenditure and purchase order with Municipal Maintenance Equipment for Vactor Truck
- I. Approve term amendment for Measure D Direct Allocation Master Funding Agreement
- J. Approve Resolution No. 2016 Determining Industrial Disability Retirement
- K. Approve Resolution No. 1596.46 authorizing the levy of annual special tax roll for Scotts Valley Drive for Community Facilities District 97.1 for Fiscal Year 2022-23
- L. Approve revised section 7.06 of the Lease Agreement for 251B Kings Village Road with the Scotts Valley Community Theater Guild

REGULAR AGENDA APPROVAL WITH NO ALTERATIONS
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M/S: Reed/Dilles

To approve the Regular Agenda.

Carried 5/0 (AYES: Dilles, Johnson, Lind, Reed, Timm)

1. Fiscal Year 2022-23 Community Grant Program

City Manager LaGoe shared a presentation on the program and responded to comments from Council.

The following members of the community spoke in favor of the grant proposal process: Leah Samuels, Executive Director of the Human Care Alliance; Clay Kempf, Executive

Director of the Area Agency on Aging; and Serg Kagno, Executive Director of the Recovery Café.

2. Future Council Agenda Items

Councilmember Timm requested the creation of a City Council Code of Conduct, and both Mayor Lind and Councilmember Dilles agreed.

ADJOURNMENT

The meeting adjourned at 7:00 PM.

Approved: _____
Donna Lind, Mayor

Attest: _____
Cathie Simonovich, City Clerk

Agenda Item B

Date: 08-17-2022

SCOTTS VALLEY ACCOUNTS PAYABLE
08/02/2022 18:56:19 Check Register

CITY OF SCOTTS VALLEY
GL050S-V08.17 COVERPAGE
GL540R

Report Selection:

RUN GROUP... 8222 COMMENT... 06/30/2022 A/P #5

DATA-JE-ID DATA COMMENT

W-08022022-047 06/30/2022 A/P #5

Run Instructions:

Jobq	Banner	Copies	Form	Printer	Hold	Space	LPI	Lines	CPI	CP	SP	RT
L		01			Y	S	6	066	10			

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT	
BA	GENERAL CHECKING ACCOUNT				
003894	BURKE, WILLIAMS & SORENS	124656	08/02/22	25,321.16	
001566	BUSINESS WITH PLEASURE	124657	08/02/22	31.98	
001633	CAL-WEST LIGHTING & SIGN	124658	08/02/22	8,013.26	
003974	CHRISTOPHER S CRAIG	124659	08/02/22	730.20	
000778	DEPT OF JUSTICE	124660	08/02/22	64.00	
001243	LIEBERT CASSIDY WHITMORE	124661	08/02/22	2,992.00	
000111	S V CHAMBER OF COMMERCE	124662	08/02/22	10,000.00	
000134	S.V. WATER DISTRICT	124663	08/02/22	8,510.24	
003658	SANTA CRUZ OCCUPATIONAL	124664	08/02/22	130.00	
000153	THOMSON REUTERS-WEST	124665	08/02/22	355.92	
003971	WIZIX TECHNOLOGY GROUP,	124666	08/02/22	365.14	
	GENERAL CHECKING ACCOUNT			56,513.90	***

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/02/2022 18:56:19
GL540R-V08.17 PAGE 2

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT
REPORT TOTALS:				56,513.90

RECORDS PRINTED - 000025

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/02/2022 18:56:19
GL060S-V08.17 RECAPPAGE

Check Register

GL540R

FUND RECAP:

FUND	DESCRIPTION	DISBURSEMENTS
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001	GENERAL	50,448.50
004	RECREATION	197.30
010	WASTEWATER OPERATIONS	1,149.07
028	SENIOR CENTER	111.26
077	SKYPARK MAINT ASSESS DIST	4,264.93
123	COMMUNITY FACILITY CENTER	342.84
TOTAL ALL FUNDS		56,513.90

BANK RECAP:

BANK	NAME	DISBURSEMENTS
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BA	GENERAL CHECKING ACCOUNT	56,513.90
TOTAL ALL BANKS		56,513.90

SCOTTS VALLEY ACCOUNTS PAYABLE
08/02/2022 18:06:52 Check Register

CITY OF SCOTTS VALLEY
GL050S-V08.17 COVERPAGE
GL540R

Report Selection:

RUN GROUP... 080222 COMMENT... 08/02/2022 A/P

DATA-JE-ID DATA COMMENT

W-08022022-045 08/02/2022 A/P

Run Instructions:

Jobq	Banner	Copies	Form	Printer	Hold	Space	LPI	Lines	CPI	CP	SP	RT
L		01			Y	S	6	066	10			

BANK	VENDOR	CHECK#	DATE	AMOUNT
BA	GENERAL CHECKING ACCOUNT			
001405	AFLAC-FLEX ONE	124586	08/02/22	1,112.38
004057	ANDREWS/SELINA	124587	08/02/22	50.00
004029	ARMSTRONG/AMANDA	124588	08/02/22	50.00
000097	AT&T	124589	08/02/22	880.71
003746	AVENU HOLDINGS, LLC	124590	08/02/22	2,029.09
000565	BANK OF NEW YORK MELLON/	124591	08/02/22	5,850.00
001928	BATEMAN/TAYLOR	124592	08/02/22	50.00
000614	BATTERIES + BULBS #314	124593	08/02/22	120.42
001373	BAY TREE, LLC	124594	08/02/22	3,620.38
004067	BEERS/OLIVIA	124595	08/02/22	50.00
001066	BEHAVIORAL HEALTH CARE I	124596	08/02/22	118.00
000437	BRASS KEY LOCKSMITH	124597	08/02/22	18.64
004060	BURGEON GROUP LLC	124598	08/02/22	10,173.82
000773	CENTRAL COAST LANDSCAPE	124599	08/02/22	361.50
015008	CENTRAL HOME SUPPLY	124600	08/02/22	526.32
003887	CHEUNG/ATHENA	124601	08/02/22	50.00
002091	COMCAST	124602	08/02/22	148.31
005006	CORTEZ/DYLAN	124603	08/02/22	50.00
000975	DEAN/MICHAEL R.	124604	08/02/22	50.00
004005	ESTORGA/CASEY	124605	08/02/22	50.00
.15886	EXPEDITE THE DIEHL LLC	124606	08/02/22	164.84
000202	FEDERAL EXPRESS	124607	08/02/22	312.37
000202	FEDERAL EXPRESS	124608	08/02/22	371.90
004039	GARNER/SCOTT	124609	08/02/22	149.00
004093	GERA/BEAUJO	124610	08/02/22	50.00
001881	GRAINGER	124611	08/02/22	525.72
003706	GRANADOS/JUSTIN	124612	08/02/22	50.00
000057	HACH COMPANY	124613	08/02/22	298.69
004059	HAROS/JOANNA	124614	08/02/22	50.00
003944	HEBARD/TYLER	124615	08/02/22	50.00
001903	JONES/KIMARIE	124616	08/02/22	265.20
001660	KING/KATI	124617	08/02/22	50.00
005005	KRUSEE/RANDALL	124618	08/02/22	50.00
004018	LAMBERT/LAUREN	124619	08/02/22	50.00
004046	LAMM/CHRIS	124620	08/02/22	50.00
003761	LEDGER/CHASE	124621	08/02/22	50.00
001673	LINCOLN FINANCIAL GROUP	124622	08/02/22	1,442.77
003389	LOCKE/CERINA	124623	08/02/22	50.00
003913	LONG/AMANDA	124624	08/02/22	50.00
001591	MARKELL/ROD	124625	08/02/22	1,974.00
001815	MC GRATH/TRISH	124626	08/02/22	50.00
005007	METOYER/ARTHUR	124627	08/02/22	50.00
001787	MICHAEL WADE PETRINI	124628	08/02/22	125.00
003685	MONTEREY BAY ANALYTICAL	124629	08/02/22	675.00
001872	NORTH CENTRAL LABORATORI	124630	08/02/22	1,316.27
001615	OLIN CORP-CHLOR ALKALI	124631	08/02/22	2,749.12
003766	ORMONDE/ROBERT	124632	08/02/22	50.00
000098	PALACE BUSINESS SOLUTION	124633	08/02/22	1,613.82

BANK	VENDOR	CHECK#	DATE	AMOUNT	
BA	GENERAL CHECKING ACCOUNT				
	004045 PHILLIP D NEUMAN	124634	08/02/22	26,794.99	
	001097 PRODESSE PROPERTY GROUP	124635	08/02/22	3,523.52	
	004065 REBUILD-IT SERVICES GROU	124636	08/02/22	2,813.40	
	003516 RICE LAKE WEIGHING SYSTE	124637	08/02/22	1,739.87	
	002074 ROSS MCDONALD CO INC	124638	08/02/22	41,144.59	
	001118 RUTHERFORD/JAYSON	124639	08/02/22	50.00	
	000135 SAN LORENZO VALLEY WATER	124640	08/02/22	45.01	
	001823 SANTA CRUZ CO ENVIRONMEN	124641	08/02/22	1,283.00	
	003367 SANTA CRUZ LIVE SCAN, IN	124642	08/02/22	60.00	
	000128 SCARBOROUGH LUMBER	124643	08/02/22	1,794.67	
	000133 SCOTTS VALLEY SPRINKLER	124644	08/02/22	57.59	
	004092 SIMONOVICH/CATHIE	124645	08/02/22	50.00	
	003196 SONSTRAY MACHINERY	124646	08/02/22	2,404.87	
	002065 SOTO/ART	124647	08/02/22	50.00	
	005019 STOCKER/CORIE	124648	08/02/22	50.00	
	003973 THOMAS/TYLER	124649	08/02/22	50.00	
	003548 TORO PETROLEUM CORP	124650	08/02/22	4,461.95	
	000151 VISION SERVICE PLAN	124651	08/02/22	1,137.15	
	005018 WATSONVILLE DIESEL	124652	08/02/22	190.00	
	004043 WATTS REGULATOR CO	124653	08/02/22	387.02	
	005022 WELSH/ELISA	124654	08/02/22	50.00	
	000154 WINCHESTER AUTO STORES	124655	08/02/22	199.33	
	GENERAL CHECKING ACCOUNT			126,380.23	***

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/02/2022 18:06:52
GL540R-V08.17 PAGE 3

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT
REPORT TOTALS:				126,380.23

RECORDS PRINTED - 000161

GL540R

FUND RECAP:

FUND	DESCRIPTION	DISBURSEMENTS
----	-----	
001	GENERAL	43,255.61
004	RECREATION	202.33
010	WASTEWATER OPERATIONS	12,543.90
011	TERTIARY TREATMENT PLANT	6,967.88
019	AFFORDABLE HOUSING	1,974.00
023	SVRDA SUCCESSOR AGENCY	7,143.90
028	SENIOR CENTER	38.57
050	PINEWOOD EST LNDSCP MAINT DT	361.50
088	LIBRARY FACILITIES-MEAS "S"	51,318.41
090	SV DRIVE A REDEMPTION	2,250.00
112	DENTAL INS INTERNAL SERV	314.20
123	COMMUNITY FACILITY CENTER	9.93
TOTAL ALL FUNDS		126,380.23

BANK RECAP:

BANK	NAME	DISBURSEMENTS
----	-----	
BA	GENERAL CHECKING ACCOUNT	126,380.23
TOTAL ALL BANKS		126,380.23

SCOTTS VALLEY ACCOUNTS PAYABLE
08/03/2022 14:38:47 Check Register

CITY OF SCOTTS VALLEY
GL050S-V08.17 COVERPAGE
GL540R

Report Selection:

RUN GROUP... 080322 COMMENT... 08/03/22 A/P

DATA-JE-ID DATA COMMENT

W-08032022-049 08/03/22 A/P

Run Instructions:

Jobq	Banner	Copies	Form	Printer	Hold	Space	LPI	Lines	CPI	CP	SP	RT
L		01			Y	S	6	066	10			

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT	
BA	GENERAL CHECKING ACCOUNT				
001818	ALLIANT INSURANCE SERVIC	124667	08/03/22	9,066.00	
	GENERAL CHECKING ACCOUNT			9,066.00	***

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/03/2022 14:38:47
GL540R-V08.17 PAGE 2

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT
REPORT TOTALS:				9,066.00

RECORDS PRINTED - 000001

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/03/2022 14:38:47
GL060S-V08.17 RECAPPAGE

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GL540R

FUND RECAP:

FUND	DESCRIPTION	DISBURSEMENTS
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001	GENERAL	9,066.00
TOTAL ALL FUNDS		9,066.00

BANK RECAP:

BANK	NAME	DISBURSEMENTS
----	-----	
BA	GENERAL CHECKING ACCOUNT	9,066.00
TOTAL ALL BANKS		9,066.00

SCOTTS VALLEY ACCOUNTS PAYABLE
08/11/2022 19:13:06 Check Register

CITY OF SCOTTS VALLEY
GL050S-V08.17 COVERPAGE
GL540R

Report Selection:

RUN GROUP... 81122 COMMENT... 06/30/2022 A/P #6

DATA-JE-ID DATA COMMENT

W-08112022-054 06/30/2022 A/P #6

Run Instructions:

Jobq	Banner	Copies	Form	Printer	Hold	Space	LPI	Lines	CPI	CP	SP	RT
L		01			Y	S	6	066	10			

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT	
BA	GENERAL CHECKING ACCOUNT				
	000652 ANDERSON PACIFIC ENG INC	124784	08/11/22	38,659.08	
	003736 CA DEPT OF TRANSPORTATIO	124785	08/11/22	2,145.89	
	003043 CSG CONSULTANTS, INC	124786	08/11/22	25,780.50	
	001817 GROUP 4	124787	08/11/22	6,015.00	
	004041 INTERWEST CONSULTING GRO	124788	08/11/22	6,502.50	
	004079 KARNO/JENNIFER	124789	08/11/22	9,848.03	
	003292 KIMLEY-HORN & ASSOCIATES	124790	08/11/22	7,478.95	
	003756 MICHAEL BAKER INTERNATIO	124791	08/11/22	3,988.40	
	002082 ONE WORK PLACE	124792	08/11/22	15,229.03	
	005023 PROACTIVE RISK SOLUTIONS	124793	08/11/22	1,425.00	
	003572 REGIONAL GOVERNMENT SERV	124794	08/11/22	1,180.00	
	000196 ROSS RECREATION EQUIPMEN	124795	08/11/22	4,387.76	
	001544 SANTA CRUZ COUNTY CONFER	124796	08/11/22	22,035.32	
	003745 SCOTTS VALLEY HOTEL LP	124797	08/11/22	24,501.80	
	003581 SUEZ TREATMENT SOLUTIONS	124798	08/11/22	1,075.66	
	000646 UNDERGROUND SERVICE ALER	124799	08/11/22	4,098.50	
	000443 WALPOLE/STEVE	124800	08/11/22	235.20	
	001625 YOSHIDA DDS/NOREEN	124801	08/11/22	780.00	
	GENERAL CHECKING ACCOUNT			175,366.62	***

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/11/2022 19:13:06
GL540R-V08.17 PAGE 2

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BANK	VENDOR	CHECK#	DATE	AMOUNT
REPORT TOTALS:				175,366.62

RECORDS PRINTED - 000022

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/11/2022 19:13:06
GL060S-V08.17 RECAPPAGE

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GL540R

FUND RECAP:

FUND	DESCRIPTION	DISBURSEMENTS
----	-----	
001	GENERAL	101,795.20
010	WASTEWATER OPERATIONS	43,295.41
011	TERTIARY TREATMENT PLANT	537.83
025	GENERAL TRUST	7,478.95
088	LIBRARY FACILITIES-MEAS "S"	21,244.03
112	DENTAL INS INTERNAL SERV	1,015.20
TOTAL ALL FUNDS		175,366.62

BANK RECAP:

BANK	NAME	DISBURSEMENTS
----	-----	
BA	GENERAL CHECKING ACCOUNT	175,366.62
TOTAL ALL BANKS		175,366.62

SCOTTS VALLEY ACCOUNTS PAYABLE
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CITY OF SCOTTS VALLEY
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Report Selection:

RUN GROUP... 081122 COMMENT... 08/11/2022 A/P

DATA-JE-ID DATA COMMENT

W-08112022-052 08/11/2022 A/P

Run Instructions:

Jobq	Banner	Copies	Form	Printer	Hold	Space	LPI	Lines	CPI	CP	SP	RT
L		01			Y	S	6	066	10			

BANK	VENDOR	CHECK#	DATE	AMOUNT
BA	GENERAL CHECKING ACCOUNT			
	000182 A SIGN ASAP	124726	08/11/22	371.75
	003919 ACCO ENGINEERED SYSTEMS	124727	08/11/22	3,539.25
	003534 ADOBE ANIMAL HOSPITAL SO	124728	08/11/22	114.19
	001219 ALHAMBRA	124729	08/11/22	146.34
	001219 ALHAMBRA	124730	08/11/22	130.85
	003497 ALVAREZ INDUSTRIES, INC	124731	08/11/22	871.00
	004057 ANDREWS/SELINA	124732	08/11/22	280.00
	001670 AT &T	124733	08/11/22	3,751.77
	000097 AT&T	124734	08/11/22	9.53
	000437 BRASS KEY LOCKSMITH	124735	08/11/22	120.00
	.15889 BRENDA'S FACE PAINTING	124736	08/11/22	360.00
	001566 BUSINESS WITH PLEASURE	124737	08/11/22	430.54
	003714 CAPITOLA/CITY OF	124738	08/11/22	9,061.01
	003596 COPWARE, INC	124739	08/11/22	705.00
	004068 CORDICO INC.	124740	08/11/22	5,200.00
	000037 CRYSTAL SPRINGS WATER CO	124741	08/11/22	8.00
	001896 D & G SANITATION	124742	08/11/22	984.90
	001257 EBRAHIMIAN DDS/MARK	124743	08/11/22	204.00
	001597 ENVIRONMENTAL INNOVATION	124744	08/11/22	7,883.88
	000202 FEDERAL EXPRESS	124745	08/11/22	58.20
	004037 FERGUSON ENTERPRISES, LL	124746	08/11/22	57.31
	000375 FIRST ALARM SECURITY & P	124747	08/11/22	4,125.00
	004023 HOUSEKEYS, INC.	124748	08/11/22	5,000.00
	001903 JONES/KIMARIE	124749	08/11/22	33.11
	004024 K & D LANDSCAPING, INC.	124750	08/11/22	10,518.95
	.15890 KYLE TROY BRANON	124751	08/11/22	250.00
	002026 LEHR AUTO	124752	08/11/22	14,601.18
	000078 LLOYD'S TIRE SERVICE INC	124753	08/11/22	954.67
	000284 LOGAN & POWELL, LLP	124754	08/11/22	22,671.00
	.15888 MARQUEZ JUMPERS	124755	08/11/22	300.00
	003171 MICHALAK/GENE	124756	08/11/22	125.00
	000218 MID VALLEY SUPPLY	124757	08/11/22	514.81
	000083 MISSION UNIFORM SERVICE	124758	08/11/22	1,020.43
	000494 MONTEREY BAY AIR	124759	08/11/22	3,932.00
	001418 MONTEREY REGIONAL	124760	08/11/22	5,078.00
	000939 NATIONAL COMTEL NETWORK	124761	08/11/22	16.19
	001872 NORTH CENTRAL LABORATORI	124762	08/11/22	40.97
	000101 PACIFIC GAS & ELECTRIC C	124763	08/11/22	53,452.05
	000723 PIED PIPER INC./THE	124764	08/11/22	2,516.50
	.15887 PILAR GRAY	124765	08/11/22	500.00
	005008 RDO EQUIPMENT CO.	124766	08/11/22	1,142.74
	002074 ROSS MCDONALD CO INC	124767	08/11/22	38,986.91
	001823 SANTA CRUZ CO ENVIRONMEN	124768	08/11/22	1,110.00
	.15891 SANTA CRUZ COUNTY	124769	08/11/22	89.00
	003367 SANTA CRUZ LIVE SCAN, IN	124770	08/11/22	60.00
	003306 SCOTTS VALLEY COMMUNITY	124771	08/11/22	95,000.00
	004092 SIMONOVICH/CATHIE	124772	08/11/22	124.80
	000143 SUMMIT UNIFORMS	124773	08/11/22	3,450.78

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT	
BA	GENERAL CHECKING ACCOUNT				
	004087 TIRECHOICE AUTO SERVICE	124774	08/11/22	963.98	
	001366 U.S. BANCORP OFFICE	124775	08/11/22	1,300.62	
	004030 U.S. BANK CORPORATE	124776	08/11/22	19,751.82	
	000646 UNDERGROUND SERVICE ALER	124777	08/11/22	1,584.65	
	003924 VIRTUAL PROJECT MANAGER	124778	08/11/22	1,000.00	
	003145 WAGE WORKS	124779	08/11/22	2,985.86	
	000443 WALPOLE/STEVE	124780	08/11/22	638.40	
	000443 WALPOLE/STEVE	124781	08/11/22	212.80	
	000443 WALPOLE/STEVE	124782	08/11/22	100.80	
	005018 WATSONVILLE DIESEL	124783	08/11/22	1,101.32	
	GENERAL CHECKING ACCOUNT			329,541.86	***

SCOTTS VALLEY ACCOUNTS PAYABLE
CITY OF SCOTTS VALLEY
08/11/2022 18:07:17
GL540R-V08.17 PAGE 3

Check Register

BANK	VENDOR	CHECK#	DATE	AMOUNT
REPORT TOTALS:				329,541.86

RECORDS PRINTED - 000171

GL540R

FUND RECAP:

FUND	DESCRIPTION	DISBURSEMENTS
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001	GENERAL	112,372.99
002	RECYCLING/ENVIRONMENTAL	7,883.88
004	RECREATION	1,175.05
010	WASTEWATER OPERATIONS	54,895.05
019	AFFORDABLE HOUSING	5,000.00
024	LENNAR TRUST FUNDS	95,000.00
028	SENIOR CENTER	3,921.86
050	PINEWOOD EST LNDSCP MAINT DT	645.29
077	SKYPARK MAINT ASSESS DIST	2,073.79
088	LIBRARY FACILITIES-MEAS "S"	38,986.91
112	DENTAL INS INTERNAL SERV	1,560.80
123	COMMUNITY FACILITY CENTER	4,269.11
150	GENERAL CAPITAL IMPROVEMENTS	315.29
312	POLICE - BUDGET ACT OF 2016	1,441.84
TOTAL ALL FUNDS		329,541.86

BANK RECAP:

BANK	NAME	DISBURSEMENTS
----	-----	
BA	GENERAL CHECKING ACCOUNT	329,541.86
TOTAL ALL BANKS		329,541.86

City of Scotts Valley
CITY COUNCIL STAFF REPORT

DATE: August 17, 2022

TO: Honorable Mayor and City Council

FROM: Cathie Simonovich, City Clerk

APPROVED: Mali LaGoe, City Manager

SUBJECT: APPOINTMENT TO PARKS AND RECREATION COMMISSION

SUMMARY OF ISSUE

As vacancies occur, or due to an election or re-election of a Council Member, a member of the Council may nominate a new individual to serve on a City Commission, Committee, and/or Board. All appointments must be approved by the City Council.

There is a vacancy on the Parks and Recreation Commission due to the resignation of Cathie Simonovich and an application has been submitted by Heidi Denger. Council Member Jim Reed has nominated Ms. Denger to serve on the Parks and Recreation Commission and upon Council approval, Ms. Denger will fill the vacancy.

FISCAL IMPACT

None.

STAFF RECOMMENDATION

It is recommended that the City Council ratify the appointment of Heidi Denger to serve on Parks and Recreation Commission, with an effective date of August 17, 2022.

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Application for Parks and Recreation Commission.....	2



City of Scotts Valley

Application for Appointment to Serve on a City Advisory Body

Advisory Body you are applying for:

- | | | |
|---|---|---|
| ☐ Planning Commission | ☐ Arts Commission | ☐ Senior Center Board |
| ☒ Parks & Recreation Commission | ☐ Board of Appeals | ☐ Code Enforcement Appeals Board |
| ☐ ADA Accessibility Committee | ☐ Parks & Recreation Advocates | ☐ Mobile Home Park Rent Review |

Contact Information

Name	Heidi Denger		
Street Address	[REDACTED]		
City / ST/ ZIP Code	Scotts Valley, CA 95066		
Phone – Primary	[REDACTED]	☒ Cell	☐ Work ☐ Home
Phone – Secondary		☐ Cell	☐ Work ☐ Home
E-Mail Address	hdengerschoolinfo@gmail.com		

Background Information*

Years residing in Scotts Valley	8
Employer	Glassdoor
Occupation/Profession	Marketing/Sales
Education	BA Communication

**If you are appointed to a city commission or board, you may be required to file a Statement of Economic Interests (FPPC Form 700). The Form 700 is a State-mandated public document disclosing certain business, property and investment holdings which might conflict with the member's decisions. The City Clerk's Office will supply the Form 700 upon appointment.*

Summarize your interests, education, and/or experience as they relate to this position.

I have a strong belief that if you have an opinion and idea of the community you want to live in, you have to raise your hand and be willing to step up and help make that a reality. I have held multiple community positions since I have moved to Scotts Valley, including developing and leading the Daughter & Me Fundraiser for SVEF, and multiple years of service and leadership on different parent organizations, with the school district. I also built and act as the admin for the Scotts Valley Moms Facebook group, which currently has over 3,400 members. This role helps me really have an understanding of the important issues that are being discussed within our community, in real time.

Explain how you believe you can contribute toward the effectiveness of this position.

I have a passion for wanting to do all I can to make this community the best it can be. And, I firmly believe that our parks and open space are a big part of who we are as a community. I also believe through my other community service roles, I have an understand of the needs and desires of many throughout this community. I would be honored to be a part of making Scotts Valley the best it can be.

Summarize your participation in civic or community activities.

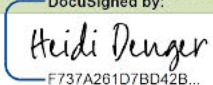
I started my community activities when I first moved to Scotts Valley, by developing and leadig the Daughter & Me Dance for the Scotts Valley Educational Foundtion for four years. I have also been a member of the Scotts Valley Educational Foundation. I am a board member for the Scotts Valley Middle School PTA. And I am currently in my third year as President of the Scotts Valley High School Parent Club.

How did you hear about this vacancy?

☐ City Website ☐ Other Website ☒ Word of Mouth ☒ Other (Specify): Jim Reed

APPLICANT SIGNATURE**DATE**

DocuSigned by:

X  Heidi Denger

8/11/22

Return application:**For more information, contact:****OFFICE USE ONLY – DATE RECEIVED**By email to:csimonovich@scottsvalley.govIn person or by mail to:

City Clerk's Office
1 Civic Center Drive
Scotts Valley, CA 95066

City Clerk's Office
(831)440-5600

csimonovich@scottsvalley.gov
www.scottsvalley.org

- Note:** 1) Applications are retained for one year. You will be contacted if a vacancy occurs within that time.
2) A separate application must be submitted for each advisory body to which you seek appointment.
3) You may attach additional pages or material (such as a resume) to the application if desired.

City of Scotts Valley CITY COUNCIL STAFF REPORT

DATE: August 17, 2022

TO: Honorable Mayor and City Council

FROM: Chris Lamm, Public Works Director/City Engineer

APPROVED: Mali LaGoe, City Manager

SUBJECT: **VISION ZERO SAFETY POLICY**

SUMMARY OF ISSUE

Vision Zero is a world-wide traffic safety policy that supports the elimination of all traffic fatalities and severe injuries and supports increasing safe, healthy and equitable mobility for all. This is done by acknowledging that traffic deaths and severe injuries are preventable and setting the goal of eliminating both in a set time frame, with clear, measurable strategies. To address this complex problem, Vision Zero uses a multidisciplinary Safe System approach as outlined by the Federal Highway Administration (FHWA).

The climate and built environment of Scotts Valley, Capitola and Santa Cruz County has encouraged more bicycling and walking than in other California communities. Vision Zero would build upon the City's commitment to improve the alternative modes of transportation as adopted in the City's Active Transportation Plan. The City has the opportunity to continue improving mobility for all roadway users and make its roadway system safe and efficient for its diverse users of all types of transportation modes through a partnership with the County of Santa Cruz, City of Capitola, and Regional Transportation Commission in the adoption of Vision Zero goals and development of a Vision Zero Action Plan.

Funding for the development of the Action Plan is available through the United State Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) discretionary program with \$5 billion in appropriated funds over the next 5 years. In fiscal year 2022 (FY22), up to \$1 billion is available. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

Staff has prepared a resolution that outlines how the City can draw upon existing and partner resources to successfully implement Vision Zero. The resolution calls for the following:

- Partner with the County of Santa Cruz as the lead agency and in coordination with the

City of Capitola on the pursuit of a Safe Streets for All Grant application for the development of a Vision Zero Action plan.

- Adopt the goal of eliminating traffic fatalities and serious injuries on City roadways by 2035.
- Assemble representatives of various City departments, other public agencies and community members to develop an Action Plan and present it to the Council for approval within two years.
- Focus on changing behavior through policies and strategies guided by a safe system approach.
- Gather, analyze, utilize and share reliable data to understand traffic safety issues, to prioritize resources based on evidence of the greatest need and impact, and to track and evaluate the success of these efforts.
- Prioritize the development of safe roadways and the highest level of safety for all road users through new policies, systems and infrastructure improvements for pedestrians, bicyclists and motorists.
- Create the Action Plan in a manner that promotes equity, community engagement and transparency by presenting it to the Council for acceptance and approval and providing the Council with regular updates on its development and implementation.

Staff anticipates that the Vision Zero Task Force will launch in late 2022 with the first efforts focused on developing a draft action plan for public review and input before bringing the report to the Council.

FISCAL IMPACT

Adopting a Vision Zero Traffic Safety Policy will use existing resources and not require additional funding. If the partner Task Force is successful in securing a grant for the development of a Vision Zero Action Plan it is estimated that the City of Scotts Valley matching share of the grant award would be \$10k-\$15k and could be funded through Public Works Operation budget (General Fund).

Adopting a Vision Zero Action Plan would enable the City to be eligible for other grant funds through the USDOT Safe Streets for All program.

STAFF RECOMMENDATION

Staff recommends that Council adopt Resolution No. 2018 Adopting the Vision Zero policies to eliminate traffic related fatalities in the City of Scotts Valley and the submission of a grant application for the development of a Vision Zero Action Plan.

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RESOLUTION NO. 2018

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SCOTTS VALLEY ADOPTING VISION ZERO POLICIES TO ELIMINATE TRAFFIC RELATED FATALITIES IN THE CITY OF SCOTTS VALLEY

WHEREAS, the life and health of City residents is the utmost priority; and

WHEREAS, Vision Zero is the concept that there is no acceptable number of traffic deaths and serious injuries on City roadways; and

WHEREAS, the City of Scotts Valley recognizes that no one should die or be seriously injured while traveling on streets within the City.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Scotts Valley, California, as follows:

1. That the City of Scotts Valley adopts the goal of Vision Zero – to eliminate traffic fatalities and serious injuries on streets within the City by 2035.
2. That the City Manager or designee is authorized to enter into any agreements with partner agencies and to submit grant applications in the effort of adopting Vision Zero goals.
3. That the City shall develop a Vision Zero Action Plan within two years of adoption of this resolution.
4. That the Action Plan shall be developed in a collaborative manner, with input from the community, by a Vision Zero Task Force that includes, but is not limited to, representatives from the:
 - City of Scotts Valley
 - Santa Cruz County Department of Community Development & Infrastructure, Health Services Agency, Office of Education, and Administrative Office
 - County Fire
 - California Highway Patrol
 - County of Santa Cruz Sheriff's Department
 - State Department of Transportation (Caltrans)
 - Santa Cruz County Regional Transportation Commission
 - City of Capitola

5. That the Action Plan focus on changing behavior through policies and strategies guided by a Safe System approach.
6. That the Action Plan gathers, analyzes, utilizes and shares reliable data to understand traffic safety issues, to prioritize resources based on evidence of the greatest need and impact, and to track and evaluate the success of these efforts.
7. That the Action Plan prioritizes the development of safe roadways and the highest level of safety for all road users through new policies, systems and infrastructure improvements for pedestrians, bicyclists and motorists.
8. That creation of the Action Plan is done in a manner that promotes equity, community engagement and transparency by presenting it to the Council for acceptance and approval and providing the Council with regular updates on its development and implementation.

The above and foregoing Resolution was duly and regularly adopted by the City Council of the City of Scotts Valley at a regular meeting held on the 17th day of August 2022 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Approved: _____
Donna Lind, Mayor

Attest: _____
Cathie Simonovich City Clerk

City of Scotts Valley CITY COUNCIL STAFF REPORT

DATE: August 17, 2022

TO: Honorable Mayor and City Council

FROM: Casey Estorga, Administrative Services Director

APPROVED BY: Mali LaGoe, City Manager

SUBJECT: **PROPOSED STAFFING CHANGES TO THE APPROVED FISCAL YEAR 2022-23 ADOPTED BUDGET POSITION SUMMARY**

SUMMARY OF ISSUE

The City of Scotts Valley continuously evaluates its operation to analyze optimal staffing levels and to fully understand how to provide the best level of service to the community. Through this evaluation, staff considers current and future operational needs, service complexities, the need for highly skilled staff, and how these variables relate to regional labor markets, especially in comparable agencies.

Public Works has identified a need for analyst support to fulfill reporting requirements, manage contracts and support the department's various complex budgets. Adding an Administrative Analyst I/II to the City's staffing compliment will provide the needed analytical support to Public Works and could be useful to other departments in the future.

Administrative Analyst I/II Series

The *Administrative Analyst I/II* position will be represented by the Service Employees International Union (SEIU) and will serve as a generalist with a skillset that can meet the needs of any City department. This position will report to a Department Head, Division Manager, or their designee. An Administrative Analyst I/II is not a management position and will not supervise staff. Instead, examples of duties include the following activities:

- **BUDGET:** Providing support to Departments with the annual budget development and budget monitoring processes (including for topics related to staff planning, operating budgets, Capital Improvement Projects, etc.); and
- **GRANTS:** Independently preparing grant documents, including preparing grant applications and other deliverables related to the scope of work, budget, reporting, and audits; and
- **ANALYSIS:** Researching information, gathering and analyzing data to support decision making processes.
- **REPORTING:** Developing reports for both financial and non-financial data as required by regulatory agencies and to communicate internally and externally.
- **POLICY:** Supporting Department Heads and City Manager to implement federal or state regulations and/or develop and implement City policies.

Staff conducted a comprehensive compensations study based on scope of work of the proposed *Administrative Analyst I/II* job classification. This effort was used to evaluate how total compensation for the position would compare with commensurate agencies and internally with positions at similar levels, including by comparing positions above and below the classification within the City. Based on information gathered from the compensation study, and to help ensure the City remains competitive to retain and/or recruit highly skilled employees, staff is recommending the City Council approves a Salary Schedule for the *Administrative Analyst I/II* position as follows:

ADMINISTRATIVE ANALYST I

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Existing	-	-	-	-	-	-	-
Recommended	\$5,713	\$6,018	\$6,319	\$6,635	\$6,967	\$7,315	\$7,681

ADMINISTRATIVE ANALYST II

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Existing	-	-	-	-	-	-	-
Recommended	\$6,516	\$6,841	\$7,183	\$7,543	\$7,920	\$8,316	\$8,732

Public Works Department: Wastewater Treatment and Administration Budgets

Add 1.00 Administrative Analyst I/II FTE (.50 Wastewater and .50 PW Administration)

Delete 1.00 Wastewater Lab Compliance Manager FTE

The Wastewater division requires significant reporting to state regulatory agencies to ensure the plant meets state requirements. Additional analyst support is needed to ensure these reports are submitted timely and completely. In addition, in the last year, the Lab Manager position was underfilled with a technician level position, which is currently vacant. The division has identified an outside testing agency that is capable of conducting most of the required lab testing work, reducing the need for the Lab Manager position. This staffing change proposes to replace the Lab Manager position with a new classification, Administrative Analyst I/II to support the analytical and reporting needs of the division as well as managing budget revenues and expenditures for the enterprise fund.

The Administrative Analyst position will be 50% dedicated to Wastewater Treatment and funded by the City's Wastewater Enterprise Fund and 50% dedicated to Public Works Administration to similar duties for the Engineering and Maintenance Divisions, funded by the General Fund.

Public Works Department: Engineering Division Budget

Add 1.00 Associate Civil Engineer FTE

Delete 1.00 Engineering Associate FTE

The Engineering Division is responsible for implementing the City’s Capital Improvement Plan (CIP), development review, public right of way management, and environmental functions, such as stormwater and solid waste reporting and compliance. The FY 2022-23 Adopted Budget includes two FTEs in the Engineering Technician/Engineering Associate job classification. The proposed change would result in the Engineering Division instead having one Engineering Associate and one Associate Civil Engineer. The Associate Civil Engineer is licensed (PE) position with a higher skill set as compared to the Engineering Associate. A pending retirement in of one of the City's Engineering Associate positions provides a natural opportunity to make this adjustment to the staffing compliment and provide a broader range of skillset amongst the division.

The City’s total FTE count remains unchanged at 66.00.

FISCAL IMPACT

The fiscal impact associated with replacing the Wastewater Lab / Environmental Compliance Manager position with an Administrative Analyst I/II position will result in approximately four thousand three hundred dollars (\$4,300.00) in total savings during FY 2022-23. As described above, funding for the Administrative Analyst I/II position will be split between the Wastewater Enterprise Fund and the General Fund.

The fiscal impact associated with replacing the Engineering Associate position with an Associate Civil Engineer position will result in approximately twenty-four thousand three hundred dollars (\$24,300) in additional costs during FY 2022-23.

Funding for these costs is included in the FY 2022-23 Adopted Budget and will be incorporated in future budgets, subject to City Council approval, during the City’s annual budget process.

STAFF RECOMMENDATION

It is recommended that the City Council approve the proposed staffing changes described above.

- Adopt a resolution approving the Salary Schedule for the Administrative Analyst I/II flexibly staffed job classification; and
- Approve an amendment to the FY 2022-23 FTE Position Summary to include the deletion of one (1.00) Wastewater Lab / Environmental Compliance Manager FTE and the addition of one (1.00) Administrative Analyst I/II FTE; and
- Approve an amendment to the FY 2022-23 FTE Position Summary to include the deletion of one (1.00) Engineering Associate FTE and the addition of one (1.00) Associate Civil Engineer FTE.

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RESOLUTION NO. 1955.23

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SCOTTS VALLEY
APPROVING THE SALARY SCHEDULE FOR THE ADMINISTRATIVE
ANALYST I/II FLEXIBLY STAFFED JOB CLASSIFICATION**

WHEREAS, City staff has evaluated the operation to analyze optimal staffing levels and to fully understand how to provide the best level of service to the community;

WHEREAS, through this analysis staff have identified the Administrative Analyst I/II job classification as a key position to perform duties that include budget development and monitoring, grant administration, data collection and analysis, reporting of financial and non-financial data, and the development and implementation of City policies and procedures; and

WHEREAS, approving the salary schedule for this position will provide the City Manager with appropriate and necessary positions to respond to the community's needs; and

WHEREAS, approving the salary schedule for this position is in the best interest of the City to recruit and retain top-tier talent; and

WHEREAS, City Council approval is needed to amend a Salary Schedule.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the City Council of the City of Scotts Valley that the Salary Schedule for the Administrative Analyst I/II flexibly staffed job classification is hereby approved as follows:

ADMINISTRATIVE ANALYST I

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Existing	-	-	-	-	-	-	-
Recommended	\$5,713	\$6,018	\$6,319	\$6,635	\$6,967	\$7,315	\$7,681

ADMINISTRATIVE ANALYST II

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Existing	-	-	-	-	-	-	-
Recommended	\$6,516	\$6,841	\$7,183	\$7,543	\$7,920	\$8,316	\$8,732

The above and foregoing resolution was duly and regularly adopted by the City Council of the City of Scotts Valley at a meeting held on the 17th day of August, 2022 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Approved: _____

Donna Lind,
Mayor

Attest: _____

Cathie Simonovich,
City Clerk

City of Scotts Valley CITY COUNCIL STAFF REPORT

DATE: August 17, 2022
TO: Honorable Mayor and City Council
FROM: Mali LaGoe, City Manager
SUBJECT: **CalPERS Unfunded Pension Liability Cost Management Strategies**

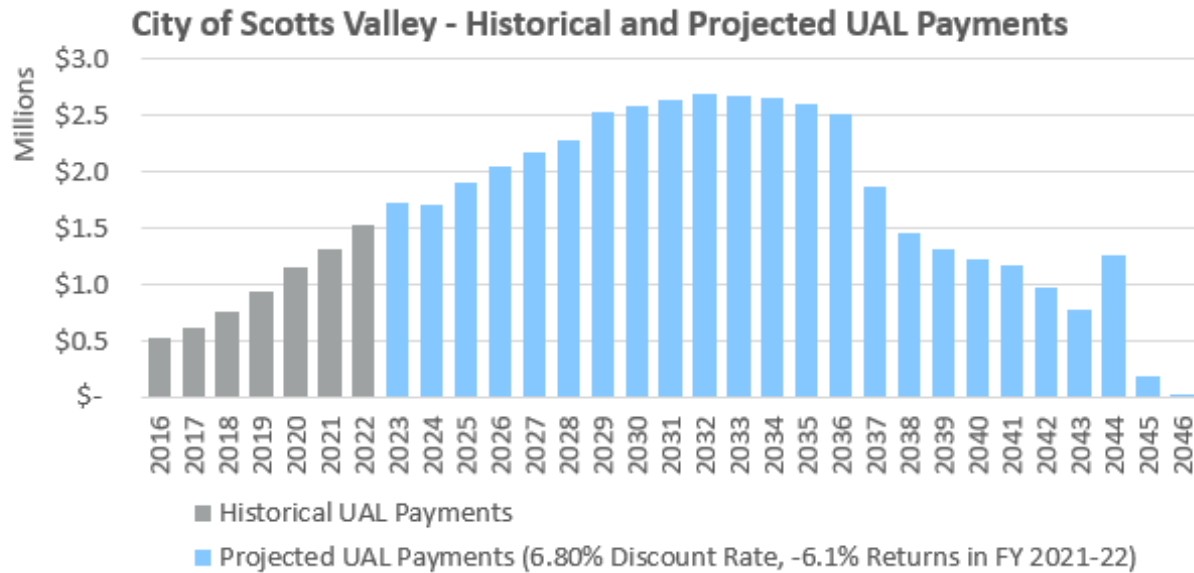
SUMMARY OF ISSUE

Since FY 2013-14, the City's Unfunded Accrued Liability ("UAL") for its CalPERS Miscellaneous and Safety Plans has grown 99.7%, from \$10.8 million to \$21.5 million (CalPERS 6/30/2020 valuation). This UAL represents the shortfall/gap between what is needed to pay retiree benefits versus how much in current assets the City actually has in its accounts with CalPERS.

In FY 2020-21, CalPERS generated strong investment returns of 21.3%, which is projected to lower the City's UAL to approximately \$16.4 million. This reduction in UAL will be reflected in the CalPERS 6/30/2021 valuation, which will be available to the City in the next few weeks. However, this temporary reduction will be offset in the future by CalPERS FY 2021-22 investment returns, which were recently reported to be -6.1%. Based on the FY 2021-22 returns, the City's UAL is projected to grow to \$23.8M. This increase in UAL will be recorded in CalPERS' 6/30/2022 valuation, which will be released in summer 2023.

The City's UAL is not required to be repaid all at once but is amortized over a longer period (with different components amortized over different time periods, most between 2 and 28 years) at a discount rate (equivalent to an interest rate on bonded debt) of 6.8% (recently decreased by CalPERS from 7.0%). The discount rate is set by CalPERS and is completely outside the control of the City and other local agencies in the state.

The chart below shows the City's historical UAL payments (grey bars) and projected UAL payments (blue bars). The projected UAL payments take into account the -6.1% investment returns generated by CalPERS in FY 2021-22.



Annual payments made to amortize the existing CalPERS UAL have grown rapidly from about \$0.5 million in FY 2015-16 to \$1.7 million in FY 2022-23 and are projected to grow to \$2.7 million by FY 2031-32. This has been, and will continue to be, a significant impact to the City's budget.

Pension cost increases and payment volatility are key financial challenges facing most cities and other local agencies throughout the state and are primarily due to factors outside of their control. While the City may not have control over CalPERS' assumption changes and investment returns, there are several potential cost management strategies that the City can consider to better manage rising pension costs and create resiliency to handle future volatility.

At this meeting, NHA Advisors, the City's municipal advisor, will deliver a presentation discussing recent CalPERS cost trends and introduce several cost management strategies. These strategies will include the following:

- 1) **Annual UAL Prepayment:** CalPERS gives member agencies the option to pay the full annual UAL payment upfront at the beginning of the fiscal year, instead of making monthly payments. Agencies that pay the full amount upfront achieve a discount of approximately 3.3%.
- 2) **Cost Sharing Negotiation with Employees (if applicable)**
- 3) **CalPERS Fresh Start Amortization:** CalPERS member agencies can amortize their UAL over a shorter period (e.g., 15 years), which smooths out UAL payments and reduces the overall interest paid on the UAL. However, this new structure typically results in higher near-term payments and reduced flexibility.
- 4) **Utilize Cash Reserves to Pay Extra:** The City can leverage current reserves and/or future surplus in one or both of the following ways:

- a. *Section 115 Trust:* A Section 115 Trust is dedicated to the City’s pension or OPEB costs and is managed by a third party. The trust has the potential for increased investment returns versus current General Fund reserves, as well as offers enhanced liquidity and budgetary flexibility.
 - b. *CalPERS Additional Discretionary Payment (ADP):* The City can pay a lump sum directly to CalPERS to reduce its UAL balance. This will reduce the City’s UAL and payments associated with that portion of the UAL. Unlike the Section 115 Trust, the City cannot access the money once it is sent to CalPERS.
- 5) **UAL Restructuring:** Similar to what it did in 2012, the City can restructure all or a portion of its UAL at a lower bond interest rate and smooth out payments for budget predictability and generate potential savings. Savings are dependent on future CalPERS returns. While this was an extremely popular option in 2020 and 2021, it is currently not recommended by staff or NHA Advisors given the massive rise in interest rates over the past 6 months. If interest rates were to be reduced in the future, this concept could be re-evaluated if desired, along with a comprehensive risk assessment given the complexity of this strategy.

During and after the presentation by NHA Advisors, City Council will be encouraged to ask questions and share input regarding how the City should further its strategy to address its unfunded pension liability. While this initial presentation is meant to be informative and high level, staff recommend the creation of an adhoc sub-committee consisting of Councilmembers Dilles and Timm to continue these pension cost management discussions in more depth with NHA and staff and to bring back a formal policy for the full Council’s consideration to memorialize a long-term pension cost management plan.

FISCAL IMPACT

There is no fiscal impact associated with this item.

STAFF RECOMMENDATION

It is recommended that the City Council adopt Resolution No. 2017 establishing a temporary project specific CalPERS Pension Cost Management Committee.

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RESOLUTION NO. 2017

**RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF SCOTTS VALLEY ESTABLISHING A TEMPORARY
PROJECT SPECIFIC CALPERS PENSION COST MANAGEMENT COMMITTEE**

WHEREAS, the City Council may establish project specific Council subcommittees to address an explicit purpose or need; and

WHEREAS, project specific Council subcommittees are of a limited duration and should be active for no more than one year; and

WHEREAS, the Council desires to establish a Project Specific CalPERS Pension Cost Management Committee effective August 17, 2022 through December 31, 2022; and

WHEREAS, the CalPERS Pension Cost Management Committee will be comprised of Councilmember Timm and Councilmember Dilles; and

WHEREAS, the purpose of the CalPERS Pension Cost Management Committee is to engage the City's financial advisor, NHA Advisors and City staff to develop a CalPERS Unfunded Pension Liability Cost Management Plan for City Council consideration and action.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED that the City Council of the City of Scotts Valley hereby establishes a Temporary Project Specific CalPERS Pension Cost Management Committee.

The above and foregoing resolution was duly and regularly adopted by the City Council of the City of Scotts Valley at a regular meeting held on the 17th day of August, 2022 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Approved: _____
Donna Lind, Mayor

Attest: _____
Cathie Simonovich, City Clerk

City of Scotts Valley CITY COUNCIL STAFF REPORT

DATE: August 17, 2022

TO: Honorable Mayor and City Council

FROM: Chris Lamm, Public Works Director/City Engineer

REVIEWED BY: Mali LaGoe, City Manager

SUBJECT: WASTEWATER RECLAMATION FACILITY OPTIONS STUDY

SUMMARY OF ISSUE

Background

The City of Scotts Valley (City) operates a Wastewater Reclamation Facility (WRF) consisting of an activated sludge treatment plant providing a capacity of 1.5 MGD (average dry weather flow) up to 5.0 MGD (peak wet weather flow), plus a 1 MGD capacity tertiary treatment facility. The tertiary treatment plant, operated in conjunction with the Scotts Valley Water District, provides recycled tertiary water to the Scotts Valley Water District (SVWD) and secondary effluent to Pasatiempo Golf Course for non-potable uses.

The main treatment plant and tertiary plant were completed in 1997. Since the major capital investment to construct the WRF 25 years ago, the City has conducted necessary replacement and repair but no major rebuilds or capital upgrades. Essential projects to ensure plant operability have been programmed in the City's Five-Year Capital Improvement Plan and incorporated into the City's FY 2022/23 Budget.

With the plant's aging condition and requirements for more and increasingly expensive capital investment, and in light of the changing legal and environmental context with communities' discharge and reuse of wastewater in California, the City initiated a process to evaluate its options for a major capital upgrade to the utility and entered into an agreement with Kennedy/Jenks Consultants Inc, in 2021 to perform an Options Study (Study).

Analysis

The Study was conducted under the following outline over ~9months.

1. Overview

Identifying the study purpose, reviewing prior WRF studies, identifying regional agencies, and recognizing regional studies that could impact the long-term decision-making process

2. Scotts Valley WRF Analysis

The Study reviewed the existing conditions of the WRF and identified the various regulations and requirements that any successful Option would need to adhere to. This includes recognition of existing and upcoming regulatory permitting requirements and existing agreements the City has entered into over the years. The WRF analysis also included a Business Risk and Vulnerability Analysis (BRVA)

The BRVA was conducted over the course of a full day workshop with City staff most familiar with the WRF Operations identify the criticality of each WRF unit process from a business importance perspective by strategically creating system failure scenarios and discussing the consequential impacts relative to safety, environmental/regulatory, financial, service reliability, and public image.

3. Options Identification

This section described a list of potential solutions to address the WRF operational challenges, including assumptions applied and costs developed to evaluate each option. In total 8 options were reviewed at a conceptual level including conceptual level costs. Table 3-4 Summary of WRF Options (Attachment A) on page 3-16 of the Study describes each in an easy to read format.

4. Screening Options

Following the identification of WRF Options, a two-step screening approach was applied to identify fatal flaws and compare the options based on a set of defined decision criteria.

- STEP 1: Initial Concept-level Screening to vet a broad set of options and provide the City with a high-level view of WRF options and potential local and regional partnerships.
- STEP 2: Options Evaluation and Comparison to evaluate a short list of options based on cost, benefits, limitations, and other decision criteria.

Based on the two-step screening process, 4 options were removed from further consideration due to fatal flaws identified and 4 were recommended for further consideration. Table 4-2 Fatal Flaws Screening Outcomes (Attachment B) describes initial screening criteria and each option's ability to meet required needs.

Removed from further consideration

- Option 1 – Decommission WRF
- Option 3b – 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment)
- Option 4a – 0.6 MGD Packaged Plant (Abandon Tertiary Treatment)
- Option 4b – 0.9 MGD Packaged Plant (Keep Existing Tertiary Treatment)

Remaining for further consideration

- Discontinue Recycle Water Production

- Option 3a – Plant Optimization
- Option 3c – 0.4 MGD Packaged Plant (Abandon Tertiary Treatment)
- Option 4c – 1.5 MGD Custom Membrane Bio-Reactor (MBR)

5. Options Evaluation and Comparison

Following the initial concept screening, a more in-depth options evaluation and comparison was performed to rank the WRF options. This section further identifies upgrades and new facilities for each of the 4 options identified for further consideration; including process upgrades, pipelines, pump stations and other infrastructure to treat and deliver water. Capital costs, presented in Section 3.3, are annualized and combined with annual O&M costs, presented in this section, to identify the added annual investment needed to implement each option. Table 5-5 Summary of Anticipated Annual Life Cycle Costs (Attachment C) presents comparative ranges of the fiscal impact associated with the 4 options.

Finally, using a weighting criteria and scoring, including fiscal impacts, the 4 options were scored and presented in Table 5-6 Raw Scoring for WRF Options (Attachment D).

6. Next Steps

A preferred project was not identified based solely on the project ranking due to the need for additional studies, institutional considerations, or other uncertainties including ongoing discussions with regional partners.

Option 2 – Phase out of Tertiary Treatment (recycled water) The City would no longer produce tertiary treated recycled water, which would breach the agreement with SVWD, and current recycled water customers (including City parks) would lose their local, sustainable supply. The City would be able to continue to meet its agreement with Pasatiempo Golf Course. Because nitrogen removal would no longer be required, the WRF would recover the treatment capacity to its original 1.5 MGD

Option 3a – Plant Optimization can also be viewed as a short-term solution if regional decision making is anticipated to continue for 5 to 10 years or longer. This option, even if implemented, is anticipated to continue to pose operational challenges that are experienced at today's facility due to changes in flow and strength conditions, a result of lower water usage by the public. It would be recommended that the City perform a series of activities that lead to the creation of a WRF Strategic Capital Asset Management Plan to more thoroughly understand and justify future plant upgrades to existing systems through risk-based prioritization.

Option 3c – 0.4 MGD Packaged Plant would add a 0.4 MGD packaged MBR system with integrated UV to replace the existing tertiary treatment facilities. Nitrogen removal would no longer be necessary and the WRF would recover the treatment capacity to its original 1.5 MGD. The WRF would reduce tertiary treatment capacity, but retain capacity to meet current operation agreements and needs. Future expansion through additional MBR packaged units could be

considered, but were not budgeted in the conceptual estimates.

Option 4c – 1.5 MGD Custom MBR would repurpose existing infrastructure by retrofitting the WRF as an MBR facility. The objective of retrofitting the WRF with MBR technology is to resolve recurring secondary process upsets, improve recycled water production capacity and reliability, and accommodate increasing loading due to population growth within the WRF’s service area while continuing to provide for nitrogen removal

This option would require the largest capital investment but would reduce operational complexity by moving to a single plant system. It would allow contracted recycled water deliveries to be consistently met while maximizing the production of a local sustainable supply for beneficial reuse, effectively treating all flow to recycled water standards

It is recommended that the City continue to meet with the Santa Margarita Groundwater Agencies and specifically the SVWD to discuss the potential to modify existing agreements and/or enter into future cost sharing agreements, and to further understand their recycled water objectives and likely projects for the future (as described in Section 5.4)

FISCAL IMPACT

There is no fiscal impact at this time. The Study analyzed both annualized capital, and operating and maintenance costs associated with the 4 options selected for further consideration. Further analysis is budgeted in FY2022/23 (\$100k) and 2023/24 (\$50k) in the Wastewater 5-year Capital Improvement program.

STAFF RECOMMENDATION

Staff recommends the continued evaluation of Options 3c, and 4c as they relate to the regional solutions towards water cycle resiliency and pursue advancement Option 3a should the anticipated timeline for such regional decision-making efforts appear to exceed 5 years.

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Table 3-4 Summary of WRF Options

Scenario	City Advantages or Benefits	City Disadvantages or Limitations	Est Capital Costs	Relative Operational Complexity
Option 1 - Decommission WRF	Removes operating costs; potential to repurpose portion of WRF site	Breaches SVWD and Pasatiempo agreements; loss of local, sustainable supply; requires agreement with City of Santa Cruz to accept and treat effluent	\$13.2 mil ¹	Minimal: maintenance of collections system and new lift station
Option 2 - Discontinue Recycled Water Production	Minimizes operating and future CIP costs; restores operational capacity to secondary level only ¹	Breaches SVWD agreement; changes in effluent quality; loss of local, sustainable supply	\$2.3 mil ²	Low: simply secondary process operation for BOD and TSS removal only; tertiary treatment facility is abandoned;
Option 3 - Improvements to Meet Current Agreements				
Option 3a - Plant Optimization	Low capital investment; improves system performance ¹	Limits consistent RW production; limited cost sharing opportunities	\$4.3 mil ²	Very complex: achieving TN and NOx limits may require seasonal process adjustments
Option 3b - 0.2 MGD Package	Improves system performance; potential to expand in the future	Requires large capital investment; reliability of system is limited	\$10.8 mil	Complex: operation of three plants simultaneously with seasonal adjustments to conventional plant.
Option 3c - 0.4 MGD Package	Improves system performance; reduces risks/vulnerabilities	Requires large capital investment; reliability of system is limited	\$11.4 mil	Moderate: two plants operated in parallel; tertiary treatment plant is removed
Option 4 - Improved Tertiary to Maximize Beneficial Reuse				
Option 4a - 0.62 MGD Package	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges; space challenges	\$16.0 mil	Moderate: two plants operated in parallel; tertiary treatment plant is removed
Option 4b - 0.9 MGD Package	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges; space challenges	\$20.0 mil	Complex: operation of three plants simultaneously.
Option 4c - 1.5 MGD Custom MBR	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges	\$35.0 mil	Moderate: operation of single MBR system with UV and chlorine disinfection

¹ Option 1 includes the cost of purchasing capacity in the Santa Cruz WWTF (estimated at \$7.0 mil), but does not include ongoing capital costs for the proportional share of the Santa Cruz WWTF annual CIP (estimated at \$300,000 per year), improvements to the outfall pipeline to convey raw effluent (unknown) nor a capital payout to Pasatiempo for some portion of their stranded treatment assets.

² Need modeling to confirm the viability and costs of assumed process improvements in Options 2 and 3a.

Table 4-2 Fatal Flaw Screening Outcomes

Fatal Flaw	Category	Screening Criteria	Opt 1 Decommission	Opt 2 Phase out BNR/tertiary	Opt 3a Plant Optimization	Opt 3b 0.2 mgd package	Opt 3c 0.4 mgd package	Opt 4a 0.62 mgd package	Opt 4b 0.9 mgd package	Opt 4c 1.5 MGD Custom MBR
Engineering Fatal Flaws	Space	Available space for upgrades and new facilities	●	●	●	◐	◐	○	○	●
	Plant Capacity	Ability to perform at design capacity	◐	◐	○	○	●	●	◐	◐
	Construction	Construction challenges	●	●	●	◐	◐	○	○	◐
Implementat ion Fatal Flaws	Relative Capital Costs	Relative capital costs to build the project (incl. demolition)	○	●	●	◐	◐	◐	○	○
	Relative Operational Costs	Relative annual costs to treat or dispose of effluent	○	●	◐	○	◐	◐	○	◐
	Regulatory	Regulatory challenges	◐	◐	◐	◐	●	●	●	●
	Environmental	Environmental impediments to construction	●	●	●	●	●	●	●	●
	Operational	Operational challenges	●	●	○	○	◐	◐	○	◐
Institutional Fatal Flaws	Agreements	Adheres to existing binding agreements	○	○	◐	◐	●	●	●	●
	Partnerships	Potential for cost-sharing partnerships	○	◐	◐	◐	◐	●	●	●
Does not Meet City Mission and Vision	City Goals	Meet current customers' demands	○	○	◐	●	●	●	●	●
		Meet WRF Future Vision	○	◐	◐	◐	◐	●	●	●

Legend:	●	exceeds criteria / good / low risk
	◐	meets criteria / acceptable risk
	○	does not meet criteria / poor / high risk

Table 5-5 Summary of Estimated Annual Life Cycle Costs

	Unit	Opt 2 Phase Out BNR/Tertiary	Opt 3a Plant Optimization	Opt 3c 0.4 MGD Package Plant	Opt 4c 1.5 MGD Custom MBR
WRF Treatment Capacity	(mgd)	1.5	0.8 – 1.5	1.5	1.5
	(AFY)	1680	900 – 1680	1680	1680
WRF RW Production	(mgd)	0	> 0.2	0.4	1.5
	(AFY)	0	> 200	448	1680
RANGE of Additional Capital Investment ¹	(\$mill)	\$3.9 to \$8.4	\$9.4 to \$20	\$8.6 to \$19	\$16 to \$34
RANGE of Annualized Capital Cost for Additional Facilities ²	(\$/year)	\$120,000 to \$260,000	\$290,000 to \$630,000	\$270,000 to \$570,000	\$490,000 to \$1,040,000
Anticipated Δ in O&M Costs ³	(\$/year)	<u>-\$205,000</u>	<u>\$153,000</u>	<u>-\$43,000</u>	<u>\$33,000</u>
Additional Annual Life-Cycle Cost ⁴	(\$/year)	-\$85,000 to \$55,000	\$443,000 to \$783,000	\$227,000 to \$527,000	\$523,000 to \$1,073,000

¹ Range reflects AACE Class V Cost Estimate, Upper and Lower Contingencies

² Based on interest rate of 3% and facility life of 50 years.

³ See relative O&M costs presented in Table 5-4

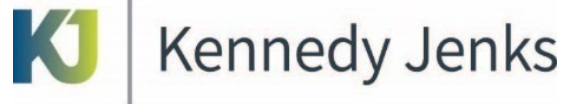
⁴ Reflects the relative change to current operational costs.

Table 5-6 Raw Scoring for WRF Options

Alternatives		Economic Considerations		Environmental		Social		Engineering and Operational Considerations			TOTAL Raw Score (Max 36)
Option	Description	Cost Effectiveness	Financial Implementability	CEQA Considerations	Future Regulatory Risk	Regional Benefits	Public Perception	Maximize Beneficial Reuse	Ease of Implementation	Operational Complexity	
2	Produce Secondary Disinfected Effluent (Phase Out BNR/Tertiary)										
2	Phase out BRN/tertiary	4	4	4	1	1	1	2	3	3	23
3	Continue Producing Recycled Water to Meet Current Agreements										
3a	Plant optimization	2	2	4	2	3	3	3	3	2	26
3c	0.4 MGD packaged plant, abandon tertiary	3	3	4	3	3	3	3	3	3	25
4	Improved Tertiary to Maximize Beneficial Reuse										
4c	1.5 MGD custom MBR, abandon tertiary	1	1	4	3	4	3	4	3	4	27

Note: Green cells indicate the top scoring option (4), and red cells indicate the bottom scoring option (1) for a given screening criteria.

Score	Scoring Legend:	Scoring Legend:
4	Fully Meets Criteria	BEST
3	Mostly Meets Criteria	GOOD
2	Somewhat Meets Criteria	FAIR
1	Does Not Meets Criteria	WORST



2350 Mission College Blvd., Suite 700
Santa Clara, CA 95054
650-852-2800

FINAL

**City of Scott Valley
Wastewater Reclamation Facility
Options Study**

10 August 2022

Prepared for

City of Scotts Valley

K/J Project No. 2168015*00

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Acronyms and Abbreviations

ADWF	Average Dry Weather Flow
AF	Acre-feet
AFY	Acre-feet per year
AWTF	Advanced Water Treatment Facility
BNR	Biological Nutrient Removal
BOD	Biological Oxygen Demand
BRVA	Business Risk Vulnerability Analysis
CBOD	Biochemical Oxygen Demand
CEQA	California Environmental Quality Act
FES	Flow Equalization Structure
Ft	Feet
gpd	Gallons per day
gpm	Gallons per minute
GRRP	Groundwater Replenishment Reuse Project
GSP	Groundwater Sustainability Plan
GW	Groundwater
IPR	Indirect potable reuse
LF	Lineal feet
M	million
Max	Maximum
MBR	Membrane bioreactor
MCL	Maximum contaminant limit
MG	Million gallons
mgd	Million gallons per day
mg/L	Milligrams per liter
Min	Minimum
ML	Mixed liquor
ML	Mixed Liquor Reactor
MPN	Most Probable Number
NPDES	National Pollutant Discharge Elimination System
NPR	Non-Potable Reuse
NTU	Nephelometric Turbidity Units
O&M	Operations and maintenance
PWS	Pure Water Soquel
PWWF	Peak Wet Weather Flow

RW	Recycled water
RWQCB	Regional Water Quality Control Board
SMGA	Santa Margarita Groundwater Agency
SqWD	Soquel Creek Water District
SVWD	Scotts Valley Water District
SWRCB	State Water Resources Control Board
TDS	Total dissolved solids
TN	Total Nitrogen
TM	Technical memorandum
TOC	Total organic carbon
TSS	Total suspended solids
ug/L	Micrograms per liter
uS/cm	Microsiemens per centimeter
UWMP	Urban Water Management Plan
WAS	Waste Activated Sludge
WDR	Waste Discharge Requirements
WRF	Water Reclamation Facility
WWTF	Wastewater Treatment Facility

Executive Summary

The City of Scotts Valley (City) operates its Wastewater Reclamation Facility (WRF) to treat local wastewater, produce recycled water for the Scotts Valley Water District (SVWD) and provide secondary effluent to Pasatiempo Golf Club (Pasatiempo) for non-potable uses. The WRF experiences recurring treatment process upsets, which have hindered the City's ability to produce recycled water. This WRF **Options Study** (Study) evaluated the following options to improve the City's WRF:

Option 1 - Decommission WRF

Option 1 would decommission the WRF and allowing the plant to age, as other options are pursued. The City would continue to collect raw wastewater, but instead of secondary and tertiary treatment at the WRF, raw wastewater would be pumped to the Santa Cruz Wastewater Treatment Facility (WWTF).

Option 2 - Discontinue Recycled Water Production (Phase Out Biological Nutrient Removal (BNR)/Tertiary)

Option 2 would improve primary and secondary treatment processes, while phasing out tertiary treatment. This would discontinue nitrogen removal year-round and shift the focus to meet BOD and TSS removal year-round.

Option 3 - Improvements to Meet Current Agreements

Option 3a - Plant Optimization - would improve primary and secondary treatment improvements, while maintaining the existing tertiary treatment process. These improvements would allow the WRF to continue partial nitrogen removal and meet current recycled water agreements.

Option 3b - 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment) - Option 3b would add a 0.2 MGD packaged membrane bioreactor (MBR) with ultraviolet (UV) disinfection system to avoid upsets, continue partial nitrogen removal and tertiary treatment to meet current recycled water agreements.

Option 3c - 0.4 MGD Packaged Plant (Abandon Tertiary Treatment) - Option 3c would add a 0.4 MGD packaged MBR+UV system and abandon the tertiary treatment system. The packaged system would allow for partial nitrogen removal to meet current recycled water agreements.

Option 4 - Improvements to Maximize Beneficial Reuse

Option 4a - 0.6 MGD Packaged Plant (Abandon Tertiary Treatment) - Option 4a would add a 0.62 MGD packaged MBR+UV system to achieve full nitrogen removal for 700 AFY production year-round and decommission the tertiary treatment. Current recycled water agreements would be met with an opportunity for additional beneficial reuse.

Option 4b - 0.9 MGD Packaged Plant (Keep Existing Tertiary Treatment) - Option 4b would add a 0.9 MGD packaged MBR+UV system, while keeping tertiary treatment. This would allow for full nitrogen removal for 1,150 AFY production year-round. Current recycled water agreements would be met with an opportunity for additional beneficial reuse.

Option 4c - 1.5 MGD Custom MBR - Option 4c would add a new custom MBR + UV system for full nitrogen removal and 1.5 MGD treatment capacity. Current recycled water agreements would be met with an opportunity for additional beneficial reuse.

Given the short timeline for this effort, and the wide range of options considered, a two-step approach was applied to vet the options above:

- **STEP 1: Initial Concept-level Screening** to vet a broad set of options and provide the City with a high-level view of WRF options and potential local and regional partnerships.
- **STEP 2: Options Evaluation and Comparison** to evaluate a short list of options based on cost, benefits, limitations, and other decision criteria.

After the **STEP 1** screening approach, the following options were identified for further consideration

- **Option 2 - Discontinue Recycled Water Production (Phase Out BNR/Tertiary):** Minimizes operating and future CIP costs; restores operational capacity to secondary level for BOD and TSS removal only. This option is only viable if SVWD is interested in decommissioning their non-potable recycled water system in favor of using the existing purple pipe for conveyance of purified water for groundwater replenishment. Would result in a loss of local, sustainable supply for the City.
- **Option 3a - Plant Optimization:** This option is a low capital investment option with the potential to improve system performance; however additional modeling is required to confirm that the proposed optimization and improvement processes can consistently produce recycled water to meet requirements set forth in permits and agreements. There is a higher risk associated with implementing this approach as it is operationally complex to achieve the desired nutrient limits and may require seasonal process adjustments.
- **Option 3c - 0.4 MGD Package Plant (Abandon Tertiary Treatment):** The addition of a new package plant would improve system performance, reduce risks and vulnerabilities. However, this option would require a large capital investment and increase operational complexity as two plants would essentially be operated in parallel, even though the tertiary plant is removed.
- **Option 4c - 1.5 MGD Custom MBR:** Meets future vision through simplified and consistent operation of a one-plant system that can consistently meet recycled water requirements. Production of a larger and consistent quantity of tertiary recycled water offers an opportunity to support a local groundwater replenishment project, which could offer a cost sharing opportunity through partnerships with SVWD.

In **STEP 2** options evaluation, the four options were ranked by applying both qualitative and quantitative information to a high-level screening economic, environmental, social, engineering and operational criteria to score, weight and rank the projects based on different weighting themes, as presented in Table ES-1.

Table ES-1 Outcomes of WRF Ranking and Sensitivity Analysis

WRF Options		SENSITIVITY RANKING			
Option	Description	Baseline (Balanced)	Minimize Costs	Maximize Beneficial Reuse	Minimize Operational complexity
Option 2	Phase out BNR/tertiary	4	1	4	2
Option 3a	Plant Optimization - Improvements to meet current agreements	2	2	2	4
Option 3c	0.4 MGD packaged plant, abandon tertiary	3	3	3	3
Option 4c	1.5 MGD custom MBR, abandon tertiary treatment	1	4	1	1

Note: Green cells indicate the top ranked (1st) option and red cells indicate the bottom ranked (4th) option for a given weighting theme.

The sensitivity analysis found that:

- ✓ **Option 2** ranked highest when minimizing costs were prioritized, however this option ranked lowest overall and in terms of maximizing beneficial reuse because of the future regulatory risks and lack of regional benefits should the City stop producing tertiary water.
- ✓ **Option 4c** ranked at the top for all themes except minimizing costs, indicating that a new custom MBR with 1.5 mgd capacity would resolve many of the City's WRF issues, however at a very high cost.
- ✓ **Options 3c** ranked consistently in the bottom half due to the combination of high costs and high operational complexity.
- ✓ **Option 3a** ranked slightly better than Option 3c due to the lower costs and reduced operational complexity that could be realized if the plant improvements and upgrades to existing facilities can successfully address current upset issues.

Additional studies would be needed to further evaluate Options 2 and 3a to determine if the process improvements would be sufficient to meet the City's WRF goals. The City may benefit from implementing a risk-based condition assessment to confirm current process-related assets and developing a process and capacity model to vet improvement concepts at a desktop level. This information could be further transformed into a more comprehensive WRF Facility Plan to identify short-, mid-, long-term WRF upgrades, and finally to develop a financial strategic plan to prioritize and optimize capital expenditures for critical WRF upgrades. The City may elect to execute these activities in a phased approach to identify triggers and off-ramps to meet their needs and budget. It is also recommended that the City meet with SVWD to discuss the potential to modify existing agreements and/or enter into future cost sharing agreements.

Section 1: Overview

The City of Scotts Valley (the City) manages the wastewater of approximately 12,000 residents and has a long history of being a self-reliant community in Santa Cruz County. The City operates its Wastewater Reclamation Facility (WRF) to treat local wastewater, produce recycled water for the Scotts Valley Water District (SVWD), and provide secondary effluent to Pasatiempo Golf Club (Pasatiempo) for non-potable uses. The WRF experiences recurring treatment process upsets, which have hindered the City's ability to consistently produce recycled water.

Given the aging condition of the WRF, high costs of upgrades and the changing regulatory, legal, and environmental context for discharge and reuse in California, the City initiated this **WRF Options Study** (Study) to evaluate its options for a major capital investment in the utility.

1.1 Study Purpose

The purpose of the **Study** is to identify and evaluate long-term options for replacement or refurbishment of the City's WRF, or other improvements to achieve the City's wastewater treatment, recycle water and sustainability goals for use of wastewater.

This Study supports the City's Mission:

The mission of the City of Scotts Valley Wastewater Reclamation Facility is to provide safe and reliable wastewater collection, treatment and disposal, and production of recycled water that meets or exceeds local, state and federal standards for public health and environmental quality.¹

1.2 Study Area and Regional Agencies

City of Scotts Valley

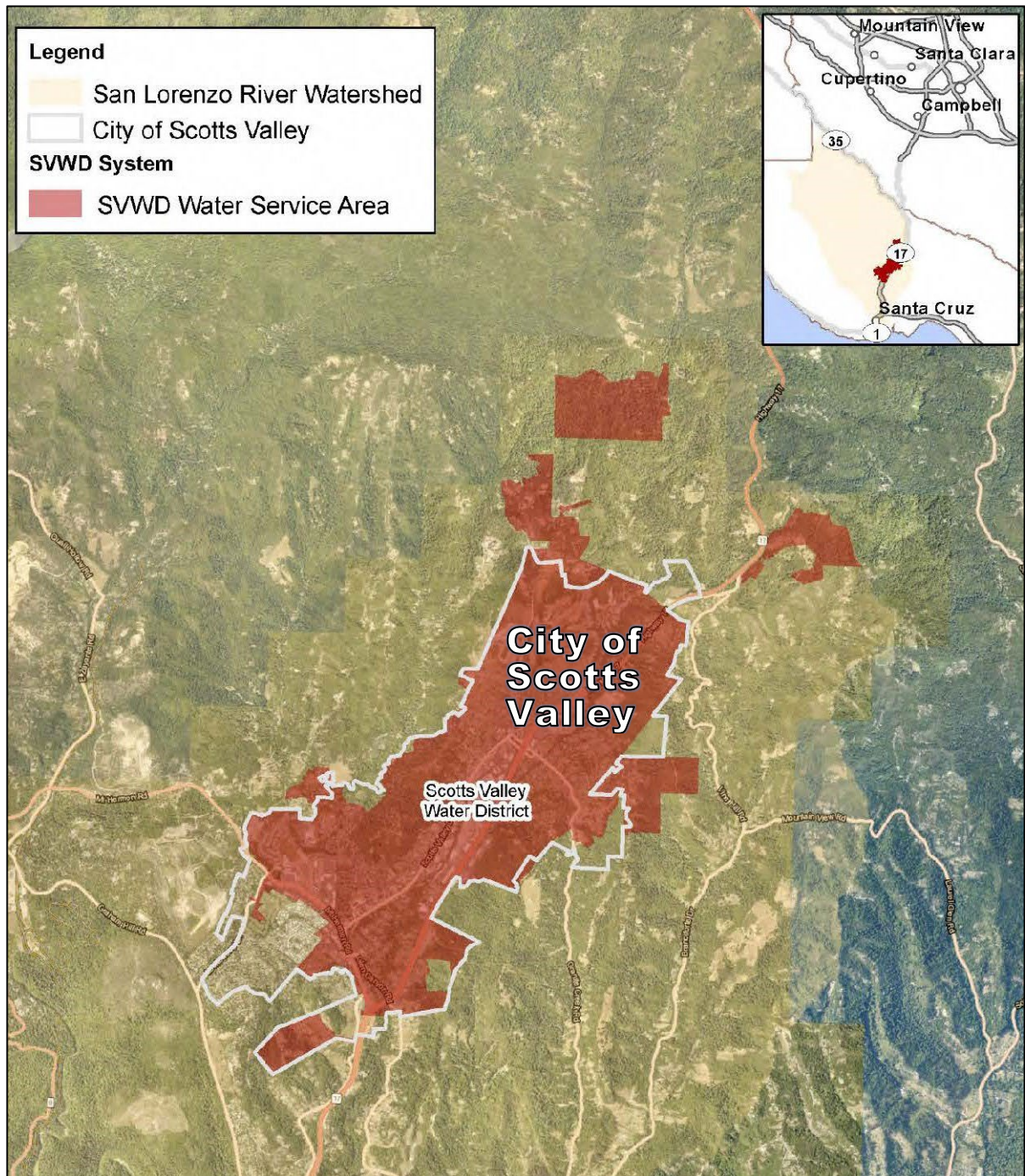
The Scotts Valley WRF was constructed in 1964 to provide secondary wastewater treatment with a capacity of 30,000 gallons per day. An activated sludge treatment system was added in 1972 and the capacity was upgraded to 120,000 gallons per day. The plant has expanded many times since then to meet the needs of the community, with a current permitted capacity of 1.5 million gallons per day (MGD) for average dry weather flow (ADWF). The City of Scotts Valley is responsible for treating and disposing all the wastewater generated within the City Limits and extended to include the entire SVWD service area (SVWD, 2021). The City's service area and overlapping boundary of SVWD's service area are depicted in Figure 1-1.

During dry weather months, the recycled water is used for irrigation at local schools, parks, roadway medians, and newer developments. The recycled water undergoes tertiary treatment at the facility prior to reuse. Secondary treated effluent that is not reused is pumped to Santa Cruz and

¹ Prop 218 Notice for Proposed Wastewater Rates (Apr 2021)
<https://www.scottsvally.org/DocumentCenter/View/2697/Prop-218-Notice?bidId=>

mixed with the effluent from the City of Santa Cruz Wastewater Treatment Facility (WWTF). The combined effluents are then discharged to Monterey Bay (City of Scotts Valley, 2021.). Secondary treated effluent is also provided to the Pasatiempo Golf Course, via the Scotts Valley Outfall force main, where additional treatment is provided on site for irrigation.

Figure 1-1 City of Scotts Valley Service Area



Source: Adapted from 2020 UWMP (SVWD, 2021)

Scotts Valley Water District (SVWD)

SVWD provides potable drinking water from the Santa Margarita Groundwater Basin and distributes recycled water generated at the Scotts Valley WRF for non-potable uses. SVWD service area boundaries include most of the City of Scotts Valley as well as some unincorporated areas north of the City (Figure 1-1). Sewer service within the SVWD's service area is provided by the City, and the City produces recycled water for SVWD to be distributed primarily for irrigation use. In 1999, SVWD partnered with the City to construct a 1 MGD recycled water project to produce tertiary treated effluent at the City's WRF and distribute it to SVWD's customers for non-potable reuse (SVWD, 2021).

Santa Cruz

The City of Santa Cruz provides water service to an area approximately 20 square miles in size, including the entire City of Santa Cruz, adjoining unincorporated areas of Santa Cruz County, a small part of the City of Capitola, and coastal agricultural lands north of the city. The City of Santa Cruz owns and operates a City-wide wastewater collection and regional wastewater treatment and disposal facility providing service to a total urban population of approximately 130,000 people in an area extending from Santa Cruz out to the communities of Seaside and Aptos in unincorporated Santa Cruz County.

Santa Cruz's WWTF can accommodate up to 81 MGD of flow during peak wet weather. The effluent is carefully monitored for quality prior to discharge at Monterey Bay/Pacific Ocean Bay Outfall, which is a deep-water outfall. The City of Scotts Valley treats its wastewater separately and transmits secondary -treated effluent to Santa Cruz for combined disposal through the City of Santa Cruz's ocean outfall. Although Santa Cruz does not currently produce or use recycled water, various studies have been conducted to understand its feasibility (City of Santa Cruz, 2021).

1.3 Prior WRF Studies

The following two studies were recently performed by Kennedy Jenks to evaluate the WRF process:

- ✓ In 2016, a ***Secondary Process Evaluation of the WRF*** was performed, which concluded that the treatment upsets being experienced at the WRF at the time may be contributable to the fact that when the WRF is being operated year-round to remove nitrogen it reaches its treatment capacity and cannot accommodate additional waste loading effectively reducing the dry-weather plant capacity from 1.5 MGD to 1.0 MGD or lower. (Kennedy Jenks, 2016)
- ✓ In 2018, a follow up study, ***Membrane Bioreactor (MBR) Analysis for Secondary Process Upgrade***, was conducted, which developed a concept for retrofitting the WRF with MBR technology to resolve recurring secondary process upsets, improve recycled water production capacity and reliability, and accommodate increasing loading due to population and/or commercial growth within the WRF's service area while continuing to

provide for nitrogen removal. Though viable, the cost for an MBR facility, estimated at \$23M in 2023 dollars, would require a high capital investment along with other improvements at the plant. (Kennedy Jenks, 2018)

These studies confirmed that improvements were needed at the WRF to meet operational and service objectives.

1.4 Regional Studies

Over the last decade, water and wastewater purveyors in the Santa Cruz and Scotts Valley regions have been exploring reuse opportunities to create multi-beneficial projects to develop local, sustainable water supplies and increase resiliency in the region for the long term.

- SVWD has evaluated options for a groundwater replenishment reuse project (GRRP) with purified recycled water.
- The Santa Margarita Groundwater Agency (SMGA) is exploring the need for a larger scale groundwater recharge project in support of their Groundwater Sustainability Plan (GSP).
- Soquel Creek Water District (SqCWD) is moving forward with their own GRRP, Pure Water Soquel (PWS), to replenish the Mid-County Groundwater Basin and prevent seawater intrusion.
- The City of Santa Cruz is currently conducting a Phase 2 Recycled Water Feasibility Study to assess beneficial reuse of wastewater from a resource recovery perspective, meet or reduce the water supply gap and evaluate local and regional recycled water projects, in parallel with broader water supply implementation efforts.

Many of these projects represent longer-term efforts that will require collaboration between regional partners and offer opportunities for cost sharing to maximize beneficial reuse of wastewater in the region.

SVWD recently explored the potential for implementing a groundwater replenishment reuse program if the treatment capabilities at the Scotts Valley WRF were to be limited/reduced (Kennedy Jenks, 2021b). The alternative concepts and costs from this study are summarized in Section 5.4 to provide the City an overview of options being considered by SVWD and their relative costs.

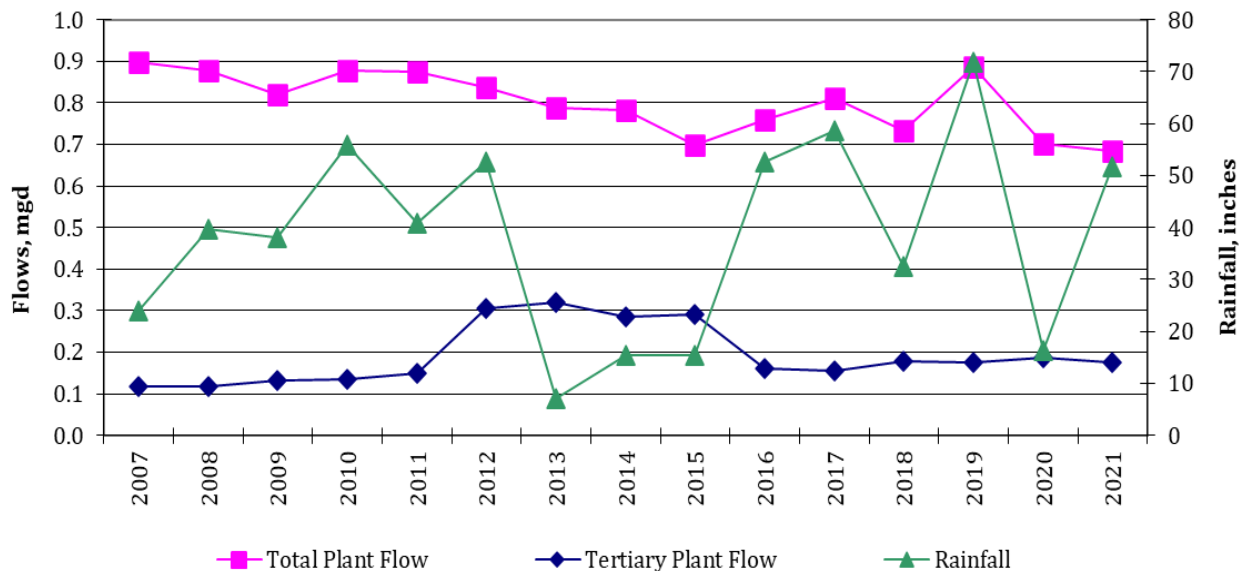
Section 2: Scotts Valley WRF

This section describes the Scotts Valley WRF, applicable regulations and requirements that drive operations, existing agreements and issues identified through a site visit and Business Risk Vulnerability Analysis (BRVA) workshop with City staff.

2.1 Scotts Valley WRF Facility

The WRF facility was constructed in 1964 for secondary wastewater treatment. In 1972, activated sludge treatment was added. To accommodate growth in the community, several other upgrades were completed at the facility. These upgrades provided for an Average Dry Weather Flow (ADWF) design capacity of 1.5 MGD and Peak Wet Weather Flow (PWWF) design capacity of 5.0 MGD. In 1999, a 1-MGD-capacity tertiary treatment facility for recycled water production was completed. Figure 2-1 and Figure 2-2 present historical and recent plant flows and recycled water production.

Figure 2-1 Plant Flows and Rainfall (2006 to 2021)

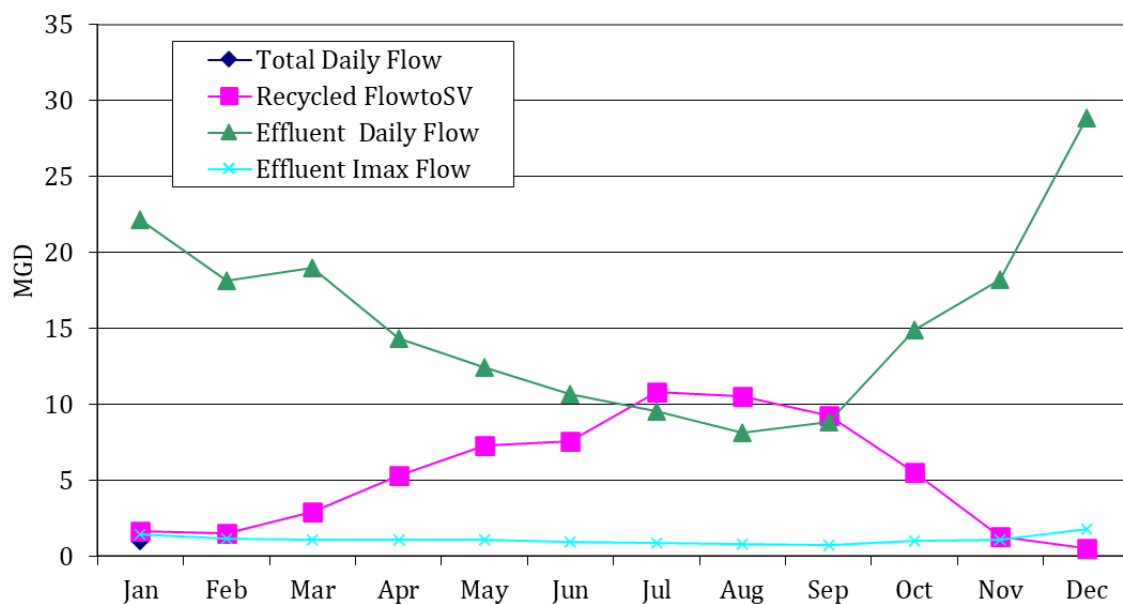


Source: City of Scotts Valley WRF Annual Report 2021

Figure 2-2 Plant Flow and Recycled Water Production (2021)

Month	Total Plant Flow Eff.+Rec.MG Mo. Total	Effluent Daily Flow MG Mo. Total	Effluent Inst. Max. MG (peak)	Recycled Total Flow MG Mo. Total	Rainfall Inches (Total)
January	23.8	22.1	1.4	1.7	10.05
February	19.6	18.1	1.1	1.5	1.27
March	21.9	19.0	1.1	2.9	2.26
April	19.6	14.3	1.1	5.3	0.01
May	19.7	12.4	1.1	7.3	0.00
June	18.3	10.7	0.9	7.6	0.00
July	20.3	9.5	0.9	10.8	0.00
August	18.7	8.1	0.8	10.5	0.00
September	18.0	8.8	0.7	9.2	0.00
October	20.4	14.9	1.0	5.5	7.43
November	19.5	18.2	1.1	1.3	2.59
December	29.4	28.9	1.8	0.5	28.08
Total¹	249.3	185.2		64.1	51.7
Average	20.8	15.4	1.1	5.3	4.3
Maximum	29.4	28.9	1.8	10.8	28.1
Minimum	18.0	8.1	0.7	0.5	0.0

¹ Average Annual Plant Flow (0.68 mgd) = Secondary Effluent Flow (0.51 mgd) + Recycled Water Flow (0.18 mgd)



Source: City of Scotts Valley WRF Annual Report 2021

Figure 2-3 provides an ariel view of the current WRF and Figure 2-4 illustrates the existing process flow diagram.

Figure 2-3 Current WRF Facilities

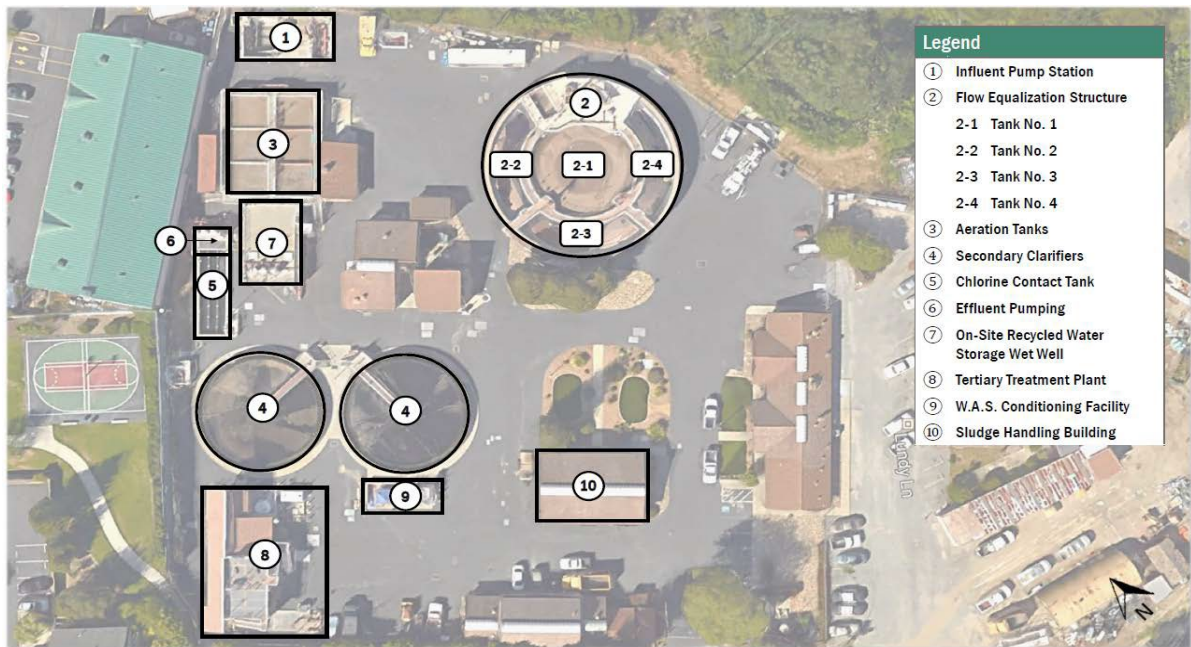
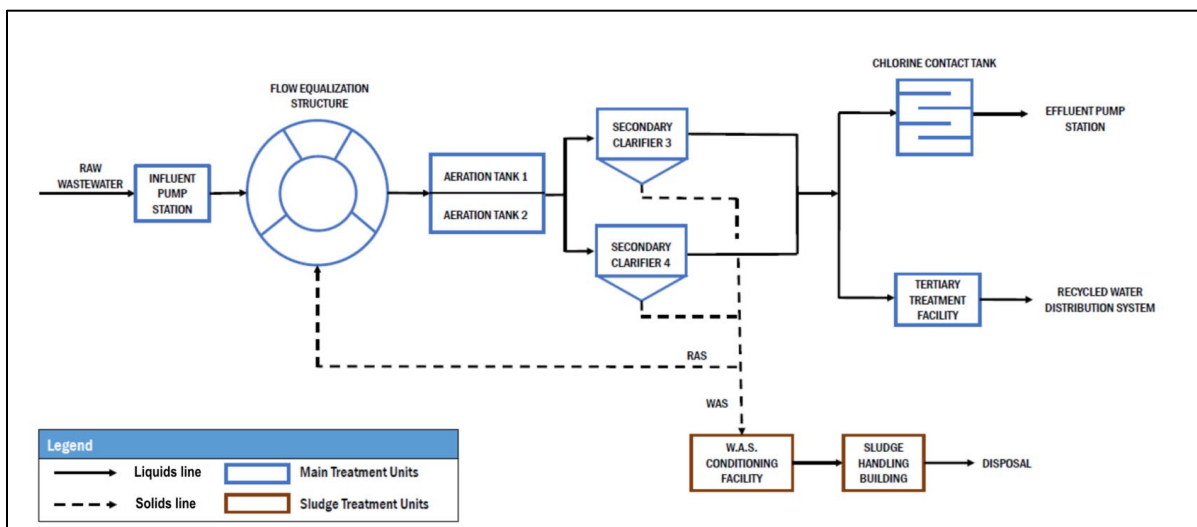


Figure 2-4 Current WRF Process flow Diagram



2.2 Summary of Regulations and Requirement

Table 2-1 summarizes the regulations and requirements that drive WRF operations by setting effluent concentration and discharge flow limitations.

Table 2-1 Summary of Regulations

Permit	Discharge Location	Discharge Flow Limitations	Effluent Type	Effluent BOD and TSS Limits	Effluent Nitrate as N Limits	Percent Removal	Total Coliform	Turbidity
NPDES R3-2013-0001	Pacific Ocean ¹	Average Month Dry Weather: 1.5 MGD	Secondary Disinfected Effluent	- 30mg/L av. mo - 45 mg/L av.wk - 90 mg/L max.day		BOD, TSS, CBOD: 85%	- 100,000 MPN/100mL inst.max	- 75 NTU av. Mo - 100 NTU av.wk - 225 NTU inst.max
Master Water Recycling Requirements – Order No. 01-067	SVWD – Tertiary treated recycled water system	Average Month Dry Weather: 1.0 MGD	Disinfected Tertiary Recycled Water	- 20mg/L max day - 10mg/L 30-day mean	- 10mg/l daily max - 9mg/L 30-day mean	TN: 50% on annual basis	- 2.2 MPN/100mL 7-day mean - 23 MPN/100mL 30-day max - 240 MPN/100mL max	- 2 NTU daily av. - 5 NTU <5% in day -10 NTU inst.max
Pasatiempo Agreement	Pasatiempo Golf Club	Maximum Day: 0.17 MGD Av. Annual: 35 Mgal/yr	Secondary Disinfected Effluent	- 30mg/L av. Mo - 45 mg/L av.wk - 90 mg/L max.day		BOD, TSS, CBOD: 85%	- 100,000 MPN/100mL inst.max	- 75 NTU av. Mo - 100 NTU av.wk - 225 NTU inst.max

¹ Monterey Bay National Marine Sanctuary

2.3 Summary of Agreements

2.3.1 The City and SVWD

The City and SVWD entered an agreement in April 1996 concerning recycled water. This agreement provided for the design, construction, and operation of a 1 MGD tertiary treatment plant, which was constructed at the City's WRF. In June 1997, the City and SVWD entered the First Amendment to the 1996 Agreement, which dealt with cost sharing pertaining to the extension of a water main. In May 2004, the City and SVWD entered the Second Amendment to the 1996 Agreement. This amendment dealt with changes to payments. After multiple discussions, both parties agreed to terminate the previous agreements and amendments. In 2013, the City and SVWD entered a Maintenance Agreement to address the use and operation of recycled water. The Maintenance Agreement was amended twice in 2016. The first amendment focuses on diversion of wastewater, which allowed the City to sell a portion of its wastewater to the Pasatiempo Golf Club (see Section 2.2.2) and payments from the City to SVWD to reduce its entitlement. The second amendment discusses distribution of recycled water to customers outside of city limits and bulk recycled water rates. The current agreement is effective through August, 2046.

2.3.2 The City and Pasatiempo

Due to ongoing droughts, the Pasatiempo Golf Club began looking for alternative water supplies for its golf course. An agreement was reached where up to 35 million gallons of secondary-treated wastewater would be diverted to the golf course from the Scotts Valley Outfall force main over the course of 30 years (in effect through August, 2046). Pasatiempo agreed to pay the City for the use of the City's pipe and wastewater. As discussed in Section 2.2.1, the City also committed to pay SVWD for the relinquishment of its rights to the recycled water.

2.4 WRF Site Visit

On September 10, 2021, a site visit was conducted as a part of the Study. Representatives from the City of Scotts Valley and Kennedy Jenks toured the existing WRF facility and discussed current operations, ongoing challenges, and issues with the WRF processes. The outcomes from the discussion were captured in the Business Risk and Vulnerability Analysis (BRVA) described in Section 2.4 and were used to support the evaluation of options to improve the WRF.

2.5 Business Risk and Vulnerability Analysis (BRVA)

The BRVA workshop was conducted with key City staff on September 10, 2021, subsequent to the WRF site visit. It included interviewing the City staff present to better understand the issues associated with the WRF's performance as they relate to unit processes and related assets. The WRF has issues that appear to be stemming from current system inadequacies and normal wear and tear. These issues can impact both treatment and asset performance and introduce additional stress to operations, maintenance, and management personnel. The City has a strong desire to adopt a process that allows them to make justifiable capital improvement investment decisions.

The WRF has equipment undergoing wear and tear and shortcomings that are in need of process control and operability improvements. Sustainable solutions to these problems are most appropriately found by looking into the future and anticipating plant needs. The BRVA workshop allowed the team to collaboratively identify the criticality of each WRF unit process from a business importance perspective by strategically creating system failure scenarios and discussing the consequential impacts relative to safety, environmental/regulatory, financial, service reliability, and public image. The team decided to use a scale to transform the subjective conclusions to objective results. Each system was rated, or scored, 1 through 5, with 1 being the best rating and 5 being the worst. The rating criteria are as follows:

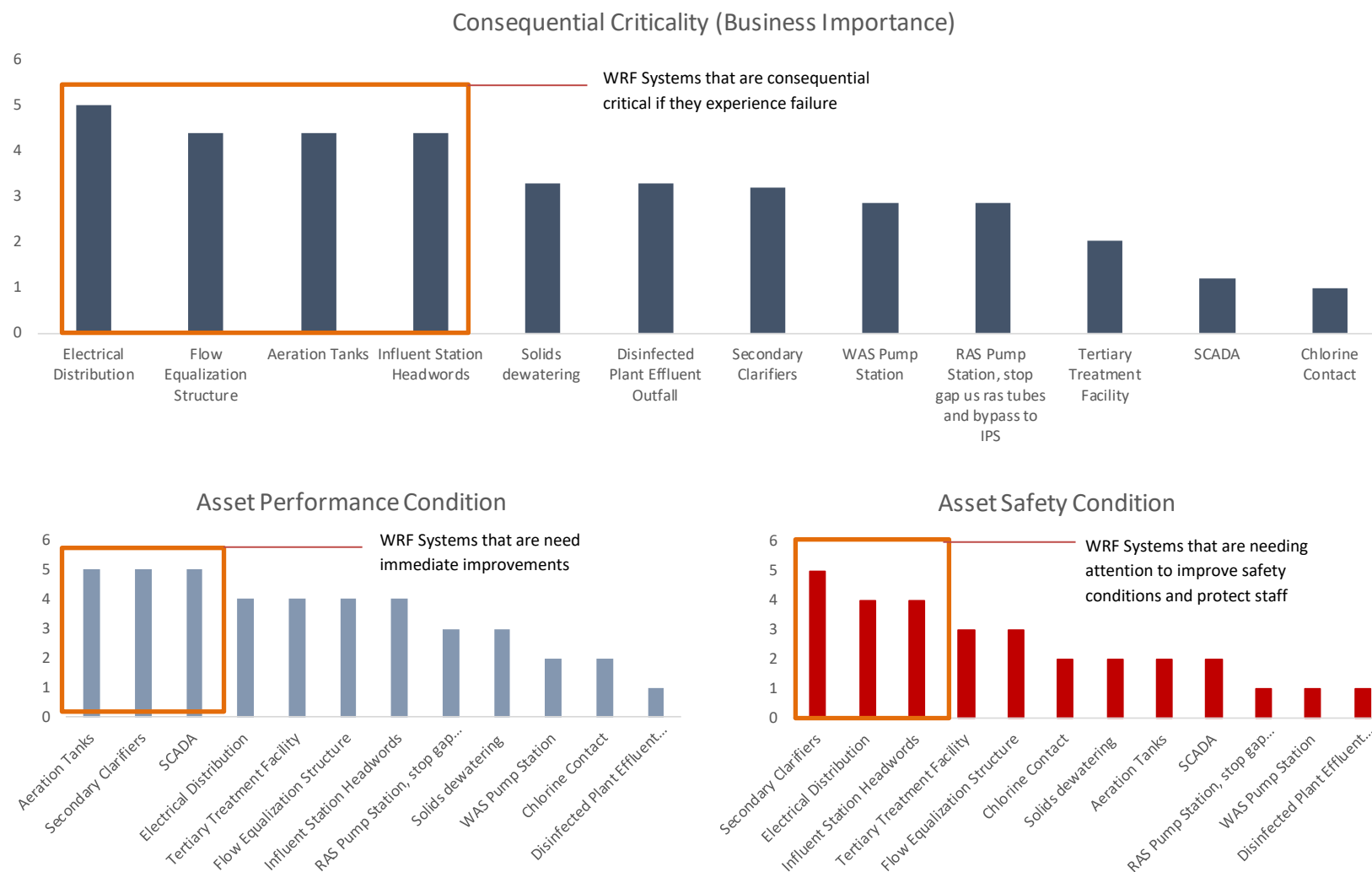
1. No consequential impact
2. Low consequential impact
3. Medium consequential impact
4. High consequential impact
5. Very high consequential impact

In terms of vulnerabilities of the City's WRF from a business perspective, the team agreed to focus on Asset Performance Conditions and Asset Safety Conditions. Identifying vulnerabilities provides the City with a sense of the level of weakness that may be inherent to the WRF business processes that may promote threats to the WRF's ability to meet the expected performance objectives and service levels. Each business process vulnerability was rated 1 through 5, with 1 being the best rating, i.e., least vulnerable process, and 5 being the worst rating, or most vulnerable process. The rating criteria are as follows:

1. No business vulnerability
2. Low business vulnerability
3. Medium business vulnerability
4. High business vulnerability
5. Very high business vulnerability

The results of the BRVA are shown in Figure 2-5. Systems with higher ratings are more vulnerable and have a higher potential consequential impact to the WRF operations, while systems with lower ratings are less vulnerable and have a lower potential to impact WRF operations. These results allow the City to better visualize which systems need greater maintenance, operations, and, possibly, engineering resources for maintenance repair/overhaul, capital repair/rehabilitation, capital replacement/redesign. A detailed breakdown of the BRVA outcomes is provided in Appendix A.

Figure 2-5 Scotts Valley WRF BRVA Results Provide a Line of Sight for System Importance



Section 3: Options Identification

This section describes the options identified as potential solutions to address the WRF operational issues, including the assumptions applied and costs developed to evaluate each option.

3.1 Design Criteria and Assumptions

Table 3-1 presents data, from 2014-2016 and 2018-2020, used to define recycled water production goals for the evaluation of WRF options.

Table 3-1 Recycled Water Historical Flows

Winter Flows	Unit	Quantity	Notes
Winter Max Day Flow	MGD	0.37	2014 to 2016 data, excluded one extremely high number
Average Day Max Month Flow	MGD	0.21	2018 to 2020 data (winter months)
Winter Average Daily Flow	MGD	0.06	2019 to 2020 data
Influent Temperature	deg C	17	2014 to 2016 data
Summer Flows:	Unit	Quantity	Notes
Summer Maximum Daily Flow:	MGD	0.43	2014 to 2016 data
Average Day Max Month Flow	MGD	0.38	2014 to 2016 data (all months)
Influent Temperature	deg C	19	2014 to 2016 data, most restrictive in April
Flow Targets:	Unit	Quantity	
Meet Historical RW Flows	MGD	0.40	Based on summer demands
SVWD GW Recharge Target	MGD	0.62	Assume 700 AFY to maintain/restore groundwater levels over the long term ¹

¹ Based on prior discussion with SVWD (Kennedy Jenks, 2021a).

Based on the recycled water flow targets, range of design parameters was developed to size treatment options. Table 3-2 lists the design criteria and assumptions to evaluate the WRF options for a range of treatment capacities.

Table 3-2 Design Parameters for Treatment Options with Scalping Plant

Parameter	Small System	Agreement Target	Reuse Target	Large System
<u>Design Flows</u>				
ADMMF, MGD	0.2	0.4	0.62	0.9
Peak Day Peaking Factor	1	1	1	1
PDF, MGD	0.2	0.4	0.62	0.9
<u>Design Loads - Max Month concentration</u>				
BOD, mg/L	300	300	300	300
TSS, mg/l	300	300	300	300
TKN, mg/L	90	90	90	90
NH3, mg/L	60	60	60	60

3.2 WRF Options

Four WRF options, with sub-options, were analyzed as part of this Study.

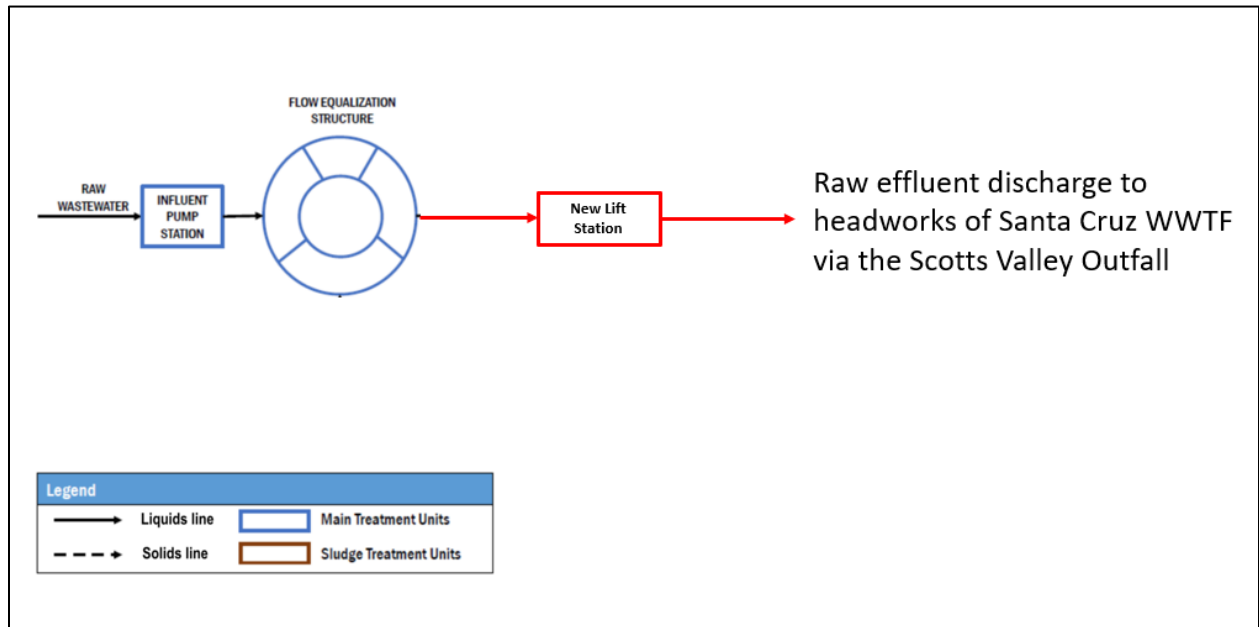
- **Option 1** - Decommission WRF
- **Option 2** - Discontinue Recycled Water Production (Phase Out BNR/Tertiary)
- **Option 3** - Improvements to Meet Current Agreements
 - **Option 3a** - Plant Optimization
 - **Option 3b** - 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment)
 - **Option 3c** - 0.4 MGD Packaged Plant (Abandon Tertiary Treatment)
- **Option 4** - Improvements to Maximize Beneficial Reuse
 - **Option 4a** - 0.6 MGD Packaged Plant (Abandon Tertiary Treatment)
 - **Option 4b** - 0.9 MGD Packaged Plant (Keep Existing Tertiary Treatment)
 - **Option 4c** - 1.5 MGD Custom MBR

The following sections describe the improvements, new facilities, abandoned facilities and provide an updated process flow diagram each WRF option.

3.2.1 Option 1 – Decommission WRF

Option 1 would decommission the WRF. Under this option, the City would continue to collect raw wastewater, but instead of secondary and recycled water treatment at the WRF, raw wastewater would be pumped to Santa Cruz WWTF. The City would continue to operate sewer lift stations, and a new lift station would be located at the current Scott's Valley WRF site. The new lift station and effluent piping would be constructed to convey raw wastewater from the existing flow equalization structure to the Scotts Valley Outfall. A process flow schematic for Option 1 is shown on Figure 3-1.

Figure 3-1 Option 1 – Decommission WRF

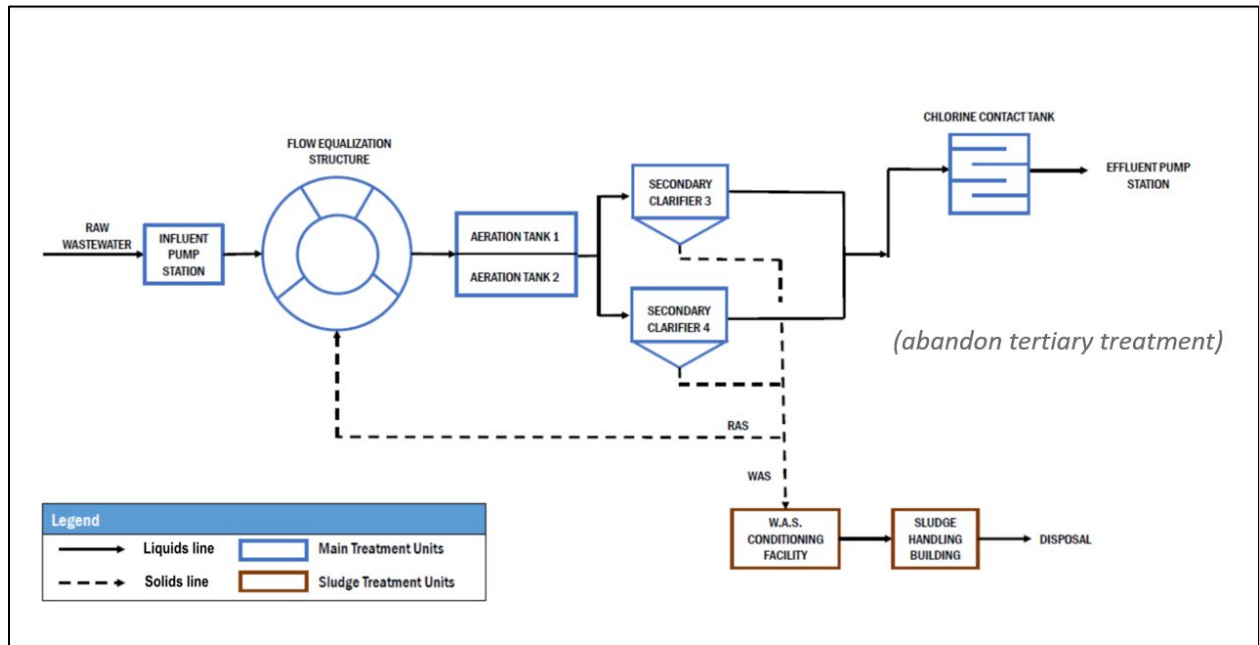


Some highlights from Option 1 include minimal maintenance and the ability to allow the plant to age over time, as new regional disposal solutions are pursued.

3.2.2 Option 2 – Discontinue Recycled Water Production (Phase Out BNR/Tertiary)

Option 2 would maintain and improve the preliminary and secondary treatment facilities and chlorine contact basin and abandon the tertiary treatment facilities. Effluent produced by Option 2 would meet NPDS permit requirements for disinfected secondary effluent suitable for discharge into Monterey Bay. The City would no longer produce tertiary treated recycled water, which would breach the agreement with SVWD, and current recycled water customers would lose their local, sustainable supply. The City would be able to continue to meet its agreement with Pasatiempo Golf Course. Because nitrogen removal would no longer be required, the City could discontinue BNR. Discontinuation of BNR would recover the treatment capacity to its original 1.5 MGD ADWF, which was lost when the WRF was converted from BOD / TSS removal to also perform BNR. A process flow schematic for Option 2 is shown in Figure 3-2.

Figure 3-2 Option 2 - Discontinue Recycled Water Production (Phase Out BNR/Tertiary)



Option 2 would reduce the operational complexity of the WRF but could be negatively perceived by the public for loss of a local, sustainable supply and stranding those assets. However, should the SVWD embark on their own potable reuse program there may be a benefit of utilizing the non-potable recycled water conveyance system to convey purified water for groundwater recharge. Section 5.4 summarizes some of the alternatives the SVWD is considering to maximize beneficial use in Scotts Valley if the treatment capabilities WRF were to be limited or reduced.

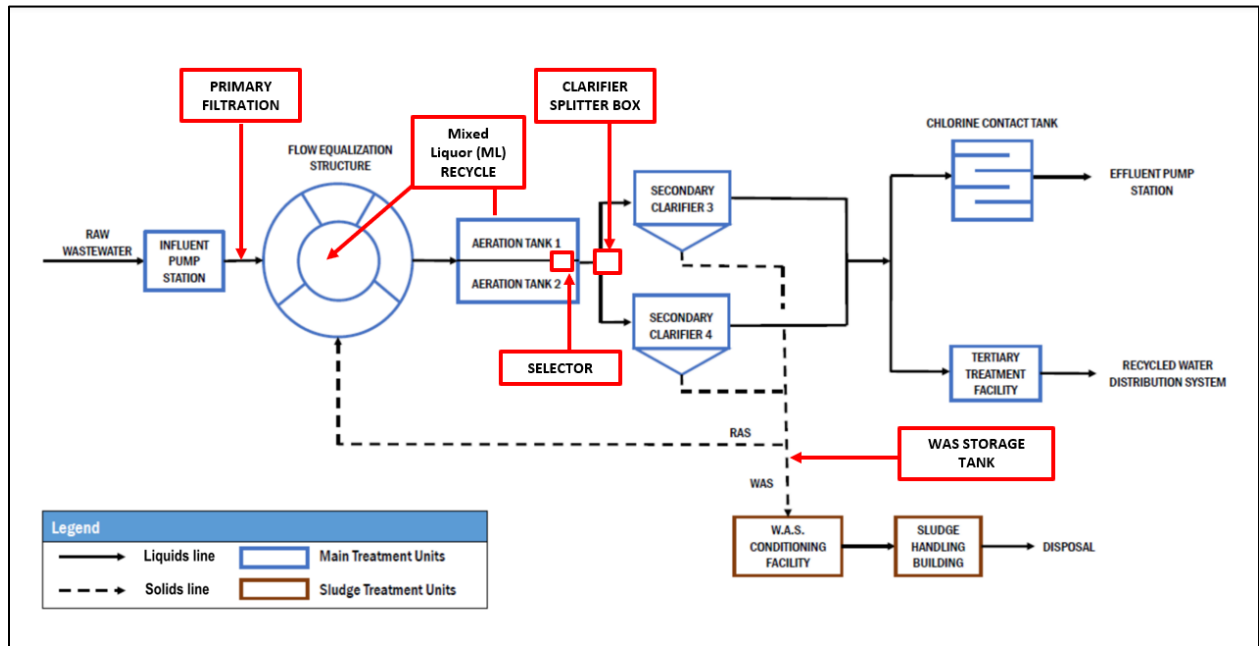
3.2.3 Option 3 – Improvements to Meet Current Agreements

All sub-options evaluated under Option 3 aim to meet the current agreements and discharge requirements, summarized in Table 2-1.

3.2.4 Option 3a – Plant Optimization

Option 3a includes improvements and upgrades to the existing facilities, with the goal of maximizing plant performance to reliably meet discharge nitrogen requirements. The proposed improvements may include combination of the following: addition of primary/secondary clarifier or primary filtration, dedicated mixed liquor (ML) recycle pumps, classifying selector, clarifier splitter box, bioaugmentation, seasonal operation adjustments to the secondary treatment process, and a new waste activated sludge (WAS) storage tank. The process flow schematic for Option 3a is shown in Figure 3-3.

Figure 3-3 Option 3a - Plant Optimization

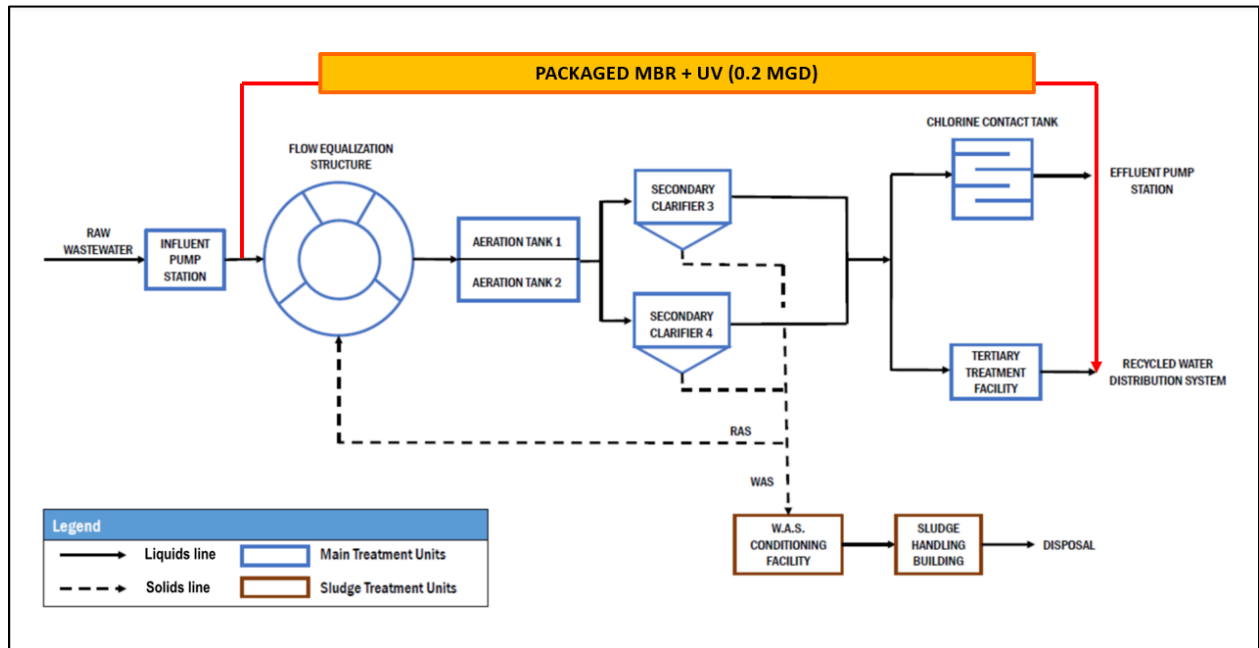


Option 3a could be achieved with a lower capital investment than some of the other options, however, even with the improvements to system performance, consistent RW production may still be challenging and the full rated capacity of the plant may not be recovered. Additionally, achieving TN and NO_x limits may require seasonal process adjustments and operations at the WRF would become more complex.

3.2.5 Option 3b – 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment)

Option 3b would add a 0.2 MGD packaged MBR system with UV designed for full nitrification/denitrification to produce disinfected tertiary treated recycled effluent suitable for unrestricted non-potable reuse. The existing tertiary treatment facility would remain in service and would be used in summer months to meet recycled water requirements in excess of 0.2 MGD. This option assumes that the existing secondary treatment process would be still operated in BNR mode during the summer months. A process flow schematic for Option 3b is shown in Figure 3-4.

Figure 3-4 Option 3b - 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment)



Option 3b offers a new, value sized packaged treatment process that would complement the existing WRF and tertiary treatment system, improving system performance and providing an opportunity to expand in the future. However, the introduction of this new system would add operational complexity, requiring the WRF to essentially run three plants simultaneously with seasonal adjustments to conventional plant. This option would require larger capital investment than the Option 2, but it is less expensive compared to complete plant upgrade or larger packaged system.

Figure 3-5 shows a typical self-contained MBR package plant, which provides screening, nutrient removal, filtration and disinfection all in one skid. This compact treatment system is capable of meeting recycled water requirements and is modular to allow for expansion.

Figure 3-5 Typical Packaged MBR-UV System (Cloacina)

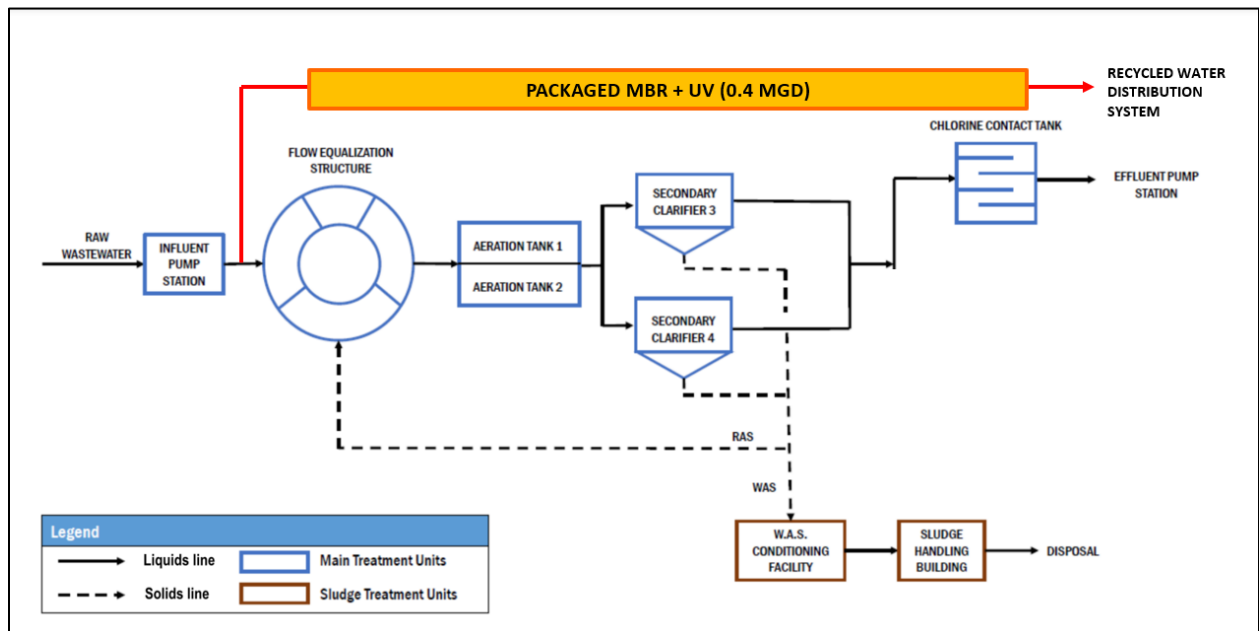


Source: Cloacina

3.2.6 Option 3c –0.4 MGD Packaged Plant (Abandon Tertiary Treatment)

Option 3c would add a 0.4 MGD packaged MBR system with integrated UV to replace the existing tertiary treatment facilities. With this option, the existing secondary treatment process would be operated as conventional BOD/TSS removal system whereas all the recycled water needs would be supplied by the new packaged plant. A process flow schematic for Option 3c is shown in Figure 3-6.

Figure 3-6 Option 3c - 0.4 MGD Packaged Plant (Abandon Tertiary Treatment)



With Option 3c larger packaged plant, the existing processes for nitrogen removal and tertiary treatment would no longer be needed. Operation of the aeration basins could revert to BOD/TSS removal only and the WRF could recover its biological treatment capacity. This is expected to improve system performance and reduce risks and vulnerabilities. This option would require a capital investment with moderate operational complexity to operate the two-plant system in parallel.

3.2.7 Option 4 – Improved Tertiary to Maximize Beneficial Reuse

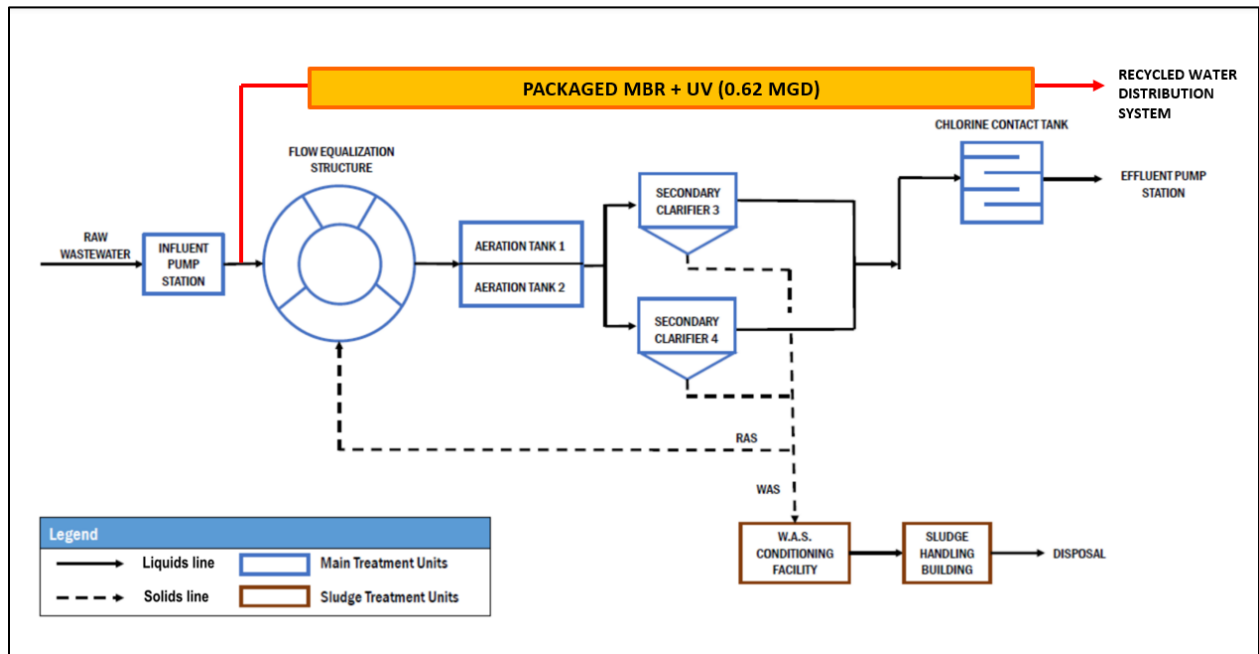
All sub-options evaluated under Option 4 achieve full nitrogen removal for different production capacities to meet the current agreements and discharge requirements, summarized in Table 2-1 while producing additional recycled water that could be utilized by SVWD to maximize beneficial reuse. These options would also take a step towards the City being able to attain zero discharge in the future, in anticipation of future regulatory requirements or ocean discharge bans that may require expensive treatment or limit future outfall flows.

3.2.8 Option 4a – 0.62 MGD Packaged Plant (Abandon Tertiary Treatment)

Option 4a would add a 0.62 MGD packaged MBR system with UV and abandon the existing tertiary treatment facilities. The existing secondary treatment process would be operated as conventional BOD/TSS removal system. The proposed option would allow Scotts Valley to reliably produce target 0.62 MGD (700 AFY) of tertiary recycled effluent year-round in anticipation of SVWD implementing a groundwater recharge project. Option 4a would not only recover the original

design capacity of 1.5 MGD, but also add additional 0.62 MGD of treatment capacity (0.62 MGD of tertiary treated recycled water by packaged MBR + 1.5 MGD secondary effluent by existing conventional treatment plant for total of 2.12 MGD). A process flow schematic for Option 4a is shown in Figure 3-7.

Figure 3-7 Option 4a - 0.62 MGD Packaged Plant (Abandon Tertiary Treatment)

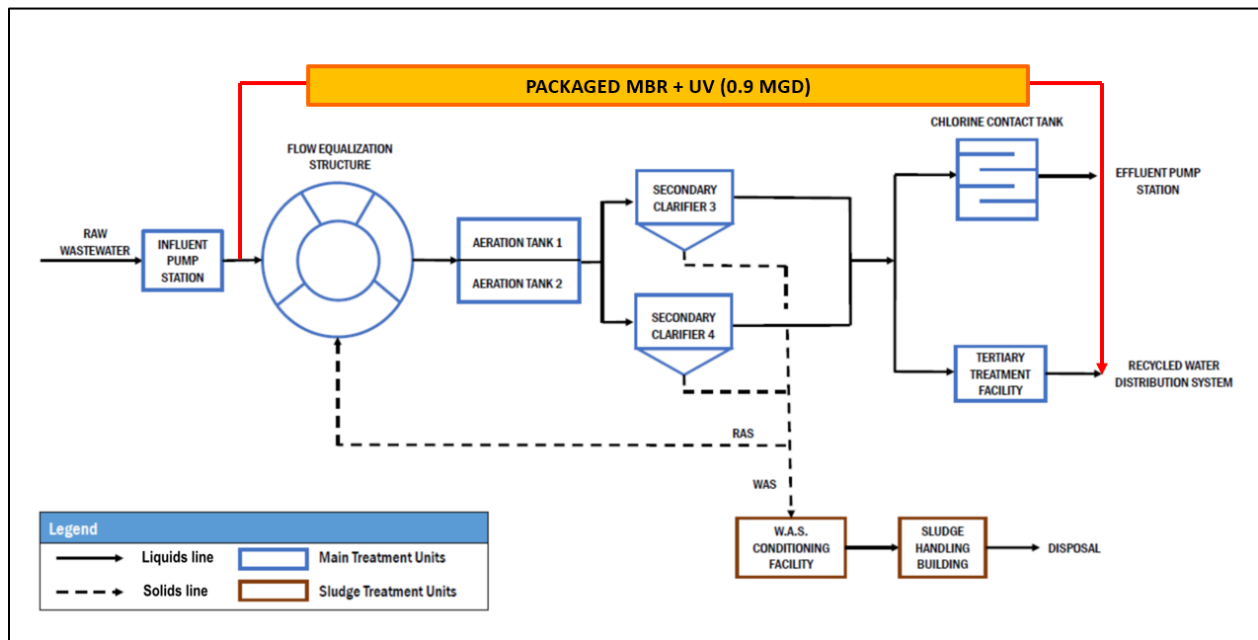


Option 4a allows contracted RW deliveries to be consistently met while creating an additional sustainable supply. It would require significant capital investments and has both jurisdictional and space challenges.

3.2.9 Option 4b – 0.9 MGD Packaged Plant (Keep Existing Tertiary Treatment)

Option 4b would keep the existing tertiary treatment facilities and add a 0.9 MGD packaged MBR system with UV. The existing secondary treatment process would continue to be operated in BNR mode which, in conjunction with the existing tertiary treatment facilities, would enable Scotts Valley WRF to produce 1.5 MGD of tertiary treated recycled water year-round. The aeration basins would be operated in nitrification-denitrification mode, but at a lower flow through since package is carrying a portion of the load. A process flow schematic for Option 4b is shown in Figure 3-8.

Figure 3-8 Option 4b - 0.9 MGD Packaged Plant (Abandon Tertiary Treatment)



The goal of Option 4b is produce 100% tertiary effluent with a combination of packaged treatment plant and existing tertiary facilities. Since most packaged plants are at or below 0.5 mgd capacity, this would push the limits of the benefits of a packaged plant. Similar to Option 4a, it would require significant capital investments and has both jurisdictional and space challenges. Additionally, the operations would be more complex due to the need to operate three plants simultaneously.

3.2.10 Option 4c – 1.5 MGD Custom MBR

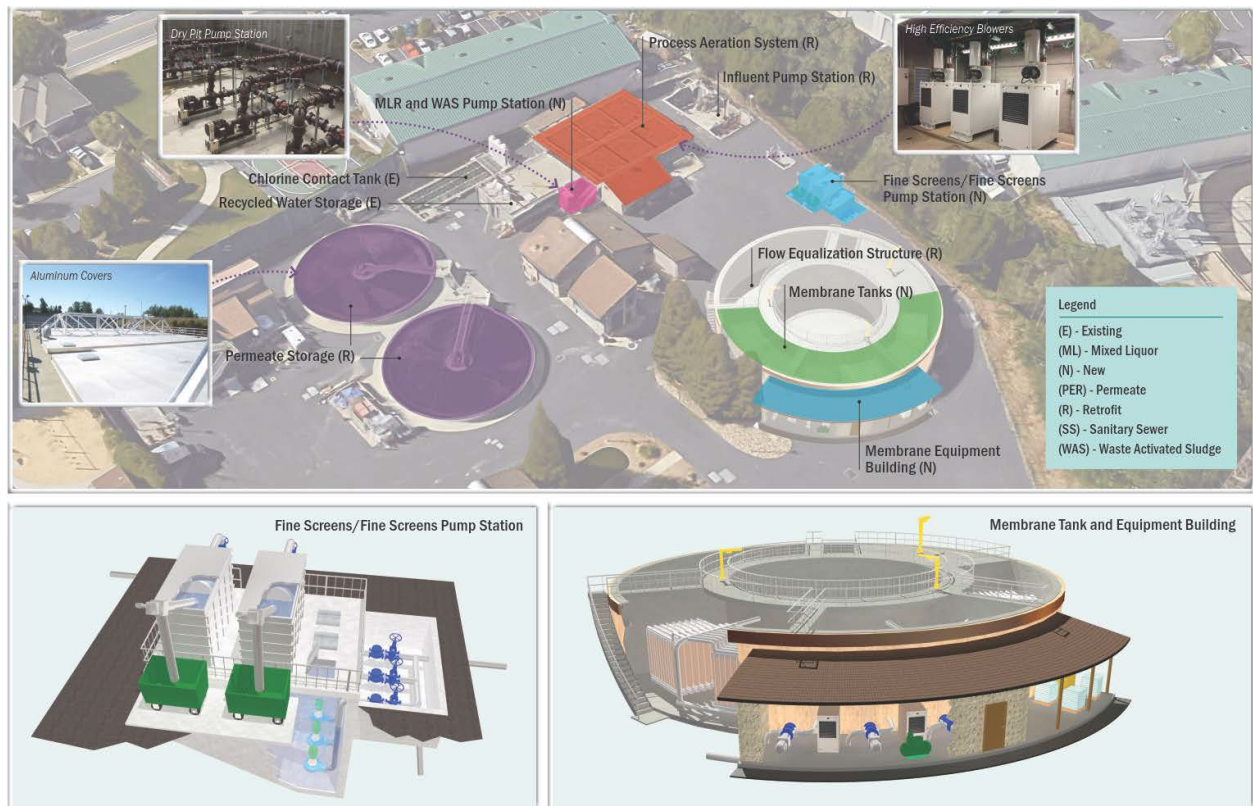
Option 4c would repurpose existing infrastructure by retrofitting the WRF as an MBR facility. The objective of retrofitting the WRF with MBR technology is to resolve recurring secondary process upsets, improve recycled water production capacity and reliability, and accommodate increasing loading due to population growth within the WRF's service area while continuing to provide for nitrogen removal (Kennedy Jenks, 2018)

The MBR retrofit concept, as illustrated in Figure 3-9, includes:

- Installing new fine screens and a new fine screen pump station between the existing
- Influent Pump Station and Flow Equalization Structure (FES)
- Upgrading the existing process aeration system
- Installing new Mixed Liquor Recirculation (MLR) and WAS
- pump stations to convey effluent from the process aeration system to the new MBR and
- existing sludge conditioning and dewatering facilities
- Installing new membrane cassettes in the radial tanks of the FES
- Converting the existing clarifiers to new permeate storage basins

- Replacing and adding yard piping, valves, and accessories
- Adding electrical, controls, instrumentation, and standby power upgrades.

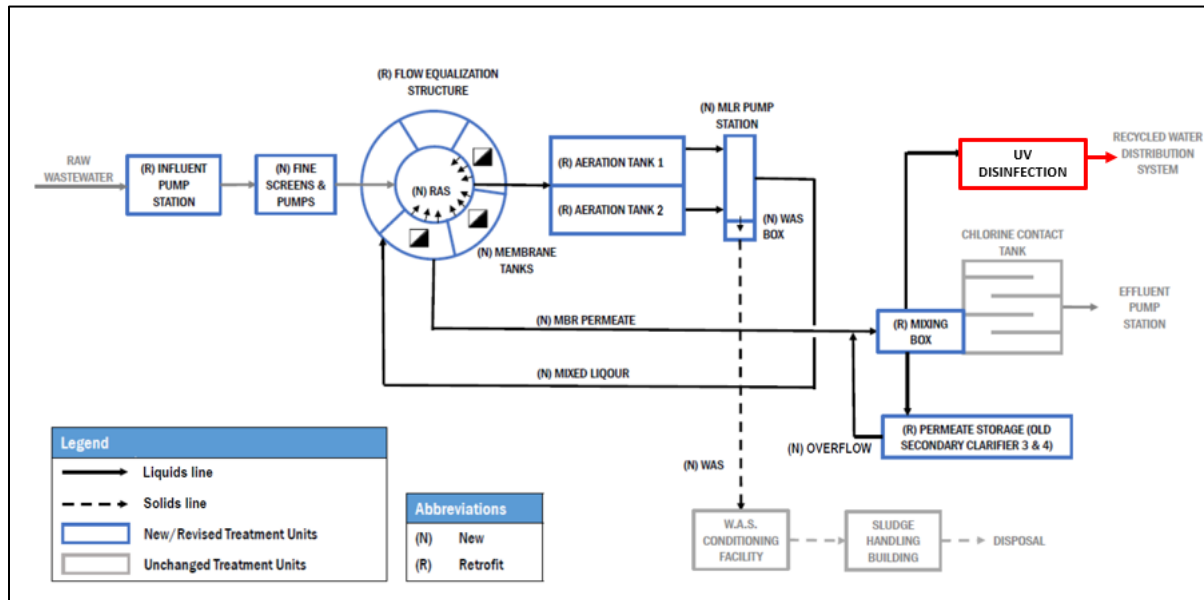
Figure 3-9 Overview of MBR Retrofit Concept



With this option, the new MBR facilities would be located in the portion of FES, the existing secondary clarifiers would be converted into permeate storage tanks, and the existing tertiary filters would be abandoned. The upgraded facility would continue to use the existing UV and chlorine contact basin. This option would allow City to produce high quality effluent suitable for reclamation or other beneficial reuse. The new system would be designed to meet current permitted flows of 1.5 MGD ADWF. A process flow schematic for Option 4c is shown Figure 3-10.

This option would require the largest capital investment but would reduce operational complexity by moving to a single plant system. It would allow contracted recycled water deliveries to be consistently met while maximizing the production of a local sustainable supply for beneficial reuse.

Figure 3-10 Option 4c - 1.5 MGD Custom MBR



3.3 Concept-Level Capital Costs

Conceptual level capital costs (AACE Class V) associated with each WRF options were developed based on site observations, discussions during the BRVA workshop with City staff, and professional judgement and experience with wastewater treatment facilities of similar size, condition, and complexity. Capital costs include process and/or facilities additions and upgrades to meet Option treatment objectives (such as addition of the packaged MBR) and improvements to the existing facilities, which were identified as critical with respect safety, consequence of failure, and asset performance. A list of facility improvements, upgrades, and repairs was identified during the BRVA workshop, which are detailed in Appendix A. Table 3-3 summarizes the improvements assumed for each WRF option to estimate capital costs.

The assumptions for each cost item are listed in the cost table in Appendix B, which includes a range of costs for items that would typically require a more comprehensive condition assessment to accurately identify the repairs and accurately develop the costs. Facility costs for each option only include assets with consequential criticality scores of 4 and 5 (refer to Appendix A and Table 3-3), improvements and upgrades for assets and processes identified by the city staff during the site visit and BRVA workshop, and new facilities which are needed to meet the option objective. The costs for options with packaged MBR system were developed based on quotes from Cloacina, a packaged MBR system manufacturer. Cost for Option 4c was based on capital costs previously developed as part of the 2018 MBR Retrofit TM and escalated to current CCI. The facility capital costs for all options were developed for current CCI (January 2022 and CCI of 12,556) and were escalated by 25% to include allowance for general conditions, profit, insurance, bonds. The subtotal construction cost was further escalated by 25% to account for engineering, bid services, engineering services during construction, construction management, and inspection. The total project cost was

expressed and range to account for Class V contingency of +50% to –30%. The estimate of capital costs for improvements and new facilities for each WRF option is shown at the bottom of the table in Appendix B.

Table 3-3 Summary of Improvements for All WRF Options

Unit Process	Description of Improvements	Criticality ⁽¹⁾	WRF Options							
			1	2	3A	3B	3C	4A	4B	4C
Electrical Distribution	develop P&IDs and record drawings for entire electrical system	5		✓	✓	✓	✓	✓	✓	✓
	conduct arc flash study	5		✓	✓	✓	✓	✓	✓	✓
	develop electrical safety protocols	5		✓	✓	✓	✓	✓	✓	✓
	condition assessment of electrical systems	5		✓	✓	✓	✓	✓	✓	✓
	electrical replacements and upgrades based on condition assessment	5		✓	✓	✓	✓	✓	✓	✓
Influent Pump Station and Headworks	safety audit and safety compliance improvements	4		✓	✓	✓	✓	✓	✓	✓
	add grit removal system	4		✓	✓	✓	✓	✓	✓	✓
	condition assessment and repairs as needed	4		✓	✓	✓	✓	✓	✓	✓
	add primary clarifier or primary filtration: BOD reduction in the secondary influent	5			✓					
Flow Equalization Structure	upgrade cleaning / flushing mechanism for removal of settled materials out of side compartments	4		✓	✓	✓	✓	✓	✓	
	develop SOPs for various failure events	4		✓	✓	✓	✓	✓	✓	
	condition assessment and repairs as needed	4		✓	✓	✓	✓	✓	✓	
	automation for flow control and aeration, related to use of FES as anoxic basin	5		✓	✓	✓			✓	
Aeration Tanks	develop SOPs for various failure events	4		✓	✓	✓	✓	✓	✓	✓
	condition assessment and repairs as needed	4		✓	✓	✓	✓	✓	✓	✓
	add one additional blower for redundancy	4		✓	✓	✓			✓	✓
	aeration control upgrade	4		✓	✓	✓	✓	✓	✓	
	add internal recirculation pump and piping	5			✓					
	add classifying selector for surface wasting to AB effluent box	5		✓	✓					

Unit Process	Description of Improvements	Criticality ⁽¹⁾	WRF Options							
			1	2	3A	3B	3C	4A	4B	4C
	bio augment sec treatment process with low SRT nitrifying organisms, annual cost	5		✓	✓					
Secondary Clarifiers	develop SOPs for various failure events	3	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	3	If criticality < 4, not included in evaluation							
	add clarifier splitter box	5			✓	✓				
Chlorine Contact	develop SOPs for various failure events	1	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	1	If criticality < 4, not included in evaluation							
Tertiary Treatment Facility	develop SOPs for various failure events	2	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	2	If criticality < 4, not included in evaluation							
	replace backwash pumps	5			✓	✓			✓	
	refurbish air and wasting valves	5			✓	✓			✓	
Disinfected Plant Effluent Outfall	develop SOPs for various failure events	3	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	3	If criticality < 4, not included in evaluation							
Solids dewatering	develop SOPs for various failure event	3	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	3	If criticality < 4, not included in evaluation							
	replace cake conveyor	3	If criticality < 4, not included in evaluation							
	upgrade controls for solids dewatering system (BFP and polymer feed)	3	If criticality < 4, not included in evaluation							
	add WAS storage tank	5		✓	✓	✓	✓	✓	✓	✓
WAS Pump Station	develop SOPs for various failure events	3	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	3	If criticality < 4, not included in evaluation							
	upgrade WAS controls	5		✓	✓	✓			✓	
	add TSS meter	5		✓	✓	✓			✓	
RAS Pump Station	develop SOPs for various failure events	3	If criticality < 4, not included in evaluation							
	condition assessment and repairs as needed	3	If criticality < 4, not included in evaluation							
SCADA	no improvements identified as the plant is currently in process of upgrading the SCADA system and process control	1	If criticality < 4, not included in evaluation							

Unit Process	Description of Improvements	Criticality (1)	WRF Options							
			1	2	3A	3B	3C	4A	4B	4C
Tertiary Plant Decommission	Decommission and Demolition of Tertiary Treatment Plant	5		✓			✓	✓		✓
New Facilities	New packaged plant	5			✓	✓	✓	✓		
	Plant upgrade to MBR									✓
Packaged treatment plant integration	addition of piping	5			✓	✓	✓	✓		
	electrical and SCADA upgrades	5			✓	✓	✓	✓		
	site paving and grading	5			✓	✓	✓	✓		
	Misc. demolition	5			✓	✓	✓	✓		
Lift Station	New screened sewage lift station	5	✓							
Effluent Pipe	Add pipe to Santa Cruz WWTP	5	✓							
Demolition	Demolition of the treatment facility	5	✓							

The estimated capital cost breakdown for each of the WRF options is provided in Appendix B and the summary of capital costs is presented in Table 3-4.

3.4 Summary of WRF Options

The benefits, limitations, estimated capital investment and relative operational complexity of each of the identified WRF Options are presented in Table 3-4.

Table 3-4 Summary of WRF Options

Scenario	City Advantages or Benefits	City Disadvantages or Limitations	Est Capital Costs	Relative Operational Complexity
Option 1 - Decommission WRF	Removes operating costs; potential to repurpose portion of WRF site	Breaches SVWD and Pasatiempo agreements; loss of local, sustainable supply; requires agreement with City of Santa Cruz to accept and treat effluent	\$13.2 mil ¹	Minimal: maintenance of collections system and new lift station
Option 2 - Discontinue Recycled Water Production	Minimizes operating and future CIP costs; restores operational capacity to secondary level only ¹	Breaches SVWD agreement; changes in effluent quality; loss of local, sustainable supply	\$2.3 mil ²	Low: simply secondary process operation for BOD and TSS removal only; tertiary treatment facility is abandoned;
Option 3 - Improvements to Meet Current Agreements				
Option 3a - Plant Optimization	Low capital investment; improves system performance ¹	Limits consistent RW production; limited cost sharing opportunities	\$4.3 mil ²	Very complex: achieving TN and NOx limits may require seasonal process adjustments
Option 3b - 0.2 MGD Package	Improves system performance; potential to expand in the future	Requires large capital investment; reliability of system is limited	\$10.8 mil	Complex: operation of three plants simultaneously with seasonal adjustments to conventional plant.
Option 3c - 0.4 MGD Package	Improves system performance; reduces risks/vulnerabilities	Requires large capital investment; reliability of system is limited	\$11.4 mil	Moderate: two plants operated in parallel; tertiary treatment plant is removed
Option 4 - Improved Tertiary to Maximize Beneficial Reuse				
Option 4a - 0.62 MGD Package	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges; space challenges	\$16.0 mil	Moderate: two plants operated in parallel; tertiary treatment plant is removed
Option 4b - 0.9 MGD Package	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges; space challenges	\$20.0 mil	Complex: operation of three plants simultaneously.
Option 4c - 1.5 MGD Custom MBR	Allows contracted RW deliveries to be consistently met; creates sustainable supply	Requires significant capital investment; jurisdictional challenges	\$35.0 mil	Moderate: operation of single MBR system with UV and chlorine disinfection

¹ Option 1 includes the cost of purchasing capacity in the Santa Cruz WWTF (estimated at \$7.0 mil), but does not include ongoing capital costs for the proportional share of the Santa Cruz WWTF annual CIP (estimated at \$300,000 per year), improvements to the outfall pipeline to convey raw effluent (unknown) nor a capital payout to Pasatiempo for some portion of their stranded treatment assets.

² Need modeling to confirm the viability and costs of assumed process improvements in Options 2 and 3a.

Section 4: Screening Options

Following the identification of WRF Options, a two-step screening approach was applied to identify fatal flaws and compare the options based on a set of defined decision criteria. This section describes the screening process and the outcomes from STEP 1: Initial Concept-Level Screening. Section 5 includes an additional evaluation of projects that remained for further consideration and describes the outcomes from STEP 2: Options Evaluation and Comparison.

4.1 Screening Approach

A two-step screening approach was applied as follows:

- **STEP 1: Initial Concept-level Screening** to vet a broad set of options and provide the City with a high-level view of WRF options and potential local and regional partnerships.
- **STEP 2: Options Evaluation and Comparison** to evaluate a short list of options based on cost, benefits, limitations, and other decision criteria.

This section describes the initial concept-level screening criteria and outcomes, identifying options removed further consideration and those that remain for the second step evaluation and comparison, described in section 5.

4.2 Initial Concept-Level Screening

Initial Concept-level Screening applied a fatal flaw evaluation to identify institutional, engineering and implementation challenges that the City found to be insurmountable and options that would have limited benefit for the City. Options that were found to have more than two of the following fatal flaws or limitations were eliminated from further consideration:

- **Engineering Fatal Flaws** – include space and capacity constraints and construction challenges that would be very difficult and/or expensive to overcome.
- **Implementation Fatal Flaws** – address financial, regulatory, environmental and operational issues that would impede project construction or WRF operations.
- **Institutional Fatal Flaws** – include jurisdictional limitations, binding agreements and the potential for partnerships
- **Does Not Meet City Mission and Vision** – assesses whether the project would meet current City Goals related to meeting customer demands and the future vision for the WRF.

Table 4-1 lists the fatal flaw screening criteria categories and qualitative approach used to assess each option. Within each fatal flaw category, different levels of risk/acceptable criteria were listed and assigned a symbol and color as defined in the legend. Table 4-2 presents the outcomes of applying the fatal flaw screening to Options 1 through 4 presented in Section 3. Options that were found to have more than two of fatal flaws or limitations were eliminated from further consideration.

Table 4-1 Fatal Flaw Screening Criteria

Fatal Flaw	Category	Screening Criteria	●	◐	○
			exceeds criteria / good / low risk	meets criteria / acceptable risk	does not meet criteria / poor / high risk
Engineering Fatal Flaws	Space	Available space for upgrades and new facilities	adequate available City owned space at WRF	potentially available non-City owned space	inadequate available space
	Plant Capacity	Ability to perform at design capacity	Exceeds 1.5 mgd design capacity	Meets 1.5 mgd design capacity	Sustain current operational capacity (< 1.5 mgd)
	Construction	Construction challenges	few construction challenges	some construction challenges	many construction challenges
Implementation Fatal Flaws	Relative Capital Costs	Relative capital costs to build the project (incl. demolition)	LOW capital cost (<\$10M)	MID-RANGE capital costs (\$10M to \$20M)	HIGH capital cost (>\$20M)
	Relative Operational Costs	Relative annual costs to treat or dispose of effluent	LOW relative O&M costs	MID-RANGE of relative O&M costs	HIGH relative O&M costs
	Regulatory	Regulatory challenges	consistent adherence to existing permit requirements, no need for new contract for discharge	meets existing permit requirements with limited upsets, or new contract needed for discharge	cannot meet existing or anticipated future permit requirements due to frequent upsets.
	Environmental	Environmental impediments to construction	few environmental impediments to construction	some environmental impediments to construction	significant environmental impediments to
	Operational	Operational challenges	few changes to current operations	some complexity added to current operations	significant complexity added to current operations
Institutional Fatal Flaws	Agreements	Adheres to existing binding agreements	meets all binding agreements	unable to consistently meet all existing binding agreements	failure to meet existing binding agreements.
	Partnerships	Potential for cost-sharing partnerships	potential to bring in cost-sharing partners	some potential to bring in cost-sharing partners	no potential to bring in cost-sharing partners
Does not Meet City Mission and Vision	City Goals	Meet current customers' demands	meets all current customer demands	meets some current customer demands	does not meet current customer demands
		Meet WRF Future Vision	prepares City to meet future regulations, prioritize reuse and implement cleaner new filtration technologies	somewhat prepares City to meet future regulations, prioritize reuse OR implement cleaner new filtration technologies	does not prepare City to meet future regulations, prioritize reuse and implement cleaner new filtration technologies

Legend:	●	exceeds criteria / good / low risk
	◐	meets criteria / acceptable risk
	○	does not meet criteria / poor / high risk

Table 4-2 Fatal Flaw Screening Outcomes

Fatal Flaw	Category	Screening Criteria	Opt 1 Decommission	Opt 2 Phase out BNR/tertiary	Opt 3a Plant Optimization	Opt 3b 0.2 mgd package	Opt 3c 0.4 mgd package	Opt 4a 0.62 mgd package	Opt 4b 0.9 mgd package	Opt 4c 1.5 MGD Custom MBR
Engineering Fatal Flaws	Space	Available space for upgrades and new facilities	●	●	●	◐	◐	○	○	●
	Plant Capacity	Ability to perform at design capacity	◐	◐	○	○	●	●	◐	◐
	Construction	Construction challenges	●	●	●	◐	◐	○	○	◐
Implementat ion Fatal Flaws	Relative Capital Costs	Relative capital costs to build the project (incl. demolition)	○	●	●	◐	◐	◐	○	○
	Relative Operational Costs	Relative annual costs to treat or dispose of effluent	○	●	◐	○	◐	◐	○	◐
	Regulatory	Regulatory challenges	◐	◐	◐	◐	●	●	●	●
	Environmental	Environmental impediments to construction	●	●	●	●	●	●	●	●
	Operational	Operational challenges	●	●	○	○	◐	◐	○	◐
Institutional Fatal Flaws	Agreements	Adheres to existing binding agreements	○	○	◐	◐	●	●	●	●
	Partnerships	Potential for cost-sharing partnerships	○	◐	◐	◐	◐	●	●	●
Does not Meet City Mission and Vision	City Goals	Meet current customers' demands	○	○	◐	●	●	●	●	●
		Meet WRF Future Vision	○	◐	◐	◐	◐	●	●	●

Legend:	●	exceeds criteria / good / low risk
	◐	meets criteria / acceptable risk
	○	does not meet criteria / poor / high risk

4.3 Options Removed from Further Consideration

Based on the outcomes of the fatal flaw screening, the following options were removed from further consideration.

- **Option 1 - Decommission WRF.** This option had multiple implementation and institutional fatal flaws. This option has high capital costs associated with new infrastructure, buying into capacity of the Santa Cruz WWTF, ongoing capital costs for the proportional share of the Santa Cruz WWTF annual CIP, potential improvements to the Scotts Valley outfall pipeline to convey raw effluent (unknown), and a potential capital payout to Pasatiempo for some portion of their stranded treatment assets (unknown). In addition, the City would incur annual costs pay the City of Santa Cruz to treat raw wastewater, to SVWD to purchase potable water for City parks, and possibly to Pasatiempo for annual costs incurred due to breach of contract. The City's transition away from secondary and recycled water production would bring additional risks associated with relinquishing control of wastewater treatment to the City of Santa Cruz, loss of reliability of water supply during droughts and breaching the contract with Pasatiempo Golf Course. Though regional projects could potentially offset demands with a new source of non-potable or potable recycled water, the timeline for those projects are uncertain at this time. Lastly, this option did not meet the City Mission and Vision.
- **Option 3b – 0.2 MGD Packaged Plant (Keep Existing Tertiary Treatment).** This option has engineering and implementation fatal flaws. Having three plant seasonal operations would be very complex, with relatively high annual costs.
- **Option 4a – 0.6 MGD Packaged Plant (Abandon Tertiary Treatment).** This option had implementation and institutional fatal flaws, which removed it from further consideration.
- **Option 4b – 0.9 MGD Packaged Plant (Keep Existing Tertiary Treatment).** This option had implementation and institutional fatal flaws, which removed it from further consideration.

4.4 Options Remaining for Further Consideration

The following options remain for further consideration following the fatal flaw screening.

- **Option 2 – Discontinue Recycled Water Production (Phase Out BNR/Tertiary).** This option has some implementation and institutional fatal flaws. Moreover, this option does not meet the City Mission and Vision.
- **Option 3a – Plant Optimization.** This option needs more modeling to confirm its feasibility. Moreover, there is a higher risk of implementation and institutional fatal flaws.
- **Option 3c – 0.4 MGD Packaged Plant (Abandon Tertiary Treatment),** This option is limited to 0.4 MGD of tertiary production.
- **Option 4c – 1.5 MGD Custom MBR.** This option meets the future vision through simplified and consistent operation. However, cost sharing partnerships would be needed to justify higher capital investments.

Section 5: Options Evaluation and Comparison

Following the initial concept screening, a more in-depth options evaluation and comparison was performed to rank the WRF options. This section further identifies upgrades and new facilities for each of the 4 options identified by the City for further consideration; including process upgrades, pipelines, pump stations and other infrastructure to treat and deliver water. Capital costs, presented in Section 3.3, are annualized and combined with annual O&M costs, presented in this section, to identify the added annual investment needed to implement each option.

5.1 Options Scoring, Weighting and Ranking Approach

A “scorecard” approach was used to compare the options using qualitative and quantitative information applied to a set of decision criteria related to economic, environmental, social, engineering and operational considerations. The option evaluation included a scoring, weighting and ranking process as described below:

- **Scoring:** The decision criteria included guidance for scoring (Table 5-1) on a scale of 1 to 4, where 4 is the highest score, representing fully meeting criteria and 1 is the lowest scoring, being unable to meet criteria.
- **Weighting:** Within themes were developed for comparing options (Table 5-2), addressing variation in different priorities by artificially increasing weighting for certain categories or criteria.
- **Ranking:** raw scores were multiplied by the percentages from the weighting themes to get a weighted score to rank projects. The use of multiple weighting themes provides a sensitivity analysis to identify projects that rise to the top irrespective of weighting distributions.

Table 5-1 Decision Criteria and Guidance for Scoring

Categories	WRF Options Screening Criteria	Considerations for Assessing WRF Option based on Criteria	Guidance for Scoring		
			Fully Meets Criteria (Highest Scoring) 4	Generally Meets Criteria 2 to 3	Unable to Meet Criteria (Lowest Scoring) 1
ECONOMIC	Cost Effectiveness	- Relative life cycle costs	LOWEST relative life cycle cost	MID-RANGE relative life cycle costs	HIGHEST relative life cycle cost
	Financial Implementability	- Relative capital investment	LOWEST relative capital cost	MID-RANGE of relative capital costs	HIGHEST relative capital cost
ENVIRONMENTAL	CEQA Considerations	- Relative environmental impacts and mitigation requirements	Potential for Mitigated Negative Declaration (MND) with few impacts and minimal mitigation	Range of potential impacts and mitigation requirements	Complex CEQA requirements with potential for significant impacts and substantial mitigation required
	Future Regulatory Risk	- Relative risk of City to meet future regulatory requirements (e.g. ocean discharge, nutrient removal)	Minimal Risk	Some Risk	High Risk
SOCIAL	Regional Benefits	- Relative regional community benefits through cooperation and coordination of other agencies	Partnerships with multiple entities results more regional benefits	Some partnerships results in some regional benefits	Partnerships with few entities results more fewer regional benefits
	Public Perception	- Perceived public acceptance and comfort with project	Public comfort level is high with majority acceptance	Range of public comfort level and acceptance	Public comfort level is low with little acceptance
ENGINEERING & OPERATIONAL CONSIDERATIONS	Maximize Beneficial Reuse	- Maximizes reuse of wastewater effluent	Potential to increase reuse volume in the future	Maintain current reuse volumes	Decrease in current reuse volume
	Ease of Implementation	- Potential construction challenges for new facilities and upgrades at the WRF	Few new facilities on already disturbed areas with minimal construction complexities	Some new facilities located in relatively disturbed areas with a range of construction complexities	Facilities located in undisturbed areas with higher degree of construction complexity
		- Potential institutional challenges	Meets current reuse agreements with potential to increase reuse in the future.	Meets current reuse agreements	Does not meet current reuse agreements
	Operational Complexity	- Relative impact to current wastewater operations and responsibilities	Minimal potential impacts related to wastewater treatment, RW production and outfall disposal	Range of potential impacts related to wastewater treatment, RW production and outfall disposal	Significant potential impacts related to wastewater treatment, RW production and outfall disposal
		- Relative impact to current recycled water operations and responsibilities	Minimal potential impacts related to RW customer service	Range of potential impacts related to RW customer service	Significant potential impacts related to RW customer service

Table 5-2 Weighting Themes

		Potential Weighting Themes			
Categories	Alternatives Screening Criteria	Balanced Across TBL+	Minimize Costs	Maximize Beneficial Reuse	Minimize Operational Complexity
ECONOMIC	Cost Effectiveness	15%	30%	10%	10%
	Financial Implementability	10%	30%	10%	10%
ENVIRONMENTAL	CEQA Considerations	10%	5%	5%	5%
	Future Regulatory Risk	15%	5%	5%	5%
SOCIAL	Regional Benefits	15%	5%	5%	5%
	Public Perception	10%	5%	5%	5%
ENGINEERING & OPERATIONAL CONSIDERATIONS	Maximize Beneficial Reuse	5%	5%	30%	5%
	Ease of Implementation	10%	5%	15%	25%
	Operational Complexity	10%	10%	15%	30%
	Total	100%	100%	100%	100%

5.2 Options Evaluation

Additional effort was performed for the four options identified to identify relative O&M costs and life-cycle costs, as described in this section. Table 5-3 summarizes the recommended improvements for the four WRF options remaining for further considerations:

- **Option 2** – Discontinue Recycled Water Production (Phase Out BNR/Tertiary)
- **Option 3a** – Plant Optimization, Improvements to Meet Current Agreements
- **Option 3c** – 0.4 MGD Packaged Plant (Abandon Tertiary Treatment)
- **Option 4c** – 1.5 MGD Custom MBR to Improvements to Maximize Beneficial Reuse

Table 5-3 Recommended Improvements for Selected Alternatives

Unit Process	Description of Improvements	Criticality ⁽¹⁾	WRF Selected Options			
			2	3A	3C	4C
Electrical Distribution	develop P&IDs and record drawings for entire electrical system	5	✓	✓	✓	✓
	conduct arc flash study	5	✓	✓	✓	✓
	develop electrical safety protocols	5	✓	✓	✓	✓
	condition assessment of electrical systems	5	✓	✓	✓	✓
	electrical replacements and upgrades based on condition assessment	5	✓	✓	✓	✓
Influent Pump Station and Headworks	safety audit and safety compliance improvements	4	✓	✓	✓	✓
	add grit removal system	4	✓	✓	✓	✓
	condition assessment and repairs as needed	4	✓	✓	✓	✓
	add primary clarifier or primary filtration: BOD reduction in the secondary influent	5 ⁽¹⁾				
Flow Equalization Structure	upgrade cleaning / flushing mechanism for removal of settled materials out of side compartments	4	✓	✓	✓	
	develop SOPs for various failure events	4	✓	✓	✓	
	condition assessment and repairs as needed	4	✓	✓	✓	
	automation for flow control and aeration, related to use of FES as anoxic basin	5 ⁽²⁾	✓	✓		
Aeration Tanks	develop SOPs for various failure events	4	✓	✓	✓	✓
	condition assessment and repairs as needed	4	✓	✓	✓	✓
	add one additional blower for redundancy	4	✓	✓		✓
	aeration control upgrade	5 ⁽⁴⁾	✓	✓	✓	
	add internal recirculation pump and piping	5 ⁽²⁾		✓		
	add classifying selector for surface wasting to AB effluent box	5 ⁽²⁾	✓	✓		
	bio augment sec treatment process with low SRT nitrifying organisms, annual cost	5 ⁽²⁾	✓	✓		
	develop SOPs for various failure events	3				

Unit Process	Description of Improvements	Criticality ⁽¹⁾	WRF Selected Options			
			2	3A	3C	4C
Secondary Clarifiers	condition assessment and repairs as needed	3				
	add clarifier splitter box	5 ⁽²⁾		✓		
CCB	develop SOPs for various failure events	1				
	condition assessment and repairs as needed	1				
Tertiary Treatment Facility	develop SOPs for various failure events	2				
	condition assessment and repairs as needed	2				
	replace backwash pumps	5 ⁽³⁾	✓	✓		
	refurbish air and wasting valves	5 ⁽³⁾	✓	✓		
Effluent Outfall	develop SOPs for various failure events	3				
	condition assessment and repairs as needed	3				
Solids dewatering	develop SOPs for various failure event	3				
	condition assessment and repairs as needed	3				
	replace cake conveyor	3				
	upgrade controls for solids dewatering system (BFP and polymer feed)	3				
	add WAS storage tank	5		✓	✓	✓
WAS Pump Station	develop SOPs for various failure events	3				
	condition assessment and repairs as needed	3				
	upgrade WAS controls	5	✓	✓		
	add TSS meter	5	✓	✓		
RAS Pump Station	develop SOPs for various failure events	3				
	condition assessment and repairs as needed	3				
SCADA	no improvements identified as the plant is currently in process of upgrading the SCADA system and process control	1				
New Facilities	Decommission Tertiary Treatment Plant	5 ⁽⁵⁾	✓		✓	✓
	New packaged plant	5			✓	
	Plant upgrade to MBR	5				✓
	Packaged plant integration – addition of piping	5			✓	
	Packaged plant integration – electrical and SCADA upgrades	5			✓	
	Packaged plant integration – site paving and grading	5			✓	
	Packaged plant integration – Misc. demolition	5			✓	

Notes:

(1) Addition of primary clarifier is not critical for plant functioning; however, it is included in Option 3A. The benefit of adding primary clarifier should be further evaluated.

(2) Criticality 5 for this improvement only applies to selected options as part of plant optimization.

(3) Criticality 5 for these improvements apply to options which include existing Tertiary Facilities

(4) Aeration control upgrade is included in Option 4C plant upgrade project

(5) Decommission of the tertiary plant would take place after 10 years

5.2.1 Relative O&M Costs

The O&M cost exercise was performed to reflect the relative increase or decrease from current operations, using the projected 2020/21 budget as reported in 2021 Rate Study. General assumptions applicable to all the alternatives are:

- Power cost: 25 ¢/kWh
- Labor cost: \$85/man-hour which corresponds to one part-time employee to operate existing tertiary treatment facility.

Estimate of relative O&M costs for each alternative including cost breakdown and assumptions are presented in Table 5-4.

5.2.2 Life-Cycle Cost Analysis

Life-cycle costs for each of four selected options was estimated by annualizing the concept level capital costs estimated as part of the initial concept-level screening (Section 3.3) and by adding or subtracting relative O&M costs. Capital costs were annualized based on an interest rate of three (3) percent and a facility life of 50 years.

A summary of the estimated annualized life-cycle costs and flows for each WRF option is presented in Table 5-5.

Table 5-4 Relative O&M Costs

Relative O&M costs		Current Annual Cost	Δ Cost with Improvements			Total with Improvements	Δ from Current
		\$/year	Added \$/year	Reduced \$/year	Δ \$/year	\$/year	%
Option 2 – Discontinue Recycled Water Production (Phase Out BNR/Tertiary)							
Other	includes insurance and bonds			\$5,000			
Power	cost reduction was estimated based on values reported 2020/21 Rate Study for Tertiary treatment facilities, assumes reduction will take place after 10 years			\$62,000			
Chemicals	no methanol addition to sec. treatment after 10 years			\$18,000			
Maintenance	maintenance costs reduction was estimated based on 2020/21 Rate Study budget for tertiary treatment facility			\$25,300			
Labor	reduced labor costs, cost to operate tertiary treatment facility was obtained from 2020/21 Rate Study			\$94,955			
TOTAL Option 2		\$3,172,000	\$0	\$205,000	-\$205,000	\$2,967,000	-6%
Option 3A – Plant Optimization							
Other	includes insurance and bonds						
Power	added primary clarifier or filtration and/or secondary clarifier, 2.5Hp for clarifier + 5 Hp for sludge / scum pump + (5Hp ML pump)*2, assume 25c/kWh		\$28,512				
Chemicals	assume bioaugmentation, \$25,000/year		\$25,000				
Maintenance	assume \$5,000 equipment maintenance costs per year for clarifier / filter, ML recirculation pumps		\$5,000				
Labor	add part time employee		\$94,955				
TOTAL Option 3A		\$3,172,000	\$153,000	\$0	\$153,000	\$3,325,000	5%
Option 3C – 0.4 MGD Packaged Plant (Abandon Tertiary Treatment)							
Other	includes insurance and bonds		\$5,000	\$5,000			
Power	added power costs based on Cloacina quote, reduced power calculated assuming similar power usage for aeration as current operation (no double power counting)		\$40,150	\$62,000		-\$21,850	
Chemicals	added costs based on Cloacina quote, reduction assumes no methane		\$14,136	\$18,000		-\$3,864	
Maintenance	based on Cloacina quote, maintenance costs reduction was estimated based on 2020/21 Rate Study budget for tertiary treatment facility		\$8,125	\$25,300		-\$17,175	
Labor	no change in labor costs, similar systems		\$94,955	\$94,955		\$0	
TOTAL Option 3C		\$3,172,000	\$162,000	\$205,000	-\$43,000	\$3,129,000	-1%
Option 4C – 1.5 MGD Custom MBR							
Other	includes insurance and bonds		\$5,000	\$5,000			
Power	assumes similar power usage for aeration current compared to option 3C		\$120,450	\$110,878		\$9,572	
Chemicals	reduced for methane		\$42,408	\$18,000		\$24,408	
Maintenance	maintenance costs reduction was estimated based on 2020/21 Rate Study budget for tertiary treatment facility, maintenance cost increase was estimated based on Cloacina quote extrapolated to larger system		\$24,375	\$25,300		-\$925	
Labor	no change in labor costs, similar systems		\$94,955	\$94,955		\$0	
TOTAL Option 4C		\$3,172,000	\$287,000	\$254,000	\$33,000	\$3,205,000	1%

Table 5-5 Summary of Estimated Annual Life Cycle Costs

	Unit	Opt 2 Phase Out BNR/Tertiary	Opt 3a Plant Optimization	Opt 3c 0.4 MGD Package Plant	Opt 4c 1.5 MGD Custom MBR
WRF Treatment Capacity	(mgd)	1.5	0.8 – 1.5	1.5	1.5
	(AFY)	1680	900 – 1680	1680	1680
WRF RW Production	(mgd)	0	> 0.2	0.4	1.5
	(AFY)	0	> 200	448	1680
RANGE of Additional Capital Investment ¹	(\$mill)	\$3.9 to \$8.4	\$9.4 to \$20	\$8.6 to \$19	\$16 to \$34
RANGE of Annualized Capital Cost for Additional Facilities ²	(\$/year)	\$120,000 to \$260,000	\$290,000 to \$630,000	\$270,000 to \$570,000	\$490,000 to \$1,040,000
Anticipated Δ in O&M Costs ³	(\$/year)	<u>-\$205,000</u>	<u>\$153,000</u>	<u>-\$43,000</u>	<u>\$33,000</u>
Additional Annual Life-Cycle Cost ⁴	(\$/year)	-\$85,000 to \$55,000	\$443,000 to \$783,000	\$227,000 to \$527,000	\$523,000 to \$1,073,000

¹ Range reflects AACE Class V Cost Estimate, Upper and Lower Contingencies

² Based on interest rate of 3% and facility life of 50 years.

³ See relative O&M costs presented in Table 5-4

⁴ Reflects the relative change to current operational costs.

5.3 Ranking Outcomes

The outcomes of the scoring, weighting and ranking approach, described in Section 5.1, for the four options is presented herein. Table 5-6 presents the raw scoring for the WRF options based on the guidance presented in Table 5-1. Some notable considerations are presented below:

- Economic considerations were based on the quantitative cost data developed in Sections 3.3 and 5.2.
- Environmental/CEQA considerations were the same for all options since the process improvements, new facilities and abandoned facilities would all occur on the existing, or disturbed, WRF site.
- Social considerations were qualitative in nature.
 - Regional benefits were based on the potential for partnerships, which was assumed to be more likely to occur if the WRF could reliably produce more recycled water, creating an opportunity to increase non-potable reuse or implement a groundwater replenishment project in Scotts Valley.
 - Public perception was based on the anticipated response from the community, for example the likelihood of low public acceptance should the City cease production of tertiary effluent for non-potable use, resulting in City parks no longer being able to rely on locally produced recycled water.
- Engineering and operational considerations were based on both quantitative and qualitative criteria.
 - The ability of a project to maximize beneficial reuse was based on the amount of effluent to be used. Option 2 received a score of two because it would still provide secondary effluent for the Pasatiempo Golf satellite treatment plant. Options 3a and 3c would produce a similar amount of recycled water and Option 4c would produce the greatest amount of recycled water.
 - All projects were deemed to have a similar degree of ease for implementation, based on a combination of construction and institutional challenges.
 - The scores for operational complexity were based on the relative considerations for each option as presented in Table 3-4

The raw scores in Table 5-6 were multiplied by the weighting theme percentages presented in Table 5-2 to perform the sensitivity analysis presented in Table 5-7.

Table 5-6 Raw Scoring for WRF Options

Alternatives		Economic Considerations		Environmental		Social		Engineering and Operational Considerations			TOTAL Raw Score (Max 36)
Option	Description	Cost Effectiveness	Financial Implementability	CEQA Considerations	Future Regulatory Risk	Regional Benefits	Public Perception	Maximize Beneficial Reuse	Ease of Implementation	Operational Complexity	
2	Produce Secondary Disinfected Effluent (Phase Out BNR/Tertiary)										
2	Phase out BRN/tertiary	4	4	4	1	1	1	2	3	3	23
3	Continue Producing Recycled Water to Meet Current Agreements										
3a	Plant optimization	2	2	4	2	3	3	3	3	2	26
3c	0.4 MGD packaged plant, abandon tertiary	3	3	4	3	3	3	3	3	3	25
4	Improved Tertiary to Maximize Beneficial Reuse										
4c	1.5 MGD custom MBR, abandon tertiary	1	1	4	3	4	3	4	3	4	27

Note: Green cells indicate the top scoring option (4), and red cells indicate the bottom scoring option (1) for a given screening criteria.

Score	Scoring Legend:	
4	Fully Meets Criteria	BEST
3	Mostly Meets Criteria	GOOD
2	Somewhat Meets Criteria	FAIR
1	Does Not Meets Criteria	WORST

Table 5-7 WRF Ranking and Sensitivity Analysis

WRF Options		SENSITIVITY RANKING			
Option	Description	Baseline (Balanced)	Minimize Costs	Maximize Beneficial Reuse	Minimize Operational complexity
Option 2	Phase out BNR/tertiary	4	1	4	2
Option 3a	Plant Optimization – Improvements to meet current agreements	2	2	2	4
Option 3c	0.4 MGD packaged plant, abandon tertiary	3	3	3	3
Option 4c	1.5 MGD custom MBR, abandon tertiary treatment	1	4	1	1

Note: Green cells indicate the top ranked (1st) option and red cells indicate the bottom ranked (4th) option for a given weighting theme.

The sensitivity analysis found that:

- Option 2 – Discontinue Recycled Water Production (Phase Out BNR/Tertiary):**
Minimizes operating and future CIP costs; restores operational capacity to secondary level for BOD and TSS removal only. This option is only viable if SVWD is interested in decommissioning their non-potable recycled water system in favor of using the existing purple pipe for conveyance of purified water for groundwater replenishment. Would result in a loss of local, sustainable supply for the City.
- Option 3a – Plant Optimization:** This option is a low capital investment option with the potential to improve system performance; however additional modeling is required to confirm that the proposed optimization and improvement processes can consistently produce recycled water to meet requirements set forth in permits and agreements. There is a higher risk associated with implementing this approach as it is operationally complex to achieve the desired nutrient limits and may require seasonal process adjustments.
- Option 3c – 0.4 MGD Package Plant (Abandon Tertiary Treatment):** The addition of a new package plant would improve system performance, reduce risks and vulnerabilities. However, this option would require a large capital investment and increase operational complexity as two plants would essentially be operated in parallel, even though the tertiary plant is removed.
- Option 4c – 1.5 MGD Custom MBR:** Meets future vision through simplified and consistent operation of a one-plant system that can consistently meet recycled water requirements. Production of a larger and consistent quantity of tertiary recycled water offers an opportunity to support a local groundwater replenishment project, which could offer a cost sharing opportunity through partnerships with SVWD.

5.4 SVWD Regional Recycled Water Alternatives Evaluation

An evaluation was performed for SVWD (Kennedy Jenks, 2021b) to explore the potential for implementing a groundwater replenishment reuse program if:

- The treatment capabilities at the Scotts Valley Water Reclamation Facility (WRF) were to be limited/reduced, and/or
- The Santa Margarita Groundwater Agency (SMGWA) determined a need for larger scale groundwater recharge projects in support of their Groundwater Sustainability Plan (GSP).

The alternatives evaluated would recharge advanced treated purified water into the Santa Margarita Groundwater Basin (SMGB) through existing and new injection wells in the Scotts Valley area. The alternatives are summarized in the following sections in terms of their assumptions about the City's WRF. A summary of costs from the 2021 evaluation is included herein to provide the City an overview of options being considered by SVWD and their relative costs.

5.4.1 SVWD RW Alternative 1 – Baseline Project.

This alternative includes the improvements required at the WRF to reliably produce tertiary effluent to supply the new AWTF and adding a brine line from the AWTF in Scotts Valley to just south of Pasatiempo turnout to allow for the AWTF to operate year-round. The proposed AWTF would have an influent design flow of 0.77 MGD, which is based upon the estimated tertiary effluent that could be produced by the City (with treatment losses) in the wet season when the secondary effluent available is 0.85 MGD.

In the summer season, there is less secondary effluent available and SVWD needs to supply the district customers with recycled water for irrigation, which further reduces the effluent available to produce purified water for groundwater injection. Based on the seasonal limitations, it is estimated that this alternative would allow for the production and recharge of 340 AFY of purified water to the SMGB.

5.4.2 SVWD RW Alternative 2 – Local Projects

SVWD RW Alt 2a – Dual Plant Solution. This alternative considered operating two treatment systems simultaneously at the WRF, by implementing the improvements required at the WRF to continue to supply recycled water to district customers and installing a new scalping MBR to treat a portion of the raw wastewater to tertiary treated recycled water and supply a new AWTF at El Pueblo site.

This alternative was not further evaluated due to the operational difficulties of having two treatment facilities at the WRF with the limited benefits of producing a small amount of purified water.

SVWD RW Alt 2b – One Plant Solution. This project alternative proposed continuing secondary treatment at the WRF by implementing partial improvements and developing a new tertiary

treatment and AWTF facility at the El Pueblo Site. Secondary effluent from the WRF would be supplied to this new facility where it would be treated to produce recycled water to meet district customer irrigation demands in the summer and supply the AWTF with reliable tertiary effluent to produce purified water year-round and inject it to the SMGB via three groundwater injection wells.

The brine generated at the AWTF would be discharged via a new pipeline that would connect downstream of the Pasatiempo intake on the existing pipeline that conveys secondary effluent from the WRF to the Santa Cruz outfall. With this designated brine line connection secondary effluent supplied to Pasatiempo would not be impacted. The tertiary facility would have an influent flow of 0.85 MGD and would produce 0.77 MGD of tertiary effluent to supply the AWTF in the wet season. In the summer season, there is less secondary effluent available to produce tertiary effluent, supply the district customers with recycled water for irrigation, and feed the AWTF. Based on the seasonal limitations, is estimated that this alternative would allow for recharge of 340 AFY to the SMGB.

SVWD RW Alt 2c – One Plant Solution (MBR). This project alternative proposed continuing secondary treatment at the WRF by implementing partial improvements and installing a new MBR to treat a portion of the secondary effluent available to produce tertiary effluent. The MBR would produce recycled water to meet district customer irrigation demands in the summer and supply the AWTF with reliable tertiary effluent to produce purified water year-round and inject it to the SMGB via three groundwater injection wells.

The brine generated at the AWTF would be discharged to sewer and ultimately to the WRF. The proposed MBR would have a treatment capacity of 0.51 MGD, based on the assumption that 60% of the secondary effluent from the WRF could be used to supply the MBR. The MBR would supply the AWTF that could treat up to 0.49 MGD in the winter season. In the summer season, the MBR would produce recycled water to meet SVWD irrigation needs, reducing the effluent available to supply the AWTF. Based on the seasonal limitations, this alternative would only be able to produce 250 AFY for recharge of the SMGB

5.4.3 SVWD RW Alternative 3 – Regional Projects

SVWD RW Alt 3a – Treatment at Santa Cruz WWTF. This alternative would require multiagency collaboration and agreements as it evaluates the potential to utilize a portion of the secondary filtered effluent that would be produced at the SC-WWTF and conveyed to the Chanticleer AWTF for the PWS project. The intent would be to connect to the pipeline proposed to convey the effluent from SC-WWTF to Chanticleer and direct a portion of this flow to a new AWTF at the El Pueblo Site. During the summer season, a portion of the secondary filtered effluent from SC-WWTF could be supplied to Pasatiempo on the way to the El Pueblo Site to meet the agreements with the golf course, and a portion of the effluent would be disinfected at the El Pueblo site to supply SVWD customers with recycled water.

The proposed AWTF would have a treatment capacity of 1.01 MGD, based on the assumed available capacity of the pipeline to Chanticleer, producing 0.81 MGD of purified water in the winter season. With the supply to Pasatiempo and SVWD recycled water customers in the summer, the effluent

available to produce purified water would be reduced. Based on the seasonal conditions, is estimated that this alternative would allow for recharge of 620 AFY to the SMGB. Since SVWD recycled water customers and Pasatiempo would now be supplied with effluent from SC-WWTF, the improvements needed for the WRF are no longer a consideration and the brine that would be generated at El Pueblo AWTF could be discharged to the sewer system and eventually to the pipeline that conveys the effluent from the WRF to the outfall at Santa Cruz.

SVWD RW Alt 3b – Purified Water from Chanticleer AWTF. This alternative is similar to Alternative 3.A, by proposing that SVWD buys into a portion of the expansion capacity planned for the Chanticleer AWTF under the PWS project. For this alternative, since the advanced treatment would occur at the Chanticleer Site, the brine produced would be conveyed to the outfall in Santa Cruz. The WRF would continue to supply secondary effluent to Pasatiempo, or potable or purified water could be used to supply Pasatiempo and the SVWD customers irrigation demands.

This alternative assumes that half of the remaining purified water production capacity (or a quarter of the total capacity, 0.81 MGD) could be supplied to El Pueblo site for groundwater injection at the SMGB. This alternative is not impacted by seasonal demands and the purified water can be injected to the SMGB year-round, for a recharge of 910 AFY.

SVWD RW Alt 3.C. Maximize Reuse – This alternative would require multiagency collaboration and agreements as it evaluates the potential to maximize water reuse in the region by utilizing all the secondary effluent available at the SC-WWTF, after supplying the PWS project, to produce purified water. This alternative would require a new tertiary treatment plant near the SC-WWTF to treat all the available secondary effluent to tertiary level, then convey tertiary effluent to a new AWTF at Scotts Valley to produce purified water and inject it to the SMGB. The new AWTF could not be constructed at El Pueblo site due to space constraints for a larger facility. Pasatiempo could be served with the tertiary effluent supplied to the new AWTF, and the SVWD recycled water customers would be served with tertiary effluent after disinfection, to meet Title 22 requirements.

The proposed AWTF would have a treatment capacity of 3.55 MGD, producing 2.53 MGD of purified water in the winter season. With the supply to Pasatiempo and SVWD recycled water customers in the summer, the effluent available to produce purified water would be reduced. Based on the seasonal conditions, is estimated that this alternative would allow for recharge of 2,600 AFY to the SMGB.

Since SVWD recycled water customers and Pasatiempo would now be supplied with effluent from SC-WWTF, the improvements needed for the WRF are no longer a consideration and the brine that would be generated at El Pueblo AWTF could be discharged to the sewer system and eventually to the pipeline that conveys the effluent from the WRF to the outfall at Santa Cruz.

5.4.4 Recycled Water Alternatives Costs

For each of the alternatives, a conceptual capital cost was estimated that included:

- Treatment to produce recycled water to supply SVWD customers and a new AWTF,
- Treatment for water purification for groundwater injection,
- Groundwater injection infrastructure,
- Conveyance pipelines, pump stations, and storage,
- Other site development costs, including yard piping, electrical, instrumentation and controls.

A summary of the flows, capital, annual O&M and unit costs are presented in Table 5-8. Of note is that alternatives considered by SVWD as part of the 2021 study had capital costs between \$22 million and \$161 million, which is near or above the cost for the most expensive WRF option. Thus, there may be an incentive for cost-sharing between the City and SVWD to realize the benefits of shared assets and centralized treatment.

Table 5-8 Summary of SVWD Recycled Water Alternatives and Costs

Alternative		Description	Reuse Volume				SVWD Study Estimated Costs ¹		
			Purified Water Recharge (AFY)	NPR in Scotts Valley (AFY)	Pasatiempo GC Reuse (AFY)	Total Reuse (AFY)	Total Capital (\$ M)	Annual O&M (\$M/yr)	Total Annualized Unit Cost (\$/AF)
Baseline	1	Baseline	340	210	110	660	\$34	\$1.2	\$8,600
Local Project	2B	One Plant Solution	340	210	110	660	\$32	\$1.3	\$8,700
	2C	One Plant Solution (MBR)	250	210	110	570	\$22	\$1.0	\$8,500
Regional Project	3A	Treatment at SC-WWTF	620	210	110	940	\$53	\$2.0	\$7,600
	3B	Purified Water from Chanticleer AWTF	910	0	0	910	\$58	\$2.6	\$6,100
	3C	Maximized Reuse	2,600	210	110	2920	\$161	\$5.8	\$5,400

¹ The Capital, Annual O&M Cost, and Annualized Unit Cost is estimated based on the cost of tertiary treatment to supply the AWTF and the cost of producing purified water. These costs do not include the cost of treatment required to produce RW for SVWD customers. The annualized cost is based on the AFY of purified water produced, not considering AF produced to supply SVWD RW customers or Pasatiempo (Kennedy Jenks, 2021b)

Section 6: Next Steps

A preferred project was not identified based solely on the project ranking due to the need for additional studies, institutional considerations, or other uncertainties. This section lists some additional activities to further evaluate Option 3a to determine if the process improvements would be sufficient to meet the City's WRF goals as well as some longer-term actions that would facilitate implementation of the preferred option.

1. The BRVA exercise (described in Section 2.5) provided a high-level understanding of the systems “as-is” and the associated consequential importance to overall plant performance. However, we suggest that the City consider performing **risk-based inspections and condition assessment study** on the most vulnerable plant unit process and obtain a more accurate view of the condition of critical assets relative to treatment process and electrical. If there are observed asset performance deficiencies, the study would identify repair, rehabilitation, and full replacement mitigation alternatives. Ultimately, the City could use the study to estimate a scope and cost of the improvements to get the assets back to the intended performance expectation. The City could also use the condition assessment information to calibrate a plant process and capacity model.
2. Once the calibrated process and capacity model is functional and accurately depicts the “as-is” state, the City could leverage this “digital twin” of its plant to evaluate “future-state” scenarios and the benefits to WRF improvements. The City could use the **process model** to conduct a **capacity assessment** for the WRF with addition of the facilities identified under Option 3A (add one primary or secondary clarifier, clarifier splitter box, WAS storage basin, SRT control, sludge selector, dedicated ML recycle pumps, etc). This desktop study would further vet the improvement concepts but may be insufficient to validate performance without a more comprehensive facilities plan.
3. A **WRF Facilities Plan** could build on the outcomes of the process model and capacity assessment to explore a more in-depth alternatives evaluation of how to upgrade the plant overall, as well as detailed process-by-process analyses. The WRF Facilities Plan could serve as a mechanism to justify rate increases by identifying areas of underinvestment in the plant and funding needed restore plant capacity and meet operational goals.
4. Once selected plant upgrades and improvements are identified, the City may consider performing a **rate analysis and financial plan** to evaluate future rate setting to support the investments identified in the WRF Facilities Plan.
5. **Meeting with SVWD** to discuss the potential to modify existing agreements and/or enter into future cost sharing agreements could be done at any stage, to further understand their recycled water objectives and likely projects for the future (as described in Section 5.4).

Activities 1 through 4 could lead to the creation of a **WRF Strategic Capital Asset Management Plan**, which leverages the principles of asset management to justify future plant upgrades to improve system performance and capital repair, rehabilitation, and replacement through risk prioritization. The City may elect to execute these activities in a phased approach to identify triggers and off-ramps to meet their needs and budget.

Section 7: References

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Appendix A: BRVA Detailed Breakdown

Appendix A - Business Risk and Vulnerabilities Analysis Detail

Scotts Valley WRF BRVA Workshop Discussion (Sept 10, 2021)												
Unit Process	Notes	#of Units Available	Min # of Units Needed	Function	Performance Criteria	Key Process Indicators	Failure Evident to Ops	Safety	Environ.	Quality of Services	Public Image	Fiscal
Electrical Distribution	There is a backup gen set if main power source is lost. a drop to a PGE transformer that feeds the plant's main power panel, Operations has experienced the loss of ATS function in the past. An outside electrical contractor conducts plant electrical repairs and maintenance. At one point, the City had a full time electrician that executed PMs and reactive maintenance. An arc flash stud has not been completed, the gear is original, operations seems to believe that the plant is supplied by only one main feed bus. Failure effect is that SSO at the second nearest manhole to creek, 1 gen set, 1 portable, skid mounted available from a supplier if needed	1	1	Receives 7KV feed power from the plant pole drop and reliably distribute 480v via the main switchgear to 17 motor control centers through the single side			Failure to Ops for UPS, if UPS provides power SCADA will alarm	5	5	5	5	5
Influent Station Headwords	Influent flow from an 8 inch line (0.8mgd ADWF 1,2 PDWF; up to 5 mgd) ; failure loses flow to FES and meet treatment performance, must bypass the FES and ge a bypass pump to aeration basin ; electrical spf. If influent structure cannot convey flow to FES this may result in SSO at the nearest manhole to the plant and threat to enter the nearby protected waterway.	3	4	Influent juncture for raw wastewater conveyed from the City's sewer collection system. Design flow conditions are 0.5mgd minimum flow to 5mgd max PWWF. Raw influent is screened with 1/2-inch bar screens. Influent screenings are pressed, collected and hauled off to landfill. Four submersible pumps send flow to the FES flow measured and equalized.			Failure Evident	3	5	5	5	5
Flow Equalization Structure	Center well functions as hydraulic equalization and treatment feature , anoxic selector, 2 jet pumps, 1 Gal - 2 Gal; operations sustain a 10 ft level to achieve denitrification, 10-feet active flow equalization, peripheral FES structures is for high flow; bypass to aeration basin; nitrogen removal, TSS, impact to WDR or NPDES permit to outfall. If FES worst case failure occurs, O&M must set up bypass to aeration basin as a stop gap. However, effluent quality may not meet the WDR and Recycled Water production may be hauled. Effluent quality may meet NPDES permit requirements and effluent may continue to be sent to outfall.	1	1	The primary function of the FES is to equalize high influent flows and provide steady state flows to the downstream unit processes			Failure Evident	3	5	5	5	5
Aeration Tanks	Basins are performing well. DO target range is 1.7mg/l to 3 mg/l; Failure evident if blower failure occurs, however, if flow lost due to pipe failure between the FES and AB failure is hidden. If the ABs lose complete function significant WDR and NPDES impacts could be experienced	2	1 needed for ADWF loading	Aeration basin receives FES stabilized flow and reduces BOD, TKN to meet WDR and NPDES requirements.	DO=1.7 to 3 mg/L BOD = 10 mg/L TKN = 10mg/L		Hidden failure	3	5	5	5	5
Disinfected Plant Effluent Outfall		1	1	Reliably pump treated plant effluent via a X-LF of xx diameter pipeline and ensure zero concentration of chlorine residual prior to ocean discharge.	Metered treated effluent flow = TSS and BOD =	Metered treated effluent flow = TSS and BOD	Failure Evident relative to effluent quality Failure may be hidden relative to pipe leak	1	5	3	5	4
Solids dewatering	1 meter belt filter press is used to dewater digested sludge	2	1	Dewater digested sludge and transfer 5% to 15% dry solids to the local landfill	5% -15% solids		yes	1	4	4	4	5
Secondary Clarifiers	No secondary clarification redundancy due to increase of biological loading and hydraulic issues. Complete loss of function could be due to electrical gear. Suggest verifying electrical redundancy via single line diagram. If both center drives fail due to electrical operator must get electrician to diagnose and repair ASAP. Cannot produce treated effluent to tertiary nor outfall if this occurs. Tolerance for downtime is approximately 1 day during ADWF conditions. Imbalance of hydraulic flow coming from aeration basins into the clarifiers (gravity flow from aeration basins into clarifiers). Flow split is achieved through manual manipulation of valves; there is no splitter box. Messes with overall plant balance Approximately 50% of flow from clarifiers goes to the CCT (disinfected secondary effluent to outfall), and remaining flow is sent to diversion box and delivered to tertiary treatment facility through the vault	2	2	Secondary Clarification receives AB effluent and separates scum and settles organic solids to bottom of clarifier to a target sludge blanket level of 2 feet by controlling wasting rates through WAS pumps.	TSS=10mg/L	Sludge blanket depth of 2-ft, WAS rate	Hidden failure due to electrical failure for center drives	1	5	1	5	5
WAS Pump Station	The WAS pump station is a duplex configuration that has cross connection features to serve two functions: 1) WAS pumping to the Belt Press; 2) convey scum from the secondary clarifiers and convey it to the Belt Press.	2	1	Pumps excess SC sludge and conveys to Belt Press to control SRT and F/M	SRT 7-8 days	Check SRT probes and pumps, pH, Alkalinity and temp , MLSS 2500-3500 mg/l	Failure Evident	2	3	4	3	3
RAS Pump Station, stop gap us ras tubes and bypass to IPS	RAS Pumps – vertical, pump back to the flow equalization basin KJ to confirm RAS recirculation rate. It seems it is on high side RAS flow is not paced from influent flow. This could be a reason why water level in clarifiers drops when flow from EQ basin is reduced below 2.2 MGD. RAS pumps were recently replaced and operate satisfactory If failure of the 2 pumps occur due to failure of electrical gear the operator to call contract electrician, if failure occurs due to mechanical an off the shelf full spare available;	2	2	Return solids from clarifier to aeration basin to sustain healthy mixed liquor solids for nitrogen removal	1200 gpm, 1 vfds per basin 2 are available , 5mgd		not hidden	2	3	4	3	3
Tertiary Treatment Facility	Upflow Multimedia Sand Filtration Units, 200gpm min and up to 694gpm, UV Disinfection	2	1	Reliably filter the secondary effluent to meet a 2.0 NTU target and 75% UV Transmittance target	Turbidity above 2 NTU and UV transmittance of 55%			1	1	4	3	3
SCADA	Primary and Slave, Historian, and back up RTU, failure impact is minimal. If SCADA system experiences functional failure the plant could be operated in manual mode from PLCs	1	1	SCADA allows supervisory interface between the operator and the unit processes of the plant			Failure Evident	1	1	1	1	2
Chlorine Contact	If failure occurs, bypass to EPS backup CCT with outfall pipe, or divert SE to Tertiary Filters Chlorine added in the mix box which is equipped with rapid mixer. Mixer is not currently used.	1	1	CCT receives SE effluent via a flow splitter vault and meets a contact time of 450 CT	450 CT, BOD 10 mg/l	Back end chlorine concentration of 5mg/L	Failure Evident	1	1	1	1	1

Appendix A - Business Risk and Vulnerabilities Analysis Detail

Scotts Valley WRF (Sept 10, 2021)						
Unit Process	Consequential Criticality	Performance Condition Rating	Safety Condition Rating	Asset Mgmt. Bus Processes	O&M Recommendation	Engineering/CIP Recommendation
Electrical Distribution	5	4	4	5	Documentation could be improved. Intuitional knowledge lost, three years ago capture knowledge of Troy Adams Consider improving current training documentation and lean towards a competency based style - electrical safety should be integrated into these training documents.	Consider thorough inspection all electrical gear to determine obscelesnce and consider an arc flash study; Research As-builts from single line diagram or plant ops manual to gather design criteria for the electrical gear; verify size and condition of generator set
Influent Station Headwords	4	4	4	5	Influent structure may be considered a non-permitted confined space due to the fact that access to the pumps are located approximately 15-feet below the surface elevation. The influent structure is open to atmosphere however. Recommend a plant safety audit to identify safety vulnerabilities and address safety vulnerabilities to avoid Cal OSHA violations if audited. Consider developing SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Consider inspection of assets and conduct an feasibility study for a grit removal system to prevent downstream treatment volume impacts and prevent damage to piping and pump systems as well.
Flow Equalization Structure	4	4	3	5	Consider developing SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Consider mitigating grit buildup issues, conduct structural inspections, improve control automation, improve maintenance access for safe inspections, improve flushing capabilities to remove grit and debris collected at the floor of the FES cells.
Aeration Tanks	4	5	2	5	Consider developing SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency. Consider updating as-builts and PIDs Consider inspections by O&M once every 5 years and document inspections with photos and condition rating sheets - tie the condition rating sheets to dominant failure modes and causes	Consider auto blower control and SRT control, Consider adding another Turbo blower for redundancy and remove one or all centrifugal blowers Consider thorough inspections of structure and diffusers
Disinfected Plant Effluent Outfall	3	1	1	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Consider pipeline inspection Consider using the outfall pipe to provide disinfection contact tie in lieu of CCB
Solids dewatering	3	3	2	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Replace sludge conveyor due to corrosion, update control for BFP, polymer feed system, inspection of piping valves, aeromod feed by tertiary water, need redundant truck to temporary storage for solids
Secondary Clarifiers	3	5	5	5	Consider developing SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Inspections structural and vertical assets needed, hydraulic issue due to weir out of level could be a likely culprit Consider installing an additional clarifier for redundancy so that operations has the flexibility for periodic inspections, emergency operations
WAS Pump Station	3	2	1	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Consider: Real time SRT control (Hach), piping inspections
RAS Pump Station, stop gap us ras tubes and bypass to IPS	3	3	1	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	consider modernizing the RAS pumps due, use the same model VFDs, inspect the pumps for vibration using a hand held unit for Fluke, suspended solids meter, and add redundant pump, inspect associated electrical gear
Tertiary Treatment Facility	2	4	3	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Re-rate study in terms of flux rate for filter, move methanol pump optimize the location of the supporting equipment, UV obsolescence mitigation, backwash pumps rebuild, inspection needed, piping and valving in the galleys for the backwash system due to flooding and water exposure, effluent pumps
SCADA	1	5	2	5	No recommendations identified	Major overhaul currently happening and adding more automation
Chlorine Contact	1	2	2	5	Consider updating SOP for various failure events and use for training future operators. Identify any equipment that may be needed for each failure event scenario and ensure ease of access to the equipment needed for failure response. This recommendation improves resiliency.	Consider assessing if the outfall could be used as a chlorine contact tank, thorough inspections, and add a local operator interface display to improve operator access for local system control

Appendix B: Capital Costs for WRF Options

Capital Costs for WRF Options

Unit Process	Description of Improvements	Consequential Criticality ^{1,2}	Options Included	Cost Range	Capital Cost								Notes
					Option 1	Option 2	Option 3A	Option 3B	Option 3C	Option 4A	Option 4B	Option 4C	
Existing Facilities													
Electrical Distribution	develop P&IDs and record drawings for entire electrical system	5	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$229,000	\$229,000	\$229,000	\$229,000	\$229,000	\$229,000	\$229,000	\$25,000 for site work (instrument and equipment inventory) and 17 P&ID drawings at \$12,000
	conduct arc flash study	5	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	typical cost to develop arc flash study of similar plant size
	develop electrical safety protocols	5	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	typical cost for safety study
	condition assessment of electrical systems	5	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$30,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	includes condition assessment for electrical system only
	electrical replacements and upgrades based on condition assessment	5	2, 3A, 3B, 3C, 4A, 4B, 4C	\$200,000 to \$750,000	-	\$250,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	assumes relatively good condition for all electrical equipment, for option 2 assumes no electrical upgrades for tertiary treatment facility (use until it fails)
Influent Pump Station and Headwords	safety audit and safety compliance improvements	4	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	includes cost for safety audit and minor improvements such as site lighting, slip/and fall protection, monitoring and alarms
	add grit removal system	4	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	
	condition assessment and repairs as needed	4	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	minimal repairs, assumes structure is in good condition
	add primary clarifier or primary filtration: BOD reduction in the secondary influent	5	3A	\$2,000,000 to \$3,000,000	-	-	\$2,500,000	-	-	-	-	-	assumes primary clarifier would be added as part of option 3A
Flow Equalization Structure	upgrade cleaning / flushing mechanism for removal of settled materials out of side compartments	4	2, 3A, 3B, 3C, 4A, 4B		-	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	-	

Unit Process	Description of Improvements	Consequential Criticality ^{1,2}	Options Included	Cost Range	Capital Cost								Notes
					Option 1	Option 2	Option 3A	Option 3B	Option 3C	Option 4A	Option 4B	Option 4C	
Flow Equalization Structure	develop SOPs for various failure events	4	2, 3A, 3B, 3C, 4A, 4B		-	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	-	
	condition assessment and repairs as needed	4	2, 3A, 3B, 3C, 4A, 4B	\$100,000 to \$1,000,000	-	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	-	assumes medium level of repairs are needed including equipment and piping
	automation for flow control and aeration, related to use of FES as anoxic basin	5	2, 3A, 3B, 4B		-	\$75,000	\$75,000	\$75,000	-	-	\$75,000	-	assumes that these improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years
Aeration Tanks	develop SOPs for various failure events	4	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	
	condition assessment and repairs as needed	4	2, 3A, 3B, 3C, 4A, 4B, 4C	\$100,000 to \$2,000,000	-	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	assumes structure and piping is in good condition, minimal repairs to miscellaneous equipment
	add one additional blower for redundancy	4	2, 3A, 3B, 4B		-	\$250,000	\$250,000	\$250,000	\$0	\$0	\$250,000	\$250,000	
	aeration control upgrade	4	2, 3A, 3B, 3C, 4A, 4B		-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$0	new blower controls and instrumentation
	add internal recirculation pump and piping	5	3A		-	\$0	\$750,000	\$0	\$0	\$0	\$0	\$0	assumes that these improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years
	add classifying selector for surface wasting to AB effluent box	5	2, 3A		-	\$250,000	\$250,000	\$0	\$0	\$0	\$0	\$0	assumes telescoping valve, the improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years
	bio augment sec treatment process with low SRT nitrifying organisms, annual cost	5	2, 3A		-	\$0	\$0	\$0	\$0	\$0	\$0	\$0	included in annual cost, assumes that these operational improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years

Unit Process	Description of Improvements	Consequential Criticality ^{1,2}	Options Included	Cost Range	Capital Cost								Notes
					Option 1	Option 2	Option 3A	Option 3B	Option 3C	Option 4A	Option 4B	Option 4C	
Secondary Clarifiers	develop SOPs for various failure events	3	2, 3A, 3B, 3C, 4A, 4B		-	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$0	
	condition assessment and repairs as needed	3	2, 3A, 3B, 3C, 4A, 4B		-	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$0	
	add clarifier splitter box	5	3A, 3B,		-	\$0	\$1,000,000	\$1,000,000	\$0	\$0	\$0	\$0	priority 5 for Option 3A, other Options: Priority 3
Chlorine Contact	develop SOPs for various failure events	1	2, 3A, 3B, 3C, 4A, 4B, 4C	\$150,000	-	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	
	condition assessment and repairs as needed	1	2, 3A, 3B, 3C, 4A, 4B, 4C	\$50,000 to \$500,000	-	\$100,000	\$100,001	\$100,002	\$100,003	\$100,004	\$100,005	\$100,006	minimal repairs, structure in good condition
Tertiary Treatment Facility	develop SOPs for various failure events	2	2, 3A, 3B, 4B		-	\$20,000	\$20,000	\$20,000	-	-	\$20,000	-	
	condition assessment and repairs as needed	2	2, 3A, 3B, 4B		-	\$150,000	\$150,000	\$150,000	-	-	\$150,000	-	assumes tertiary facilities are in good condition, UV lamps replacement
	replace backwash pumps	5	3A, 3B, 4B		-	\$100,000	\$100,000	\$100,000	-	-	\$100,000	-	assumes that these improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years
	refurbish air and wasting valves	5	3A, 3B, 4B		-	\$30,000	\$30,000	\$30,000	-	-	\$30,000	-	assumes that these improvements will be done for option 2 also since tertiary treatment would be phased out over next 10 years
Disinfected Plant Effluent Outfall	develop SOPs for various failure events	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	
	condition assessment and repairs as needed	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$150,000	\$150,001	\$150,002	\$150,003	\$150,004	\$150,005	\$150,006	assumes moderate repairs to outfall structure and minimal repairs to the effluent pipe
Solids dewatering	develop SOPs for various failure event	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	
	condition assessment and repairs as needed	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	assumes minimal repairs

Unit Process	Description of Improvements	Consequential Criticality ^{1,2}	Options Included	Cost Range	Capital Cost								Notes
					Option 1	Option 2	Option 3A	Option 3B	Option 3C	Option 4A	Option 4B	Option 4C	
	replace cake conveyor	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	
	upgrade controls for solids dewatering system (BFP and polymer feed)	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	
	add WAS storage tank	5	3A, 3B, 3C, 4A, 4B, 4C		-	-	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	assumes new 20,000 gal above grade, open top, metal storage tank with inlet pipe, overflow, mixer, and drain line.
WAS Pump Station	develop SOPs for various failure events	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	
	condition assessment and repairs as needed	3	2, 3A, 3B, 3C, 4A, 4B, 4C		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	assumes minimal, basic repairs
	upgrade WAS controls	5	2, 3A, 3B, 4B		-	\$50,000	\$50,000	\$50,000	-	-	\$50,000	-	
	add TSS meter	5	2, 3A, 3B, 4B		-	\$75,000	\$75,000	\$75,000	-	-	\$75,000	-	
RAS Pump Station	develop SOPs for various failure events	3	2, 3A, 3B, 3C, 4A, 4B		-	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	-	
	condition assessment and repairs as needed	3	2, 3A, 3B, 3C, 4A, 4B		-	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	-	assumes minimal, basic repairs
SCADA	no improvements identified as the plant is currently in process of upgrading the SCADA system and process control	1	2, 3A, 3B, 3C, 4A, 4B, 4C		-	-	-	-	-	-	-	-	
New Facilities													
SCWWTF ³	Buy into capacity of the SCWWTP	5	1		\$7,000,000	-	-	-	-	-	-	-	Estimate provided by Steve Wolfman 7.18.2022. Does not include annual contributions to the WWTP CIP
Lift Station	New screened sewage lift station	5	1		\$2,500,000	-	-	-	-	-	-	-	
Effluent Pipe	Add pipe to Santa Cruz WWTP	5	1		\$1,056,000	-	-	-	-	-	-	-	assumes 1 mi of pipe, \$200/lft
Demolition	Demolition of the treatment facility	5	1		\$1,500,000	-	-	-	-	-	-	-	

Unit Process	Description of Improvements	Consequential Criticality ^{1,2}	Options Included	Cost Range	Capital Cost								Notes
					Option 1	Option 2	Option 3A	Option 3B	Option 3C	Option 4A	Option 4B	Option 4C	
Tertiary Plant Decommission	Demolition of Tertiary Treatment Plant	5	2, 3C, 4A, 4C		-	\$500,000	-	-	\$500,000	\$500,000	-	\$500,000	
Packaged Plant	New packaged plant	5	3B		-	-	-	\$2,450,000	\$3,088,000	\$5,700,000	\$8,550,000	-	Costs based on Cloacina quote.
MBR Improvements - Option 4c	Plant upgrade to MBR	5	4C		-	-	-	-	-	-	\$0	\$10,600,000	
Packaged Plant Integration	addition of piping	5	3B, 3C, 4A, 4B		-	-		\$250,000	\$250,000	\$250,000	\$250,000		
	electrical and SCADA upgrades	5	3B, 3C, 4A, 4B		-	-		\$100,000	\$100,001	\$100,002	\$100,003		
	site paving and grading	5	3B, 3C, 4A, 4B		-	-		\$250,000	\$250,000	\$250,000	\$250,000		
	Misc. demolition	5	3B, 3C, 4A, 4B		-	-		\$100,000	\$100,000	\$100,000	\$100,000		
Estimated Facility Costs					\$12,056,000	\$3,629,000	\$8,639,000	\$8,289,000	\$7,847,001	\$10,459,002	\$13,389,003	\$14,399,000	Consequence criticality 4 and 5 items only
Subtotal of Additional Project Costs					\$3,000,000	\$900,000	\$2,200,000	\$2,100,000	\$2,000,000	\$2,600,000	\$3,300,000	\$3,600,000	25% of facility cost; includes overhead, profit, mob/demob. insurance
Construction Cost SUBTOTAL					\$15,056,000	\$4,529,000	\$10,839,000	\$10,389,000	\$9,847,001	\$13,059,002	\$16,689,003	\$17,999,000	
Engineering design, bid services, services during construction, construction management, and inspection					\$3,800,000	\$1,100,000	\$2,700,000	\$2,600,000	\$2,500,000	\$3,300,000	\$4,200,000	\$4,500,000	25% of construction costs
TOTAL Project Cost without Contingency					\$18,856,000	\$5,629,000	\$13,539,000	\$12,989,000	\$12,347,001	\$16,359,002	\$20,889,003	\$22,499,000	Rounded to nearest \$100k
AACE Class V Cost Estimate, Upper Contingency					\$9,400,000	\$2,800,000	\$6,800,000	\$6,500,000	\$6,200,000	\$8,200,000	\$10,400,000	\$11,200,000	+50% of Project Cost
AACE Class V Cost Estimate, Lower Contingency					-\$5,700,000	-\$1,700,000	-\$4,100,000	-\$3,900,000	-\$3,700,000	-\$4,900,000	-\$6,300,000	-\$6,700,000	-30% of Project Cost
TOTAL Project Cost, Upper Range					\$28,300,000	\$8,400,000	\$20,300,000	\$19,500,000	\$18,500,000	\$24,600,000	\$31,300,000	\$33,700,000	
TOTAL Project Cost, Lower Range					\$13,200,000	\$3,900,000	\$9,400,000	\$9,100,000	\$8,600,000	\$11,500,000	\$14,600,000	\$15,800,000	

1. Costs for facilities with consequential criticality of 4 and 5 were included in the evaluation.

2. Facilities with criticality of 1 to 3 (highlighted in orange) were identified, but costs were not included in the facility cost estimates.

3. The City of Santa Cruz Public Works Department (Steve Wolfman, 2022) indicated that the cost to buy into the Santa Cruz WWTP would be \$7 mil, plus a proportional contribution of 1:17 (based on flow) for any future capital costs (estimated at \$300,000 per year). Capital costs for improvements to the outfall pipeline to convey raw effluent (lining or replacement) and a capital payout to Pasatiempo for some portion of their stranded treatment assets are unknown at this time but could be significant. Additionally, the Santa Cruz WWTP would charge an O&M cost of \$1.2 mil/year (based on 0.7 mgd of raw water flow treatment) and the City of Scotts Valley would need to purchase potable water from SVWD to serve City parks, which could incur an additional \$350,000/year or more. Additional annual costs associated with a breach in contract with Pasatiempo could include costs to purchase potable water to replace the recycled water supply or compensation for loss of greens or vegetation during drought due to mandatory cutbacks.

