SOUTH PLACER Wastewater Authority

# South Placer Wastewater Authority Board Meeting

## June 3, 2026

SOUTH PLACER Wastewater Authority

# SPWA REGULAR MEETING AGENDA

In accordance with the requirements of California Government Code section 54950 *et seq*., notice is hereby given of the regular meeting of the Board of Directors of the South Placer Wastewater Authority at the following time and location:

**Wednesday, June 3, 2026**
10:00 a.m.
City of Roseville
Corporation Yard
2005 Hilltop Circle
Conference Room 3

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## AGENDA

## CALL TO ORDER

**ROLL CALL** Directors: Karen Alvord (City of Roseville)
Anthony DeMattei (Placer County – Chair)
William Dickinson (SPMUD- Vice Chair)
Bonnie Gore (Placer County)
Pauline Roccucci (City of Roseville)

## PLEDGE OF ALLEGIANCE

## PUBLIC COMMENTS

## APPROVAL OF MINUTES

Approval: Approval of the February 4, 2026, SPWA Board Meeting Minutes

## CONSENT CALENDAR

Receive and File Items:

a. Resolution: Investment Policy for FY 2026-2027 *(Teri)*
b. Information: Investment Review *(Teri)*
c. Information: Rate Stabilization Fund Balances as of March 31, 2026 *(Teri)*
d. Resolution: Municipal Advisor Agreement with PFM Financial Advisors, LLC *(Dennis)*

## PRESENTATIONS

1. Resolution: Approval of Annual Operating Budget for FY 2026-2027 and Approval for Budget Adjustment (*Archana*)

2. Resolution: Additional Funding for the Pleasant Grove Wastewater Treatment Plant Electrical Expansion Project *(Arashdeep)*
3. Information: Existing Projects Status and Financial Summary *(Tracie)*
4. Information: Proposed Capacity Projects Summary based on Capacity Analysis and Biosolids Study *(Tracie)*
5. Information: Equivalent Dwelling Units Update (*Sean)*

## REPORTS/COMMENTS – BOARD MEMBERS/STAFF

## ADJOURNMENT

Note: The Board may take action on any matter, however listed on this Agenda, and whether or not listed on this Agenda, to the extent permitted by applicable law. Staff Reports are subject to change without prior notice.

Any disclosable public records related to an open session item on a regular meeting agenda and distributed by the Recording Secretary to all or a majority of the SPWA Board less than 72 hours prior to that meeting are available for public inspection during normal business hours at the City of Roseville Corporation Yard, 2005 Hilltop Circle, Roseville California 95747.

The meeting is accessible to the disabled. In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, please contact Voice:(916) 774-5770, TDD: (916) 774-5220. Requests must be made as early as possible.

SOUTH PLACER Wastewater Authority

Karen Alvord – City of Roseville
Anthony DeMattei – Placer County
Will Dickinson – SPMUD
Bonnie Gore – Placer County
Pauline Roccucci – City of Roseville

# MINUTES OF BOARD OF DIRECTORS' MEETING
## February 4, 2026

The regular meeting of the South Placer Wastewater Authority Board of Directors was called to order at 10:00 a.m. at 316 Vernon Street, Roseville, CA.

Directors Present:
- Karen Alvord
- Anthony DeMattei
- Will Dickinson
- Bonnie Gore
- Pauline Roccucci

Staff Present:
- Osman Mufti, JPA Counsel
- Sean Bigley, Executive Director
- Pam Walsh, Board Secretary



**Call To Order**

Director Roccucci called the South Placer Wastewater Authority Board meeting to order at 10:00 a.m.

**Roll Call**

Present: DeMattei, Dickinson, Gore, Roccucci
Absent: None

Director Alvord was not present at roll call, but arrived at the meeting at 10:10 a.m.

**Pledge of Allegiance**

Director Gore led the Pledge of Allegiance.

**Public Comment**

No public comments were received.

**Election of Chair and Vice Chair**

A vote was taken as follows:

MOTION by Director Gore, seconded by Director Dickinson, to elect Director DeMattei as Chair.

| Vote: | | |
|---|---|---|
| | Ayes: | DeMattei, Dickinson, Gore, Roccucci |
| | Nos: | None |
| | Absent: | Alvord |

No public comments were received on this item.

MOTION by Director Gore, seconded by Director DeMattei, to elect Director Dickinson as Vice-Chair.

| Vote: | | |
|---|---|---|
| | Ayes: | DeMattei, Dickinson, Gore, Roccucci |
| | Nos: | None |
| | Absent: | Alvord |

No public comments were received on this item.

**Approval of November 13, 2025 SPWA Board Meeting Minutes**

A vote was taken as follows:

MOTION by Director Dickinson, seconded by Director DeMattei, to approve the November 13, 2025, minutes. The motion passed.

| Vote: | | |
|---|---|---|
| | Ayes: | DeMattei, Dickinson, Gore, Roccucci |
| | Nos: | None |
| | Absent: | Alvord |

**Consent Calendar**

**BEGINNING OF RECEIVE AND FILE ITEMS**

**Item A. Information: Investment Review**

**Item B. Information: Debt Review**

**Item C: Information: SPWA Annual Financial Statements FY 24-25**

**Item D: Information: Connection Fee Program Report**

**Item E: Information: Projects Update and Financial Summary**

**Item F: Resolution: Modify the Authority's Service Area Boundary**

Director Dickinson asked to pull Item B and Item D for discussion.

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MOTION by Director Gore, seconded by Director DeMattei, to approve the Consent Calendar items. The Motion passed.

| | | |
|---|---|---|
| Vote: | Ayes: | Alvord, DeMattei, Dickinson, Gore, Roccucci |
| | Nos: | None |

No public comments were received on this item.

**END OF RECEIVE AND FILE ITEMS**

## Presentations

### 1. Information: Facilitated Panel Discussion

This was an informational item for partner agencies to discuss the adequacy of the CASA Flows and Loads Study to inform future discussion by the SPWA Board. Panelists included Eric Nielson, General Manager with SPMUD, Robin Mahoney, Environmental Engineering Program Manager with Placer County, and Arashdeep Singh, Principal Engineer, with the City of Roseville.

SPWA Executive Director, Sean Bigley, facilitated the discussion. Panelists introduced themselves and provided their background information, including technical background and professional licensure. Mr. Bigley then proceeded to ask seven questions of the panelists.

When asked to explain what aspects of the CASA study was useful, the consensus was that the report was well-prepared and well thought-out with regard to data concerning single-family and multi-family homes. It was determined that the study covered 12 agencies throughout the state of California. Mr. Mahoney noted that the CASA Study showed MRF was lower than SRF for:

a. Flows by approximately 14-15% based on Table 4.5 on Page 4-13, and
b. TSS load by approximately 22-24% based on Table 4.17 on Page 4-35, and
c. BOD load by approximately 6-7% based on Table 4.15 on Page 4-35.

When asked what was missing from the CASA study, the consensus was there was no age-restricted data. This information was missing completely. It was also noted that, even though the study covered 12 agencies, it did not cover the SPWA service area. It was noted that the data was also collected prior to COVID.

When asked what resources would be needed to conduct a local study on Equivalent Dwelling Units (EDUs) for age-restricted, single-family, and multi-family homes and what would be the industry best-practice, the consensus was that a targeted local study would need to be completed, one that would include the area that partner agencies within SPWA serve.

When asked what resources would be needed to conduct a local study for EDUs for age-restricted, single-family, and multi-family homes and whether their agency would have the capacity to conduct its own study or if outside professional consultant support would be needed, Mr. Mahoney replied that Placer County could do a small study in-house, but a consultant would be necessary for a large study. Mr. Nielsen stated that SPMUD does not

have the capacity and would need a consultant. Mr. Singh added the City of Roseville has limited staff capacity, that this would take a significant amount of effort, and would also require a consultant.

When asked if the panelists were aware of any other existing local data regarding flow and loading from age-restricted, single-family, and multi-family homes, Mr. Mahoney stated he is not aware of a study, but he is aware of some data that is proxy for flow. The County is looking at preliminary significant differences per unit within the SPWA boundary. Mr. Nielsen stated that he is not aware of existing data, other than one conducted by SPMUD in 2013 on a much smaller scale. He stated the results were similar to CASA, with peak flows similar regarding single- and multi-family homes. Mr. Singh stated that data is limited.

When asked how their agency viewed capacity versus usage, the consensus was that capacity is the maximum amount of wastewater the treatment plant can handle during peak conditions and usage is the actual volume of wastewater processed by the plant. Mr. Mahoney stated that connection fees and operations and maintenance should be in alignment.

When asked what would be the next recommended steps, Mr. Mahoney stated he would like the partnering agencies to meet at staff level to first discuss what data is available, and then make recommendations whether to do additional studies, keeping in mind the alignment of connection fees and operations and maintenance, as well as any Prop 218 ramifications. Mr. Nielsen stated that collecting data will involve a significant amount of time and money, and that the results do not always reveal the outcomes that are expected. He noted that adding variability to EDUs is not an exact science, that many agencies use this similar EDU method, and changing connection fees and operation and maintenance would require a great deal of work. He sees value in the partners assessing EDUs in the same way, directly proportional to use, and recommends small changes over time. Mr. Singh stated any change to EDUs would not be an isolated thing. He wonders if the cost complexity and the implemented time involved would be a valued tradeoff versus the financial impacts.

Director Dickinson questioned what was the basis for the current single EDU rates applied to SFR, MFR, and Age-Restricted, and Mr. Nielsen replied he did not recall when or how the rate was determined, but believes it was established in the late 70s. Mr. Mahoney and Singh were not aware of the basis for the current rates. Mr. Bigley added that staff could conduct historical research with the partnering agencies to see if they could obtain this information and, if so, this information would be communicated to the Board.

Director DeMattei asked if peak flows go up in commercial buildings and Mr. Singh responded the diurinal peak is when most individuals are getting ready for work, and then in the evening hours after individuals return home.

Director Gore stated, if the data showed a group of people were using less flow in the system, as the CASA study indicated in multi-family homes, did it make sense that they should be charged more.

Chair Roccucci remarked that this was not SPWA's determination. She added that EDUs are critical to ensure capacity for future build-out costs. If a partnering agency wished to reduce their EDU fee, they could do that.

Director Alvord asked if the structure that goes into a multi-family home is any different, and the response from Mr. Singh was no, the infrastructure is the same.

Director Dickinson asked if there was anything to support advocating EDUs fees based on square footage. Mr. Singh replied there was no direct data differentiated by square footage. Mr. Nielsen added there was reference to this in the CASA report but there was no definitive data from residential use.

Director Dickson asked legal counsel, Osman Mufti, what type of data would need to be done at the jurisdiction level for member agencies to adjust EDU fees, and Mr. Mufti responded, in his opinion, a robust study would be needed to support the changes.

Mr. Bigley recommended, as next steps, that the partner agencies meet to consolidate information, discuss remaining topics, and shore up information to determine what future key discussions will need to be made between the agencies and the Board.

The Directors agreed to this recommendation.

Public comment was received by Chad Roberts, with Hefner Law, and Kevin Bell with Placer County.

**Reports/Comments – Board Members/Staff**

None received.

**Adjournment**

The SPWA Board meeting was adjourned at 11:45 pm.

**Pauline Roccucci**
**Chair**

**Pamela Walsh**
**Secretary to the Board**

Agenda
Item A

SOUTH PLACER Wastewater Authority

## AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 12, 2026

**FROM:** Teri Quinlan, Accounting Manager

**AUTHORITY COMMUNICATION NO: AC 26-09**

**SUBJECT: Investment Policy for FY2026-27**

*For SPWA Board Meeting 6/03/2026*

**ACTION REQUESTED**

It is recommended that the Board adopt the Investment Policy for South Placer Wastewater Authority for FY 2026-27, effective July 1, 2026.

**BACKGROUND**

The purpose of the Investment Policy is to establish cash management and investment guidelines for the Chief Financial Officer, who is responsible for the stewardship of the SPWA investment program. Each transaction and the entire portfolio must comply with the California Government Code Sections 53600 and 53635 et seq. and the Investment Policy. The Investment Policy conforms to the customary standards of prudent investment management and any changes to the policy must be adopted by the Board of Directors.

The recommended updates to the Investment Policy incorporate provisions of Senate Bill (SB) 595 and SB 858, which increase the maximum maturity for prime quality commercial paper from 270 days to up to 397 days, and non-substantive edits to improve readability of the financial policies.

Submitted by:

Teri L. Quinlan Digitally signed by Teri L. Quinlan Date: 2026.05.19 17:25:38 -07'00'

Teri Quinlan
Accounting Manager

Approved by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:16:45 -07'00'

Dennis Kauffman
Chief Financial Officer

S P Bigley

Sean Bigley
Executive Director

# SPWA Investment Policy Effective July 1, 2026
# Redlined

# South Placer Wastewater Authority
# Investment Policy

## Effective July 1, ~~2025~~2026

# Table of Contents

# South Placer Wastewater Authority

## Investment Policy

## Effective July 1, ~~2025~~2026

1. **Introduction**

The purpose of this document is to identify various policies and procedures that enhance opportunities for a prudent and systematic investment policy and to organize and formalize investment-related activities.

The investment policies and practices of the South Placer Wastewater Authority (SPWA) are based on state law and prudent money management. All funds will be invested in accordance with this investment policy and Article 2 of Chapter 4 of the California Government Code. This policy is in compliance with the provisions of the California Government Code, Sections 53600 through 53659, and the authority governing investments for municipal governments.

2. **Scope**

It is intended that this policy covers all funds and proceeds of debt issues and investment activities under SPWA's direction.

3. **Prudence**

The standard of care to be used by investment officials shall be the "prudent investor" standard and shall be applied in the context of managing an overall portfolio. The "prudent investor" standard states that:

When investing, reinvesting, purchasing, acquiring, exchanging, selling, or managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency.

Investment officers acting in accordance with written procedures and the investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and appropriate action is taken to control adverse developments.

## 4. Objectives

The primary objectives, in priority order, of the investment activities of SPWA shall be:

a) Safety. Safety of principal is the foremost objective of the investment program. SPWA investments shall be undertaken in a manner that seeks to ensure preservation of capital in the portfolio. To further achieve the safety objective, the amount invested in all investment categories is limited to a percentage of the portfolio as defined in section 8 "Permitted Investment Instruments".

b) Liquidity. The investment portfolio of SPWA will remain sufficiently liquid to enable SPWA to meet its cash flow requirements.

c) Return on Investment. The investment portfolio of SPWA shall be designed with the objective of attaining a market rate of return on its investments consistent with the constraints imposed by its safety objective and cash flow considerations.

## 5. Delegation of Authority

The Board hereby delegates management responsibility of the investment program to the Chief Financial Officer and/or his/her designee. Chief Financial Officer and/or his/her designee are hereby authorized and directed in the name and on behalf of SPWA to invest the Authority's monies, and to make and execute any and all certificates, requisitions, agreements, notices, consents, warrants and other documents, which he or she might deem necessary or appropriate in order to accomplish the purposes of this policy. No person may engage in an investment transaction except as provided under the limits of this policy unless specifically exempted by statute or ordinance.

## 6. Ethics and Conflict of Interest

Officers and employees involved in the investment process shall refrain from personal business activities that could conflict with proper execution of the investment program, or which could impair their ability to make impartial decisions.

## 7. Authorized Financial Dealers and Institutions

The Chief Financial Officer and/or his/her designee will maintain a list of approved financial institutions authorized to provide investment services to the SPWA. These may include "primary" dealers or regional dealers that qualify under Securities & Exchange Commission Rule 15C3-1. A determination should be made to ensure that all approved Broker/dealer firms, and individuals covering the public agency, are reputable and trustworthy. In addition, the broker/dealer firms should have the ability to meet all of their financial obligations in dealing with the Public Agency. The firms, and individuals covering the agency, should be knowledgeable and experienced in Public Agency investing and the investment products involved. No public deposit shall be made except in a qualified public depository as established by the established state laws. All financial institutions and broker/dealers who desire to conduct investment transactions with the public agency must supply the Chief Financial Officer with the following: completed broker/dealer questionnaire, and certification of having read the SPWA investment policy.

## 8. Permitted Investment Instruments

The Authority shall limit investments in any one non-government issuer, except investment pools, to no more than 5% regardless of security type.

a) **U.S. Treasury obligations** for which the full faith and credit of the United States are pledged for the payment of principal and interest. Up to 100 percent of SPWA's investment portfolio may be invested in government obligations.

b) **Federal agency or United States government-sponsored enterprise** obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises. Up to 100 percent of SPWA's investment portfolio may be invested in federal agency or United States government-sponsored enterprise obligations.

c) **Mortgage pass through security** issued and guaranteed by a Federal Agency Securities eligible for investment under this category of "AA" or its equivalent or better for an NRSRO and have a maximum remaining maturity of five years or less. Purchase of securities authorized by this subdivision may not exceed 20 percent of SPWA's surplus money.

d) **Obligations of the State of California** or any local agency within the state, including bonds payable solely out of revenues from a revenue producing property owned, controlled or operated by the state or any local agency or by a department, board, agency or authority of the state or any local agency. Up to 100 percent of SPWA's investment portfolio may be invested in California municipal obligations.

e) **Registered treasury notes or bonds of any of the other 49 states** in addition to California, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by a state or by a department, board, agency, or authority of any of these states.

f) **Repurchase Agreements** used solely as short-term investments not to exceed 30 days. Up to 100 percent of SPWA's investment portfolio may be invested in repurchase agreements.

g) **Bankers' Acceptances**, otherwise known as bills of exchange or time drafts that are drawn on and accepted by a commercial bank.

Purchases of Banker's Acceptances may not exceed 180 days maturity or 40 percent of SPWA's investment portfolio.

h) **Commercial paper** of "prime" quality of the highest ranking or of the highest letter and number rating as provided for by a NRSRO. The entity that issues the commercial paper shall meet all of the following conditions in either paragraph (8h1) or paragraph (8h2):

1) The entity meets the following criteria:
   a. Is organized and operating in the United States as a general corporation.
   b. Has total assets in excess of five hundred million dollars ($500,000,000).
   c. Has debt other than commercial paper, if any, that is rated "A" or higher by a NRSRO.

2) The entity meets the following criteria:
   a. Is organized within the United States as a special purpose corporation, trust, or limited liability company.
   b. Has program wide credit enhancements including, but not limited to, over collateralizations, letters of credit, or surety bond.
   c. Has commercial paper that is rated "A-1" or higher, or the equivalent, by a NRSRO.

Purchases of eligible commercial paper may not exceed ~~270~~ 397 days maturity nor represent more than 10 percent of the outstanding paper of an issuing corporation.

Purchases of commercial paper may not exceed 40 percent of SPWA's investment portfolio.

i) **Medium-term corporate notes** issued by corporations organized and operating within the United States or by depository institutions licensed by the U.S. or any state and operating within the U.S. Medium-term corporate notes shall be rated in a rating category "A" or its equivalent or better by a nationally recognized rating service.

Purchase of medium-term corporate notes may not exceed 30 percent of SPWA's investment portfolio.

j) **FDIC insured or fully collateralized time certificates of deposit.** Purchases of time certificates of deposit in combination with negotiable certificates of deposit may not exceed 30 percent of SPWA's investment portfolio.

k) **Negotiable certificates of deposit or deposit notes** issued by a nationally or state-chartered bank, a state or federal savings and loan association, state or federal credit union, or a federally-licensed or state-licensed branch of a foreign bank provided that the senior debt obligations of the issuing institution are rated "A" or better as provided for by an NRSRO.

Purchase of time certificates of deposit in combination with negotiable certificates of deposit may not exceed 30 percent of SPWA's investment portfolio.

l) **State of California's Local Agency Investment Fund**

The Local Agency Investment Fund (LAIF) portfolio should be reviewed periodically. Investment in LAIF may not exceed the legally authorized limits.

m) **Shares of beneficial interest issued by diversified management companies that are money market funds registered with the Securities and Exchange Commission** under the Investment Company Act of 1940 (15 U.S.C. Sec. 80a-1, et seq.). To be eligible for investment pursuant to this subdivision these companies shall either: (1) have attained the highest ranking or the highest letter and numerical rating provided by not less than two nationally recognized statistical rating organizations or (2) have an investment advisor registered or exempt from registration with the Securities and Exchange Commission with not less than five years' experience managing money market mutual funds and with assets under management in excess of $500,000,000.

The purchase price of shares of beneficial interest purchased shall not include any commission that the companies may charge and shall not exceed 20 percent of SPWA's investment portfolio. Further, no more than 10 percent of SPWA's investment portfolio may be invested in shares of beneficial interest of any one money market fund.

n) **Shares in a California common law trust** established pursuant to Title 1, Division 7, Chapter 5 of the Government Code of the State of California which invests exclusively in investments permitted by Section 53635 of Title 5, Division 2, Chapter 4 of the Government Code of the State of California, as it may be amended.

o) **City of Roseville's Pooled Investment Fund.**

p) **Supranationals** are United States dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development (IBRD), International Finance Corporation (IFC), or Inter-American Development Bank (IADB), with a maximum remaining maturity of five years or less, and eligible for purchase and sale within the United States. Investments under this subdivision shall be rated "AA-", its equivalent, or better by an NRSRO.

Purchases of supranationals shall not exceed 30 percent of the investment portfolio of the Authority. Supranationals will be permitted by California Government Code §53601 (q) and this Policy effective January 1, 2015.

q) **A mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-back certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond.** Securities issued by private companies eligible for investment under this subdivision shall be rated in a rating category of "AA" or its equivalent or better by an NRSRO and have a maximum remaining maturity of five years or less. Securities issued or guaranteed by the United States, a federal agency or United States government-sponsored enterprise are not subject to the limitations placed

on privately issued securities. No more than 20% of the Authority's surplus funds may be invested in this type of security.

Where this section specifies a percentage limitation for a particular category of investment, that percentage is applicable only on the date of purchase. Credit criteria listed in this section refers to the credit of the issuing organization at the time the security is purchased. If an investment falls below the minimum purchase rating, the Chief Financial Officer will perform a timely review and, following notification of the Board Chairman, decide whether to sell or hold the investment.

r) **Prohibited Investments**

For purposes of this policy, a derivative is defined as any security where the value is linked to or derived from an underlying asset or benchmark. Any security type or structure not specifically approved by this policy is hereby specifically prohibited. SPWA will not use such derivatives as range notes, dual index notes, inverse floating rate notes, deleveraged notes, or notes linked to lagging indices or to long term indices, nor will SPWA invest in reverse repurchase agreements or interest-only strips derived from a pool of mortgages. The City will not invest in securities that could result in zero or negative interest accrual if held to maturity, except, in the event of, and for the duration of, a period of negative market interest rates, securities issued by, or backed by, the U.S. government to preserve principal. This policy does not preclude the use of repurchase agreements and callable securities, as they do not fall within the definition of a derivative as described herein.

## Summary of Maximum Percentage Limitations of Investments by Investment Type

| Authorized Investment Type | Maximum Maturity | Minimum Credit Quality at Time of Purchase | Maximum Percentage Allowed | Maximum Investment In One Issuer |
|---|---|---|---|---|
| U.S. Treasury Obligations (A) | 5 Years | None | No Limit | No Limit |
| U.S. Agency Securities (A) | 5 Years | None | No Limit | No Limit |
| Forward Delivery Agreements | N/A | A | None | None |
| State of California or California Local Agency Bonds | 5 Years | None | No Limit | No Limit |
| Registered State Treasury Notes or Bonds of the other 49 States | 5 Years | None | No Limit | No Limit |
| Repurchase Agreements | 30 days | None | No Limit | No Limit |

| | | | | |
|---|---|---|---|---|
| Bankers' Acceptances | 180 days | None | 40% | 30% |
| Commercial Paper | ~~270~~ 397 days | A-1 | 40% | 10% |
| Medium-Term Notes | 5 Years | A | 30% | 10% |
| Collateralized Time Deposits | 5 Years | None | 30% | No Limit |
| Negotiable Certificates of Deposit | 5 Years | A | 30% | No Limit |
| Local Agency Investment Fund (LAIF) | N/A | None | No Limit | LAIF Limit |
| Insured Saving Accounts | N/A | None | No Limit | No Limit |
| Money Market Mutual Funds | N/A | (A) | 20% | 10% |
| Shares in a California Common Law Trust | N/A | None | No Limit | No Limit |
| Interest Rate Swaps | N/A | None | No Limit | No Limit |
| City of Roseville Pooled Investment Fund | N/A | None | No Limit | No Limit |
| Supranationals | 5 Years | AA- | 30% | No Limit |
| Mortgage Pass-Through Securities | 5 Years | AA | 20% | No Limit |

**9. Review of Investment Portfolio**

The securities held by the SPWA must be in compliance with Permitted Investments at the time of purchase. Because some securities may not comply subsequent to the date of purchase, the Chief Financial Officer shall at least annually review the portfolio to identify those securities that do not comply. The Chief Financial Officer shall report major and critical incidences of noncompliance identified through the review of the portfolio.

**10. Investment Pools**

A thorough investigation of any investment pool is required prior to investing and should be monitored on an ongoing basis. The following information should be obtained and analyzed.

a) A description of eligible ~~of~~ investment securities
b) A written statement of investment policies and objectives.
c) A description of interest calculations and their distribution, and the treatment of gains and losses.
d) A description of how the securities are safeguarded (including the settlement processes), and how often the securities are priced and the program audited.
e) A description of who may invest in the program, how often, and what size of deposits and withdrawals are allowed.

**11. Collateralization**

Collateral for Non-negotiable Certificates of Deposit and Negotiable Certificates of Deposit must comply with California Government Code section 53652. In addition, if the Certificate of Deposit is not FDIC insured, collateral is required equal to 110 percent of principal.

The following collateral restrictions will be observed:

- Only U.S. Treasury securities or Federal Agency securities, as described in Number 8 will be acceptable collateral. All securities underlying Repurchase Agreements must be delivered to SPWA's custodian bank by book entry, physical delivery, or by a third-party custodial agreement. The total of all collateral for each Repurchase Agreement must equal or exceed, on the basis of market value, 102 percent of the funds borrowed against those securities. For any Repurchase Agreement with a term of more than one day, the value of the underlying securities must be reviewed on a weekly basis and the value of the underlying securities brought back up to 102 percent no later than the next business day.
- Market value must be calculated each time there is a substitution of collateral.
- SPWA or its trustee shall have a perfected first security interest under the Uniform Commercial Code in all securities subject to Repurchase Agreement.
- SPWA may enter into Repurchase Agreements only with primary dealers of the Federal Reserve Bank of New York.
- SPWA will have specific written agreements with each firm with which it enters into Repurchase Agreements.
- Reverse repurchase agreements will not be allowed.

**12. Safekeeping and Custody**

The assets of SPWA shall be secured through the third-party custody and safekeeping procedures. Bearer instruments shall be held only through third-party institutions. Collateralized securities such as repurchase agreements shall be purchased using the delivery versus payment procedure.

**13. Diversification**

The SPWA's investment pool will be diversified to avoid incurring unreasonable and avoidable risks. The investments will be diversified by security type, maturities of those investments, and institutions in which those investments are made.

**14. Maximum Maturity**

Investment maturities shall be based on a review of cash flow forecasts. Maturities will be scheduled so as to permit SPWA to meet all projected obligations. The maximum maturity will be no more than five years from purchase settlement date to final maturity date.

**15. Internal Control**

The Chief Financial Officer is responsible for establishing and maintaining an internal control structure designed to ensure that the assets of SPWA are protected from loss, theft, fraud or misuse. An analysis by an external independent accounting firm shall be conducted annually to review internal controls, account activity, and compliance with the investment policies.

**16. Performance Benchmark**

The investment portfolio will be designed to obtain a market rate of return during budgetary and economic cycles, taking into account SPWA's investment risk constraints and cash

flow needs. The Investment Review Committee has elected to use for its performance standard the Constant Maturity Treasury (CMT) Index. For the SPWA Portfolio the 12-month moving average yield on 2Yr CMT will be used.

17. **Reporting Requirements**

The Chief Financial Officer shall make available investment reports to SPWA's Board. The reports shall include, at a minimum, the following information for each individual investment:

- Description of investment instrument
- Issuer name
- Yield on cost
- Purchase date
- Maturity date
- Book Value
- Par Value
- Current market value
- Transaction Activity
- Interest Earnings Summary

The monthly report shall also (i) state compliance of the portfolio to the statement of investment policy, or manner in which the portfolio is not in compliance, (ii) include a description of any of SPWA's funds, investments or programs that are under the management of contracted parties, including lending programs, and (iii) include a statement denoting the ability of SPWA to meet its expenditure requirements for the next six months, or provide an explanation as to why sufficient money shall, or may, not be available.

18. **Investment Policy Adoption**

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## 19. Glossary

**Broker-Dealer** – a person or a firm who can act as a broker or a dealer depending on the transaction. A broker brings buyers and sellers together for a commission. They do not take a position. A dealer acts as a principal in all transactions, buying and selling for his own account.

**Certificate of Deposit (CD)** – A time deposit with a specific maturity evidenced by a Certificate. Large-denomination CDs are typically negotiable.

**Collateral** – Securities, evidence of deposit or other property, which a borrower pledges to secure repayment of a loan. Also refers to securities pledged by a bank to secure deposits of public monies.

**Custody** – Safekeeping services offered by a bank, financial institution or trust company, referred to as the "custodian." Service normally includes the holding and reporting of the customer's securities, the collection and disbursement of income, securities settlement and market values.

**Delivery Versus Payment** –A type of securities transaction in which the purchaser pays for the securities when they are delivered either to the purchaser or custodian. It ensures that securities are deposited in an eligible financial institution prior to the release of funds. Securities should be held by a third-party custodian as evidenced by safekeeping receipts.

**Diversification** – Dividing investment funds among a variety of securities offering independent returns.

**Federal Agency Obligation** – A debt instrument issued by one of the federal agencies. Federal agencies are considered second in credit quality and liquidity only to U.S. Treasuries.

**Liquidity** – An investment that can be converted easily and rapidly into cash without a substantial loss of value.

**Local Agency Investment Fund (LAIF)** – The aggregate of all funds from political subdivisions that are placed in the custody of the State Treasurer for investment and reinvestment.

**Market Value** – The price at which a security is trading and could presumably be purchased or sold on a specific date.

**Maturity** – The date upon which the principal or stated value of an investment becomes due and payable.

**Money Market Fund** – a type of safe investment comprising a variety of short-term securities with high quality and high liquidity. The fund provides interest to shareholders and must maintain a stable net asset value (NAV) of $1 per share.

**Portfolio** – Collection of securities held by an investor.

**Principal** – the original cost of a security. It represents the amount of capital or money that the investor pays for the investment.

**Prudent Investor Standard** – An investment standard that all investments should be made with care, skill, prudence and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency.

**U.S. Treasury** – Government debt issued by the United States Department of the Treasury through the Bureau of the Public Debt. Treasury securities are the debt financing instruments of the United States federal government, and they are often referred to simply as Treasuries. There are four types of marketable treasury securities: Treasury bills, Treasury notes, Treasury bonds, and Treasury Inflation Protected Securities (TIPS). All of the marketable Treasury securities are very liquid and are heavily traded on the secondary market.

# SPWA Investment Policy Effective July 1, 2026
# Clean Copy

# South Placer Wastewater Authority
# Investment Policy

## Effective July 1, 2026

# Table of Contents

# South Placer Wastewater Authority

## Investment Policy

## Effective July 1, 2026

1. **Introduction**

The purpose of this document is to identify various policies and procedures that enhance opportunities for a prudent and systematic investment policy and to organize and formalize investment-related activities.

The investment policies and practices of the South Placer Wastewater Authority (SPWA) are based on state law and prudent money management. All funds will be invested in accordance with this investment policy and Article 2 of Chapter 4 of the California Government Code. This policy is in compliance with the provisions of the California Government Code, Sections 53600 through 53659, and the authority governing investments for municipal governments.

2. **Scope**

It is intended that this policy covers all funds and proceeds of debt issues and investment activities under SPWA's direction.

3. **Prudence**

The standard of care to be used by investment officials shall be the "prudent investor" standard and shall be applied in the context of managing an overall portfolio. The "prudent investor" standard states that:

When investing, reinvesting, purchasing, acquiring, exchanging, selling, or managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency.

Investment officers acting in accordance with written procedures and the investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and appropriate action is taken to control adverse developments.

## 4. Objectives

The primary objectives, in priority order, of the investment activities of SPWA shall be:

a) Safety. Safety of principal is the foremost objective of the investment program. SPWA investments shall be undertaken in a manner that seeks to ensure preservation of capital in the portfolio. To further achieve the safety objective, the amount invested in all investment categories is limited to a percentage of the portfolio as defined in section 8 "Permitted Investment Instruments".

b) Liquidity. The investment portfolio of SPWA will remain sufficiently liquid to enable SPWA to meet its cash flow requirements.

c) Return on Investment. The investment portfolio of SPWA shall be designed with the objective of attaining a market rate of return on its investments consistent with the constraints imposed by its safety objective and cash flow considerations.

## 5. Delegation of Authority

The Board hereby delegates management responsibility of the investment program to the Chief Financial Officer and/or his/her designee. Chief Financial Officer and/or his/her designee are hereby authorized and directed in the name and on behalf of SPWA to invest the Authority's monies, and to make and execute any and all certificates, requisitions, agreements, notices, consents, warrants and other documents, which he or she might deem necessary or appropriate in order to accomplish the purposes of this policy. No person may engage in an investment transaction except as provided under the limits of this policy unless specifically exempted by statute or ordinance.

## 6. Ethics and Conflict of Interest

Officers and employees involved in the investment process shall refrain from personal business activities that could conflict with proper execution of the investment program, or which could impair their ability to make impartial decisions.

## 7. Authorized Financial Dealers and Institutions

The Chief Financial Officer and/or his/her designee will maintain a list of approved financial institutions authorized to provide investment services to the SPWA. These may include "primary" dealers or regional dealers that qualify under Securities & Exchange Commission Rule 15C3-1. A determination should be made to ensure that all approved Broker/dealer firms, and individuals covering the public agency, are reputable and trustworthy. In addition, the broker/dealer firms should have the ability to meet all of their financial obligations in dealing with the Public Agency. The firms, and individuals covering the agency, should be knowledgeable and experienced in Public Agency investing and the investment products involved. No public deposit shall be made except in a qualified public depository as established by the established state laws. All financial institutions and broker/dealers who desire to conduct investment transactions with the public agency must supply the Chief Financial Officer with the following: completed broker/dealer questionnaire, and certification of having read the SPWA investment policy.

## 8. Permitted Investment Instruments

The Authority shall limit investments in any one non-government issuer, except investment pools, to no more than 5% regardless of security type.

a) **U.S. Treasury obligations** for which the full faith and credit of the United States are pledged for the payment of principal and interest. Up to 100 percent of SPWA's investment portfolio may be invested in government obligations.

b) **Federal agency or United States government-sponsored enterprise** obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises. Up to 100 percent of SPWA's investment portfolio may be invested in federal agency or United States government-sponsored enterprise obligations.

c) **Mortgage pass through security** issued and guaranteed by a Federal Agency Securities eligible for investment under this category of "AA" or its equivalent or better for an NRSRO and have a maximum remaining maturity of five years or less. Purchase of securities authorized by this subdivision may not exceed 20 percent of SPWA's surplus money.

d) **Obligations of the State of California** or any local agency within the state, including bonds payable solely out of revenues from a revenue producing property owned, controlled or operated by the state or any local agency or by a department, board, agency or authority of the state or any local agency. Up to 100 percent of SPWA's investment portfolio may be invested in California municipal obligations.

e) **Registered treasury notes or bonds of any of the other 49 states** in addition to California, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by a state or by a department, board, agency, or authority of any of these states.

f) **Repurchase Agreements** used solely as short-term investments not to exceed 30 days. Up to 100 percent of SPWA's investment portfolio may be invested in repurchase agreements.

g) **Bankers' Acceptances**, otherwise known as bills of exchange or time drafts that are drawn on and accepted by a commercial bank.

Purchases of Banker's Acceptances may not exceed 180 days maturity or 40 percent of SPWA's investment portfolio.

h) **Commercial paper** of "prime" quality of the highest ranking or of the highest letter and number rating as provided for by a NRSRO. The entity that issues the commercial paper shall meet all of the following conditions in either paragraph (8h1) or paragraph (8h2):

1) The entity meets the following criteria:
   a. Is organized and operating in the United States as a general corporation.
   b. Has total assets in excess of five hundred million dollars ($500,000,000).
   c. Has debt other than commercial paper, if any, that is rated "A" or higher by a NRSRO.

2) The entity meets the following criteria:
   a. Is organized within the United States as a special purpose corporation, trust, or limited liability company.
   b. Has program wide credit enhancements including, but not limited to, over collateralizations, letters of credit, or surety bond.
   c. Has commercial paper that is rated "A-1" or higher, or the equivalent, by a NRSRO.

Purchases of eligible commercial paper may not exceed 397 days maturity nor represent more than 10 percent of the outstanding paper of an issuing corporation.

Purchases of commercial paper may not exceed 40 percent of SPWA's investment portfolio.

i) **Medium-term corporate notes** issued by corporations organized and operating within the United States or by depository institutions licensed by the U.S. or any state and operating within the U.S. Medium-term corporate notes shall be rated in a rating category "A" or its equivalent or better by a nationally recognized rating service.

Purchase of medium-term corporate notes may not exceed 30 percent of SPWA's investment portfolio.

j) **FDIC insured or fully collateralized time certificates of deposit.** Purchases of time certificates of deposit in combination with negotiable certificates of deposit may not exceed 30 percent of SPWA's investment portfolio.

k) **Negotiable certificates of deposit or deposit notes** issued by a nationally or state-chartered bank, a state or federal savings and loan association, state or federal credit union, or a federally-licensed or state-licensed branch of a foreign bank provided that the senior debt obligations of the issuing institution are rated "A" or better as provided for by an NRSRO.

Purchase of time certificates of deposit in combination with negotiable certificates of deposit may not exceed 30 percent of SPWA's investment portfolio.

l) **State of California's Local Agency Investment Fund**

The Local Agency Investment Fund (LAIF) portfolio should be reviewed periodically. Investment in LAIF may not exceed the legally authorized limits.

m) **Shares of beneficial interest issued by diversified management companies that are money market funds registered with the Securities and Exchange Commission** under the Investment Company Act of 1940 (15 U.S.C. Sec. 80a-1, et seq.). To be eligible for investment pursuant to this subdivision these companies shall either: (1) have attained the highest ranking or the highest letter and numerical rating provided by not less than two nationally recognized statistical rating organizations or (2) have an investment advisor registered or exempt from registration with the Securities and Exchange Commission with not less than five years' experience managing money market mutual funds and with assets under management in excess of $500,000,000.

The purchase price of shares of beneficial interest purchased shall not include any commission that the companies may charge and shall not exceed 20 percent of SPWA's investment portfolio. Further, no more than 10 percent of SPWA's investment portfolio may be invested in shares of beneficial interest of any one money market fund.

n) **Shares in a California common law trust** established pursuant to Title 1, Division 7, Chapter 5 of the Government Code of the State of California which invests exclusively in investments permitted by Section 53635 of Title 5, Division 2, Chapter 4 of the Government Code of the State of California, as it may be amended.

o) **City of Roseville's Pooled Investment Fund.**

p) **Supranationals** are United States dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development (IBRD), International Finance Corporation (IFC), or Inter-American Development Bank (IADB), with a maximum remaining maturity of five years or less, and eligible for purchase and sale within the United States. Investments under this subdivision shall be rated "AA-", its equivalent, or better by an NRSRO.

Purchases of supranationals shall not exceed 30 percent of the investment portfolio of the Authority. Supranationals will be permitted by California Government Code §53601 (q) and this Policy effective January 1, 2015.

q) **A mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, equipment lease-back certificate, consumer receivable pass-through certificate, or consumer receivable-backed bond.** Securities issued by private companies eligible for investment under this subdivision shall be rated in a rating category of "AA" or its equivalent or better by an NRSRO and have a maximum remaining maturity of five years or less. Securities issued or guaranteed by the United States, a federal agency or United States government-sponsored enterprise are not subject to the limitations placed

on privately issued securities. No more than 20% of the Authority's surplus funds may be invested in this type of security.

Where this section specifies a percentage limitation for a particular category of investment, that percentage is applicable only on the date of purchase. Credit criteria listed in this section refers to the credit of the issuing organization at the time the security is purchased. If an investment falls below the minimum purchase rating, the Chief Financial Officer will perform a timely review and, following notification of the Board Chairman, decide whether to sell or hold the investment.

r) **Prohibited Investments**

For purposes of this policy, a derivative is defined as any security where the value is linked to or derived from an underlying asset or benchmark. Any security type or structure not specifically approved by this policy is hereby specifically prohibited. SPWA will not use such derivatives as range notes, dual index notes, inverse floating rate notes, deleveraged notes, or notes linked to lagging indices or to long term indices, nor will SPWA invest in reverse repurchase agreements or interest-only strips derived from a pool of mortgages. The City will not invest in securities that could result in zero or negative interest accrual if held to maturity, except, in the event of, and for the duration of, a period of negative market interest rates, securities issued by, or backed by, the U.S. government to preserve principal. This policy does not preclude the use of repurchase agreements and callable securities, as they do not fall within the definition of a derivative as described herein.

## Summary of Maximum Percentage Limitations of Investments by Investment Type

| Authorized Investment Type | Maximum Maturity | Minimum Credit Quality at Time of Purchase | Maximum Percentage Allowed | Maximum Investment In One Issuer |
|---|---|---|---|---|
| U.S. Treasury Obligations (A) | 5 Years | None | No Limit | No Limit |
| U.S. Agency Securities (A) | 5 Years | None | No Limit | No Limit |
| Forward Delivery Agreements | N/A | A | None | None |
| State of California or California Local Agency Bonds | 5 Years | None | No Limit | No Limit |
| Registered State Treasury Notes or Bonds of the other 49 States | 5 Years | None | No Limit | No Limit |
| Repurchase Agreements | 30 days | None | No Limit | No Limit |

| | | | | |
|---|---|---|---|---|
| Bankers' Acceptances | 180 days | None | 40% | 30% |
| Commercial Paper | 397 days | A-1 | 40% | 10% |
| Medium-Term Notes | 5 Years | A | 30% | 10% |
| Collateralized Time Deposits | 5 Years | None | 30% | No Limit |
| Negotiable Certificates of Deposit | 5 Years | A | 30% | No Limit |
| Local Agency Investment Fund (LAIF) | N/A | None | No Limit | LAIF Limit |
| Insured Saving Accounts | N/A | None | No Limit | No Limit |
| Money Market Mutual Funds | N/A | (A) | 20% | 10% |
| Shares in a California Common Law Trust | N/A | None | No Limit | No Limit |
| Interest Rate Swaps | N/A | None | No Limit | No Limit |
| City of Roseville Pooled Investment Fund | N/A | None | No Limit | No Limit |
| Supranationals | 5 Years | AA- | 30% | No Limit |
| Mortgage Pass-Through Securities | 5 Years | AA | 20% | No Limit |

**9. Review of Investment Portfolio**

The securities held by the SPWA must be in compliance with Permitted Investments at the time of purchase. Because some securities may not comply subsequent to the date of purchase, the Chief Financial Officer shall at least annually review the portfolio to identify those securities that do not comply. The Chief Financial Officer shall report major and critical incidences of noncompliance identified through the review of the portfolio.

**10. Investment Pools**

A thorough investigation of any investment pool is required prior to investing and should be monitored on an ongoing basis. The following information should be obtained and analyzed.

a) A description of eligible investment securities
b) A written statement of investment policies and objectives.
c) A description of interest calculations and their distribution, and the treatment of gains and losses.
d) A description of how the securities are safeguarded (including the settlement processes), and how often the securities are priced and the program audited.
e) A description of who may invest in the program, how often, and what size of deposits and withdrawals are allowed.

**11. Collateralization**

Collateral for Non-negotiable Certificates of Deposit and Negotiable Certificates of Deposit must comply with California Government Code section 53652. In addition, if the Certificate of Deposit is not FDIC insured, collateral is required equal to 110 percent of principal.

The following collateral restrictions will be observed:

- Only U.S. Treasury securities or Federal Agency securities, as described in Number 8 will be acceptable collateral. All securities underlying Repurchase Agreements must be delivered to SPWA's custodian bank by book entry, physical delivery, or by a third-party custodial agreement. The total of all collateral for each Repurchase Agreement must equal or exceed, on the basis of market value, 102 percent of the funds borrowed against those securities. For any Repurchase Agreement with a term of more than one day, the value of the underlying securities must be reviewed on a weekly basis and the value of the underlying securities brought back up to 102 percent no later than the next business day.
- Market value must be calculated each time there is a substitution of collateral.
- SPWA or its trustee shall have a perfected first security interest under the Uniform Commercial Code in all securities subject to Repurchase Agreement.
- SPWA may enter into Repurchase Agreements only with primary dealers of the Federal Reserve Bank of New York.
- SPWA will have specific written agreements with each firm with which it enters into Repurchase Agreements.
- Reverse repurchase agreements will not be allowed.

**12. Safekeeping and Custody**

The assets of SPWA shall be secured through the third-party custody and safekeeping procedures. Bearer instruments shall be held only through third-party institutions. Collateralized securities such as repurchase agreements shall be purchased using the delivery versus payment procedure.

**13. Diversification**

The SPWA's investment pool will be diversified to avoid incurring unreasonable and avoidable risks. The investments will be diversified by security type, maturities of those investments, and institutions in which those investments are made.

**14. Maximum Maturity**

Investment maturities shall be based on a review of cash flow forecasts. Maturities will be scheduled so as to permit SPWA to meet all projected obligations. The maximum maturity will be no more than five years from purchase settlement date to final maturity date.

**15. Internal Control**

The Chief Financial Officer is responsible for establishing and maintaining an internal control structure designed to ensure that the assets of SPWA are protected from loss, theft, fraud or misuse. An analysis by an external independent accounting firm shall be conducted annually to review internal controls, account activity, and compliance with the investment policies.

**16. Performance Benchmark**

The investment portfolio will be designed to obtain a market rate of return during budgetary and economic cycles, taking into account SPWA's investment risk constraints and cash

flow needs. The Investment Review Committee has elected to use for its performance standard the Constant Maturity Treasury (CMT) Index. For the SPWA Portfolio the 12-month moving average yield on 2Yr CMT will be used.

**17. Reporting Requirements**

The Chief Financial Officer shall make available investment reports to SPWA's Board. The reports shall include, at a minimum, the following information for each individual investment:

- Description of investment instrument
- Issuer name
- Yield on cost
- Purchase date
- Maturity date
- Book Value
- Par Value
- Current market value
- Transaction Activity
- Interest Earnings Summary

The monthly report shall also (i) state compliance of the portfolio to the statement of investment policy, or manner in which the portfolio is not in compliance, (ii) include a description of any of SPWA's funds, investments or programs that are under the management of contracted parties, including lending programs, and (iii) include a statement denoting the ability of SPWA to meet its expenditure requirements for the next six months, or provide an explanation as to why sufficient money shall, or may, not be available.

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**SOUTH PLACER WASTEWATER AUTHORITY**

**RESOLUTION NO. 2026-02**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH PLACER WASTEWATER AUTHORITY ADOPTING THE SOUTH PLACER WASTEWATER AUTHORITY INVESTMENT POLICY FOR FY 2026-2027**

WHEREAS, the South Placer Wastewater Authority Investment Policy was adopted by the Board of Directors of the South Placer Wastewater Authority ("Authority") at the Board's meeting on February 13, 2001, and amended periodically thereafter (as amended, the "Investment Policy"); and

WHEREAS, the Authority desires to adopt the Investment Policy as presented for fiscal year 2026-2027.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the South Placer Wastewater Authority as follows:

The South Placer Wastewater Authority Investment Policy for Fiscal Year 2026-2027 is hereby adopted in the form presented at this meeting and attached hereto.

PASSED AND ADOPTED this 3th day of June, 2026, by the following vote on roll call:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

_____
Chairperson

ATTEST:

_____
Secretary

Agenda
Item B

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 04, 2026

**FROM:** Teri Quinlan – Accounting Manager

**AUTHORITY COMMUNICATION NO.: AC 26-10**

**SUBJECT: Investment Review**

*For SPWA Board Meeting 06/03/2026*

## ACTION REQUESTED
None required. This is an information item.

## BACKGROUND
The following report details the performance of the Authority's investments through March 2026.

## INVESTMENTS
The Schedule of Investments for March 2026 is attached to this report. The yield to maturity on the invested funds was 4.062 %.

### Additional Accumulated Funds
The additional accumulated funds, in the amount of $43.0 million, is a combination of:

- $ 30,581,179 in the Authority's wastewater project fund held by the fiscal agent
- $ 12,397,949 in the Authority's bond reserve fund held by the fiscal agent
- $ 6,412 in the Authority's principal fund held by the fiscal agent
- $ 1,028 in the Authority's interest fund held by the fiscal agent

Submitted by:

Teri L. Quinlan Digitally signed by Teri L. Quinlan Date: 2026.05.20 18:39:49 -07'00'

Teri Quinlan
Accounting Manager

Approved by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:17:56 -07'00'

Dennis Kauffman
Chief Financial Officer

Sean Bigley
Executive Director

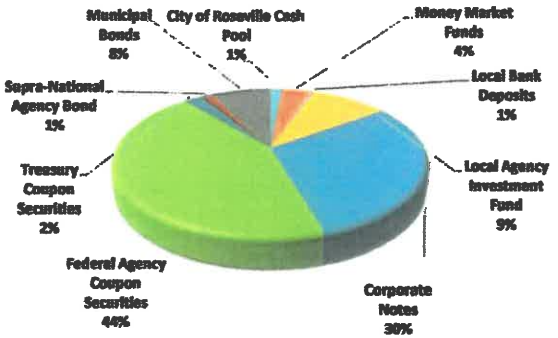
SOUTH PLACER Wastewater Authority

**Performance | Total Portfolio Summary**
MARCH 2026

| Benchmark Performance | 3/31/2026 | 11/30/2025 |
|---|---|---|
| Average Portfolio Yield | 4.062 | 4.067 |
| 2Yr CMT | 3.790 | 3.470 |
| LAIF | 3.826 | 4.096 |

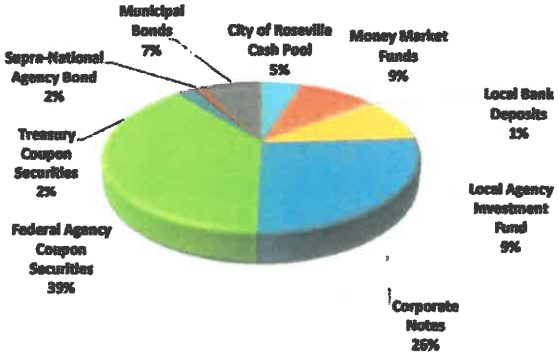
## MARCH 2026

| Asset Category | Compliance % of Portfolio | YTM/C 365 | Days to Maturity | Par Value | Market Value | Book Value |
|---|---|---|---|---|---|---|
| City of Roseville Cash Pool | 1.47% | 3.912 | 1 | 3,221,532 | 3,221,532 | 3,221,532 |
| Money Market Funds | 3.48% | 3.280 | 1 | 7,612,769 | 7,612,769 | 7,612,769 |
| Local Bank Deposits | 0.64% | 3.955 | 1 | 1,391,734 | 1,391,734 | 1,391,734 |
| Local Agency Investment Fund | 9.43% | 3.826 | 1 | 20,630,920 | 20,630,920 | 20,630,920 |
| | 15.01% | 0.558 | 1 | 32,856,955 | 32,856,955 | 32,856,955 |
| Corporate Notes | 30.35% | 4.270 | 829 | 66,600,000 | 66,473,225 | 66,428,738 |
| Federal Agency Coupon Securities | 43.48% | 4.013 | 829 | 95,857,000 | 95,349,862 | 95,152,062 |
| Treasury Coupon Securities | 2.29% | 3.844 | 1545 | 5,000,000 | 4,992,780 | 5,006,022 |
| Supra-National Agency Bond | 1.37% | 4.500 | 684 | 3,000,000 | 3,008,970 | 3,000,000 |
| Municipal Bonds | 7.49% | 4.184 | 1,108 | 16,670,000 | 16,456,591 | 16,397,594 |
| | 84.99% | 3.504 | 739 | 187,127,000 | 186,281,428 | 185,984,416 |
| TOTAL PORTFOLIO \| Average | 100.00% | 4.062 | 740 | 219,983,955 | 219,138,383 | 218,841,371 |




## NOVEMBER 2025

| Asset Category | Compliance % of Portfolio | YTM/C 365 | Days to Maturity | Par Value | Market Value | Book Value |
|---|---|---|---|---|---|---|
| City of Roseville Cash Pool | 4.97% | 3.342 | 1 | 11,132,377 | 11,132,377 | 11,132,377 |
| Money Market Funds | 9.32% | 3.590 | 1 | 20,882,491 | 20,882,491 | 20,882,491 |
| Local Bank Deposits | 0.61% | 4.516 | 1 | 1,372,744 | 1,372,744 | 1,372,744 |
| Local Agency Investment Fund | 9.12% | 4.096 | 1 | 20,415,059 | 20,415,059 | 20,415,059 |
| | 24.02% | 0.902 | 1 | 53,802,672 | 53,802,672 | 53,802,672 |
| Corporate Notes | 26.34% | 4.259 | 866 | 59,100,000 | 59,587,835 | 58,992,405 |
| Federal Agency Coupon Securities | 38.76% | 4.106 | 938 | 87,537,000 | 87,704,322 | 86,803,277 |
| Treasury Coupon Securities | 2.24% | 3.844 | 1666 | 5,000,000 | 5,059,830 | 5,006,474 |
| Supra-National Agency Bond | 1.34% | 4.500 | 805 | 3,000,000 | 3,030,021 | 3,000,000 |
| Municipal Bonds | 7.31% | 4.184 | 1,229 | 16,670,000 | 16,582,109 | 16,365,334 |
| | 75.98% | 3.165 | 728 | 171,307,000 | 171,964,116 | 170,167,490 |
| TOTAL PORTFOLIO \| Average | 100.00% | 4.067 | 730 | 225,109,672 | 225,766,788 | 223,970,162 |



SOUTH PLACER Wastewater Authority

# Monthly Investment Report
## Portfolio Management
## Portfolio Summary
## March 31, 2026

| Investments | Par Value | Market Value | Book Value | % of Portfolio | Term | Days to Maturity | YTM/C |
|---|---|---|---|---|---|---|---|
| City of Roseville Cash Pool* | 3,221,531.83 | 3,221,531.83 | 3,221,531.83 | 1.47 | 1 | 1 | 3.912 |
| Money Market Funds | 7,612,768.55 | 7,612,768.55 | 7,612,768.55 | 3.48 | 1 | 1 | 3.280 |
| Local Bank Deposits | 1,391,734.41 | 1,391,734.41 | 1,391,734.41 | 0.64 | 1 | 1 | 3.955 |
| Local Agency Investment Funds | 20,630,920.37 | 20,630,920.37 | 20,630,920.37 | 9.43 | 1 | 1 | 3.826 |
| Corporate Notes | 66,600,000.00 | 66,473,225.00 | 66,428,737.64 | 30.35 | 1,689 | 829 | 4.270 |
| Federal Agency Coupon Securities | 95,857,000.00 | 95,349,861.84 | 95,152,062.12 | 43.48 | 1,640 | 829 | 4.013 |
| Treasury Coupon Securities | 5,000,000.00 | 4,992,780.00 | 5,006,022.04 | 2.29 | 1,812 | 1,545 | 3.844 |
| Supra-National Agency Bond | 3,000,000.00 | 3,008,970.00 | 3,000,000.00 | 1.37 | 1,826 | 684 | 4.500 |
| Municipal Bonds | 16,670,000.00 | 16,456,591.30 | 16,397,594.13 | 7.49 | 1,657 | 1,108 | 4.184 |
| **Investments** | **219,983,955.16** | **219,138,383.30** | **218,841,371.09** | **100.00%** | **1,416** | **740** | **4.062** |

| Total Earnings | March 31 Month Ending | Fiscal Year To Date |
|---|---|---|
| Current Year | 735,894.31 | 6,675,382.64 |
| **Average Daily Balance** | **217,808,584.86** | **221,313,333.59** |
| **Effective Rate of Return** | **3.98%** | **4.02%** |

*Estimated balance at month-end
Market values provided by US BANK, and LAIF

THIS SCHEDULE OF INVESTMENTS IS IN COMPLIANCE WITH THE INVESTMENT POLICY AS ESTABLISHED AND SUFFICIENT FUNDS WILL BE AVAILABLE TO MEET CASH FLOW REQUIREMENTS FOR THE NEXT SIX MONTHS.

Sean Bigley, Executive Director — DATE 5/14/2026

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.13 15:10:51 -07'00'

Dennis Kauffman, Chief Financial Officer

# Monthly Investment Report
# Portfolio Management
# Interest Earnings Summary
# March 31, 2026



| | March 31Month Ending | Fiscal Year To Date |
|---|---|---|
| **CD/Coupon/Discount Investments:** | | |
| Interest Collected | 599,833.13 | 4,803,451.05 |
| Plus Accrued Interest at End of Period | 1,789,991.40 | 1,778,241.40 |
| Less Accrued Interest at Beginning of Period | ( 1,813,255.08) | ( 1,484,540.56) |
| Less Accrued Interest at Purchase During Period | ( 0.00) | ( 0.00) |
| Interest Earned during Period | 576,569.45 | 5,097,151.89 |
| Adjusted by Premiums and Discounts | 57,838.92 | 504,917.53 |
| Adjusted by Capital Gains or Losses | 0.00 | 38,425.14 |
| Earnings during Periods | 634,408.37 | 5,640,494.56 |
| **Pass Through Securities:** | | |
| Interest Collected | 0.00 | 0.00 |
| Plus Accrued Interest at End of Period | 0.00 | 0.00 |
| Less Accrued Interest at Beginning of Period | ( 0.00) | ( 0.00) |
| Less Accrued Interest at Purchase During Period | ( 0.00) | ( 0.00) |
| Interest Earned during Period | 0.00 | 0.00 |
| Adjusted by Premiums and Discounts | 0.00 | 0.00 |
| Adjusted by Capital Gains or Losses | 0.00 | 0.00 |
| Earnings during Periods | 0.00 | 0.00 |
| **Cash/Checking Accounts:** | | |
| Interest Collected | 0.00 | 0.00 |
| Plus Accrued Interest at End of Period | 11,178,507.22 | 11,178,507.22 |
| Less Accrued Interest at Beginning of Period | ( 11,077,021.28) | ( 10,143,619.14) |
| Interest Earned during Period | 101,485.94 | 1,034,888.08 |
| **Total Interest Earned during Period** | **678,055.39** | **6,132,039.97** |
| **Total Adjustments from Premiums and Discounts** | **57,838.92** | **504,917.53** |
| **Total Capital Gains or Losses** | **0.00** | **38,425.14** |
| **Total Earnings during Period** | **735,894.31** | **6,675,382.64** |

# Monthly Investment Report
## Fund 001 - SPWA
## Investments by Fund
## March 31, 2026

| CUSIP | Investment # | Issuer | Purchase Date | Remaining Cost | Par Value | Market Value | Current Rate | YTM/C 360 | YTM/C 365 | Maturity Date | Days To Maturity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **City of Roseville Cash Pool*** | | | | | | | | | | | |
| SYS10048 | 10048 | City of Roseville Cash Pool | 07/01/2025 | 3,221,531.83 | 3,221,531.83 | 3,221,531.83 | 3.912 | 3.858 | 3.912 | | 1 |
| | | **Subtotal and Average** | | **3,221,531.83** | **3,221,531.83** | **3,221,531.83** | | **3.858** | **3.912** | | **1** |
| **Money Market Funds** | | | | | | | | | | | |
| 431114503 | 10434 | US BANK | 07/01/2025 | 7,612,768.55 | 7,612,768.55 | 7,612,768.55 | 3.280 | 3.235 | 3.280 | | 1 |
| | | **Subtotal and Average** | | **7,612,768.55** | **7,612,768.55** | **7,612,768.55** | | **3.235** | **3.280** | | **1** |
| **Local Bank Deposits** | | | | | | | | | | | |
| FSB | 10746 | FIVE STAR BANK | 07/01/2025 | 693,588.30 | 693,588.30 | 693,588.30 | 3.950 | 3.895 | 3.950 | | 1 |
| RCB | 10745 | RIVER CITY BANK | 07/01/2025 | 698,146.11 | 698,146.11 | 698,146.11 | 3.960 | 3.905 | 3.960 | | 1 |
| | | **Subtotal and Average** | | **1,391,734.41** | **1,391,734.41** | **1,391,734.41** | | **3.901** | **3.955** | | **1** |
| **Local Agency Investment Funds** | | | | | | | | | | | |
| 40-31-001 | 10032 | Local Agency Investment Fund | 07/01/2025 | 20,630,920.37 | 20,630,920.37 | 20,630,920.37 | 3.826 | 3.773 | 3.826 | | 1 |
| | | **Subtotal and Average** | | **20,630,920.37** | **20,630,920.37** | **20,630,920.37** | | **3.774** | **3.826** | | **1** |
| **Corporate Notes** | | | | | | | | | | | |
| 00724PAJ8 | 10786 | ADOBE INC | 04/09/2025 | 3,076,200.00 | 3,000,000.00 | 3,062,730.00 | 4.950 | 4.293 | 4.353 | 01/17/2030 | 1,387 |
| 023135BC9 | 10718 | AMAZON | 09/16/2022 | 2,881,740.00 | 3,000,000.00 | 2,963,700.00 | 3.150 | 3.983 | 4.038 | 08/22/2027 | 508 |
| 037833EZ9 | 10795 | APPLE INC GLOBAL NOTES | 07/09/2025 | 3,009,690.00 | 3,000,000.00 | 3,015,510.00 | 4.200 | 4.068 | 4.124 | 05/12/2030 | 1,502 |
| 110122CN6 | 10719 | BRISTOL MYERS SQUIBB | 09/16/2022 | 1,946,860.00 | 2,000,000.00 | 1,995,860.00 | 3.200 | 3.914 | 3.968 | 06/15/2026 | 75 |
| 14913UAQ3 | 10771 | CATERPILLAR FINANCIAL SE | 10/03/2024 | 2,040,760.00 | 2,000,000.00 | 2,006,620.00 | 4.375 | 3.856 | 3.910 | 08/16/2029 | 1,233 |
| 14913UAX8 | 10782 | CATERPILLAR FINANCIAL SE | 02/11/2025 | 1,514,790.00 | 1,500,000.00 | 1,534,650.00 | 4.800 | 4.509 | 4.572 | 01/08/2030 | 1,378 |
| 17325FBP2 | 10798 | CITIBANK N A | 12/11/2025 | 3,098,280.00 | 3,000,000.00 | 3,046,770.00 | 4.914 | 4.047 | 4.103 | 05/29/2030 | 1,519 |
| 532457CQ9 | 10781 | ELI LILLY CO | 11/14/2024 | 2,474,875.00 | 2,500,000.00 | 2,502,375.00 | 4.200 | 4.374 | 4.435 | 08/14/2029 | 1,231 |
| 458140AX8 | 10698 | INTEL CORP | 06/24/2022 | 1,955,340.00 | 2,000,000.00 | 1,971,560.00 | 3.150 | 3.603 | 3.653 | 05/11/2027 | 405 |
| 24422EXB0 | 10776 | JOHN DEERE CAP MTN | 01/08/2024 | 1,533,225.00 | 1,500,000.00 | 1,529,070.00 | 4.950 | 4.343 | 4.403 | 07/14/2028 | 835 |
| 46625HQW3 | 10699 | JP MORGAN CHASE CORP NOTES | 06/21/2022 | 1,939,600.00 | 2,000,000.00 | 2,000,000.00 | 3.300 | 4.680 | 4.745 | 04/01/2026 | 0 |
| 48130CC37 | 10785 | JP MORGAN CHASE CORP NOTES | 03/14/2025 | 2,000,000.00 | 2,000,000.00 | 2,004,440.00 | 4.600 | 4.536 | 4.600 | 04/14/2030 | 1,474 |
| 53961LB99 | 10803 | LOCAL INITIATIVES SUPPORT CORP | 12/26/2025 | 2,500,000.00 | 2,500,000.00 | 2,480,225.00 | 3.850 | 4.298 | 4.357 | 12/15/2029 | 1,354 |
| 571676AT2 | 10736 | MARS INC | 06/20/2023 | 2,491,500.00 | 2,500,000.00 | 2,516,675.00 | 4.550 | 4.564 | 4.627 | 04/20/2028 | 750 |

# Fund 001 - SPWA
# Investments by Fund
# March 31, 2026



| CUSIP | Investment # | Issuer | Purchase Date | Remaining Cost | Par Value | Market Value | Current Rate | YTM/C 360 | YTM/C 365 | Maturity Date | Days To Maturity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Corporate Notes** | | | | | | | | | | | |
| 58933YBC8 | 10738 | MERCK & CO INC | 09/12/2023 | 2,692,500.00 | 3,000,000.00 | 2,921,310.00 | 1.700 | 4.653 | 4.717 | 06/10/2027 | 435 |
| 30303M8L9 | 10730 | META PLATFORMS INC | 06/20/2023 | 2,493,750.00 | 2,500,000.00 | 2,527,550.00 | 4.600 | 4.593 | 4.656 | 05/15/2028 | 775 |
| 30303M8L9 | 10739 | META PLATFORMS INC | 10/17/2023 | 1,961,060.00 | 2,000,000.00 | 2,022,040.00 | 4.600 | 5.011 | 5.080 | 05/15/2028 | 775 |
| 61760QTM6 | 10791 | Morgan Stanley Comm Paper | 05/16/2025 | 2,000,000.00 | 2,000,000.00 | 2,009,720.00 | 4.400 | 4.339 | 4.400 | 05/16/2030 | 1,506 |
| 57629W4T4 | 10765 | MASSMUTUAL MTN | 07/11/2024 | 3,047,550.00 | 3,000,000.00 | 3,057,870.00 | 5.150 | 4.715 | 4.781 | 05/30/2029 | 1,155 |
| 654106AJ2 | 10700 | NIKE INC | 06/03/2022 | 2,454,350.00 | 2,500,000.00 | 2,468,200.00 | 2.750 | 3.117 | 3.161 | 03/27/2027 | 360 |
| 713448GB8 | 10784 | PEPSICO INC GLOBAL NOTES | 02/11/2025 | 1,501,875.00 | 1,500,000.00 | 1,519,485.00 | 4.600 | 4.508 | 4.571 | 02/07/2030 | 1,408 |
| 771196BK7 | 10701 | ROCHE HOLDINGS INC | 06/03/2022 | 2,440,950.00 | 2,500,000.00 | 2,494,850.00 | 2.625 | 3.222 | 3.266 | 05/15/2026 | 44 |
| 771196CP5 | 10768 | ROCHE HOLDINGS INC | 09/12/2024 | 2,533,125.00 | 2,500,000.00 | 2,496,825.00 | 4.203 | 3.854 | 3.908 | 09/09/2029 | 1,257 |
| 784710AA3 | 10729 | SSM HEALTH CARE | 11/18/2022 | 2,348,986.50 | 2,450,000.00 | 2,433,046.00 | 3.823 | 4.779 | 4.846 | 06/01/2027 | 426 |
| 81762PAE2 | 10804 | SERVICENOW INC | 12/11/2025 | 1,767,240.00 | 2,000,000.00 | 1,735,380.00 | 1.400 | 4.112 | 4.169 | 09/01/2030 | 1,614 |
| 872540AQ2 | 10703 | TJX COS INC | 06/21/2022 | 1,867,040.00 | 2,000,000.00 | 1,984,380.00 | 2.250 | 3.916 | 3.970 | 09/15/2026 | 167 |
| 89236TMF9 | 10766 | TOYOTA MOTOR CREDIT CORP COMM | 07/11/2024 | 2,031,560.00 | 2,000,000.00 | 2,042,680.00 | 5.050 | 4.616 | 4.680 | 05/16/2029 | 1,141 |
| 872898AF8 | 10704 | TSMC ARIZ CORP | 06/24/2022 | 1,991,380.00 | 2,000,000.00 | 1,993,120.00 | 3.875 | 3.918 | 3.973 | 04/22/2027 | 386 |
| 91324PEG3 | 10708 | UNITEDHEALTH GROUP | 06/21/2022 | 2,124,243.00 | 2,150,000.00 | 2,136,584.00 | 3.700 | 3.916 | 3.970 | 05/15/2027 | 409 |
| | | **Subtotal and Average** | | **65,718,469.50** | **66,800,000.00** | **66,473,225.00** | | **4.212** | **4.270** | | **884** |
| **Federal Agency Coupon Securities** | | | | | | | | | | | |
| 31424WCR1 | 10747 | FEDERAL AGRIC MTG CORP AGCY | 12/12/2023 | 1,855,180.00 | 1,850,000.00 | 1,871,034.50 | 4.375 | 4.252 | 4.311 | 12/04/2028 | 978 |
| 31424WN99 | 10796 | FEDERAL AGRIC MTG CORP AGCY | 08/15/2025 | 2,005,000.00 | 2,000,000.00 | 1,986,560.00 | 4.040 | 3.929 | 3.984 | 08/12/2030 | 1,594 |
| 31424W2Q4 | 10802 | FEDERAL AGRIC MTG CORP AGCY | 12/11/2025 | 4,318,704.00 | 4,320,000.00 | 4,303,800.00 | 3.550 | 3.516 | 3.565 | 11/12/2027 | 590 |
| 3133ENTS9 | 10693 | Federal Farm Credit Bank | 04/05/2022 | 2,767,875.00 | 2,750,000.00 | 2,719,007.50 | 2.600 | 2.427 | 2.461 | 04/05/2027 | 369 |
| 3133ENNG1 | 10711 | Federal Farm Credit Bank | 07/18/2022 | 3,547,500.00 | 3,750,000.00 | 3,688,425.00 | 1.860 | 3.098 | 3.141 | 02/08/2027 | 313 |
| 3133ENVM9 | 10732 | Federal Farm Credit Bank | 06/16/2023 | 4,607,128.80 | 4,734,000.00 | 4,701,004.02 | 3.740 | 4.296 | 4.356 | 04/27/2028 | 757 |
| 3133EMXP2 | 10741 | Federal Farm Credit Bank | 10/16/2023 | 1,673,520.00 | 1,900,000.00 | 1,847,940.00 | 1.200 | 4.848 | 4.916 | 04/28/2027 | 392 |
| 3133ERCX7 | 10753 | Federal Farm Credit Bank | 05/17/2024 | 3,012,000.00 | 3,000,000.00 | 3,002,760.00 | 5.170 | 4.987 | 5.056 | 05/01/2028 | 761 |
| 3133ERDH1 | 10754 | Federal Farm Credit Bank | 05/14/2024 | 5,061,000.00 | 5,000,000.00 | 5,131,000.00 | 4.750 | 4.411 | 4.472 | 04/30/2029 | 1,125 |
| 3133EMV74 | 10758 | Federal Farm Credit Bank | 07/11/2024 | 2,631,240.00 | 3,000,000.00 | 2,784,750.00 | 1.400 | 4.204 | 4.262 | 04/26/2029 | 1,121 |
| 3133ENQK9 | 10759 | Federal Farm Credit Bank | 07/11/2024 | 1,871,700.00 | 2,000,000.00 | 1,935,140.00 | 2.750 | 4.225 | 4.283 | 03/07/2029 | 1,071 |
| 3133ENUF5 | 10760 | Federal Farm Credit Bank | 07/11/2024 | 2,877,840.00 | 3,000,000.00 | 2,941,320.00 | 3.380 | 4.277 | 4.336 | 04/11/2029 | 1,106 |
| 3133ERKX8 | 10761 | Federal Farm Credit Bank | 07/12/2024 | 5,019,250.00 | 5,000,000.00 | 5,059,200.00 | 4.250 | 4.106 | 4.163 | 07/12/2029 | 1,198 |
| 3133ERB67 | 10779 | Federal Farm Credit Bank | 11/14/2024 | 2,502,000.00 | 2,500,000.00 | 2,527,075.00 | 4.250 | 4.172 | 4.230 | 02/14/2029 | 1,050 |

# Fund 001 - SPWA
# Investments by Fund
# March 31, 2026



| CUSIP | Investment # | Issuer | Purchase Date | Remaining Cost | Par Value | Market Value | Current Rate | YTM/C 360 | YTM/C 365 | Maturity Date | Days To Maturity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Federal Agency Coupon Securities** | | | | | | | | | | | |
| 3133ET3G0 | 10801 | Federal Farm Credit Bank | 12/11/2025 | 4,999,500.00 | 5,000,000.00 | 4,972,900.00 | 3.500 | 3.457 | 3.505 | 12/09/2027 | 617 |
| 3130ASD22 | 10696 | Federal Home Loan Bank | 06/29/2022 | 3,000,000.00 | 3,000,000.00 | 2,992,860.00 | 3.590 | 3.540 | 3.590 | 06/29/2027 | 454 |
| 3130ALCE2 | 10709 | Federal Home Loan Bank | 07/18/2022 | 3,306,397.50 | 3,675,000.00 | 3,581,287.50 | 0.920 | 3.518 | 3.567 | 02/26/2027 | 331 |
| 3130AT2Y2 | 10725 | Federal Home Loan Bank | 11/17/2022 | 2,825,760.00 | 2,900,000.00 | 2,887,820.00 | 3.700 | 4.381 | 4.442 | 08/23/2027 | 509 |
| 3130AWTR1 | 10737 | Federal Home Loan Bank | 09/13/2023 | 2,993,400.00 | 3,000,000.00 | 3,038,790.00 | 4.375 | 4.361 | 4.422 | 09/08/2028 | 891 |
| 3130AXEL8 | 10740 | Federal Home Loan Bank | 10/16/2023 | 3,614,760.00 | 3,600,000.00 | 3,673,944.00 | 4.750 | 4.591 | 4.655 | 09/08/2028 | 891 |
| 3130B1BC0 | 10757 | Federal Home Loan Bank | 07/11/2024 | 5,100,000.00 | 5,000,000.00 | 5,113,650.00 | 4.625 | 4.110 | 4.167 | 06/08/2029 | 1,164 |
| 3130AH3Z4 | 10772 | Federal Home Loan Bank | 10/07/2024 | 3,477,637.50 | 3,750,000.00 | 3,535,350.00 | 2.200 | 3.767 | 3.820 | 09/24/2029 | 1,272 |
| 3130ATHX8 | 10773 | Federal Home Loan Bank | 10/07/2024 | 4,070,920.00 | 4,000,000.00 | 4,030,720.00 | 4.125 | 3.676 | 3.727 | 09/14/2029 | 1,262 |
| 3130B6BG0 | 10790 | Federal Home Loan Bank | 05/12/2025 | 1,990,000.00 | 2,000,000.00 | 1,989,580.00 | 4.000 | 4.055 | 4.111 | 05/07/2030 | 1,497 |
| 3130AWGS3 | 10793 | Federal Home Loan Bank | 06/26/2025 | 5,067,100.00 | 5,000,000.00 | 5,038,150.00 | 4.125 | 3.773 | 3.825 | 06/14/2030 | 1,535 |
| 3130APD77 | 10799 | Federal Home Loan Bank | 12/12/2025 | 1,892,900.00 | 2,000,000.00 | 1,888,820.00 | 1.540 | 3.505 | 3.554 | 10/06/2028 | 919 |
| 3134GXRM8 | 10697 | Federal Home Loan Mtg Corp | 06/24/2022 | 3,113,924.00 | 3,128,000.00 | 3,120,774.32 | 3.550 | 3.623 | 3.674 | 05/18/2027 | 412 |
| 3134HBVQ1 | 10794 | Federal Home Loan Mtg Corp | 06/11/2025 | 5,000,000.00 | 5,000,000.00 | 4,986,200.00 | 4.250 | 4.191 | 4.250 | 06/11/2030 | 1,532 |
| | | **Subtotal and Average** | | **94,202,236.80** | **95,857,000.00** | **95,349,861.84** | | **3.958** | **4.013** | | **934** |
| **Treasury Coupon Securities** | | | | | | | | | | | |
| 91282CMZ1 | 10792 | U.S. Treasury | 05/12/2025 | 1,997,760.00 | 2,000,000.00 | 1,997,820.00 | 3.875 | 3.846 | 3.899 | 04/30/2030 | 1,490 |
| 91282CNN7 | 10797 | U.S. Treasury | 08/15/2025 | 3,009,000.00 | 3,000,000.00 | 2,994,960.00 | 3.875 | 3.755 | 3.807 | 07/31/2030 | 1,582 |
| | | **Subtotal and Average** | | **5,006,760.00** | **5,000,000.00** | **4,992,780.00** | | **3.792** | **3.844** | | **1,545** |
| **Supra-National Agency Bond** | | | | | | | | | | | |
| 45950VUJ3 | 10783 | International Finance Corp | 02/14/2025 | 3,000,000.00 | 3,000,000.00 | 3,008,970.00 | 4.500 | 4.438 | 4.500 | 02/14/2030 | 1,415 |
| | | **Subtotal and Average** | | **3,000,000.00** | **3,000,000.00** | **3,008,970.00** | | **4.438** | **4.500** | | **1,415** |
| **Municipal Bonds** | | | | | | | | | | | |
| 13063DMB1 | 10756 | CA ST REV BONDS | 07/11/2024 | 1,898,740.00 | 2,000,000.00 | 1,946,820.00 | 3.050 | 4.193 | 4.251 | 04/01/2029 | 1,096 |
| 544351RN1 | 10764 | CA ST REV BONDS | 07/11/2024 | 1,301,489.00 | 1,225,000.00 | 1,279,671.75 | 6.000 | 4.273 | 4.332 | 09/01/2028 | 884 |
| 13063EBP0 | 10770 | CA ST REV BONDS | 10/07/2024 | 1,368,089.80 | 1,295,000.00 | 1,343,821.50 | 5.125 | 3.796 | 3.849 | 09/01/2029 | 1,249 |
| 20772KKB4 | 10778 | CONNECTICUT ST | 11/14/2024 | 1,109,724.80 | 1,195,000.00 | 1,144,224.45 | 2.627 | 4.284 | 4.344 | 07/01/2029 | 1,187 |
| 20772KZK8 | 10789 | CONNECTICUT ST | 05/12/2025 | 1,522,500.00 | 1,500,000.00 | 1,519,500.00 | 4.489 | 4.008 | 4.064 | 03/15/2029 | 1,079 |
| 378460C31 | 10780 | GLENDALE CA UNI SCH | 11/14/2024 | 1,315,650.00 | 1,500,000.00 | 1,381,110.00 | 1.480 | 4.285 | 4.345 | 09/01/2029 | 1,249 |
| 45204EC71 | 10788 | ILLINOIS FIN AUTH | 04/09/2025 | 1,958,519.25 | 2,025,000.00 | 1,988,165.25 | 3.548 | 4.324 | 4.384 | 08/15/2029 | 1,232 |

# Fund 001 - SPWA
# Investments by Fund
# March 31, 2026



| CUSIP | Investment # | Issuer | Purchase Date | Remaining Cost | Par Value | Market Value | Current Rate | YTM/C 360 | YTM/C 365 | Maturity Date | Days To Maturity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Municipal Bonds** | | | | | | | | | | | |
| 574193WW4 | 10763 | MaryLand State | 07/11/2024 | 1,789,998.75 | 1,775,000.00 | 1,796,903.50 | 4.440 | 4.233 | 4.292 | 06/01/2029 | 1,157 |
| 692020T75 | 10748 | Oxnard Cal School District | 12/26/2023 | 1,042,514.55 | 1,155,000.00 | 1,116,734.85 | 1.439 | 4.335 | 4.395 | 08/01/2027 | 487 |
| 91412HFG3 | 10767 | UNIV OF CAL TXBL REV BONDS | 08/14/2024 | 2,930,400.00 | 3,000,000.00 | 2,939,640.00 | 3.349 | 3.822 | 3.875 | 07/01/2029 | 1,187 |
| | | **Subtotal and Average** | | **16,237,826.15** | **16,670,000.00** | **16,456,591.30** | | **4.127** | **4.184** | | **1,107** |
| | | **Total Investments and Average** | | **217,022,047.61** | **219,983,955.16** | **219,138,383.30** | | **4.006** | **4.062** | | **812** |

Agenda
Item C

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 14, 2026

**FROM:** Teri Quinlan, Accounting Manager

**AUTHORITY COMMUNICATION NO.: AC 26-11**

**SUBJECT:** Rate Stabilization Fund Balances as of March 31, 2026 (unaudited)

*For SPWA Board Meeting 6/3/2026*

## ACTION REQUESTED

This communication is informational only. No action is required of the Board.

## BACKGROUND

With the formation of the Joint Powers Authority and subsequent bond issues, a rate stabilization fund (RSF) was established to collect the participants' connection fees and pay debt service, capital costs, bond redemptions, and administrative costs. Each participant has a sub-account established within the RSF that accounts for its deposits less proportionate cost shares. Available resources include receivables and liabilities that are recognized as funds are available for use.

Debt proceeds, grant revenue, other revenue, and expenses are allocated based on the participants' respective reallocated proportionate shares, defined in the 2nd Amendment to the Funding Agreement as follows: Roseville—64.57%, South Placer Municipal Utility District—21.95% and Placer County—13.48%. Interest revenue is allocated to each participant based on its respective rate stabilization fund balance, except for interest revenue earned on deferred connection fees which is recorded directly to the Placer County's sub-account. Connection fees and reimbursements are recorded directly in each participant's sub-account.

The below *Changes in RSF Balances from July 1, 2025 to March 31, 2026* schedule includes a $31.3 million inflow from the Internal Revenue Service tax credit received for the Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery projects. Staff is working with the State Water Resources Control Board to pay down the State Revolving Fund loans for these projects with the tax credit. When this paydown occurs, the rate stabilization fund balances will decrease by the $31.3 million.

SOUTH PLACER Wastewater Authority

*Changes in RSF Balances from July 1, 2025 to March 31, 2026:*

| | City of Roseville | SPMUD | Placer County | Total |
|---|---|---|---|---|
| Revenues: | | | | |
| Regional Connection Fees | $ 7,467,516 | $ 4,347,540 | $ 3,920,414 | 15,735,470 |
| Deferred Connection Fees Interest - Placer County | - | - | 34,259 | 34,259 |
| IRS tax credit - PGWWTP Expansion and ERP projects | 20,194,104 | 6,864,807 | 4,215,836 | 31,274,747 |
| Debt Proceeds | 903,980 | 307,300 | 188,720 | 1,400,000 |
| Expenses: | | | | - |
| Capital costs | (3,929,221) | (1,335,704) | (820,287) | (6,085,212) |
| Debt Service | (7,301,039) | (2,481,924) | (1,524,207) | (11,307,170) |
| Administrative costs | (90,762) | (30,854) | (18,948) | (140,564) |
| Increase/(Decrease) in RSF Balances | 17,244,578 | 7,671,165 | 5,995,787 | 30,911,530 |
| Beginning Balance, as of July 1, 2025 | 136,767,402 | 71,385,150 | 12,099,812 | 220,252,364 |
| Ending Balance Before Interest Allocation | 154,011,980 | 79,056,315 | 18,095,599 | 251,163,894 |
| Interest Allocation | 3,821,643 | 1,941,622 | 396,702 | 6,159,967 |
| Ending Balance as of March 31, 2026 (unaudited) | $ 157,833,623 | $ 80,997,937 | $ 18,492,301 | $ 257,323,861 |

*Changes in RSF Balances from July 1, 2024 to June 30, 2025:*

| | City of Roseville | SPMUD | Placer County | Total |
|---|---|---|---|---|
| Revenues: | | | | |
| Regional connection fees | $ 22,741,777 | $ 2,802,601 | $ 3,605,685 | $ 29,150,063 |
| Deferred connection fees interest - Placer County | - | - | 28,241 | 28,241 |
| Debt proceeds | 3,839,077 | 1,305,060 | 801,468 | 5,945,605 |
| Expenses: | | | | - |
| Capital costs | (4,892,360) | (1,663,114) | (1,021,357) | (7,576,831) |
| Debt service | (10,140,975) | (3,447,335) | (2,117,088) | (15,705,398) |
| Administrative costs | (74,160) | (25,210) | (15,482) | (114,852) |
| Increase/(Decrease) in RSF Balances | 11,473,359 | (1,027,998) | 1,281,467 | 11,726,828 |
| Beginning Balance, as of July 1, 2024 | 120,996,609 | 70,054,903 | 10,442,882 | 201,494,394 |
| Ending Balance Before Interest Allocation | 132,469,968 | 69,026,905 | 11,724,349 | 213,221,222 |
| Interest Allocation | 4,297,434 | 2,358,245 | 375,463 | 7,031,142 |
| Ending Balance as of June 30, 2025 | $ 136,767,402 | $ 71,385,150 | $ 12,099,812 | $ 220,252,364 |

**Submitted by:**

Teri L. Quinlan Digitally signed by Teri L. Quinlan Date: 2026.05.20 18:38:24 -07'00'

Teri Quinlan
Accounting Manager

**Approved by:**

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:18:56 -07'00'

Dennis Kauffman
Chief Financial Officer

Sean Bigley
Executive Director

Agenda
Item D

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 14, 2026

**FROM:** Dennis Kauffman, Chief Financial Officer

**AUTHORITY COMMUNICATION NO.: AC 26-12**

**SUBJECT: Contract for Professional Services for Municipal Advisor**

*For SPWA Board Meeting 6/3/2026*

## ACTION REQUESTED

Approve the attached resolution authorizing PFM Financial Advisors, LLC to serve as the Municipal Advisor for the Authority.

## BACKGROUND

As needed, the South Placer Wastewater Authority (SPWA) requires municipal advisor services related to issuing bonds, which are highly technical and demand specialized services. Each bond transaction can be complex and requires a unique skill set to help mitigate risk, make informed decisions, and achieve the lowest overall cost of capital.

In December 2024, the City of Roseville issued a Request for Proposals for Municipal Advisor Services and received several responses. After reviewing the proposals and interviewing the top-ranked firms, City staff recommended PFM Financial Advisors, LLC (PFM) to meet the City's utility financial needs.

PFM has been a national leader in providing independent financial advice to local, state and regional government clients for over 48 years. PFM serves over half of the 50 largest municipal utilities in the country and has extensive experience with utility bond financing, including electric, water, and wastewater.

PFM has a strong familiarity with the business and cash flow needs of the Authority as well as a solid understanding of the Authority's debt portfolio. PFM previously served as Financial Advisor to SPWA until 2017, after which Hilltop Securities served as Financial Advisor until 2024.

Staff requests the Authority to authorize municipal advisory services from PFM, on an as needed basis, until June 30, 2028, with optional one-year extensions, at the rates set forth in Appendix B to the proposed Municipal Advisory Agreement accompanying this report.

Submitted by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:03:21 -07'00'

Dennis Kauffman
Chief Financial Officer

SOUTH PLACER Wastewater Authority

Approved by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.20 14:48:43 -07'00'

Dennis Kauffman
Chief Financial Officer

Sean Bigley
Executive Director

# MUNICIPAL ADVISORY AGREEMENT

This Municipal Advisory Agreement (the "Agreement") is made and entered into by and between South Placer Wastewater Authority ("SPWA") (the "Issuer") and PFM Financial Advisors LLC ("PFM"), and shall be effective as of the date executed by the Issuer as set forth on the signature page hereof (the "Effective Date").

## WITNESSETH:

**WHEREAS**, the Issuer will have under consideration from time to time the authorization and issuance of municipal securities, including but not limited to the issuance and sale of evidences of indebtedness or debt obligations that may currently or in the future be authorized and issued or otherwise created or assumed by the Issuer, in amounts and forms which cannot presently be determined; and

**WHEREAS**, in connection with the authorization, sale, issuance and delivery of such municipal securities, as well as in connection with any matters relating to municipal financial products of the Issuer, the Issuer desires to retain a municipal advisor; and

**WHEREAS**, the Issuer desires to obtain the professional services of PFM as a municipal advisor to advise the Issuer regarding the issuance of municipal securities and any municipal financial products, all as more fully described herein, during the period in which this Agreement shall be effective; and

**WHEREAS**, PFM is willing to provide its professional services as a municipal advisor in connection with the Issuer's issuances of municipal securities and any municipal financial products, all as more fully described herein, during the period in which this Agreement shall be effective.

**NOW, THEREFORE**, the Issuer and PFM, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, do hereby agree as follows:

## SECTION I
## SCOPE OF SERVICES

A. **Scope of Services and Discharge of Responsibilities.**

1. ***Scope of Services.***

(a) PFM is engaged by the Issuer as its municipal advisor to provide the services set forth in **Appendix A** hereto (the "Municipal Advisory Services"). The Municipal Advisory Services, together with any services to be provided by PFM as the Issuer's independent registered municipal advisor ("IRMA") pursuant to subparagraph B.1 of this Section I, are hereinafter collectively referred to as the "Scope of Services" hereunder. The Scope of Services to be provided by PFM may be changed only as provided in paragraph D of this Section I. The Issuer acknowledges and agrees that PFM does not provide legal, tax, or accounting advice in connection with the Municipal Advisory Services. The Issuer is solely responsible for obtaining its own legal, tax, or accounting advice with respect to the services and any related matter.

(b) Upon the request of the Issuer, an affiliate of PFM or a third party referred or otherwise introduced by PFM and/or designated by the Issuer may provide additional services to the Issuer under a separate writing, including separate scope and compensation, between the Issuer and such affiliate or third party. For the sake of clarity, any separate agreement between the Issuer and an affiliate of PFM or third party shall not in any way be deemed an amendment or modification of this Agreement. The Issuer acknowledges that, in certain circumstances, the same individual may provide services to the Issuer on behalf of both PFM and one or more of its affiliates. For example, the Issuer may elect to engage PFM for municipal advisory services and separately engage an affiliate of PFM for consulting or other non-municipal advisory services, where the same individual will serve under both engagements. In such cases, the services shall be provided strictly in accordance with the terms of the respective agreements between the Issuer and PFM and/or the applicable affiliate. The provision of services by an individual in such dual

roles shall not alter or affect the separate legal responsibilities, obligations, or liabilities of PFM and its affiliates under their respective agreements with the Issuer.

(c) The Issuer shall provide written notice to PFM of any other municipal advisor engaged by the Issuer, whether in regard to all or any portion of the Municipal Advisory Services or for any other aspects of the issuance of municipal securities or municipal financial products outside the scope of the Municipal Advisory Services, as described in clause (c) of subparagraph B.1 of this Section I.

2. ***Inquiries and Information in Connection with PFM's Duties.*** If and to the extent provided in the Scope of Services, PFM is called upon to make recommendations to the Issuer or to review recommendations made by others to the Issuer, and in connection therewith to determine whether such recommendations are suitable for the Issuer, in order to fulfill its duties with respect to such recommendations and any associated suitability determinations, PFM is required under applicable regulations to make reasonable inquiries of the Issuer as to the relevant facts. Such facts include, at a minimum, information regarding the Issuer's financial situation and needs, objectives, tax status, risk tolerance, liquidity needs, experience with municipal securities transactions or municipal financial products generally or of the type and complexity being recommended, financial capacity to withstand changes in market conditions during the term of the municipal financial product or the period that municipal securities to be issued in the municipal securities transaction are reasonably expected to be outstanding, and any other material information known by PFM about the Issuer and the municipal securities transaction or municipal financial product. In addition, PFM is required under applicable regulations to use reasonable diligence to know the essential facts about the Issuer and the authority of each person acting on behalf of the Issuer so as to effectively service PFM's municipal advisory relationship with the Issuer, to act in accordance with any special directions from the Issuer, to understand the authority of each person acting on behalf of the Issuer, and to comply with applicable laws, regulations and rules.

Accordingly, the Issuer hereby agrees to provide accurate and complete information reasonably designed to permit PFM to fulfill its responsibilities in connection with any such recommendations and suitability determinations and to provide to PFM reasonable access to relevant documents and personnel in connection with its required investigation to determine that any recommendations are not based on materially inaccurate or incomplete information. The Issuer acknowledges that PFM may not be able to make requested recommendations or suitability determinations if it is not provided access to such information and that the Issuer shall be estopped from claiming a violation of PFM's fiduciary duty to the Issuer in connection with a recommendation or suitability determination made by PFM based on materially inaccurate or incomplete information provided by the Issuer.

3. ***Actions Independent of or Contrary to Advice.*** The parties hereto acknowledge that the Issuer shall not be required to act in accordance with any advice or recommendation provided by PFM to the Issuer. Upon providing such advice or recommendation to the Issuer, together with the basis for such advice or recommendation, PFM shall have discharged its duties with regard to such advice or recommendation and shall not be liable for any financial or other damages resulting from the Issuer's election not to act in accordance with such advice or recommendation. Furthermore, the Issuer shall be estopped from claiming a violation of PFM's fiduciary duty to the Issuer as a result of its election not to act in accordance with any advice or recommendation by PFM, including but not limited to any claim that PFM should have taken steps, in addition to providing its advice or recommendation together with the basis therefor, to cause the Issuer to follow its advice or recommendation.

4. ***Preparation of Official Statement in Connection with Issuance of Municipal Securities.*** If and to the extent provided in the Scope of Services, PFM is called upon to assist the Issuer in the

preparation of its official statement in connection with the issuance of municipal securities, the Issuer hereby agrees to provide accurate and complete information to PFM reasonably designed to permit PFM to fulfill its responsibility to have a reasonable basis for any information PFM provides about the Issuer, its financial condition, its operational status and its municipal securities in connection with the preparation of the official statement. While PFM may participate in the due diligence process in connection with the preparation of the official statement, if such participation is within the Scope of Services, PFM shall not be obligated to undertake any inquiry or investigation in connection with such due diligence beyond any inquiries or investigations otherwise required by this Agreement. Furthermore, PFM shall not be responsible for certifying the accuracy or completeness of the official statement, other than with respect to information about PFM provided for inclusion in the official statement, if applicable. The Issuer agrees that PFM may rely on any information provided to it by the Issuer for purposes of this paragraph.

5. ***Representations and Certifications.*** If and to the extent provided in the Scope of Services, PFM is called upon to make representations and certifications with regard to certain aspects of matters pertaining to the Issuer, its municipal securities or municipal financial products arising as part of the Municipal Advisory Services to be provided pursuant to this Agreement, the Issuer hereby agrees to provide accurate and complete information to PFM as may be reasonably necessary or otherwise helpful to PFM in fulfilling its responsibility to have a reasonable basis for any representations, other than representations by PFM regarding itself, made in a certificate signed by PFM that may be relied upon by the Issuer, any other party involved in any matter arising as part of the Municipal Advisory Services, or investors in the Issuer's municipal securities. The Issuer agrees that PFM may rely on any information provided to it by the Issuer for purposes of this paragraph.

**B. <u>Services as Independent Registered Municipal Advisor</u>.**

1. ***Designation as IRMA and Scope of Designation.***

(a) Subject to clause (b) of this subparagraph B.1, if the Issuer elects to designate PFM, and PFM agrees to represent the Issuer, as the Issuer's IRMA for purposes of Securities Exchange Commission ("SEC") Rule 15Ba1-1(d)(3)(vi) (the "IRMA exemption") with respect to the Municipal Advisory Services, PFM will treat such role as IRMA as within the scope of Municipal Advisory Services. Any reference to PFM, its personnel and its role as IRMA in the written representation of the Issuer contemplated under SEC Rule 15Ba1-1(d)(3)(vi)(B) shall be subject to prior approval by PFM.

If there are any other aspects of the issuance of municipal securities or municipal financial products outside the scope of the Municipal Advisory Services with respect to which the Issuer seeks to have PFM serve as its IRMA, such aspects, which are separate and distinct from Municipal Advisory Services for purposes of this Agreement, shall be included in Appendix A hereto and may be changed only as provided in paragraph D of this Section I. PFM's duties as IRMA shall be strictly limited to the provision of advice to the Issuer with regard to third-party recommendations on any aspects of the issuance of municipal securities or municipal financial products outside the scope of the Municipal Advisory Services, subject to subparagraph B.3 of this Section I, and the provision of advice by PFM to the Issuer with respect to such matters shall not result in a change in scope of the Municipal Advisory Services. By way of example, if PFM serves as municipal advisor for an issuance of municipal securities within the scope of Municipal Advisory Services, but is asked to review a recommendation made by a third party with respect to a different issuance of municipal securities not within the scope of Municipal Advisory Services, any advice with respect to such review would not, by itself, cause such other issuance to come within the scope of Municipal Advisory Services, and PFM would not be obligated to undertake any of the services set forth in Appendix

A with regard to such issuance unless the scope of Municipal Advisory Services hereunder is amended to include such issuance.

(b) If the Issuer elects not to designate PFM to serve as an IRMA for purposes of the IRMA exemption with respect to the Municipal Advisory Services, or if the Issuer elects to designate PFM to serve as IRMA for less than the full range of Municipal Advisory Services, such election shall be set forth in Appendix A.

(c) The Issuer shall provide written notice to PFM of any other municipal advisor engaged by the Issuer, whether such other municipal advisor has been designated as an IRMA, and such notice shall include the scope of services of such municipal advisor. If the Issuer has engaged, or has caused PFM to engage through subcontract, any other party to serve as municipal advisor to the Issuer with regard to all or any portion of the Municipal Advisory Services ("Joint Municipal Advisory Services"), whether engaged jointly with or separately from PFM (a "Co-Municipal Advisor"), the Issuer agrees that such Co-Municipal Advisor shall not be entitled to treat PFM as an IRMA with respect to the Joint Municipal Advisory Services. Notwithstanding the preceding sentence, the Issuer may seek to have PFM provide advice on any recommendation made by a Co-Municipal Advisor with regard to matters within the scope of Joint Municipal Advisory Services on the same terms as set forth in subparagraph B.3 of this Section I, provided that any such advice provided by PFM shall not serve to eliminate or reduce such Co-Municipal Advisor's fiduciary or other duties as municipal advisor to the Issuer.

2. ***PFM Not Responsible for Independence from Third Parties.*** Notwithstanding PFM's status as an IRMA, PFM shall not be responsible for ensuring that it is independent, within the meaning of the IRMA exemption as interpreted by the SEC, from another party wishing to rely on the exemption from the definition of municipal advisor afforded under the IRMA exemption or for otherwise ensuring that any such party not be treated as a municipal advisor for purposes of Section 15B of the Securities Exchange Act or any SEC or Municipal Securities Rulemaking Board ("MSRB") rule thereunder. The Issuer expressly acknowledges that it is the responsibility of such other party to make its own determination of independence and that such other party shall not be entitled to cause PFM to make any personnel changes to allow such party to qualify for the IRMA exemption.

3. ***Recommendations Provided by Third Parties Relying on IRMA Exemption.*** The Issuer agrees that, to the extent the Issuer seeks to have PFM provide advice with regard to any recommendation made by a third party relying on the IRMA exemption, the Issuer shall provide to PFM written direction to provide advice with regard to such third-party recommendation as well as any information it has received from such third party. In connection therewith, PFM shall be authorized to communicate with such third party as necessary or appropriate in order for PFM to have the information it needs to provide informed advice to the Issuer with regard to such recommendation. PFM shall provide to the Issuer recommendations it receives directly from any third party but shall not be required to provide advice to the Issuer with regard to any such recommendation unless the Issuer has provided to PFM the written direction as described above in this subparagraph B.3.

Except as may be otherwise expressly provided in writing by PFM, no recommendation by a third-party (including but not limited to a Co-Municipal Advisor) shall be deemed to be a recommendation by PFM, and the failure by PFM to specifically address any aspect of a third-party recommendation shall not be viewed as PFM having implicitly accepted or approved such aspect of the recommendation or otherwise having adopted the recommendation or any aspect thereof as its own recommendation. Furthermore, the Issuer agrees that, to the extent the Issuer does not seek to have PFM provide advice with regard to any recommendation made by a third party relying on the IRMA exemption, PFM shall not be required to

provide any advice with regard to such recommendation notwithstanding any information it may have received from such third party. PFM may rely on the absence of the Issuer's written direction to provide advice with regard to a third-party recommendation as indicative that the Issuer does not seek to have PFM provide such advice.

**C. Limitations on Scope of Engagement.**

1. ***Express Limitations.*** The Scope of Services with respect to PFM's engagement as municipal advisor shall be solely as provided in paragraphs A and B of this Section I and Appendix A of this Agreement, subject to the express limitations set forth in this paragraph C. The failure of the parties hereto to set out any particular service or responsibility, or any particular type or aspect of the issuance of municipal securities or municipal financial products, within the express limitations in this paragraph C shall not, by its omission, cause such service, responsibility or product to be within the scope of this engagement if not contemplated by the mutual agreement of the parties hereto or if not reasonably viewed as encompassed by the description of the Municipal Advisory Services set forth in this Agreement.

2. ***Limitation as to Matters Within Then-Current Scope of Engagement.*** It is expressly understood that PFM serves as municipal advisor to the Issuer only with respect to the matters, and with respect to specific aspects of matters, within the then-current Scope of Services. The Issuer acknowledges that PFM is not a municipal advisor to the Issuer with respect to matters expressly excluded from such Scope of Services as set forth in this paragraph C or matters otherwise not within the Scope of Services as set forth in paragraphs A and B of this Section I and Appendix A hereto. Without limiting the generality of the preceding sentence, the parties hereto agree that PFM's service as municipal advisor for one issuance of municipal securities would not result in PFM being a municipal advisor to the Issuer for any other issuances of municipal securities if such other issuances are not within the Scope of Services. It is expressly understood that PFM shall be municipal advisor with respect to a particular issuance of municipal securities or a particular municipal financial product beginning on the earlier of (a) the date on which PFM is assigned to serve or is otherwise put on notice by the Issuer that it will serve as municipal advisor for such particular matter or (b) the date on which PFM first provides advice to the Issuer with respect to such particular matter, and it is further understood that PFM shall not be deemed to be a municipal advisor to the Issuer with respect to any such particular matter prior to such date merely due to the fact that the matter falls within the general description of the Scope of Services.

3. ***Transactions and Services Outside Scope of Engagement.*** To the extent that the Issuer engages in any transaction with PFM, or any affiliate of PFM, as principal relating to municipal securities (including but not limited to as underwriter for the issuance of municipal securities) or municipal financial products that are not within the Scope of Services and with respect to which PFM does not in fact provide advice other than as permitted within the exceptions and exclusions of SEC Rule 15Ba1-1, the Issuer agrees that it would not view PFM as serving as its municipal advisor with respect to such transaction or any related issuance of municipal securities or municipal financial product. In addition, as noted in clause (b) of subparagraph A.1 of this Section I, the Issuer understands that Non-Municipal Advisor Services are outside the scope of this engagement.

4. ***Issuer Consent to Limitation in Scope.*** The Issuer expressly consents to the limitations in scope of the engagement as described in this paragraph C.

**D. Change in Scope of Services.** The scope of services to be provided by PFM, whether within or outside of the scope of the Municipal Advisory Services, may be changed only by written amendment to Appendix A signed by all parties hereto, and the parties hereto agree to amend such appendix promptly to

reflect any material changes or additions to the scope of such services, as applicable. Furthermore, the parties hereto agree to amend paragraph C of this Section I to reflect any material changes or additions to the limitations on the overall Scope of Services.

The parties hereto agree that if, on an infrequent or inadvertent basis, PFM takes any actions for or on behalf of the Issuer that constitute municipal advisory activities within the meaning of MSRB Rule G-42(f)(iv) but which are not within the Scope of Services under this Agreement, such actions shall not, by themselves, serve to change the Scope of Services under this Agreement without a written amendment as provided in this paragraph. Furthermore, to the extent that any such activities not within the Scope of Services under this Agreement consists of inadvertent advice provided with respect to the issuance of municipal securities or municipal financial products that are not within the Scope of Services under this Agreement, PFM may take such action, if any, as it deems appropriate pursuant to Supplementary Material .07 of MSRB Rule G-42 with respect to such inadvertent advice, to maintain the Scope of Services under this Agreement consistent with the intent of the parties hereto.

Amendments to Appendix A may be effected by replacement of the prior version of the appendix with a new version or by the addition of an addendum to such appendix, signed by all parties hereto, provided that any such amended appendix shall be dated as of its effective date and shall cause Appendix A, taken together with the provisions of this Section I, to clearly set forth the then-current scope of PFM's engagement hereunder and any limitations to such scope.

**E. Non-Municipal Advisory Activities Related to Scope of Services.** The Scope of Services under this Agreement is intended to encompass activities subject to the provisions of Securities Exchange Act Section 15B and the rules of the SEC and MSRB thereunder relating to municipal advisory activities. However, the Issuer and PFM acknowledge that in some cases the range of activities necessary or appropriate to provide the intended services hereunder in a fair, effective and efficient manner for the benefit of the Issuer may involve a combination of actions that consist of municipal advisory activities and actions that may not qualify as municipal advisory activities. Unless otherwise prohibited by Securities Exchange Act Section 15B or any rule of the SEC or MSRB thereunder, the fact that PFM serves as municipal advisor to the Issuer in connection with a particular matter shall not prohibit PFM from undertaking such necessary or appropriate non-municipal advisory activities in connection therewith, and the fact that PFM undertakes such non-municipal advisory activities within the Scope of Services under this Agreement would not, by itself, cause such activities to become municipal advisory activities for purposes Securities Exchange Act Section 15B or any rule of the SEC or MSRB thereunder.

## SECTION II
## TERM AND TERMINATION

**A. Term of this Engagement.** The term of this Agreement begins on the Effective Date and ends, unless terminated pursuant to paragraph B of this Section II, on June 30, 2028 (the "Original Termination Date"). Unless PFM or the Issuer shall notify the other party in writing at least thirty (30) days in advance of the Original Termination Date that this Agreement will not be renewed, this Agreement will be automatically renewed on the Original Termination Date for an additional one (1) year period and thereafter will be automatically renewed on each anniversary date of the Original Termination Date for successive one (1) year periods unless PFM or the Issuer shall notify the other party in writing at least thirty (30) days in advance of such successive anniversary date.

**B. Termination of this Engagement**. This Agreement may be terminated with or without cause by the Issuer or PFM upon the giving of at least thirty (30) days' prior written notice to the other party of its

intention to terminate, specifying in such notice the effective date of such termination. In the event of such termination, it is understood and agreed that only the amounts due PFM for services provided and expenses incurred to the date of termination will be due and payable. No penalty will be assessed for termination of this Agreement.

## SECTION III
## COMPENSATION, EXPENSES, LIABILITY AND OTHER FINANCIAL MATTERS

A. **Compensation.** The fees due to PFM for the Municipal Advisory Services and any other services set forth in Appendix A hereto shall be as provided in **Appendix B** hereto. The Issuer has agreed to the compensation arrangements set forth in Appendix B and believes that they are reasonable and not excessive. If at any time the Issuer becomes concerned that, notwithstanding its initial belief that the compensation arrangements set forth in this Agreement are reasonable, the actual amount of compensation to be paid in accordance with such arrangements for any particular matter during the course of this engagement may potentially become excessive, the Issuer shall immediately notify PFM in writing of its concern in that regard.

B. **Expenses**. PFM shall be entitled to reimbursement of expenses incurred in connection with any services provided hereunder as set forth in Appendix B.

C. **Third-Party Payments**. The Issuer agrees that any request it makes to PFM to make payments to any third party on its behalf (other than with any underwriter), whether pursuant to a fee-splitting arrangement or otherwise, shall be in writing and shall set forth the name of the recipient, the amount of payment, and a brief statement of the purpose of such payment. The Issuer agrees that the counter signature by PFM of any such written request shall be satisfactory disclosure of such third-party payment or fee-splitting arrangement for purposes of MSRB Rule G-42(e)(i)(D) and shall, in the case of any such arrangements made after the Effective Date, serve as satisfactory written disclosure of any conflict of interest arising from such third-party payment or fee-splitting arrangement for purposes of MSRB Rule G-42(b)(i)(D) and (c)(ii).

D. **No Custody of Issuer Funds**. This engagement does not contemplate that PFM receive deposit of or maintain custody of the Issuer's funds unless otherwise provided in Appendix A hereto.

E. **Limitation on Liability**. In the absence of willful misconduct, bad faith, gross negligence or reckless disregard of obligations or duties hereunder on the part of PFM or any of its associated persons, PFM and its associated persons shall have no liability to the Issuer for any act or omission in the course of, or connected with, rendering services hereunder or for any error of judgment, mistake of law, or any loss arising out of any issuance of municipal securities, any municipal financial product or any other investment.

## SECTION IV
## REQUIRED DISCLOSURES

A. Registered Municipal Advisor. PFM is a registered municipal advisor with the Securities and Exchange Commission (the "SEC") and the Municipal Securities Rulemaking Board (the "MSRB"), pursuant to the Securities Exchange Act of 1934 Rule 15Ba1-2.

**B. Disclosure of Conflicts of Interest and Information Regarding Legal or Disciplinary Events.** MSRB Rules require that municipal advisors make written disclosures to their clients of all material conflicts of interest, certain legal or disciplinary events and certain regulatory requirements (the "Conflicts Disclosures), The Issuer hereby acknowledges receipt of, and has read and understands the content of, the Municipal Advisor Disclosure Statement, attached hereto as **Appendix C**, current as of the date of this Agreement. The Conflict Disclosures also describe how PFM addresses or intends to manage or mitigate any disclosed conflicts of interest, as well as the specific type of information regarding, and the date of the last material change, if any, to the legal and disciplinary events required to be disclosed on Forms MA and MA-I filed by PFM with the SEC.

**B. Waiver of Disclosed Conflicts of Interest**. By executing this Agreement, the Issuer hereby waives any conflicts of interest disclosed by PFM in the Conflict Disclosures as of the date of this Agreement.

**C. Consent to Electronic Delivery of Disclosures**. By executing this Agreement, the Issuer consents, for the full term of this Agreement, to the electronic delivery of the Conflict Disclosures at no cost to the Issuer, in lieu of delivery of hard copy. The Conflict Disclosures may be delivered by email to the Issuer at [_____], or at such other email address as the Issuer may hereafter provide in writing to PFM.

## SECTION V
## MISCELLANEOUS

**A. Choice of Law; Venue.** This Agreement shall be construed and given effect in accordance with the laws of the State of California. Any litigation arising from this Agreement shall be brought in the Superior Court of Placer County, California.

**B. Binding Effect; Assignment.** This Agreement shall be binding upon and inure to the benefit of the Issuer and PFM, their respective successors and assigns; provided however, neither party hereto may assign or transfer any of its rights or obligations hereunder without the prior written consent of the other party.

**C. Entire Agreement.** This instrument, including all appendices hereto, contains the entire agreement between the parties relating to the rights herein granted and obligations herein assumed. Any oral or written representations or modifications concerning this Agreement shall be of no force or effect except for a subsequent modification in writing signed by all parties hereto, subject to the provisions of paragraph D of Section I hereof.

**D. Political Reform Act Compliance.** PFM is aware and acknowledges that certain contractors that perform work for governmental agencies are "consultants" under the Political Reform Act (the "Act") (Government Code § 81000, et seq.) and its implementing regulations ( 2 California Code of Regulations § 18110, et seq.). PFM agrees that any of its officers or employees deemed to be "consultants" under the Act by Issuer, as provided for in Issuer's Conflict of Interest Code, shall promptly file economic disclosure statements for the disclosure categories determined by Issuer to be relevant to the work to be performed under this Agreement and shall comply with the disclosure and disqualification requirements of the Act, as required by law.

**E. Counterparts**. This Contract may be signed in one or more counterparts, each of which shall constitute an original and all of which taken together shall constitute one and the same instrument.

**F.** **Authority**. Each person signing this Agreement on behalf of a party hereby certifies, represents, and warrants that he or she has the authority to bind that party to the terms and conditions of this Agreement.

**PFM FINANCIAL ADVISORS LLC,**

By: 

Name: Michael Berwanger

Title: Managing Director

Date: January 1, 2026

**SOUTH PLACER WASTEWATER AUTHORITY**

By: _____

Name: Dennis Kauffman

Title: Chief Financial Officer

Date: _____

## APPENDIX A
## MUNICIPAL ADVISORY SERVICES

This Appendix A sets out the scope of the Municipal Advisory Services to be performed by PFM pursuant to the Agreement, subject to the limitations in scope set out in paragraph C of Section I of the Agreement, and with the understanding that:

(a) Individual actions taken within this scope shall be consistent with any request or direction provided by an authorized representative of the Issuer or as PFM determines to be necessary or appropriate in furtherance of any matter for which it serves as municipal advisor. However, not all listed activities will be appropriate, necessary or applicable to any particular matter subject to this Agreement.

(b) For purposes of this Agreement, an issuance of municipal securities (an "issuance") shall encompass any and all stages in the life of an issuance, from the pre-issuance planning stage to the repayment stage.

**I. New Issuances of Municipal Securities.** At the direction of or upon the request of the Issuer, PFM shall provide advice to the Issuer on any new issuances, including reofferings of outstanding issuances that are treated for purposes of the federal securities laws and/or federal tax laws as new issuances, throughout the term of this Agreement. The activities to be performed by PFM may include, depending on the specific circumstances of an issuance and any request or direction of the Issuer, one or more of the following:

**Planning for New Issuance**

1. ***Survey and Analysis***. Surveying the financial resources of the Issuer in connection with its capacity to authorize, issue and service the contemplated issuance. This survey would be expected to include an analysis of any existing debt structure as compared with the existing and projected sources of revenues which may be pledged to secure payment of debt service and, where appropriate, would include a study of the trend of the assessed valuation, taxing power and present and future taxing requirements of the Issuer. In the event revenues of existing or projected facilities operated by the Issuer are to be pledged to repayment of the contemplated issuance, the survey would be expected to consider any outstanding indebtedness payable from such revenues, additional revenues to be available from any proposed rate increases, and additional revenues resulting from improvements to be financed by the contemplated issuance, as projected by consulting engineers engaged by the Issuer.

2. ***Future Financings***. In connection with the contemplated issuance, considering and analyzing future financing needs as projected by the Issuer's staff and consulting engineers or other experts, if any, engaged by the Issuer.

3. ***Recommendations***. Making recommendations to the Issuer on the contemplated issuance, including such elements as the date of issue, interest payment dates, schedule of principal maturities, options for prepayment, security provisions, and such other provisions as may be appropriate.

4. ***Market Information***. Advising the Issuer of PFM's view of current bond market conditions, other related forthcoming bond issues and general information (including applicable

economic data) which might normally be expected to influence interest rates or bidding conditions relevant to setting an appropriate date and time for the sale of the issuance.

5. ***Elections***. In the event it is necessary to hold an election to authorize the contemplated issuance, assisting in coordinating the assembly of such data as may be required for the preparation of necessary petitions, orders, resolutions, ordinances, notices and certificates in connection with the election, including assistance in the transmission of such data to the Issuer's bond counsel.

**Debt Management and Financial Implementation for New Issuance**

6. ***Method of Sale***. Evaluating the particular financing being contemplated, considering the complexity, market acceptance, rating, size and structure in order to make a recommendation as to an appropriate method of sale, and:

a. If the issuance is to be sold by a competitive sale:

(1) Supervising the sale of the municipal securities;

(2) Disseminating information to prospective bidders, organizing such informational meetings as may be necessary, and facilitating prospective bidders' efforts in making timely submission of proper bids;

(3) Assisting the staff of the Issuer in coordinating the receipt of bids, the safekeeping of good faith checks and the tabulation and comparison of submitted bids;

(4) Advising the Issuer regarding the best bid and provide advice regarding acceptance or rejection of the bids; and

(5) Obtaining CUSIP numbers on behalf of the Issuer.

b. If the issuance is to be sold by negotiated sale:

(1) Recommending for the Issuer's final approval and acceptance one or more investment banking firms, as sole underwriter or as managers of an underwriting syndicate, for the purpose of negotiating the purchase of the municipal securities;

(2) Cooperating with and assisting any selected sole or managing underwriter and its counsel, as well as any disclosure counsel retained by the Issuer, in connection with the preparation of any preliminary or final official statement or offering memorandum. PFM will cooperate with and assist the underwriters in the preparation of a bond purchase contract, an underwriters' agreement and other related documents;

(3) Assisting the staff of the Issuer in the safekeeping of any good faith checks and providing a cost comparison to the then-current market of expenses, interest rates and prices which are proposed by the underwriters;

(4) Advising the Issuer on the fairness of the price offered by the underwriters;

(5) Advising the Issuer in connection with any terms and conditions it may wish to establish with respect to order priorities and other similar matters relating to the underwriting of the new issuance;

(6) If the new issuance will have a retail order period, advising the Issuer on retail eligibility criteria and other features of the retail order period and reviewing information provided by the underwriters to the Issuer in connection with retail orders received; and

(7) At the request of the Issuer, reviewing required disclosures by underwriters to the Issuer relating to their role as underwriter, conflicts of interests, material terms and risks of the issuance, and any other matters, and providing any appropriate advice to the Issuer in connection with such disclosures.

7. ***Offering Documents for Competitive Offerings***. Coordinating the preparation of the notice of sale and bidding instructions, preliminary official statement (including cooperating with and assisting any disclosure counsel retained by the Issuer), official bid form and such other documents as may be required and submitting all such documents to the Issuer for examination, approval and certification. After such examination, approval and certification, PFM shall provide the Issuer with a supply of all such documents sufficient to its needs and distribute sets of the same to prospective bidders for the municipal securities. PFM also shall provide copies of the final official statement to the winning bidder purchasing the municipal securities in the MSRB-designated electronic format and in accordance with the notice of sale and bidding instructions promptly after the Issuer approves the final official statement for distribution.

8. ***Credit Ratings***. Making recommendations to the Issuer on the advisability of obtaining one or more credit ratings for the issuance and, when directed by the Issuer, coordinating the preparation of such information as may be appropriate for submission to any rating agency. In those cases where the advisability of personal presentation of information to a rating agency may be indicated, PFM will arrange for such personal presentations, utilizing such composition of representatives from the Issuer as may be approved or directed by the Issuer.

9. ***Trustee, Paying Agent, Registrar, Professionals and Other Transaction Participants***. Upon request, providing advice to the Issuer in the selection of a trustee and/or paying agent/registrar, legal, accounting or other professionals, and other transaction participants relating to any issuance, and assisting in the negotiation of agreements pertinent to these services and the fees incident thereto.

10. ***Financial Publications***. When appropriate, advising financial publications of the forthcoming sale of the municipal securities and providing them with all pertinent information.

11. ***Consultants***. After consulting with and receiving directions from the Issuer, arranging for such reports and opinions of recognized independent consultants as may be appropriate for the successful marketing of the issuance.

12. ***Auditors***. In the event formal verification by an independent auditor of any calculations incident to the issuance is required, making arrangements for such services.

13. ***Issuer Meetings***. Attending meetings of the governing body of the Issuer, its staff, representatives or committees as requested when PFM may be of assistance or service and matters within the scope of this engagement are to be discussed.

14. ***Printing***. To the extent authorized by the Issuer, coordinating all work incident to printing or final production, physical or electronic, of the offering documents.

15. ***Bond Counsel***. Maintaining liaison with bond counsel in the preparation of all legal documents pertaining to the authorization, sale and issuance of the municipal securities.

16. ***Changes in Laws***. Providing to the Issuer copies of proposed or enacted changes in federal and state laws, rules and regulations having, or expected to have, a significant effect on the municipal bond market of which PFM becomes aware in the ordinary course of its business, it being understood that PFM does not and may not act as an attorney for, or provide legal advice or services to, the Issuer.

17. ***Delivery of the Municipal Securities***. As soon as a bid for the purchase of a competitive issuance is accepted by the Issuer or the bond purchase contract for a negotiated issuance is signed by the Issuer, coordinating the efforts of all concerned to the end that the municipal securities may be delivered and paid for as expeditiously as possible and assisting the Issuer in the preparation or verification of final closing figures incident to the delivery of the municipal securities.

18. ***Debt Service Schedule; Authorizing Resolution***. After the closing of the sale and delivery of the issuance, delivering to the Issuer a schedule of annual debt service requirements for the issuance and, in coordination with bond counsel, assuring that the paying agent/registrar and/or trustee has been provided with a copy of the authorizing ordinance, order or resolution.

19. ***Continuing Disclosure***. Providing advice to the Issuer with regard to its continuing disclosure undertakings for its new issuances and its selection of a dissemination agent under its continuing disclosure undertakings; provided that, upon the mutual agreement of the Issuer and PFM, PFM may serve as dissemination agent under one or more of the Issuer's continuing disclosure undertakings upon such terms as the parties shall agree, with such service as dissemination agent being expressly excluded from the scope of this Agreement.

**II.** **Baseline Advice on Outstanding Issuances of Municipal Securities.** PFM shall provide baseline on-going advice to the Issuer on any outstanding issuances throughout the term of this Agreement, which may include, depending on the specific circumstances of such issuance and any request or direction of the Issuer:

1. ***Exercising Calls***. Providing advice and assistance to the Issuer with regard to exercising any calls of outstanding municipal securities unrelated to a refunding of such securities.

2. ***Refundings and Tender Offers***. Providing advice to the Issuer with regard to opportunities for refundings of outstanding issuances or to make tender offers for outstanding issuances, whether by means of a new issuance, bank loans, or other funds of the Issuer, but not including serving as advisor in connection with the specific transaction through which such refunding or tender offer is effected. Transaction-based advice in connection with a specific new issuance of bonds to effectuate any such refunding or tender offer would be provided within the scope of Municipal Advisory Services for new issuances described in Section I above. Transaction-based advice in

connection with a specific bank loan or other transaction to effectuate any such refunding or tender offer, other than by means of a new issuance of bonds would be provided pursuant to a separate agreement as described in Section IV below.

3. ***Continuing Disclosure***. Providing advice to the Issuer with regard to continuing disclosure undertakings for outstanding issuances; processes, policies and procedures to comply with continuing disclosure undertakings; and coordination of continuing disclosure obligations arising from different continuing disclosure undertakings for its various issuances. However, the preparation of continuing disclosure documents, other than in the capacity of dissemination agent under a continuing disclosure undertaking, would be provided within the scope of other services described in Section V. below.

**III. Particularized Services on Outstanding Issuances of Municipal Securities.** PFM may provide to the Issuer certain additional advisory or related services in connection with particular outstanding issuances or matters affecting multiple outstanding issuances throughout the term of this Agreement, which may include, depending on the specific circumstances of such issuance and any request or direction of the Issuer:

1. ***Other Post-Sale Services***. Reviewing the transaction features and documentation of outstanding issuances with legal counsel for the Issuer, bond counsel, auditors and other experts and consultants retained by the Issuer and assisting in developing appropriate responses to legal processes, audit procedures, inquiries, internal reviews and similar matters, or other services related to one or more outstanding issuances as may be agreed to by the Issuer and PFM.

2. ***Brokerage of Municipal Escrow Investments.*** At the request of the Issuer, brokering the purchase of municipal escrow investments in connection with a refunding of an outstanding issuance, together with any recommendations by PFM with respect to such brokerage.

**IV. Services as Independent Registered Municipal Advisor ("IRMA").** At the written request of the Issuer, PFM shall, as the Issuer's IRMA, review and provide advice to the Issuer in connection with any recommendations, proposals, ideas or matters suggested or otherwise communicated by a third party to the Issuer with respect to the same aspects of the issuance of municipal securities or municipal financial products that are within the scope of Municipal Advisory Services. There are no aspects of the issuance of municipal securities or municipal financial products that are outside the scope of Municipal Advisory Services set forth in this Appendix.

**V. Other Services Relating to Municipal Securities.** PFM agrees to make available to the Issuer other services relating to municipal securities, when so requested by the Issuer and subject to the agreement by Issuer and PFM regarding the specific requirements with respect to such services, which requirements shall be made part of the scope of Municipal Advisory Services and included in this Appendix as an amendment or addendum, which services may include, without limitation:

**1. *Capital Improvement Programs.*** Providing advice and assistance in the development of any capital improvement programs of the Issuer.

**2. *Long-Range Planning.*** Providing advice and assistance in the development of other long-range financing plans of the Issuer.

3. ***Refundings and Tender Offers***. Providing advice and assistance in executing a refunding or tender offer of an outstanding issuance other than by means of refunding bonds, such as by means of a bank loan or other funds of the Issuer.

4. ***Continuing Disclosure Documents***. Preparing and providing advice with regard to the content of continuing disclosure documents in compliance with the Issuer's continuing disclosure undertakings for its outstanding issuances, other than in the capacity of dissemination agent under a continuing disclosure undertaking.

* * * * *

As provided in paragraph D of Section I of the Agreement, amendments to this Appendix A may be effected by replacement of this Appendix A with a new version hereof or by the addition of an addendum to this Appendix A, signed by all parties hereto, and this Appendix A, as it may have been amended, shall be dated and effective as of the most recent of the date set forth in any such amendment or the date set forth in any addendum to this Appendix A.

## APPENDIX B
## FORM AND BASIS OF COMPENSATION

This Appendix B sets out the form and basis of compensation to PFM for the Municipal Advisory Services provided under this Agreement as set forth in Appendix A; provided that the compensation arrangements set forth in this Appendix B shall also apply to any additional services hereafter added to the scope of the Municipal Advisory Services, unless otherwise provided in the amendment to the Agreement relating to such change in scope of Municipal Advisory Services as provided in paragraph D of Section I of the Agreement.

**I. New Issuances of Municipal Securities.** The fees due to PFM in connection with the Municipal Advisory Services set forth in Section I of Appendix A hereto for each new issuance of municipal securities will not exceed those contained in our fee schedule as listed below:

Transaction-Based Fees

PFM's fees for all bond or similar debt instrument related transactions shall be as follows:

| PFM Transaction Fees (SPWA) | |
|---|---|
| **Par Amount** | **Fixed Fee** |
| < $25 million | $45,000 |
| $25 million - $50 million | $55,000 |
| > $50 million | $80,000 |

Credit Facility Replacement. The above-stated transaction-based fee structure shall be used.

Complex Transactions. For complex transactions, PFM and Issuer shall use a mutually agreed upon fee, which may exceed the range above based on the amount and complexity of work involved.

Structured Products. PFM Swap Advisors LLC professionals would oversee all elements of any swap transaction, and Issuer would have a separate engagement for those services. Such fee arrangements would be negotiated with Issuer and be fully transparent to all parties. Fees are usually set as 2/3 of one basis point per annum times the notional amount or invested balance outstanding over time, plus $10,000 per transaction.

The payment of charges as set forth in this Section I for new issuances shall be contingent upon the delivery of the new issuance and shall be due at the time that the municipal securities are delivered.

**II. Baseline Advice on Outstanding Issuances of Municipal Securities.** There shall be no additional fees due PFM in connection with the Municipal Advisory Services set forth in Section II of Appendix A hereto, with the understanding that such services are integral to PFM's engagement as municipal advisor to the Issuer and PFM shall be compensated for such services through and as part of the fees paid for the other services provided by PFM hereunder.

**III. Particularized Services on Outstanding Issuances of Municipal Securities. In connection with Other Post-Sale Services described in Section III of Appendix A hereto, PFM shall charge a fee based on an hourly rate for services rendered in**

**accordance with the following schedule:**

**Special Projects Fees (As-Needed)**

Hourly rates to be used for special projects not covered under the fees outlined above, such as the development of a specific financial model, would continue to be billed based upon PFM's hourly rates or based upon mutually agreeable fixed fees. PFM's proposed hourly rates are presented in the table below.

| PFM Hourly Rates | |
|---|---|
| **Title** | **Rate** |
| Managing Director | $400 |
| Director | $375 |
| Senior Managing Consultant | $350 |
| Senior Analyst / Analyst | $325 |

Rate Adjustment: All hourly rates will be subject to annual inflationary increases based on CPI on the annual anniversary of the contract execution.

In connection with the brokerage of municipal escrow investments described in Section III of Appendix A hereto, PFM shall charge a commission that is normal and customary for investments of that type under then-current market conditions and shall disclose such commission to the Issuer so that the Issuer may consider the information in making its investment decision.

IV. **Third-Party Recommendations, Proposals, Ideas or Other Matters as IRMA.** In connection with its review of and advice on third-party recommendations to Issuers as an IRMA as described in Section IV of Appendix A hereto, PFM shall charge a fee based on an hourly rate for services rendered in accordance with the schedule included above in Section III of this Appendix.

V. **Other Services Relating to Municipal Securities.** In connection with any services described in Section V of Appendix A hereto requested by the Issuer and agreed to by PFM, the fees due with respect to any such services shall be as agreed to by the parties hereto, which terms shall be made part of the compensation provided under this Agreement and shall be included in this Appendix as an amendment or addendum signed by all parties hereto.

VI. **Expenses.** The Issuer shall be responsible for the following expenses in connection with the Municipal Advisory Services (including any additional services hereafter added to the scope of the Municipal Advisory Services), if and when applicable, whether they are charged to the Issuer directly as expenses or charged to the Issuer by PFM as reimbursable expenses: bond counsel fees and expenses, bond printing costs, bond ratings fees and expenses, computer structuring costs, credit enhancement fees and expenses, accountant fees for verifications and related activities in connection with refundings, official statement preparation and printing, paying agent/registrar/trustee fees and expenses, travel expenses, underwriter and underwriter's counsel fees and expenses, and other miscellaneous expenses incurred by PFM in the furtherance of any matter for which it serves as municipal advisor, including copy, delivery, phone and other charges normally incurred in connection with engagements of this type.

The Issuer agrees that any expense that it requests that PFM pay to any third party on the Issuer's behalf shall be made in writing and shall be in accordance with paragraph C of Section III of the Agreement.

The payment of reimbursable expenses that PFM has assumed on behalf of the Issuer shall NOT be contingent upon the delivery of a new issuance of municipal securities or the completion of any other transactions for which such expenses have been assumed and shall be due at the time that services are rendered and payable upon receipt of an invoice therefor submitted by PFM, unless otherwise provided for in any amendment or addendum hereto in connection with the compensation arrangements for any services provided under the Agreement for which such amendment or addendum is required.

## APPENDIX C
## MUNICIPAL ADVISOR DISCLOSURE STATEMENT

## DISCLOSURE OF CONFLICTS OF INTEREST AND OTHER
## DISCLOSURE OF CONFLICTS OF INTEREST AND OTHER
## IMPORTANT MUNICIPAL ADVISORY INFORMATION
## PFM Financial Advisors LLC

### I. Introduction

PFM Financial Advisors LLC and PFM Swap Advisors LLC (hereinafter, referred to as "We," "Us," or "Our") are registered municipal advisors with the Securities and Exchange Commission (the "SEC") and the Municipal Securities Rulemaking Board (the "MSRB"), pursuant to the Securities Exchange Act of 1934 Rule 15Ba1-2. In accordance with MSRB rules, this disclosure statement is provided by Us to each client prior to the execution of its advisory agreement with written disclosures of all material conflicts of interests and legal or disciplinary events that are required to be disclosed with respect to providing financial advisory services pursuant to MSRB Rule G-42(b) and (c) (ii). We employ a number of resources to identify and subsequently manage actual or potential conflicts of interest in addition to disclosing actual and potential conflicts of interest provided herein. We do not provide legal, tax, or accounting advice.

***How We Identify and Manage Conflicts of Interest***

**Code of Ethics.** The Code requires that all employees conduct all aspects of Our business with the highest standards of integrity, honesty and fair dealing. All employees are required to avoid even the appearance of misconduct or impropriety and avoid actual or apparent conflicts of interest between personal and professional relationships that would or could interfere with an employee's independent exercise of judgment in performing the obligations and responsibilities owed to a municipal advisor and Our clients.

**Policies and Procedures.** We have adopted policies and procedures that include specific rules and standards for conduct. Some of these policies and procedures provide guidance and reporting requirements about matters that allows Us to monitor behavior that might give rise to a conflict of interest. These include policies concerning the making of gifts and charitable contributions, entertaining clients, and engaging in outside activities, all of which may involve relationships with clients and others that are important to Our analysis of potential conflicts of interest.

**Supervisory Structure**. We have both a compliance and supervisory structure in place that enables Us to identify and monitor employees' activities, both on a transaction and Firm-wide basis, to ensure compliance with appropriate standards. Prior to undertaking any engagement with a new client or an additional engagement with an existing client, appropriate municipal advisory personnel will review the possible intersection of the client's interests, the proposed engagement, Our engagement personnel, experience and existing obligations to other clients and related parties. This review, together with employing the resources described above, allows Us to evaluate any situations that may be an actual or potential conflict of interest.

**Disclosures.** We will disclose to clients those situations that We believe would create a material conflict of interest, such as: 1) any advice, service or product that any affiliate may provide to a client that is directly related to the municipal advisory work We perform for such client; 2) any payment made to obtain or retain a municipal advisory engagement with a client; 3) any fee-splitting arrangement with any provider of an investment or services to a client; 4) any conflict that may arise from the type of compensation arrangement We may have with a client; and 5) any other actual or potential situation that We are or become aware of that might constitute a material conflict of interest that could reasonably expect to impair Our ability to provide advice to or on behalf of clients consistent with regulatory requirements. If We identify such situations or circumstances, We will prepare meaningful disclosure that will describe the implications of the situation and how We intend to manage the situation. We will also disclose any legal or disciplinary events that are material to a client's evaluation or the integrity of Our management or advisory personnel. We will provide this disclosure (or a means to access this information) in writing prior to starting Our proposed engagement, and will provide such additional information or clarification as the client may request. We will also advise Our clients in writing of any subsequent material conflict of interest that may arise, as well as the related

implications, Our plan to manage that situation, and any additional information such client may require.

## II. General Conflict of Interest Disclosures

***Disclosure of Conflicts Concerning the Firm's Affiliates***

Our affiliates offer a wide variety of financial services, and Our clients may be interested in pursuing services separately provided by an affiliate. The affiliate's business with the client could create an incentive for Us to recommend a course of action designed to increase the level of the client's business activities with the affiliate or to recommend against a course of action that would reduce the client's business activities with the affiliate. In either instance, We may be perceived as recommending services for a client that are not in the best interests of Our clients, but rather are in Our interests or the interests of Our affiliates. Accordingly, We mitigate any perceived conflict of interest that may arise in this situation by disclosing it to the client, and by requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, after reasonable inquiry, including the client's needs, objectives and financial circumstances. Further, We receive no compensation from Our affiliates with respect to a client introduction or referral. If a client chooses to work with an affiliate, We require that the client consult and enter into a separate agreement for services, so that the client can make an independent, informed, evaluation of the services offered.

***Disclosure of Conflicts Related to the Firm's Compensation***

From time to time, We may be compensated by a municipal advisory fee that is or will be set forth in an agreement with the client to be, or that has been, negotiated and entered into in connection with a municipal advisory service. Payment of such fee may be contingent on the closing of the transaction and the amount of the fee may be based, in whole or in part, on a percentage of the principal or par amount of municipal securities or municipal financial product or the complexity of the municipal securities transaction or municipal financial product. While this form of compensation is customary in the municipal securities market, it may be deemed to present a conflict of interest since We may appear to have an incentive to recommend to the client a transaction that is larger in size or more complex than is necessary. Further, We may also receive compensation in the form of a fixed fee arrangement. While this form of compensation is customary, it may also present a potential conflict of interest, if the transaction requires more work than contemplated and We are perceived as recommending a less time consuming alternative contrary to the client's best interest so as not to sustain a loss. Finally, We may contract with clients on an hourly fee basis. If We do not agree on a maximum amount of hours at the outset of the engagement, this arrangement may pose a conflict of interest as We would not have a financial incentive to recommend an alternative that would result in fewer hours. We manage and mitigate all of these types of conflicts by disclosing the fee structure to the client, and by requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, after reasonable inquiry, including the client's needs, objectives and financial circumstances.

***Disclosure of Conflicts Related to the Firm's Compensation Structure for Our Registered Advisors.***

Pursuant to various employee compensation structures, from time to time We offer certain of Our registered municipal advisors ("Registered Advisors") financial benefits based on his or her business plan, client base, performance, and/or transactions closed. This provides an incentive for such Registered Advisors to seek to retain additional clients and/or transactions or services from clients. While this form of compensation may be customary in some segments of the municipal advisory market, provision of such financial benefits may be deemed to present a conflict of interest. We manage and mitigate these types of conflicts by Registered Advisor's adherence to Our Code of Ethics and Policies and Procedures, and by requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, after reasonable inquiry, including the client's needs, objectives and financial circumstances.

***Disclosure Concerning Provision of Services to State and Local Government, and Non-Profit Clients***

We regularly provide financial advisory services to state and local governments, their agencies, and instrumentalities, and non-profit clients. While Our clients have expressed that this experience in providing services to a wide variety of clients generally provides great benefit for all of Our clients, there may be or may have been clients with interests that are different from (and adverse to) other clients. If for some reason any client sees Our engagement with any other particular client as a conflict, We will mitigate this conflict by engaging in a broad range

of conduct, if and as applicable. Such conduct may include one or any combination of the following: 1) disclosing the conflict to the client; 2) requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, including the client's needs, objectives and financial circumstances; 3) implementing procedures that establishes an "Informational Bubble" that creates physical, technological and procedural barriers and/or separations to ensure that non-public information is isolated to particular area such that certain governmental transaction team members and supporting functions operate separately during the course of work performed; and 4) in the rare event that a conflict cannot be resolved, We will withdraw from the engagement.

***Disclosure Concerning Provision of Services by Our Registered Advisors Dually through the Firm and the Firm's Affiliates.*** Our affiliates offer a wide variety of financial services, and Our clients may be interested in pursuing services separately provided by an affiliate. From time to time, We may have registered municipal advisors ("Registered Advisors") that may provide services to a Municipal Entity client on behalf of, and under a separate written client agreement with, both Us and one or more of Our affiliates. In such cases, the individual will act solely on behalf of Us or the applicable Affiliate, respectively, that is a party to the specific agreement governing the respective services. For example, if a Municipal Entity client engages Us for municipal advisory services and separately engages an affiliate of Ours for consulting or other non-municipal advisory services, the same individual may serve under both engagements – as a Registered Advisor under the client agreement with Us and as an individual service provider under the client agreement with Our affiliate. Such circumstance could be perceived as a conflict of interest considering the individual's dual service role and involvement, as well as differing duties owed to the client. Accordingly, We mitigate any perceived conflict of interest that may arise in this situation by disclosing it to the client, and by requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, after reasonable inquiry, including the client's needs, objectives and financial circumstances. If a client chooses to obtain services of an affiliate, even if the affiliate's services are provided by a Registered Advisor, not in their municipal advisory representative capacity but as an individual service provider acting solely on behalf of the applicable affiliate, We require that the client consult and enter into a separate agreement for such services, so that the client can make an independent, informed, evaluation of the services offered.

***Disclosure of Conflicts Related to the Firm's Affiliate's Channel Partner Arrangement***

Our affiliate, PFM Solutions LLC d/b/a Synario ("Synario"), a Software-as-a-Service ("SaaS") company has entered into a channel partner arrangement with Fifth Asset, Inc. d/b/a DebtBook ("DebtBook"), a SaaS company that delivers an integrated, purpose-built financial management, treasury, and liquidity software platform for government and nonprofit organizations. As part of the arrangement, We have agreed to introduce clients to Synario for the purpose of Synario referring the client to utilize DebtBook products (the "Purpose"). A percentage of fees received from successful referrals that become clients of DebtBook will be paid by DebtBook to Synario in consideration for the referral. Additionally, individual members of Ours, solely in their personal capacity and independent of Us or any of Our affiliates, hold passive, minority, investment interests in DebtBook, that, in the aggregate, represent less than one percent (1%) of DebtBook's fully diluted shares, which shares are not publicly traded. The referral and corresponding referral fee compensation together with these de minimis personal ownership interests create a material conflict of interest as they provide Us with an incentive introduce clients to Our affiliate for the Purpose. Accordingly, We mitigate conflicts of interest arising in this situation by disclosing it to the client, and by requiring that there be a review of the municipal securities transaction or municipal financial product to ensure that it is suitable for the client in light of various factors, after reasonable inquiry, including the client's needs, objectives and financial circumstances. The channel partner arrangement does not cause an increase in the municipal advisory fees charged to you. If you choose to obtain services of DebtBook, you must make an independent, informed, evaluation of the services offered and enter into a separate agreement for such services directly with DebtBook.

***Disclosure Related to Legal and Disciplinary Events***

As registered municipal advisors with the Securities and Exchange Commission (the "SEC") and the Municipal Securities Rulemaking Board (the "MSRB"), pursuant to the Securities Exchange Act of 1934 Rule 15Ba1-2, Our legal, disciplinary and judicial events are required to be disclosed on Our forms MA and MA-I filed with the SEC, in **'Item 9 Disclosure Information'** of form MA, **'Item 6 Disclosure Information'** of form MA-I, and if applicable, the corresponding disclosure reporting page(s) ("DRP"). To review the foregoing disclosure items and material

change(s) or amendment(s), if any, clients may electronically access PFM Financial Advisors LLC filed forms MA and MA-I on the SEC's Electronic Data Gathering, Analysis, and Retrieval system, listed by date of filing starting with the most recently filed, at:

PFM Financial Advisors LLC –
https://www.sec.gov/cgi-bin/browse-edgar?action=getcompany&CIK=0001669517&owner=include&count=40

## III. Specific Conflicts of Interest Disclosures – South Placer Wastewater Authority

To Our knowledge, following reasonable inquiry, we are not aware of any other actual or potential conflict of interest that could reasonably be anticipated to impair Our ability to provide advice to or on behalf of the client in accordance with applicable standards of conduct of MSRB Rule G-42.

## IV. Municipal Advisory Complaint and Client Education Disclosure

The MSRB protects state and local governments and other municipal entities and the public interest by promoting fair and efficient municipal securities markets. To that end, MSRB rules are designed to govern the professional conduct of brokers, dealers, municipal securities dealers and municipal advisors. Accordingly, if you as municipal advisory customer have a complaint about any of these financial professionals, please contact the MSRB's website at www.msrb.org, and consult the MSRB's Municipal Advisory Client brochure. The MSRB's Municipal Advisory Client brochure describes the protections available to municipal advisory clients under MSRB rules, and describes the process for filing a complaint with the appropriate regulatory authority.

PFM's Financial Advisory services are provided by PFM Financial Advisors LLC. PFM's Swap Advisory services are provided by PFM Swap Advisors LLC. Both entities are registered municipal advisors with the MSRB and SEC under the Dodd Frank Act of 2010.

**SOUTH PLACER WASTEWATER AUTHORITY**

**RESOLUTION NO. 2026-03**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH PLACER WASTEWATER AUTHORITY APPROVING AGREEMENT FOR MUNICIPAL ADVISOR SERVICES**

WHEREAS, the South Placer Wastewater Authority ("Authority") periodically requires specialized municipal advisory services to make informed decisions, mitigate risk and achieve the lowest overall cost of capital related to issuing bonds; and

WHEREAS, the City of Roseville issued a Request for Proposal of for Municipal Advisor services and selected PFM Financial Advisors, LLC (PFM) to provide municipal advisory services to the City; and

WHEREAS, the Authority now desires to retain PFM to provide municipal advisory services to the Authority on an as needed basis.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the South Placer Wastewater Authority as follows:

The South Placer Wastewater Authority Board of Directors hereby authorized the Authority's Chief Financial Officer to enter into an agreement with PFM for municipal advisory services in substantially the form attached hereto.

PASSED AND ADOPTED this 3rd day of June, 2026, by the following vote on roll call:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

_____
Chairperson

ATTEST:

_____
Secretary

Agenda
Item 1

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** 5/13/2026

**FROM:** Archana Wagley, EU Business Services Manager

**AUTHORITY COMMUNICATION NO.: AC 26-13**

**SUBJECT: Approval of Annual Operating Budget for Fiscal Year 2026-2027 and Approval of Budget Adjustment for Fiscal Year 2025-2026**

*For SPWA Board Meeting 6/3/2026*

## ACTION REQUESTED

Staff request that the South Placer Wastewater Authority (SPWA) Board approve a resolution to:

1. Adopt the annual operating budget for fiscal year 2026-2027.
2. Approve budget adjustment for fiscal year 2026 to increase the arbitrage liability by $736,012 and increase revenue by $31,274,747 for the clean energy investment tax credit received.

## BACKGROUND

Section 7d, subsection (4) of the Joint Exercise of Powers Agreement provides that the Board shall adopt a budget for the following fiscal year no later than June 30th of each year.

The attached budget for the South Placer Wastewater Authority (Authority) represents the estimates of revenues and expenses for the Authority for fiscal year 2026-2027 (FY27). The Board will have an opportunity to review, and adjust as necessary, the annual budget at mid-year.

### 2025-2026 (FY26) Budgeted Revenues and Expenses (Current Year)

Included in the budget document is the amended budget of revenues and expenses for the current fiscal year (FY26).

- The amended budget includes $736,012 budget adjustment to increase the arbitrage liability for the 2017 SPWA bond to $949,746. This adjustment will bring the total debt service budget for FY26 to $16,107,012.
- The amended budget includes $31,274,747 revenue budget for Inflation Reduction Act tax refund received from the Internal Revenue Service (IRS) for the Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery projects.
- The amended budget includes $33,100,000 for PGWWTP Maintenance Administration and Shop Building project budget approved at the November 2025 Board meetings.

### 2026-2027 (FY27) Estimated Revenues

- Connection fees are projected at $24,668,000 ($5,992,000 for the County, $2,996,000 for the District, and $15,680,000 for Roseville), reflecting an anticipated higher level of development over FY26 for the City and County.
- Interest income is estimated to be higher than FY26 budget as continued higher interest

SOUTH PLACER Wastewater Authority

rates on investment are expected.

- $16,743,910 bond proceeds reflect carryover budget to be drawn from the 2017 SPWA Wastewater Revenue Bonds project account to fund the PGWWTP Maintenance Administration and Shop Building, PGWWTP Electrical Capacity Expansion project, DCWWTP Capacity Expansion project, and DCWWTP Operations and Lab Building Project.

2026-2027 (FY27) Estimated Expenses

- Operating expenses for FY27 are expected to remain in line with FY26. The Cost Allocation Plan line includes general fund reimbursement for SPWA's proportionate share related to administrative and support services by the city attorney, city manager, and finance departments.
- A contingency amount of $50,000 is included in the budget for unanticipated needs that might arise during the year.
- The budget requests funding for the following new project.
    - $4,000,000 PGWWTP Electrical Capacity Expansion Project
- Debt service payments for FY27 are budgeted to be higher due to early payment on the SRF loans for the $31,274,747 tax refund received.

Submitted by:

Archana Wagley Digitally signed by Archana Wagley Date: 2026.05.20 15:48:21 -07'00'

Archana Wagley
EU Business Services Manager

Approved by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:26:00 -07'00'

Dennis Kauffman
Chief Financial Officer

Sean Bigley
Executive Director

# South Placer Wastewater Authority : FY2026-27 Budget

| | Actual FY2024-25 | Amended Budget FY2025-26 | Budget FY2026-27 |
|---|---|---|---|
| ESTIMATED REVENUES | | | |
| Interest | $ 7,059,383 | $ 5,964,367 | $ 6,585,253 |
| Connection Fees | 29,150,063 | 19,587,000 | 24,668,000 |
| Bond Proceeds | 5,945,605 | 24,054,395 | 16,743,910 |
| Interest on Bond Reserve | | 1,400,000 | |
| Revenue from Other Agencies | | 31,274,747 (1) | |
| **Total Estimated Revenues** | **42,155,051** | **82,280,509** | **47,997,163** |
| ESTIMATED OPERATING EXPENSES | | | |
| Cost Allocation Plan | 49,599 | 104,788 | 101,163 |
| Legal Services | 9,802 | 15,000 | 13,000 |
| Audit Services | 21,657 | 20,000 | 20,000 |
| Insurance | 27,039 | 30,250 | 31,000 |
| Copying/Mailing/Supplies | 1,184 | 1,500 | 1,500 |
| Conference Calls | | 250 | 250 |
| Travel/Meetings | 99 | 500 | 250 |
| Bank Fees | 5,472 | | 5,500 |
| Contingency Funds | | 50,000 | 50,000 |
| **Total Estimated Operating Expenses** | **114,852** | **222,288** | **222,663** |
| LESS CAPITAL AND DEBT EXPENSES | | | |
| Pleasant Grove WWTP - Energy Recovery | 109,193 | | |
| Pleasant Grove WWTP - Expansion | 550,930 | | |
| DCWWTP and PGWWTP Capacity Evaluation | 186,863 | | |
| Regional Pump Station 26 and Force Main Capacity Imprvmnt | 3,832,880 | | |
| Pleasant Grove UV | 1,612,676 | | |
| PGWWTP Electrical Capacity Expansion Project | 345,697 | | 4,000,000 |
| DCWWTP Capacity Expansion Project | 382,063 | | |
| PGWWTP Maintenance Administration and Shop Building | 533,638 | 33,100,000 | |
| Corridors Trunk Sewer Capacity Improvements | 1,492 | | |
| DCWWTP Ops and Lab Bldg Construction | 3,099 | | |
| Inflation Reduction Act Support | 12,953 | | |
| 2025 WW System Evaluation update | 1,320 | | |
| Residential Equivalent Dwelling Unit Evaluation - SPWA | 4,027 | | |
| Debt Service Payments | 15,705,398 | 16,107,012 (2) | 42,657,000 |
| **Total Estimated Capital and Debt Expenses** | **23,282,229** | **49,207,012** | **46,657,000** |
| **INCREASE (DECREASE) FROM OPERATIONS** | **18,757,970** | **32,851,209** | **1,117,500** |
| **Estimated Beginning Fund Balance** | **201,494,394** | **170,669,316** | **203,520,525** |
| **Increase (Decrease) from Operations** | **18,757,970** | **32,851,209** | **1,117,500** |
| **Estimated Ending Fund Balance Before Reserves** | **220,252,364** | **203,520,525** | **204,638,025** |
| **Less Project Carryover Reserve** *(3)* | (49,583,048) | | (16,743,910) |
| **Estimated Unrestricted Ending Fund Balance** | **$ 170,669,316** | **$ 203,520,525** | **$ 187,894,115** |
| **Future Debt Service (FY2028-2054)** | | | **$ 216,974,245** |

*(1) Amended to reflect budget adjustment for FY26.*
*(2) Amended to reflect arbitrage liability thru 11/1/2025*
*(3) Project Carryover Reserve:*

| | |
|---|---|
| Pleasant Grove UV | $ 1,207,528 |
| Pleasant Grove WWTP - Energy Recovery | 1,499,762 |
| Pleasant Grove WWTP - Expansion | 1,805,776 |
| PGWWTP Maintenance Administration and Shop Building | 564,274 |
| Dry Creek WWTP Capacity Expansion | 16,334,808 |
| PGWWTP Electrical Capacity Expansion Project | 5,649,683 |
| Corridors Trunk Sewer Capacity Improvements | 5,389,492 |
| DCWWTP Operations and Laboratory Building Construction | 14,850,424 |
| DCWWTP and PGWWTP Capacity Evaluation | 471,042 |
| Regional Pump Station 26 and Force Main Capacity Imprvmnt | 435,216 |
| Residential Equivalent Dwelling Unit Evaluation | 205,343 |
| Inflation Reduction Act Support Project | 71,020 |
| 2025 Wastewater System Evaluation Update - SPWA | 498,680 |
| DCWWTP Electrical Capacity Assessment - SPWA | 600,000 |
| | $ 49,583,048 |
| *FY27 Bond Draw Carryover* | |
| PGWWTP Maintenance Administration and Shop Building | $ 3,802,288 |
| PGWWTP Electrical Capacity Expansion Project | 5,299,359 |
| DCWWTP Capacity Expansion Project | 4,028,127 |
| DCWWTP Operations and Laboratory Building Construction | 3,614,136 |
| | $ 16,743,910 |

**SOUTH PLACER WASTEWATER AUTHORITY**

**RESOLUTION NO. 2026-04**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH PLACER WASTEWATER AUTHORITY APPROVING THE OPERATING BUDGET FOR FY 2026-27**

**BE IT RESOLVED**, by the Board of Directors of the South Placer Wastewater Authority that the Operating Budget for FY 2026-27 is hereby approved as presented to the Board at this meeting; and

**BE IT FURTHER RESOLVED**, that the Executive Director is hereby authorized to reallocate budgeted amounts among the line-items in the approved Operating Budget, as the Executive Director may deem necessary or desirable; provided, however, that the total amount budgeted for FY 2026-27 shall not be increased without the Board's prior approval.

PASSED AND ADOPTED this 3rd day of June, 2026, by the following vote on roll call:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

_____
Chairperson

ATTEST:

_____
Secretary

**SOUTH PLACER WASTEWATER AUTHORITY**

**RESOLUTION NO. 2026-05**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH PLACER WASTEWATER AUTHORITY APPROVING A BUDGET ADJUSTMENT FOR FY 2025-26 OPERATING BUDGET**

**BE IT RESOLVED**, by the Board of Directors of the South Placer Wastewater Authority that Budget for FY 2025-26 is hereby amended as presented to the Board at this meeting; and

**BE IT FURTHER RESOLVED**, that the Executive Director is hereby authorized to reallocate budgeted amounts among the line-items in the approved Operating Budget, as the Executive Director may deem necessary or desirable; provided, however, that the total amount budgeted for FY 2025-26 shall not be increased without the Board's prior approval.

PASSED AND ADOPTED this 3rd day of June, 2026, by the following vote on roll call:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

_____
Chairperson

ATTEST:

_____
Secretary

Agenda
Item 2

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 4, 2026

**FROM:** Arashdeep Singh, Engineering Manager, City of Roseville

**AUTHORITY COMMUNICATION NO.: AC 26-14**

**SUBJECT: Pleasant Grove WWTP Electrical Expansion Project Request for Additional Authorization**

*For SPWA Board Meeting June 03, 2026*

## ACTION REQUESTED

Adopt a resolution authorizing an additional $4,000,000 for the Pleasant Grove Wastewater Treatment Plant Electrical Capacity Expansion Project for a total authorization of $10,000,000 for the design and construction management within the overall project budget of $31,000,000.

## BACKGROUND

The Pleasant Grove Wastewater Treatment Plant (PGWWTP) has undergone phased expansion since its original construction in 2000 to support growth. As part of this evolution, prior evaluations, including a 2010 facilities planning effort and a Electrical Power System Capacity Evaluation completed in 2022, identified that PGWWTP's electrical and standby power systems are approaching their capacity limits. With the PGWWTP Expansion Project and the Energy Recovery Project completed in recent years, electrical demand has increased to a point where additional infrastructure is needed to reliably support existing operations and planned future loads. The PGWWTP Electrical Capacity Expansion Project is intended to address these constraints by increasing utility service capacity, expanding standby generation, and upgrading key electrical systems.

The SPWA Board approved the PGWWTP Electrical Capacity Expansion Project on June 29, 2023, with a total project budget of $31,000,000, including an initial $6,000,000 authorization for design. Work on project design documents for this project is now well underway and is expected to be ready to send out for contractor procurement by September of 2026. The next step in project delivery is procurement of a construction management firm.

The updated engineer's opinion of probable construction cost for the project is approximately $40,000,000, reflecting higher construction and procurement costs and exceeding the originally approved total project budget of $31,000,000. As a result, staff anticipates returning to the Board in September of 2026 to request a budget amendment following receipt of contractor bids.

SOUTH PLACER Wastewater Authority

Staff is requesting authorization of an additional $4,000,000 to proceed with procurement of a construction management firm to provide services including, but not limited to, constructability review, oversight of construction, including inspection, quality assurance, contract administration, and support during startup and commissioning. This amount is based on approximately 10 percent of the updated engineer's opinion of probable construction cost and is consistent with typical industry ranges for projects of this size and complexity.

Submitted by:

Arashdeep Singh Digitally signed by Arashdeep Singh Date: 2026.05.25 17:35:55-07'00'

Arashdeep Singh
Engineering Manager, City of Roseville

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:27:40 -07'00'

Dennis Kauffman
Chief Financial Officer

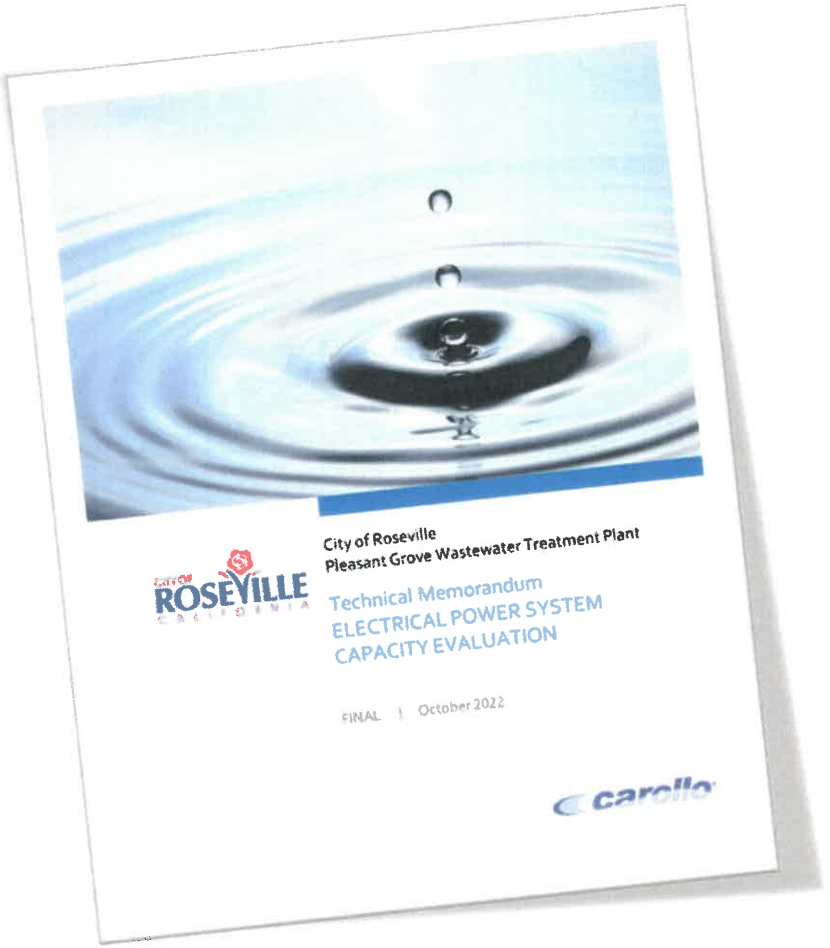
Sean Bigley
Executive Director

# Pleasant Grove WWTP Electrical Expansion Project

Arashdeep Singh, PE

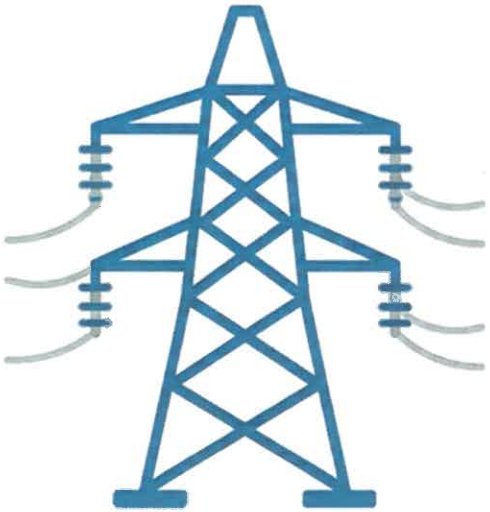
# Project Background

- Pleasant Grove WWTP has undergone multiple phased expansions over the past two decades to support regional growth and regulatory needs.
- Subsequent facility improvements have significantly increased the plant's overall electrical demand and operational complexity
- 2022 Electrical Power System Capacity Evaluation identified several long-term electrical infrastructure limitations and resiliency concerns.

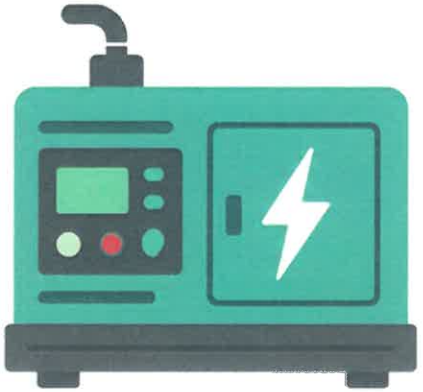



SOUTH PLACER Wastewater Authority

# Key Findings from 2022 Electrical Power Capacity Evaluation



**Utility Feed Capacity**



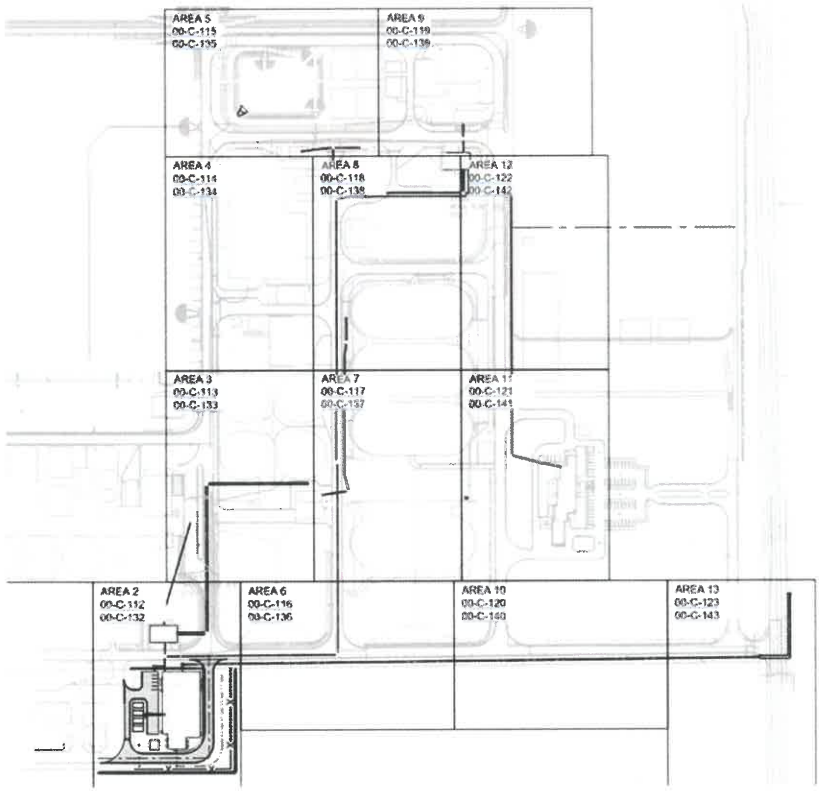
**Standby Power Limitations**

**System Resiliency Constraints**

SOUTH PLACER Wastewater Authority

# Electrical Capacity Expansion Improvements

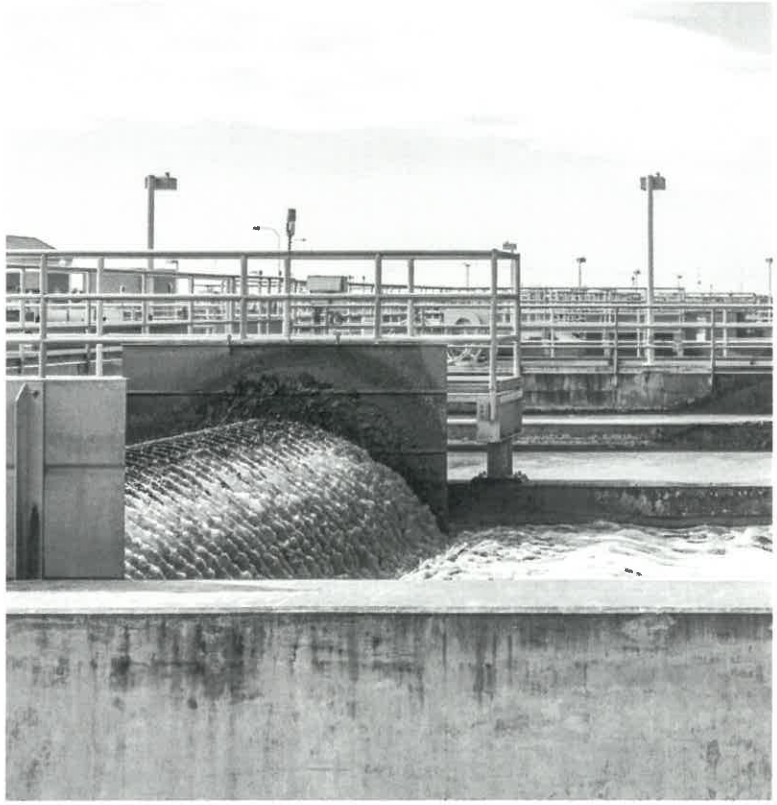
- Expanded utility electrical service capacity to accommodate increasing treatment plant demands
- New 12kV electrical distribution infrastructure to support long-term plant operations
- Upgraded standby power infrastructure to improve operational reliability during utility outages
- Improved electrical resiliency and operational flexibility during power transfer scenarios
- New Electrical Building No. 3 to support future electrical infrastructure needs




SOUTH PLACER Wastewater Authority

# Project Status & Requested Action

- Design is underway and progressing toward design submittal to solicit Design-Assist Proposals in the 3rd quarter of this year
- Construction Management support is needed to assist with constructability review, contract administration, and inspection
- Updated construction cost estimates are trending above original planning-level assumptions due to evolving market conditions and equipment pricing
- Staff is requesting an additional $4,000,000 authorization for Construction Management services associated with the PGWWTP Electrical Capacity Expansion Project



SOUTH PLACER Wastewater Authority

# The End

**SOUTH PLACER WASTEWATER AUTHORITY**

**RESOLUTION NO. 2026-06**

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH PLACER WASTEWATER AUTHORITY APPROVING FUNDING FOR CONSTRUCTION MANAGEMEN SERVICES FOR THE PLEASANT GROVE WASTEWATER TREATMENT ELECTRICAL EXPANSION PROJECT**

BE IT RESOLVED, that the Board of Directors of the South Placer Wastewater Authority (the "Authority") does hereby approve additional funding in the amount of $4,000,000 for construction management services related to the Pleasant Grove Wastewater Treatment Plant Electrical Expansion Project (the "Project") resulting in an overall Project budget of $35,000,000 as presented to the Board at this meeting.

PASSED AND ADOPTED this 3rd day of June, 2025, by the following vote on roll call:

AYES:

NOES:

ABSENT:

ABSTENTION:

_____
Chairperson

ATTEST:

_____
Secretary

Agenda

Item 3

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 14, 2026

**FROM:** Tracie Mueller, City of Roseville Wastewater Utility Manager

**AUTHORITY COMMUNICATION NO.: AC 26-15**

**SUBJECT: Existing Project Status and Financial Summary**

*For SPWA Board Meeting June 3, 2026*

## ACTION REQUESTED

This item is for information purposes only.

## BACKGROUND

Below is a summary of the progress and financial status of the on-going SPWA projects.

CIPs Update

There is a total of 11 open SPWA projects including three (3) that are complete and will be closed, and two (2) that have not yet begun. Below is a summary of progress for each below:

- **PGWWTP Expansion and Energy Recovery Project**
  - Work is underway on installing canopies to protect temperature-sensitive equipment, with procurement and installation anticipated by June 2026.
  - The City successfully sold the first batch of RIN credits for $65,249.
  - This project is projected to be closed by October 15, 2026.
- **Inflation Reduction Act Support Project**
  - In November 2025, the City received investment tax credit payment in the amount of $31,237,247.49.
  - The project will be closed, and the remaining budget will be transferred back into the SPWA fund once the required payment to the State Water Resources Control Board (SWRCB) is made as the loan agreements require that we pay the SWRCB any refunds we receive that were paid for with the loans. The SWRCB is still looking into how they want us to pay them.
- **Dry Creek and Pleasant Grove WWTP Capacity Evaluations**
  - The project is complete, the remaining budget will be transferred back into the SPWA fund, and the project will be closed.
  - The City presented the results of this study to the partners in May 2026, and

there is a separate item on the agenda to present the results of this study at the June 2026 SPWA Board Meeting.

- **Pump Station 26 and Force Main Capacity Improvements**
    - The project is complete, the remaining budget will be transferred back into the SPWA fund, and the project will be closed.
- **PGWWTP Maintenance Administration and Shop Building**
    - The project will use a design-assist construction delivery method and procurement of the contractor and construction manager is expected by the end Summer 2026.
    - The project contract documents are currently being reviewed by a third party to assure they are adequate for a contractor to fully develop a Guaranteed Maximum Price (GMP) and not lacking information that could cause unnecessary inflation in the proposers' GMP development and/or unnecessary change orders.
- **DCWWTP Capacity Expansion**
    - The goal of this project is to make improvements to the secondary process to add adequate capacity through 2049 at the DCWWTP as identified in the Capacity Evaluation. As presented previously, this project has been divided into two packages (A and B) to manage schedule risk and support timely delivery. Package A advances improvements for Aeration Basins 300 and 400 to match the 2019 upgrades completed for Basins 100 and 200. Package B will follow with improvements for Aeration Basins 500 through 800, including blower, flow split, and electrical upgrades.
    - Package A 70% design deliverable is complete.
    - Package B preliminary design report including a 10% design is in progress with expected submittal in June 2026.
    - The project will be delivered through a design-assist approach, with contractor procurement expected in Fall 2026.
- **PGWWTP Electrical Expansion**
    - There is a separate item on the agenda for this project that discusses the status of this project and requests authorization of $4 million to allow for procurement of construction management services.
- **Dry Creek Operations and Lab Building**
    - Construction is in progress. The exterior walls are nearing completion, and interior wall framing is complete.
    - Construction is on track to be completed for move-in by August 2026,

SOUTH PLACER Wastewater Authority

followed by demolition of the old Operations Building which is expected to be completed by January 2027.

- **Corridors Trunk Sewer Capacity Improvements**
  - The consultant has completed flow monitoring, surveying and modeling. A preliminary design meeting was held with City staff in May 2026 to discuss the modeling results and to finalize the preliminary design recommendations on improvements to be included in the project.
  - The preliminary design report is expected in June 2026.
  - The project is on track to begin construction in May 2027. Critical path is easement acquisition which is underway.
- **Other Projects**
  - The following projects are anticipated to go through consultant procurement by the end of 2026:
    - 2025 Wastewater Systems Evaluation
    - DCWWTP Electrical Capacity Assessment

Projects Financial Summary
A financial summary of current approved projects funded by the SPWA is attached.

Submitted by:

Tracie R. Mueller

Tracie R. Mueller
Wastewater Utility Manager, City of Roseville

Approved by:

Dennis Kauffman Digitally signed by Dennis Kauffman Date: 2026.05.26 15:28:37 -07'00'

Dennis Kauffman
Chief Financial Officer

S P Bigley

Sean Bigley
Executive Director

# SOUTH PLACER WASTEWATER AUTHORITY
## Project Budget and Actuals
Report Date: 4/13/2026

| Project Type | Project | Total Approved Budget ($) | Total Spent ($) | Remaining Budget ($) |
|---|---|---|---|---|
| Capital Project | PGWWTP Expansion and Energy Recovery Project | 114,662,183 | 111,409,244 | 3,252,939 |
| Non-Capital Project | Dry Creek and Pleasant Grove WWTP Capacity Evaluation | 1,671,502 | 1,406,146 | 265,356 |
| Capital Project | Regional Pump Station 26 and Force Main Capacity Improvement | 4,900,000 | 4,768,174 | 131,826 |
| Capital Project | PGWWTP Maintenance Admin and Shop Building | 34,200,000 | 1,094,004 | 33,105,996 |
| Capital Project | DCWWTP Capacity Expansion | 16,725,000 | 1,269,941 | 15,455,059 |
| Capital Project | PGWWTP Electrical Capacity Expansion Project[1] | 6,000,000 | 1,780,205 | 4,219,795 |
| Capital Project | Corridors Trunk Sewer Capacity Improvements Project | 5,400,000 | 84,910 | 5,315,090 |
| Capital Project | DCWWTP Operations and Laboratory Building Construction Project | 14,854,000 | 2,512,864 | 12,341,136 |
| Non-Capital Project | Inflation Reduction Act Support Project | 100,000 | 28,980 | 71,020 |
| Non-Capital Project | 2025 Wastewater Systems Evaluation Update | 500,000 | 2,555 | 497,445 |
| Non-Capital Project | DCWWTP Electrical Capacity Assessment | 600,000 | - | 600,000 |
| | Total Approved and Active SPWA CIP Projects | 199,612,685 | 124,357,025 | 75,255,660 |

Notes:

1. Projected total cost for the PGWWTP Electrical Capacity Expansion Project is approximately $40,000,000.

| Connection Fee - Planned/Approved Budget | Notes |
|---|---|
| (1,108,970) | Don't understand shortfall but will finish under budget |
| (171,502) | |
| (302,929) | |
| (4,650,000) | 0.908 percent of spent is SPWA |
| - | Will likely need more money |
| (4,500,000) | based on footnote budgets |
| - | |
| 5,300,000 | .69 percent of spent is SPWA |
| (100,000) | done, $71k remaining and possible $29M add |
| (500,000) | |
| (600,000) | |
| (8,433,401) | |

# SPWA Existing Projects Update

Tracie Mueller, PE

June 3, 2026

# Existing Project Budget Summary

Report Date: 5/14/2026

| Project Type | Project | Total Approved Budget ($) | Total Spent ($) | Remaining Budget ($) |
|---|---|---|---|---|
| Capital Project | PGWWTP Expansion and Energy Recovery Project | 114,662,183 | 111,517,478 | 3,144,705 |
| Non-Capital Project | Dry Creek and Pleasant Grove WWTP Capacity Evaluation | 1,671,502 | 1,489,370 | 182,132 |
| Capital Project | Regional Pump Station 26 and Force Main Capacity Improvement | 4,900,000 | 4,819,219 | 80,781 |
| Capital Project | PGWWTP Maintenance Admin and Shop Building | 34,200,000 | 1,095,033 | 33,104,967 |
| Capital Project | DCWWTP Capacity Expansion[2] | 16,725,000 | 1,425,849 | 15,299,151 |
| Capital Project | PGWWTP Electrical Capacity Expansion Project[1] | 6,000,000 | 1,971,873 | 4,028,127 |
| Capital Project | Corridors Trunk Sewer Capacity Improvements Project | 5,400,000 | 91,007 | 5,308,993 |
| Capital Project | DCWWTP Operations and Laboratory Building Construction Project | 14,854,000 | 2,794,894 | 12,059,106 |
| Non-Capital Project | Inflation Reduction Act Support Project | 100,000 | 28,980 | 71,020 |
| Non-Capital Project | 2025 Wastewater Systems Evaluation Update | 500,000 | 2,555 | 497,445 |
| Non-Capital Project | DCWWTP Electrical Capacity Assessment | 600,000 | - | 600,000 |
| | Total Approved and Active SPWA CIP Projects | 199,612,685 | 125,236,258 | 74,376,427 |

Notes:

1. Projected total cost for the PGWWTP Electrical Capacity Expansion Project is approximately $40,000,000.
2. Projected total cost for the DCWWTP Expansion Project is approximately $48,000,000.

SOUTH PLACER Wastewater Authority

Agenda

Item 4

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 13, 2026

**FROM:** Tracie Mueller, City of Roseville Wastewater Utility Manager

**AUTHORITY COMMUNICATION NO.: AC 26-16**

**SUBJECT: Proposed Capacity Projects Summary Based on Capacity Analysis and Biosolids Study**

*For SPWA Board Meeting June 3, 2026*

## ACTION REQUESTED

This item is for information purposes only.

## BACKGROUND

The Wastewater Treatment Plant Capacity Analysis Project, initiated in fall 2020, is now complete. Its objective was to support capacity-related capital planning, ensuring Dry Creek and Pleasant Grove Wastewater Treatment Plants can meet both near- and long-term needs based on anticipated growth from SPWA partners. This project was developed based on recommendations included in the *2020 SPWA Systems Evaluation*.

The results of capacity analysis of the existing processes, expansion project recommendations and associated cost estimates are summarized in the attached Facility Plans for both DCWWTP and PGWWP. Key findings from each plan are summarized below. However, please refer to the plans for more detail which include an executive summary. Staff will also present on the findings of each of the studies at the June 2026 SWPA Board Meeting.

For the DCWWTP Facility Plan, the scope of work focused only on the liquid treatment processes, as the DCWWTP Solids Train Process Optimization Study (Biosolids Study) was conducted concurrently with the Capacity Analysis Project. The key findings for DCWWTP are:

- Average dry weather flow (ADWF) is projected to increase from 8.6 to 14.2 million gallons a day (MGD) at buildout, corresponding to peak hourly wet weather flows (PHWWF) increase from 37.0 to 61.3 MGD (based on an existing 4.3 peaking factor).
- Eleven projects are recommended to meet DCWWTP projected capacity needs. Three (3) projects are identified as near-term improvements (to be commissioned by 2030) as summarized below. Two (2) of these projects have been initiated.

- The DCWWTP Expansion Project (DC-EX) is a current SPWA Project that is in the design phase. This project is estimated to cost $47.8 million.
- The Influent Improvements Project (DC-01) is in the procurement phase for a preliminary engineering study consultant and is currently being funded by the regional rehabilitation fund as this project will have both rehabilitation and capacity improvements related to the influent configuration, screening, pumping and emergency storage. The final improvements for additional capacity are estimated to cost $16.5 million.
- The Tertiary Filtration Expansion Project (DC-02) is required to expand the existing facility to include one additional filtration unit. Staff will request approval to start this project at the September 2026 SPWA Board Meeting. This project is estimated to cost $16.7 million (2025 dollars).

The key findings for PGWWTP are summarized below:

- ADWF is projected to increase from 8.9 to 19.5 MGD at buildout, and PHWWF increase from 24.0 to 52.9 MGD (based on an existing 2.7 peaking factor).
- Fourteen (14) projects are recommended to meet PGWWTP projected capacity needs. Four (4) projects are identified as near-term improvements (to be commissioned by 2031) as summarized below.
  - Secondary Treatment Improvements Project (PG-01) is identified to expand the capacity of the secondary treatment process. The final improvement recommendations will need to be studied further during the preliminary design. Staff will request approval to start the preliminary design at the September 2026 SPWA Board Meeting. The plan includes an assumed estimated cost of $43.8 million (2025 dollars) for conversion of the oxidation ditches. The preliminary design will include final improvement recommendations, an updated cost estimate and a recommendation on the cost split between regional rehabilitation and SPWA funds.
  - Tertiary Filtration System Expansion Project (PG-02) is needed for additional capacity. The plan assumes that the existing DynaSand filters will remain in service, while new cloth disk filters (CDF) will be used for the expansion due to their lower cost. This project is estimated to cost $29.3 million (2025 dollars). However, the plan recommends working with the regulators to evaluate whether the new filters can be rated for a higher hydraulic loading rate than assumed in this plan. Staff will request approval to start the preliminary design at the September 2026 SPWA Board Meeting.

SOUTH PLACER Wastewater Authority

- Ultraviolet (UV) Disinfection System Expansion Project (PG-03) is recommended to increase capacity through the addition of one new UV channel, similar to the four existing channels. This project is estimated to cost $11.5 million (2025 dollars). Staff will request approval to start the preliminary design at the January 2027 SPWA Board Meeting.
- Influent Pump Station Expansion Project (PG-04) is needed to add an additional pump and make capacity improvements to the emergency pond return system. This project is estimated to cost $1.5 million (2025 dollars). The plan recommends starting this project in 2029, as the recent influent pump station upgrades project included space for the future pump and associated electrical equipment, allowing the improvements to be implemented quicker than the other recommended projects.

These plans present a consolidated capital improvement plan for process expansions at both plants over the next 34 years. It is recommended that another capacity analysis be conducted within the next 10 years before the longer-term series of improvements are initiated.

Staff have been reviewing existing projects, recommendations from the Capacity Analysis and Biosolids Study, and projected future studies in relation to project assumption included in the 2024 SPWA Connection fee calculation. Based on this review, the updated projected project costs exceed the project costs assumed in the 2024 SPWA Connection Fee Study. The SPWA Second Amended Funding Agreement states in Section 10(c) that "If amounts deposited into the Rate Stabilization Fund are insufficient to keep the balance thereof at or above the Minimum Level, and, in any event, not less than once every five (5) years, the Authority stall reevaluate the Regional Connection Fee and recommend the minimum Regional Connection Fee that the Participants shall charge." Staff will review these new project cost estimates in relation to the requirements quoted above and, if it is determined that the Rate Stabilization Fund is projected to be underfunded, provide a recommendation to the SPWA Board at the September 2026 meeting regarding whether a new connection fee study is required.

Submitted by:

Tracie R. Mueller

Tracie R. Mueller
Wastewater Utility Manager, City of Roseville

SOUTH PLACER Wastewater Authority

Approved by:

Dennis Kauffman

Digitally signed by Dennis Kauffman
Date: 2026.05.26 15:30:13 -07'00'

Dennis Kauffman
Chief Financial Officer

Sean Bigley
Executive Director

# Pleasant Grove Wastewater Treatment Plant
# Facility Plan
# May 2026

CITY OF ROSEVILLE CALIFORNIA

# Pleasant Grove Wastewater Treatment Plant
# FACILITY PLAN

May 2026

Prepared by:

Woodard & Curran

Woodard & Curran

# Wastewater Treatment Facility Plan

## Pleasant Grove WWTP

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Sacramento, California 95811
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0011844.01

**City of Roseville, California**

May 2026

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## TABLES



## FIGURES



## APPENDICES

## ABBREVIATIONS

- **AAF** – Annual Average Flow
- **AACE** – Association for the Advancement of Cost Engineering
- **ADWF** – Average Dry Weather Flow
- **ADWL** – Average Dry Weather Load
- **AAL** – Annual Average Loading
- **BOD** – Biochemical Oxygen Demand
- **$BOD_5$** – Five-Day Biochemical Oxygen Demand
- **CCI** – Construction Cost Index
- **CDF** – Cloth Disk Filter
- **COD** – Chemical Oxygen Demand
- **DCWWTP** – Dry Creek Wastewater Treatment Plant
- **DO** – Dissolved Oxygen
- **EDU** – Equivalent Dwelling Unit
- **ESB** – Emergency Storage Basin
- **FOG** – Fats, Oils, and Grease
- **gpd** – Gallons per Day
- **gpm** – Gallons per Minute
- **HRT** – Hydraulic Retention Time
- **IMLR** – Internal Mixed Liquor Recycle
- **MG** – Million Gallons
- **MGD** – Million Gallons per Day
- **MLSS** – Mixed Liquor Suspended Solids
- **MMF** – Maximum Monthly Flow
- **MML** – Maximum Monthly Load
- **MDF** – Maximum Daily Flow
- **MDL** – Maximum Daily Load
- **MWF** – Maximum Weekly Flow
- **$NH_3$** – Ammonia
- **NOA** – Notice of Applicability
- **NPDES** – National Pollutant Discharge Elimination System
- **PAO** – Phosphorus Accumulating Organism
- **PCE** – Primary Clarifier Effluent
- **PDF** – Process Design Factor
- **PFAS** – Polyfluoroalkyl Substances
- **PGWWTP** – Pleasant Grove Wastewater Treatment Plant
- **PHWWF** – Peak Hourly Wet Weather Flow
- **RAS** – Return Activated Sludge
- **RNG** – Refined Natural Gas
- **R/R/R** – Rehabilitation, Repair, and Replacement

- **SCADA** – Supervisory Control and Data Acquisition
- **SOR** – Surface Overflow Rate
- **SPWA** – South Placer Wastewater Authority
- **SVI** – Sludge Volume Index
- **TKN** – Total Kjeldahl Nitrogen
- **TSS** – Total Suspended Solids
- **TWAS** – Thickened Waste Activated Sludge
- **UV** – Ultraviolet
- **UVT** – Ultraviolet Transmittance
- **VA:Alk** – Volatile Acids to Alkalinity Ratio
- **WAS** – Waste Activated Sludge
- **WEF** – Water Environment Federation
- **WIMS** – Water Information Management Solution

# EXECUTIVE SUMMARY

This Facility Plan provides a comprehensive assessment of the capacity of the Pleasant Grove Wastewater Treatment Plant (PGWWTP), focusing on current and projected capacity needs, process capacities, and recommended capacity improvements through buildout. This Plan is designed to guide Roseville in decision-making for reliable, compliant, and cost-effective wastewater treatment service. In a separate effort, Roseville is conducting an assessment of needs related to the condition of existing infrastructure and equipment.

## Background

This Plan was developed as a response to the *2020 South Placer Regional Wastewater Systems Evaluation*, conducted by Woodard & Curran for the South Placer Wastewater Authority (SPWA). The evaluation identified higher-than-anticipated flows and loadings at the PGWWTP and the Dry Creek WWTP (DCWWTP) compared to previous projections. As a result, the 2020 Systems Evaluation Update recommended this project conduct a capacity analysis of the two plants and provide a facility plan for each plant to address future needs. Woodard & Curran was contracted by the City to develop these facility plans.

## Key Findings

- Flow and Load Projections:

Future flow and loading projections are based on population and non-residential growth, using equivalent dwelling units (EDUs). By buildout, raw influent average dry weather flow (ADWF) is expected to increase from 8.9 MGD to 19.5 MGD, with raw influent peak hourly wet weather flows (PHWWF) increasing from 24.0 MGD to 52.9 MGD.

- Process Capacity Trends:

This Plan evaluates both liquid and solids process capacities. Unit processes are analyzed for current and future capacity limitations through buildout. Several processes will approach their respective capacities, necessitating phased upgrades. The most immediate capacity limitations include secondary treatment, tertiary filtration, UV disinfection, and influent pumping. Near-term secondary treatment improvements to increase capacity via better settleability and operational control are included in this plan.

- Recommended Improvements:

Fourteen capital projects are recommended for capacity needs, including upgrades to secondary treatment, tertiary filtration, UV disinfection, influent pumping, primary clarifiers, dewatering, influent screening, and anaerobic digestion. These projects are sequenced to address capacity limitations as they arise, and each project description in this Plan includes preliminary scopes, schedules, construction cost estimates, and total project cost estimates.

## PGWWTP Projections

Projected flows were calculated based on population and non-residential growth, normalized to account for diversity in land uses by establishing equivalent dwelling units (EDUs). Flow and load projections were developed using the following method:

1. Existing flows were estimated from the data period of October 17, 2022 to May 24, 2025. Flow growth beyond existing flows were estimated using the EDU approach described below.

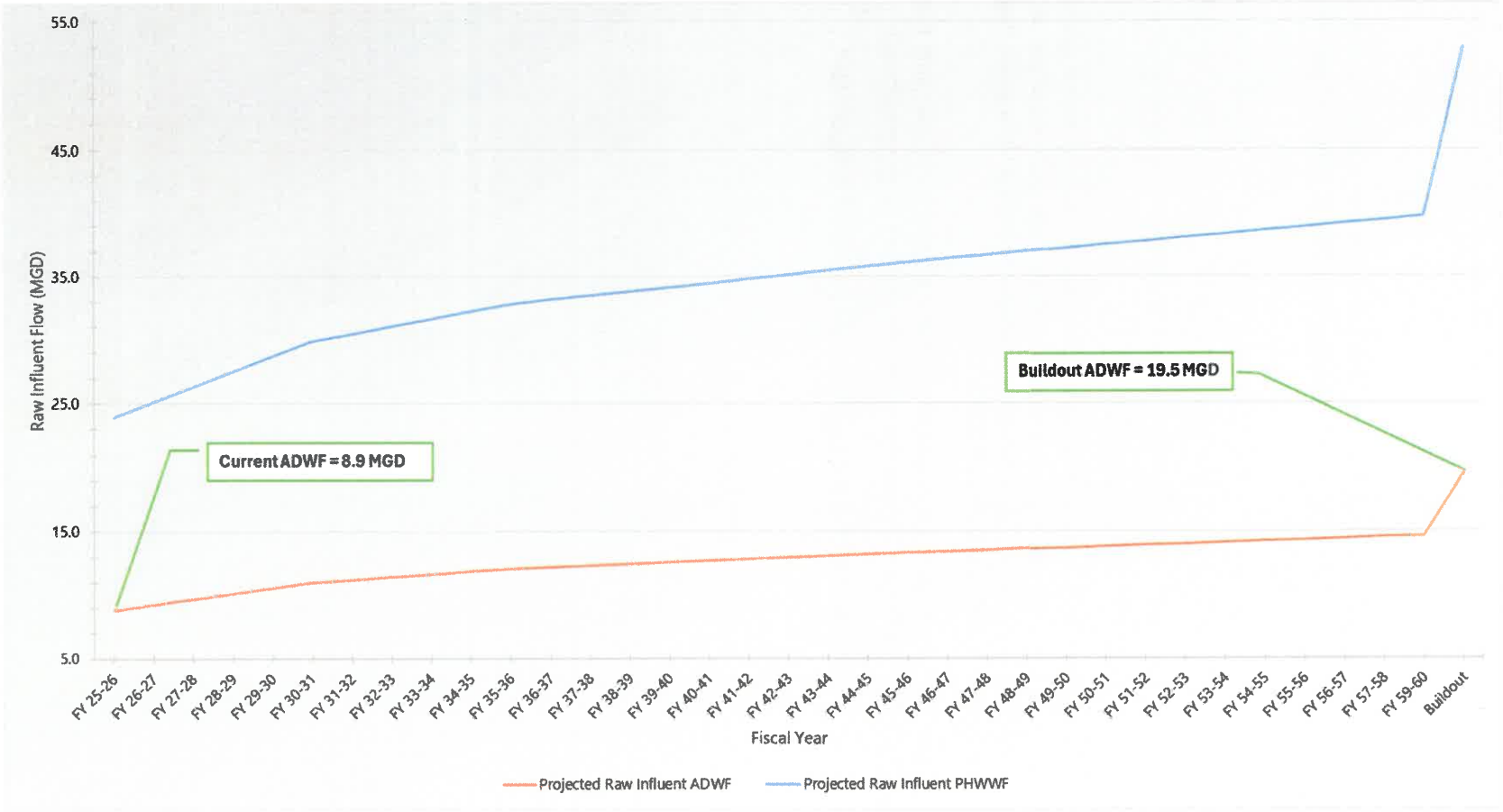
2. EDU projection data was provided by each of the SPWA JPA Partners (City of Roseville, Placer County, and South Placer Municipal Utility District).

3. Flow projections were developed by multiplying the future EDUs by an ADWF contribution of 150 gallons per day (gpd) per EDU, in accordance with the approach described in the technical memorandum prepared by the City of Roseville, *Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed,* dated May 26, 2025.

4. Future plant flows and loads were projected to estimate future conditions until buildout. Existing flow and load peaking factors are assumed to remain constant for the projections.

Projected raw influent average dry weather and peak flows are presented in **Figure ES-1.**

**FIGURE ES-1: PGWWTP RAW INFLUENT FLOW PROJECTIONS (150 GPD ADWF PER EACH FUTURE EDU)**




1. *Existing flows based on plant data review.*
2. *Average dry weather flow projections consistent with technical memorandum prepared by the City of Roseville, Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed, dated May 26, 2025.*

## PGWWTP Current Process Capacities

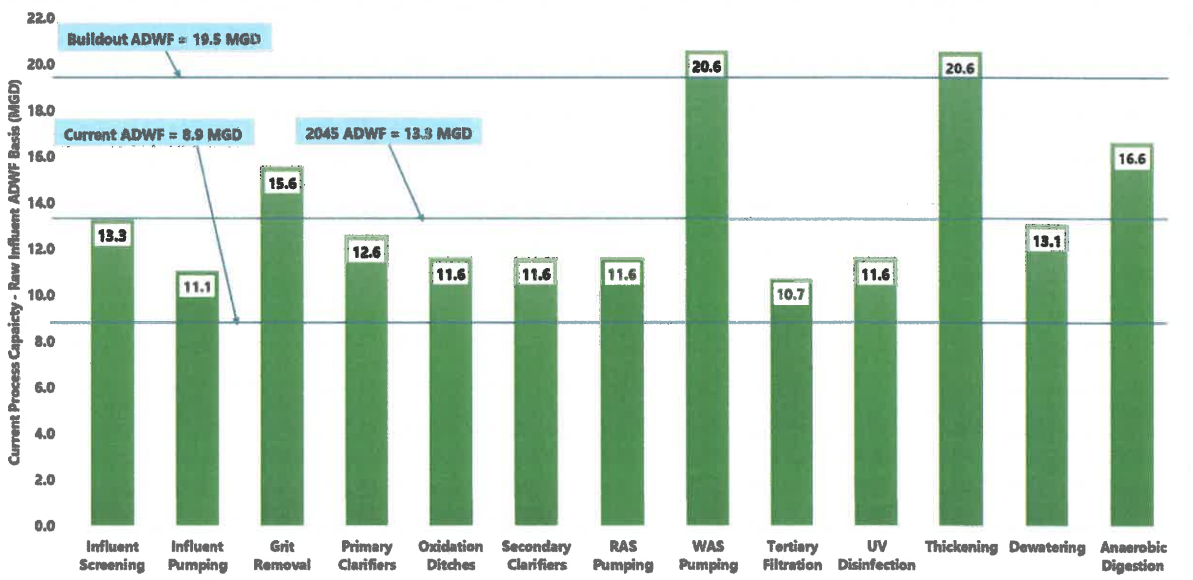
**Figure ES-2** is a graphical representation of current process capacity on an ADWF equivalent basis compared to current and projected buildout ADWF.

The most immediate capacity limitations include secondary treatment (oxidation ditches and clarifiers), tertiary filtration, UV disinfection, and influent pumping.

One key takeaway is that the plant's secondary treatment system capacity is currently limited by poor settleability and reduced denitrification capacity. Improving settleability and dentification capacity are critical to reducing long-term capacity capital needs. Near-term secondary treatment improvements to improve settleability and operational control are included in this Plan (Project PG-01).

Mid-term capacity limitations (pre-2045) include primary clarifiers, dewatering, and influent screening. Longer-term capacity limitations (post-2045) include influent pumping, secondary treatment, UV disinfection, grit removal, anaerobic digestion, and tertiary filtration.

**FIGURE ES-2: PGWWTP CURRENT PROCESS CAPACITY UTILIZATION**

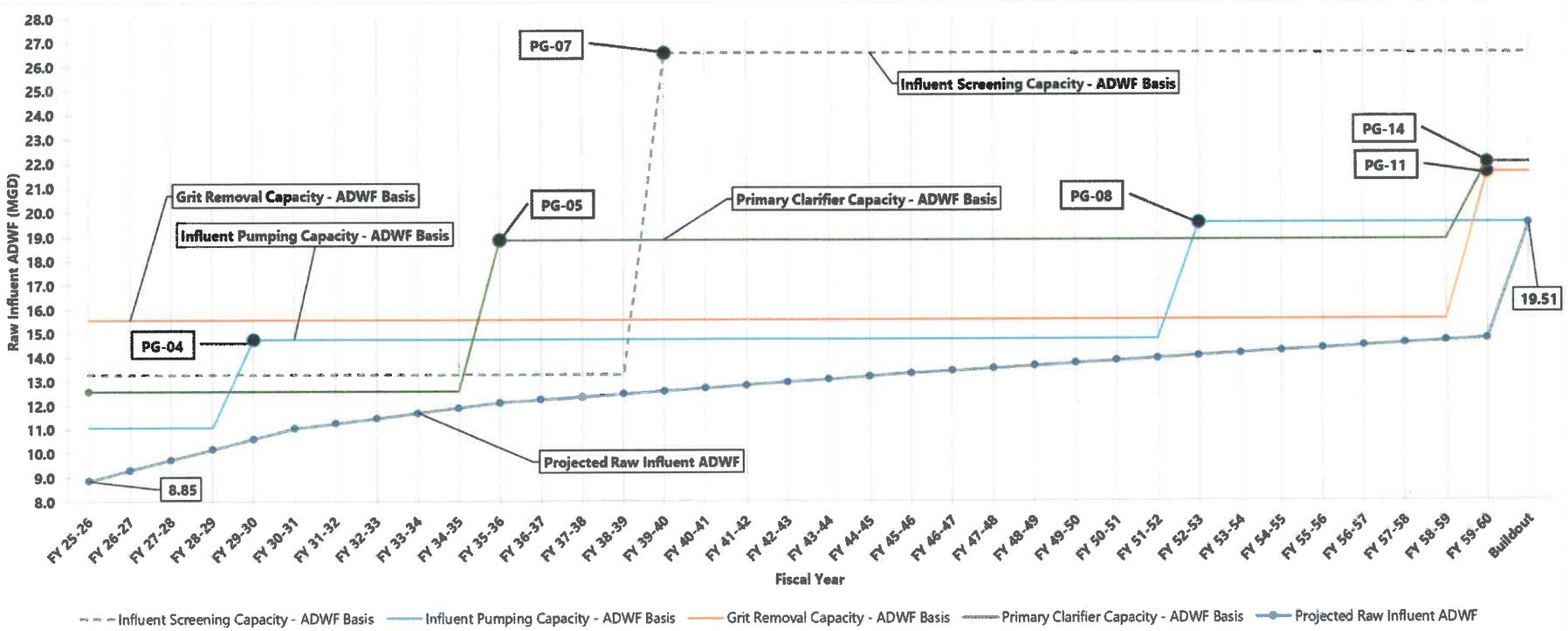



1. *Current Unit process capacities are presented in Raw Influent Average Dry Weather Flow equivalent terms.*

## PGWWTP Capacity

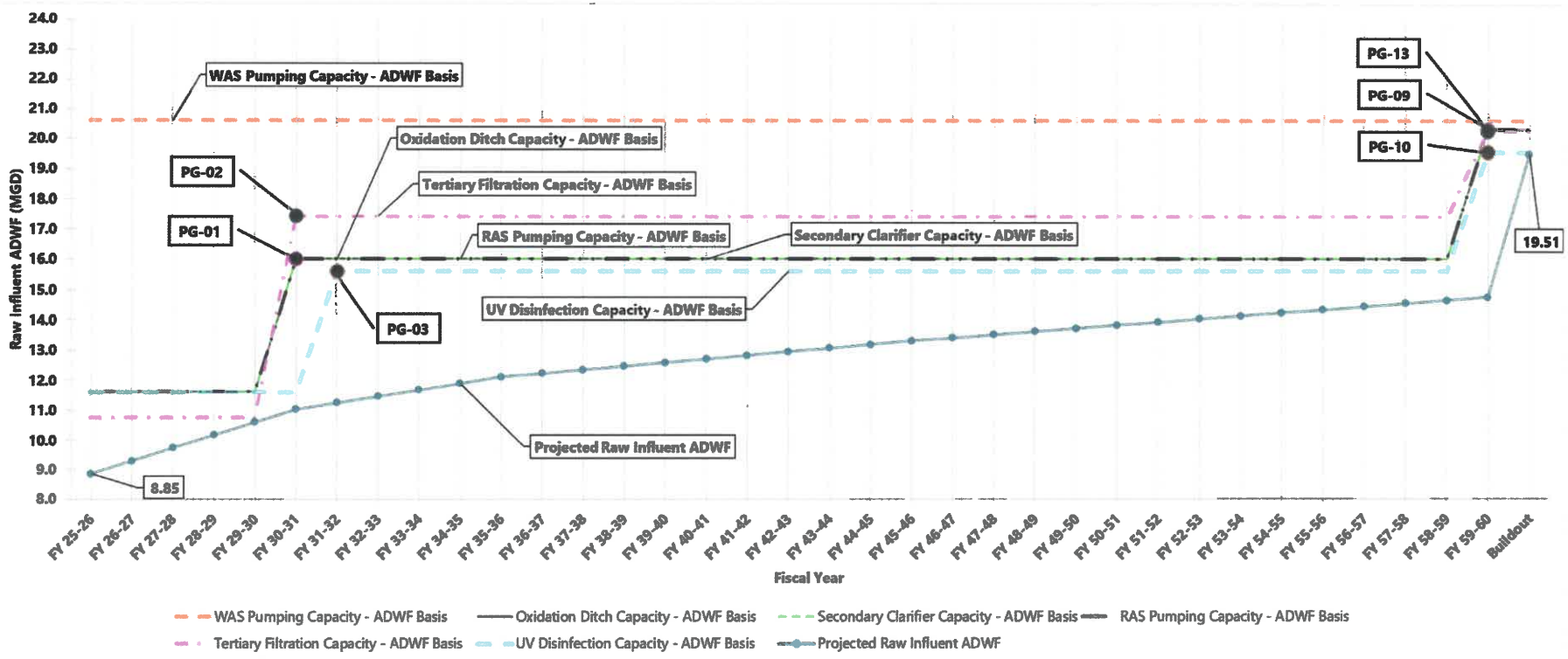
Capacity upgrade projects were developed based on the process capacity analysis and projected flows and loadings presented in this plan. **Figure ES-3 through Figure ES-5** present the capacities of each key unit process from current through buildout conditions including capacity changes following capacity upgrade projects. The intent of this figure is to illustrate process capacity increases over time as capacity projects described in this chapter are completed. The figure provides all process capacities in raw influent ADWF equivalent terms for comparison with raw influent ADWF projections.

**FIGURE ES-3: PRELIMINARY/PRIMARY PROCESS CAPACITY TRENDS – PGWWTP**



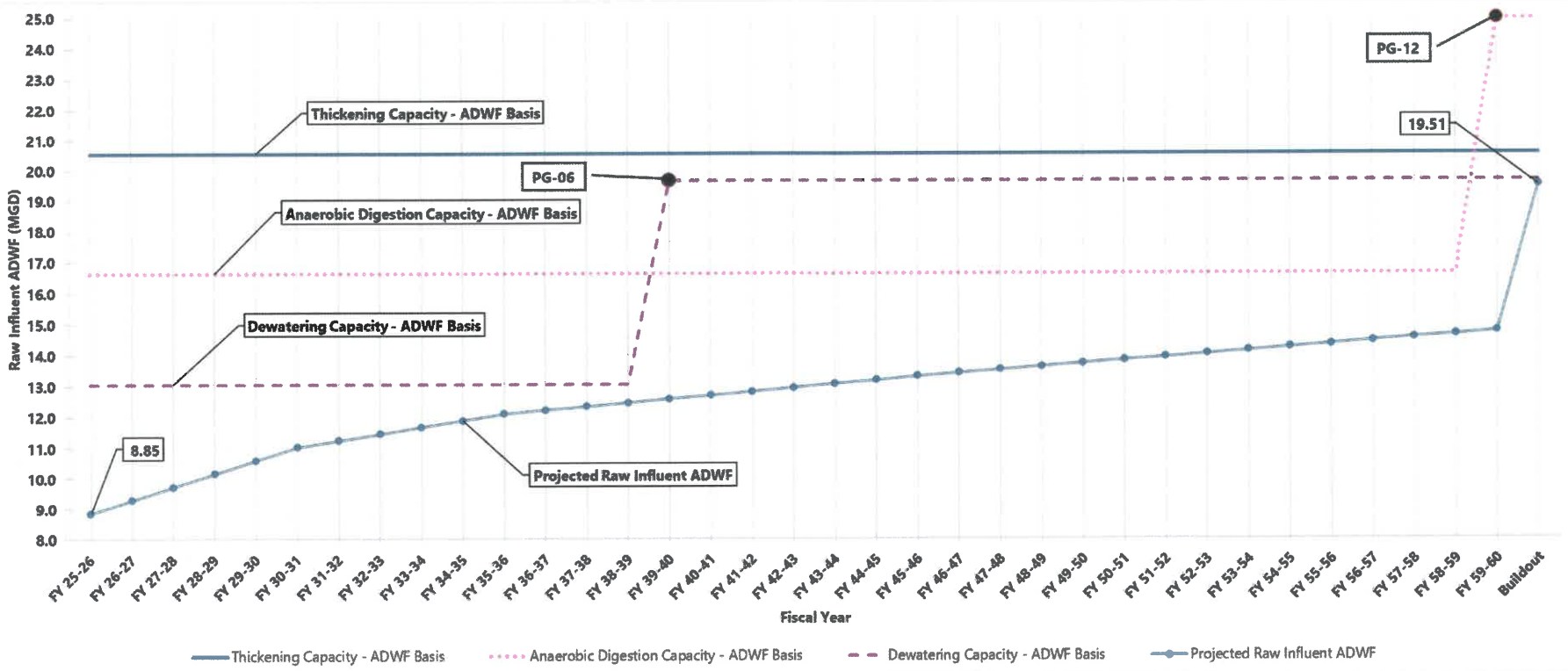

1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

**FIGURE ES-4: SECONDARY/TERTIARY PROCESS CAPACITY TRENDS – PGWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

**FIGURE ES-5: SOLIDS HANDLING PROCESS CAPACITY TRENDS – PGWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

## PGWWTP Capacity Project Cost Summaries

Estimated costs for each capacity upgrade project at the PGWWTP are summarized in **Table ES-1**. Expanded cost tables including construction costs, scope of work, and year for beginning implementation and engineering planning are included in **Chapter 4**.

## TABLE ES-1: CAPACITY PROJECTS COST SUMMARY – PGWWTP

| Project ID | Project Name | Commission Project[3] | Total Project Cost (2025 $)[2] | Escalated Total Project Cost[1] |
|---|---|---|---|---|
| PG-01 | Secondary Treatment Settleability, Pumping, Control, and Aeration Improvements | 2031 | $43,800,000 | $50,700,000 |
| PG-02 | Tertiary Filtration - New CDF Units, Phase 1 | 2031 | $29,300,000 | $33,900,000 |
| PG-03 | UV Disinfection - New Unit, Phase 1 | 2031 | $11,500,000 | $13,200,000 |
| PG-04 | Influent Pump Station - Additional Pump | 2030 | $1,500,000 | $1,700,000 |
| PG-05 | Primary Clarifiers - New Units, Phase 1 | 2035 | $19,700,000 | $25,600,000 |
| PG-06 | Dewatering - New Unit | 2039 | $13,300,000 | $19,300,000 |
| PG-07 | Influent Screening - New Unit | 2040 | $2,800,000 | $4,200,000 |
| PG-08 | Influent Pump Station - Additional Pump | 2052 | $1,200,000 | $2,500,000 |
| PG-09 | Secondary Treatment Upgrades | 2060 | $50,500,000 | $135,800,000 |
| PG-10 | UV Disinfection - New Unit, Phase 2 | 2060 | $11,500,000 | $31,000,000 |
| PG-11 | Grit Removal - New Unit | 2060 | $7,700,000 | $20,300,000 |
| PG-12 | Anaerobic Digestion - New Unit | 2060 | $24,300,000 | $65,600,000 |
| PG-13 | Tertiary Filtration - New CDF Units, Phase 2 | 2060 | $20,700,000 | $56,300,000 |
| PG-14 | Primary Clarifiers - New Unit, Phase 2 | 2060 | $9,500,000 | $25,400,000 |

1. *Total Project Costs are presented with escalation to one year prior to the project commissioning year. Construction Costs and Total Project Costs are presented in both 2025 dollars and escalated dollars in Chapter 4.*
2. *Total Project Costs include construction costs along with the following non-constructions costs: engineering design, construction administration, control system integration, permitting, and project contingency.*
3. *Project commissioning year is generally based on project completion before capacity of the relevant process reaches 95% of its total capacity.*
4. *Detailed cost estimate summaries are provided in Appendix A and include a range for Total Project Costs based on the AACE cost estimate classification.*

# 1. INTRODUCTION

This Facility Plan (Plan) provides a comprehensive assessment of the capacity of the Pleasant Grove Wastewater Treatment Plant (PGWWTP), focusing on current and projected capacity needs, process capacities, and recommended capacity improvements through buildout. This Plan is designed to guide Roseville in decision-making for reliable, compliant, and cost-effective wastewater treatment service.

## 1.1 Background

This Plan was developed as a response to the *2020 South Placer Regional Wastewater Systems Evaluation*, conducted by Woodard & Curran for the South Placer Wastewater Authority (SPWA). The evaluation identified higher-than-anticipated flows and loadings at the PGWWTP and the Dry Creek WWTP (DCWWTP) compared to previous projections. As a result, the 2020 Systems Evaluation Update recommended this project to conduct a capacity analysis of the two plants and provide a facility plan for each plant to address future needs.

Woodard & Curran was contracted by the city to identify recommended capacity improvements for the PGWWTP. This Plan summarizes capacity findings and recommended capacity improvements for the PGWWTP through to buildout. In a separate effort, the city is conducting an assessment of needs related to the condition of existing infrastructure and equipment. A separate Facility Plan has also been developed for the DCWWTP.

## 1.2 Report Structure

- Chapter 1: Introduction and Summary of Supporting Work
- Chapter 2: Influent Flows & Pollutant Loads Analysis for Existing and Future Projected Conditions
- Chapter 3: Process Capacity Analysis
- Chapter 4: Capacity Improvements Implementation Plan
- Chapter 5: Closing

## 1.3 Wastewater Treatment Plant Summary

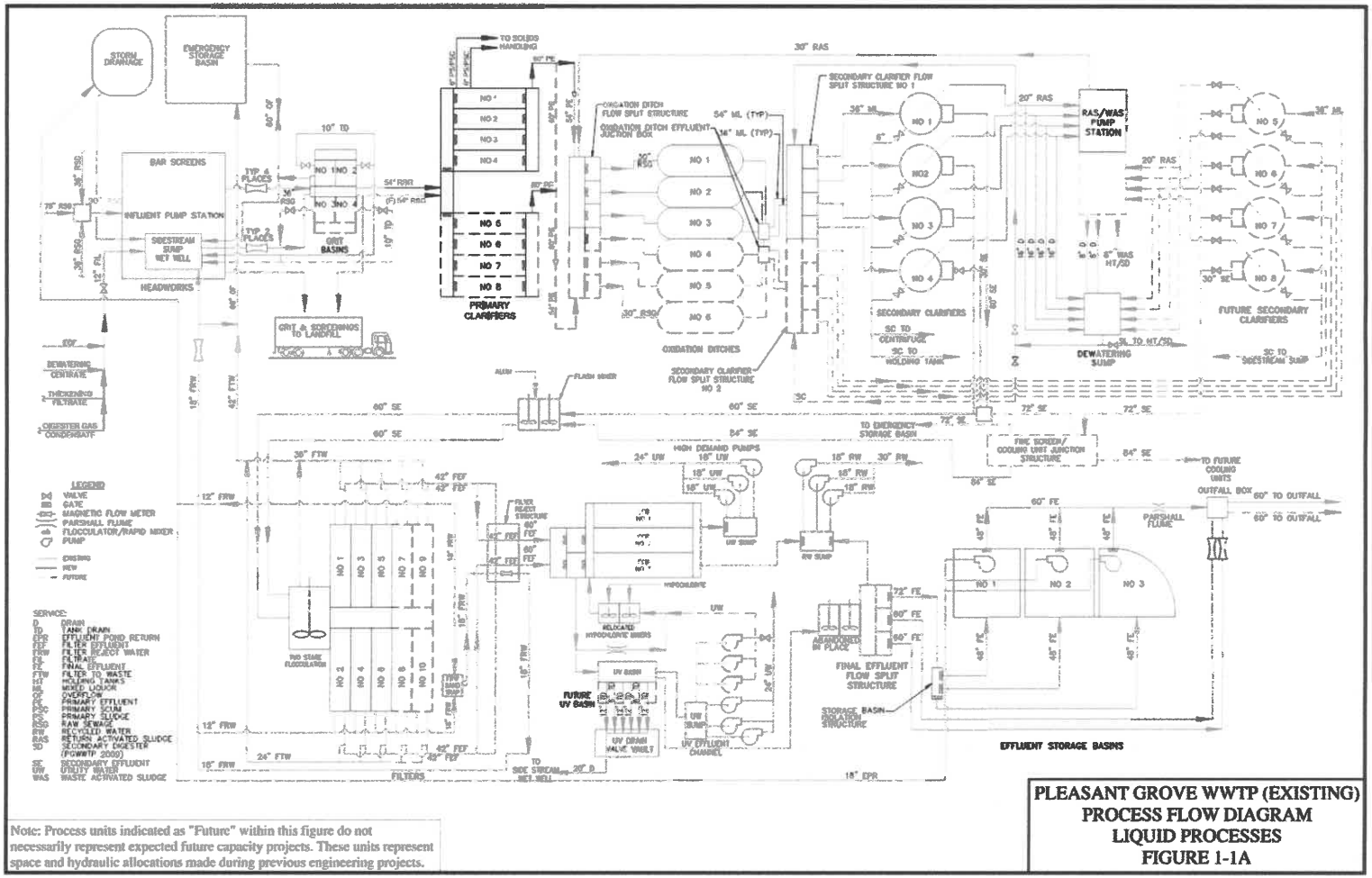
### 1.3.1 Description of PGWWTP

PGWWTP provides wastewater treatment service for the northwest portion of the City of Roseville, portions of Placer County, and a portion of South Placer Municipal Utility District. The PGWWTP provides year-round nitrification and denitrification for nitrogen removal via oxidation ditches followed by tertiary filtration and ultraviolet (UV) disinfection. Tertiary treated effluent flows from the PGWWTP may be recycled in the city's reclaimed water distribution system or discharged to Pleasant Grove Creek. Biosolids from the PGWWTP are disposed of at Synagro's Silva Ranch Biosolids Application Site. The PGWWTP also refines biogas produced by the anaerobic digesters into a renewable natural gas (RNG) for city refuse (waste services) fleet and for on-site power generation for a portion of PGWWTP power usage. A process flow diagram is included in **Figure 1-1**.

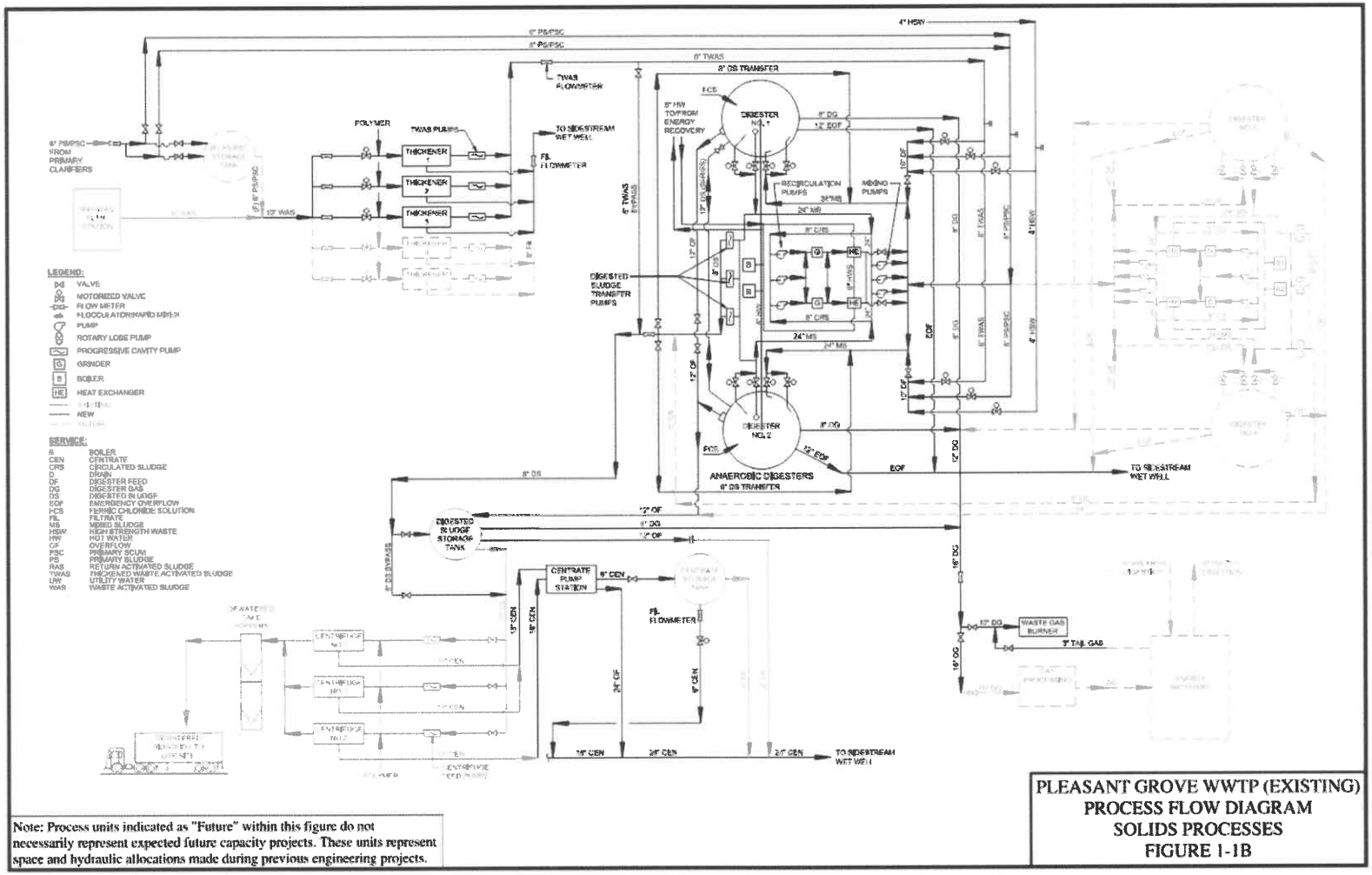
PGWWTP effluent discharges to Pleasant Grove Creek are regulated under Waste Discharge Requirements for Municipal Wastewater Dischargers that meet Objectives/Criteria at the Point of Discharge to Surface Water, Order R5-2023-0025-06, NPDES No. CAG585001 (Municipal General Order). The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) adopted a renewed Municipal General Order (R5-2023-0025), dated June 22, 2023. The Regional Water Board issued the city a Notice of Applicability (NOA) authorizing coverage under the Municipal General Order, effective October 1, 2025.

The use of reclaimed water is regulated under *Master Reclamation Permit for Roseville Regional Wastewater Treatment Plant, Order No. 97-147* (Master Reclamation Permit), which was adopted by the Regional Water Board in 1997 and amended in 2004 and 2005.

**FIGURE 1-1: PLEASANT GROVE WWTP PROCESS FLOW DIAGRAMS**




*Source: PGWWTP Expansion Project – Construction Drawings (2020), Kennedy Jenks*




*Source: PGWWTP Expansion Project – Construction Drawings (2020), Kennedy Jenks*

## 1.4 Information Reviewed

W&C reviewed drawing sets, previous reports and models, and operational data during the analysis. A list of the sources is below:

- PGWWTP Construction Drawings (2000), Carollo Engineers
- SPWA Systems Evaluation Project Report and TMs (2009), RMC
- WWTPs Facilities Plan (2010), Carollo Engineers
- PGWWTP Expansion Project – Basis of Design Report (2016), Kennedy Jenks (K/J)
- Hydraulic Model Results – Visual Hydraulics (2016), Kennedy Jenks
- Biological Process Model and Results – BioWin (2016), Kennedy Jenks
- WWTPs Condition Assessment Report (2018), Brown & Caldwell
- PGWWTP Influent Pump Station Upgrades TM (2018), Waterworks Engineers
- PGWWTP UV Capacity Analysis (2019), Carollo Engineers
- Systems Evaluation Report Update (2020), Woodard & Curran
- PGWWTP Expansion Project – Construction Drawings (2020), Kennedy Jenks
- PGWWTP Filter Technology Evaluation (2021), Carollo Engineers
- PGWWTF Filter Evaluation TM (2021), Kennedy/Jenks
- PGWWTP Electrical Upgrades TM (2022), Carollo Engineers
- PGWWTP UV Upgrades Drawings (2023), Carollo Engineers
- Plant Operating Data
    - SCADA Data
    - Hach WIMS Data
- Process Sampling Data
    - Sampling Campaign #1 (November 13 – 21 2023)
    - Sampling Campaign #2 (January 24 – 30, 2024)

# 2. FLOWS AND LOADS

This chapter summarizes existing and projected flows and pollutant loads at the PGWWTP. These values form the basis for identifying current capacity constraints and sizing future capacity improvements.

Data was evaluated from October 17, 2022 to May 24, 2025 as part of the analysis to determine existing flows and pollutant loads to the PGWWTP. This data period's start coincides with the new primary clarifiers and anaerobic digesters startup at the PGWWTP. EDU projections for the PGWWTP service area were utilized to project existing flows and loads to buildout conditions. These projections are the basis for capacity project scopes, schedules, and budgets at the PGWWTP.

**Appendix C** includes additional flows and loads background information, including data that was used in this Chapter. This additional content has been omitted from the main report body for clarity.

## 2.1 Flow Criteria Definitions

Flow criteria were developed for the following conditions based on data obtained from the PGWWTP SCADA and Hach WIMS (Water Information Management Solution) systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Flow (ADWF) – The ADWF represents the average of daily flows during July, August, and September. The ADWF is the basis for calculating peaking factors for other flow criteria.
2. Annual Average Flow (AAF) – The AAF represents the average of daily flows during all months, wet and dry.
3. Maximum Daily Flow (MDF) – The MDF represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Weekly Flow (MWF) – The MWF represents conditions that are expected to be exceeded once for each 52 occurrences, or roughly 7 days per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 98.1% exceedance value (the value which is exceeded 1.9% of the time).
5. Maximum Monthly Flow (MMF) – The MMF represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).
6. Peak Hourly Wet Weather Flow (PHWWF) – The PHWWF represents conditions that are expected to be exceeded for 1 hour per year based on the frequency distribution for all the relevant data.

## 2.2 Load Criteria Definitions

Load criteria were developed for the following conditions based on data obtained from the PGWWTP SCADA and Hach WIMS systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Load (ADWL) – The ADWL represents the average of daily loads (pounds per day) during July, August, and September.
2. Annual Average Loading (AAL) – The AAL represents the average daily loads during all months, wet and dry.
3. Maximum Daily Load (MDL) – The MDL represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Monthly Load (MML) – The MML represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).

Existing daily loads were calculated based on daily flow and daily composite sampling. These data were analyzed to establish current AAL, ADWL, and MML pollutant loading criteria as described above. Pollutant concentrations were then calculated for each statistical flow and loading condition.

## 2.3 Existing Flows and Loads

Raw influent, combined influent, and primary clarifier effluent (PCE) flow and load conditions are summarized below. Note that combined influent (primary clarifier influent) includes raw influent flows with sidestream flows such as in-plant sewer, onsite stormwater, tertiary filter backwash, thickener filtrate, and dewatering centrate.

### 2.3.1 Data Outlier Elimination

Outliers were removed following WEF MOP 8, Section 7.1 guidance to ensure representative influent conditions are used in the analysis. These primarily included periods of sampler malfunction and one extreme wet-weather event described below.

Several outliers were eliminated from the raw influent, combined influent, and primary clarifier effluent data. These include raw influent Chemical Oxygen Demand (COD) [7/4/2023, 5/12-6/30/2023]; raw influent biochemical oxygen demand (BOD) [5/12-6/30/2023]; raw influent total suspended solids (TSS) [5/12-6/30/2023]; combined influent COD [6/6/2023, 6/9/2023]; primary clarifier effluent volatile suspended solids (VSS) [6/2/2023]; primary clarifier effluent COD [6/2/2023, 6/6/2023]; primary clarifier effluent BOD [6/2/2023, 10/21/2023]; primary clarifier effluent TSS [10/17/2022, 10/20/2022, 10/21/2022]. During the period of 5/12-6/30/2023, a sudden, sustained trend of lower Raw Influent COD, BOD, and TSS concentrations were noted. This trend was not consistent with corresponding data from the combined influent or primary clarifier effluent samples which suggested a potential issue with the raw influent sampler. Based on Progress Meetings with the city on 6/26/2024 and 7/24/2024, the decision was made to eliminate this outlier data.

Data from 12/31/2023 and 1/1/2024 were also eliminated from the data set. During a 12-hour period the plant experienced a significant peak flow event with peak hourly raw influent flows up to 35 MGD. This event coincided with greater than 1.2 inches of rainfall. Based on discussions with the city, it is believed that

these influent flows were exaggerated by temporary construction dewatering activities in the city. Therefore, the flows are considered an outlier event, and data from these two days were eliminated from the data set.

## 2.4 Projected Flows & Loads

Projected flows were calculated based on population and non-residential growth, normalized to account for diversity in land uses by establishing equivalent dwelling units (EDUs). Flow and load projections were developed using the following method:

1. Existing flows were estimated from the data period of October 17, 2022 to May 24, 2025. Flow growth beyond existing flows were estimated using the EDU approach described below.

2. EDU projection data was provided by each of the SPWA JPA Partners (City of Roseville, Placer County, and South Placer Municipal Utility District).

3. Flow projections were developed by multiplying the future EDUs by an ADWF contribution of 150 gallons per day (gpd) per EDU, in accordance with the approach described in the technical memorandum prepared by the City of Roseville, *Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed,* dated May 26, 2025.

4. Future plant flows and loads were projected to estimate future conditions until buildout. Existing flow and load peaking factors are assumed to remain constant for the projections.

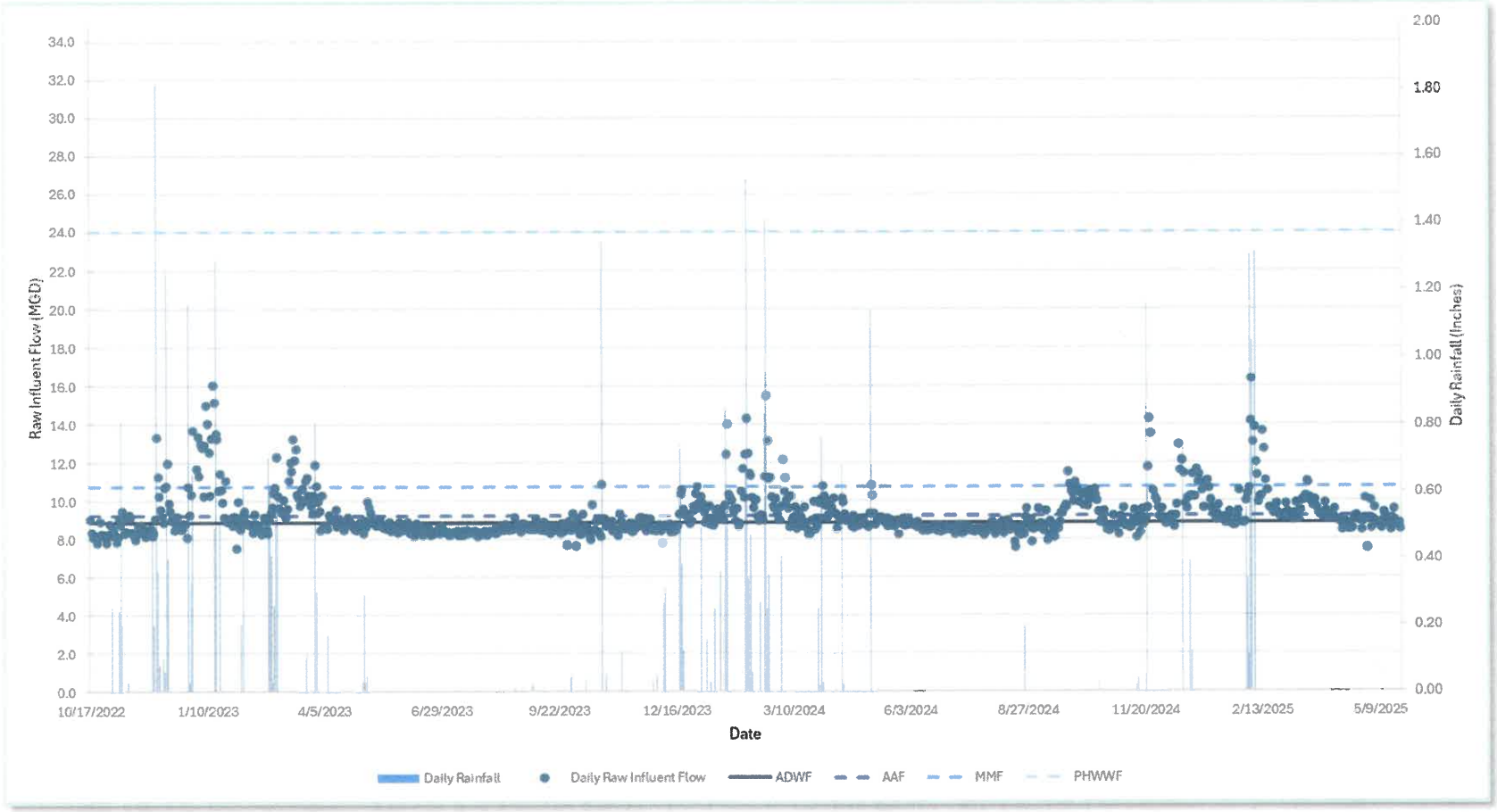
## 2.5 Raw Influent Flows & Loads

Existing and projected raw influent flows and loads are summarized in **Table 2-1**. Raw influent flow is plotted in **Figure 2-1**.

**TABLE 2-1: SUMMARY OF PGWWTP RAW INFLUENT FLOWS & LOADS**

| Condition | Existing | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Raw Influent Flow (MGD)*** | | | |
| Average Dry Weather Flow (ADWF) | 8.9 | 13.3 | 19.5 |
| Average Annual Flow (AAF) | 9.2 | 13.9 | 20.4 |
| Maximum Day Flow (MDF) | 15.3 | 23.0 | 33.7 |
| Maximum Week Flow (MWF) | 13.2 | 19.9 | 29.2 |
| Maximum Month Flow (MMF) | 10.8 | 16.2 | 23.7 |
| Peak Hour Wet Weather Flow (PHWWF) | 24.0 | 36.1 | 52.9 |
| Minimum Month Temperature (deg C) | 18 | 18 | 18 |
| ***Raw Influent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | 364 | 364 | 364 |
| Average Annual Concentration (mg/L) | 360 | 360 | 360 |
| Maximum Month Concentration (mg/L) | 367 | 367 | 367 |
| Average Dry Weather Loading (lb/day) | 26,880 | 40,440 | 59,250 |
| Average Annual Loading (lb/day) | 27,750 | 41,740 | 61,170 |
| Maximum Month Loading (lb/day) | 32,940 | 49,550 | 72,600 |
| ***Raw Influent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | 266 | 266 | 266 |
| Average Annual Concentration (mg/L) | 263 | 263 | 263 |
| Maximum Month Concentration (mg/L) | 291 | 291 | 291 |
| Average Dry Weather Loading (lb/day) | 19,640 | 29,540 | 43,290 |
| Average Annual Loading (lb/day) | 20,290 | 30,520 | 44,720 |
| Maximum Month Loading (lb/day) | 26,070 | 39,220 | 57,460 |
| ***Raw Influent NH3*** | | | |
| Average Dry Weather Concentration (mg/L) | 41 | 41 | 41 |
| Average Annual Concentration (mg/L) | 39 | 39 | 39 |
| Maximum Month Concentration (mg/L) | 38 | 38 | 38 |
| Average Dry Weather Loading (lb/day) | 3,020 | 4,450 | 6,660 |
| Average Annual Loading (lb/day) | 3,020 | 4,450 | 6,660 |
| Maximum Month Loading (lb/day) | 3,450 | 5,190 | 7,610 |

**FIGURE 2-1: EXISTING RAW INFLUENT FLOW CHARACTERISTICS**



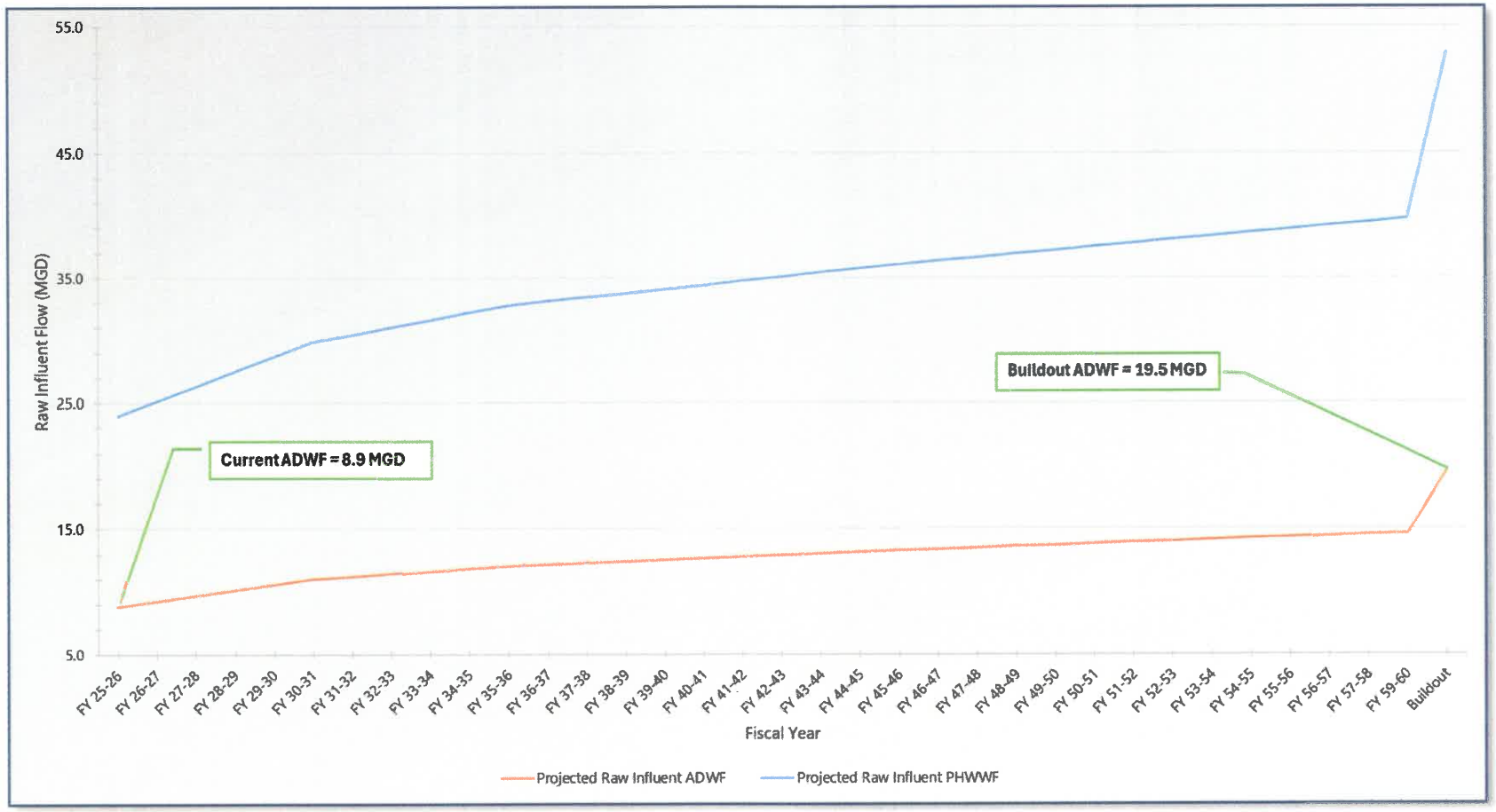
The EDU projections data for the PGWWTP is summarized in **Table 2-2** for selected points in time. Raw influent ADWF and PHWWF projections are shown in **Figure 2-2.**

**TABLE 2-2: PGWWTP EDU PROJECTIONS AND PROJECTED RAW INFLUENT FLOWS SUMMARY**

| Fiscal Year (FY) | Number of EDUs | Projected Average Dry Weather Flow (ADWF) (MGD) | Projected Peak Hourly Wet Weather Flow (PHWWF) (MGD) | PHWWF Peaking Factor |
|---|---|---|---|---|
| FY 25 | 67,302 | 8.9[1] | 24.0 | 2.71 |
| FY 30 | 81,754 | 11.0[2] | 29.9 | 2.71 |
| FY 35 | 88,976 | 12.1[2] | 32.8 | 2.71 |
| FY 40 | 92,933 | 12.7[2] | 34.4 | 2.71 |
| FY 45 | 97,054 | 13.3[2] | 36.1 | 2.71 |
| Buildout | 138,338 | 19.5[2] | 52.9 | 2.71 |

1. *Existing ADWF based on flow data.*
2. *Future ADWF based on existing ADWF and an ADWF contribution of 150 gpd/EDU applied directly to future EDUs.*

**FIGURE 2-2: RAW INFLUENT FLOW PROJECTIONS**




1. *Existing flows based on plant data review.*
2. *Average dry weather flow projections consistent with technical memorandum prepared by the City of Roseville, Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed, dated May 26, 2025.*

### 2.5.1 Combined Influent Flows & Loads

Existing and projected combined influent flow and load conditions are summarized below in **Table 2-3**. Combined influent flows were estimated by summing raw influent and sidestream flow conditions. Sidestream flow conditions were assumed to make up a consistent percentage of raw influent flow conditions. Combined influent pollutant loading concentrations were assumed to remain constant through to buildout conditions.

Combined Influent PHWWF Downstream of the Emergency Storage Basin (ESB) was also estimated and included in the table below. Based on the discussion in **Section 3.4**, the ESB is estimated to be able to shave 10.4 MGD of combined influent PHWWF.

**TABLE 2-3: SUMMARY OF PGWWTP COMBINED INFLUENT FLOWS & LOADS**

| Condition | Existing | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Combined Influent Flow (MGD)*** | | | |
| Average Dry Weather Flow (ADWF) | 10.2 | 15.4 | 22.6 |
| Average Annual Flow (AAF) | 11.3 | 16.9 | 24.8 |
| Maximum Day Flow (MDF) | 19.0 | 28.6 | 41.9 |
| Maximum Week Flow (MWF) | 16.6 | 25.0 | 36.6 |
| Maximum Month Flow (MMF) | 13.2 | 19.9 | 29.1 |
| Peak Hour Wet Weather Flow (PHWWF) | 26.4 | 39.7 | 58.2 |
| PHWWF Downstream of ESB | 16.0[1] | 29.3[1] | 47.8[1] |
| Minimum Month Temperature (deg C) | 18 | 18 | 18 |
| ***Combined Influent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | 385 | 385 | 385 |
| Average Annual Concentration (mg/L) | 365 | 365 | 365 |
| Maximum Month Concentration (mg/L) | 402 | 402 | 402 |
| Average Dry Weather Loading (lb/day) | 32,890 | 49,480 | 72,490 |
| Average Annual Loading (lb/day) | 34,210 | 51,470 | 75,400 |
| Maximum Month Loading (lb/day) | 44,310 | 66,650 | 97,660 |
| ***Combined Influent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | 282 | 282 | 282 |
| Average Annual Concentration (mg/L) | 266 | 266 | 266 |
| Maximum Month Concentration (mg/L) | 300 | 300 | 300 |
| Average Dry Weather Loading (lb/day) | 24,060 | 36,190 | 53,030 |
| Average Annual Loading (lb/day) | 25,000 | 37,610 | 55,100 |
| Maximum Month Loading (lb/day) | 33,060 | 49,730 | 72,860 |
| ***Combined Influent NH3*** | | | |
| Average Dry Weather Concentration (mg/L) | 36 | 36 | 36 |
| Average Annual Concentration (mg/L) | 32 | 32 | 32 |
| Maximum Month Concentration (mg/L) | 32 | 32 | 32 |
| Average Dry Weather Loading (lb/day) | 3,070 | 4,620 | 6,780 |
| Average Annual Loading (lb/day) | 3,040 | 4,510 | 6,710 |
| Maximum Month Loading (lb/day) | 3,480 | 5,310 | 7,680 |

1. *PHWWF Downstream of ESB includes 10.4 MGD of peak flow shaving.*

### 2.5.2 Primary Clarifier Effluent Loads

Existing and projected PCE load conditions are summarized below in **Table 2-4**. Projected PCE loads were estimated by calculating primary clarifier removal rates for BOD and TSS based on existing combined influent and primary clarifier effluent daily composite sampling data. A strong relationship between solids or hydraulic loading and removal rates for BOD and TSS was not noted – therefore, consistent average removal rates were used for all flow and loading conditions and projections through to buildout. Average BOD removal is 54%, and average TSS removal is 73%. Based on sampling campaign data for ammonia (NH3) and Total Kjeldahl Nitrogen (TKN), an NH3:TKN ratio of 0.78 was used to estimate existing TKN loadings below. PCE samples are not typically analyzed for ammonia or TKN. Therefore, a conservative 3% TKN removal assumption has been included below to account for organic nitrogen removal through the Primary Clarifiers.

**TABLE 2-4: SUMMARY OF PGWWTP PRIMARY CLARIFIER EFFLUENT LOADS**

| Condition | Existing | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Primary Clarifier Effluent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | 183 | 183 | 183 |
| Average Annual Concentration (mg/L) | 168 | 168 | 168 |
| Maximum Month Concentration (mg/L) | 174 | 174 | 174 |
| Average Dry Weather Loading (lb/day) | 15,630 | 23,510 | 34,450 |
| Average Annual Loading (lb/day) | 15,790 | 23,750 | 34,800 |
| Maximum Month Loading (lb/day) | 19,200 | 28,880 | 42,320 |
| ***Primary Clarifier Effluent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | 69 | 69 | 69 |
| Average Annual Concentration (mg/L) | 72 | 72 | 72 |
| Maximum Month Concentration (mg/L) | 75 | 75 | 75 |
| Average Dry Weather Loading (lb/day) | 5,860 | 8,820 | 12,920 |
| Average Annual Loading (lb/day) | 6,800 | 10,220 | 14,980 |
| Maximum Month Loading (lb/day) | 8,260 | 12,430 | 18,210 |
| ***Primary Clarifier Effluent TKN*** | | | |
| Average Dry Weather Concentration (mg/L) | 45 | 45 | 45 |
| Average Annual Concentration (mg/L) | 40 | 40 | 40 |
| Maximum Month Concentration (mg/L) | 39 | 39 | 39 |
| Average Dry Weather Loading (lb/day) | 3,820 | 5,740 | 8,410 |
| Average Annual Loading (lb/day) | 3,780 | 5,690 | 8,330 |
| Maximum Month Loading (lb/day) | 4,330 | 6,510 | 9,540 |

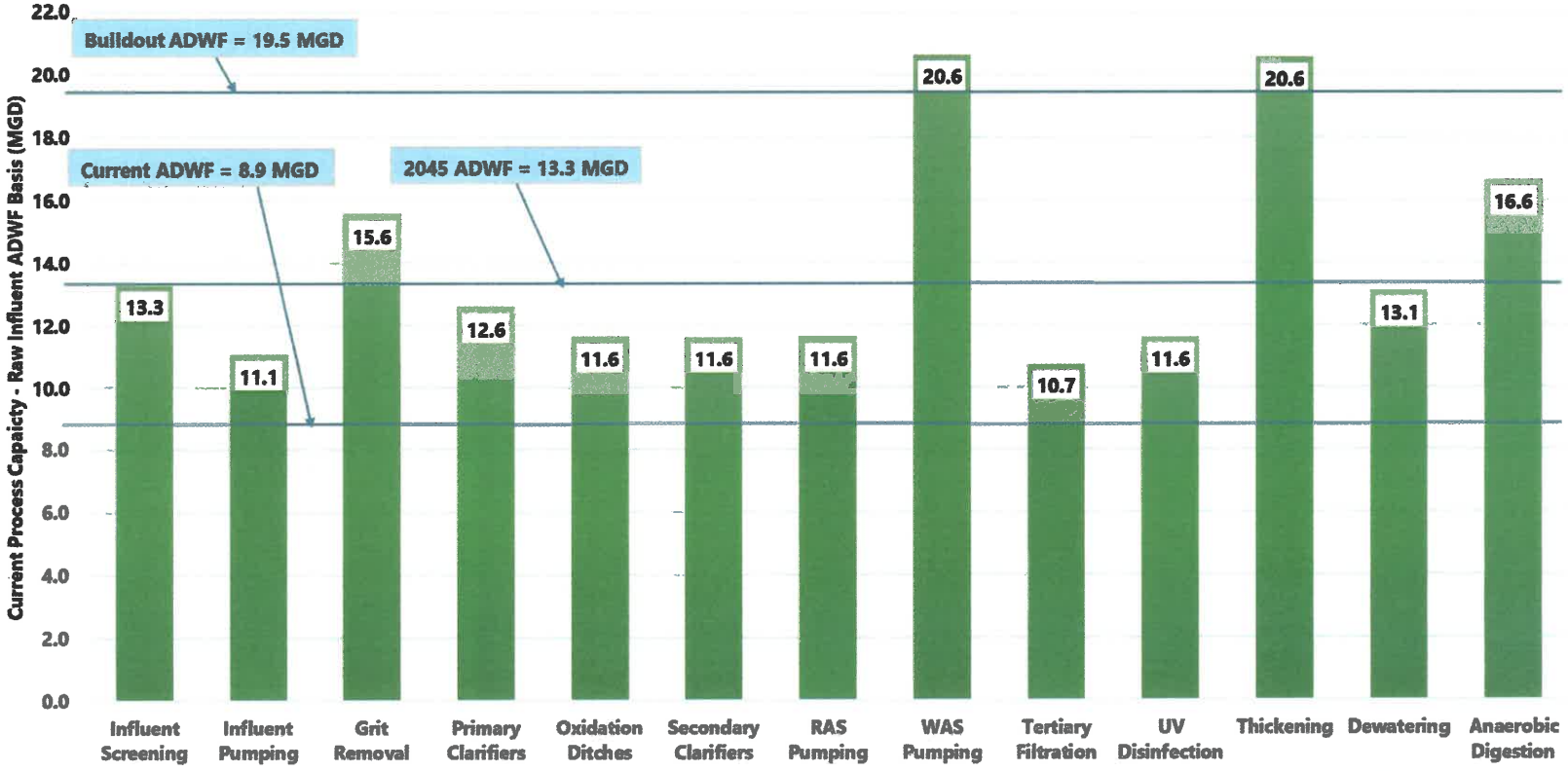
# 3. PROCESS CAPACITY ANALYSIS

This chapter evaluates the hydraulic and biological treatment capacities of major PGWWTP processes to identify current bottlenecks and predict when each unit will require capacity improvements. The analysis uses steady state capacity assessments based on design criteria and literature values for each individual unit process and a plant-wide hydraulic model. Findings in this chapter directly inform the timing and scope of capacity projects described in **Chapter 4**.

The limiting capacity parameter for each key unit process has been identified and summarized below in **Table 3-1**. Some of the unit processes are limited by different operating criteria, i.e., peak hourly flow or max monthly pollutant loading; therefore all unit processes are also normalized to raw influent average dry weather flow to put them on a common basis. **Figure 3-1** is a graphical representation of current process capacity utilization at the PGWWTP on an ADWF equivalent basis compared to current, 2045, and projected buildout ADWF.

The most immediate capacity limitations occur in secondary treatment (oxidation ditches and secondary clarifiers), tertiary filtration, UV disinfection, and influent pumping. These limitations drive the near-term need for Projects PG-01 through PG-04 described in subsequent Chapters.

**FIGURE 3-1: PGWWTP CURRENT PROCESS CAPACITY UTILIZATION**




1. *Current unit process capacities are presented in Raw Influent Average Dry Weather Flow equivalent terms.*

**TABLE 3-1: PGWWTP PROCESS CAPACITIES SUMMARY**

| Process Description | Existing Capacity at Raw Influent ADWF Equivalent (Current ADWF = 8.9 MGD) | Actual Limiting Capacity Parameter |
|---|---|---|
| Influent Screening | 13.3 MGD ADWF<br>Projected Date: **2045** | Raw Influent PHWWF Limited:<br>**36 MGD** (1/2 Units Online) |
| Influent Pumping | 11.1 MGD ADWF<br>Projected Date: **2031** | Raw Influent PHWWF Limited:<br>**30 MGD** (3/4 Pumps Online) |
| Emergency Storage Basin | N/A | Volume: **15.5 MG**<br>PHWWF Shaving: **10.4 MGD** |
| Grit Removal | 15.6 MGD ADWF<br>Projected Date: **2060** | Combined Influent PHWWF Downstream of ESB Limited:<br>**36 MGD** (2/2 Units Online) |
| Primary Clarifiers | 12.6 MGD ADWF<br>Projected Date: **2039** | Combined Influent Maximum Day Flow Limited:<br>**27.0 MGD** (4/4 Units Online)<br>SOR = 3,000 gpd/sf |
| Oxidation Ditches | 11.6 MGD ADWF<br>Projected Date: **2033** | Primary Effluent Max Month Loading Limited to:<br>**25,160 lbs/day BOD; 5,670 lbs/day TKN**<br>MLSS = 2,500 mg/L |
| Secondary Clarifiers | 11.6 MGD ADWF<br>Projected Date: **2033** | Combined Influent PHWWF Downstream of ESB Limited:<br>**24.2 MGD** (4/4 Units Online); RAS Limited<br>MLSS = 2,500 mg/L; SVI = 250 mL/g |
| RAS Pumping | 11.6 MGD ADWF<br>Projected Date: **2033** | Max Day RAS Flow Limited:<br>**12,300 gpm** (3/4 Pumps Online); 72% RAS Flow Ratio at Combined Influent PHWWF Downstream of ESB |
| WAS Pumping | 20.6 MGD ADWF<br>Projected Date: **N/A** | Max Day WAS Flow Limited:<br>**0.79 MGD** (1/2 Pumps Online) |
| Tertiary Filtration | 10.7 MGD ADWF<br>Projected Date: **2031** | Combined Influent PHWWF Downstream of ESB Limited:<br>**21.6 MGD** (6/6 Cells Online), Based on 5.0 gpm/ft$^2$ |
| UV Disinfection | 11.6 MGD ADWF<br>Projected Date: **2033** | Combined Influent Max Day Flow Limited:<br>**24.9 MGD** (3/4 Channels Online) |
| Thickening | 20.6 MGD ADWF<br>Projected Date: **N/A** | Max Week Thickener (WAS) Flow Limited:<br>**500 gpm** (2/3 Units Online)<br>7 days/week; 24 hours/day |
| Dewatering | 13.1 MGD ADWF<br>Projected Date: **2044** | Max Week Dewatering Flow Limited:<br>**360 gpm** (2/3 Units Online)<br>7 days/week; 10 hours/day |
| Anaerobic Digestion | 16.6 MGD ADWF<br>Projected Date: **2060** | Max Month Digester Feed Flow Limited:<br>**165,000 gpd**, based on 20-day HRT (2/2 Units Online) |

## 3.1 Influent Screening

All flow enters the PGWWTP via a 90-inch interceptor sewer. The PGWWTP has two reciprocating rake influent screens with ½-inch opening sizes which remove screenings via one horizontal belt conveyor to be landfilled. Each of the influent screens has a rated peak flow capacity of 36 MGD. A third channel is available for a future screen unit.

- **Available Capacity:** The current influent screening capacity is 36.0 MGD with one standby unit.
- **Required Capacity:** The current required capacity is 24.0 MGD based on raw influent PHWWF.

## 3.2 Influent Pumping

All PGWWTP raw influent flow enters the Influent Pump Station wet well following Influent Screening. The PGWWTP has four 10.0 MGD submersible pumps. Space exists for adding two future additional influent pumps.

- **Available Capacity:** The current influent pumping capacity is 30.0 MGD with one (1) standby pump.
- **Required Capacity:** The current required capacity is 24.0 MGD based on raw influent PHWWF.

## 3.3 Sidestream Flows Pumping

At the PGWWTP, in-plant recycle/sidestream flows include in-plant sewer, onsite stormwater, tertiary filter backwash, thickener filtrate, and dewatering centrate and are returned to the Sidestream Wet Well which is located adjacent to the Influent Pump Station. The PGWWTP has two 5.1 MGD sidestream pumps (design nameplate capacity) which convey sidestream flows to combine with screened influent flows.

- **Available Capacity:** The current sidestream pumping capacity is 5.1 MGD with one standby pump.
- **Required Capacity:** The current required capacity is 8.3 MGD based on peak sidestream flow rates which can be achieved with two pumps running. Due to the standby pump and ability to equalize recycle flows, this capacity limitation is a lower priority than other unit process capacities. Moreover, the current tertiary filter style contributes higher backwash volume and peak flows than the filter style included in Project PG-02. Therefore, it is possible that sidestream pump upgrades will not be required as the tertiary filter upgrade project develops. However, sidestream pump upgrade costs are included in Project PG-02 as a contingency measure.

## 3.4 Emergency Storage Basin

The PGWWTP can divert combined influent flow to an earthen Emergency Storage Basin (ESB) prior to Grit Removal. The ESB has a maximum storage volume of 15.5 MG per City staff. Flow into the ESB requires opening a manual slide gate ahead of the grit removal influent. Per operations staff, the ESB is typically not utilized until raw influent flow approaches 15-20 MGD. ESB volume is manually pumped back to the influent for treatment, and flow metering is not available into or returning from the ESB. The ESB has two return pumps with the lead pump capable of approximately 350 gpm. This capacity is recommended to be increased to reduce the time needed to drain the ESB. Costs for these improvements are included in Project PG-04.

- **Available Capacity:** Based on analysis and discussions with the city, the ESB can receive combined influent wastewater to reduce flow to downstream unit processes by up to 10.4 MGD during high PHWWF conditions. Therefore, for processes downstream of the ESB, the peak hydraulic capacity analysis will be based on "combined influent PHWWF downstream of the ESB" as shown in **Table 2-3**.
- **Required Capacity:** Not applicable.

## 3.5 Grit Removal

Combined influent flow at the PGWWTP enters two aerated grit basins each with a peak flow design detention time of 2.5 minutes.

- **Available Capacity:** The current grit removal capacity is 36.0 MGD with two units online.
- **Required Capacity:** The current required capacity is 16.0 MGD based on combined influent PHWWF downstream of the ESB.

Operations staff have noted grit removal inefficiencies and grit sedimentation in downstream tankage as far as the oxidation ditch C-Rings. This is suspected to be related to fats, oils, and grease (FOG) inducing grit particle flotation. This issue is possibly exacerbated by the required Influent Pump Station operations which may increase FOG buildup. The recently completed Influent Pump Station upgrades design project is expected to help alleviate this issue through increased wet well level operation flexibility.

## 3.6 Primary Clarifiers

The PGWWTP has four rectangular primary clarifiers, each with a surface area of 2,250 sf, which were brought online in October 2022. The primary clarifiers include two influent channel mixing pumps, nine progressing cavity primary sludge pumps (8 Duty, 1 Spare) each rated for 150 gpm, and two progressing cavity primary scum pumps each rated for 150 gpm. The design basis (*Basis of Design Report, K/J, 2016*) includes a design surface overflow rate of 2,870 gpd/sf with four units online at combined influent MDF. The design basis also includes a scenario with three units online which results in a surface overflow rate (SOR) of 3,830 gpd/sf at combined influent MDF.

A limited relationship was noted between primary clarifier BOD/TSS removal rates and solids/hydraulic loading rates. Typical literature values for design primary clarifier SOR range as high as 3,000 gpd/sf under peak hourly flow conditions. Note that the K/J design basis for SOR is based on MDF conditions. Per discussions with the city, it was decided to base this capacity evaluation on an SOR of 3,000 gpd/sf under

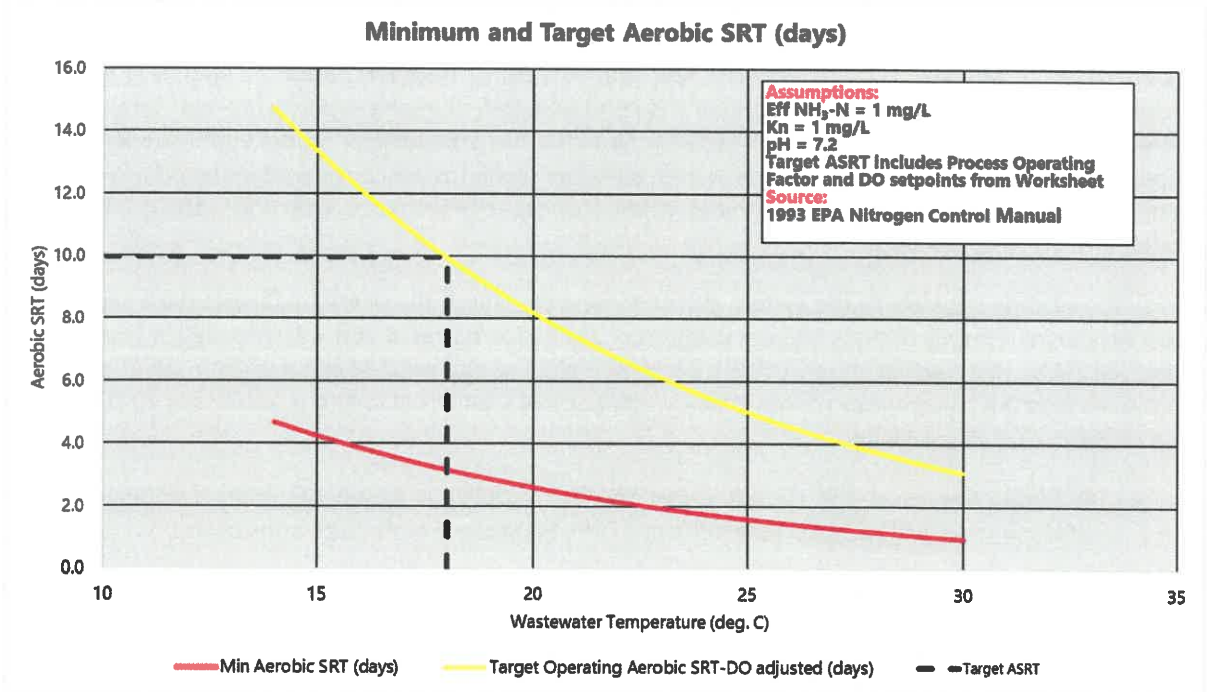
MDF, not PHWWF conditions. It is recognized that lower BOD/TSS removal performance may be observed during PHWWF conditions which would result in higher primary effluent loadings and a reduction of downstream oxidation ditch and secondary clarifier capacities. However, primary effluent loading increases are expected to be short-lived and not significant at this elevated SOR – therefore, basing required capacity on MDF is considered appropriate based on discussions with the city and maintains consistency with the existing primary clarifiers' design basis.

- **Available Capacity:** The current primary clarifier capacity is 27.0 MGD with four units online at a surface overflow rate of 3,000 gpd/sf.
- **Required Capacity:** The current required capacity is 19.0 MGD based on combined influent MDF.

## 3.7 Oxidation Ditches

The PGWWTP has three Orbal-Style, 3-Ring oxidation ditches with mechanical disc aerators. The A-Ring operates at a lower dissolved oxygen concentration for denitrification, and the B-Ring and C-Ring operate under aerobic conditions for nitrification. The growth of nitrifying bacteria is the limiting parameter that controls aerobic reactor capacity. Based on literature values and the operating condition described below, the target aerobic Solids Retention Time (aSRT) at 18 deg C to provide consistent nitrification is 7.9 days at a dissolved oxygen (DO) concentration of 2 mg/L. However, with the assumed operating dissolved oxygen (DO) concentrations, the target aSRT is 10 days (**Figure 3-2**).

**FIGURE 3-2: OXIDATION DITCH TARGET SRT VALUES**




The oxidation ditch A-Rings provide denitrification by combining primary effluent, return activated sludge (RAS), and nitrified internal mixed liquor recycle (IMLR) from the C-Rings. Denitrification performance is impacted by any of the following operation conditions:

- Biomass in the A-Ring (volume or concentration).
- Excessive aeration in the A-Ring by the mechanical disc aerators which are required to recirculate flow within the A-Ring. Typically, two aerators are intermittently run within the A-Ring for this purpose.
- Available Nitrate recycled from the C-Ring to the A-Ring by the IMLR Pumps.
- Oxygen recycled from the C-Ring (higher DO conditions) with nitrate-rich IMLR flow.

Evaluation Scenario:

The following operating conditions were identified for this capacity evaluation.

- Three Oxidation Ditches online
- Mixed Liquor Suspended Solids (MLSS) concentration of 2,500 mg/L
- Wastewater temperature of 18 deg C
- Dissolved oxygen concentration average of 0.2 mg/L in the A-Ring, 2.00 mg/L in the B-Ring, and 0.50 mg/L in the C-Ring
- Total IMLR flow of 18.1 MGD
- RAS Pumping Limited (RAS Ratio = 72% of PHWWF)

As discussed in **Section 3.9**, the required RAS ratio is 72% of PHWWF based on operating conditions including MLSS, SVI, and influent flow. Under this condition, RAS pumping capacity is a near-term limitation for overall secondary treatment process capacity. Note that the spreadsheet model slightly underestimates capacity under RAS limiting conditions. However, all future scenarios are considered under non-RAS limiting conditions following RAS pumping upgrades. Additional capacity scenarios, with and without RAS limiting conditions, are also provided.

Given the average net yield of the system and all three units online, the overall oxidation ditch capacity can treat Maximum Monthly primary effluent loadings of 25,160 lbs/day BOD and 5,670 lbs/day of Total Kjeldahl Nitrogen (TKN) when achieving an effluent combined NO3-N plus NO2-N concentration of 10 mg/L. This compares with the current max month primary effluent $BOD_5$ and TKN loadings, which are 19,200 lbs/day and 4,330 lbs/day, respectively.

- **Available Capacity:** The current oxidation ditch capacity is 17.3 MGD under combined influent MMF conditions (11.6 MGD Raw Influent ADWF Equivalent) with three units online.
- **Required Capacity:** The current required capacity is 13.2 MGD based on combined influent MMF.

Note that RAS pumping, IMLR pumping, and settleability are contributors to this nearer-term capacity limitation. To address this, settleability and process control improvements are recommended in this plan.

Additional Capacity Scenarios:

Improved settleability at the PGWWTP could allow higher operating MLSS concentrations which allow increased oxidation ditch capacity. As additional data points, the following oxidation ditch capacities are possible under various sludge volume index (SVI) and MLSS concentration scenarios:

- 19.3 MGD MMF (12.9 MGD Raw ADWF) at MLSS of 2,780 mg/L; SVI = 250 mL/g [Non-RAS Limiting]
- 13.8 MGD MMF (9.2 MGD Raw ADWF) at MLSS of 1,985 mg/L; SVI = 400 mL/g [RAS Limiting]

The following is a future potential capacity scenario with improved settleability, increased IMLR pumping to 27.6 MGD per ditch, and increased RAS pumping.

- 23.9 MGD MMF (16.0 MGD Raw ADWF) at MLSS of 3,440 mg/L; SVI = 150 mL/g

Additional operational and capacity improvement opportunities exist with the secondary treatment system as described below.

- Reduce growth of phosphorus accumulating organisms which may be contributing to digester struvite production.
- Improve foam control capabilities.
- Improve A-Ring mixing strategies which can mitigate undesired aeration/oxygen transfer as compared to current mechanical disc aerators.
- Improve process control including additional instrumentation and controls. Currently only two DO probes are provided per oxidation ditch, and B/C-Ring aerators are typically controlled from only one DO probe in the C-Ring which can lead to challenging aeration zone control and lower energy efficiency.
- Improve overall aeration energy efficiency.
- Increase RAS and IMLR pumping capacities.

The costs of future secondary treatment upgrade projects could be reduced through instrumentation and control improvements allowing use of a lower process design operating (safety) factor. This is recommended to be evaluated following Project PG-01 which includes instrumentation and control improvements.

### 3.7.1 Aeration

Each of the three oxidation ditches at PGWWTP utilizes mechanical disc aerators for aeration and mixing (summary in **Table 3-2**). Each B- and C-Ring aerator utilizes shared motors and drive shafts with one aerator in the adjacent ring.

**TABLE 3-2: PGWWTP OXIDATION DITCH AERATION SUMMARY**

| Ring/Zone | Aerator Number | Speed Control | Motor Horsepower | Shared Motor |
|---|---|---|---|---|
| A2 | X02 | Constant | 30 HP | |
| A1 | X10 | Constant | 30 HP | No |
| A3 | X07 | Constant | 30 HP | No |
| A4 | X08 | Constant | 30 HP | No |
| A5 | X01 | Constant | 30 HP | No |
| A6 | X09 | Constant | 30 HP | No |
| B1 | X06 | Constant | 60 HP | Yes, with C-Ring |
| B2 | X14 | Variable | 75 HP | Yes, with C-Ring |
| B3 | X11 | Variable | 75 HP | Yes, with C-Ring |
| B4 | X04 | Constant | 60 HP | Yes, with C-Ring |
| B5 | X03 | Constant | 60 HP | Yes, with C-Ring |
| B6 | X12 | Variable | 75 HP | Yes, with C-Ring |
| B7 | X13 | Variable | 75 HP | Yes, with C-Ring |
| B8 | X05 | Constant | 60 HP | Yes, with C-Ring |
| C1 | X13 | Variable | 75 HP | Yes, with B-Ring |
| C2 | X05 | Constant | 60 HP | Yes, with B-Ring |
| C3 | X06 | Constant | 60 HP | Yes, with B-Ring |
| C4 | X14 | Variable | 75 HP | Yes, with B-Ring |
| C5 | X11 | Variable | 75 HP | Yes, with B-Ring |
| C6 | X04 | Constant | 60 HP | Yes, with B-Ring |
| C7 | X03 | Constant | 60 HP | Yes, with B-Ring |
| C8 | X12 | Variable | 75 HP | Yes, with B-Ring |

Several assumptions were made for estimating current mechanical aeration capacity including the following:

- 1.2 pounds of oxygen required per pound of BOD removed,
- 4.2 pounds of oxygen required per pound of ammonia removed,
- Mechanical Surface Aerator Oxygen Transfer Rate: 1.8 pounds of oxygen per horsepower-hour, and
- One aerator per train per ring offline.

Under current maximum day BOD and ammonia loading conditions, 52,000 lbs/day of oxygen are required. The current mechanical aeration capacity is 80,000 lbs/day of oxygen. Based on maximum day loading projections, aeration capacity is expected to not limit oxidation ditch treatment capacity.

### 3.7.2 IMLR Pumping

Each of the three oxidation ditches at PGWWTP has two IMLR pumps with a combined rating of 6.05 MGD per ditch. Currently, IMLR pumping is one limitation on total denitrification capacity at PGWWTP under the operating conditions (MLSS, SVI, etc.) chosen for this capacity evaluation. Increasing IMLR pumping capacity would increase denitrification capacity; with denitrification being the limited secondary capacity component, increased IMLR pumping capacity would also increase overall secondary treatment capacity.

## 3.8 Secondary Clarifiers

The PGWWTP has four 125-foot secondary clarifier units. Secondary clarifier capacity has been estimated based on the consolidated state point analysis approach described in literature (Dombrowski, 2007, Daigger, 1995). The results of this graphical clarifier capacity tool at the capacity evaluation conditions described herein is shown in **Figure 3-3**. Note that the "PHF Capacity Under Current Conditions" indicates secondary clarifier capacity if RAS pumping does not limit capacity.

Secondary clarifier capacity is dependent on several factors including the size and number of units online, RAS rate, MLSS concentration and the settling characteristics of the MLSS (as measured by SVI). Secondary clarifier and oxidation ditch capacities are inherently related with increased MLSS improving oxidation ditch capacity but reducing secondary clarifier capacity, and vice versa. Therefore, identifying reasonable operating MLSS conditions to balance the capacities of these unit processes is important to maximizing the PGWWTP's overall secondary treatment capacity.

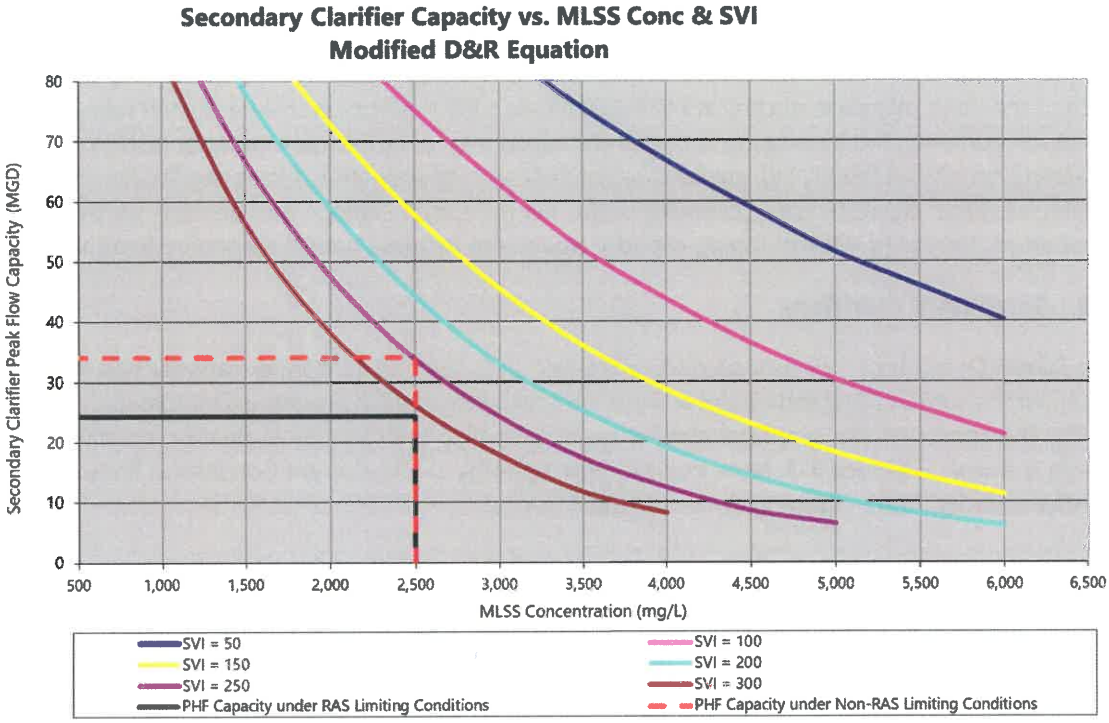
The PGWWTP has faced challenges with poor settleability and related high SVI values. Operating adjustments such as lower Solids Retention Time (14 days to 9 days, typical); lowered influent interceptor sewer and Influent Pumping level; and oxidation ditch foaming control have improved settleability since summer 2023. Based on historical PGWWTP data and discussions with the city, an SVI value of 250 mL/g was chosen for this capacity evaluation. However, an SVI of 250 ml/g is generally considered poor and further investigations and improvements should be completed to address this capacity limitation.

Evaluation Scenario:

- **Available Capacity:** The current secondary clarifier capacity is 24.2 MGD under combined influent PHWWF conditions (11.6 MGD Raw Influent ADWF Equivalent) with four units online, MLSS of 2,500 mg/L, and an SVI of 250 ml/g.
- **Required Capacity:** The current required capacity is 16.0 MGD based on combined influent PHWWF downstream of the ESB.

The required RAS ratio is 72% of PHWWF based on operating conditions including MLSS, SVI, and influent flow As discussed in Sections 3.7 and 3.9, RAS pumping capacity is expected to limit oxidation ditch and secondary clarifier capacity in the near future when operating at elevated SVI conditions. However, all future scenarios are considered under non-RAS limiting conditions following RAS pumping upgrades. Below, a non-RAS limiting capacity scenario is also provided.

**FIGURE 3-3: SECONDARY CLARIFIER CAPACITY AT 2,500 MG/L MLSS; 250 ML/G SVI**




The secondary clarifier capacity indicated above is for RAS limited conditions. The current PHF conditions indicated were maximized within the capacity spreadsheet tool until RAS pumping became a limitation.

Additional Capacity Scenarios:

Opportunities at the PGWWTP to further improve settleability, and secondary clarifier capacity, are described in **Chapter 4**. As additional data points, the following secondary clarifier capacities are possible under various settleability scenarios. Improved settleability allows for the secondary clarifier to meet loading requirements at higher MLSS concentrations – these additional MLSS concentration scenarios were chosen to also balance secondary clarifier and oxidation ditch capacities:

- 28.2 MGD PHWWF (12.9 MGD Raw ADWF) at MLSS of 2,780 mg/L and SVI of 250 mL/g [Non-RAS Limiting]
- 17.1 MGD PHWWF (9.2 MGD Raw ADWF) at MLSS of 1,985 mg/L and SVI of 400 mL/g

The following is a future potential capacity scenario with improved settleability, increased IMLR pumping to 9.2 MGD per ditch (27.6 MGD total), and increased RAS pumping:

- 37.3 MGD PHWWF (16.0 MGD Raw ADWF) at MLSS of 3,440 mg/L, SVI of 150 mL/g

## 3.9 RAS Pumping

The PGWWTP RAS/WAS (Waste Activated Sludge) Pump Station has four 4,100 gpm vertical non-clog centrifugal RAS pumps which return underflow from the secondary clarifiers and a shared RAS/WAS wet well to the Oxidation Ditch Splitter Box. Two pumps are constant speed and two are variable speed which can limit overall usability for operations staff. Improvements regarding this limitation will be considered in facility plan projects. For this analysis, RAS Pumping capacity is 12,300 gpm (17.7 MGD) with three of four pumps online. Based on the secondary treatment capacity analysis, the required RAS ratio is 72% of PHWWF based on operating conditions including MLSS, SVI, and influent flow. At this condition and current settleability, RAS pumping capacity is the limiting component in overall secondary treatment capacity compared to oxidation ditches and secondary clarifiers. With improved settleability, the required RAS pumping rate will decline and RAS pumping will not be the limiting component in overall secondary treatment capacity.

## 3.10 WAS Pumping

The PGWWTP RAS/WAS Pump Station has (2) 550 gpm vertical non-clog centrifugal WAS pumps which waste underflow from the secondary clarifiers and a shared RAS/WAS wet well to mechanical thickening.

- **Available Capacity:** The current WAS pumping capacity is 550 gpm (0.79 MGD) with one standby pump.
- **Required Capacity:** The current required WAS pumping capacity is 0.34 MGD based on an analysis of daily WAS flow rates, the current maximum day WAS flow, WAS flow projections assuming it makes up a consistent percentage of raw influent flows. Projecting required WAS pumping on a similar trend to EDUs and ADWF is considered a reasonable assumption given that significant secondary treatment process, clarifier, and other process changes are not expected at the PGWWTP.

## 3.11 Tertiary Filtration

The PGWWTP has DynaSand tertiary filters with six cells, each sized 500 $ft^2$ for a total surface area of 3,000 $ft^2$. Tertiary filter capacity at the PGWWTP is based on the applicable Title 22 Water Reuse criterion of 5 $gpm/ft^2$.

While Title 22 currently limits the capacity of sand filtration to 5 $gpm/ft^2$, other facilities have successfully pursued regulatory approval for a higher allowable peak loading rate. These include Monterey Regional Water Pollution Control Agency, Delta Diablo Sanitation District, and the City of Santa Rosa, among others. If the City chooses to pursue a future filter sampling regime for higher loading rate approval, the State could allow the filter loading rate at PGWWTP to be increased depending on filter performance. To remain in line with current State rules, this potential increase in loading rate was not considered in the capacity evaluation. However, W&C understands that the City may decide to pursue this with the State in the future which would reduce future filter expansion needs.

- **Available Capacity:** The current tertiary filtration capacity is 21.6 MGD based on a peak hydraulic loading rate of 5 $gpm/ft^2$.
- **Required Capacity:** The current required capacity is 16.0 MGD based on combined influent PHWWF downstream of the ESB.

## 3.12 UV Disinfection

The PGWWTP has four ultraviolet disinfection channels, each rated for 8.3 MGD based on their design criteria with a 65% ultraviolet transmittance (UVT) and UV dose of 100 mJ/cm$^2$.

- **Available Capacity:** The current UV disinfection capacity is 24.9 MGD with three of four channels online. In agreement with the recent UV disinfection design and construction project, one standby channel is recommended to be maintained for reliability.
- **Required Capacity:** The current required capacity is 19.0 MGD based on combined influent MDF.

Peak flow conditions are commonly used for identifying UV disinfection capacity; however, an MDF basis is consistent with the recent UV disinfection design and construction project and technically acceptable given the PGWWTP's existing effluent storage basins which can be used to temporarily store peak treated flows for returning to the treatment process if disinfection targets are not met.

## 3.13 Solids Handling

The PGWWTP currently mechanically thickens, anaerobically digests, dewaters, and disposes of biosolids at Synagro's Silva Ranch Biosolids Application Site. WAS is mechanically thickened before digestion, and primary sludge is currently pumped directly to the digesters. The PGWWTP also refines biogas produced by the anaerobic digesters into RNG for city refuse (waste services) fleet and for on-site power generation for a portion of PGWWTP power usage. The PGWWTP solids handling systems are currently optimized for gas production and recovery based on existing relationships with Synagro for land application disposal.

While not on the immediate horizon in the State, future solids handling regulatory concerns include Per- and Polyfluoroalkyl Substances (PFAS) in biosolids and additional handling methods. Landfill and land application disposal methods have become limited in other States which have adopted PFAS in biosolids limitations. The City should continue monitoring regulatory developments for PFAS in biosolids. Depending on these restrictions, processes may need considered in the future such as converting the anaerobic digestion to a biosolids drying or thermal hydrolysis process to reduce the volume of solids and to meet Class A biosolids. Other municipal entities in the State are considering similar advanced biosolids processes.

### 3.13.1 Thickening

The PGWWTP has three rotary drum thickeners each rated for 250 gpm and 500 lbs/hr which process secondary WAS and convey thickened WAS (TWAS) with three progressing cavity TWAS pumps to the anaerobic digesters. Per Operations staff, one thickener is typically operated 24 hours per day and 7 days per week with rotating units. Operations staff also report that there are no limitations to operating 2-3 thickeners simultaneously.

- **Available Capacity:** The current thickening capacity is 500 gpm (0.72 MGD) with one standby unit.
- **Required Capacity:** The current required thickening capacity is 0.31 MGD based on maximum week WAS/thickener flow rates. The required maximum week WAS/thickener flow has been projected over time by assuming it makes up a consistent percentage of raw influent flows. Projecting required thickening flow on a similar trend to EDUs and ADWF is considered a reasonable assumption given that significant secondary treatment process, clarifier, and other process changes are not expected at the PGWWTP. In addition, the historical WAS/thickener flows are based on a

data set after primary clarifier and anaerobic digester startup, so WAS solids concentration and unit hydraulic capacities are expected to remain relatively consistent.

### 3.13.2 Dewatering

The PGWWTP has three centrifuges each nameplate rated for 250 gpm for dewatering digested sludge. Following startup and stabilization of the primary clarifiers and anaerobic digesters in 2022, dewatering feed solids concentration has increased, thus, reducing rated hydraulic capacity. Per Operations staff, the current hydraulic capacity of each centrifuge unit is 180 gpm. Per Operations staff, 1 centrifuge is typically operated 24 hours per day 5 days per week, or until the sludge holding tank is empty. However, during high dewatering demand weeks, additional centrifuge units can be operated as needed. For this analysis, dewatering capacity is assumed to be based on two centrifuges each operating for 16 hours per day, each at a hydraulic loading of 180 gpm.

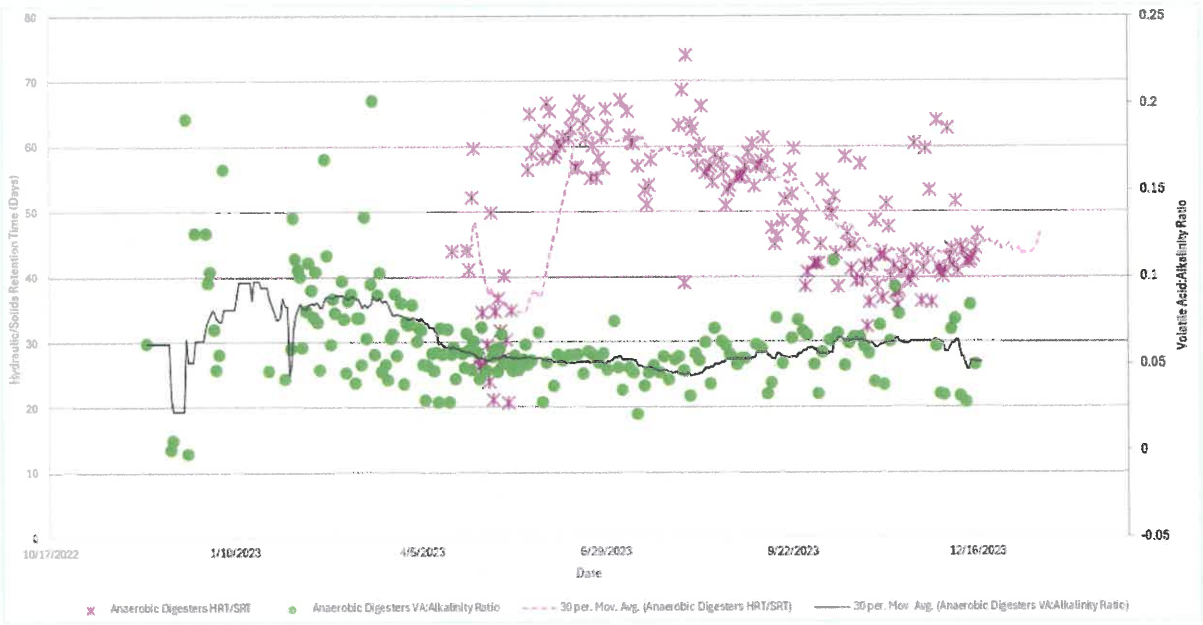
- **Available Capacity:** The current dewatering hydraulic loading capacity is 360 gpm (0.35 MGD) with one standby unit.
- **Required Capacity:** The current required dewatering capacity is 0.23 MGD based on maximum week dewatering flow rates. The required maximum week dewatering flow has been projected over time by assuming it makes up a consistent percentage of raw influent flows. Projecting required dewatering flow on a similar trend to EDUs and ADWF is considered a reasonable assumption given that significant secondary treatment process, clarifier, and other process changes are not expected at the PGWWTP. In addition, the historical dewatering flows are based on a data set after primary clarifier and anaerobic digester startup, so WAS solids concentration and unit hydraulic capacities are expected to remain relatively consistent.

### 3.13.3 Anaerobic Digestion

The PGWWTP has two anaerobic digesters with a combined volume of 3.3 MG which were brought online in October 2022. Based on discussions with the city, loading rates to digesters 1 and 2 are assumed to be similar. Anaerobic digester hydraulic retention time (HRT) and solids retention time (SRT) are expected to be equal for 1-stage completely mixed digesters. Therefore, HRT was calculated based on the digesters volume, digester feed flow rate, and HSW feed flow rate. This resulted in an average SRT of 89 days in the operating data set. After initial digester startup and stabilization, typical digester HRTs ranged from 30 – 65 days with an average HRT of 50 days (**Figure 3-4**). The volatile acids to alkalinity ratio was also evaluated for the digester as shown in **Figure 3-4**. After initial digester startup and stabilization, a very low and consistent volatile acids to alkalinity (VA:Alk) ratio is observed indicating good digester stability.

The *Basis of Design Report, K/J, (2016)* also indicates that digester capacity will be driven by HRT driven for all future design years.

**FIGURE 3-4: ANAEROBIC DIGESTERS HRT/SRT AND VA TO ALK RATIO TRENDS**




- **Available Capacity:** The current anaerobic digestion capacity is 165,000 gpd with two units online based on the current operating conditions, digester volume of 3.3 MG, and the nominal requirement to maintain at least a 20-day HRT.

- **Required Capacity:** The current required anaerobic digestion capacity is 88,000 gpd based on maximum month digester feed flow. The required maximum month digester flow has been projected over time by assuming it makes up a consistent percentage of raw influent flows. This is considered a reasonable assumption given that significant secondary treatment process, clarifier, and other process changes are not expected at the PGWWTP. However, increases in high-strength FOG and food waste received at the PGWWTP should continue being monitored in the future for impacts on digester capacity.

## 3.14 Hydraulic Capacity Model

A hydraulic model was developed for the PGWWTP to evaluate the plant hydraulic capacity and identify current and future limitations. The hydraulic model identifies where plant structures, pipes, or channels reach depth, velocity, or freeboard constraints as flows increase. These constraints determine when parallel units or hydraulic upgrades are required.

### 3.14.1 Hydraulic Model Development

The model used for this study was Woodard & Curran's SteadyFlow model which solves a continuous profile through the plant using Bernoulli's equation for 1D, steady-state flow. Frictional head loss was calculated using Darcy–Weisbach equation. SteadyFlow utilizes similar background formulas and calculations to other hydraulic modeling software such as OpenFlows. However, SteadyFlow is also very effective at visually and quantitatively identifying hydraulic limitations.

The PGWWTP hydraulic model was developed beginning at the Pleasant Grove Creek Outfall and working upstream to the influent screening channels. Hydraulic restrictions were modeled and the analysis was performed along flow paths of greatest resistance/head loss under the operational modes listed below. The hydraulic flow path is shown on **Figure 3-5** and **Figure 3-6**. Previous record drawings, O&M documents, and other resources were reviewed for developing this model.

***Operational Mode***

An operational mode with the following assumptions was used for plant capacity modeling. This approach with certain process units out of service provided a relatively conservative estimate of plant hydraulic capacity and hydraulically limiting areas. These areas were then evaluated further by modifying the operational mode to provide a secondary hydraulic capacity range, e.g., also providing the hydraulic capacity with additional units in service.

- (2/2) Grit Basins (GBs) are in service.
- (3/4) or (4/4) Primary Clarifiers (PCs) are in service.
- (2/3) or (3/3) Oxidation Ditches (ODs) are in service.
- (3/4) or (4/4) Secondary Clarifiers (SCs) are in service.
- (6/6) Tertiary Filters are in service.
- (3/4) UV channels are in service.
- Oxidation Ditch Junction Box to Secondary Clarifier Splitter Box: 54" piping in service over 36" piping where both can be used (higher flow capacity).
- RAS rate as 72% of influent flow per state point analysis.

### *Hydraulic Capacity Approach*

The model can be modified to run with various influent, RAS, and IMLR flow rates along with different numbers of units in service. Several hydraulic triggers were used to identify potential areas of limited hydraulic capacity including:

- A structure having freeboard depth of less than 1 ft,
- Velocity in a pipe of greater than 7 ft/s, or
- A weir is submerged.

**FIGURE 3-5: PGWWTP HYDRAULIC MODEL FLOW PATH**

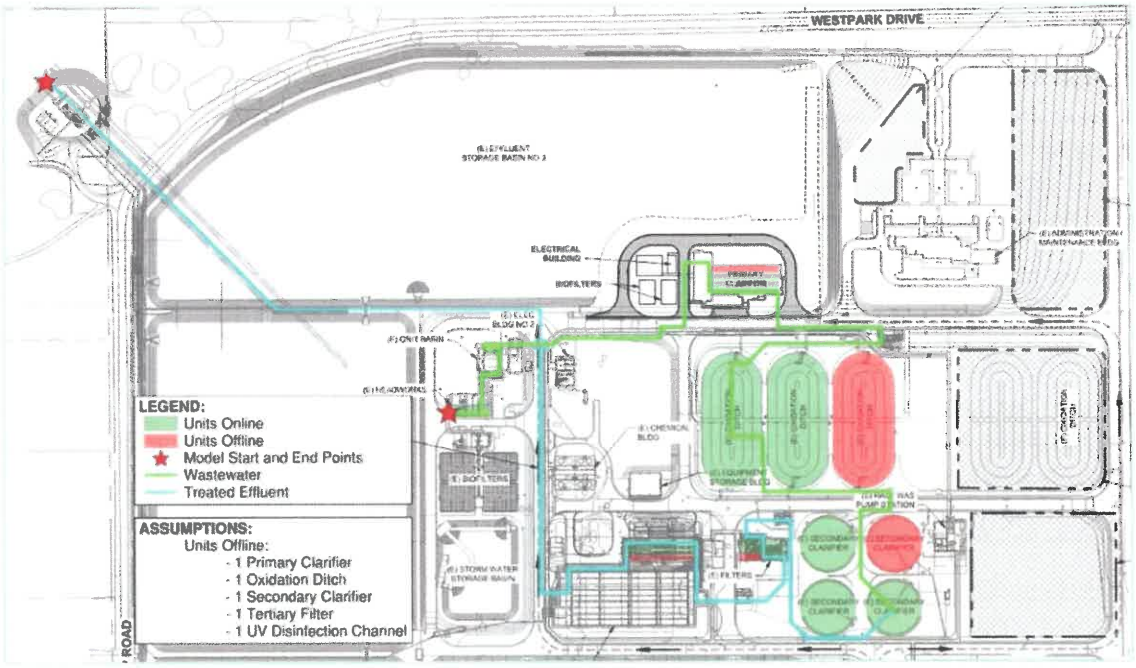
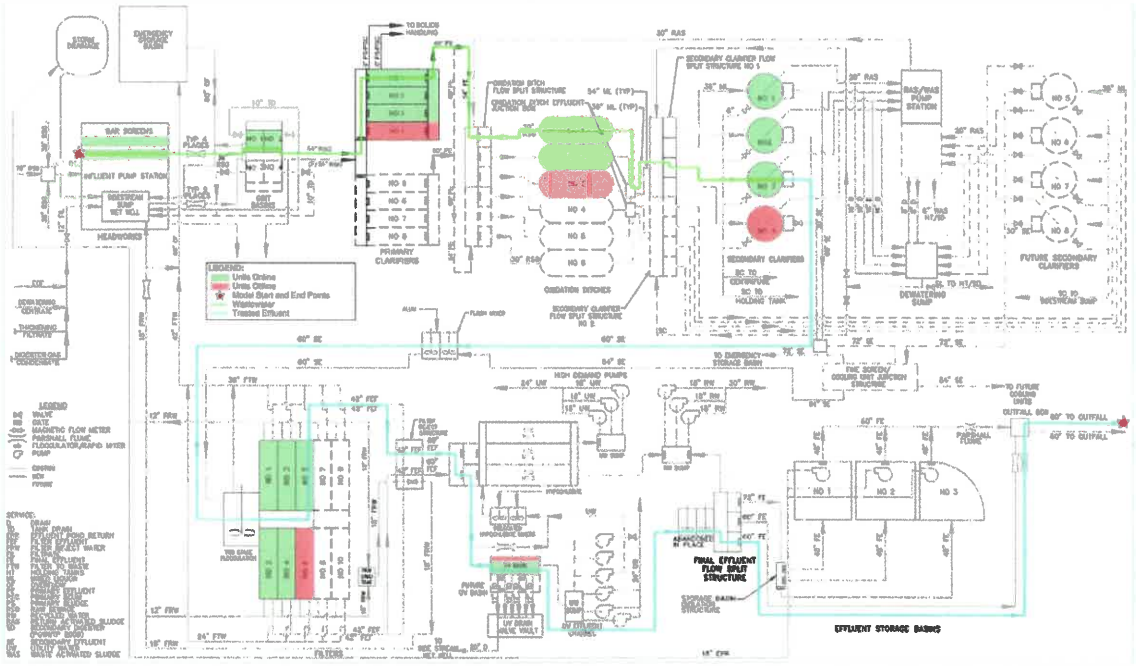


**FIGURE 3-6: PGWWTP PROCESS FLOW DIAGRAM WITH HYDRAULIC MODEL FLOW PATH**



***Hydraulic Model Background***

SteadyFlow uses the Colebrook formula to approximate friction factors for solving the Darcy-Weisbach equation. The following assumptions were used in the SteadyFlow model:

- Surface roughness height (ε) for concrete tanks and channels is 0.02 ft, 0.001 for concrete pipe, and 0.00015 ft for steel pipe surfaces.
- For minor losses through fittings, the following resistance coefficient (K) values were used (see **Table 3-3**).

**TABLE 3-3: MINOR LOSS FRICTION RESISTANCE COEFFICIENT (K)**

| Fitting | K |
|---|---|
| 22.5$^0$ Bends | 0.10 |
| 45$^0$ Bends | 0.19 |
| 90$^0$ Bends | 0.36 |
| T-Thru Flow | 0.30 |
| T-Thru Branch | 0.74 |

- A transition loss coefficient (Cu) was used to model exit, entrance, expansion or contraction losses which occur at the *end* of a conduit. For all expansion or exit segments a Cu value of 1.0 was used, while for all contraction or entrance segments a Cu value of 0.5 was used.

### 3.14.2 Hydraulic Model Results

Five different runs of the hydraulic model were completed to identify hydraulic capacity limitations as described in the previous section (see **Table 3-4**), as follows.

1. Run 1 The existing Combined Influent PHWWF with Emergency Storage Basin (ESB) usage and with standby process units.
2. Run 2: The future Combined Influent PHWWF where capacity limitations appear, without ESB usage, and with standby process units.
3. Run 3: The future Combined Influent PHWWF where capacity limitations appear, without ESB usage, and with all units in service.
4. Run 4: The future Combined Influent PHWWF where capacity limitations appear, with ESB usage, and with standby process units.
5. Run 5: The buildout Combined Influent PHWWF, with ESB usage, and with future parallel process units.

**TABLE 3-4: HYDRAULIC MODEL RUNS**

| Run Number | Flow Condition | Flow | Units in Service |
|---|---|---|---|
| 1 | Existing Hydraulic Conditions | 16.0 MGD (Forward Flow)<br>17.7 MGD (RAS)<br>12.0 MGD (IMLR) | 2 Screens<br>2 GBs<br>3/4 PCs<br>2/3 ODs<br>3/4 SCs |
| 2 | Maximum Hydraulic Capacity (No ESB Usage) | 31.0 MGD (Forward Flow)<br>15.5 MGD (RAS)<br>14.0 MGD (IMLR) | 2 Screens<br>2 GBs<br>3/4 PCs<br>2/3 ODs<br>3/4 SCs |
| 3 | Maximum Hydraulic Capacity (No ESB Usage) | 39.0 MGD (Forward Flow)<br>19.5 MGD (RAS)<br>18.0 MGD (IMLR) | 2 Screens<br>2 GBs<br>4/4 PCs<br>3/3 ODs<br>4/4 SCs |
| 4 | Maximum Hydraulic Capacity (With ESB Usage[1]) | 36.2 MGD (Forward Flow)<br>18.1 MGD (RAS)<br>18.0 MGD (IMLR) | 2 Screens<br>2 GBs<br>3/4 PCs<br>2/3 ODs<br>3/4 SCs |
| 5 | Buildout PHWWF (With ESB Usage[2]) | 47.8 MGD (Forward Flow)<br>23.9 MGD (RAS)<br>30.0 MGD (IMLR) | 3/3 Screens<br>3/3 GBs<br>6/7 PCs<br>4/4 ODs<br>5/5 SCs<br>5/5 Filters<br>5/6 UV Channels |

1. ESB usage reducing Combined Influent PHWWF by 10.4 MGD.

The results of each hydraulic model run are described below.

***Run 1: Existing Hydraulic Conditions (Standby Process Units)***

The existing Combined Influent PHWWF was the minimum flow used to identify hydraulic limitations. Based on this flow and number of units in service described above, hydraulic limitations were not found. Moreover, the resulting hydraulic profile water surface elevations from Woodard & Curran's analysis were consistent with the hydraulic profiles developed for PGWWTP during previous projects at similar peak flow rates including: *PGWWTP Construction Drawings, Carollo Engineers, (2000)*; *Hydraulic Model Results – Visual Hydraulics, Kennedy Jenks, (2016)*.

***Run 2: Maximum Hydraulic Capacity (Standby Process Units)***

The PGWWTP's lower range hydraulic capacity (with standby process units) was identified as 31.0 MGD based on the following hydraulic conditions. Note that this is based on one PC, OD, and SC unit out of service:

- Submerged Weir
    - Grit Basins Effluent Weir
    - OD Splitter Effluent Weir

***Run 3: Maximum Hydraulic Capacity (All Units in Service; No ESB Usage)***

The PGWWTP's hydraulic capacity (all units in service) was identified as 39.0 MGD based on the following hydraulic conditions. Note that this is based on all PC, OD, and SC units in service. Note also that these specific hydraulic conditions may be alleviated once additional Secondary Clarifier and Grit Removal units are required due to general process capacity needs.

- Structure Freeboard < 1 ft
    - SC Effluent Junction Box (0.7 ft)
- Submerged Weir
    - Grit Basins Effluent Weir
    - SC Effluent Weir

***Run 4: Maximum Hydraulic Capacity (Standby Process Units; With ESB Usage)***

The PGWWTP's hydraulic capacity (with standby process units) was identified as 47.2 MGD when considering ESB usage (pre-2050) during peak flows. Note that this is based on one PC, OD, and SC unit out of service. This is based on run characteristics similar to Run 2 plus ESB peak flow shaving capacity discussed previously (and in **Section 3.4**).

***Run 5: Buildout Hydraulic Conditions (With ESB Usage)***

The projected buildout Combined Influent PHWWF with ESB usage was used for Run 5 to anticipate additional future hydraulic limitations. This run includes additional parallel unit processes that are expected to be constructed for meeting treatment needs. Under this scenario, the following hydraulic conditions were observed:

- Structure Freeboard < 1 ft
    - SC Splitter Effluent Channel (0.6 ft)

As discussed in **Section 3.11**, City staff have noted hydraulic limitations in this area of the PGWWTP during peak forward flows above approximately 20-25 MGD, including submergence of upstream secondary clarifier effluent weirs. As flow increases, the SC effluent weirs become submerged, and subsequently, the SC Effluent Junction Box and channel directly downstream react with low structure freeboard. These hydraulic capacity limitations provide supporting evidence to the observations from operations staff around the Tertiary Filters. Projects PG-03 and PG-13 in this Plan recommend tertiary filter improvements. The recommended self-backwashing granular media filters described in Projects PG-03 and PG-13 of this Plan will require a new filter influent pump station. This pump station should be designed to alleviate the upstream hydraulic conditions described above.

### 3.14.3 Hydraulic Model Conclusions

Based on the different model runs, hydraulic limitations were noted at the following locations:

- Grit Basins Effluent Weir
- Oxidation Ditch Splitter Effluent Weir
- Secondary Clarifier Effluent Junction Box
- Secondary Clarifier Effluent Weir
- Secondary Clarifier Splitter Effluent Channel

As described previously, limitations at weirs, pipes, and channels will be alleviated as additional parallel process units are built to meet future treatment needs. Moreover, the limitations upstream of the tertiary filters will be alleviated following the filter capacity upgrade projects discussed in this plan.

## 3.15 Capacity Analysis Summary

The most immediate capacity limitations include secondary treatment (oxidation ditches and clarifiers), tertiary filtration, UV disinfection, and influent pumping.

One key takeaway is that the plant's secondary treatment system capacity is currently limited by poor settleability and reduced denitrification capacity. Improving settleability and dentification capacity are critical to reducing long-term capacity capital needs. Near-term secondary treatment improvements to improve settleability and operational control are included in this Plan (Project PG-01).

Mid-term capacity limitations (pre-2045) include primary clarifiers, dewatering, and influent screening. Longer-term capacity limitations (post-2045) include influent pumping, secondary treatment, UV disinfection, grit removal, anaerobic digestion, and tertiary filtration.

# 4. CAPACITY IMPROVEMENTS IMPLEMENTATION PLAN

This chapter presents the recommended capacity improvements at the PGWWTP through buildout. Improvements are sequenced based on the timing of hydraulic and biological treatment capacity limits identified in **Chapter 3** and while using 75% and 95% capacity utilization thresholds to guide the timing of implementation, engineering, construction, and commissioning.

## 4.1 Capacity Projects Summary

The capacity projects for PGWWTP are summarized in **Table 4-1**. The intent of this table is to describe the capacity limitations being addressed by each project, the capacity of that process following the project, and the timing of any subsequent capacity project phases for that process.

TABLE 4-1: CAPACITY PROJECTS SUMMARY – PGWWTP

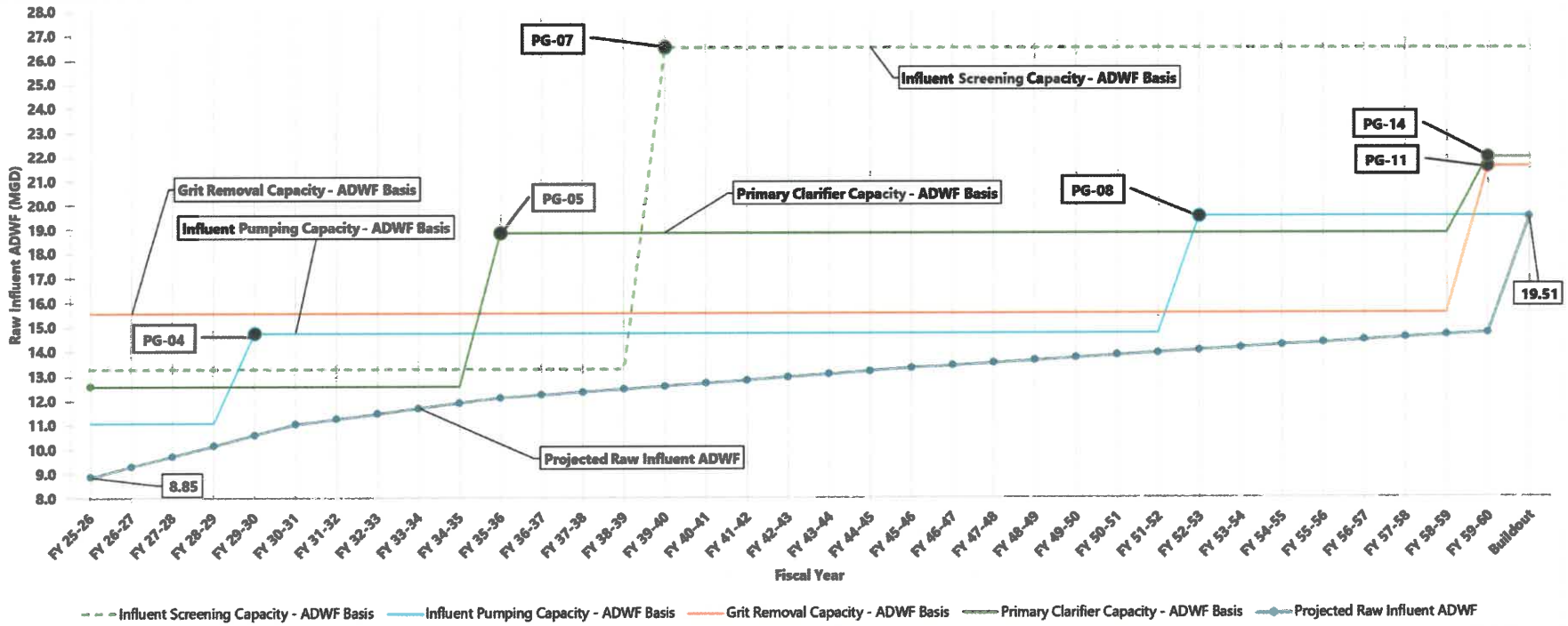
| Project ID | Project Name | Project Description | Pre-Project Capacity (Raw ADWF, MGD)[1] | Year of Pre-Project Capacity Limitation[1] | Post-Project Capacity (Raw ADWF, MGD)[2] | Year of Post-Project Capacity Limitation[2] |
|---|---|---|---|---|---|---|
| PG-01 | Secondary Treatment Settleability, Pumping, Control, and Aeration Improvements | Provide secondary treatment improvements including control, A-Ring mixing improvements, scum removal improvements, densification system, and IMLR pumping improvements. Provide new diffused aeration and blower systems for oxidation ditches. | 11.6 | 2033 | 16.0 | 2060 |
| PG-02 | Tertiary Filtration - New CDF Units, Phase 1 | Provide new cloth disk filtration train including chemical feed system and flow split structure. | 10.7 | 2031 | 17.4 | 2060 |
| PG-03 | UV Disinfection - New Unit, Phase 1 | Provide additional UV disinfection channel (No. 5). | 11.6 | 2033 | 15.6 | 2060 |
| PG-04 | Influent Pump Station - Additional Pump | Provide additional influent pump (No. 5) and ugprade ESB return pumping system. | 11.1 | 2031 | 14.8 | 2060 |
| PG-05 | Primary Clarifiers - New Units, Phase 1 | Provide additional primary clarifier units (No. 5 - 6). | 12.6 | 2039 | 18.9 | 2060 |
| PG-06 | Dewatering - New Unit | Provide additional centrifuge (No. 4), feed pumping, WAS holding tanks, and ancillary equipment. | 13.1 | 2044 | 19.7 | N/A |
| PG-07 | Influent Screening - New Unit | Provide additional influent fine screen within empty channel (No. 3). | 13.3 | 2045 | 26.6 | N/A |
| PG-08 | Influent Pump Station - Additional Pump | Provide additional influent pump (No. 6). | 14.8 | 2060 | 19.6 | N/A |
| PG-09 | Secondary Treatment Upgrades | Provide additional oxidation ditch (No. 4) and secondary clarifier (No. 5). | 16.0 | 2060 | 20.3 | N/A |
| PG-10 | UV Disinfection - New Unit, Phase 2 | Provide additional UV disinfection channel (No. 6). | 15.6 | 2060 | 19.6 | N/A |
| PG-11 | Grit Removal - New Unit | Provide additional aerated grit system (No. 3), tankage, grit blower, grit processing, and ancillary equipment. | 15.6 | 2060 | 21.6 | N/A |
| PG-12 | Anaerobic Digestion - New Unit | Provide additional anaerobic digester (No. 3). | 16.6 | 2060 | 25.0 | N/A |
| PG-13 | Tertiary Filtration - New CDF Units, Phase 2 | Provide additional cloth disk filter units, retrofit into existing tertiary filter structure. | 17.4 | 2060 | 20.3 | N/A |
| PG-14 | Primary Clarifiers - New Unit, Phase 2 | Provide additional primary clarifier unit (No. 7). | 18.9 | 2060 | 22.0 | N/A |

1. *Pre-Project Capacity and Year of Pre-Project Capacity refer to the capacity in raw influent ADWF equivalent terms and the year this capacity is projected to be reached. Both are included as prior to completing the relevant project.*
2. *Post-Project Capacity and Year of Post-Project Capacity refer to the capacity in raw influent ADWF equivalent terms and the year this capacity is projected to be reached. Both are included as after completing the relevant project.*

## 4.2 Influent Projections Compared to Unit Process Capacity

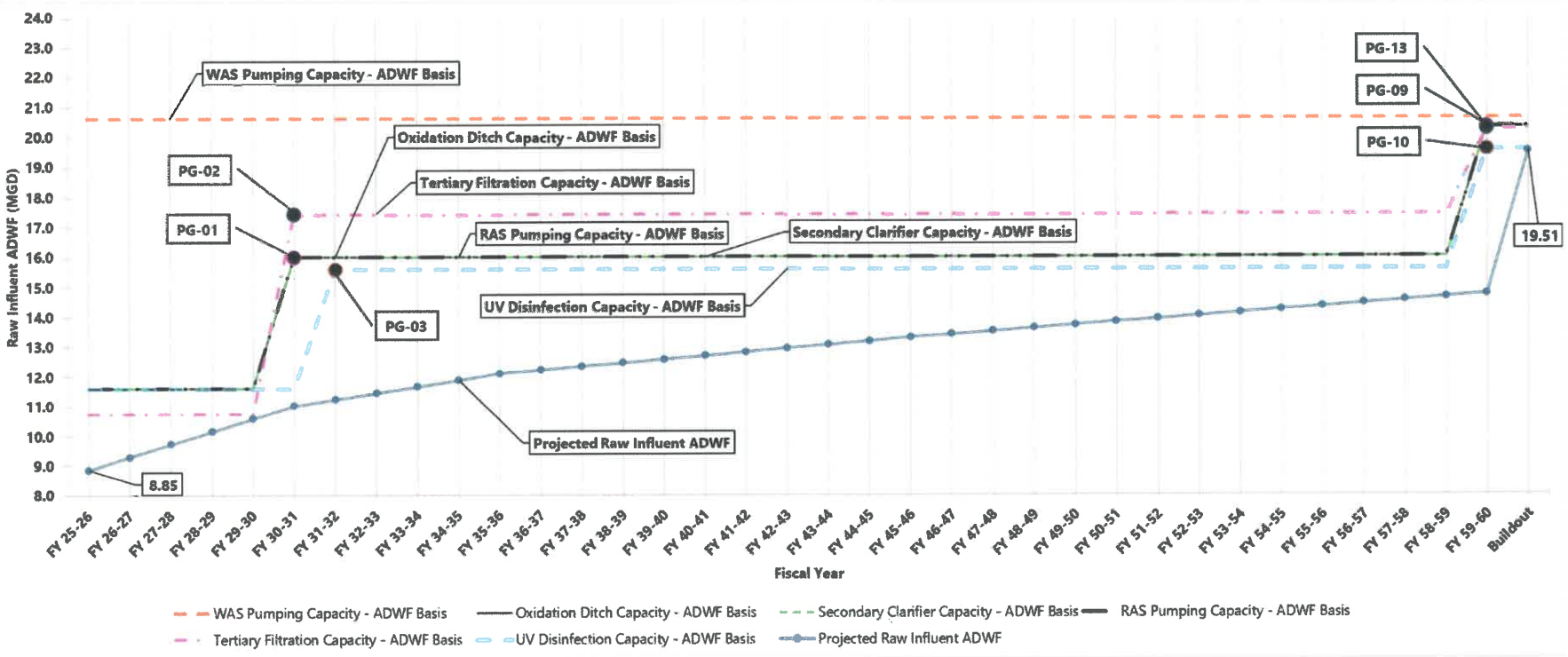
The capacity of each unit process from current through buildout conditions is presented in raw influent ADWF terms in **Figure 4-1** – **Figure 4-3**. The intent of this figure is to illustrate process capacity increases over time as capacity projects described in this chapter are completed. The figure provides all process capacities in raw influent ADWF equivalent terms for comparison with raw influent ADWF projections.

**FIGURE 4-1: PRELIMINARY/PRIMARY PROCESS CAPACITY – PGWWTP**



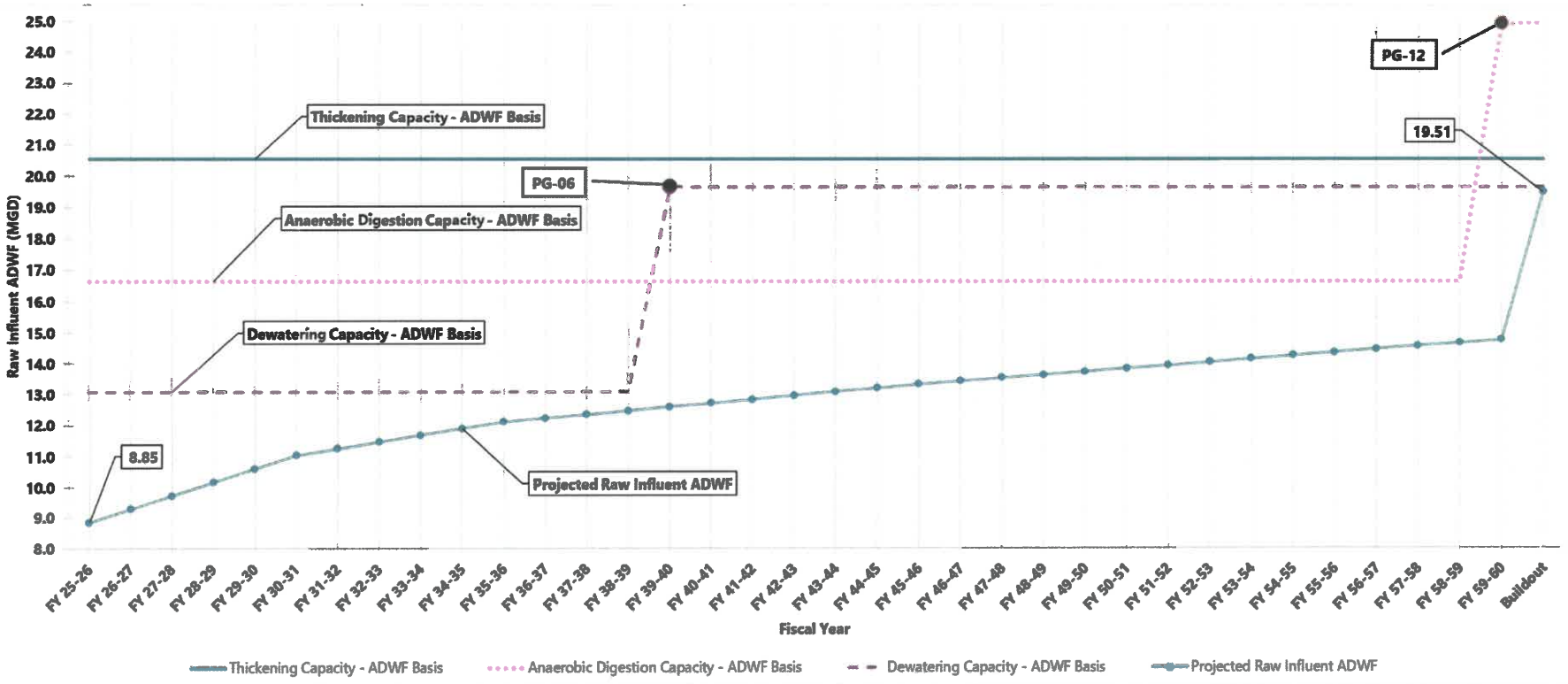

1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

**FIGURE 4-2: SECONDARY/TERTIARY PROCESS CAPACITY – PGWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

**FIGURE 4-3: SOLIDS HANDLING PROCESS CAPACITY – PGWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "PG-##".*

## 4.3 Capacity Project Descriptions

This section describes the recommended capacity improvement projects for the PGWWTP. Each project has been developed to address specific hydraulic or biological capacity limitations identified in **Chapter 3** and to support reliable, compliant operation of the facility as flows and loads increase through buildout.

Projects are presented in order of anticipated implementation, based on the year in which the associated treatment process is projected to reach approximately 75 percent of its available capacity. This sequencing is intended to support proactive planning and timely implementation, allowing the city to initiate engineering and construction activities well in advance of critical capacity constraints and to avoid reactive or emergency upgrades.

For each project, the following information is provided, as applicable:

- A brief description of the capacity limitation(s) being addressed;
- A summary of the proposed improvements and how they increase or preserve capacity;
- The post-project firm capacity of the affected process(es), expressed in raw influent ADWF equivalent terms where appropriate;
- A basis of estimate, including major scope elements and key assumptions; and
- An anticipated implementation schedule, including anticipated years for engineering and commissioning.

The projects described in this section form a long-term implementation plan that prioritizes optimization of existing infrastructure, strategically delays major expansions where feasible, and aligns capacity investments with projected needs.

### 4.3.1 Project PG-01: Secondary Treatment Settleability, Pumping, Control, and Aeration Improvements

The PGWWTP oxidation ditch and secondary clarifier (secondary treatment) capacities are currently limited due to poor settleability, limited IMLR and RAS pumping, and limited DO control. Settleability is currently the most important limitation on secondary treatment capacity. Improving settleability will improve the oxidation ditch and secondary clarifier capacity and push out capital improvement needs further into the future by allowing a higher operating MLSS concentration.

In addition, the City desires to transition the oxidation ditch mechanical aeration systems to more efficient diffused air and blower systems.

Project PG-01's scope intends to achieve the following process improvements.

- Mixing Improvements – Project PG-01 includes two new submersible horizontal mixers (Invent CyberFlow basis) per ditch in the A-Ring to provide the following benefits.
    - Increased Denitrification Capacity

        - Currently, intermittent mixing is provided in the oxidation ditch A-Rings by mechanical disc aerators which introduce undesired oxygen and reduce denitrification capacity.

    - Improved Settleability

        - Poor mixing combined with low DO operation in the oxidation ditch A-Rings has the potential to contribute to poorer settling sludge via growth of poorly settling bacteria and unwanted fermentation and phosphorus accumulating organism (PAO) growth. Therefore, improved mixing is also expected to improve settleability.

    - Improved Struvite Control

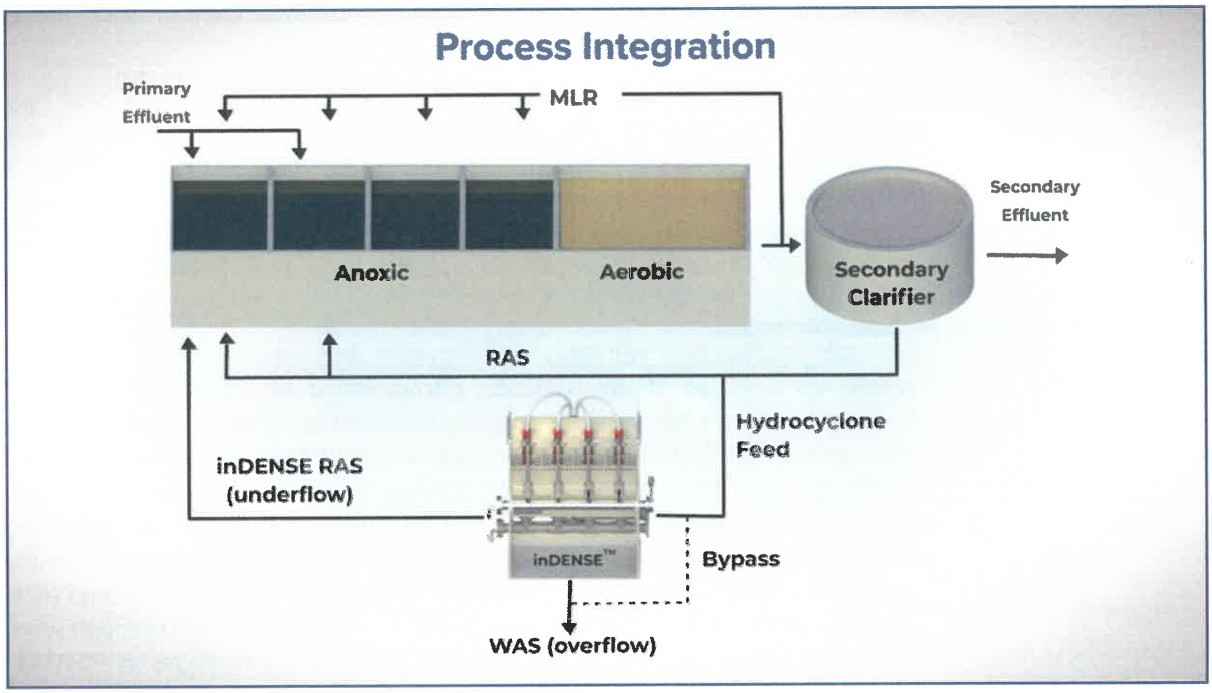
        - Poorly mixed zones of the oxidation ditches could be allowing mixed liquor blankets to form in lower depths creating anaerobic conditions, volatile fatty acid (VFA) generation, and PAO growth (release of soluble phosphorus). The additional sampling data collected indicates an increase in soluble phosphorus between primary clarifier effluent samples and downstream oxidation ditch samples which are indicative of PAO growth occurring in the oxidation ditches. It is possible that both inconsistent nitrate concentrations and/or poor mixing in certain zones of the oxidation ditches create favorable conditions for PAO growth. PAO growth would contribute to the ongoing digester struvite production challenges at PGWWTP. Other plant contributors to struvite production have not been evaluated in detail; however, reducing biological phosphorus removal in the oxidation ditches through improved A-Ring mixing is expected to reduce struvite production.

- Densification

    - We recommended the city consider a densification system for improving settleability via sludge densification. The recommended system uses hydrocyclones to selectively retain well-settling biomass from secondary clarifier underflow (RAS/WAS) (Figure 4-4).

    - **Pilot Testing**: World Water Works offers pilot testing equipment for their inDENSE process (an inDENSE pilot testing proposal for reference is included in **Appendix B**). The pilot system is delivered on a skid and includes all required pumping, tank, control, and densification equipment. The pilot rental cost is approximately $10,000 per month excluding shipping, startup, training, and installation. A portion of the rental cost can be applied towards purchases following the rental period.

**FIGURE 4-4: TYPICAL INDENSE PROCESS FLOW SCHEMATIC**




*(Source: World Water Works)*

- Process Control Improvements
    - Currently only two DO probes are provided per oxidation ditch, and B/C-Ring aerators are typically controlled from only one DO probe in the C-Ring which can lead to challenging aeration control and lower energy efficiency. The recommended improvements include the following instrumentation:
        - A-Ring: 2 online nitrate probes; 2 DO probes
        - B-Ring: 2 DO probes
        - C-Ring: 2 DO probes
- Scum Control Improvements
    - Subsurface flow paths between oxidation ditch rings, as compared to surface overflow weirs, lead to trapped surface scum/foam and excessive growth. These filamentous bacteria contribute to poor sludge settleability. Recommended scum control improvements include a surface wasting system in the oxidation ditches.
- IMLR and RAS Pumping Improvements
    - IMLR pumping is a limitation on denitrification and overall secondary treatment system capacity. Recommended improvements for IMLR pumping capacity include higher flow capacity pumps.

- RAS pumping is a limitation on overall secondary treatment capacity at current SVI (settleability) values. The city is currently planning to complete a rehabilitation/repair/replacement (R/R/R) project to replace RAS pumps, so RAS pumping costs are not included in Project PG-01.

#### 4.3.1.1 Project PG-01 Basis of Estimate

Project PG-01 includes independent A-Ring mixing equipment, upgraded IMLR pumps, densification system, online nitrate instrumentation, and additional DO instrumentation. The densification system includes three hydrocyclone skids to be located outside of the RAS/WAS pump station. One additional hydrocyclone skid is included in a later project for buildout conditions.

Due to hydrocyclone feed pressure requirements, three new densification feed positive displacement pumps are included. These will pump from the RAS/WAS wet well to the densification system. Densification underflow (heavier, better settling solids) will drain to the RAS/WAS wet well. Densification overflow (lighter, poorer settling solids) will drain to a new densification overflow wet well located adjacent to the RAS/WAS wet well. The project includes WAS pumping system modifications for pumping densification overflow to the thickeners. The modifications also allow the WAS pumps to bypass densification and pump WAS from the RAS/WAS wet well directly to the thickeners. An expansion to the RAS/WAS pump station is included for the new wet well and densification feed pumping equipment. The densification system is recommended to be located outdoors, adjacent to the RAS/WAS pump station. Associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are included in the project.

The conceptual cost estimate for new diffused aeration and aeration blower systems to transition the oxidation ditches from mechanical to diffused aeration has been developed by the City for inclusion in this Plan.

**Post-Project Capacity:** Project PG-01 provides a firm oxidation ditch capacity of 23.9 MGD combined influent MMF (16.0 MGD equivalent raw ADWF) with all three ditches online. The project provides a firm secondary clarifier capacity of 37.3 MGD combined influent PHWWF (16.0 MGD equivalent raw ADWF). The capacities are based on:

- MLSS of 3,440 mg/L.
- Improved SVI of 150 mL/g
- Total IMLR flow of 9.2 MGD per train
- Wastewater temperature of 18 deg C
- Dissolved oxygen concentration average of 0.20 mg/L in the A-Ring, 2.00 mg/L in the B-Ring, and 0.50 mg/L in the C-Ring

Based on discussions with the city, an improved SVI (150 mL/g) after Project PG-01 has been included and used as the basis for secondary treatment capacity moving forward in this plan. A secondary treatment expansion is still expected to be required in the future based on buildout projections. However, improved settleability delays that capital project.

**Schedule:** This Plan recommends beginning engineering planning begins in 2027 for project commissioning in 2031, assuming 4 years for planning, design, and construction.

### 4.3.2 Project PG-02: Tertiary Filtration – New CDF Units, Phase 1

The tertiary filtration system will require a capacity upgrade based on projected combined influent PHWWF. Tertiary filtration capacity is proposed to be supplemented by a new cloth disk filter (CDF) train. The existing DynaSand filters are proposed to remain in service.

The State Water Resources Control Board published the *Alternative Treatment Technology Report For Recycled Water (2016)* which serves as a reference for technologies that are conditionally acceptable for Title 22 compliance. Among other conditional approvals, Aqua-Aerobics CDFs utilizing the "PES-13 woven polyester fabric" or "PES-14 woven polyester fabric" could be conditionally accepted with a hydraulic loading rate up to 22 gpm/ft$^2$. The *Filter Technology Evaluation (2021), Carollo Engineers,* used a peak hydraulic loading rate of 5.4 gpm/ft$^2$. Due to uncertainties with conditional regulatory acceptance, a peak hydraulic loading rate of 5.4 gpm/ft$^2$ is also used in this Plan. During Project PG-02, it is recommended to evaluate the conditional approval process, terms, and requirements for a higher hydraulic loading rate through the CDF train.

Biological fouling of CDFs is possible, particularly in warmer climates. Fine organics trapped within the CDF media can lead to biological growth, often referred to as "sponge" growth. Some mitigation methods exist for this including chemical addition systems for periodic sodium hypochlorite or other chemical addition and maintaining a standby train for media to dry.

In addition, sidestream pumping upgrades are included within this project as the existing DynaSand filters remain with a high backwash rate relative to other filter technologies. Final sidestream pumping capacity needs should be evaluated during this filter upgrade project.

#### 4.3.2.1 Project PG-02 Basis of Estimate

Project PG-02 includes three new CDF units in a 2 + 1 lead/standby arrangement. The equipment package (Aqua-Aerobics MegaDisk basis of estimate) includes CDFs, backwash pumps, valves, controls, and instrumentation. The CDFs would be installed in new concrete tanks, adjacent to the DynaSand filters. Each CDF unit provides a filtration area of 1,290 ft$^2$ for a peak flow rate of 10.0 MGD per unit based on peak hydraulic loading rate of 5.4 gpm/ft$^2$.

With multiple filter technology trains, active flow split control is critical to performance and Title 22 compliance. Flow metering for each train along with a new splitter box and motorized weir gates are included for controlling the flow split and loading rates to each train. During Project PG-02, it is recommended to also evaluate a partial retrofit of specific DynaSand filter units with CDF units. This would result in lower capacity following Project PG-02; however, potential cost savings could make this option preferable.

A chemical addition system for sponge growth mitigation, new electrical building, and associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are included in the project.

Project PG-02 also includes two new submersible pumps at the sidestream pump station, magnetic flow meters, air release valves, and associated mechanical piping, supports, electrical, and controls. As discussed

in **Chapter 3**, evaluating sidestream pumping capacity requirements based on final filter design criteria is recommended.

**Post-Project Capacity:** Project PG-02 provides a firm capacity of 41.6 MGD (17.4 MGD equivalent raw ADWF with current ESB usage). This includes one DynaSand filter cell offline for backwashing and one standby CDF unit. Additional filter units will be required in the future based on buildout projections (Phase 2).

**Schedule:** This Plan recommends beginning engineering planning begins in 2027 for project commissioning in 2031, assuming 4 years for planning, design, and construction.

### 4.3.3 Project PG-03: UV Disinfection – New Unit, Phase 1

The UV disinfection system will require a capacity upgrade based on projected combined influent MDF. The UV system is proposed to be upgraded with one additional channel, similar to the existing four channels.

#### 4.3.3.1 Project PG-03 Basis of Estimate

Project PG-03 includes one new UV channel. with four new Trojan UV3000 Plus UV banks. Associated civil, mechanical, electrical, instrumentation, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-03 provides a firm capacity of 33.5 MGD at combined influent MDF (15.6 MGD equivalent raw ADWF) with one standby channel. Capacity estimates are based on a minimum UV dosage of 110 mJ/cm$^2$ calculated per the *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse* by NWRI (2012). One additional UV channel will be required in the future based on buildout projections (Phase 2).

**Schedule:** This Plan recommends beginning engineering planning begins in 2027 for project commissioning in 2031, assuming 4 years for planning, design, and construction.

### 4.3.4 Project PG-04: Influent Pump Station – Additional Pump

The Influent Pump Station will require a capacity upgrade based on projected raw influent PHWWF. The pump station currently has space for two additional influent pumps for a total of six. The pump station is proposed to be upgraded with one additional influent pump for a total of five.

Additionally, the ESB return pumping capacity is proposed to be supplemented with new submersible pumps, dedicated piping to the plant influent pumping, and flow metering.

#### 4.3.4.1 Project PG-04 Basis of Estimate

Project PG-04 includes a new submersible pump (approx. 7,000 gpm at 60 ft TDH), magnetic flow meter, air release valve, and associated mechanical piping, supports, electrical, and controls. The project also includes additional ESB return pumping capacity and flow metering.

**Post-Project Capacity:** Project PG-04 provides a firm capacity of 40.0 MGD (14.8 MGD equivalent raw ADWF) with one standby pump.

**Schedule:** This Plan recommends beginning engineering planning begins in 2029 for project commissioning in 2030, assuming 1 year for planning, design, and construction.

### 4.3.5 Project PG-05: Primary Clarifiers – New Units, Phase 1

The primary clarifiers will require a capacity upgrade based on projected combined influent MDF. The primary clarifiers are proposed to be upgraded with two new parallel units, similar to the existing four units.

#### 4.3.5.1 Project PG-05 Basis of Estimate

Project PG-05 includes two new primary clarifier units (2,250 sf each) with chain-and-flight mechanisms. The project includes a new influent channel for the new units, influent channel mixing system, scum pumping, primary sludge pumping, and an allowance for odor control improvements. Associated supporting civil, structural, mechanical, HVAC, plumbing, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-05 provides a firm capacity of 40.5 MGD at combined influent MDF (18.9 MGD equivalent raw ADWF), at 3,000 gpd/sf, and with one standby unit. An addition clarifier unit will be required in the future based on buildout projections (Phase 2).

**Schedule:** This Plan recommends beginning engineering planning begins in 2031 for project commissioning in 2035, assuming 4 years for planning, design, and construction .

### 4.3.6 Project PG-06: Dewatering – New Units

The dewatering system will require a capacity upgrade based on projected maximum week dewatering feed flow rates. The dewatering system is proposed to be upgraded with one new centrifuge in addition to the existing three units.

#### 4.3.6.1 Project PG-06 Basis of Estimate

Project PG-06 includes one new dewatering centrifuge for a total of four units, located within the existing dewatering building. The project includes one dewatering feed pump, one inclined cake conveyor, polymer feed system modifications, and associated civil, mechanical, electrical, instrumentation, and controls improvements. In addition, two additional digested sludge storage tank systems are included with associated air injection mixing and recirculation pump systems.

**Post-Project Capacity:** Project PG-06 provides a firm total dewatering capacity of 540 gpm with one standby centrifuge (19.7 MGD equivalent raw ADWF). This capacity is sufficient through buildout based assuming three units online for 16 hours per day and 6 days per week at buildout maximum week dewatering feed flow conditions.

**Schedule:** This Plan recommends beginning engineering planning begins in 2036 for project commissioning in 2039, assuming 3 years for planning, design, and construction.

### 4.3.7 Project PG-07: Influent Screening – New Unit

Influent screening will require a capacity upgrade based on projected raw influent PHWWF. The city is beginning implementation in 2026 for a project to upgrade the existing two screens to fine screens. The PGWWTP will then still have channel space for one additional mechanical fine screen. The 2026 project is not expected to increase peak flow capacity. Therefore, Project PG-07 proposes one additional fine screen for a total of three.

#### 4.3.7.1 Project PG-07 Basis of Estimate

Project PG-07 includes one new mechanical fine screen (36.0 MGD peak flow capacity) and associated mechanical, electrical, and controls.

**Post-Project Capacity:** Project PG-07 provides a firm capacity of 72.0 MGD (26.6 MGD equivalent raw ADWF) with one standby unit.

**Schedule:** This Plan recommends beginning engineering planning begins in 2037 for project commissioning in 2040, assuming 3 years for planning, design, and construction.

### 4.3.8 Project PG-08: Influent Pump Station – Additional Pump

The Influent Pump Station will require a capacity upgrade based on projected raw influent PHWWF. Following Project PG-04, the influent pump station will have space for one additional influent pump. The pump station is proposed to be upgraded with one additional influent pump for a total of six.

#### 4.3.8.1 Project PG-08 Basis of Estimate

Project PG-08 includes a new submersible pump (approx. 9,000 gpm at 66 ft TDH), magnetic flow meter, air release valve, and associated mechanical piping, supports, electrical, and controls.

**Post-Project Capacity:** Project PG-08 provides firm capacity of 53.0 MGD (19.6 MGD equivalent raw ADWF) with one standby pump for meeting buildout capacity.

**Schedule:** This Plan recommends beginning engineering planning begins in 2051 for project commissioning in 2052, assuming 1 year for planning, design, and construction.

### 4.3.9 Project PG-09: Secondary Treatment – New Units

The secondary treatment system will require a capacity upgrade based on projected PHWWF and MML. One additional oxidation ditch train and one secondary clarifier unit are proposed in Project PG-09.

#### 4.3.9.1 Project PG-09 Basis of Estimate

Project PG-09 includes one new oxidation ditch with diffused aeration and one new 125-foot secondary clarifier with spiral rake mechanisms. The project includes new independent mixing equipment in the oxidation ditch A-Ring, IMLR pumps, RAS pumps, surface scum wasting system, and densification system expansion. Expansions to the oxidation ditch effluent junction box, oxidation ditch splitter box, and RAS/WAS pump station expansion are also included. Associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are included in the project. Similar instrumentation to Project PG-01, including nitrate and DO, are included.

**Post-Project Capacity:** Project PG-09 provides a firm oxidation ditch capacity of 30.3 MGD combined influent MMF (20.3 MGD equivalent raw ADWF) with all four ditches online. The project provides a firm secondary clarifier capacity of 50.2 MGD combined influent PHWWF (20.3 MGD equivalent raw ADWF). The capacities are based on:

- MLSS of 3,280mg/L
- SVI of 150 mL/g
- Total IMLR flow of 9.2 MGD per train
- Wastewater temperature of 18 deg C
- Dissolved oxygen concentration average of 0.15 mg/L in the A-Ring, 2.00 mg/L in the B-Ring, and 0.50 mg/L in the C-Ring

This capacity is sufficient through buildout based on buildout projections. As discussed in **Chapter 3**, the costs of this project could be reduced through instrumentation and control improvements allowing use of a lower process design factor (PDF). Instrumentation and control improvements to allow a lower PDF (design safety factor) are recommended to be evaluated during future capacity evaluation projects following Project PG-01.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

### 4.3.10 Project PG-10: UV Disinfection – New Unit, Phase 2

The UV disinfection system will require a capacity upgrade based on projected combined influent MDF. The UV system is proposed to be upgraded with one additional channel, similar to the existing channels.

#### 4.3.10.1 Project PG-10 Basis of Estimate

Project PG-10 includes one new UV channel (six total) with four new Trojan UV3000 Plus UV banks. Associated supporting civil, structural, mechanical, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-10 provides a firm capacity of 42.0 MGD at combined influent MDF (19.6 MGD raw ADWF) with one standby channel. Capacity estimates are based on a minimum UV dosage of 110 $mJ/cm^2$ calculated per the *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, NWRI, (2012)*. This capacity is sufficient through buildout based on buildout projections.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

### 4.3.11 Project PG-11: Grit Removal – New Unit

The grit removal system will require a capacity upgrade based on projected combined influent PHWWF. The grit removal system is proposed to be upgraded with one additional aerated grit chamber for a total of three chambers.

#### 4.3.11.1 Project PG-11 Basis of Estimate

Project PG-11 includes one new aerated grit chamber for a total of three units. The project includes new grit blower, grit pump, classifying, dewatering, and conveyor equipment, along with a new building to house equipment. Associated supporting civil, structural, mechanical, HVAC, plumbing, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-11 provides a firm capacity of 54.0 MGD at combined influent PHWWF (21.6 MGD raw ADWF) with all three chambers online. This capacity is sufficient through buildout based on buildout projections.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

### 4.3.12 Project PG-12: Anaerobic Digestion – New Unit

The anaerobic digestion system will require a capacity upgrade based on projected maximum month digester feed rates. The system is proposed to be upgraded with one new digester and control building in addition to the existing two units.

#### 4.3.12.1 Project PG-12 Basis of Estimate

Project PG-12 includes one new anaerobic digester for a total of three units. The project includes new digester mixing pump, sludge recirculation pump, sludge grinder, sludge heat exchanger, hot water pump, hot water boiler, and sludge transfer pump equipment, along with a new digester control building to house equipment. Associated supporting civil, structural, mechanical, HVAC, plumbing, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-12 provides a firm digestion capacity of 248,000 gpd at a 20-day HRT (25.0 MGD equivalent raw ADWF). This capacity is sufficient through buildout based assuming all three units online at buildout maximum month digester feed conditions. The third digester will provide sufficient excess capacity for one unit to be taken offline during the dry weather season for scheduled cleanings.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

### 4.3.13 Project PG-13: Tertiary Filtration – New CDF Units, Phase 2

The tertiary filtration system will require a capacity upgrade based on projected combined influent PHWWF. The filter system is proposed to be upgraded with three additional CDF units for a total of six units. The additional CDF units are proposed to be retrofitted into the DynaSand filter structure, and the DynaSand units are proposed to be decommissioned.

#### 4.3.13.1 Project PG-13 Basis of Estimate

Project PG-13 includes three new CDF units, similar to those scoped within Project PG-02. The equipment package (Aqua-Aerobics MegaDisk basis of estimate) includes CDFs, backwash pumps, valves, controls, and instrumentation. The additional CDF units are proposed to be retrofitted into the existing DynaSand filter structure. Each CDF unit provides a filtration area of 1,290 $ft^2$ for a peak flow rate of 10.0 MGD per unit based on peak hydraulic loading rate of 5.4 $gpm/ft^2$. The project's three new CDF units results in a total of six units operating in a 5 + 1 lead/standby arrangement. Associated supporting civil, structural, mechanical, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-13 provides a firm capacity of 50.0 MGD (20.3 MGD equivalent raw ADWF) with one standby CDF unit. This capacity is sufficient through buildout based on buildout projections.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

### 4.3.14 Project PG-14: Primary Clarifiers – New Unit, Phase 2

The primary clarifiers will require a capacity upgrade based on projected combined influent MDF. The primary clarifiers are proposed to be upgraded with one new parallel unit, similar to the existing units.

#### 4.3.14.1 Project PG-14 Basis of Estimate

Project PG-14 includes one new primary clarifier unit with a chain-and-flight mechanism. The project includes scum pumping, primary sludge pumping, and an allowance for channel modifications. Associated supporting civil, structural, mechanical, HVAC, plumbing, electrical, and controls improvements are included in the project.

**Post-Project Capacity:** Project PG-14 provides a firm capacity of 47.3 MGD at combined influent MDF (22.0 MGD equivalent raw ADWF), at 3,000 gpd/sf, and with one standby unit. This capacity is sufficient through buildout based on buildout projections.

**Schedule:** This Plan recommends beginning engineering planning begins in 2055 for project commissioning in 2060, assuming 4 years for planning, design, and construction.

## 4.4 Cost Estimating Assumptions

Opinions of probable project cost were developed for the capacity capital projects presented in this plan. This section provides the procedures and methodology used for developing conceptual level capital cost estimates, followed by opinions of probable project cost. Construction costs are considered a Class 4 estimate as defined by the Association for the Advancement of Cost Engineering (AACE) International cost estimate classification system **(Table 4-2)**. For Class 4 estimates, the expected accuracy range is -15% to -30% on the low end and +20% to +50% on the high end. These estimates are suitable for use for budget forecasting, capital improvement plan development, and project evaluations, with the understanding that refinements to the project details and costs would be necessary as projects proceed into the design and construction phases.

**TABLE 4-2: COST ESTIMATE CLASSIFICATION MATRIX (AACE INTERNATIONAL)**

| Primary Characteristics | | Secondary Characteristics | | |
|---|---|---|---|---|
| **ESTIMATE CLASS** | **LEVEL OF PROJECT DEFINITION** *% complete definition* | **END USAGE** *Typical purpose of estimate* | **METHODOLOGY** *Typical estimating method* | **EXPECTED ACCURACY RANGE** *Typical variation in low and high ranges* |
| Class 5 | 0% to 2% | Concept Screening | Parametric Models or scale from historical models. | L: -20% to -50%<br>H: +30% to +100% |
| Class 4 | 1% to 15% | Study or Feasibility | Equipment Factored or Parametric Models | L: -15% to -30%<br>H: +20% to +50% |
| Class 3 | 10% to 40% | Budget Authorization or Control | Semi-Detailed Unit Costs with Assembly Level Line Items | L: -10% to -20%<br>H: +10% to + 30% |
| Class 2 | 30% to 70% | Project Control or Bid Level | Detail Unit Cost, MH Forced Detailed Takeoff | L: -5% to -15%<br>H: +5% to +20% |
| Class 1 | 50% to 100% | Check or Final Bid Estimate | Detailed Unit Cost with Detailed Takeoffs | L: -3% to -10%<br>H: +3% to +15% |

Note: Expected accuracy ranges stated in the above matrix reflect information included in the Cost Estimate Classification Matrix for Process Industries incorporated in the AACE Recommended Practice No. 18R-97.

### 4.4.1 Capital Cost Criteria

A planning-level project cost estimate for each project has been developed. Based on the level of project definition and detail typical for Class 4 estimates, estimates were developed using the following general methods:

- Equipment costs based on budgetary equipment proposals and/or recent similar projects.
- New tankage based on conceptual level quantity takeoffs for concrete volumes.
- Allowances for site civil, temporary facilities, SCADA integration, and other supporting/ancillary scopes of work.
- Construction schedules of values from analogous projects, where appropriate.
- Typical markups for construction and non-construction cost items as described below.

Unit costs are indexed to the November 2025 Engineering News Record Construction Cost Index (CCI). The CCI value used (14,797) was an average of the 20 Cities Average value (14,098) and the San Francisco value (15,495).

### 4.4.2 Markups and Implementation Costs

Typical markups for raw construction cost items are described in **Table 4-3**. These are based on typical cost factors to estimate labor, installation, and discipline costs such as electrical, instrumentation, controls, HVAC, and plumbing. The applied markup varies for each project based on its complexity and types of equipment. Given the conceptual level of design scope, detailed discipline-level cost estimates were not prepared. Instead, cost factor markups and allowances were incorporated to address uncertainties inherent to this stage of design development.

**TABLE 4-3: TYPICAL RAW CONSTRUCTION COST MARKUPS**

| Markup Description | Markup | Basis for Markup |
|---|---|---|
| Equipment Installation | 20 – 40% | of Process Equipment Costs |
| Process Mechanical | 20 – 40% | of Process Equipment Costs |
| Electrical Systems | 15% | of Raw Construction Costs |
| Instrumentation and Control Systems | 7% | of Process Equipment Costs |
| HVAC Systems | 20-25% | of Building Costs |
| Plumbing Systems | 5% | of Building Costs |

Typical markups for total construction cost and total project cost items are described in **Table 4-4.**

**TABLE 4-4: TYPICAL TOTAL PROJECT COST MARKUPS**

| Markup Description | Markup | Basis for Markup |
|---|---|---|
| General Conditions & Mobilization/Demobilization | 10% | of Raw Construction |
| Contractor's Overhead & Profit | 15% | of Raw Construction |
| Raw Construction Subtotal | -- | Sum of Raw Construction, General Conditions, Overhead, and Profit |
| Escalation | 3% / year | of Raw Construction Subtotal |
| Construction Contingency | 30% | of Raw Construction Subtotal + Escalation |
| Contractor's Insurance/Bonds | 2.5% | of Raw Construction Subtotal + Escalation + Const. Contingency |
| Construction Cost Subtotal | -- | Sum of Raw Construction Subtotal, Escalation Const. Contingency, Insurance/Bonds |
| Final Engineering Design | 10% | of Construction Cost Subtotal |
| Construction Administration | 5% | of Construction Cost Subtotal |
| Permitting | 1% | of Construction Cost Subtotal |
| Non-Construction Cost Subtotal | -- | Sum of Final Engineering Design, Construction Administration, and Permitting Services |
| Capital Cost Subtotal | -- | Sum of Construction Cost Subtotal and Non-Construction Cost Subtotal |
| Project Contingency | 10% | of Capital Cost Subtotal |
| Total Project Cost | -- | Sum of Capital Cost Subtotal and Project Contingency |

## 4.5 Project Cost Estimates

Estimated costs for each capacity upgrade project at the PGWWTP are summarized in **Table 4-5**. These include construction and total project costs in 2025 dollars, escalated construction costs, and escalated total project costs. Detailed cost estimate summaries are included in **Appendix A**.

Some projects include both capacity and "R/R/R" costs. Costs are presented as the total construction or project costs. A column for the ratio of "Capacity" to "R/R/R" costs is included for each project, e.g., a capacity: R/R/R ratio of 0.25 equates to 25% of the construction and project costs being capacity-driven and 75% being R/R/R-driven.

**TABLE 4-5: CAPACITY PROJECTS COST SUMMARY – PGWWTP**

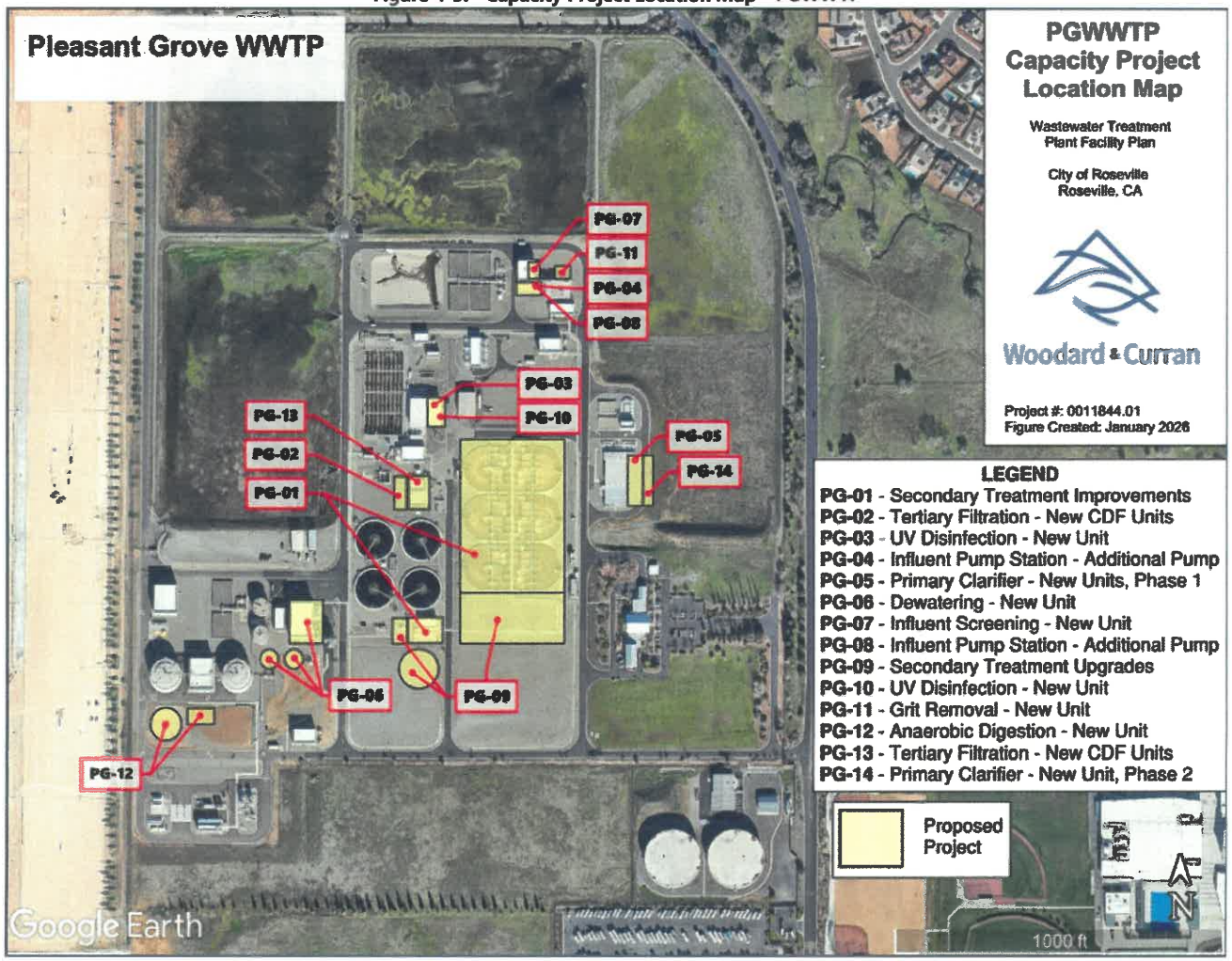
| Project ID | Project Name | General Scope of Work | Begin Implementation (75% Capacity)[4] | Begin Engineering Planning[5] | Commission Project[6] | Cost Ratio Capacity : R/R/R[7] | Construction Cost (2025 $)[2] | Escalated Construction Cost[1] | Total Project Cost (2025 $)[3] | Escalated Total Project Cost[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| PG-01 | Secondary Treatment Settleability, Pumping, Control, and Aeration Improvements | Provide secondary treatment improvements including control, A-Ring mixing improvements, scum removal improvements, densification system, and IMLR pumping improvements. Provide new diffused aeration and blower systems for oxidation ditches. | 2026 | 2027 | 2031 | 0.50 | $33,808,000 | $39,194,000 | $43,800,000 | $50,700,000 |
| PG-02 | Tertiary Filtration - New CDF Units, Phase 1 | Provide new cloth disk filtration train including chemical feed system and flow split structure. | 2026 | 2027 | 2031 | 0.406 | $22,724,000 | $26,344,000 | $29,300,000 | $33,900,000 |
| PG-03 | UV Disinfection - New Unit, Phase 1 | Provide additional UV disinfection channel (No. 5). | 2026 | 2027 | 2031 | 1.000 | $8,793,000 | $10,194,000 | $11,500,000 | $13,200,000 |
| PG-04 | Influent Pump Station - Additional Pump | Provide additional influent pump (No. 5) and ugprade ESB return pumping system. | 2026 | 2029 | 2030 | 1.000 | $1,114,000 | $1,254,000 | $1,500,000 | $1,700,000 |
| PG-05 | Primary Clarifiers - New Units, Phase 1 | Provide additional primary clarifier units (No. 5 - 6). | 2028 | 2031 | 2035 | 1.000 | $15,121,000 | $19,730,000 | $19,700,000 | $25,600,000 |
| PG-06 | Dewatering - New Unit | Provide additional centrifuge (No. 4), feed pumping, WAS holding tanks, and ancillary equipment. | 2028 | 2036 | 2039 | 1.000 | $10,090,000 | $14,818,000 | $13,300,000 | $19,300,000 |
| PG-07 | Influent Screening - New Unit | Provide additional influent fine screen within empty channel (No. 3). | 2028 | 2037 | 2040 | 1.000 | $2,093,000 | $3,166,000 | $2,800,000 | $4,200,000 |
| PG-08 | Influent Pump Station - Additional Pump | Provide additional influent pump (No. 6). | 2031 | 2051 | 2052 | 1.000 | $884,000 | $1,907,000 | $1,200,000 | $2,500,000 |
| PG-09 | Secondary Treatment Upgrades | Provide additional oxidation ditch (No. 4) and secondary clarifier (No. 5). | 2036 | 2055 | 2060 | 1.000 | $38,637,000 | $105,553,000 | $50,500,000 | $135,800,000 |
| PG-10 | UV Disinfection - New Unit, Phase 2 | Provide additional UV disinfection channel (No. 6). | 2034 | 2055 | 2060 | 1.000 | $8,793,000 | $24,022,000 | $11,500,000 | $31,000,000 |
| PG-11 | Grit Removal - New Unit | Provide additional aerated grit system (No. 3), tankage, grit blower, grit processing, and ancillary equipment. | 2034 | 2055 | 2060 | 1.000 | $5,687,000 | $15,537,000 | $7,700,000 | $20,300,000 |
| PG-12 | Anaerobic Digestion - New Unit | Provide additional anaerobic digester (No. 3). | 2039 | 2055 | 2060 | 1.000 | $18,689,000 | $51,057,000 | $24,300,000 | $65,600,000 |
| PG-13 | Tertiary Filtration - New CDF Units, Phase 2 | Provide additional cloth disk filter units, retrofit into existing tertiary filter structure. | 2047 | 2055 | 2060 | 1.000 | $16,086,000 | $43,946,000 | $20,700,000 | $56,300,000 |
| PG-14 | Primary Clarifiers - New Unit, Phase 2 | Provide additional primary clarifier unit (No. 7). | 2054 | 2055 | 2060 | 1.000 | $7,177,000 | $19,607,000 | $9,500,000 | $25,400,000 |

1. *Construction and Total Project Costs are presented in both 2025 dollars and with escalation to one year prior to the project commissioning year.*
2. *Construction Costs include raw construction costs, general conditions, mobilization/demobilization, contractor's overhead/profit, construction contingency, and contractor's insurance/bonds.*
3. *Total Project Costs include construction costs along with the following non-constructions costs: engineering design, construction administration, control system integration, permitting, and project contingency.*
4. *The year of the relevant treatment process reaching 75% of its total capacity is included for planning purposes.*
5. *The year assumed for beginning engineering planning based on the anticipated planning, permitting, design, and construction time, working back from the year of commissioning.*
6. *Project commissioning year is generally based on project completion before capacity of the relevant process reaches 95% of its total capacity.*
7. *The ratio of capacity to R/R/R costs for each project expresses the share of costs driven by capacity and R/R/R factors.*
8. *Detailed cost estimate summaries are provided in Appendix A and include a range for Total Project Costs based on the AACE cost estimate classification.*

## 4.6 Capacity Project Map – Pleasant Grove WWTP

A map for PGWWTP capacity project locations is included in **Figure 4-5**.

**Figure 4-5: Capacity Project Location Map – PGWWTP**



# 5. CLOSING

This Plan presents an actionable roadmap for the city to plan for capacity improvements at the PGWWTP. The implementation plan is designed to proactively address immediate and future capacity constraints, positioning the city to cost-effectively meet the demands of a growing service area while maintaining compliance.

**Strategic Objectives:**

- **Accommodate Projected Growth:** The capacity capital projects will enable the PGWWTP to reliably treat increasing flows and loads through buildout, as driven by population and non-residential development. This long-term planning approach aligns infrastructure investments with actual system needs and minimizes the risks of underbuilding and overbuilding.
- **Optimize Existing Infrastructure:** This Plan prioritizes the efficient use of existing assets, deferring capacity expansions until they are projected to be justified.
- **Efficient Implementation Timing:** Each project phase is timed to maintain compliance with current and future expected permit limits. By anticipating when key processes will approach critical capacity thresholds (75% and 95%), the city can avoid emergency upgrades.

**Next Steps:**

- W&C recommends that the city monitor key performance indicators, flow rate growth, and capacity utilization over time.
- Based on actual system growth and operational experience, W&C recommends that the city revise this Plan periodically with updated project scopes and schedules.

# 6. APPENDICES

- Appendix A: Project Cost Estimate Summaries
- Appendix B: inDENSE Pilot Proposal
- Appendix C: Flows & Loads – Expanded Analysis

# APPENDIX A: PROJECT COST ESTIMATE SUMMARIES

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801 T Street
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| | |
|---|---|
| **Project ID** | PG-01A |
| **Project Name** | Secondary Treatment Settleability, Pumping, and Control Improvements |
| **Project Description** | Provide secondary treatment improvements including control, A-Ring mixing improvements, scum removal improvements, densification system, and IMLR pumping improvements. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

**Note: This estimate is for a portion of Project PG-01, referred to as Project PG-01A. Estimated costs for Project PG-01B have been provided by the**

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Submersible Horizontal Mixer Equipment - A Ring, Invent CyberFlow | EA | 6 | $ 62,500 | $ 375,000 | $ 150,000 | | | $ 26,250 | $ 551,000 |
| | IMLR Pumps | EA | 6 | $ 120,000 | $ 720,000 | $ 144,000 | | | $ 50,400 | $ 914,000 |
| | Densification System - inDENSE - 3 Skids | EA | 3 | $ 248,000 | $ 744,000 | $ 148,800 | | | $ 52,080 | $ 945,000 |
| | Densification Feed Pumps - Rotary Lobe | EA | 3 | $ 60,000 | $ 180,000 | $ 36,000 | | | $ 12,600 | $ 229,000 |
| | Nitrate Probes | EA | 6 | $ 22,000 | $ 132,000 | | | | | $ 132,000 |
| | DO Probes | EA | 18 | $ 7,000 | $ 126,000 | | | | | $ 126,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 910,800 | $ 910,800 | | | | | $ 911,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | RAS/WAS Pump Station Expansion | LS | 1 | $ 750,000 | $ 750,000 | | $ 150,000 | $ 37,500 | | $ 938,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Surface Wasting System | EA | 3 | $ 80,000 | $ 240,000 | | | | | $ 240,000 |
| | Civil and Yard Piping | LS | 1 | $ 250,000 | $ 250,000 | | | | | $ 250,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 810,000 | $ 810,000 | | | | | $ 810,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 6,146,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 615,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 922,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 7,683,000* | |
| **Construction Contingency** | 30% | | $ 2,305,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 250,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 10,238,000* | |
| **Escalation** | 3% | 2030 Dollars | $ 1,631,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 11,869,000 | 2030 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 1,781,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 250,000 | |
| Permitting | 1% | | $ 119,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 14,019,000* | |
| Project Contingency | 10% | | $ 1,402,000 | |
| **TOTAL PROJECT COST** | | | $ 15,500,000 | 2030 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | *$ 12,400,000* | |
| **EXP. ACCURACY - HIGH** | | | *$ 20,150,000* | |

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| | |
|---|---|
| **Project ID** | PG-01B |
| **Project Name** | Secondary Treatment Aeration Improvements |
| **Project Description** | Provide new diffused aeration and blower systems for oxidation ditches. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

**Note: Estimated costs for Project PG-01B have been provided by the City.**

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | **CONSTRUCTION** | | | | | | | | | |

| | | |
|---|---|---|
| *TOTAL PROJECT COST* | *$ 30,400,000* | *2025 Dollars, Rounded* |
| TOTAL PROJECT COST | $ 35,200,000 | 2030 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | *$ 28,160,000* | |
| **EXP. ACCURACY - HIGH** | *$ 45,760,000* | |

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| | |
|---|---|
| **Project ID** | PG-02 |
| **Project Name** | Tertiary Filtration - New CDF Units, Phase 1 |
| **Project Description** | Provide new cloth disk filtration train including chemical feed system and flow split structure. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Cloth Disk Filter Equipment - Aqua-Aerobic MegaDisk, BW Pumps | EA | 3 | $ 980,000 | $ 2,940,000 | $ 588,000 | | | $ 205,800 | $ 3,734,000 |
| | Chemical Feed and Mixing System | LS | 1 | $ 250,000 | $ 250,000 | $ 50,000 | | | $ 17,500 | $ 318,000 |
| | Motorized Slide Gates | EA | 2 | $ 25,000 | $ 50,000 | $ 10,000 | | | $ 3,500 | $ 64,000 |
| | Magnetic Flow Meter - 24" - Filter Trains | EA | 2 | $ 40,000 | $ 80,000 | $ 16,000 | | | $ 5,600 | $ 102,000 |
| | Submersible Pump - Sidestream Pump Station | EA | 2 | $ 175,000 | $ 350,000 | $ 105,000 | | | $ 24,500 | $ 480,000 |
| | Magnetic Flow Meter - 16" - Sidestream Pump Station | EA | 2 | $ 18,000 | $ 36,000 | $ 7,200 | | | $ 2,520 | $ 46,000 |
| | Air Release Valve - 4" - Sidestream Pump Station | EA | 2 | $ 6,000 | $ 12,000 | $ 2,400 | | | $ 840 | $ 15,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 1,487,200 | $ 1,487,200 | | | | | $ 1,487,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Cloth Disk Filter Structure - Concrete Tank | LS | 1 | $ 2,400,000 | $ 2,400,000 | | | | | $ 2,400,000 |
| | Splitter Box | LS | 1 | $ 750,000 | $ 750,000 | | | | | $ 750,000 |
| | Flow Meter Vault | EA | 2 | $ 250,000 | $ 500,000 | | | | | $ 500,000 |
| | Temporary Bypass Pumping System | LS | 1 | $ 240,000 | $ 240,000 | | | | | $ 240,000 |
| | Electrical Building, 200 sf | LS | 1 | $ 500,000 | $ 500,000 | | $ 100,000 | $ 25,000 | | $ 625,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Civil and Yard Piping | LS | 1 | $ 1,000,000 | $ 1,000,000 | | | | | $ 1,000,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,780,000 | $ 1,780,000 | | | | | $ 1,780,000 |

| | | | | | |
|---|---|---|---|---|---|
| **Raw Construction Subtotal** | | | | **$ 13,641,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | | $ 1,365,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | | $ 2,047,000 | 15% of Raw Construction |
| *Subtotal* | | | | *$ 17,053,000* | |
| Construction Contingency | 30% | | | $ 5,116,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | | $ 555,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | | 2025 Dollars | *$ 22,724,000* | |
| Escalation | 3% | | 2030 Dollars | $ 3,620,000 | 3% Annually |
| | | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | | **$ 26,344,000** | 2030 Dollars |
| ***Non-Construction Project Costs*** | | | | | |
| Engineering & Construction Assistance | 15% | | | $ 3,952,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | | $ - | |
| Control System Integration | | | | $ 250,000 | |
| Permitting | 1% | | | $ 264,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | | $ - | |
| *Capital Cost Subtotal* | | | | *$ 30,810,000* | |
| Project Contingency | 10% | | | $ 3,081,000 | |
| **TOTAL PROJECT COST** | | | | $ 33,900,000 | 2030 Dollars, Rounded |
| | | | **EXP. ACCURACY - LOW** | *$ 27,120,000* | |
| | | | **EXP. ACCURACY - HIGH** | *$ 44,070,000* | |

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| | |
|---|---|
| **Project ID** | PG-03 |
| **Project Name** | UV Disinfection - New Unit, Phase 1 |
| **Project Description** | Provide additional UV disinfection channel (No. 5). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | UV Equipment - 4 Banks - Trojan UV3000 Plus | LS | 1 | $ 1,275,000 | $ 1,275,000 | $ 255,000 | | | $ 89,250 | $ 1,619,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 318,750 | $ 318,750 | | | | | $ 319,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | UV Structure - 1 Channel | LS | 1 | $ 2,500,000 | $ 2,500,000 | | | | | $ 2,500,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 50,000 | $ 50,000 | | | | | $ 50,000 |
| | Civil and Yard Piping | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 690,000 | $ 690,000 | | | | | $ 690,000 |

| | | | | | |
|---|---|---|---|---|---|
| **Raw Construction Subtotal** | | | | $ 5,278,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | | $ 528,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | | $ 792,000 | 15% of Raw Construction |
| *Subtotal* | | | | *$ 6,598,000* | |
| Construction Contingency | 30% | | | $ 1,980,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | | $ 215,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | | 2025 Dollars | *$ 8,793,000* | |
| Escalation | 3% | | 2030 Dollars | $ 1,401,000 | 3% Annually |
| | | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | | **$ 10,194,000** | 2030 Dollars |
| ***Non-Construction Project Costs*** | | | | | |
| Engineering & Construction Assistance | 15% | | | $ 1,530,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | | $ - | |
| Control System Integration | | | | $ 150,000 | |
| Permitting | 1% | | | $ 102,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | | $ - | |
| *Capital Cost Subtotal* | | | | *$ 11,976,000* | |
| Project Contingency | 10% | | | $ 1,198,000 | |
| TOTAL PROJECT COST | | | | $ 13,200,000 | 2030 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | | *$ 10,560,000* | |
| **EXP. ACCURACY - HIGH** | | | | *$ 17,160,000* | |

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| | |
|---|---|
| **Project ID** | PG-04 |
| **Project Name** | Influent Pump Station - Additional Pump |
| **Project Description** | Provide additional influent pump (No. 5) and ugprade ESB return pumping system. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Submersible Pump - 7,000 gpm | EA | 1 | $ 175,000 | $ 175,000 | $ 52,500 | | | $ 12,250 | $ 240,000 |
| | Magnetic Flow Meter - 20" | EA | 1 | $ 20,000 | $ 20,000 | $ 6,000 | | | $ 1,400 | $ 27,000 |
| | Air Release Valve - 4" | EA | 2 | $ 6,000 | $ 12,000 | $ 3,600 | | | $ 840 | $ 16,000 |
| | ESB Return Pumping Upgrades - Pumps, Piping | LS | 1 | $ 150,000 | $ 150,000 | $ 45,000 | | | $ 10,500 | $ 206,000 |
| | Magnetic Flow Meter - ESB Return | EA | 1 | $ 12,000 | $ 12,000 | $ 3,600 | | | $ 840 | $ 16,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 51,750 | $ 51,750 | | | | | $ 52,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Allowance for Misc. Metals | LS | 1 | $ 20,000 | $ 20,000 | | | | | $ 20,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 90,000 | $ 90,000 | | | | | $ 90,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ **667,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 67,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 101,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *835,000* | |
| Construction Contingency | 30% | | $ 251,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 28,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *1,114,000* | |
| Escalation | 3% | 2029 Dollars | $ 140,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ **1,254,000** | 2029 Dollars |
| ***Non-Construction** Project Costs* | | | | |
| Engineering & Construction Assistance | 15% | | $ 189,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 25,000 | |
| Permitting | 1% | | $ 13,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *1,481,000* | |
| Project Contingency | 10% | | $ 149,000 | |
| TOTAL PROJECT COST | | | $ 1,700,000 | 2029 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | $ *1,360,000* | |
| | | **EXP. ACCURACY - HIGH** | $ *2,210,000* | |

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|---|---|
| **Project ID** | PG-05 |
| **Project Name** | Primary Clarifiers - New Units, Phase 1 |
| **Project Description** | Provide additional primary clarifier units (No. 5 - 6). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Primary Clarifier Equipment Package | EA | 2 | $ 600,000 | $ 1,200,000 | $ 300,000 | | | $ 84,000 | $ 1,584,000 |
| | Primary Sludge Pump | EA | 4 | $ 80,000 | $ 320,000 | $ 80,000 | | | $ 22,400 | $ 422,000 |
| | Influent Channel Mixing Pump | EA | 1 | $ 120,000 | $ 120,000 | $ 30,000 | | | $ 8,400 | $ 158,000 |
| | Scum Pump | EA | 2 | $ 60,000 | $ 120,000 | $ 30,000 | | | $ 8,400 | $ 158,000 |
| | Allowance for Odor Control Improvements | LS | 1 | $ 350,000 | $ 350,000 | $ 87,500 | | | $ 24,500 | $ 462,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 527,500 | $ 527,500 | | | | | $ 528,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Primary Clarifier Structure - Influent/Effluent Channels, (2) Tanks, Gall | LS | 1 | $ 3,000,000 | $ 3,000,000 | | $ 150,000 | $ 50,000 | | $ 3,200,000 |
| | Allowance for Misc. Metals, Aluminum Covers | LS | 1 | $ 375,000 | $ 375,000 | | | | | $ 375,000 |
| | Civil and Yard Piping | LS | 1 | $ 1,000,000 | $ 1,000,000 | | | | | $ 1,000,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,190,000 | $ 1,190,000 | | | | | $ 1,190,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 9,077,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 908,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 1,362,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 11,347,000* | |
| Construction Contingency | 30% | | $ 3,405,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 369,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 15,121,000* | |
| Escalation | 3% | 2034 Dollars | $ 4,609,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 19,730,000** | 2034 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 2,960,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 300,000 | |
| Permitting | 1% | | $ 198,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 23,188,000* | |
| Project Contingency | 10% | | $ 2,319,000 | |
| TOTAL PROJECT COST | | | $ 25,600,000 | 2034 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | *$ 20,480,000* | |
| | | **EXP. ACCURACY - HIGH** | *$ 33,280,000* | |

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|---|---|
| **Project ID** | PG-06 |
| **Project Name** | Dewatering - New Unit |
| **Project Description** | Provide additional centrifuge (No. 4), feed pumping, WAS holding tanks, and ancillary equipment. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Centrifuge, 100 HP | EA | 1 | $ 650,000 | $ 650,000 | $ 162,500 | | | $ 45,500 | $ 858,000 |
| | Dewatering Feed Pump | EA | 1 | $ 50,000 | $ 50,000 | $ 12,500 | | | $ 3,500 | $ 66,000 |
| | Cake Conveyor - Inclined | EA | 1 | $ 40,000 | $ 40,000 | $ 10,000 | | | $ 2,800 | $ 53,000 |
| | Polymer Feed System Pumping Modifications | EA | 1 | $ 25,000 | $ 25,000 | $ 6,250 | | | $ 1,750 | $ 33,000 |
| | WAS Tank - Venturi Air Injection Mixing System | EA | 2 | $ 80,000 | $ 160,000 | $ 40,000 | | | $ 11,200 | $ 211,000 |
| | WAS Tank - Recirculation Pump, 30 HP | EA | 2 | $ 80,000 | $ 160,000 | $ 40,000 | | | $ 11,200 | $ 211,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 434,000 | $ 434,000 | | | | | $ 434,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Storage Tank - 360,000 gal Concrete (D110) - Digested Sludge, WAS | EA | 2 | $ 1,500,000 | $ 3,000,000 | | | | | $ 3,000,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Civil and Yard Piping | LS | 1 | $ 300,000 | $ 300,000 | | | | | $ 300,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 790,000 | $ 790,000 | | | | | $ 790,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 6,056,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 606,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 909,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *7,571,000* | |
| Construction Contingency | 30% | | $ 2,272,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 247,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *10,090,000* | |
| Escalation | 3% | 2038 Dollars | $ 4,728,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 14,818,000 | 2038 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 2,223,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 300,000 | |
| Permitting | 1% | | $ 149,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *17,490,000* | |
| Project Contingency | 10% | | $ 1,749,000 | |
| **TOTAL PROJECT COST** | | | $ 19,300,000 | 2038 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | $ *15,440,000* | |
| | | **EXP. ACCURACY - HIGH** | $ *25,090,000* | |

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|---|---|
| **Project ID** | PG-07 |
| **Project Name** | Influent Screening - New Unit |
| **Project Description** | Provide additional influent fine screen within empty channel (No. 3). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Influent Fine Screen Equipment | EA | 1 | $ 750,000 | $ 750,000 | $ 112,500 | | | $ 52,500 | $ 915,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 150,000 | $ 150,000 | | | | | $ 150,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Allowance for Misc. Metals | LS | 1 | $ 20,000 | $ 20,000 | | | | | $ 20,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 170,000 | $ 170,000 | | | | | $ 170,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | **$ 1,255,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 126,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 189,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 1,570,000* | |
| Construction Contingency | 30% | | $ 471,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 52,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 2,093,000* | |
| Escalation | 3% | 2039 Dollars | $ 1,073,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 3,166,000** | 2039 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 475,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 100,000 | |
| Permitting | 1% | | $ 32,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 3,773,000* | |
| Project Contingency | 10% | | $ 378,000 | |
| **TOTAL PROJECT COST** | | | **$ 4,200,000** | 2039 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | *$ 3,360,000* | |
| | | **EXP. ACCURACY - HIGH** | *$ 5,460,000* | |

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|---|---|
| **Project ID** | PG-08 |
| **Project Name** | Influent Pump Station - Additional Pump |
| **Project Description** | Provide additional influent pump (No. 6). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Submersible Pump - 9,000 gpm | EA | 1 | $ 240,000 | $ 240,000 | $ 72,000 | | | $ 16,800 | $ 329,000 |
| | Magnetic Flow Meter - 20" | EA | 1 | $ 20,000 | $ 20,000 | $ 6,000 | | | $ 1,400 | $ 27,000 |
| | Air Release Valve - 4" | EA | 2 | $ 6,000 | $ 12,000 | $ 3,600 | | | $ 840 | $ 16,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 68,000 | $ 68,000 | | | | | $ 68,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Allowance for Misc. Metals | LS | 1 | $ 20,000 | $ 20,000 | | | | | $ 20,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 70,000 | $ 70,000 | | | | | $ 70,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 530,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 53,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 80,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 663,000* | |
| Construction Contingency | 30% | | $ 199,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 22,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 884,000* | |
| Escalation | 3% | 2051 Dollars | $ 1,023,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 1,907,000 | 2051 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 287,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 25,000 | |
| Permitting | 1% | | $ 20,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 2,239,000* | |
| Project Contingency | 10% | | $ 224,000 | |
| TOTAL PROJECT COST | | | $ 2,500,000 | 2051 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | *$ 2,000,000* | |
| | | **EXP. ACCURACY - HIGH** | *$ 3,250,000* | |

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|---|---|
| **Project ID** | PG-09 |
| **Project Name** | Secondary Treatment Upgrades |
| **Project Description** | Provide additional oxidation ditch (No. 4) and secondary clarifier (No. 5). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Spiral Rake Clarifier Mechanism - 125' | EA | 1 | $ 1,000,000 | $ 1,000,000 | $ 200,000 | | | $ 70,000 | $ 1,270,000 |
| | Diffused Air and Blower Expansion | LS | 1 | $ 2,400,000 | $ 2,400,000 | $ 480,000 | | | $ 168,000 | $ 3,048,000 |
| | Submersible Mixer Equipment - A Ring | EA | 1 | $ 150,000 | $ 150,000 | $ 30,000 | | | $ 10,500 | $ 191,000 |
| | IMLR Pumps | EA | 2 | $ 120,000 | $ 240,000 | $ 48,000 | | | $ 16,800 | $ 305,000 |
| | RAS Pumps | EA | 2 | $ 100,000 | $ 200,000 | $ 40,000 | | | $ 14,000 | $ 254,000 |
| | Nitrate Probes | EA | 6 | $ 22,000 | $ 132,000 | | | | $ 9,240 | $ 141,000 |
| | DO Probes | EA | 18 | $ 7,000 | $ 126,000 | | | | $ 8,820 | $ 135,000 |
| | Densification System - inDENSE - 1 Skid | EA | 1 | $ 248,000 | $ 248,000 | $ 49,600 | | | $ 17,360 | $ 315,000 |
| | Densification Feed Pump - Rotary Lobe | EA | 1 | $ 60,000 | $ 60,000 | $ 12,000 | | | $ 4,200 | $ 76,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 1,822,400 | $ 1,822,400 | | | | | $ 1,822,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Oxidation Ditch Structure | LS | 1 | $ 5,400,000 | $ 5,400,000 | | | | | $ 5,400,000 |
| | Oxidation Ditch Effluent Junction Box | LS | 1 | $ 130,000 | $ 130,000 | | | | | $ 130,000 |
| | Oxidation Ditch Splitter Box | LS | 1 | $ 630,000 | $ 630,000 | | | | | $ 630,000 |
| | Secondary Clarifier Structures | EA | 1 | $ 1,380,000 | $ 1,380,000 | | | | | $ 1,380,000 |
| | RAS/WAS Pump Station Expansion | LS | 1 | $ 750,000 | $ 750,000 | | $ 150,000 | $ 37,500 | | $ 938,000 |
| | Surface Wasting System | EA | 1 | $ 80,000 | $ 80,000 | | | | | $ 80,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 50,000 | $ 50,000 | | | | | $ 50,000 |
| | Civil and Yard Piping | LS | 1 | $ 4,000,000 | $ 4,000,000 | | | | | $ 4,000,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 3,030,000 | $ 3,030,000 | | | | | $ 3,030,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 23,195,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 2,320,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 3,480,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *28,995,000* | |
| Construction Contingency | 30% | | $ 8,699,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 943,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *38,637,000* | |
| Escalation | 3% | 2059 Dollars | $ 66,916,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 105,553,000 | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 15,833,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 1,000,000 | |
| Permitting | 1% | | $ 1,056,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *123,442,000* | |
| Project Contingency | 10% | | $ 12,345,000 | |
| TOTAL PROJECT COST | | | $ 135,800,000 | 2059 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | $ *108,640,000* | |
| | | **EXP. ACCURACY - HIGH** | $ *176,540,000* | |

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|---|---|
| **Project ID** | PG-10 |
| **Project Name** | UV Disinfection - New Unit, Phase 2 |
| **Project Description** | Provide additional UV disinfection channel (No. 6). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | UV Equipment - 4 Banks - Trojan UV3000 Plus | LS | 1 | $ 1,275,000 | $ 1,275,000 | $ 255,000 | | | $ 89,250 | $ 1,619,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 318,750 | $ 318,750 | | | | | $ 319,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | UV Structure - 1 Channel | LS | 1 | $ 2,500,000 | $ 2,500,000 | | | | | $ 2,500,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 50,000 | $ 50,000 | | | | | $ 50,000 |
| | Civil and Yard Piping | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 690,000 | $ 690,000 | | | | | $ 690,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | **$ 5,278,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 528,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 792,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 6,598,000* | |
| Construction Contingency | 30% | | $ 1,980,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 215,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 8,793,000* | |
| Escalation | 3% | 2059 Dollars | $ 15,229,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 24,022,000** | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 3,604,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 250,000 | |
| Permitting | 1% | | $ 241,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 28,117,000* | |
| Project Contingency | 10% | | $ 2,812,000 | |
| TOTAL PROJECT COST | | | $ 31,000,000 | 2059 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | *$ 24,800,000* | |
| **EXP. ACCURACY - HIGH** | | | *$ 40,300,000* | |

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|---|---|
| **Project ID** | PG-11 |
| **Project Name** | Grit Removal - New Unit |
| **Project Description** | Provide additional aerated grit system (No. 3), tankage, grit blower, grit processing, and ancillary equipment. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| | | Cost Item | | | | Mechanical Process | HVAC | Plumbing | I&C | |
|---|---|---|---|---|---|---|---|---|---|---|
| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Total Cost | Total Cost | Total Cost | Total Cost | Total Cost |
| | **EQUIPMENT** | | | | | | | | | |
| | Grit Blower | EA | 1 | $ 75,000 | $ 75,000 | $ 37,500 | | | $ 5,250 | $ 118,000 |
| | Grit Pump | EA | 2 | $ 75,000 | $ 150,000 | $ 75,000 | | | $ 10,500 | $ 236,000 |
| | Conveyor Equipment | EA | 1 | $ 120,000 | $ 120,000 | $ 60,000 | | | $ 8,400 | $ 188,000 |
| | Classifying and Dewatering Equipment | EA | 1 | $ 400,000 | $ 400,000 | $ 200,000 | | | $ 28,000 | $ 628,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 298,000 | $ 298,000 | | | | | $ 298,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Aerated Grit Tank Structure | LS | 1 | $ 320,000 | $ 320,000 | | | | | $ 320,000 |
| | Grit Process Building | LS | 1 | $ 520,000 | $ 520,000 | | $ 104,000 | $ 26,000 | | $ 650,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 25,000 | $ 25,000 | | | | | $ 25,000 |
| | Civil and Yard Piping | LS | 1 | $ 500,000 | $ 500,000 | | | | | $ 500,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 450,000 | $ 450,000 | | | | | $ 450,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | **$ 3,413,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 342,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 512,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 4,267,000* | |
| Construction Contingency | 30% | | $ 1,281,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 139,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 5,687,000* | |
| Escalation | 3% | 2059 Dollars | $ 9,850,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 15,537,000** | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 2,331,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 350,000 | |
| Permitting | 1% | | $ 156,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 18,374,000* | |
| **Project** Contingency | 10% | | $ 1,838,000 | |
| **TOTAL PROJECT COST** | | | $ 20,300,000 | 2059 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | *$ 16,240,000* | |
| | | **EXP. ACCURACY - HIGH** | *$ 26,390,000* | |

Woodard & Curran

801 T Street
Sacramento, California 95811

| | |
|---|---|
| Project ID | PG-12 |
| Project Name | Anaerobic Digestion - New Unit |
| Project Description | Provide additional anaerobic digester (No. 3). |
| Client | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Digester Mixing Pumps | EA | 2 | $ 300,000 | $ 600,000 | $ 150,000 | | | $ 42,000 | $ 792,000 |
| | Sludge Recirculation Pumps | EA | 2 | $ 80,000 | $ 160,000 | $ 40,000 | | | $ 11,200 | $ 211,000 |
| | Sludge Grinder | EA | 1 | $ 80,000 | $ 80,000 | $ 20,000 | | | $ 5,600 | $ 106,000 |
| | Sludge Heat Exchanger | EA | 1 | $ 100,000 | $ 100,000 | $ 25,000 | | | $ 7,000 | $ 132,000 |
| | Hot Water Pumps | EA | 2 | $ 25,000 | $ 50,000 | $ 12,500 | | | $ 3,500 | $ 66,000 |
| | Hot Water Boiler | EA | 2 | $ 50,000 | $ 100,000 | $ 25,000 | | | $ 7,000 | $ 132,000 |
| | Sludge Transfer Pumps | LS | 2 | $ 80,000 | $ 160,000 | $ 40,000 | | | $ 11,200 | $ 211,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 500,000 | $ 500,000 | | | | | $ 500,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Anaerobic Digester Structure | EA | 1 | $ 3,500,000 | $ 3,500,000 | | | | | $ 3,500,000 |
| | Digester Building | LS | 1 | $ 2,000,000 | $ 2,000,000 | | $ 400,000 | $ 100,000 | | $ 2,500,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Civil and Yard Piping | LS | 1 | $ 1,500,000 | $ 1,500,000 | | | | | $ 1,500,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,470,000 | $ 1,470,000 | | | | | $ 1,470,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | **$ 11,220,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 1,122,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 1,683,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 14,025,000* | |
| Construction Contingency | 30% | | $ 4,208,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 456,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 18,689,000* | |
| Escalation | 3% | 2059 Dollars | $ 32,368,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 51,057,000** | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 7,659,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 350,000 | |
| Permitting | 1% | | $ 511,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 59,577,000* | |
| Project Contingency | 10% | | $ 5,958,000 | |
| TOTAL PROJECT COST | | | $ 65,600,000 | 2059 Dollars, Rounded |
| | | EXP. ACCURACY - LOW | *$ 52,480,000* | |
| | | EXP. ACCURACY - HIGH | *$ 85,280,000* | |

Woodard & Curran

801 T Street
Sacramento, California 95811

| | |
|---|---|
| **Project ID** | PG-13 |
| **Project Name** | Tertiary Filtration - New CDF Units, Phase 2 |
| **Project Description** | Provide additional cloth disk filter units, retrofit into existing tertiary filter structure. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Cloth Disk Filter Equipment - Aqua-Aerobic MegaDisk, BW Pumps | EA | 4 | $ 980,000 | $ 3,920,000 | $ 784,000 | | | $ 274,400 | $ 4,978,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 1,568,000 | $ 1,568,000 | | | | | $ 1,568,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Tertiary Filter Structure Equipment Demolition, Modifications | LS | 1 | $ 1,500,000 | $ 1,500,000 | | | | | $ 1,500,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 100,000 | $ 100,000 | | | | | $ 100,000 |
| | Civil and Yard Piping | LS | 1 | $ 250,000 | $ 250,000 | | | | | $ 250,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,260,000 | $ 1,260,000 | | | | | $ 1,260,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | **$ 9,656,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 966,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 1,449,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 12,071,000* | |
| Construction Contingency | 30% | | $ 3,622,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 393,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 16,086,000* | |
| Escalation | 3% | 2059 Dollars | $ 27,860,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 43,946,000** | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 6,592,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 150,000 | |
| Permitting | 1% | | $ 440,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 51,128,000* | |
| Project Contingency | 10% | | $ 5,113,000 | |
| **TOTAL PROJECT COST** | | | $ 56,300,000 | 2059 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | *$ 45,040,000* | |
| **EXP. ACCURACY - HIGH** | | | *$ 73,190,000* | |

Woodard & Curran

801 T Street
Sacramento, California 95811

| | |
|---|---|
| **Project ID** | PG-14 |
| **Project Name** | Primary Clarifiers - New Unit, Phase 2 |
| **Project Description** | Provide additional primary clarifier unit (No. 7). |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Pleasant Grove WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Primary Clarifier Equipment Package | EA | 1 | $ 600,000 | $ 600,000 | $ 150,000 | | | $ 42,000 | $ 792,000 |
| | Primary Sludge Pump | EA | 2 | $ 80,000 | $ 160,000 | $ 40,000 | | | $ 11,200 | $ 211,000 |
| | Scum Pump | EA | 1 | $ 60,000 | $ 60,000 | $ 15,000 | | | $ 4,200 | $ 79,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 205,000 | $ 205,000 | | | | | $ 205,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Primary Clarifier Structure, Channel Modifications | LS | 1 | $ 2,000,000 | $ 2,000,000 | | | | | $ 2,000,000 |
| | Allowance for Misc. Metals, Aluminum Covers | LS | 1 | $ 150,000 | $ 150,000 | | | | | $ 150,000 |
| | Civil and Yard Piping | LS | 1 | $ 300,000 | $ 300,000 | | | | | $ 300,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 570,000 | $ 570,000 | | | | | $ 570,000 |

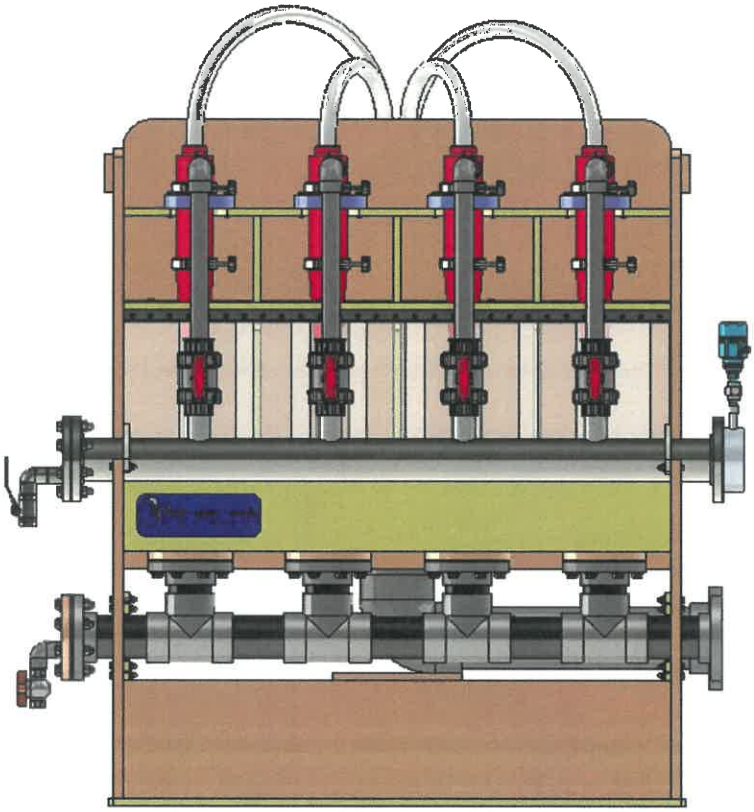
| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 4,307,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 431,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 647,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *5,385,000* | |
| Construction Contingency | 30% | | $ 1,616,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 176,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *7,177,000* | |
| Escalation | 3% | 2059 Dollars | $ 12,430,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 19,607,000 | 2059 Dollars |
| ***Non-Construction** Project Costs* | | | | |
| Engineering & Construction Assistance | 15% | | $ 2,942,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 300,000 | |
| Permitting | 1% | | $ 197,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *23,046,000* | |
| Project Contingency | 10% | | $ 2,305,000 | |
| TOTAL PROJECT COST | | | $ 25,400,000 | 2059 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | $ *20,320,000* | |
| **EXP. ACCURACY - HIGH** | | | $ *33,020,000* | |

# APPENDIX B: INDENSE PILOT PROPOSAL

World water works

# WWW inDENSE® RENTAL AGREEMENT

## Roseville, CA – Pleasant Grove
## Woodard & Curran



**RENTAL AGREEMENT**

This RENTAL AGREEMENT (the "RENTAL" or "AGREEMENT") is made and entered into as 11/21/2025 by and between:

OWNER: World Water Works, Inc.
4000 SW 113th Street, Oklahoma City, OK 73173
Attention: John Mickler
Phone: 405-943-9000 Fax: 405-943-9006

AND

RENTER: Pleasant Grove WWTP

In consideration of the mutual covenants and AGREEMENTs contained in this RENTAL, OWNER rents to RENTER, and RENTER rents from OWNER, inDENSE® System (the "EQUIPMENT") on the TERMs and conditions set forth in this RENTAL.

Achieve a consistent SVI of 120 mL/g +/- 10%
Achieve a consistent % reduction in SVI of 40% +/- 10%

Note: consistent performance is assumed under conditions without plant upsets.

1. Major plant upsets including but not limited to
    a. significant wet weather
    b. MLSS washout
    c. major dewatering upsets
    d. significant conditions of underloading or overloading.
    e. Industrial discharger(s) out of compliance or spills.

In addition, the following conditions need to be followed:

1. The facility should have all equipment operational and operating within the normal design ranges.
2. Solids Retention Time (SRT) should be maintained within normal design ranges.
3. The minimum opening for the headworks screening should be no larger than 6 mm or ¼".
4. Activated sludge system should be operated in the specified configuration (e.g. MLE, A/O, A2O).
5. All wasting shall be conducted through the hydrocyclone and the inDENSE system.
6. Wasting should be conducted consistently and/or continuously.
7. All components of the inDENSE system shall be operated per WWW operating guidelines.
8. All auxiliary systems (whether or not supplied by WWW) need to be operated and maintained per the manufacturer's recommendation.
9. All chemical dosing needs to remain consistent. There should be no major changes in the type of chemicals and/or dosage range being utilized.
10. The current aeration strategy should be noted and maintained. The system needs to be operated with the required design DO ranges.

**Summary of RENTAL Charges**

| | |
|---|---|
| Monthly RENTAL Rate: | $10,000 per Month |
| Startup & Training: | $6,750 per week, 1 representative minimum 3 days on-site, 1 trip. Additional days are billed at $1,350 per day |
| Shipping & Handling Round-Trip: | TBD, Billed at Cost, FOB Origin, Prepay & Add. |
| RENTAL Credit towards Purchase: | 25% of monthly RENTAL fees incurred (capped at three months) will be applied as a discount towards the purchase of a permanent system – this does not include shipping, startup, or cleaning fees incurred. |

**First invoice paid in advance to shipment of unit to site:**
1st-month RENTAL, startup & training, shipping round trip, and cleaning fees are included in the first invoice.

**1. TERM**—The TERM of this RENTAL (the "TERM") shall be **3 months**, commencing on the date of this RENTAL; provided, that so long as RENTER is not in default under any provision of this AGREEMENT, the TERM will automatically extend 30 Days unless either OWNER or RENTER Terminates this AGREEMENT by written notice provided to the other at least 30 days prior to the end of the initial TERM. RENTER shall return the EQUIPMENT to OWNER at the end of the TERM in the same condition as when received by RENTER, excepting reasonable wear and tear resulting from normal use. RENTER may Terminate this RENTAL at any time that it is not in default under this AGEEMENT by giving OWNER at least 30 days prior written notice of its election to Terminate. Accordingly, the parties agree that such amount represents a reasonable estimate of such damages.

**2. RENTAL CHARGES—** RENTER shall pay RENT on the EQUIPMENT("RENT") at the rate of **$10,000 per month** plus all applicable sales, excise, or similar tax. RENT shall not be subject to any set-off or deduction for any reason whatsoever, nor shall RENTER be relieved from its responsibility to pay RENT for the entire TERM by reason of the fact that the EQUIPMENT is returned to OWNER prior to the end of the TERM. RENT shall be paid by RENTER to OWNER within 10 days after RENTER's receipt of OWNER's invoice. If repairs are found to be required by OWNER upon return of the EQUIPMENT, RENTER shall continue to pay RENT until the EQUIPMENT is returned to good operating condition as determined by OWNER. All overdue payments shall bear interest at the rate of 12% per annum without prejudice to any other rights of OWNER under this RENTAL.

**EQUIPMENT supply includes:**

| Qty | Item | EQUIPMENT Description |
|---|---|---|
| 1 | inDENSE Support Structure | Polypropylene Construction, PVC and 304SS or 316SS Wetted Parts |
| 4 | inDENSE Hydrocyclone | Red polyurethane, 316 SS, and Black Thermoplastic |
| 1 | Pressure Transmitter w/ Isolator Ring | 4" Isolation Ring w/ 1/2" Instrument Connection<br>Endress+Hauser Cerabar M PMP51 or Equal |
| 12 | Hydrocyclone Spigots | Red polyurethane (QTY) 4 of each size: 15 mm, 18 mm, 20 mm |
| ***0*** | ***Items Excluded*** | ***EQUIPMENT Supply excludes shipping (billed at cost), installation, offloading at site, reloading at site, controls, transfer pump systems, tanks, flow meters, utilities, testing EQUIPMENT, or any EQUIPMENT outside of that listed here.*** |

**3. DELIVERY AND INSTALLATION OF THE EQUIPMENT**—RENTER shall inspect the EQUIPMENT upon taking delivery. RENTER's failure to notify OWNER in writing of any deficiencies in the EQUIPMENT within 24 hours after taking delivery shall be deemed an acknowledgment by RENTER that the EQUIPMENT was when delivered, in good, safe, and serviceable condition and fit for its intended use. Title to all parts, materials, and supplies furnished with respect to the EQUIPMENT shall remain the property of OWNER. Any replacement parts shall

become the property of the OWNER. All accessories or attachments not listed herein or necessarily included as part of the EQUIPMENT shall be furnished by RENTER at its own expense. RENTER shall be responsible for properly installing the EQUIPMENT and when the TERM ends, de-installing the EQUIPMENT. RENTER acknowledges that it has the proper EQUIPMENT, tools, manpower, and expertise to install and de-install the EQUIPMENT; including, but not limited to, electrical installation, making connections to existing pipes, any necessary building or foundation modifications, and obtaining any necessary permits required by the state or jurisdiction where the EQUIPMENT is to be operated. RENTER acknowledges that it has reviewed the requirements for the EQUIPMENT and that it has sufficient space for the EQUIPMENT to meet the requirements of the EQUIPMENT.

4. **FREIGHT**—All costs of transporting the EQUIPMENT from OWNER's yard to RENTER's location and of transporting the EQUIPMENT from RENTER's location back to OWNER's yard shall be at the expense of RENTER. The OWNER will work with the RENTER in making appropriate transportation arrangements. As noted in the paragraph on Insurance, it will be the RENTER's responsibility to obtain freight insurance for moving the EQUIPMENT.

5. **OPERATION AND MAINTENANCE OF EQUIPMENT**—RENTER, at its own expense, shall operate the EQUIPMENT in compliance with OWNER's operating instructions, complying to all applicable federal, state or local statutes, laws, ordinances, rules, regulations, and orders. RENTER acknowledges that it is responsible for supplying the utilities to operate the EQUIPMENT, including but not limited to, electrical, fresh water, etc. RENTER is also responsible for providing adequate sewer/disposal system sufficient for the use in connection with the EQUIPMENT. RENTER, at its own expense, will maintain the EQUIPMENT in good working condition. RENTER will not modify the EQUIPMENT. RENTER agrees that it will not permit the EQUIPMENT to be removed from the delivery location without the express written consent of OWNER.

6. **RETURN OF THE EQUIPMENT**— RENTER will notify OWNER no later than 30 days before it intends to allow the RENTAL to Terminate, return the EQUIPMENT, and not seek an extension of the TERM. If the RENTER fails to give the information before the expiration of that notice, the RENTER agrees to pay an amount equal to 1 month of RENTAL charges. On the expiration of the TERM, the earlier termination of the RENTAL, or the OWNER is returning it for any reason, RENTER must, at its own expense, promptly return the EQUIPMENT in good condition, reasonable wear and tear accepted, to OWNER at an address in the United States as OWNER may designate. Prior to returning the EQUIPMENT, RENTER is to clean the EQUIPMENT, including flushing it with fresh water such that any process water and/or wastewater has been removed from the EQUIPMENT. If RENTER fails to return the EQUIPMENT or requests OWNER collect the EQUIPMENT, RENTER will be responsible for all collection costs, including but not limited to shipping costs. If the RENTER does not return any part of the EQUIPMENT "either in whole or in part", RENTER will remain responsible for the daily RENTAL charge until the EQUIPMENT is returned to OWNER's yard in Oklahoma City, Oklahoma or repossessed by the OWNER. **If RENTER fails to clean the EQUIPMENT prior to return, it agrees to pay a cleaning fee of $2,000 plus any waste disposal fees incurred.**

7. **RIGHT TO CONTROL**—RENTER acknowledges and agrees that during the TERM the EQUIPMENT and all personnel operating the EQUIPMENT are under RENTER's exclusive jurisdiction, supervision, and control. RENTER acknowledges that OWNER has absolutely no control over any person operating or assisting in operating the EQUIPMENT.

8. **INDEMNIFICATION**—RENTER shall indemnify, defend, and hold OWNER, its affiliates, and their respective directors, managers, officers, partners, members, shareholders, employees, representatives, and agents (collectively, the "OWNER INDEMNIFIED PARTIES") harmless from any and all causes of action, claims, demands, suits, judgments, losses, and liabilities, including any damage to the EQUIPMENT, arising in whole or in part out of (a) RENTER's use of the EQUIPMENT, (b) RENTER's actions or those of its employees, representatives, or agents, or (c) RENTER's breach of this RENTAL (collectively, "INDEMNIFICATION CLAIMS"). RENTER's duty to indemnify and hold the OWNER INDEMNIFIED PARTIES harmless hereunder shall include all costs or expenses arising out of

any INDEMNIFICATION CLAIMS, including all court and/or arbitration costs, filing fees, attorneys' fees, and costs of settlement. The indemnification obligation of RENTER hereunder shall not be limited in any way by any limitation on the amount or type of damage, compensation, or benefits payable by or for RENTER under worker's compensation acts, disability benefit acts, or other employee benefit acts. RENTER's indemnification obligations hereunder shall not be limited by the amount of its liability insurance and the purchase of such insurance for OWNER shall not operate to waive any of the above obligations. This provision is separate and distinct from any other provision or paragraph in this RENTAL, including any provision or paragraph concerning the procurement of insurance.

**9. INSURANCE**—During the TERM, RENTER will maintain worker's compensation and employer's liability insurance with limits of at least the statutory minimum of the state where the EQUIPMENT will be operated; and include a waiver of subrogation in favor of World Water Works; commercial general liability insurance on an occurrence basis, including bodily injury and property damage coverage with minimum limits of $1,000,000 per occurrence and $2,000,000 in the aggregate, and all risk physical damage insurance to cover the REPLACEMENT VALUE of any EQUIPMENT in RENTER's possession or control for its loss or damage from any and all causes, including but not limited to, misuse, fire, theft, flood, explosion, accident, and acts of God occurring during the TERM and during Freight/Delivery and Freight/Return. The RENTER shall name World Water Works as an additional insured under the General Liability, including a Waiver of Subrogation in favor of World Water Works; and loss payee under the inland marine (equipment) policy. The "REPLACEMENT VALUE" of the Equipment is $225,000 and the parties agree that this is the actual value of the EQUIPMENT for the purposes of fixing the EQUIPMENT's insurable value. All such policies shall be written by insurance companies acceptable to OWNER. RENTER's obligation to indemnify and hold OWNER harmless from any INDEMNIFIED CLAIMS are in addition to, and not an alternative to, these insurance provisions, and the purchase of any of the above coverage shall not operate to waive any of the above indemnity provisions. Please see Appendix A for Sample

**10. DAMAGE TO EQUIPMENT**—All risks of loss or damage to the EQUIPMENT during the TERM and during Fright/Delivery and Freight/Return, accidental or otherwise, shall be borne by RENTER except to the extent any such loss or damage occurs while such EQUIPMENT is in OWNER's control for servicing or occurs as a result of any negligent or willful act of OWNER or its employees or agents. The appraisal of any such loss or damage shall be based upon the REPLACEMENT VALVUE of the EQUIPMENT as set forth above. In making such appraisal it is understood that no RENT, paid or due, shall apply to the payment of such loss. RENTER's obligations under this RENTAL (including the obligation to pay RENT) shall continue while all repairs to the EQUIPMENT are completed unless such repairs are necessary as a result of an event for which OWNER is responsible pursuant to the first sentence of this section. If the EQUIPMENT is damaged or made inoperable in any way other than as a result of normal operating wear, RENTER shall notify OWNER in writing within 48 hours of its occurrence, specifying the extent and nature of the damage.

**11. RENTER DEFAULT**—If (a) RENTER fails to comply with any TERM, provision, or covenant of this RENTAL; (b) any representation or warranty of RENTER in this RENTAL is or becomes incorrect, false, or misleading in any material respect; or (c) RENTER voluntarily files a petition for bankruptcy or reorganization, a petition in bankruptcy is filed against RENTER, a receiver or other representative is appointed for RENTER or its business or assets, or RENTER makes an assignment for the benefit of creditors, OWNER shall have the following remedies:

A. OWNER may, at its election, terminate this RENTAL and enter any premises where the EQUIPMENT is located without notice and may repossess the EQUIPMENT without being liable for any damages therefore, and without the need of a court order or other legal process.

B. OWNER shall be entitled to recover as damages all RENT due associated with the full TERM of this agreement and the cost of performing any other activities required to be performed by OWNER as a consequence of such default including but not limited to all shipping, repair, and cleaning

costs necessary to return the EQUIPMENT to OWNER in the same condition as when it was delivered to RENTER ordinary wear and tear excepted.

Pursuit of any of the foregoing remedies shall not preclude pursuit of any of the other remedies herein provided or any other remedies available at law or in equity (all such remedies being cumulative), nor shall pursuit of any remedy herein provided constitute a forfeiture or waiver of any RENT due to OWNER hereunder or of any damages accruing to OWNER by reason of the violation of any of the terms, provisions, and covenants of this RENTAL. No act or thing done by OWNER or its agents during the TERM shall be deemed a Termination of this RENTAL and no AGREEMENT to Terminate this RENTAL shall be valid unless in writing signed by OWNER and RENTER.

**12. TITLE**—OWNER shall retain title to the EQUIPMENT during the TERM. RENTER shall keep the EQUIPMENT free from all liens or other encumbrances. RENTER agrees to notify OWNER immediately if any lien or any attachment or other claim is filed against the EQUIPMENT. RENTER acknowledges that this RENTAL is intended to be a true RENTAL, and RENTER authorizes the OWNER to file financing statements to give public notice of this RENTAL. If this RENTAL is deemed by a court of competent jurisdiction to be a RENTAL intended for security, RENTER grants OWNER a purchase money security interest in the EQUIPMENT, which security interest shall secure any and all obligations now or hereafter owed by RENTER to OWNER, including without limitation, RENTER's obligations to OWNER under this RENTAL with respect to the EQUIPMENT.

**13. GOVERNING LAW; VENUE; JURISDICTION**—This RENTAL shall be governed by and construed in accordance with Oklahoma law. The parties agree that any dispute arising out of this AGREEMENT shall be decided by either the state or federal court in Oklahoma County, Oklahoma. The parties shall each submit to the jurisdiction of those courts and agree that service of process by certified mail, return receipt requested, shall be sufficient to confer such courts within personal jurisdiction.

**14. INTERPRETATION**—In the construction and interpretation of this RENTAL, the rule of construction that documents be construed most strictly against the party who prepared it shall not be applied because both parties have participated in the preparation of this RENTAL. Should any provision of this RENTAL be invalidated in whole or in part by any competent authority, such provision shall continue in effect only to the extent permitted; however, the remaining provisions shall remain in full force and effect. Paragraph headings are not a part of this RENTAL and shall have no effect upon its construction or interpretation.

**15. WAIVER OF DAMAGES**—IN NO EVENT SHALL OWNER BE LIABLE FOR ANY LOST OR PROSPECTIVE PROFITS OR ANY OTHER SPECIAL, PUNITIVE, EXEMPLARY, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT LOSSES OR DAMAGES (IN TORT, CONTRACT OR OTHERWISE) UNDER OR IN RESPECT TO THIS RENTAL OR FOR ANY FAILURE OR PERFORMANCE RELATED TO THIS RENTAL.

**16. ASSIGNMENT/SUBRENTAL**—Any attempt by RENTER to assign, sublet, or otherwise transfer this RENTAL or any interest herein, by operation of law or otherwise, without OWNER's written consent, shall be void. This RENTAL shall be binding upon and shall inure to the benefit of the parties and their respective heirs, successors, administrators, executors, trustees, and permitted assigns.

**17. ATTORNEYS' FEES AND COSTS**—If OWNER institutes any proceeding to enforce this RENTAL or any provision thereof, it shall be entitled to recover all court costs, including but not limited to, reasonable attorneys' fees regardless of whether or not such action is prosecuted to final judgment.

**18. TIME OF ESSENCE/WAIVER**—Time is of the essence of this RENTAL and all of its provisions. OWNER's failure to require strict performance by RENTER of any of the provisions of this RENTAL, or OWNER's acceptance

of late or partial performance hereunder, shall not constitute a waiver of any prior defaults of RENTER, nor of OWNER's rights thereafter to demand strict compliance therewith, or with any other provision hereof.

**19. NOTICES**—All notices or other communications required or contemplated by this RENTAL shall be in writing and shall be (a) personally delivered in return for a receipt; (b) mailed by registered or certified mail, return receipt requested; (c) sent by a recognized overnight courier service; or (d) sent by facsimile transmission (with a copy or original to be promptly provided by one of the other means set forth herein for giving notice) addressed to the party for whom it is intended at its address set forth above or to such other person or address as either party shall hereafter designate from time to time by similar notice. Such notices or communications shall be deemed given on personal delivery in return for a receipt, on the third business day after depositing with the U.S. mail, on the next business day after being deposited with the recognized overnight courier service, or on the date sent by facsimile transmission during normal business hours (otherwise on the next business day). Failure of delivery due to a refusal to accept delivery or due to a change of address for which no notice was properly given shall be deemed to constitute delivery on the date on which delivery was attempted.

**20. RELATIONSHIP OF PARTIES**—This RENTAL does not create, nor shall it be construed as creating, a partnership, a joint venture, or the relationship of employer and employee between OWNER and RENTER. RENTER shall be a customer of OWNER and is in no way authorized to make any contract, agreement, warranty, or representation on behalf of OWNER or to create any obligation, express or implied, on behalf of OWNER.

**21. EXECUTION**—This RENTAL may be executed in multiple counterparts with the same effect as if both parties had signed the same document. All counterparts will be construed together and will constitute one AGREEMENT. The delivery of signed counterparts by facsimile or email transmission that includes a copy of the sending party's signature is as effective as signing and delivering the counterpart in person. This RENTAL will not be binding on or constitute evidence of an AGREEMENT until both parties affix their signature to a counterpart of this document.

**22. AMENDMENTS**—No modification or amendment hereof shall be binding on OWNER unless it is in writing and signed by OWNER.

**23. ENTIRE AGREEMENT**—This RENTAL, when duly executed by the parties, is the complete AGREEMENT of the parties with respect to the subject matter hereof. RENTER represents that it has not relied upon any previous representations by anyone as an inducement to enter into this RENTAL. OWNER may withhold delivery of the EQUIPMENT until this RENTAL has been properly executed by all parties; however, acceptance of delivery of the EQUIPMENT and its use by RENTER shall constitute its acceptance of the terms and conditions of this RENTAL.

**OWNER:** **World Water Works, Inc.**

By:_____
Name: John Mickler
Title: Vice President of Contracts and Risk

**RENTER:** **Pleasant Grove WWTP**

By_____
Name:_____
Title:_____

# Appendix A:

## Insurance Certificate Sample

ACORD

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

| PRODUCER | CONTACT NAME: |
|---|---|
| | PHONE (A/C, No, Ext): / FAX (A/C, No): |
| | E-MAIL ADDRESS: |

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : | |
| INSURER B : | |
| INSURER C : | |
| INSURER D : | |
| INSURER E : | |
| INSURER F : | |

INSURED

XYZ Company
111 Any Street
Any Town USA 11111

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| | COMMERCIAL GENERAL LIABILITY | | | | | | EACH OCCURRENCE | $ 1,000,000 |
| | ☐ CLAIMS-MADE ☒ OCCUR | Y | Y | TBD | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ 100,000 |
| | | | | | | | MED EXP (Any one person) | $ 5,000 |
| | | | | | | | PERSONAL & ADV INJURY | $ 1,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ 2,000,000 |
| | ☐ POLICY ☒ PRO-JECT ☐ LOC | | | | | | PRODUCTS - COMP/OP AGG | $ 2,000,000 |
| | OTHER: | | | | | | | $ |
| | AUTOMOBILE LIABILITY | | | | | | COMBINED SINGLE LIMIT (Ea accident) | $ |
| | ☐ ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | ☐ UMBRELLA LIAB ☐ OCCUR | | | | | | EACH OCCURRENCE | $ |
| | ☐ EXCESS LIAB ☐ CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | ☐ DED ☐ RETENTION $ | | | | | | | $ |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ☐ | N/A | Y | TBD | | | ☒ PER STATUTE ☐ OTH-ER | |
| | ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBEREXCLUDED? (Mandatory in NH) | | | | | | E.L. EACH ACCIDENT | $ 1,000,000 |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - EA EMPLOYEE | $ 1,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 1,000,000 |
| | Inland Marine-Equipment | | | TBD | | | Per Item<br>Aggregate | $400,000<br>$400,000 |

Replacement Value per contract



DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate holder is named as an additional insured on a primary and non-contributory basis under the general liability as required by a written and signed contract. A waiver of subrogation in favor of the certificate holder applies to the general liability and worker's compensation as required by a written and signed contract.

Certificate holder is named as a Loss Payee under the Inland Marine-Equipment policy as required by a written and signed contract.

**CERTIFICATE HOLDER**

World Water Works Inc
P O Box 892050
Oklahoma City OK 73189

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Signed by Agent



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# APPENDIX C: FLOWS & LOADS – EXPANDED ANALYSIS

**Flows & Loads – Expanded Analysis**

This appendix is intended to provide additional background, figures, and supporting detail related to the topics discussed in **Chapter 2**. During development of the chapter, much of this material was determined to be important for context but too detailed to include in full within the main report. As a result, **Chapter 2** presents a streamlined summary of the most critical information, while this appendix includes the full set of background materials, figures, and reference content.

Data was evaluated from October 17, 2022 to May 24, 2025 as part of the analysis to determine existing flows and pollutant loads to the PGWWTP. This data period's start coincides with the new primary clarifiers and anaerobic digesters startup at the PGWWTP. EDU projections for the PGWWTP service area were utilized to project existing flows and loads to buildout conditions. These projections are the basis for capacity project scopes, schedules, and budgets at the PGWWTP.

## 6.1 Flow Criteria Definitions

Flow criteria were developed for the following conditions based on data obtained from the PGWWTP SCADA and Hach WIMS (Water Information Management Solution) systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Flow (ADWF) – The ADWF represents the average of daily flows during July, August, and September. The ADWF is the basis for calculating peaking factors for other flow criteria.
2. Annual Average Flow (AAF) – The AAF represents the average of daily flows during all months, wet and dry.
3. Maximum Daily Flow (MDF) – The MDF represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Weekly Flow (MWF) – The MWF represents conditions that are expected to be exceeded once for each 52 occurrences, or roughly 7 days per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 98.1% exceedance value (the value which is exceeded 1.9% of the time).
5. Maximum Monthly Flow (MMF) – The MMF represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).
6. Peak Hourly Wet Weather Flow (PHWWF) – The PHWWF represents that are expected to be exceeded for 1 hour per year based on the frequency distribution for all the relevant data.

## 6.2 Load Criteria Definitions

Load criteria were developed for the following conditions based on data obtained from the PGWWTP SCADA and Hach WIMS systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Load (ADWL) – The ADWL represents the average of daily loads (pounds per day) during July, August, and September.

2. Annual Average Loading (AAL) – The AAL represents the average daily loads during all months, wet and dry.
3. Maximum Daily Load (MDL) – The MDL represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Monthly Load (MML) – The MML represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).

Existing daily loads were calculated based on daily flow and daily composite sampling. These data were analyzed to establish current AAL, ADWL, and MML pollutant loading criteria as described above. Pollutant concentrations were then calculated for each statistical flow and loading condition.

## 6.3 Existing Flows and Loads

Raw influent, combined influent, and primary clarifier effluent (PCE) flow and load conditions are summarized in the tables below. Combined influent (primary clarifier influent) includes raw influent flows with sidestream flows such as in-plant sewer, onsite stormwater, tertiary filter backwash, thickener filtrate, and dewatering centrate.

### 6.3.1 Data Outlier Elimination

Outliers were removed following WEF MOP 8, Section 7.1 guidance to ensure representative influent conditions are used in the analysis. These primarily included periods of sampler malfunction and one extreme wet-weather event described below.

Several outliers were eliminated from the raw influent, combined influent, and primary clarifier effluent data. These include raw influent COD (7/4/2023, 5/12-6/30/2023); raw influent BOD (5/12-6/30/2023); raw influent TSS (5/12-6/30/2023); combined influent COD (6/6/2023, 6/9/2023); primary clarifier effluent VSS (6/2/2023); primary clarifier effluent COD (6/2/2023, 6/6/2023); primary clarifier effluent BOD (6/2/2023, 10/21/2023); primary clarifier effluent TSS (10/17/2022, 10/20/2022, 10/21/2022). During the period of 5/12-6/30/2023, a sudden, sustained trend of lower Raw Influent COD, BOD, and TSS concentrations were noted. This trend was not consistent with corresponding data from the combined influent or primary clarifier effluent samples which suggested a potential issue with the raw influent sampler. Based on Progress Meetings with the city on 6/26/2024 and 7/24/2024, the decision was made to eliminate this outlier data.

Data from 12/31/2023 and 1/1/2024 were also eliminated from the data set. During a 12-hour period the plant experienced a significant peak flow event with peak hourly raw influent flows up to 35 MGD. This event coincided with greater than 1.2 inches of rainfall. Based on discussions with the city, it is believed that these influent flows were exaggerated by temporary construction dewatering activities in the city. Therefore, the flows are considered an outlier event, and data from these two days were eliminated from the data set.

### 6.3.2 Existing Raw Influent Flows & Loads

Existing raw influent flow and load conditions are summarized below in the following tables and figures. This data is based on recorded flow meter data and automatic composite sampling regularly conducted at the Influent Pump Station.

**TABLE 6 1: SUMMARY OF EXISTING PGWWTP RAW INFLUENT FLOWS & LOADS**

| Condition | Existing |
|---|---|
| ***Raw Influent Flow (MGD)*** | |
| Average Dry Weather Flow (ADWF) | 8.9 |
| Average Annual Flow (AAF) | 9.2 |
| Maximum Day Flow (MDF) | 15.3 |
| Maximum Week Flow (MWF) | 13.2 |
| Maximum Month Flow (MMF) | 10.8 |
| Peak Hour Wet Weather Flow (PHWWF) | 24.0 |
| Minimum Month Temperature (deg C) | 18 |
| ***Raw Influent BOD*** | |
| Average Dry Weather Concentration (mg/L) | 364 |
| Average Annual Concentration (mg/L) | 360 |
| Maximum Month Concentration (mg/L) | 367 |
| Average Dry Weather Loading (lb/day) | 26,880 |
| Average Annual Loading (lb/day) | 27,750 |
| Maximum Month Loading (lb/day) | 32,940 |
| ***Raw Influent TSS*** | |
| Average Dry Weather Concentration (mg/L) | 266 |
| Average Annual Concentration (mg/L) | 263 |
| Maximum Month Concentration (mg/L) | 291 |
| Average Dry Weather Loading (lb/day) | 19,640 |
| Average Annual Loading (lb/day) | 20,290 |
| Maximum Month Loading (lb/day) | 26,070 |
| ***Raw Influent NH3*** | |
| Average Dry Weather Concentration (mg/L) | 41 |
| Average Annual Concentration (mg/L) | 39 |
| Maximum Month Concentration (mg/L) | 38 |
| Average Dry Weather Loading (lb/day) | 3,020 |
| Average Annual Loading (lb/day) | 3,020 |
| Maximum Month Loading (lb/day) | 3,450 |

**FIGURE 6 1: EXISTING RAW INFLUENT FLOW CHARACTERISTICS**

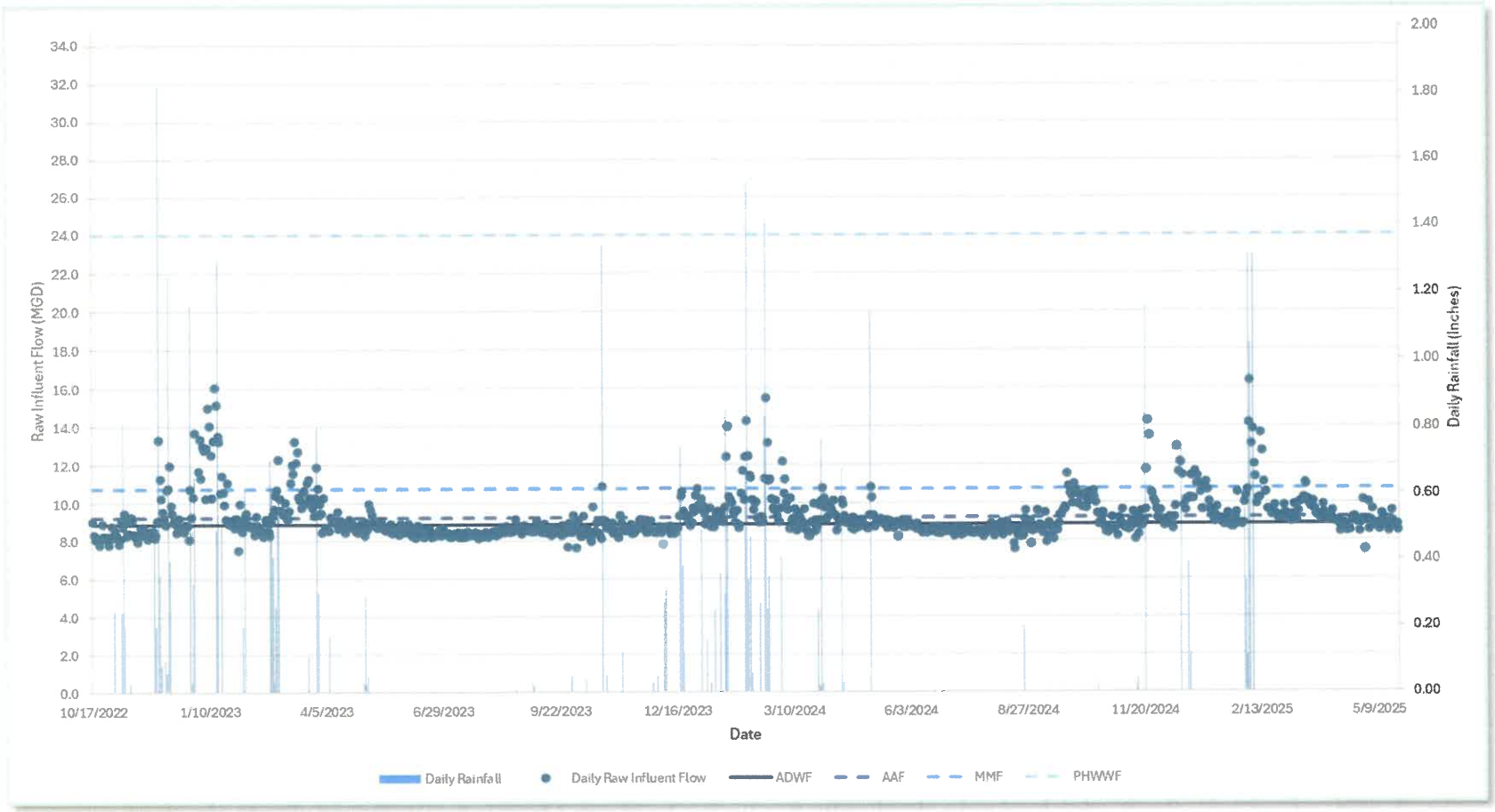


**FIGURE 6 2: EXISTING RAW INFLUENT BOD LOADING**

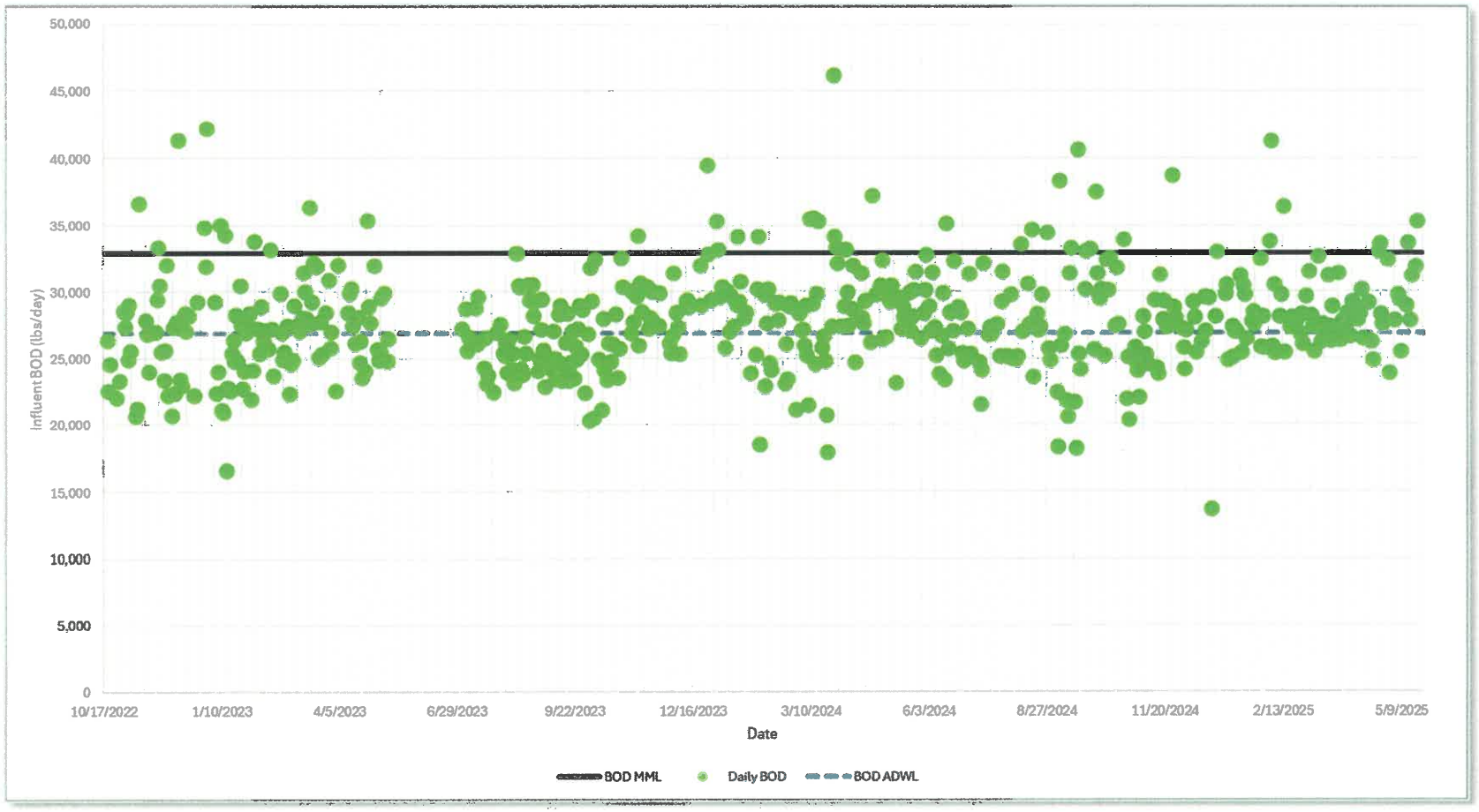


**FIGURE 6 3: EXISTING RAW INFLUENT TSS LOADING**

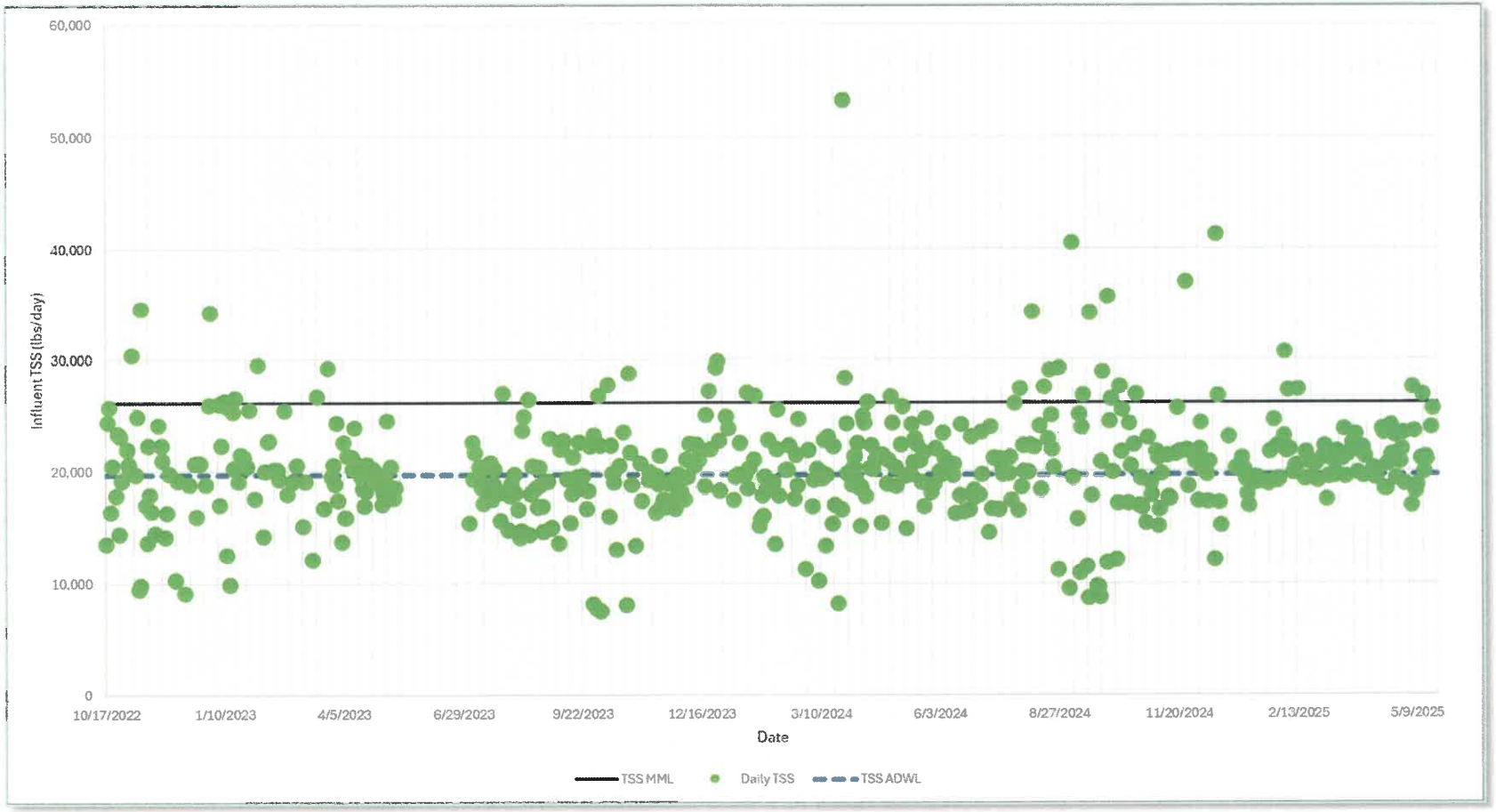
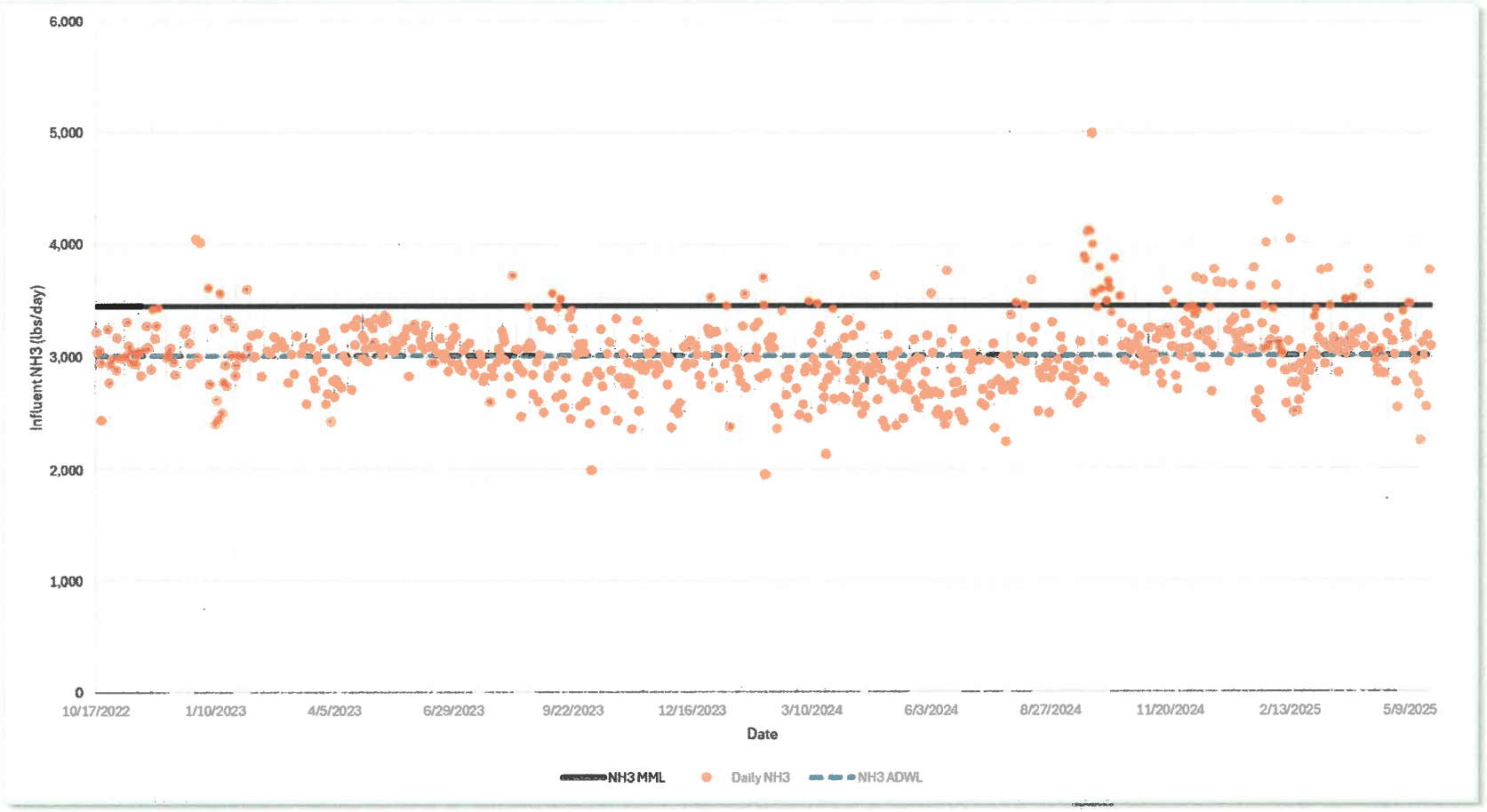


**FIGURE 6 4: EXISTING RAW INFLUENT NH3 LOADING**



### 6.3.3 Existing Combined Influent Flows & Loads

Existing combined influent (primary clarifier influent) flow and load conditions are summarized in the table below. Combined influent flow meter data is recorded daily in Hach WIMS and at more frequent intervals within SCADA. Automatic composite sampling is also regularly conducted at the Grit Removal effluent channel.

**TABLE 6 2: SUMMARY OF EXISTING PGWWTP COMBINED INFLUENT FLOWS & LOADS**

| Condition | Existing |
|---|---|
| ***Combined Influent Flow (MGD)*** | |
| Average Dry Weather Flow (ADWF) | 10.2 |
| Average Annual Flow (AAF) | 11.2 |
| Maximum Day Flow (MDF) | 19.0 |
| Maximum Week Flow (MWF) | 16.6 |
| Maximum Month Flow (MMF) | 13.2 |
| Peak Hour Wet Weather Flow (PHWWF) | 26.4 |
| ***Combined Influent BOD*** | |
| Average Dry Weather Concentration (mg/L) | 385 |
| Average Annual Concentration (mg/L) | 365 |
| Maximum Month Concentration (mg/L) | 402 |
| Average Dry Weather Loading (lb/day) | 32,890 |
| Average Annual Loading (lb/day) | 34,210 |
| Maximum Month Loading (lb/day) | 44,310 |
| ***Combined Influent TSS*** | |
| Average Dry Weather Concentration (mg/L) | 282 |
| Average Annual Concentration (mg/L) | 266 |
| Maximum Month Concentration (mg/L) | 300 |
| Average Dry Weather Loading (lb/day) | 24,060 |
| Average Annual Loading (lb/day) | 25,000 |
| Maximum Month Loading (lb/day) | 33,060 |
| ***Combined Influent NH3*** | |
| Average Dry Weather Concentration (mg/L) | 36 |
| Average Annual Concentration (mg/L) | 32 |
| Maximum Month Concentration (mg/L) | 32 |
| Average Dry Weather Loading (lb/day) | 3,070 |
| Average Annual Loading (lb/day) | 3,040 |
| Maximum Month Loading (lb/day) | 3,480 |

### 6.3.4 Existing Sidestream Flows

Existing sidestream flow conditions are summarized in the table below and were calculated based on the difference between raw influent and combined influent flow conditions. However, sidestream peak flows were estimated based on sidestream flow meter data. This data will be used directly to evaluate peak sidestream flow pumping requirements.

**TABLE 6 3: SUMMARY OF EXISTING PGWWTP SIDESTREAM FLOWS**

| Condition | Existing | Sidestream Flow % of Raw Influent Flow |
|---|---|---|
| ***Sidestream Flow (MGD)*** | | |
| Average Dry Weather Flow (ADWF) | 1.38 | 15.6% |
| Average Annual Flow (AAF) | 2.01 | 21.7% |
| Maximum Month Flow (MMF) | 2.45 | 22.8% |
| Peak Hour Wet Weather Flow (PHWWF) – For Pumping Capacity Analysis* | 8.32 | 34.7% |

*Note that for the sidestream flow pumping capacity analysis, sidestream flow meter data was directly utilized to correctly identify peak sidestream flow conditions.

### 6.3.5 Existing Primary Clarifier Effluent Loads

Existing PCE BOD and TSS load conditions and primary clarifier removal rates (concentration based) are summarized in the table below. This data is based on flow meter data and automatic composite sampling regularly conducted at the Primary Clarifier Effluent Channel. Existing primary clarifier effluent load conditions are summarized below in the following tables and figures. Based on sampling campaign data for NH3 and TKN (Total Kjeldahl Nitrogen), an NH3:TKN ratio of 0.78 was used to estimate existing TKN loadings below. PCE samples are not typically analyzed for ammonia or TKN. Therefore, a conservative 3% TKN removal assumption has been included below to account for organic nitrogen removal through the Primary Clarifiers. Note that PCE BOD data was missing from the city's data set from late August until early October 2023.

**TABLE 6 4: SUMMARY OF EXISTING PGWWTP PCE LOADS**

| Condition | Existing |
|---|---|
| ***Primary Clarifier Effluent BOD*** | |
| Average Dry Weather Concentration (mg/L) | 183 |
| Average Annual Concentration (mg/L) | 168 |
| Maximum Month Concentration (mg/L) | 174 |
| Average Dry Weather Loading (lb/day) | 15,630 |
| Average Annual Loading (lb/day) | 15,790 |
| Maximum Month Loading (lb/day) | 19,200 |
| Average PC BOD Removal | 54% |
| ***Primary Clarifier Effluent TSS*** | |
| Average Dry Weather Concentration (mg/L) | 69 |
| Average Annual Concentration (mg/L) | 72 |
| Maximum Month Concentration (mg/L) | 75 |
| Average Dry Weather Loading (lb/day) | 5,860 |
| Average Annual Loading (lb/day) | 6,180 |
| Maximum Month Loading (lb/day) | 8,260 |
| Average PC TSS Removal | 73% |
| ***Primary Clarifier Effluent TKN*** | |
| Average Dry Weather Concentration (mg/L) | 45 |
| Average Annual Concentration (mg/L) | 40 |
| Maximum Month Concentration (mg/L) | 39 |
| Average Dry Weather Loading (lb/day) | 3,820 |
| Average Annual Loading (lb/day) | 3,780 |
| Maximum Month Loading (lb/day) | 4,330 |

**FIGURE 6 5: EXISTING PRIMARY CLARIFIER EFFLUENT BOD LOADING**

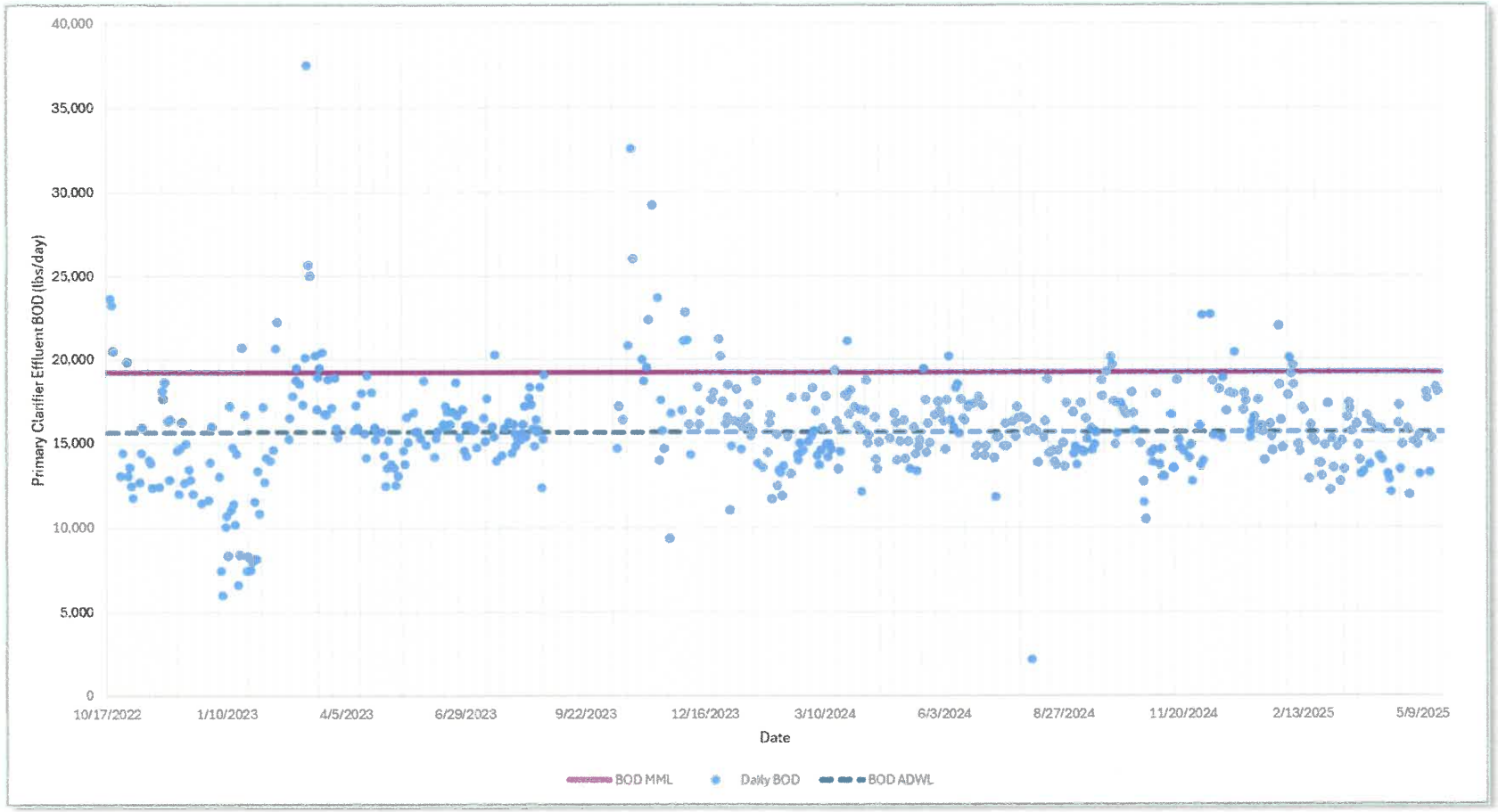
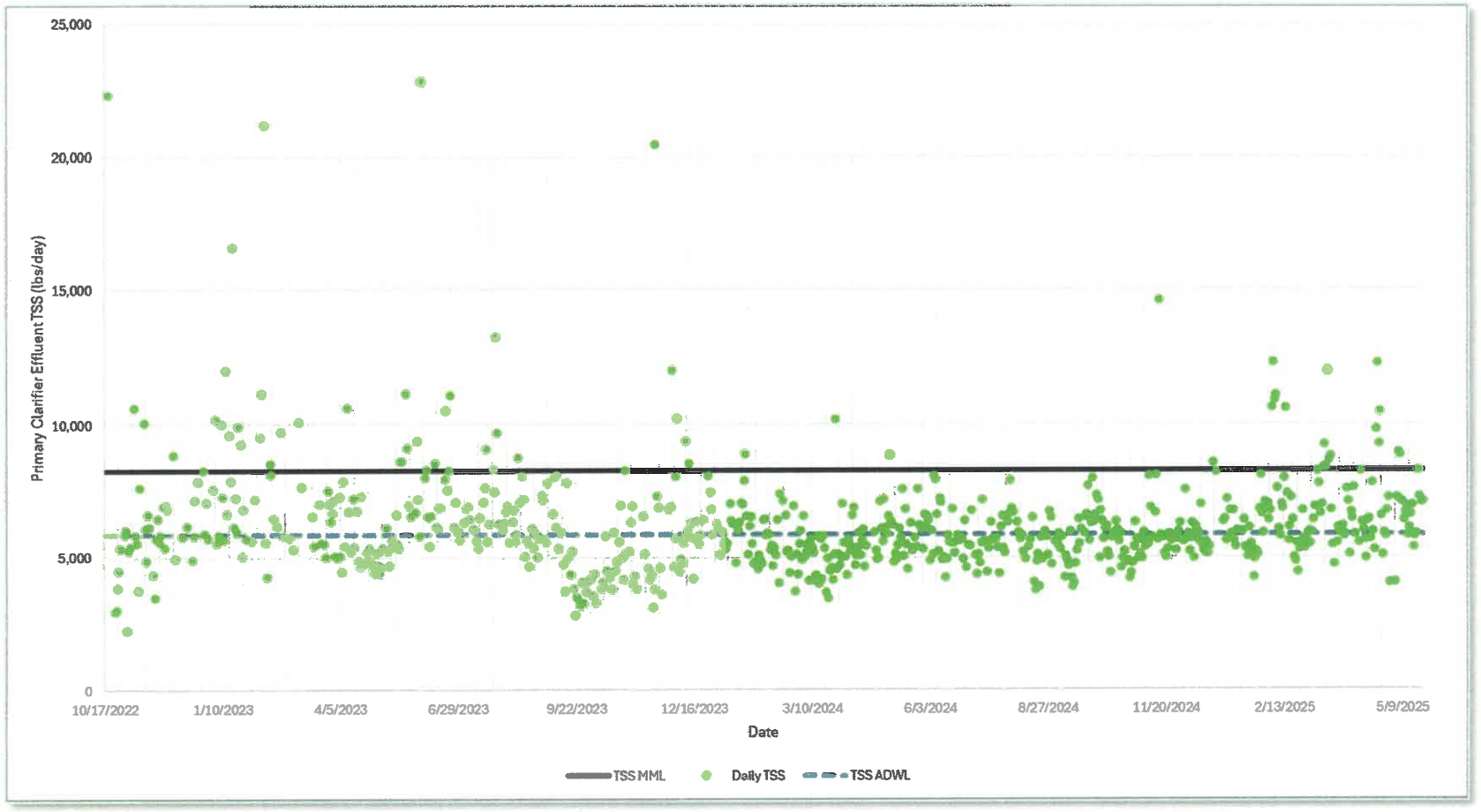


**FIGURE 6 6: EXISTING PRIMARY CLARIFIER EFFLUENT TSS LOADING**



## 6.4 Additional Process Sampling

Process sampling at several PGWWTP locations was completed over two separate campaigns. The first, from November 13 – 21, 2023, was intended to approximate typical dry weather conditions. The second, from January 24 – 30, 2024, was intended to approximate conditions following wet weather flows. The second campaign was scheduled following rainfall events of 0.5" on January 21st and 0.57" on January 22nd. The second campaign's timing was intended to capture 'fresher' flows from the PGWWTP collection system following a rainfall induced flushing cycle. These sampling results have supplemented existing PGWWTP data in this Plan and have been used to classify and calibrate various waste streams within the dynamic process model (GPS-X).

Samples were collected from the following locations for a series of constituents.

- Raw Influent | Auto Composite
- Combined Influent | Auto Composite
- Primary Clarifier Effluent | Auto Composite
- Oxidation Ditches 1, 2, and 3 | Manual Grab Before First Aerator, (3) Samples Manually Composited
- Oxidation Ditch Effluent (MLSS) | Auto Composite
- RAS / WAS | Manual Grab, (3) Samples Manually Composited
- Secondary Clarifier Effluent | Auto Composite
- Final Effluent | Auto Composite
- Primary Sludge | Manual Grab, (3) Samples Manually Composited
- Centrate | Manual Grab, (3) Samples Manually Composited
- Thickened WAS (TWAS) | Manual Grab, (3) Samples Manually Composited
- High Strength Waste | Manual Grab, (3) Samples Manually Composited
- Digestate | Manual Grab, (3) Samples Manually Composited (Digester #1 only)
- Dewatered Cake | Manual Grab, (3) Samples Manually Composited

## 6.5 Basis for Projected Flow & Load Conditions

Projected flows were calculated based on population and non-residential growth, normalized to account for diversity in land uses by establishing equivalent dwelling units (EDUs). Flow and load projections were developed using the following method:

1. EDU projection data was provided by each of the SPWA JPA Partners (City of Roseville, Placer County, and South Placer Municipal Utility District).
2. Flow projections were developed by multiplying the future EDUs by an ADWF contribution of 150 gallons per day (gpd) per EDU, in accordance with the approach described in the technical memorandum prepared by the City of Roseville, *Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed,* dated May 26, 2025.
3. Future plant flows and loads were projected to estimate future conditions until buildout. Existing flow and load peaking factors are assumed to remain constant for the projections.

The EDU projections data for the PGWWTP is summarized in the table below for selected points in time.

**TABLE 6 5: PGWWTP EDU PROJECTIONS AND PROJECTED RAW INFLUENT FLOWS SUMMARY**

| Fiscal Year (FY) | Number of EDUs | Projected Average Dry Weather Flow (ADWF) (MGD) | Projected Peak Hourly Wet Weather Flow (PHWWF) (MGD) | PHWWF Peaking Factor |
|---|---|---|---|---|
| FY 25 | 67,302 | 8.9 | 24.0 | 2.71 |
| FY 30 | 81,754 | 11.0 | 29.9 | 2.71 |
| FY 35 | 88,976 | 12.1 | 32.8 | 2.71 |
| FY 40 | 92,933 | 12.7 | 34.4 | 2.71 |
| FY 45 | 97,054 | 13.3 | 36.1 | 2.71 |
| Buildout | 138,338 | 19.5 | 52.9 | 2.71 |

## 6.6 Projected Flows and Loads

Raw influent, combined influent, and PCE flow and load conditions are summarized below. Combined influent flows include raw influent flows combined with sidestream flows such as in-plant sewer, onsite stormwater, tertiary filter backwash, thickener filtrate, and dewatering centrate.

### 6.6.1 Projected Raw Influent Flows & Loads

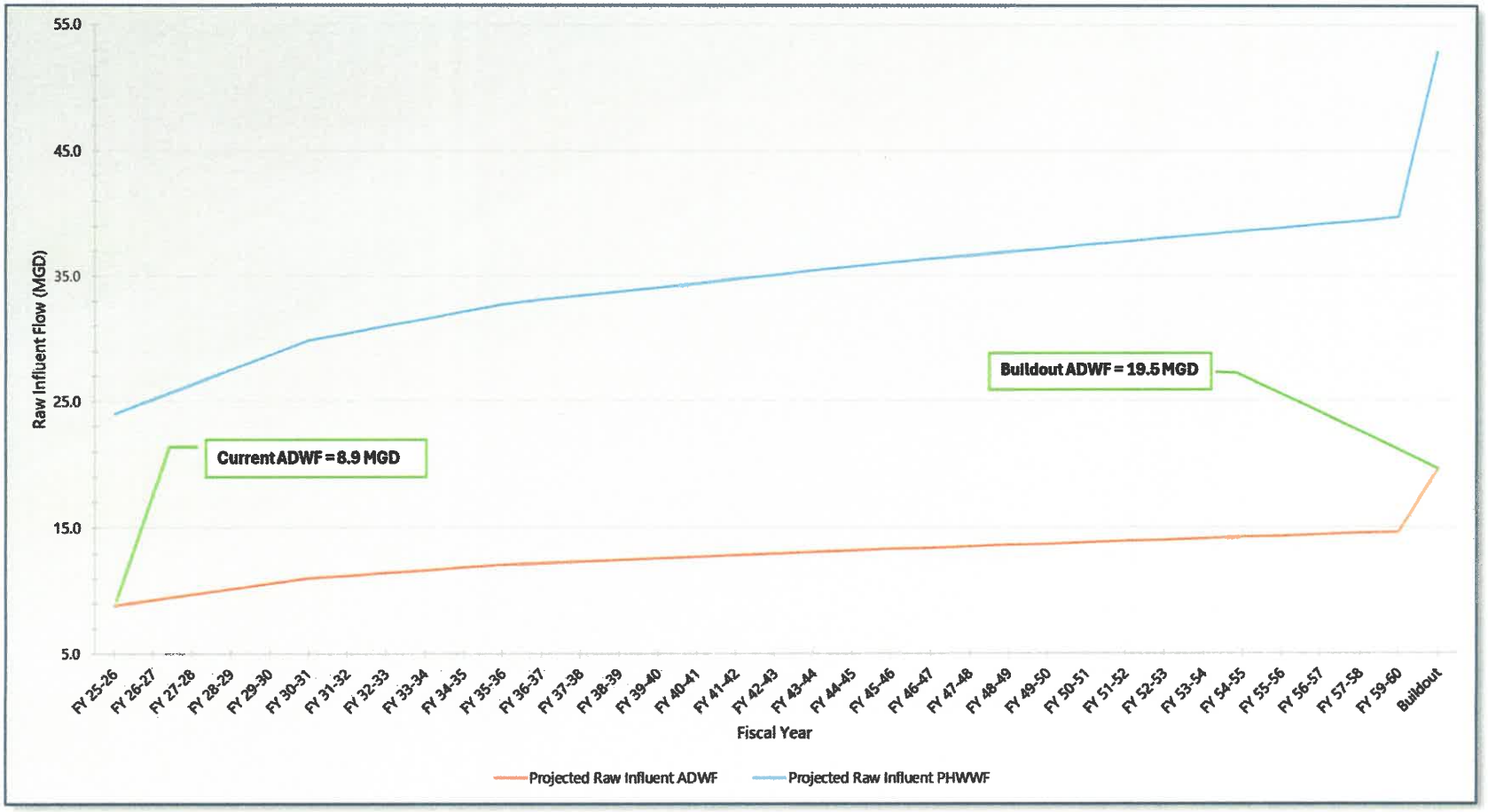
Projected raw influent flow and load conditions are summarized in the table below. Raw influent flows were projected with existing flow conditions as the starting point and an ADWF contribution of 150 gpd/EDU applied directly to future EDUs. The projections assume consistent flow and loading peaking factors through to buildout conditions.

Raw influent flow projections are also presented graphically in the figure below through FY 59/60 and Buildout. These projections, along with the desktop capacity analysis in this TM, will be used to identify the hydraulic and biological capacity lifespans of specific PGWWTP unit processes.

**TABLE 6 6: SUMMARY OF PROJECTED PGWWTP RAW INFLUENT FLOWS & LOADS**

| Condition | *Existing* | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Raw Influent Flow (MGD)*** | | | |
| Average Dry Weather Flow (ADWF) | *8.9* | 13.3 | 19.5 |
| Average Annual Flow (AAF) | *9.2* | 13.9 | 20.4 |
| Maximum Day Flow (MDF) | *15.3* | 23.0 | 33.7 |
| Maximum Week Flow (MWF) | *13.2* | 19.9 | 29.2 |
| Maximum Month Flow (MMF) | *10.8* | 16.2 | 23.7 |
| Peak Hour Wet Weather Flow (PHWWF) | *24.0* | 36.1 | 52.9 |
| Minimum Month Temperature (deg C) | *18* | 18 | 18 |
| ***Raw Influent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | *364* | 364 | 364 |
| Average Annual Concentration (mg/L) | *360* | 360 | 360 |
| Maximum Month Concentration (mg/L) | *367* | 367 | 367 |
| Average Dry Weather Loading (lb/day) | *26,880* | 40,440 | 59,250 |
| Average Annual Loading (lb/day) | *27,750* | 41,740 | 61,170 |
| Maximum Month Loading (lb/day) | *32,940* | 49,550 | 72,600 |
| ***Raw Influent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | *266* | 266 | 266 |
| Average Annual Concentration (mg/L) | *263* | 263 | 263 |
| Maximum Month Concentration (mg/L) | *291* | 291 | 291 |
| Average Dry Weather Loading (lb/day) | *19,640* | 29,540 | 43,290 |
| Average Annual Loading (lb/day) | *20,290* | 30,520 | 44,720 |
| Maximum Month Loading (lb/day) | *26,070* | 39,220 | 57,460 |
| ***Raw Influent NH3*** | | | |
| Average Dry Weather Concentration (mg/L) | *41* | 41 | 41 |
| Average Annual Concentration (mg/L) | *39* | 39 | 39 |
| Maximum Month Concentration (mg/L) | *38* | 38 | 38 |
| Average Dry Weather Loading (lb/day) | *3,020* | 4,450 | 6,660 |
| Average Annual Loading (lb/day) | *3,020* | 4,450 | 6,660 |
| Maximum Month Loading (lb/day) | *3,450* | 5,190 | 7,610 |

**FIGURE 6 7: RAW INFLUENT FLOW PROJECTIONS**




1. Existing flows based on plant data review.
2. Average dry weather flow projections consistent with technical memorandum prepared by the City of Roseville, Equivalent Dwelling Units (EDU) Projections for the Pleasant Grove Sewershed, dated May 26, 2025.

### 6.6.2 Projected Combined Influent Flows & Loads

Projected combined influent flow and load conditions are summarized in the table below. Projected combined influent flows were estimated by summing raw influent and sidestream flow conditions. Sidestream flow conditions were assumed to make up a consistent percentage of raw influent flow conditions as presented in the table below. Combined influent pollutant loading concentrations were assumed to remain constant through to buildout conditions.

Combined Influent PHWWF Downstream of the Emergency Storage Basin (ESB) was also estimated and included in the table below. Based on the discussion in **Section 3.4**, the ESB is estimated to be able to shave 10.4 MGD of combined influent PHWWF.

**TABLE 6 7: SUMMARY OF PROJECTED PGWWTP COMBINED INFLUENT FLOWS & LOADS**

| Condition | *Existing* | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Combined Influent Flow (MGD)*** | | | |
| Average Dry Weather Flow (ADWF) | *10.2* | 15.4 | 22.6 |
| Average Annual Flow (AAF) | *11.3* | 16.9 | 24.8 |
| Maximum Day Flow (MDF) | *19.0* | 28.6 | 41.9 |
| Maximum Week Flow (MWF) | *16.6* | 25.0 | 36.6 |
| Maximum Month Flow (MMF) | *13.2* | 19.9 | 29.1 |
| Peak Hour Wet Weather Flow (PHWWF) | *26.4* | 39.7 | 58.2 |
| PHWWF Downstream of ESB | *16.0*[1] | 29.3[1] | 47.8[1] |
| Minimum Month Temperature (deg C) | *18* | 18 | 18 |
| ***Combined Influent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | *385* | 385 | 385 |
| Average Annual Concentration (mg/L) | *365* | 365 | 365 |
| Maximum Month Concentration (mg/L) | *402* | 402 | 402 |
| Average Dry Weather Loading (lb/day) | *32,890* | 49,480 | 72,490 |
| Average Annual Loading (lb/day) | *34,210* | 51,470 | 75,400 |
| Maximum Month Loading (lb/day) | *44,310* | 66,650 | 97,660 |
| ***Combined Influent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | *282* | 282 | 282 |
| Average Annual Concentration (mg/L) | *266* | 266 | 266 |
| Maximum Month Concentration (mg/L) | *300* | 300 | 300 |
| Average Dry Weather Loading (lb/day) | *24,060* | 36,190 | 53,030 |
| Average Annual Loading (lb/day) | *25,000* | 37,610 | 55,100 |
| Maximum Month Loading (lb/day) | *33,060* | 49,730 | 72,860 |
| ***Combined Influent NH3*** | | | |
| Average Dry Weather Concentration (mg/L) | *36* | 36 | 36 |
| Average Annual Concentration (mg/L) | *32* | 32 | 32 |
| Maximum Month Concentration (mg/L) | *32* | 32 | 32 |
| Average Dry Weather Loading (lb/day) | *3,070* | 4,620 | 6,780 |
| Average Annual Loading (lb/day) | *3,040* | 4,510 | 6,710 |
| Maximum Month Loading (lb/day) | *3,480* | 5,310 | 7,680 |

1. PHWWF Downstream of ESB includes 10.4 MGD of peak flow shaving.

### 6.6.3 Projected Primary Clarifier Effluent Loads

Projected PCE load conditions are summarized in the table below. Projected PCE loads were estimated by calculating primary clarifier removal rates for BOD and TSS based on existing combined influent and primary clarifier effluent daily composite sampling data. A strong relationship between solids or hydraulic loading and removal rates for BOD and TSS was not noted – therefore, consistent average removal rates were used for all flow and loading conditions and projections through to buildout. Average BOD removal is 54%, and average TSS removal is 73%. Based on sampling campaign data for NH3 and TKN (Total Kjeldahl Nitrogen), an NH3:TKN ratio of 0.78 was used to estimate existing TKN loadings below. PCE samples are not typically analyzed for ammonia or TKN. Therefore, a conservative 3% TKN removal assumption has been included below to account for organic nitrogen removal through the Primary Clarifiers.

**TABLE 6 8: SUMMARY OF PROJECTED PGWWTP PRIMARY CLARIFIER EFFLUENT LOADS**

| Condition | Existing | FY 45 | Projected Buildout |
|---|---|---|---|
| ***Primary Clarifier Effluent BOD*** | | | |
| Average Dry Weather Concentration (mg/L) | 183 | 183 | 183 |
| Average Annual Concentration (mg/L) | 168 | 168 | 168 |
| Maximum Month Concentration (mg/L) | 174 | 174 | 174 |
| Average Dry Weather Loading (lb/day) | 15,630 | 23,510 | 34,450 |
| Average Annual Loading (lb/day) | 15,790 | 23,750 | 34,800 |
| Maximum Month Loading (lb/day) | 19,200 | 28,880 | 42,320 |
| ***Primary Clarifier Effluent TSS*** | | | |
| Average Dry Weather Concentration (mg/L) | 69 | 69 | 69 |
| Average Annual Concentration (mg/L) | 72 | 72 | 72 |
| Maximum Month Concentration (mg/L) | 75 | 75 | 75 |
| Average Dry Weather Loading (lb/day) | 5,860 | 8,820 | 12,920 |
| Average Annual Loading (lb/day) | 6,800 | 10,220 | 14,980 |
| Maximum Month Loading (lb/day) | 8,260 | 12,430 | 18,210 |
| ***Primary Clarifier Effluent TKN*** | | | |
| Average Dry Weather Concentration (mg/L) | 45 | 45 | 45 |
| Average Annual Concentration (mg/L) | 40 | 40 | 40 |
| Maximum Month Concentration (mg/L) | 39 | 39 | 39 |
| Average Dry Weather Loading (lb/day) | 3,820 | 5,740 | 8,410 |
| Average Annual Loading (lb/day) | 3,780 | 5,690 | 8,330 |
| Maximum Month Loading (lb/day) | 4,330 | 6,510 | 9,540 |

Prepared by

Woodard & Curran

801 T Street, Sacramento, CA 95811

# Dry Creek Wastewater Treatment Plant
# Facility Plan
# May 2026

CITY OF ROSEVILLE CALIFORNIA

# Dry Creek Wastewater Treatment Plant FACILITY PLAN

May 2026

Prepared by:

Woodard & Curran

Woodard & Curran

# Wastewater Treatment Facility Plan

## Dry Creek WWTP

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**City of Roseville, California**

May 2026

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## ABBREVIATIONS

- **AAF** – Annual Average Flow
- **AACE** – Association for the Advancement of Cost Engineering
- **AB** – Aeration Basin
- **ADWF** – Average Dry Weather Flow
- **ADWL** – Average Dry Weather Load
- **AAL** – Annual Average Loading
- **BOD** – Biochemical Oxygen Demand
- **$BOD_5$** – Five-Day Biochemical Oxygen Demand
- **CCI** – Construction Cost Index
- **COD** – Chemical Oxygen Demand
- **DCWWTP** – Dry Creek Wastewater Treatment Plant
- **DO** – Dissolved Oxygen
- **EDU** – Equivalent Dwelling Unit
- **ESB** – Emergency Storage Basin
- **FOG** – Fats, Oils, and Grease
- **gpd** – Gallons per Day
- **gpm** – Gallons per Minute
- **HRT** – Hydraulic Retention Time
- **IMLR** – Internal Mixed Liquor Recycle
- **MG** – Million Gallons
- **MABR** – Membrane Aerated Biofilm Reactor
- **MGD** – Million Gallons per Day
- **MLE** – Modified Ludzack-Ettinger Process
- **MLSS** – Mixed Liquor Suspended Solids
- **MMF** – Maximum Monthly Flow
- **MML** – Maximum Monthly Load
- **MDF** – Maximum Daily Flow
- **MDL** – Maximum Daily Load
- **MWF** – Maximum Weekly Flow
- **$NH_3$** – Ammonia
- **NOA** – Notice of Applicability
- **NPDES** – National Pollutant Discharge Elimination System
- **PAO** – Phosphorus Accumulating Organism
- **PCE** – Primary Clarifier Effluent
- **PDF** – Process Design Factor
- **PFAS** – Polyfluoroalkyl Substances
- **PGWWTP** – Pleasant Grove Wastewater Treatment Plant
- **PHWWF** – Peak Hourly Wet Weather Flow
- **RAS** – Return Activated Sludge

- **RCP** – Reinforced Concrete Pipe
- **R/R/R** – Rehabilitation, Repair, and Replacement
- **SCADA** – Supervisory Control and Data Acquisition
- **SOR** – Surface Overflow Rate
- **SPWA** – South Placer Wastewater Authority
- **SVI** – Sludge Volume Index
- **TKN** – Total Kjeldahl Nitrogen
- **TSS** – Total Suspended Solids
- **TWAS** – Thickened Waste Activated Sludge
- **UV** – Ultraviolet
- **UVT** – Ultraviolet Transmittance
- **VA:Alk** – Volatile Acids to Alkalinity Ratio
- **WAS** – Waste Activated Sludge
- **WEF** – Water Environment Federation
- **WIMS** – Water Information Management Solution

# EXECUTIVE SUMMARY

This Facility Plan provides an assessment of the capacity of the liquid treatment processes for the Dry Creek Wastewater Treatment Plant (DCWWTP), focusing on current and projected capacity needs, process capacities, and recommended capacity improvements through buildout. This Plan is designed to guide the City of Roseville (Roseville/the city) in decision-making for reliable, compliant, and cost-effective wastewater treatment service. In a separate effort, the city is conducting an assessment of needs related to the condition of existing infrastructure and equipment. The city is also conducting a separate assessment of the capacity of the solids handling and disposal processes.

## Background

This Plan was developed as a response to the *2020 South Placer Regional Wastewater Systems Evaluation*, conducted by Woodard & Curran for the South Placer Wastewater Authority (SPWA). The evaluation identified higher-than-anticipated flows and loadings at the DCWWTP and the Pleasant Grove WWTP (PGWWTP) compared to previous projections. As a result, the 2020 Systems Evaluation Update recommended this project conduct a capacity analysis of the two plants and provide a facility plan for each plant to address future needs. Woodard & Curran was contracted by the City to develop these facility plans.

### Key Findings

- Flow and Load Projections:

Future flow and loading projections are based on population and non-residential growth, using equivalent dwelling units (EDUs). By buildout, raw influent average dry weather flow (ADWF) is expected to increase from 8.6 MGD to 14.2 MGD, with raw influent peak hourly wet weather flows (PHWWF) increasing from 37.0 MGD to 61.3 MGD.

- Process Capacity Trends:

This Plan evaluates liquid process capacities. Solids processes are being evaluated by a separate, ongoing project being completed by the city. Unit processes are analyzed for current and future capacity limitations through buildout. Several processes will approach their respective capacities, necessitating phased upgrades. The most immediate capacity limitations include secondary treatment, tertiary filtration, and influent pumping. The city has an ongoing project to repurpose Aeration Basins (AB's) 300-400 to increase secondary treatment capacity. The city is also planning to begin an influent improvements project focusing on influent pumping, emergency storage basin (ESB) improvements, and influent screening improvements.

- Recommended Improvements:

Based on the analysis described in this Facility Plan, eight capital projects are recommended for capacity needs, including upgrades to tertiary filtration, secondary treatment, and UV disinfection. These projects are sequenced to address capacity limitations as they arise, and each project description in this Plan includes preliminary scopes, schedules, construction cost estimates, and total project cost estimates. This group of projects includes the ongoing secondary treatment and influent improvements projects described above.

## DCWWTP Projections

Projected flows were calculated based on population and non-residential growth, normalized to account for diversity in land uses by establishing EDUs. Flow and load projections were developed using the following method:

1. Existing flows were estimated from the data period of May 1, 2020 through May 1, 2025. Flow growth beyond existing flows were estimated using the EDU approach described below.

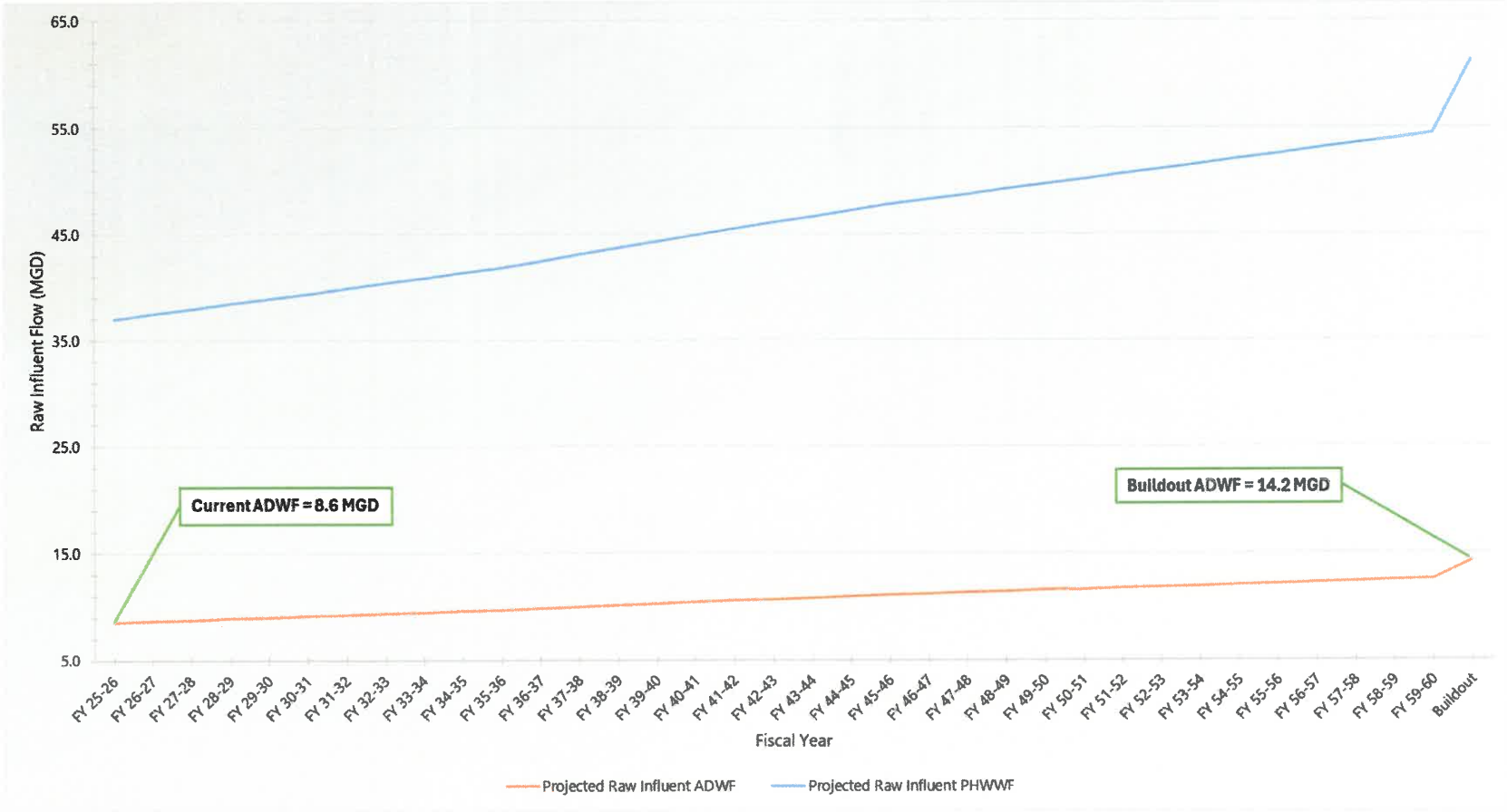
2. EDU projection data was provided by each of the SPWA JPA Partners (City of Roseville, Placer County, and South Placer Municipal Utility District).

3. Flow projections were developed by multiplying the future EDUs by an ADWF contribution of 150 gallons per day (gpd) per EDU, in accordance with the approach described in the technical memorandum prepared by the City of Roseville, *Equivalent Dwelling Units (EDU) Projections for the Dry Creek Sewershed,* dated May 26, 2025.

4. Future plant flows and loads were projected to estimate future conditions until buildout. Existing flow and load peaking factors are assumed to remain constant for the projections.

Projected raw influent average dry weather and peak flows are presented in **Figure ES-1.**

**FIGURE ES-1: DCWWTP RAW INFLUENT FLOW PROJECTIONS (150 GPD ADWF PER EACH FUTURE EDU)**




1. *Existing flows based on plant data review.*
2. *Average dry weather flow projections consistent with technical memorandum prepared by the City of Roseville, Equivalent Dwelling Units (EDU) Projections for the Dry Creek Sewershed, dated May 26, 2025.*

## DCWWTP Current Process Capacities

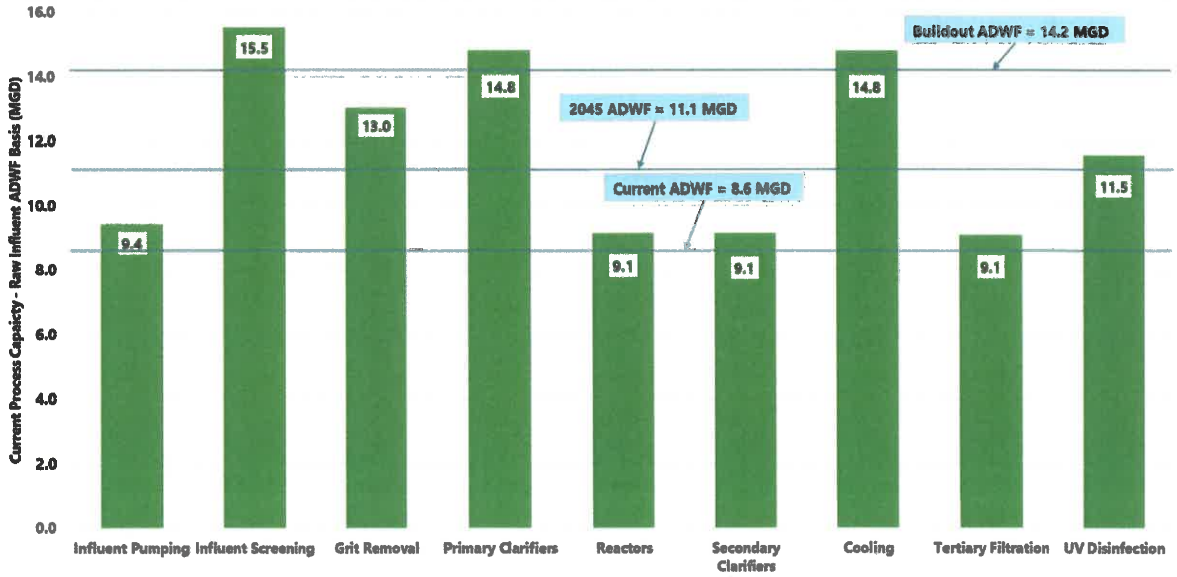
**Figure ES-2** is a graphical representation of process capacity on an ADWF equivalent basis compared to current and projected buildout ADWF.

The most immediate capacity limitations include secondary treatment, tertiary filtration, and influent pumping. The city has an ongoing project to repurpose Aeration Basins (AB's) 300-400 to increase secondary treatment capacity. The city is also planning to begin an influent improvements project focusing on influent pumping, emergency storage basin (ESB) improvements, and influent screening improvements.

Longer-term capacity limitations (post-2045) include secondary treatment and UV disinfection.

The DCWWTP receives significant wet weather peak flows, due to collection system age, as compared to the PGWWTP. Therefore, one major takeaway is that effective ESB usage is critical to reducing peak flows through the plant and associated long-term capital improvement needs.

**FIGURE ES-2: DCWWTP CURRENT PROCESS CAPACITY UTILIZATION**

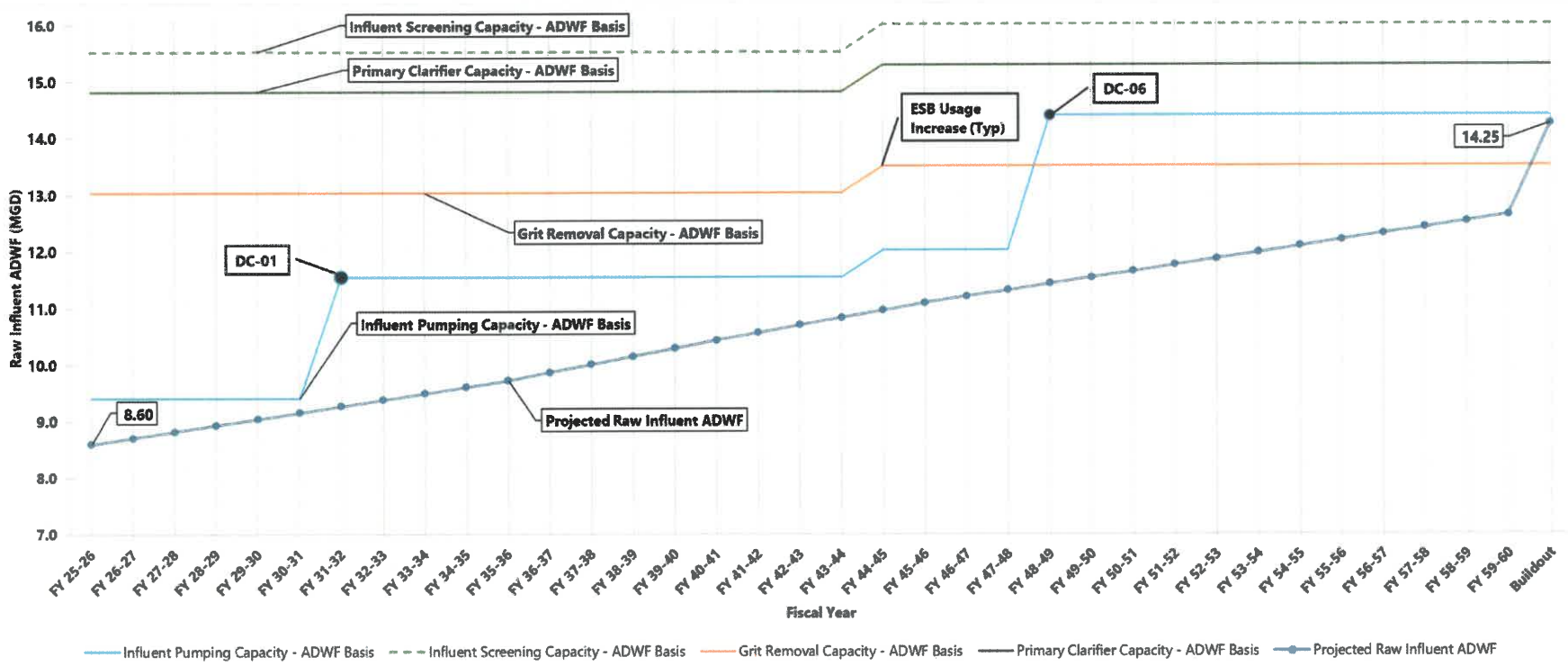



1. *Current Unit process capacities are presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Solids processes are being evaluated by a separate, ongoing project being completed by Roseville.*

## DCWWTP Capacity

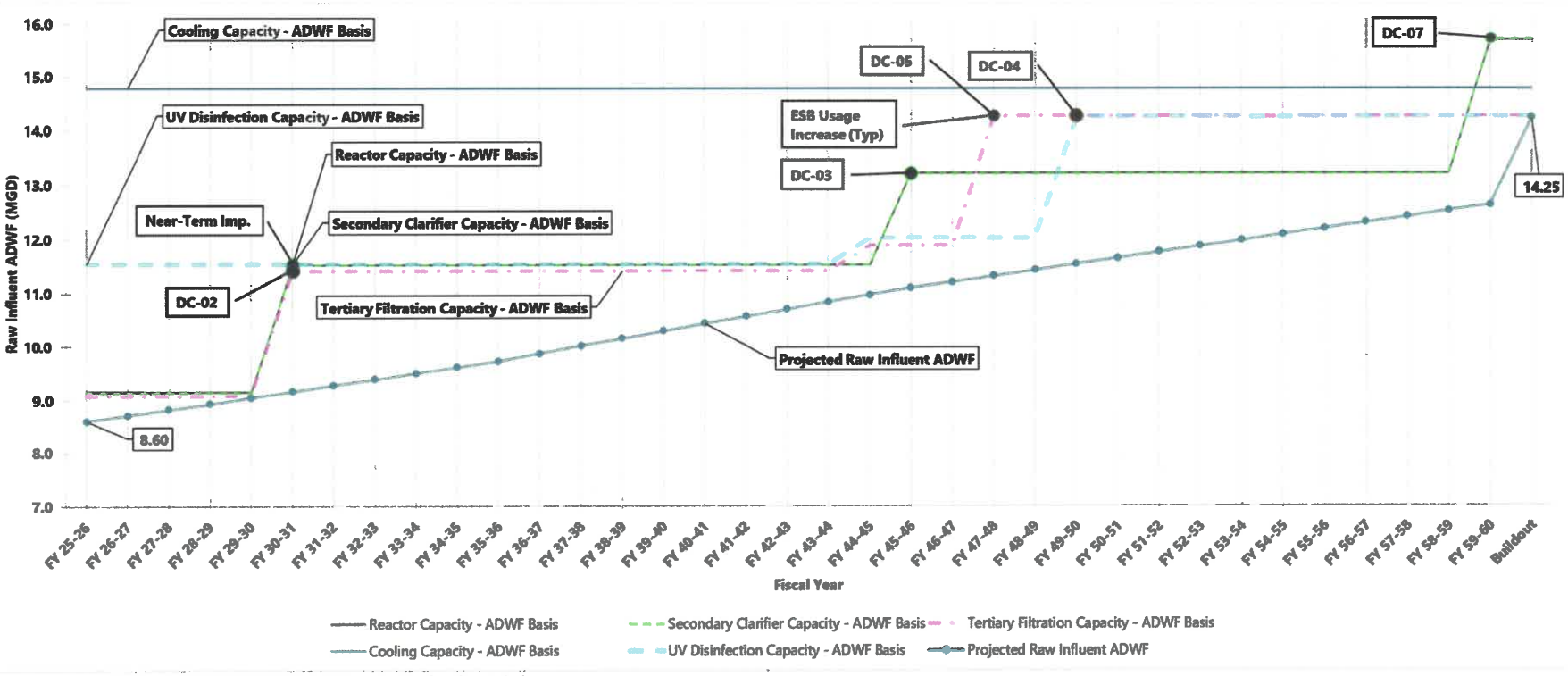
Capacity upgrade projects were developed based on the process capacity analysis and projected flows and loadings presented in this plan. **Figure ES-3** and **Figure ES-4** present the capacities of each key unit process from current through buildout conditions including capacity changes following capacity upgrade projects. The intent of these figures is to illustrate process capacity increases over time as capacity projects described in this chapter are completed. The figures provide all process capacities in raw influent ADWF equivalent terms for comparison with raw influent ADWF projections.

**FIGURE ES-3: PRELIMINARY/PRIMARY PROCESS CAPACITY TRENDS – DCWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "DC-##".*

**FIGURE ES-4: SECONDARY/TERTIARY PROCESS CAPACITY TRENDS – DCWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "DC-##".*

## DCWWTP Capacity Project Cost Summaries

Estimated costs for each capacity upgrade project at the DCWWTP are summarized in **Table ES-1**. Expanded cost tables including construction costs, scope of work, and year for beginning implementation and engineering planning are included in **Chapter 4.**

**TABLE ES-1: CAPACITY PROJECTS COST SUMMARY – DCWWTP**

| Project ID | Project Name | Commission Project[3] | Total Project Cost (2025 $)[2] | Escalated Total Project Cost[1] |
|---|---|---|---|---|
| DC-EX | Secondary Treatment Improvements | -- | -- | $47,800,000 |
| DC-01 | Influent Improvements | 2030 | -- | $16,500,000 |
| DC-02 | Tertiary Filtration - New Unit, Phase 1 | 2030 | $16,700,000 | $18,700,000 |
| DC-03 | Secondary Treatment MABR Upgrades | 2045 | $26,400,000 | $44,500,000 |
| DC-04 | UV Disinfection - New Units | 2049 | $34,000,000 | $66,800,000 |
| DC-05 | Tertiary Filtration - New Unit, Phase 2 | 2047 | $16,700,000 | $30,700,000 |
| DC-06 | Influent Pump Station - Additional Pump | 2048 | $800,000 | $1,500,000 |
| DC-07 | Secondary Treatment Upgrades | 2060 | $60,900,000 | $164,400,000 |

1. *Total Project Costs are presented with escalation to one year prior to the project commissioning year. Construction Costs and Total Project Costs are presented in both 2025 dollars and escalated dollars in Chapter 4.*
2. *Total Project Costs include construction costs along with the following non-constructions costs: engineering design, construction administration, control system integration, permitting, and project contingency.*
3. *Project commissioning year is generally based on project completion before capacity of the relevant process reaches 95% of its total capacity.*
4. *Detailed cost estimate summaries are provided in Appendix A and include a range for Total Project Costs based on the AACE cost estimate classification.*

# 1. INTRODUCTION

This Facility Plan (Plan) provides an assessment of the liquid treatment processes for the Dry Creek Wastewater Treatment Plant (DCWWTP), focusing on current and projected capacity needs, process capacities, and recommended capacity improvements through buildout. This Plan is designed to guide the City of Roseville (Roseville/the City) in decision-making for reliable, compliant, and cost-effective wastewater treatment service. The city is also conducting a separate assessment of the capacity of the solids handling and disposal processes.

## 1.1 Purpose of Report

This Plan was developed as a response to the *2020 South Placer Regional Wastewater Systems Evaluation*, conducted by Woodard & Curran for the South Placer Wastewater Authority (SPWA). The evaluation identified higher-than-anticipated flows and loadings at the DCWWTP and the Pleasant Grove WWTP (PGWWTP) compared to previous projections. As a result, the 2020 Systems Evaluation Update recommended this project to conduct a capacity analysis of the two plants and provide a facility plan for each plant to address future needs.

Woodard & Curran was contracted by the City to identify recommended capacity improvements for the DCWWTP. This Plan summarizes capacity findings and recommended capacity improvements for the DCWWTP through to buildout. In a separate effort, the city is conducting an assessment of needs related to the condition of existing infrastructure and equipment. A separate Facility Plan has also been developed for the PGWWTP.

## 1.2 Report Structure

- Chapter 1: Introduction and Summary of Supporting Work
- Chapter 2: Influent Flows & Pollutant Loads Analysis for Existing and Future Projected Conditions
- Chapter 3: Process Capacity Analysis
- Chapter 4: Capital Improvements Implementation Plan
- Chapter 5: Closing

## 1.3 Wastewater Treatment Plant Summary

### 1.3.1 Description of DCWWTP

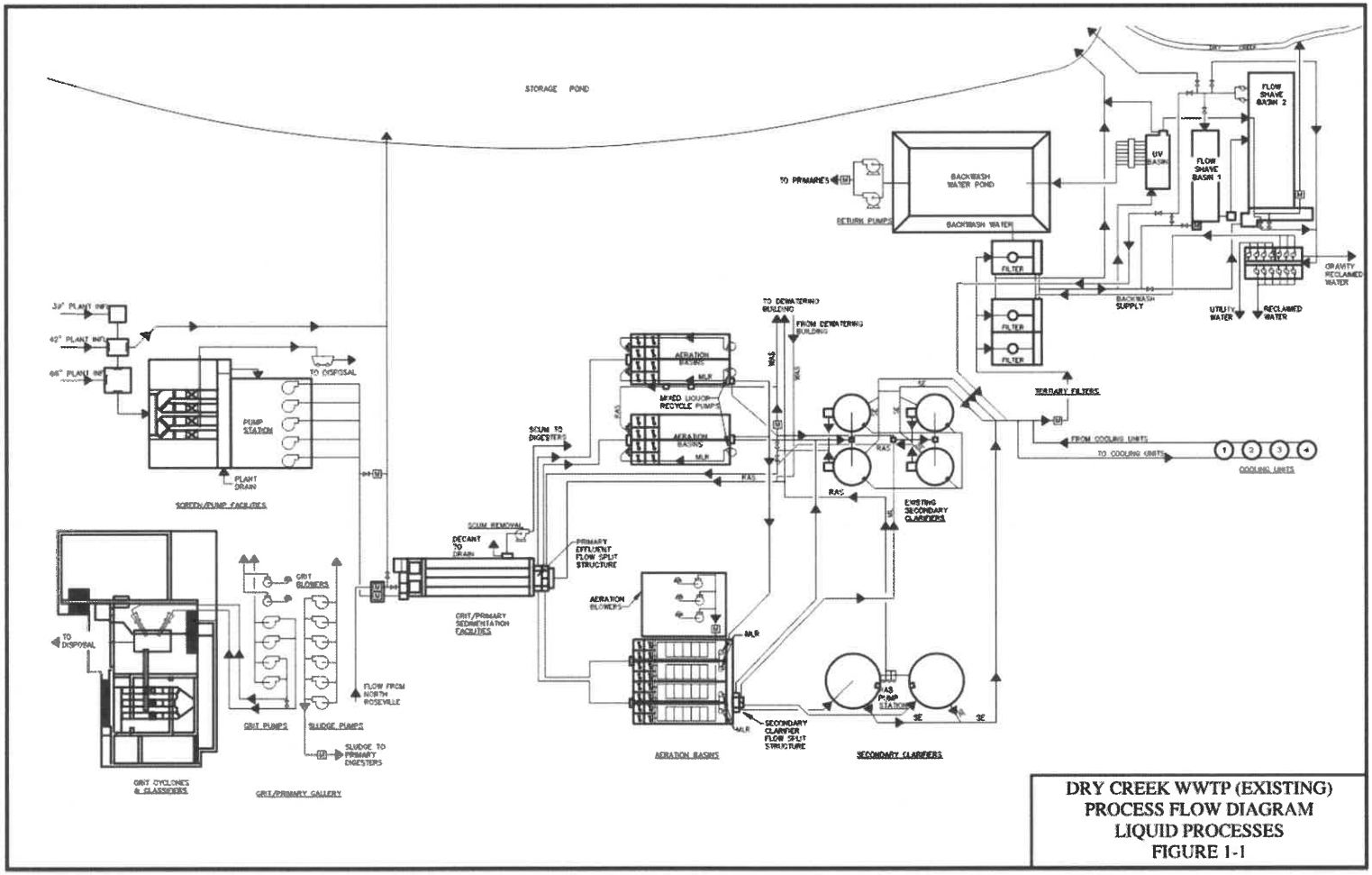
The DCWWTP was originally constructed in the 1950's and expanded in the 1980's to treat flow from the City of Roseville, portions of Placer County, and the South Placer Municipal Utility District. In June 2004, a portion of the influent flow was diverted to the newly constructed PGWWTP, thus increasing available DCWWTP treatment capacity at that time. The DCWWTP provides nitrification and denitrification followed by tertiary filtration and ultraviolet (UV) disinfection. Tertiary treated wastewater from the DCWWTP may be recycled in the city's reclaimed water distribution system or discharged to Dry Creek. Biosolids from the

DCWWTP are land applied at the Silva Ranch application site in Sacramento County by the contractor Synagro Technologies, Inc. (Synagro). A process flow diagram is included in **Figure 1-1**.

DCWWTP effluent discharges to Dry Creek are regulated under Waste Discharge Requirements for Municipal Wastewater Dischargers that meet Objectives/Criteria at the Point of Discharge to Surface Water, Order R5-2023-0025-06, NPDES No. CAG585001 (Municipal General Order). The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) adopted a renewed Municipal General Order (R5-2023-0025) June 22, 2023. The Regional Water Board issued the city a Notice of Applicability (NOA) authorizing coverage under the Municipal General Order, effective August 1, 2019.

The use of reclaimed water is regulated under *Master Reclamation Permit for Roseville Regional Wastewater Treatment Plant, Order No. 97-147* (Master Reclamation Permit), which was adopted by the Regional Water Board in 1997 and amended in 2004 and 2005.

**FIGURE 1-1: DRY CREEK WWTP PROCESS FLOW DIAGRAM**




*Source: DCWWTP Expansion Drawings (1991); City of Roseville*

## 1.4 Information Reviewed

Woodard & Curran reviewed drawing sets, previous reports and models, and operational data during the analysis. A list of the sources is below.

- SPWA Systems Evaluation Project Report and TMs (2009), RMC
- WWTPs Facilities Plan (2010), Carollo Engineers
- Systems Evaluation Report Update (2020), Woodard & Curran
- DCWWTP Construction Drawings (1962)
- DCWWTP Expansion Drawings (1974)
- DCWWTP Expansion Drawings (1991)
- DCWWTP Cooling Units Drawings, Submittal (2004)
- DCWWTP UV Disinfection Conversion Drawings, Submittal (2006)
- DCWWTP Initial Assessment (2008), CH2M Hill
- DCWWTP Influent Pump Station Replacement Drawings (2010)
- DCWWTP Nitrate Reduction Project Drawings (2018)
- DCWWTP Nitrate Reduction Improvements Basis of Design Report (2017), Brown & Caldwell
- WWTPs Condition Assessment Report (2018), Brown & Caldwell
- DCWWTP Influent Pump Station Hydraulic Analysis TM (2018), Waterworks Engineers
- Plant Operating Data
    - SCADA Data
    - Hach WIMS Data
- Process Sampling Data
    - Sampling Campaign #1 (November 1 – 7, 2021)
    - Sampling Campaign #2 (February 21 – 28, 2022)

# 2. FLOWS AND LOADS

This chapter summarizes existing and projected flows and pollutant loads at the DCWWTP. These values form the basis for identifying current capacity constraints and sizing future capacity improvements.

Data was evaluated from May 1, 2020 through May 1, 2025 as part of the analysis to determine existing flows and pollutant loads to the DCWWTP. EDU projections for the DCWWTP service area were utilized to project existing flows and loads to buildout conditions. These projections are the basis for capacity project scopes, schedules, and budgets at the DCWWTP.

## 2.1 Flow Criteria Definitions

Flow criteria have been developed for the following conditions based on data obtained from the DCWWTP SCADA and Hach WIMS systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Flow (ADWF) – The ADWF represents the average of daily influent flows during July, August, and September. The ADWF is the basis for calculating peaking factors for other flow criteria.
2. Average Annual Flow (AAF) – The AAF represents the average of daily influent flows on an annual basis during all months, wet and dry.
3. Maximum Daily Flow (MDF) – The MDF represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Weekly Flow (MWF) – The MWF represents conditions that are expected to be exceeded once for each 52 occurrences, or roughly 7 days per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 98.1% exceedance value (the value which is exceeded 1.9% of the time).
5. Maximum Monthly Flow (MMF) – The MMF represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).
6. Peak Hourly Flow (PHF) – The PHF represents peak hourly conditions, recorded daily, that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).

## 2.2 Load Criteria Definitions

Load criteria have been developed for the following conditions based on data obtained from the DCWWTP SCADA and Hach WIMS systems. A description of how each of these conditions was derived has also been included as follows:

1. Average Dry Weather Load (ADWL) – The ADWL represents the average of daily influent loads (pounds per day) during July, August, and September.

2. Average Annual Load (AAL) – The AAL represents the average of daily influent loads (pounds per day) on an annual basis during all months, wet and dry.
3. Maximum Daily Load (MDL) – The MDL represents conditions that are expected to be exceeded once for each 365 occurrences, or once per year. This is determined by developing the frequency distribution for all the relevant data and selecting the value closest to the 99.7% exceedance value (the value which is exceeded 0.3% of the time).
4. Maximum Weekly Load (MWL) – The MWL represents conditions that are expected to be exceeded once for each 52 occurrences, or roughly 7 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 98.1% exceedance value (the value which is exceeded 1.9% of the time).
5. Maximum Monthly Load (MML) – The MML represents conditions that are expected to be exceeded once for each 12 occurrences, or roughly 30 days per year. This is determined by developing the frequency distribution for all the applicable data and selecting the value closest to the 91.7% exceedance value (the value which is exceeded 8.3% of the time).

Existing daily loads were calculated based on daily flow and daily composite sampling. These data were analyzed to establish current AAL, ADWL, and MML pollutant loading criteria as described above. Pollutant concentrations were then back-calculated for each statistical flow and loading condition.

## 2.3 Existing Flows

Raw influent, combined influent, and primary clarifier effluent (PCE) flow and load conditions are summarized below. Note that combined influent (primary clarifier influent) includes raw influent flows with sidestream flows such as in-plant sewer, onsite stormwater, tertiary filter backwash, thickener filtrate, and dewatering filtrate. Existing flow conditions for the DCWWTP are summarized in **Table 2-2**.

West Placer flows are currently pumped from an offsite location to a dedicated screening facility located adjacent to the grit basins. As discussed in this facility plan, routing West Placer flows to the DCWWTP raw influent junction boxes is being considered during the Influent Improvements project. Based on discussions with the city, flow projections assume that West Placer flow is included in raw influent flows.

The DCWWTP has the ability to send peak hourly flows to two emergency storage basins (ESB), directly downstream of the influent junction boxes. The DCWWTP does not have the ability to measure the flow volume that is diverted, and pump-back flow rate is currently limited to approximately 3 MGD. Woodard & Curran understands that the city is currently planning to complete an Influent Improvements Project which includes ESB infrastructure and operational improvements to maximize its efficient usage into the future.

Based on discussions with the city, this analysis includes ESB usage to shave 11.8 MGD of peak flows between current conditions and Fiscal Year (FY) 44-45. Post-2045, ESB usage for peak flow shaving is assumed to increase to 13.9 MGD through buildout based on maximizing treatment process capacities.

### 2.3.1 Data Outlier Elimination

Outliers were removed following WEF MOP 8, Section 7.1 guidance to ensure representative influent conditions are used in the analysis. These primarily included 'zero' or out-of-range pollutant concentration values.

## 2.4 Projected Flows

Projected flows were calculated based on population and non-residential growth, normalized to account for diversity in land uses by establishing EDUs. Flow and load projections were developed using the following method:

1. Existing flows were estimated from the data period of May 1, 2020 through May 1, 2025. Flow growth beyond existing flows were estimated using the EDU approach described below.

2. EDU projection data was provided by each of the SPWA JPA Partners (City of Roseville, Placer County, and South Placer Municipal Utility District).

3. Flow projections were developed by multiplying the future EDUs by an ADWF contribution of 150 gpd per EDU, in accordance with the approach described in the technical memorandum prepared by the City of Roseville, *Equivalent Dwelling Units (EDU) Projections for the Dry Creek Sewershed,* dated May 26, 2025.

4. Future plant flows and loads were projected to estimate future conditions until buildout. Existing flow and load peaking factors are assumed to remain constant for the projections.

The EDU projections data for the DCWWTP is summarized in **Table 2-1** for selected points in time. Projected influent flow and load conditions are summarized below in **Table 2-2**. Raw influent flows were projected with existing flow conditions as the starting point and an ADWF contribution of 150 gpd/EDU applied directly to future EDUs. The projections assume consistent flow and loading peaking factors through to buildout conditions.

Raw influent flow projections are also presented graphically in **Figure 2-1** through FY 59/60 and Buildout. These projections, along with the desktop capacity analysis in this Plan, will be used to identify the hydraulic and biological capacity lifespans of specific DCWWTP unit processes.

**TABLE 2-1: DCWWTP EDU PROJECTIONS AND PROJECTED RAW INFLUENT FLOWS SUMMARY**

| Fiscal Year (FY) | Number of EDUs | Projected Average Dry Weather Flow (ADWF) (MGD) | Projected Peak Hourly Wet Weather Flow (PHWWF) (MGD) | PHWWF Peaking Factor |
|---|---|---|---|---|
| FY 25 | 68,454 | 8.6[1] | 37.0 | 4.30 |
| FY 30 | 72,166 | 9.1[2] | 39.4 | 4.30 |
| FY 35 | 75,949 | 9.7[2] | 41.8 | 4.30 |
| FY 40 | 80,703 | 10.4[2] | 44.9 | 4.30 |
| FY 45 | 85,110 | 11.1[2] | 47.8 | 4.30 |
| FY 50 | 88,783 | 11.7[2] | 50.1 | 4.30 |
| Buildout | 106,099 | 14.2[2] | 61.3 | 4.30 |

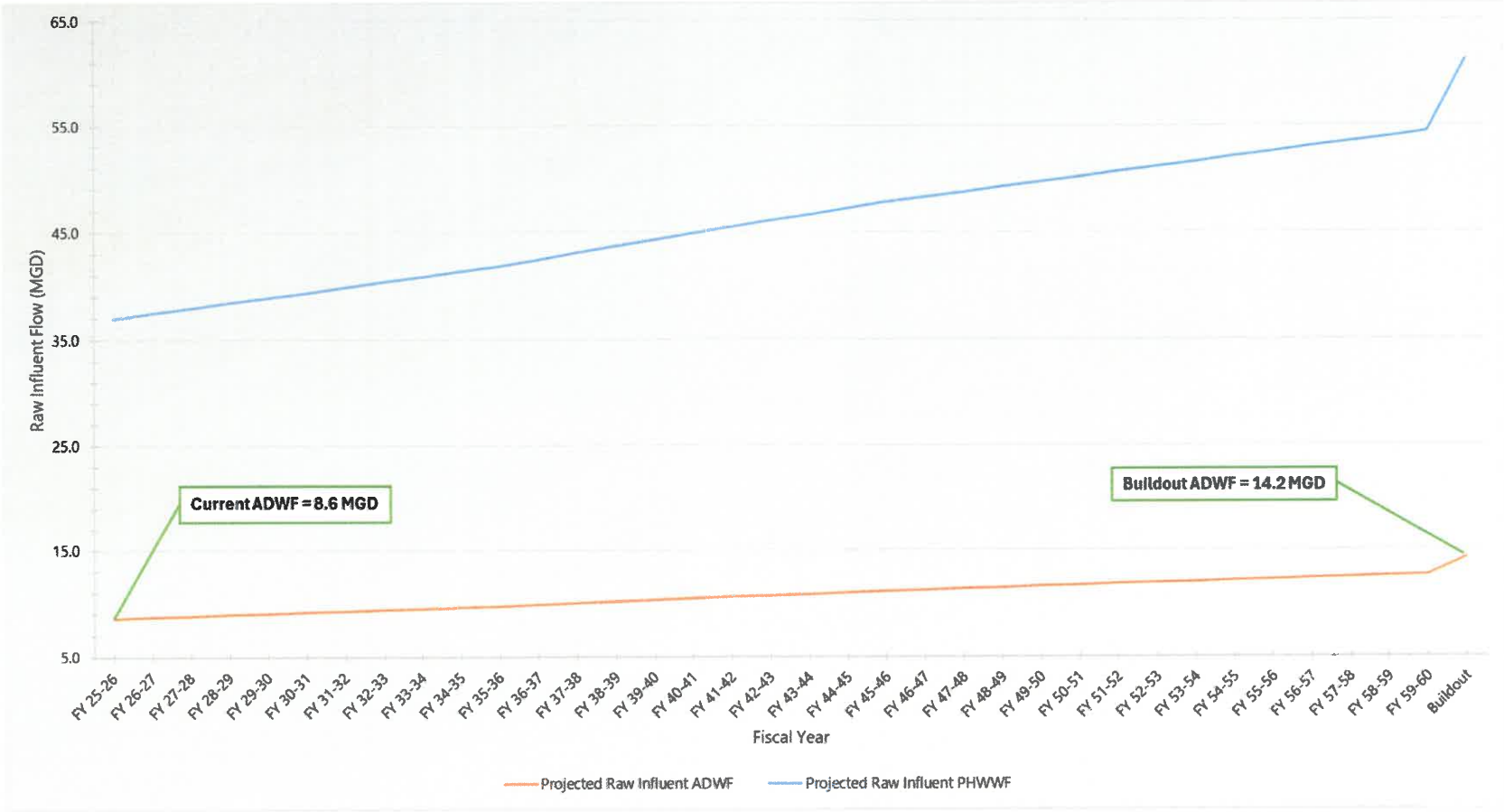
1. *Existing ADWF based on flow data.*
2. *Future ADWF based on existing ADWF and an ADWF contribution of 150 gpd/EDU applied directly to future EDUs.*

**TABLE 2-2: EXISTING AND PROJECTED INFLUENT FLOWS**

| Flow Criteria | Existing | Projected FY 45 | Projected Buildout |
|---|---|---|---|
| **Raw Influent Flow (MGD)** | | | |
| Average Dry Weather Flow (ADWF) | 8.6 | 11.1 | 14.2 |
| Average Annual Flow (AA) | 9.0 | 11.6 | 14.9 |
| Maximum Day Flow (MDF) | 14.2 | 18.4 | 23.6 |
| Maximum Month Flow (MMF) | 10.3 | 13.3 | 17.1 |
| Peak Hour Wet Weather Flow (PHWWF) | 37.0 | 47.8 | 61.3 |
| PHWWF with ESB Usage | 25.2[2] | 33.9[3] | 47.4[3] |
| **Combined Influent Flow (MGD)** | | | |
| Average Dry Weather Flow (ADWF) | 9.4 | 12.1 | 15.6 |
| Average Annual Flow (AA) | 9.8 | 12.6 | 16.2 |
| Maximum Day Flow (MDF) | 15.3 | 19.8 | 25.4 |
| Maximum Month Flow (MMF) | 11.2 | 14.4 | 18.5 |
| Peak Hour Wet Weather Flow (PHWWF) | 26.4[2] | 35.4[3] | 49.4[3] |

1. *Raw influent flows include West Placer flows, assuming routing of these flows to the DCWWTF influent junction boxes.*
2. *Includes 11.8 MGD of peak flow shaving by the ESB.*
3. *Includes 13.9 MGD of peak flow shaving by the ESB.*

**FIGURE 2-1: RAW INFLUENT FLOW PROJECTIONS**




1. *Existing flows based on plant data review.*
2. *Average dry weather flow projections consistent with technical memorandum prepared by the City of Roseville, Equivalent Dwelling Units (EDU) Projections for the Dry Creek Sewershed, dated May 26, 2025.*

## 2.5 Existing and Projected Loads

Data was evaluated from May 1, 2020 through May 1, 2025 for raw influent, combined influent, and primary clarifier effluent loads including biochemical oxygen demand ($BOD_5$), total suspended solids (TSS), and ammonia ($NH_3$) Primary clarifier influent loadings include raw influent and in-plant recycle loadings. In-plant recycle loading projections were estimated by assuming they make up a consistent percentage of raw influent loadings over time. Daily loads were calculated based on daily flow and daily composite sampling. These data were analyzed to establish current AAL, ADWL, and MML pollutant loading criteria. Pollutant concentrations were then back-calculated for each statistical flow and loading condition. For all loading conditions, the concentrations are assumed to remain constant through buildout.

Primary clarifier effluent samples are typically analyzed for ammonia (NH3) but not for TKN (Total Kjeldahl Nitrogen). Based on average data, a 5% TKN primary clarifier removal rate has been included below to account for organic nitrogen removal through the primary clarifiers. Based on sampling campaign data for NH3 and TKN, an NH3:TKN ratio of 0.83 was used to estimate existing primary clarifier effluent TKN loadings below. Existing and projected loads are shown in **Table 2-3** and **Table 2-4**.

**TABLE 2-3: EXISTING AND PROJECTED RAW INFLUENT LOADS AT DCWWTP**

| Loading Criteria | Existing | Projected FY 45 | Projected Buildout |
|---|---|---|---|
| **Raw Influent BOD Loading** | | | |
| Average Annual Concentration (mg/L) | 389 | 389 | 389 |
| Average Annual Loading (lb/day) | 29,090 | 37,540 | 48,190 |
| Maximum Month Concentration (mg/L) | 473 | 473 | 473 |
| Maximum Month Loading (lb/day) | 40,630 | 52,430 | 67,310 |
| **Raw Influent TSS Loading** | | | |
| Average Annual Concentration (mg/L) | 402 | 402 | 402 |
| Average Annual Loading (lb/day) | 30,070 | 38,810 | 49,810 |
| Maximum Month Concentration (mg/L) | 513 | 513 | 513 |
| Maximum Month Loading (lb/day) | 44,120 | 56,940 | 73,090 |
| **Raw Influent NH3 Loading** | | | |
| Average Annual Concentration (mg/L) | 25.1 | 25.1 | 25.1 |
| Average Annual Loading (lb/day) | 1,880 | 2,430 | 3,110 |
| Maximum Month Concentration (mg/L) | 28.3 | 28.3 | 28.3 |
| Maximum Month Loading (lb/day) | 2,430 | 3,140 | 4,030 |

**TABLE 2-4: EXISTING AND PROJECTED PRIMARY CLARIFIER LOADS AT DCWWTP**

| Loading Criteria | Existing | Projected FY 45 | Projected Buildout |
|---|---|---|---|
| **Primary Clarifier Influent BOD Loading** | | | |
| Average Annual Concentration (mg/L) | 407 | 407 | 407 |
| Average Annual Loading (lb/day) | 33,150 | 42,790 | 54,920 |
| Maximum Month Concentration (mg/L) | 505 | 505 | 505 |
| Maximum Month Loading (lb/day) | 47,130 | 60,820 | 78,070 |
| **Primary Clarifier Influent TSS Loading** | | | |
| Average Annual Concentration (mg/L) | 402 | 402 | 402 |
| Average Annual Loading (lb/day) | 32,750 | 42,260 | 54,250 |
| Maximum Month Concentration (mg/L) | 531 | 531 | 531 |
| Maximum Month Loading (lb/day) | 49,550 | 63,950 | 82,090 |
| **Primary Clarifier Influent NH3 Loading** | | | |
| Average Annual Concentration (mg/L) | 27.7 | 27.7 | 27.7 |
| Average Annual Loading (lb/day) | 2,260 | 2,910 | 3,740 |
| Maximum Month Concentration (mg/L) | 34.1 | 34.1 | 34.1 |
| Maximum Month Loading (lb/day) | 3,180 | 4,100 | 5,270 |
| **Primary Clarifier Effluent BOD Loading** | | | |
| Average Annual Concentration (mg/L) | 158 | 158 | 158 |
| Average Annual Loading (lb/day) | 12,880 | 16,620 | 21,340 |
| Maximum Month Concentration (mg/L) | 233 | 233 | 233 |
| Maximum Month Loading (lb/day) | 21,790 | 28,120 | 36,100 |
| **Primary Clarifier Effluent TSS Loading** | | | |
| Average Annual Concentration (mg/L) | 88 | 88 | 88 |
| Average Annual Loading (lb/day) | 7,150 | 9,230 | 11,850 |
| Maximum Month Concentration (mg/L) | 197 | 197 | 197 |
| Maximum Month Loading (lb/day) | 18,350 | 23,680 | 30,400 |
| **Primary Clarifier Effluent TKN Loading** | | | |
| Average Annual Concentration (mg/L) | 31.8 | 31.8 | 31.8 |
| Average Annual Loading (lb/day) | 2,590 | 3,350 | 4,300 |
| Maximum Month Concentration (mg/L) | 38.8 | 38.8 | 38.8 |
| Maximum Month Loading (lb/day) | 3,620 | 4,680 | 6,010 |
| Minimum Month Temperature (deg C) | 18 | 18 | 18 |

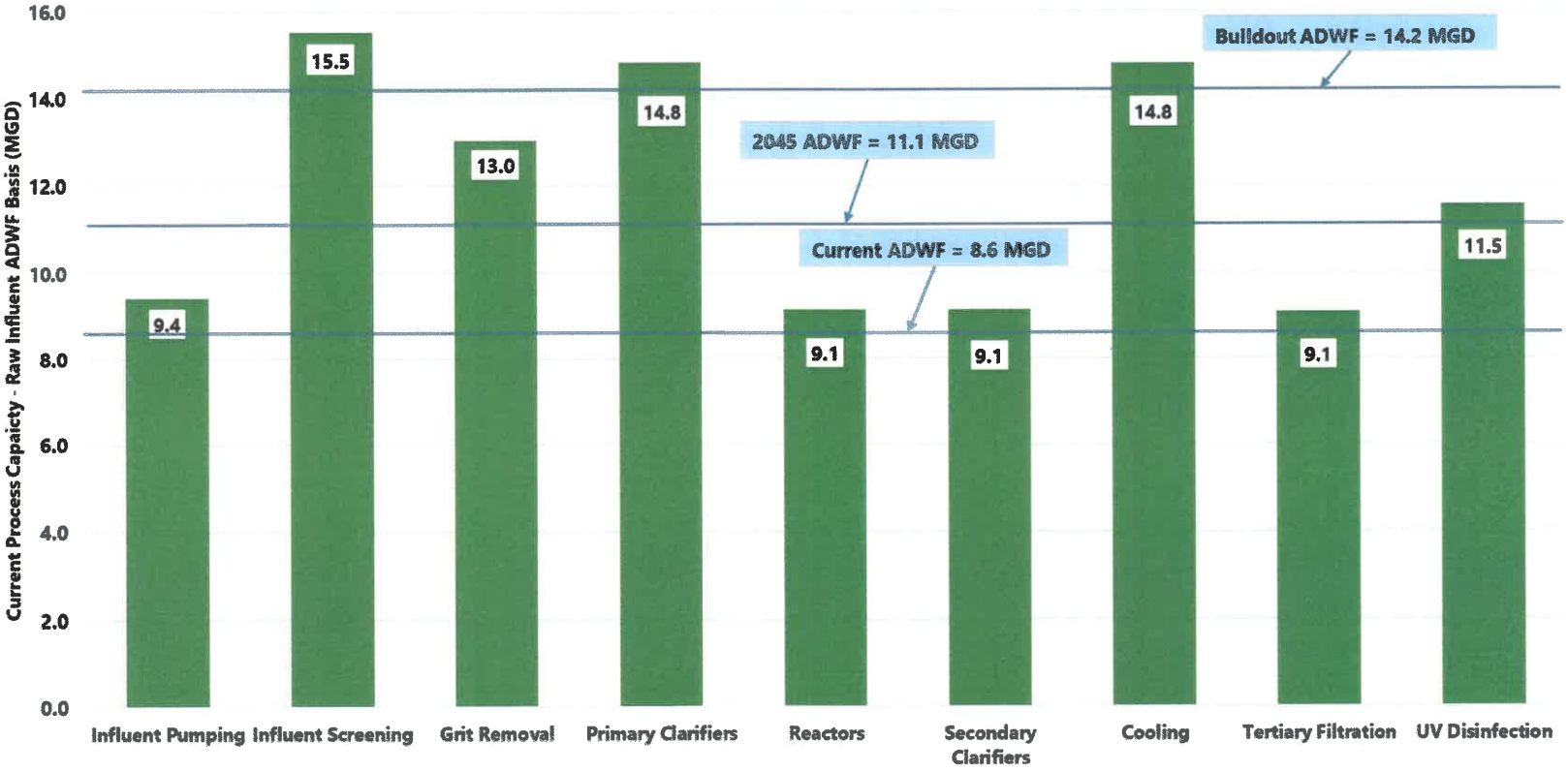
# 3. PROCESS CAPACITY ANALYSIS

This chapter evaluates the hydraulic and biological treatment capacities of major DCWWTP liquid processes to identify current bottlenecks and predict when each unit will require capacity improvements. Solids processes are being evaluated by a separate, ongoing project being completed by the city. The analysis uses steady state capacity assessments based on design criteria and literature values for each individual unit process and a plant-wide hydraulic model. Findings in this chapter directly inform the timing and scope of capacity projects described in **Chapter 4**.

The limiting capacity parameter for each key unit process has been identified and summarized below in **Table 3-1**. Some of the unit processes are limited by different operating criteria, i.e., peak hourly flow or max monthly pollutant loading; therefore, all unit processes were also normalized to raw influent average dry weather flow to allow for a common basis for analysis. **Figure 3-1** is a graphical representation of current process capacity utilization at the DCWWTP on an ADWF equivalent basis compared to current, 2045, and projected buildout ADWF.

The most immediate capacity limitations include secondary treatment, tertiary filtration, and influent pumping. The city has an ongoing project to repurpose AB's 300-400 to increase secondary treatment capacity. The city is also planning to begin an influent improvements project focusing on influent pumping, ESB, and influent screening improvements. The DCWWTP receives significant wet weather peak flows, due to collection system age, as compared to the PGWWTP. Therefore, a major takeaway is that effective ESB usage is critical to reducing peak flows through the plant and associated long-term capital improvement needs.

**FIGURE 3-1: DCWWTP CURRENT PROCESS CAPACITY UTILIZATION**




1. *Current unit process capacities are presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Solids processes are being evaluated by a separate, ongoing project being completed by Roseville.*

**TABLE 3-1: DCWWTP PROCESS CAPACITIES SUMMARY**

| Process Description | Existing Capacity at Raw Influent ADWF Equivalent (Current ADWF = 8.6 MGD) | Actual Limiting Capacity Parameter |
|---|---|---|
| Emergency Storage Basin | N/A | PHWWF Shaving Pre-2045: **11.8 MGD**<br>PHWWF Shaving Post-2045: **13.9 MGD** |
| Influent Pumping | 9.4 MGD ADWF | Peak Combined Influent Flow Limited:<br>**30 MGD** (4/5 Pumps Online) |
| Influent Screening | 15.5 MGD ADWF<br>(Through Buildout) | Peak Raw Influent Flow Limited:<br>**55 MGD** (2/2 Units Online) |
| Grit Removal | 13.0 MGD ADWF | Peak Combined Influent Flow Limited:<br>**46.1 MGD** (2/2 Units Online) |
| Primary Clarifiers | 14.8 MGD ADWF<br>(Through Buildout) | Peak Combined Influent Flow Limited:<br>**54.0 MGD** (4/4 Units Online) |
| Aerobic Reactors | 12.3 MGD ADWF | Primary Effluent Max Month Loading Limited to:<br>**31,210 lbs/day BOD, 5,200 lbs/day TKN**<br>(MLSS = 3,550 mg/L, Wastewater Temp.=18 deg. C)<br>(AB's 300 – 400 Offline) |
| Anoxic Reactors (Denitrification Capacity) | 9.1 MGD ADWF | Primary Effluent Max Month Loading Limited to:<br>**23,090 lbs/day BOD, 3,850 lbs/day TKN**<br>(fully nitrified, MLSS = 3,550 mg/L, 30 mg/L BOD carbon addition)<br>(AB's 300 – 400 Offline) |
| Secondary Clarifiers | 9.1 MGD ADWF | Peak Combined Influent Flow Limited:<br>**28.8 MGD** (6/6 Units Online)<br>MLSS = 3,550 mg/L; SVI = 173 mL/g) |
| Cooling | 14.8 MGD ADWF<br>(Through Buildout) | Average Annual Combined Influent Flow Limited:<br>**16.8 MGD** (2/2 Units Online) |
| Tertiary Filters | 9.1 MGD ADWF | Peak Combined Influent Flow Limited,<br>5.0 GPM/sf:<br>**28.5 MGD** (11/12 Cells Online) |
| UV Disinfection | 11.6 MGD ADWF | Peak Combined Influent Flow Limited:<br>**39.5 MGD** (4/5 Channels Online),<br>10$^{th}$ Percentile UVT = 64% |

## 3.1 Emergency Storage Basin

The DCWWTP can divert screened influent flow to two ESBs directly downstream of the influent junction boxes. The concrete-lined ESB has a volume of 5 MGD, and the earthen ESB has a volume of 49 MGD. Working volume of the ESBs is currently reduced by upstream hydraulics, ballasting requirements, and return pumping limitations.

- **Available Capacity:** Based on analysis and discussions with the city, the ESBs can receive raw influent wastewater to reduce flow to downstream unit process by up to 11.8 MGD during high PHWWF conditions. Post-2045, ESB usage is assumed to increase to 13.9 MGD during high PHWWF conditions through buildout based on maximizing downstream treatment process capacities.
- **Required Capacity:** Not applicable.

## 3.2 Influent Pumping

The DCWWTP's Influent Pumping Station (IPS) is nameplate rated for 44.4 MGD with four of the five 185 hp pumps operating with 41.4' of static and 60' of total dynamic head. According to the *IPS Hydraulic Analysis* by WaterWorks Engineers (2018), the IPS is limited to 30 MGD based on flow meter data due to several bottlenecks within the piping system. Hydraulic improvements were recently constructed with the goal of increasing IPS capacity to 36.5 MGD with four of the five pumps in service. However, the city reports that the IPS capacity remains limited to 30 MGD with four of the five pumps online.

- **Available Capacity:** The current influent pumping capacity is 30.0 MGD with one standby pump.
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB.

## 3.3 Influent Screening

The DCWWTP has two rake-style mechanical screens with one manual bypass screen.

- **Available Capacity:** The current influent screening capacity is 55.0 MGD with two units online. The city is currently planning an influent improvements project which includes screening improvements.
- **Required Capacity:** The current required capacity is 25.2 MGD based on raw influent PHWWF downstream of the ESB.

## 3.4 Grit Removal

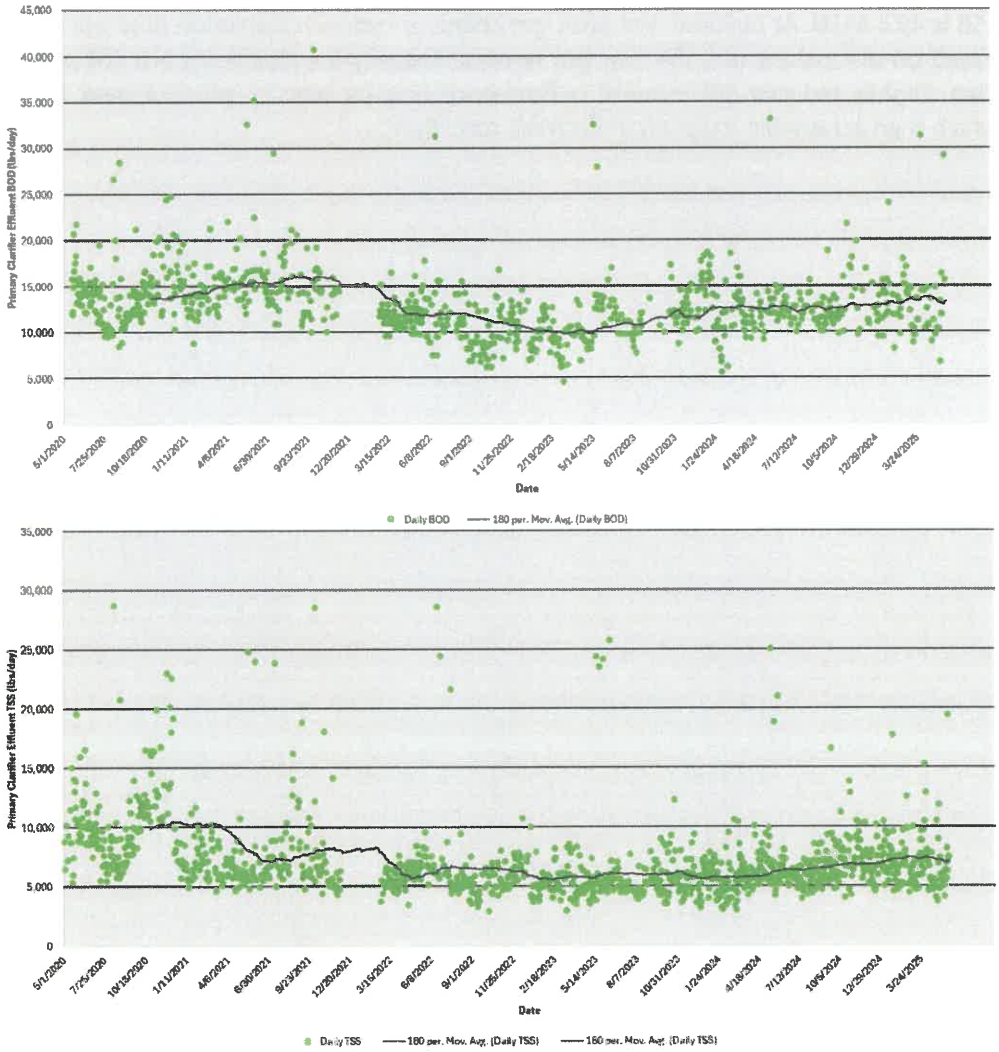
The DCWWTP has two chambers with a combined volume of 96,000 gallons. Aerated grit chambers are typically sized and designed based on a minimum hydraulic detention time of 3 minutes at peak hourly flow.

- **Available Capacity:** The current grit removal capacity is 46.1 MGD with two units online.
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB. Projected buildout combined influent PHWWF downstream of the ESB is 49.4 MGD. At buildout, the peak grit chamber hydraulic detention time will be 2.8 minutes. Based on discussions with the city, grit removal capacity improvements are not proposed in this Plan. Slightly reduced grit removal performance may be seen at buildout peak flow conditions which is an acceptable trade-off at PHWWF conditions.

## 3.5 Primary Clarifiers

The DCWWTP has four rectangular primary clarifiers with a total surface area of 18,000 square feet. Typical design peak hourly overflow rate for primary clarifiers is 2,000-3,000 gpd/square foot (Metcalf & Eddy, 5th Ed., Table 5-19). Capacity can be set at the upper end of literature values with removals based on actual performance. No correlation was observed between hydraulic loading or influent TSS on removal. **Figure 3-2** summarizes primary clarifier BOD and TSS effluent loadings based on operating data.

**FIGURE 3-2: PRIMARY CLARIFIER EFFLUENT LOADING SUMMARY**




- **Available Capacity:** The current primary clarifier capacity is 54.0 MGD with four units online at a surface overflow rate of 3,000 gpd/sf.
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB.

## 3.6 Reactor Capacity

The DCWWTP has two types of aeration basins that comprise the secondary treatment process: AB's 100 – 400 and 500 – 800. Currently, primary effluent can be distributed to all eight basins. AB's 100 – 200 were converted to a Modified Ludzack-Ettinger (MLE) process configuration to improve nitrate and total nitrogen removal. The previous primary clarifier sections of AB's 100-400 were also retrofitted to operate as anoxic zones. The effluent weirs for these modified primary clarifiers were also removed in 1991; therefore, the anoxic zone water level in these tanks is controlled by the downstream aerobic zone effluent weir elevation. In AB's 100 – 200, the downstream mechanically aerated zones (3 in series) were upgraded with Invent Mixer Aerators. Additional equipment includes submersible internal mixed liquor recycle (IMLR) pumps, anoxic mixers and aeration piping, control valving, instrumentation and included provisions to dose supplemental carbon at the primary clarifier effluent flow split for enhanced nitrogen removal in all operating basins. Currently AB's 300 – 400 have the original mechanical aerators, cannot significantly reduce nitrate, and are normally not in service and only brought online in case of emergency. The city is currently completing a project to repurpose AB's 300-400 to increase secondary treatment capacity.

AB's 500 – 800 were constructed in the 1990's and operate as an MLE process. Similar to AB's 100 – 200, the aerobic volume is partitioned into three aerobic zones in series. Supporting equipment for AB's 500 – 800 also includes submersible IMLR pumps, anoxic mixers, aeration piping, control valving, and instrumentation. However, unlike AB's 100 – 200, aeration to AB's 500 – 800 is provided by fixed floor fine bubble diffusers.

Flow Split: Based on operational feedback, the primary effluent flow split has been targeted at 20% to Basins 100-200 and 80% to Basins 500-800. This flow distribution was investigated during the stress testing program, and it was determined that a primary effluent flow split that approximately matched the volume of the respective reactor trains provided better performance. The current primary flow split employed when all trains are in service consists of 33% of the flow to Basins 100-200 with 67% directed to Basins 500-800.

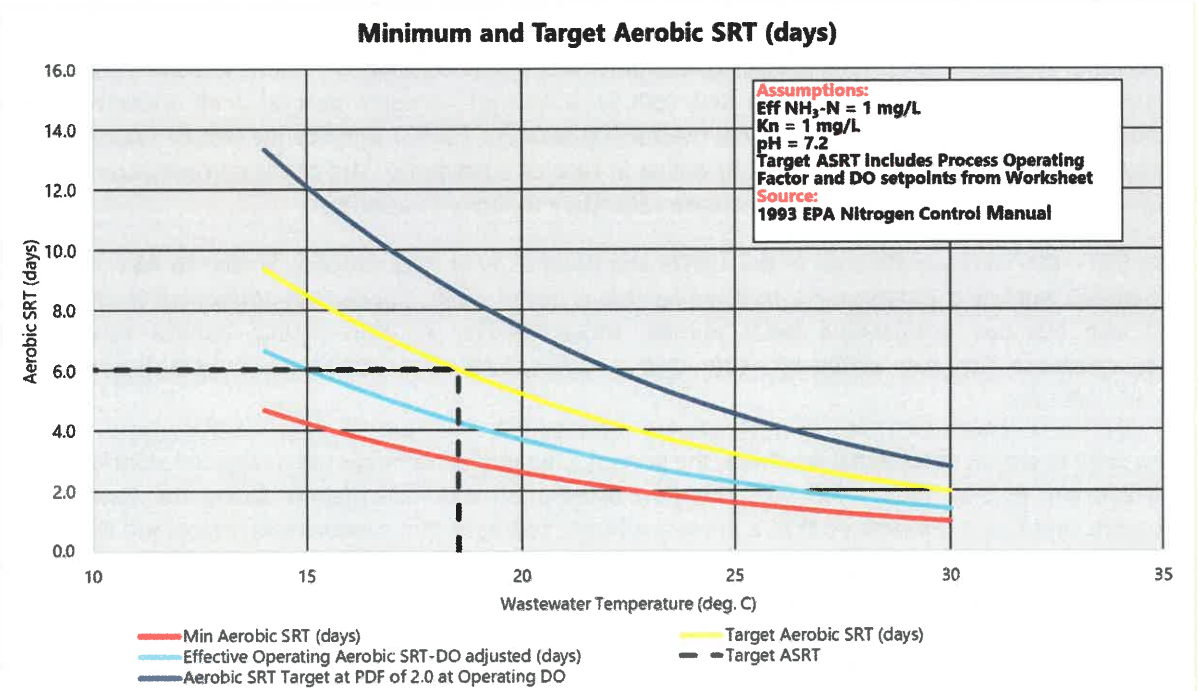
Reactor and secondary clarifier capacities are inherently related with higher mixed liquor suspended solids (MLSS) concentrations improving reactor capacity but reducing secondary clarifier capacity, and vice versa. Reactor and secondary clarifier capacities have been balanced by adjusting target MLSS concentration. Aerobic reactor capacity currently exceeds anoxic reactor capacity. Therefore, anoxic reactor capacity (denitrification capacity) is the limiting factor in overall secondary treatment capacity.

### 3.6.1 Aerobic Reactors

The effluent requirement to reduce ammonia requires nitrification which is the limiting parameter that controls aerobic reactor capacity. Based on literature values, the recommended lowest target aerobic Solids Retention Time (aSRT) at 18 deg C to provide consistent nitrification is 6 days at a dissolved oxygen (DO) concentration of 2 mg/L. However, with current operating DO concentrations, the target aSRT needs to be increased to 8.5 days to compensate for the impact of the lower DO concentrations. Given the measured sludge production (net yield) of 0.73 lbs/lb BOD5 removed and 100, 200, 500-800 trains on-line, the nitrifying aerobic treatment capacity can treat primary effluent loadings of 31,210 lbs/day of $BOD_5$ and 5,200 lbs/day of TKN at an MLSS concentration of 3,550 mg/L. The current max month primary effluent $BOD_5$ and TKN primary effluent loadings are 21,790 lbs/day and 3,620 lbs/day, respectively.

Under existing operating strategies, process modeling confirms these capacity estimates. However, process modeling efforts investigating alternative control measures for aeration, supplemental carbon addition and filtrate equalization appear to show promise of improving nitrogen removal performance and modestly increasing capacity of the existing reactors. Given current operation and performance, aerobic reactors have some excess capacity with all reactors online except AB's 300 – 400. **Figure 3-3** illustrates aSRT operating curves that serve as a guide for process control for nitrification.

**FIGURE 3-3: AEROBIC SRT OPERATING CURVES**




- **Available Capacity:** The current aerobic reactor capacity is 16.1 MGD under combined influent MMF conditions (12.3 MGD Raw Influent ADWF Equivalent) with AB's 300-400 offline.
- **Required Capacity:** The current required capacity is 11.2 MGD based on combined influent MMF.

### 3.6.2 Aeration Blowers

The DCWWTP has three multi-stage centrifugal blowers. According to the *Nitrate Reduction Project Basis of Design Report* (Brown and Caldwell, 2018), the blower output was summarized from the SCADA system and was found to be approximately 27% below design airflow capacity due to the system configuration. **Table 3-2** summarizes the existing aeration blower capacity. As a result, available aeration air supply may be lower than assumed under original design conditions, which can constrain achievable DO setpoints during high-load periods.

**TABLE 3-2: EXISTING BLOWER SYSTEM SUMMARY**

| Parameter | Quantity / Value | Design Details |
|---|---|---|
| Number of Units | 3 | -- |
| Type | Multistage Centrifugal | Constant Speed (No VFD's) |
| Unit Output Condition 1 | 9,815 CFM at 8 PSIG | At 115 F |
| Unit Output Condition 2 | 10,600 CFM at 8 PSIG | At 70 F |
| Firm Capacity (Name Plate) | 31,800 CFM | With one unit out of service |
| Firm Capacity (Actual) | 23,200 CFM | Based on measured air flow |

Diffusers have capacity for approximately 44,000 scfm which is greater than the current blower capacity. Therefore, diffuser capacity is not expected to be the limiting component in the diffused aeration system.

### 3.6.3 Anoxic Reactors

The anoxic reactors in the MLE configuration at the DCWWTP (AB 100-200 and 500-800) provide denitrification by combining primary effluent, return activated sludge (RAS) and nitrified IMLR from the end of each basin. Denitrification performance is influenced by any of the following operation conditions.

- Biomass in the anoxic reactors (volume or concentration).
- Organic carbon entering the reactors in the primary effluent or via supplemental carbon addition.
- Nitrate recycled from the end of the downstream aerobic reactors.
- Excessive oxygen recycled from the end of the downstream aerobic reactors which can act to inhibit the denitrification process.

The capacity and performance of denitrification in the MLE process at the Dry Creek WWTF is most limited by the combination of availability of organic carbon ($BOD_5$ or readily degradable chemical oxygen demand) and basin volume. The current Carbon to Nitrogen Ratio in the primary effluent is low at 2.7 lbs $BOD_5$/lb $NO_3$-N with a typical target of 4-5 lbs $BOD_5$/lb $NO_3$-N. Past and current operations have taken measures to improve denitrification by operating with a low DO concentration in the last aeration zone (to minimize recycle) and by adding 50 to 100 gpd of supplemental carbon to the primary effluent.

Based on the following typical operating conditions necessary to also achieve nitrification, the existing anoxic zones in Basins 100-200, 500-800, when achieving an effluent combined $NO_3$-N plus $NO_2$-N concentration of 10 mg/L, are near capacity based on maximum monthly primary effluent loadings of 23,090 lbs $BOD_5$/day and 3,850 lbs TKN/day at an MLSS concentration of 3,550 mg/L. The current max month primary effluent $BOD_5$ and TKN primary effluent loadings are 21,790 lbs/day and 3,620 lbs/day, respectively. Operating conditions for the existing capacity estimate include:

- MLSS of 3,550 mg/L.
- Wastewater temperature of 18°C.
- Dissolved oxygen concentration of 0.2 mg/L in the last aerobic zone.
- IMLR flow of 200% of primary effluent.
- A supplemental carbon addition equating to 30 mg/L of $BOD_5$.

Given current operation and performance, anoxic reactors are operating near capacity.

- **Available Capacity:** The current anoxic reactor capacity is 11.9 MGD under combined influent MMF conditions (9.1 MGD Raw Influent ADWF Equivalent) with AB's 300-400 offline.
- **Required Capacity:** The current required capacity is 11.2 MGD based on combined influent MMF.

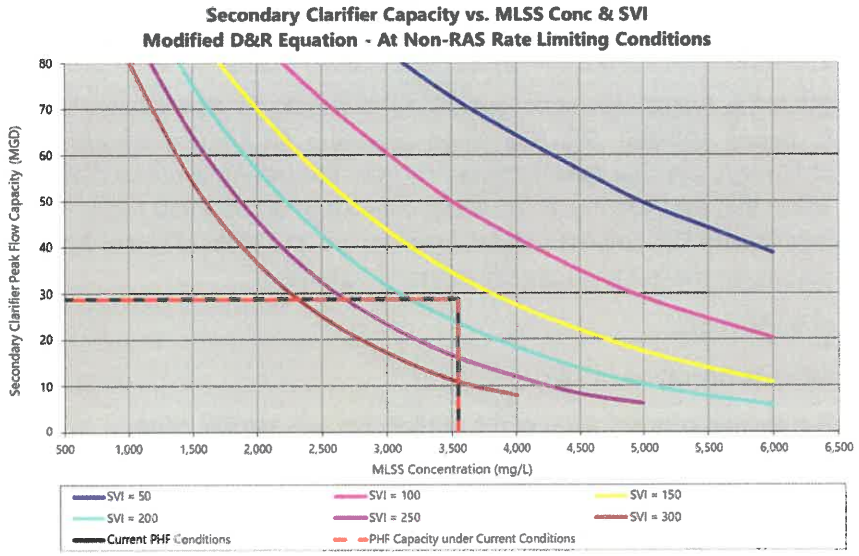
## 3.7 Secondary Clarifiers

The DCWWTP has four 85-foot units and two 125-foot circular secondary clarifiers. Secondary clarifier capacity has been estimated based on consolidated state point analysis approach as described in literature (Dombrowski, 2007, Daigger, 1995) using literature values adjusted for WWTF operating data. Minor adjustments to the settling values were established as part of the stress testing conducted previously.

Secondary clarifier capacity is dependent on several factors including the size and number of units online, RAS rate, MLSS concentration and the settling characteristics of the MLSS (as measured by SVI). Secondary clarifier and reactor capacities are inherently linked as higher MLSS concentrations increase reactor capacity but reduce secondary clarifier capacity, and vice versa with lower MLSS concentrations. Therefore, identifying reasonable operating MLSS conditions to balance the capacities of these unit processes is important to maximizing the DCWWTP's overall secondary treatment capacity. Capacity is also somewhat limited by historical SVI (settleability) performance.

- **Available Capacity:** The current secondary clarifier capacity is 28.8 MGD under combined influent PHWWF conditions (9.1 MGD Raw Influent ADWF Equivalent) with six units online, MLSS of 3,550 mg/L, and an SVI of 173 ml/g. Capacity is illustrated in **Figure 3-4.**
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB.

**FIGURE 3-4: SECONDARY CLARIFIER CAPACITY AT SVI = 173 ML/G, MLSS = 3,550 MG/L**



## 3.8 Cooling

The DCWWTP is required to discharge 4 MGD (minimum) of tertiary treated final effluent to Dry Creek to satisfy the effluent permit. The DCWWTP has two cooling tower units (two stacks each) which are placed into service seasonally, with each unit having a nameplate rating of 5,840 gpm, or 8.4 MGD for a total of 16.8 MGD, while reducing the water temperature from 82.1°F to 77.1°F at 72°F entering air. The DCWWTP NPDES permit requires the discharge not create either of the following:

- The natural temperature to be increased by more than 5°F on an annual average basis. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
- The natural temperature at Monitoring Location RSW-002 (downstream) to exceed a daily average temperature of 60°F and a daily maximum temperature of 62°F between November 1 through March 31.

Based on discussions with the city, the second condition between November and March typically controls cooling needs. This is partially due to the first condition being based on an annual average temperature difference. The city also reports that on days when the upstream stream temperature (RSW-001) is greater than 62°F that the cooling permit requirement has been relaxed. Stream temperature data was reviewed from January 2016 through May 2025. Annual average stream temperature difference remains well below the limit of 5°F, backing up the second condition controlling cooling needs. For the second condition, on days between November and March in these years with upstream stream temperature (RSW-001) below 62°F, there were zero occurrences of downstream stream temperature (RSW-002) exceeding 62°F. There were two days under these criteria where downstream stream temperature (RSW-002) exceeded 61°F. Based on historical cooling performance, it is recommended to proceed with the nameplate cooling capacity of 16.8 MGD based on average annual combined influent flow for estimating current capacity.

- **Available Capacity:** The current cooling capacity is 16.8 MGD with two units online.
- **Required Capacity:** The current required capacity is 9.8 MGD based on average annual combined influent flow.

Projected buildout average annual combined influent flow is 16.2 MGD. The current capacity is expected to be sufficient through buildout; however, changes in typical stream and in-plant wastewater temperatures should be monitored over time as these will impact rated cooling capacity.

## 3.9 Tertiary Filtration

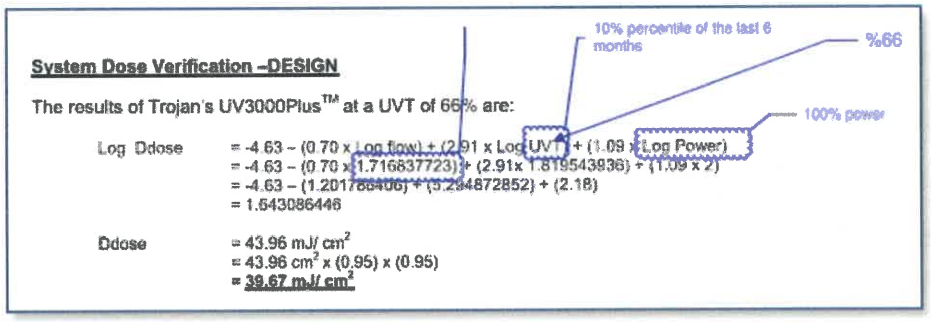
The DCWWTP has three self-backwashing granular media filters (deep bed anthracite) with 1,440 sf per filter. Each filter is equally divided into four cells (12 cells total; 360 sf per cell) that can be backwashed independently. The current Title 22 Water Reuse criterion used to evaluate tertiary filtration capacity is 5 GPM/sf.

- **Available Capacity:** The current tertiary filtration capacity is 28.5 MGD based on a peak hydraulic loading rate of 5 gpm/ft$^2$ and with one filter cell is out of service for backwashing.
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB.

## 3.10 UV Disinfection

The DCWWTP's existing UV disinfection system consists of a Trojan UV3000Plus system installed in 2006 with five channels with four banks per channel and 120 lamps per bank. Nameplate capacity is based on one channel out of service resulting in a peak capacity of 9 MGD per channel or 45 MGD overall. The UV dosage and flow capacity was originally based on a bioassay assessment for the Trojan UV3000Plus system created from National Water Research Institute (NWRI 2003) standards as shown in **Figure 3-5** from the original UV O&M manual.

**FIGURE 3-5: TROJAN UV3000PLUS DOSAGE FORMULA (NWRI 2003 STANDARDS)**




After installation of the existing UV system, the National Water Research Institute (NWRI) issued new design standards that will apply to the DCWWTP UV system for dosage and capacity requirements if the system is upgraded or modified. These standards will reduce the effective treatment capacity of the UV system. Per the city, effluent coliform detection has been in compliance with discharge requirements at the DCWWTP. Therefore, the current design dosage formula has been used for dosage and capacity estimates with the results described below. If the DCWWTP UV system is upgraded or modified in the future, the more conservative NWRI 2012 standards will apply.

UV transmittance (UVT) data was reviewed for the DCWWTP. This resulted in a low 10$^{th}$ percentile UVT being of 64% compared to the original design UVT of 66%. This results in a reduced flow capacity of 12% compared to nameplate capacity due to lower operating UVT. The minimum required dosage rate by permit is 100 mJ/cm$^2$, and maintaining a minimum 10% safety factor is recommended. However, with the current

capacity estimate based on the NWRI 2003 standards, the original manufacturer's design dosage rate of 119 mJ/cm$^2$ was used for capacity evaluation.

- **Available Capacity:** The current UV disinfection capacity is 39.5 MGD based on a UVT of 64% and with one channel out of service.
- **Required Capacity:** The current required capacity is 26.4 MGD based on combined influent PHWWF downstream of the ESB.

## 3.11 Hydraulic Model & Analysis

A hydraulic model was developed for the DCWWTP to evaluate the plant hydraulic capacity and identify where there are deficiencies and limitations. This section discusses the hydraulic capacity analysis method, assumptions, and results. Previous studies, drawings, and other resources were reviewed as part of this task to gain a better understanding of the current configuration of the plant and design capacities. Note that existing and projected flows and ESB usage assumptions have shifted slightly during the project since development of this model. However, the original hydraulic evaluation is slightly more conservative; therefore, the approach and findings have not been adjusted since their original development.

### 3.11.1 Hydraulic Capacity Background

The DCWWTP receives raw influent from the south and east portions of the City of Roseville (referred to as East Roseville), West Placer, and North Roseville. The DCWWTP underwent a major upgrade in 1991 which increased the plant hydraulic capacity to an ADWF of 18 MGD and a PWWF of 45 MGD.

The West Placer and North Roseville influent flows are pumped from an offsite location to a dedicated screening facility located adjacent to the grit basins. Flow from East Roseville is conveyed via three gravity Reinforced Concrete Pipes (RCPs) trunk lines (36", 42", and 66"); the three lines then merge into a single 66" line which flows to a screening facility followed by an influent pump station located at south corner of the treatment plant. The pump station pumps the East Roseville flow through a 36" pipe where it is combined with the West Placer influent upstream of the Grit Removal system. Both East Roseville and West Placer have flows dedicated flow meters located ahead of the grit basins.

In 2018, a hydraulic analysis study was conducted by Waterworks that evaluated the hydraulic conditions from the influent sewer pipes, into the screening facility, through the influent pump station, and to the grit basin. Per the report, maximum PHWWF rates for East Roseville in the "All-Pipe Existing Conditions" scenario, for the 10 year - 24-hour design storm was 36.6 MGD. However, the IPS pumping capacity was limited to less than 30 MGD due to high headloss through an existing 20" flow meter. The study recommended installation of bypass pipes to increase the IPS capacity to 36 MGD which was since implemented. However, the city reports that the IPS capacity remains limited to 30 MGD with four of the five pumps online. The city is planning an influent improvements project to eliminate this bottleneck.

Gravity flow from the influent junction box through the screens to the wet-well was also modeled. It was determined that with a new weir gate in the diversion structure, the piping would be sufficient to either fully pass or fully divert up to 45 MGD of influent flow.

The DCWWTP has the ability send peak hourly flows to two ESBs, directly downstream of the influent junction boxes. The DCWWTP does not have the ability to measure the flow volume that is diverted, and pump-back flow rate is currently limited to approximately 3 MGD. Woodard & Curran understands that the city is currently planning to complete an Influent Improvements project which includes ESB infrastructure and operational improvements to maximize its efficient usage into the future. This hydraulic evaluation originally assumed 9 MGD of peak flow shaving; this has since been revised to 11.8 MGD between current conditions and FY 44-45 and 13.9 MGD between 2045 and buildout. With this being a less conservative estimate, the hydraulic model approach and results have not been adjusted in this section accordingly.

### 3.11.2 Hydraulic Model Development

For this study, a hydraulic model was developed starting from East Roseville 48" influent pipe. The Waterworks 2018 study evaluated hydraulic conditions upstream of this influent pipe.

The hydraulic analysis was performed at a flow path and operational mode that would have the highest head loss. This path was determined to be the longest flow path per **Figure 3-6** and **Figure 3-7** with the following operational mode:

a) One grit tank is online.

b) Three primary tanks are online.

c) Two new AB's are online and two are offline. All four old AB's are online. It is assumed that AB's are taken offline in pairs and flow split is equal between AB pairs.

d) All four older clarifiers and one new clarifier are online. It is assumed flow is split equally between two pairs of old clarifiers and larger new clarifiers.

e) RAS and IMLR return rates were assumed to be 50% and 300% of influent flow, respectively.

The model can be modified to run with various RAS and IMLR flow rates and different numbers of units online or offline. The plant hydraulic capacity limit was defined as the flow where:

- A structure's freeboard would be less than 1 ft.
- Velocity in the pipe is more than 7 ft/s.
- A weir is submerged.

**FIGURE 3-6: DCWWTP AERIAL WITH HYDRAULIC MODEL FLOW PATH**

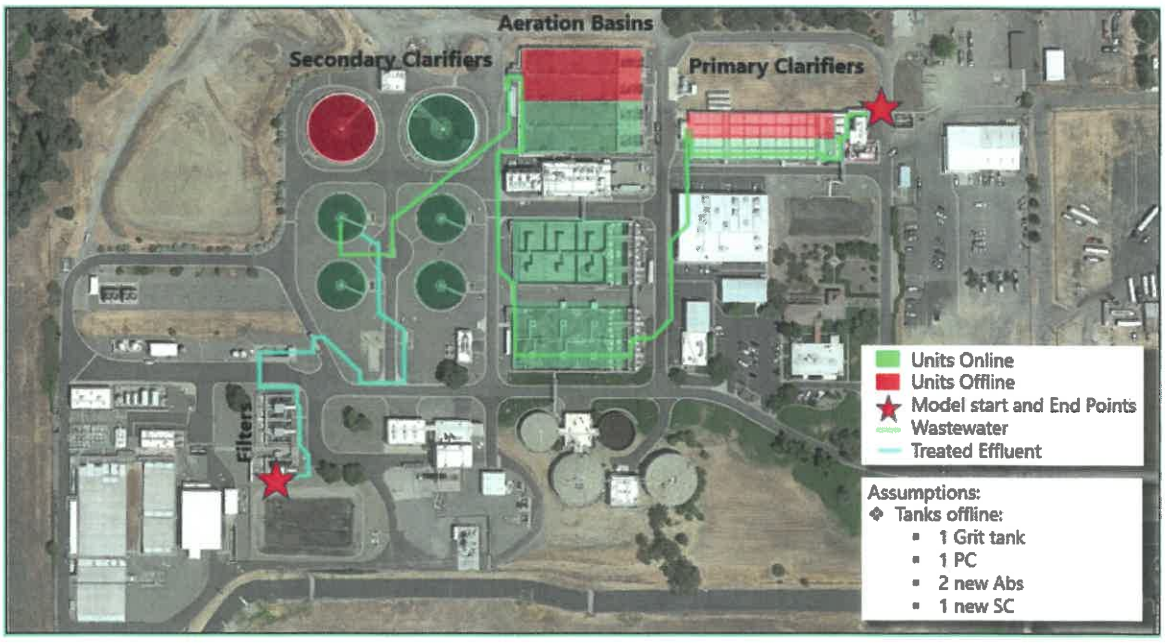
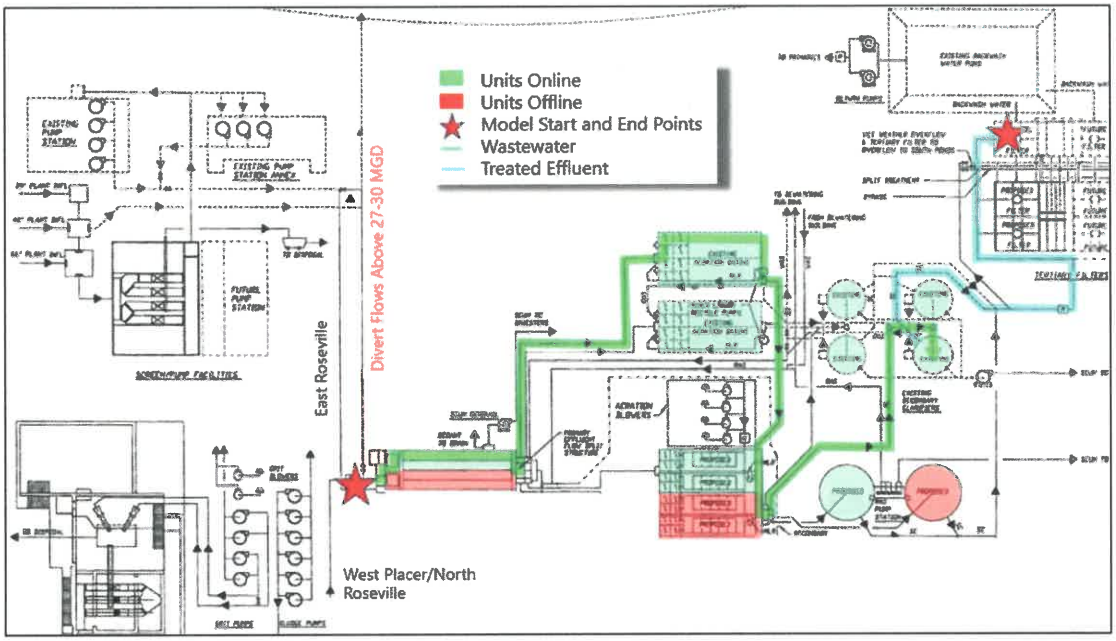


**FIGURE 3-7: PROCESS FLOW DIAGRAM WITH HYDRAULIC MODEL FLOW PATH**




The model used for this study was Woodard & Curran's proprietary SteadyFlow model which solves a continues profile through the plant using Bernoulli's equation for 1D, steady-state flow. Frictional head loss was calculated using Darcy–Weisbach equation. SteadyFlow uses the Colebrook formula to approximate friction factor for Darcy-Weisbach. The following assumptions were used in the Steadyflow Model:

- Surface's roughness height (ε) for all concrete surfaces such as tanks, channels was assumed to be 0.02 ft and for all steel surfaces such as pipes was assumed to be 0.00015 ft.
- For minor losses through valves and fittings the following resistance coefficient (K) values were used (see **Table 3-3**). A transition loss coefficient (Cu) was used to model exit, entrance, expansion or contraction losses which occur at the *end* of a conduit. For all expansion or exit segments, Cu of 1 and for all contraction or entrance segments Cu of 0.5 was used.

**TABLE 3-3: MINOR LOSS FRICTION RESISTANCE COEFFICIENT (K)**

| Fitting | K |
|---|---|
| $45^0$ Bends | 0.19 |
| $90^0$ Bends | 0.36 |
| T-Thru Flow | 0.3 |
| T-Thru Branch | 0.74 |
| Butterfly Valve | 0.30 |

- There were minor discrepancies on the record drawings for which the following assumptions were made:
    - Influent pipe to old AB's splitter box was shown with different sizes and elevations on the record drawings (see **Figure 3-8**). The pipe diameter was assumed to be 42" with invert elevation of 123.5'.
    - The drawing didn't show a section of the secondary effluent piping; for the model; it was assumed the pipes were connected on the path shown on **Figure 3-9**.

**FIGURE 3-8: INFLUENT PIPE TO OLD AB'S SPLITTER BOX**

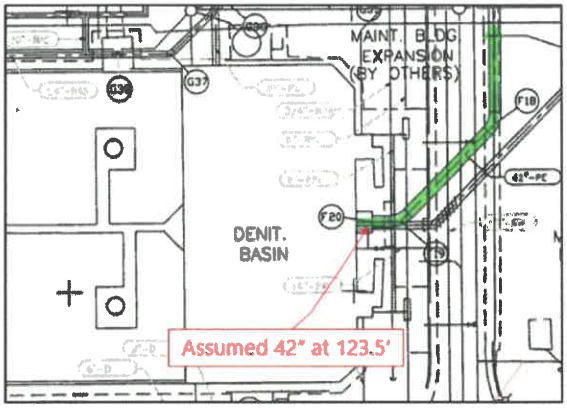
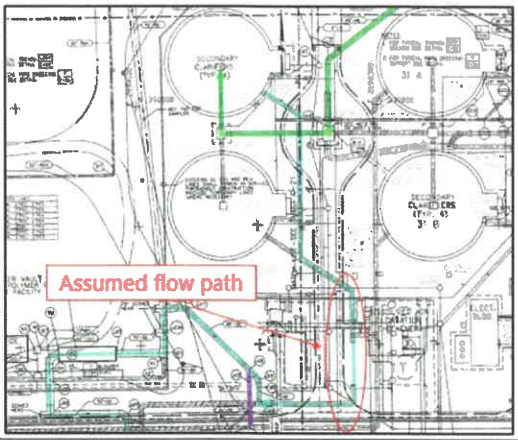



**FIGURE 3-9: SECONDARY CLARIFIER EFFLUENT PIPING**




### 3.11.3 Hydraulic Model Results

Hydraulic analysis results showed at the following flows the old (85') secondary clarifier (SC) effluent weir would be submerged per **Figure 3-10** and **Figure 3-11**, hence the plant hydraulic capacity is limited to these flows:

- 48-52 MGD with one of the larger (125') secondary clarifiers offline.
- 52-58 MGD with all secondary clarifiers online.

**FIGURE 3-10: MODEL PROFILE RESULT SHOWING SC WEIR NOT SUBMERGED**

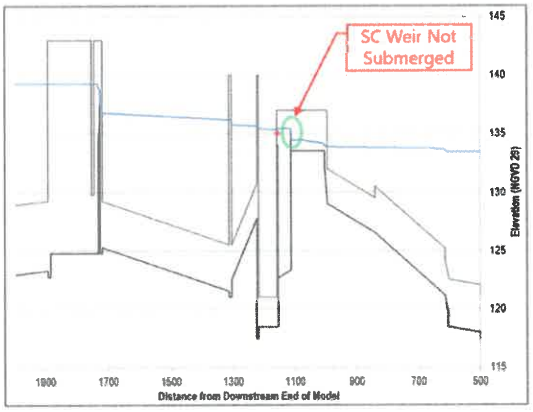
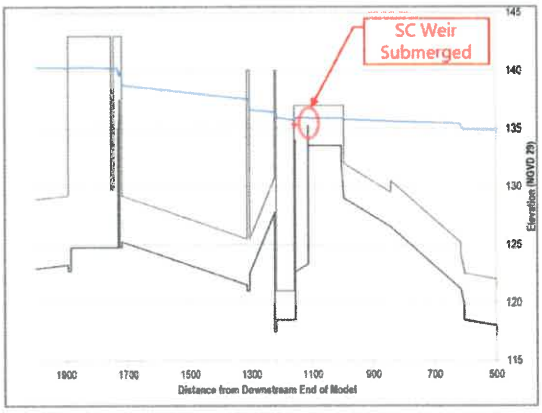



**FIGURE 3-11: MODEL PROFILE RESULT SHOWING SC WEIR SUBMERGED**



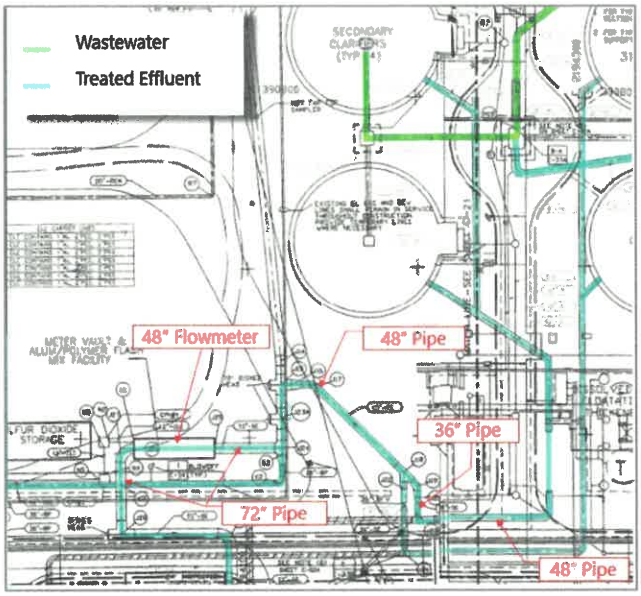

The lower and higher flow ranges show the plant capacity with and without a 10% factor of safety added to friction and minor losses. The flow velocity and freeboard limits were met at these flows. One exception is the velocity through the SC effluent flowmeter, which at 58 MGD has a slightly higher velocity of 7.1 ft/sec.

The main source for hydraulic capacity limitation was found to be:

- The secondary clarifier effluent piping including fittings and pipe size changes from 36" to 72" and
- The 48" flow meter downstream of the secondary clarifiers where a high head loss occurs causing the flow back up at the old SCs weir.

For example, at 58 MGD, the velocity through the 48" flowmeter is 7.1 ft/s which creates about 1' of head-loss; at this flow, the velocity through the rest of the secondary clarifiers effluent piping ranges from 2 ft/s to 4.6 ft/s which create more than 1.5' of head loss. Reducing the pipe size transitions, replacing these pipes with larger pipes (72" pipe), and adding a larger flowmeter parallel to existing for higher flows increases the plant hydraulic capacity (see **Figure 3-12**).

**FIGURE 3-12: SECONDARY CLARIFIER EFFLUENT PIPING**



### 3.11.4 Hydraulic Model Conclusions

Based on the different model runs, hydraulic limitations were noted at the secondary clarifiers. However, these limitations occurred only above 48 MGD. Combined influent PHWWF with ESB usage is not projected to exceed this hydraulic capacity at buildout conditions. Therefore, pipe transition, pipe diameter, and flow meter improvements are not expected to be needed and are not included in this plan.

## 3.12 Capacity Analysis Summary

The most immediate capacity limitations include secondary treatment, tertiary filtration, and influent pumping. The city has an ongoing project to repurpose AB's 300-400 to increase secondary treatment capacity. The city is also planning to begin an influent improvements project focusing on influent pumping, ESB, and influent screening improvements. The DCWWTP receives significant wet weather peak flows, due to collection system age, as compared to the PGWWTP. Therefore, one major takeaway is that effective ESB usage is critical to reducing peak flows through the plant and associated long-term capital improvement needs.

# 4. CAPACITY IMPROVEMENTS IMPLEMENTATION PLAN

This chapter presents the recommended capacity improvements at the DCWWTP through buildout. Improvements are sequenced based on the timing of hydraulic and biological treatment capacity limits identified in **Chapter 3** and while using 75% and 95% capacity utilization thresholds to guide the timing of implementation, engineering, construction, and commissioning This Plan includes liquid treatment processes only as solids processes are being evaluated under a separate Roseville project.

## 4.1 Capacity Projects Summary

The capacity projects for the DCWWTP are summarized in **Table 4-1**. The intent of this table is to describe the capacity limitations being addressed by each project, the capacity of that process following the project, and the timing of any subsequent capacity project phases for that process.

## TABLE 4-1: CAPACITY PROJECTS SUMMARY – DCWWTP

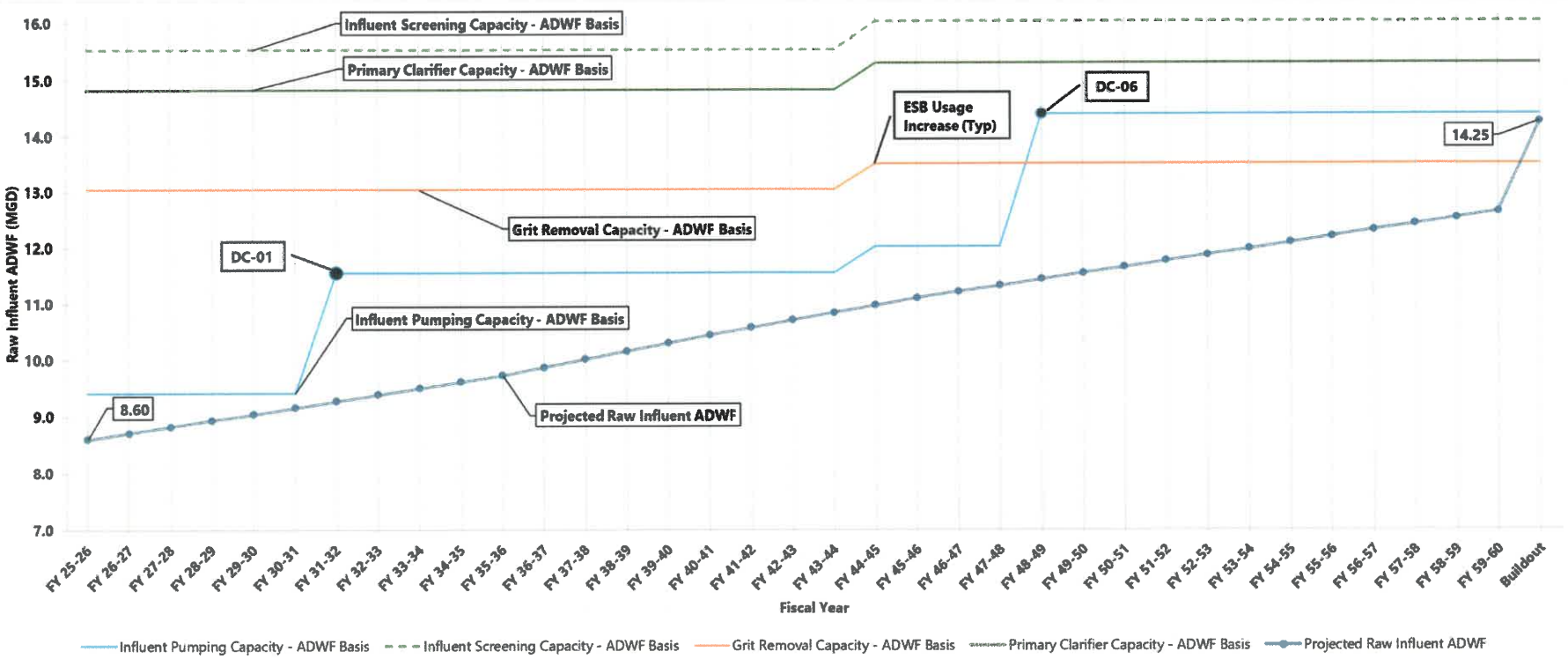
| Project ID | Project Name | Project Description | Pre-Project Capacity (Raw ADWF, MGD)[1] | Year of Pre-Project Capacity Limitation[1] | Post-Project Capacity (Raw ADWF, MGD)[2] | Year of Post-Project Capacity Limitation[2] |
|---|---|---|---|---|---|---|
| DC-EX | Secondary Treatment Improvements | Existing project to improve ABs 300-400 (Near Term Improvements Project). | 9.1 | -- | 11.5 | 2050 |
| DC-01 | Influent Improvements | Existing project for influent pump station improvements, emergency storage basin improvements, influent force main improvements, West Placer force main evaluation and improvements, and influent screening improvements. | -- | -- | 12.0 | 2054 |
| DC-02 | Tertiary Filtration - New Unit, Phase 1 | Provide additional self-backwashing granular media filter unit. | 9.1 | 2031 | 11.9 | 2054 |
| DC-03 | Secondary Treatment MABR Upgrades | Provide new MABR system within ABs 500-800. | 11.5 | 2050 | 13.2 | 2060 |
| DC-04 | UV Disinfection - New Units | Replace existing UV system with 3 new UV channels with 9 banks per channel, UV drain vault, and electrical building. | 12.0 | 2054 | 14.3 | N/A |
| DC-05 | Tertiary Filtration - New Unit, Phase 2 | Provide additional self-backwashing granular media filter unit. | 11.9 | 2054 | 14.3 | N/A |
| DC-06 | Influent Pump Station - Additional Pump | Provide additional influent pump. | 12.0 | 2054 | 14.3 | N/A |
| DC-07 | Secondary Treatment Upgrades | Provide 2 new reactor tanks ABs 900-1000 with mixer-aerators, IMLR pumps, aeration control valving/metering, additional blower capacity, and additional RAS pumps. Provide 2 new 125' secondary clarifiers. | 13.2 | 2060 | 15.7 | N/A |

1. *Pre-Project Capacity and Year of Pre-Project Capacity refer to the capacity in raw influent ADWF equivalent terms and the year this capacity is projected to be reached. Both are included as prior to completing the relevant project.*
2. *Post-Project Capacity and Year of Post-Project Capacity refer to the capacity in raw influent ADWF equivalent terms and the year this capacity is projected to be reached. Both are included as after completing the relevant project.*

## 4.2 Influent Projections Compared to Unit Process Capacity

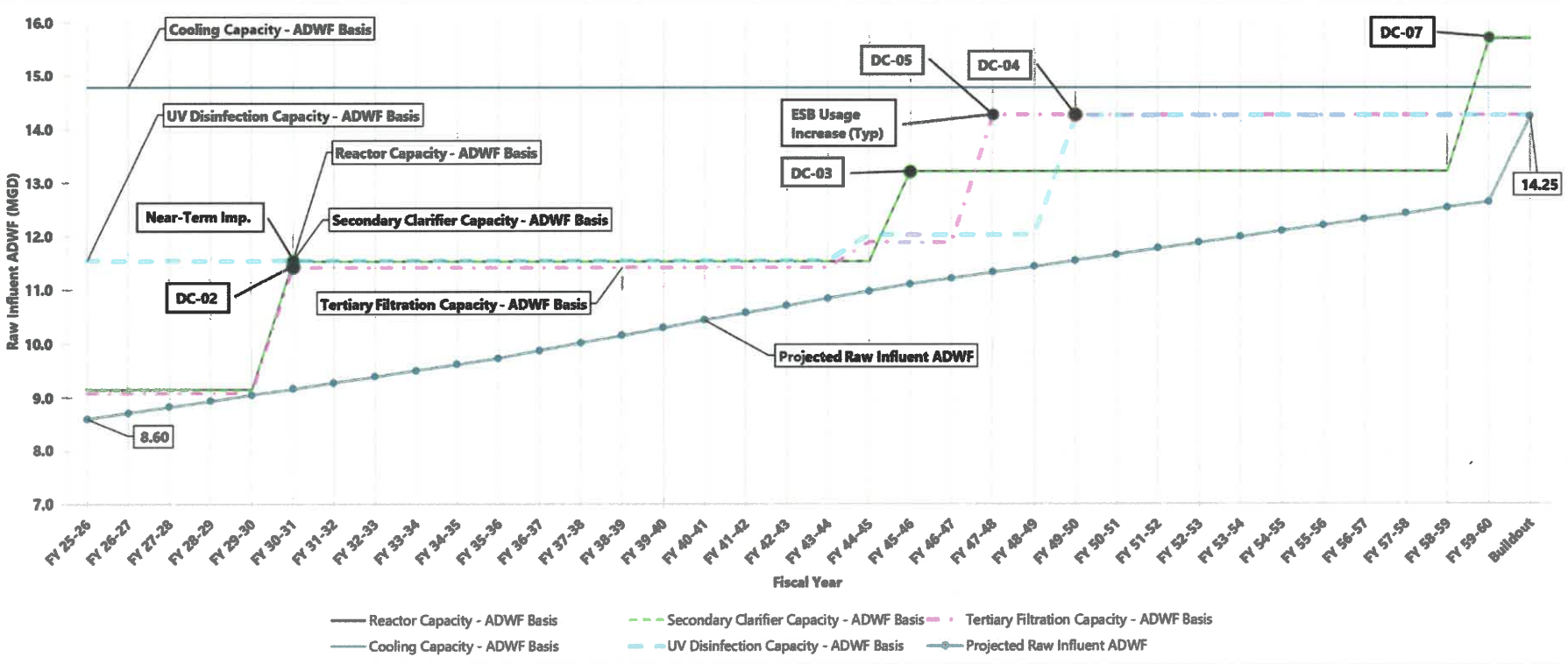
The capacity of each unit process from current through buildout conditions is presented in raw influent ADWF terms in **Figure 4-1** and **Figure 4-2**. The intent of these figures is to illustrate process capacity increases over time as capacity projects described in this chapter are completed. The figures provide all process capacities in raw influent ADWF equivalent terms for comparison with raw influent ADWF projections.

FIGURE 4-1: PRELIMINARY/PRIMARY PROCESS CAPACITY TRENDS – DCWWTP




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "DC-##".*

**FIGURE 4-2: SECONDARY/TERTIARY PROCESS CAPACITY TRENDS – DCWWTP**




1. *Unit process capacities presented in Raw Influent Average Dry Weather Flow equivalent terms.*
2. *Capacity projects (commissioning/completion date) are shown and labeled as "DC-##".*

## 4.3 Capacity Project Descriptions

This section describes the recommended capacity improvement projects for the DCWWTP. Each project has been developed to address specific hydraulic or biological capacity limitations identified in **Chapter 3** and to support reliable, compliant operation of the facility as flows and loads increase through buildout.

Projects are presented in order of anticipated implementation, based on the year in which the associated treatment process is projected to reach approximately 75 percent of its available capacity. This sequencing is intended to support proactive planning and timely implementation, allowing the city to initiate engineering and construction activities well in advance of critical capacity constraints and to avoid reactive or emergency upgrades.

For each project, the following information is provided, as applicable:

- A brief description of the capacity limitation(s) being addressed;
- A summary of the proposed improvements and how they increase or preserve capacity;
- The post-project firm capacity of the affected process(es), expressed in raw influent ADWF equivalent terms where appropriate;
- A basis of estimate, including major scope elements and key assumptions; and
- An anticipated implementation schedule, including anticipated years for engineering and commissioning.

The projects described in this section form a long-term implementation plan that prioritizes optimization of existing infrastructure, strategically delays major expansions where feasible, and aligns capacity investments with projected needs.

### 4.3.1 Near-Term Secondary Treatment Improvements

The city has a current project in engineering design to repurpose AB's 300-400 to increase secondary treatment capacity. This project is being completed by Hazen & Sawyer and Brown & Caldwell. The Hazen & Sawyer/Brown & Caldwell team state that the improvements are expected to include new mixer-aerator equipment, expanded anoxic zones, hydrocyclones for densification, and with space for future retrofit with membrane aerated biofilm reactor (MABR) equipment.

**Post-Project Capacity:** Per the City, Hazen & Sawyer/Brown & Caldwell state that the Near-Term Secondary Improvements project will increase secondary treatment capacity to 15.0 MGD (11.5 MGD Raw Influent ADWF Equivalent).

### 4.3.2 Project DC-01: Influent Improvements

Project DC-01 is a project planned by the city for influent improvements focusing on influent pumping, emergency storage basin, and influent screening improvements.

**Post-Project Capacity:** Based on information provided by the city, this project is expected to increase influent pumping capacity to 39.5 MGD (12.0 MGD Raw Influent ADWF Equivalent). Influent screening capacity is not expected to change significantly; based on existing screening capacity of 55.0 MGD, this is sufficient through buildout based on projections.

**Schedule:** This Plan assumes project commissioning in 2030.

### 4.3.3 Project DC-02: Tertiary Filtration – New Unit, Phase 1

The tertiary filtration system will require a capacity upgrade based on projected combined influent peak flows. The filters are proposed to be expanded with additional self-backwashing granular media filters, similar in style to the existing filters.

#### 4.3.3.1 Project DC-02: Basis of Estimate

Project DC-02 includes one new self-backwashing tertiary filter unit. The equipment package includes media, underdrain, wash troughs, valves, instrumentation, controls, air scour blower, and air scour compressor. The project includes one new concrete tank with four cells and each new cell with a surface area of 430 sf. Associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are included in the project.

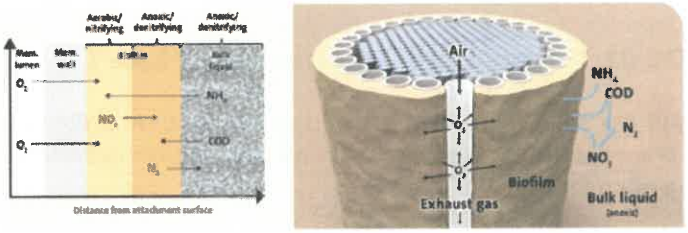
**Post-Project Capacity:** Project DC-02 provides a firm capacity of 38.9 MGD (11.9 MGD equivalent raw ADWF) at a Title 22 limited loading rate of 5 gpm/sf and with four cells (one filter unit) offline. This capacity is sufficient until 2054 based on projections while providing additional redundancy as requested by the city to accommodate maintenance activities.

**Schedule:** This Plan recommends beginning engineering planning in 2026 for project commissioning in 2030, assuming 4 years for planning, design, and construction.

### 4.3.4 Project DC-03: Secondary Treatment MABR Upgrades

The secondary treatment system will require a capacity upgrade based on projected peak flows and max month loadings. Provisions are being made during the Near-Term Improvements project for AB's 500-800 to be retrofitted with a membrane aerated biofilm reactor (MABR) system. These include a new baffle wall to increase total anoxic volume and reserve space for MABR cassettes. MABR's deliver oxygen to a biofilm through a gas transfer media, while ammonia, nitrogen, organics, and other substrates interact with the biofilm. This intensifies and increases existing process capacity within the same tank volume.

**FIGURE 4-3: TYPICAL MABR SCHEMATIC**




*(Source: Veolia)*

#### 4.3.4.1 Project DC-03: Basis of Estimate

Project DC-03 includes new MABR cassettes within AB's 500-800, blowers, aeration piping and valving, and cassette mounting structures. Depending on the final anoxic zone baffle wall location in the Near-Term Improvements project, 18-20 new cassettes could be installed. The estimate for Project DC-03 has been provided by the city and Hazen & Sawyer/Brown & Caldwell. The scope from Veolia is anticipated to include dedicated blowers, condensate removal system, oxygen transfer monitoring system, compressed air, and master control panel.

**Post-Project Capacity:** Based on information provided by the city and engineering completed by Hazen & Sawyer/Brown & Caldwell for the Near-Term Improvements project, MABR upgrades are expected to extend secondary treatment capacity to 13.2 MGD Raw Influent ADWF Equivalent with all reactor and secondary clarifier units online.

**Schedule:** This Plan recommends beginning engineering planning in 2042 for project commissioning in 2045, assuming 3 years for planning, design, and construction.

### 4.3.5 Project DC-04: UV Disinfection – New Units

The UV disinfection system will require a capacity upgrade based on projected combined influent peak flows. Due to space limitations for additional UV channels and the longer timeline for these improvements, the UV system is proposed to be replaced with three new UV channels.

#### 4.3.5.1 Project DC-04: Basis of Estimate

Project DC-04 includes three new UV channels to replace the existing channels, each with nine new Trojan UV3000 Plus UV banks. A new electrical building and associated civil, mechanical, electrical, instrumentation, and controls improvements are included in the project.

**Post-Project Capacity:** Project DC-04 provides a firm capacity of 49.5 MGD at combined influent PHWWF (14.3 MGD equivalent raw ADWF) with one standby channel. Capacity estimates are based on a minimum UV dosage of 110 $mJ/cm^2$ calculated per the *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse* by NWRI (2012). This capacity is sufficient through buildout based on projections.

**Schedule:** This Plan recommends beginning engineering planning in 2044 for project commissioning in 2049, assuming 5 years for planning, design, and construction.

### 4.3.6 Project DC-05: Tertiary Filtration – New Unit, Phase 2

The tertiary filtration system will require a capacity upgrade based on projected combined influent peak flows. The filters are proposed to be expanded with additional self-backwashing granular media filters, similar in style to the existing filters.

#### 4.3.6.1 Project DC-05: Basis of Estimate

Project DC-05 includes one new self-backwashing tertiary filter unit. The equipment package includes media, underdrain, wash troughs, valves, instrumentation, controls, air scour blower, and air scour compressor. The project includes one new concrete tank with four cells and each new cell with a surface area of 430 sf. Associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are included in the project.

**Post-Project Capacity:** Project DC-05 provides a firm capacity of 49.5 MGD (14.3 MGD equivalent raw ADWF) at a Title 22 limited loading rate of 5 gpm/sf and with four cells (one filter unit) offline. This capacity is sufficient through buildout based on projections while providing additional redundancy as requested by the city to accommodate maintenance activities.

**Schedule:** This Plan recommends beginning engineering planning in 2043 for project commissioning in 2047, assuming 4 years for planning, design, and construction.

### 4.3.7 Project DC-06: Influent Pump Station – Additional Pump

The Influent Pump Station will require a capacity upgrade based on projected combined influent PHWWF. The pump station is proposed to be upgraded with one additional influent pump.

#### 4.3.7.1 Project DC-06 Basis of Estimate

Project DC-06 includes a new submersible pump and associated mechanical piping, supports, electrical, and controls.

**Post-Project Capacity:** Project DC-06 provides a firm capacity of 50.0 MGD (14.3 MGD equivalent raw ADWF) with one standby pump. This capacity is sufficient through buildout based on projections.

**Schedule:** This Plan recommends beginning engineering planning in 2047 for project commissioning in 2048, assuming 1 year for planning, design, and construction.

### 4.3.8 Project DC-07: Secondary Treatment Upgrades

Based on capacity estimates by Hazen & Sawyer/Brown & Caldwell following Project DC-01, the secondary treatment system will require a capacity upgrade based on projected peak flows and max month loadings. Two new reactors (AB's 900-1000) and two 125-foot secondary clarifier units are proposed in Project DC-07.

#### 4.3.8.1 Project DC-07: Basis of Estimate

Project DC-07 includes two new reactors in an MLE configuration with mixer aerators and two new 125-foot secondary clarifiers with spiral rake mechanisms. AB's 900-1000 are proposed with similar anoxic and aerobic volumes to AB's 500-800 (0.227 MG anoxic and 0.833 MG aerobic per basin).

Additional IMLR pumping, RAS pumping, and aeration blower capacity upgrades are included. Associated civil, mechanical, HVAC, electrical, instrumentation, and controls improvements are also included in the project.

**Post-Project Capacity:** Project DC-07 provides a firm reactor capacity of 20.5 MGD combined influent MMF (15.7 MGD equivalent raw ADWF) with all units online. The project provides a firm secondary clarifier capacity of 56.0 MGD combined influent peak flow (15.7 MGD equivalent raw ADWF). The capacities are based on:

- MLSS of 3,065 mg/L,
- SVI of 173 mL/g,
- Wastewater temperature of 18 deg C,
- Supplemental carbon dosing of 50 mg/L, and
- Dissolved oxygen concentration average of 2.0 mg/L in Zone 1, 1.50 mg/L in Zone 2, and 0.20 mg/L in Zone 3.

This capacity is sufficient through buildout based on projections.

**Schedule:** This Plan recommends beginning engineering planning in 2055 for project commissioning in 2060, assuming 5 years for planning, design, and construction.

## 4.4 Cost Estimating Assumptions

Opinions of probable project cost were developed for the capacity capital projects presented in this Plan. This section provides the procedures and methodology used for developing conceptual level capital cost estimates, followed by opinions of probable project cost. Construction costs are considered a Class 4 estimate as defined by the Association for the Advancement of Cost Engineering (AACE) International cost estimate classification system (**Table 4-2**). For Class 4 estimates, the expected accuracy range is -15% to -30% on the low end and +20% to +50% on the high end. These estimates are suitable for use for budget forecasting, capital improvement plan development, and project evaluations, with the understanding that refinements to the project details and costs would be necessary as projects proceed into the design and construction phases.

**TABLE 4-2: COST ESTIMATE CLASSIFICATION MATRIX (AACE INTERNATIONAL)**

| Primary Characteristics | | Secondary Characteristics | | |
|---|---|---|---|---|
| **ESTIMATE CLASS** | **LEVEL OF PROJECT DEFINITION** *% complete definition* | **END USAGE** *Typical purpose of estimate* | **METHODOLOGY** *Typical estimating method* | **EXPECTED ACCURACY RANGE** *Typical variation in low and high ranges* |
| Class 5 | 0% to 2% | Concept Screening | Parametric Models or scale from historical models. | L: -20% to -50%<br>H: +30% to +100% |
| Class 4 | 1% to 15% | Study or Feasibility | Equipment Factored or Parametric Models | L: -15% to -30%<br>H: +20% to +50% |
| Class 3 | 10% to 40% | Budget Authorization or Control | Semi-Detailed Unit Costs with Assembly Level Line Items | L: -10% to -20%<br>H: +10% to + 30% |
| Class 2 | 30% to 70% | Project Control or Bid Level | Detail Unit Cost, MH Forced Detailed Takeoff | L: -5% to -15%<br>H: +5% to +20% |
| Class 1 | 50% to 100% | Check or Final Bid Estimate | Detailed Unit Cost with Detailed Takeoffs | L: -3% to -10%<br>H: +3% to +15% |

Note: Expected accuracy ranges stated in the above matrix reflect information included in the Cost Estimate Classification Matrix for Process Industries incorporated in the AACE Recommended Practice No. 18R-97.

### 4.4.1 Capital Cost Criteria

A planning-level project cost estimate for each project has been developed. Based on the level of project definition and detail typical for Class 4 estimates, estimates were developed using the following general methods:

- Equipment costs based on budgetary equipment proposals and/or recent similar projects.
- New tankage based on conceptual level quantity takeoffs for concrete volumes.
- Allowances for site civil, temporary facilities, SCADA integration, and other supporting/ancillary scopes of work.
- Construction schedules of values from analogous projects where appropriate.
- Typical markups for construction and non-construction cost items as described below.

Unit costs are indexed to the November 2025 Engineering News Record Construction Cost Index (CCI). The CCI value used (14,797) was an average of the 20 Cities Average value (14,098) and the San Francisco value (15,495).

### 4.4.2 Markups and Implementation Costs

Typical markups for raw construction cost items are described in **Table 4-3**. These are based on typical cost factors to estimate labor, installation, and discipline costs such as electrical, instrumentation, controls, HVAC, and plumbing. The applied markup varies for each project based on its complexity and types of equipment. Given the conceptual level of design scope, detailed discipline-level cost estimates were not prepared. Instead, cost factor markups and allowances were incorporated to address uncertainties inherent to this stage of design development.

**TABLE 4-3: TYPICAL RAW CONSTRUCTION COST MARKUPS**

| Markup Description | Markup | Basis for Markup |
|---|---|---|
| **Equipment Installation** | 20 – 40% | of Process Equipment Costs |
| **Process Mechanical** | 20 – 40% | of Process Equipment Costs |
| **Electrical Systems** | 15% | of Raw Construction Costs |
| **Instrumentation and Control Systems** | 7% | of Process Equipment Costs |
| **HVAC Systems** | 20-25% | of Building Costs |
| **Plumbing Systems** | 5% | of Building Costs |

Typical markups for total construction cost and total project cost items are described in **Table 4-4**.

**TABLE 4-4: TYPICAL TOTAL PROJECT COST MARKUPS**

| Markup Description | Markup | Basis for Markup |
|---|---|---|
| General Conditions & Mobilization/Demobilization | 10% | of Raw Construction |
| Contractor's Overhead & Profit | 15% | of Raw Construction |
| Raw Construction Subtotal | -- | Sum of Raw Construction, General Conditions, Overhead, and Profit |
| Escalation | 3% / year | of Raw Construction Subtotal |
| Construction Contingency | 30% | of Raw Construction Subtotal + Escalation |
| Contractor's Insurance/Bonds | 2.5% | of Raw Construction Subtotal + Escalation + Const. Contingency |
| Construction Cost Subtotal | -- | Sum of Raw Construction Subtotal, Escalation Const. Contingency, Insurance/Bonds |
| Final Engineering Design | 10% | of Construction Cost Subtotal |
| Construction Administration | 5% | of Construction Cost Subtotal |
| Permitting | 1% | of Construction Cost Subtotal |
| Non-Construction Cost Subtotal | -- | Sum of Final Engineering Design, Construction Administration, and Permitting Services |
| Capital Cost Subtotal | -- | Sum of Construction Cost Subtotal and Non-Construction Cost Subtotal |
| Project Contingency | 10% | of Capital Cost Subtotal |
| Total Project Cost | -- | Sum of Capital Cost Subtotal and Project Contingency |

## 4.5 Project Cost Estimates

Estimated costs for each capacity upgrade project at the DCWWTP are summarized in **Table 4-5**. These include construction and total project costs in 2025 dollars, escalated construction costs, and escalated total project costs. Detailed cost estimate summaries are included in **Appendix A**.

Some projects include both capacity and rehabilitation/repair/replacement (R/R/R) costs. Costs are presented as the total construction or project costs. A column for the ratio of "Capacity" to "R/R/R" costs is included for each project, e.g., a capacity : R/R/R ratio of 0.25 equates to 25% of the construction and project costs being capacity-driven and 75% being R/R/R-driven.

## TABLE 4-5: CAPACITY PROJECTS COST SUMMARY – DCWWTP

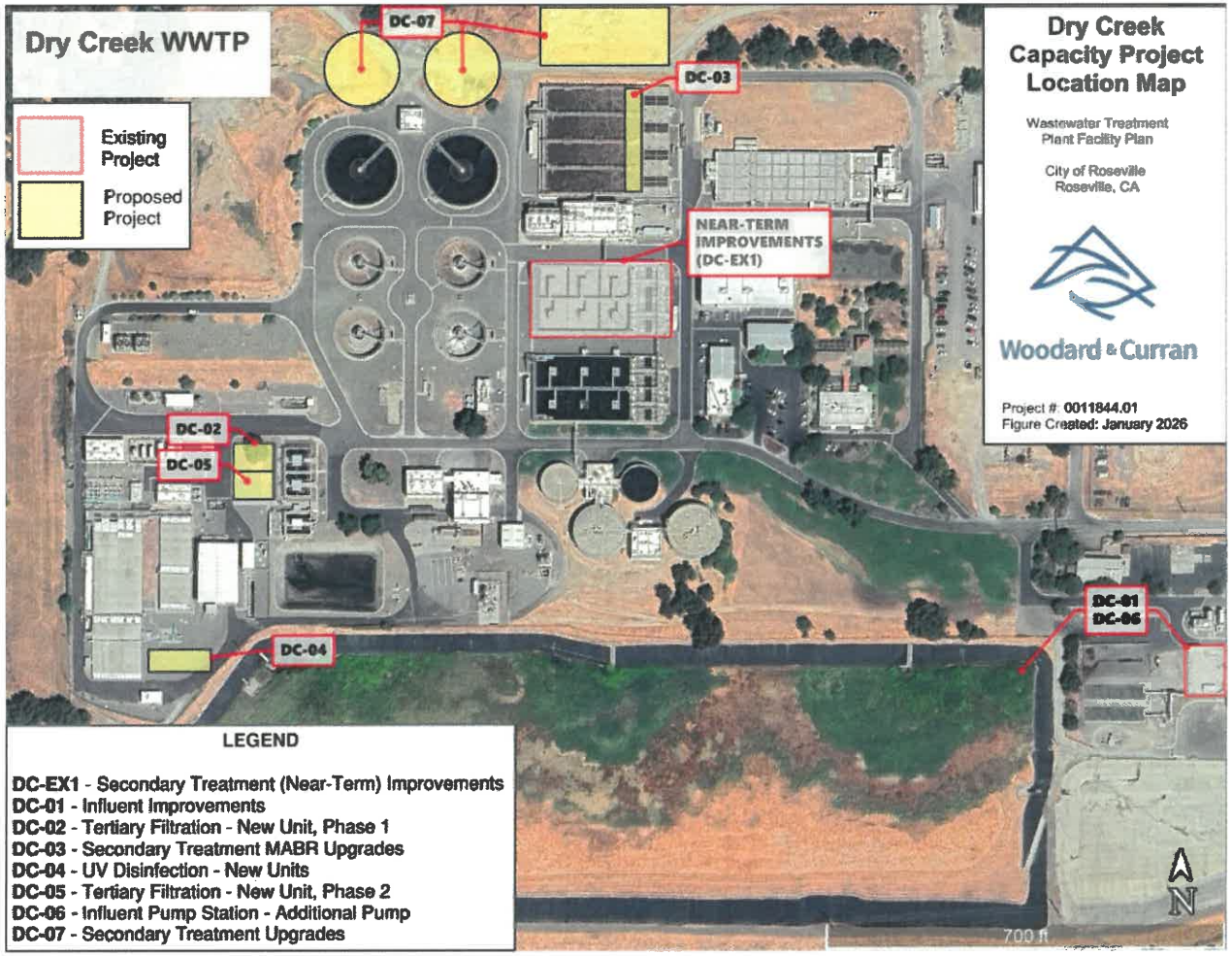
| Project ID | Project Name | General Scope of Work | Begin Implementation (75% Capacity)[4] | Begin Engineering Planning[5] | Commission Project[6] | Cost Ratio Capacity : R/R/R[7] | Construction Cost (2025 $)[2] | Escalated Construction Cost[1] | Total Project Cost (2025 $)[3] | Escalated Total Project Cost[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| DC-EX | Secondary Treatment Improvements | Existing project to improve ABs 300-400 (Near Term Improvements Project). | -- | -- | -- | -- | -- | -- | -- | $47,800,000 |
| DC-01 | Influent Improvements | Existing project for influent pump station improvements, emergency storage basin improvements, influent force main improvements, West Placer force main evaluation and improvements, and influent screening improvements. | -- | 2026 | 2030 | 0.250 | -- | -- | -- | $16,500,000 |
| DC-02 | Tertiary Filtration - New Unit, Phase 1 | Provide additional self-backwashing granular media filter unit. | 2026 | 2026 | 2030 | 1.000 | $12,806,000 | $14,414,000 | $16,700,000 | $18,700,000 |
| DC-03 | Secondary Treatment MABR Upgrades | Provide new MABR system within ABs 500-800. | 2031 | 2042 | 2045 | 1.000 | $19,822,000 | $34,758,000 | $26,400,000 | $44,500,000 |
| DC-04 | UV Disinfection - New Units | Replace existing UV system with 3 new UV channels with 9 banks per channel, UV drain vault, and electrical building. | 2027 | 2044 | 2049 | 0.196 | $26,339,000 | $51,983,000 | $34,000,000 | $66,800,000 |
| DC-05 | Tertiary Filtration - New Unit, Phase 2 | Provide additional self-backwashing granular media filter unit. | 2030 | 2043 | 2047 | 1.000 | $12,806,000 | $23,823,000 | $16,700,000 | $30,700,000 |
| DC-06 | Influent Pump Station - Additional Pump | Provide additional influent pump. | 2030 | 2047 | 2048 | 1.000 | $593,000 | $1,137,000 | $800,000 | $1,500,000 |
| DC-07 | Secondary Treatment Upgrades | Provide 2 new reactor tanks ABs 900-1000 with mixer-aerators, IMLR pumps, aeration control valving/metering, additional blower capacity, and additional RAS pumps.<br>Provide 2 new 125' secondary clarifiers. | 2045 | 2055 | 2060 | 1.000 | $46,825,000 | $127,922,000 | $60,900,000 | $164,400,000 |

1. *Construction and Total Project Costs are presented in both 2025 dollars and with escalation to one year prior to the project commissioning year.*
2. *Construction Costs include raw construction costs, general conditions, mobilization/demobilization, contractor's overhead/profit, construction contingency, and contractor's insurance/bonds.*
3. *Total Project Costs include construction costs along with the following non-constructions costs: engineering design, construction administration, control system integration, permitting, and project contingency.*
4. *The year of the relevant treatment process reaching 75% of its total capacity is included for planning purposes.*
5. *The year assumed for beginning engineering planning based on the anticipated planning, permitting, design, and construction time, working back from the year of commissioning.*
6. *Project commissioning year is generally based on project completion before capacity of the relevant process reaches 95% of its total capacity.*
7. *The ratio of capacity to R/R/R costs for each project expresses the share of costs driven by capacity and R/R/R factors.*
8. *Detailed cost estimate summaries are provided in Appendix A and include a range for Total Project Costs based on the AACE cost estimate classification.*

## 4.6 Capacity Project Map – Dry Creek WWTP

A map for DCWWTP capacity project locations is included in **Figure 4-4**.

**FIGURE 4-4: CAPACITY PROJECT LOCATION MAP – DCWWTP**



# 5. CLOSING

This Plan presents an actionable roadmap for the city to plan for capacity improvements at the DCWWTP. The implementation plan is designed to proactively address immediate and future capacity constraints, positioning the city to cost-effectively meet the demands of a growing service area while maintaining compliance.

**Strategic Objectives:**

- **Accommodate Projected Growth:** The capacity capital projects will enable the DCWWTP to reliably treat increasing flows and loads through buildout, as driven by population and non-residential development. This long-term planning approach aligns infrastructure investments with actual system needs and minimizes the risks of underbuilding and overbuilding.
- **Optimize Existing Infrastructure:** This Plan prioritizes the efficient use of existing assets, deferring capacity expansions until they are projected to be justified.
- **Efficient Implementation Timing:** Each project phase is timed to maintain compliance with current and future expected permit limits. By anticipating when key processes will approach critical capacity thresholds (75% and 95%), the city can avoid emergency upgrades.

**Next Steps:**

- Woodard & Curran recommends that the city monitor key performance indicators, flow rate growth, and capacity utilization over time.
- Based on actual system growth and operational experience, Woodard & Curran recommends that the city revise this Plan periodically with updated project scopes and schedules.

# 6. APPENDICES

- Appendix A: Project Cost Estimate Summaries

# APPENDIX A: PROJECT COST ESTIMATE SUMMARIES

Woodard & Curran

801 T Street
Sacramento, California 95811

| | |
|---|---|
| Project ID | DC-02 |
| Project Name | Tertiary Filtration - New Unit, Phase 1 |
| Project Description | Provide additional self-backwashing granular media filter unit. |
| Client | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Tertiary Filter Equipment Package - 1 Unit | EA | 1 | $ 2,340,000 | $ 2,340,000 | $ 702,000 | | | $ 163,800 | $ 3,206,000 |
| | Chemical Feed and Mixing System | LS | 1 | $ 250,000 | $ 250,000 | $ 75,000 | | | $ 17,500 | $ 343,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 647,500 | $ 647,500 | | | | | $ 648,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Tertiary Filter Structure | LS | 1 | $ 1,600,000 | $ 1,600,000 | | | | | $ 1,600,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 80,000 | $ 80,000 | | | | | $ 80,000 |
| | Civil and Yard Piping | LS | 1 | $ 800,000 | $ 800,000 | | | | | $ 800,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,010,000 | $ 1,010,000 | | | | | $ 1,010,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 7,687,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 769,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 1,154,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *9,610,000* | |
| Construction Contingency | 30% | | $ 2,883,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 313,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *12,806,000* | |
| Escalation | 3% | 2029 Dollars | $ 1,608,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 14,414,000 | 2029 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 2,163,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 250,000 | |
| Permitting | 1% | | $ 145,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *16,972,000* | |
| Project Contingency | 10% | | $ 1,698,000 | |
| TOTAL PROJECT COST | | | $ 18,700,000 | 2029 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | $ *14,960,000* | |
| | | **EXP. ACCURACY - HIGH** | $ *24,310,000* | |

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| | |
|---|---|
| **Project ID** | DC-03 |
| **Project Name** | Secondary Treatment MABR Upgrades |
| **Project Description** | Provide new MABR system within ABs 500-800. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

**Note: This estimate has been provided by the City.**

| | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | **CONSTRUCTION** | | | | | | | | | |

| | | |
|---|---|---|
| *TOTAL PROJECT COST* | $ 26,400,000 | *2025 Dollars, Rounded* |
| TOTAL PROJECT COST | $ 44,500,000 | 2044 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | $ 35,600,000 | |
| **EXP. ACCURACY - HIGH** | $ 57,850,000 | |

Woodard & Curran

801 T Street
Sacramento, California 95811

| | |
|---|---|
| **Project ID** | DC-04 |
| **Project Name** | UV Disinfection - New Units |
| **Project Description** | Replace existing UV system with 3 new UV channels with 9 banks per channel, UV drain vault, and electrical building. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | UV Equipment - 3 Channels w/ 9 Banks - Trojan UVSigna | LS | 1 | $ 4,180,000 | $ 4,180,000 | $ 627,000 | | | $ 292,600 | $ 5,100,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 1,045,000 | $ 1,045,000 | | | | | $ 1,045,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | UV Structure - 3 Channels | LS | 1 | $ 5,100,000 | $ 5,100,000 | | | | | $ 5,100,000 |
| | UV Electrical Building | LS | 1 | $ 500,000 | $ 500,000 | | $ 100,000 | $ 25,000 | | $ 625,000 |
| | UV Drain Vault | LS | 1 | $ 222,000 | $ 222,000 | | | | | $ 222,000 |
| | Allowance for Existing UV System Demo | LS | 1 | $ 500,000 | $ 500,000 | | | | | $ 500,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 150,000 | $ 150,000 | | | | | $ 150,000 |
| | Civil and Yard Piping | LS | 1 | $ 1,000,000 | $ 1,000,000 | | | | | $ 1,000,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 2,070,000 | $ 2,070,000 | | | | | $ 2,070,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 15,812,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 1,582,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 2,372,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *19,766,000* | |
| Construction Contingency | 30% | | $ 5,930,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 643,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *26,339,000* | |
| Escalation | 3% | 2048 Dollars | $ 25,644,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ 51,983,000 | 2048 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 7,798,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 350,000 | |
| Permitting | 1% | | $ 520,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *60,651,000* | |
| Project Contingency | 10% | | $ 6,066,000 | |
| TOTAL PROJECT COST | | | $ 66,800,000 | 2048 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | $ *53,440,000* | |
| **EXP. ACCURACY - HIGH** | | | $ *86,840,000* | |

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| | |
|---|---|
| **Project ID** | DC-05 |
| **Project Name** | Tertiary Filtration - New Unit, Phase 2 |
| **Project Description** | Provide additional self-backwashing granular media filter unit. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Tertiary Filter Equipment Package - 1 Unit | EA | 1 | $ 2,340,000 | $ 2,340,000 | $ 702,000 | | | $ 163,800 | $ 3,206,000 |
| | Chemical Feed and Mixing System | LS | 1 | $ 250,000 | $ 250,000 | $ 75,000 | | | $ 17,500 | $ 343,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 647,500 | $ 647,500 | | | | | $ 648,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Tertiary Filter Structure | LS | 1 | $ 1,600,000 | $ 1,600,000 | | | | | $ 1,600,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 80,000 | $ 80,000 | | | | | $ 80,000 |
| | Civil and Yard Piping | LS | 1 | $ 800,000 | $ 800,000 | | | | | $ 800,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 1,010,000 | $ 1,010,000 | | | | | $ 1,010,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ **7,687,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 769,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 1,154,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *9,610,000* | |
| Construction Contingency | 30% | | $ 2,883,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 313,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *12,806,000* | |
| **Escalation** | 3% | 2046 Dollars | $ 11,017,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ **23,823,000** | 2046 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 3,574,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 250,000 | |
| **Permitting** | 1% | | $ 239,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *27,886,000* | |
| **Project** Contingency | 10% | | $ 2,789,000 | |
| TOTAL PROJECT COST | | | $ 30,700,000 | 2046 Dollars, Rounded |
| | | **EXP. ACCURACY - LOW** | $ *24,560,000* | |
| | | **EXP. ACCURACY - HIGH** | $ *39,910,000* | |

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| | |
|---|---|
| **Project ID** | DC-06 |
| **Project Name** | Influent Pump Station - Additional Pump |
| **Project Description** | Provide additional influent pump. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| Item | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Submersible Pump | EA | 1 | $ 175,000 | $ 175,000 | $ 52,500 | | | $ 12,250 | $ 240,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 43,750 | $ 43,750 | | | | | $ 44,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | Allowance for Misc. Metals | LS | 1 | $ 20,000 | $ 20,000 | | | | | $ 20,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 50,000 | $ 50,000 | | | | | $ 50,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ **354,000** | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 36,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 54,000 | 15% of Raw Construction |
| *Subtotal* | | | $ *444,000* | |
| Construction Contingency | 30% | | $ 134,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 15,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | $ *593,000* | |
| Escalation | 3% | 2047 Dollars | $ 544,000 | 3% Annually |
| | | | | |
| **CONSTRUCTION COST SUBTOTAL** | | | $ **1,137,000** | 2047 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 171,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 25,000 | |
| Permitting | 1% | | $ 12,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | $ *1,345,000* | |
| Project Contingency | 10% | | $ 135,000 | |
| TOTAL PROJECT COST | | | $ 1,500,000 | 2047 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | $ *1,200,000* | |
| **EXP. ACCURACY - HIGH** | | | $ *1,950,000* | |

Woodard & Curran

**801 T Street**
**Sacramento, California 95811**

| | |
|---|---|
| **Project ID** | DC-07 |
| **Project Name** | Secondary Treatment Upgrades |
| **Project Description** | Provide 2 new reactor tanks ABs 900-1000 with mixer-aerators, IMLR pumps, aeration control valving/metering, additional blower capacity, and additional RAS pumps.<br>Provide 2 new 125' secondary clarifiers. |
| **Client** | City of Roseville, California |
| | WWTP Capacity Analysis |
| | Facility Plan - Dry Creek WWTP |

**Engineer's Opinion of Probable Project Cost**
**Estimate Type:** *Conceptual*

| | Description | Unit | Quantity | Unit Cost | Total Cost | Mechanical Process Total Cost | HVAC Total Cost | Plumbing Total Cost | I&C Total Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | **EQUIPMENT** | | | | | | | | | |
| | Invent Anoxic Zone Mixers | LS | 24 | $ 32,000 | $ 768,000 | $ 153,600 | | | $ 53,760 | $ 975,000 |
| | Invent Mixer-Aerators w/ Walkways | LS | 18 | $ 165,000 | $ 2,970,000 | $ 594,000 | | | $ 207,900 | $ 3,772,000 |
| | IMLR Pumps | EA | 6 | $ 80,000 | $ 480,000 | $ 96,000 | | | $ 33,600 | $ 610,000 |
| | RAS Pumps | EA | 3 | $ 60,000 | $ 180,000 | $ 36,000 | | | $ 12,600 | $ 229,000 |
| | Blowers - Multistage Centrifugal | LS | 1 | $ 900,000 | $ 900,000 | $ 180,000 | | | $ 63,000 | $ 1,143,000 |
| | Butterfly Valves with Electric Actuators | EA | 18 | $ 12,000 | $ 216,000 | $ 43,200 | | | $ 15,120 | $ 274,000 |
| | Thermal Mass Flow Meters | EA | 18 | $ 25,000 | $ 450,000 | $ 90,000 | | | $ 31,500 | $ 572,000 |
| | SS Downward Opening Weir Gates | LS | 6 | $ 25,000 | $ 150,000 | | | | | $ 150,000 |
| | 125' Dia - Spiral Rake Mech., Density Current Baffles | EA | 2 | $ 1,000,000 | $ 2,000,000 | $ 400,000 | | | $ 140,000 | $ 2,540,000 |
| | Allowance for Equipment Installation | LS | 1 | $ 3,245,600 | $ 3,245,600 | | | | | $ 3,246,000 |
| | **CONSTRUCTION** | | | | | | | | | |
| | AB 900, 1000 Influent Splitter Box | LS | 1 | $ 500,000 | $ 500,000 | | | | | $ 500,000 |
| | Final Clarifier Splitter Box | LS | 1 | $ 450,000 | $ 450,000 | | | | | $ 450,000 |
| | AB 900, 1000; Secondary Clarifier 700, 800 | LS | 1 | $ 6,860,000 | $ 6,860,000 | | | | | $ 6,860,000 |
| | Allowance for Misc. Metals | LS | 1 | $ 120,000 | $ 120,000 | | | | | $ 120,000 |
| | Civil and Yard Piping | LS | 1 | $ 3,000,000 | $ 3,000,000 | | | | | $ 3,000,000 |
| | Allowance for Electrical Improvements | LS | 1 | $ 3,670,000 | $ 3,670,000 | | | | | $ 3,670,000 |

| | | | | |
|---|---|---|---|---|
| **Raw Construction Subtotal** | | | $ 28,111,000 | |
| General Conditions & Mobilization/Demobilization | 10% | | $ 2,812,000 | 10% of Raw Construction |
| Contractor's Overhead and Profit | 15% | | $ 4,217,000 | 15% of Raw Construction |
| *Subtotal* | | | *$ 35,140,000* | |
| Construction Contingency | 30% | | $ 10,542,000 | 30% of Subtotal |
| Contractor's Insurance/Bonds | 2.5% | | $ 1,143,000 | 2.5% of Subtotal & Contingency |
| *Construction Cost Subtotal* | | 2025 Dollars | *$ 46,825,000* | |
| Escalation | 3% | 2059 Dollars | $ 81,097,000 | 3% Annually |
| **CONSTRUCTION COST SUBTOTAL** | | | **$ 127,922,000** | 2059 Dollars |
| ***Non-Construction Project Costs*** | | | | |
| Engineering & Construction Assistance | 15% | | $ 19,189,000 | 15% of Construction Cost Subtotal |
| Construction Inspection | | | $ - | |
| Control System Integration | | | $ 1,000,000 | |
| Permitting | 1% | | $ 1,280,000 | 1% of Construction Cost Subtotal |
| Other Owner Costs | | | $ - | |
| *Capital Cost Subtotal* | | | *$ 149,391,000* | |
| Project Contingency | 10% | | $ 14,940,000 | |
| **TOTAL PROJECT COST** | | | $ 164,400,000 | 2059 Dollars, Rounded |
| **EXP. ACCURACY - LOW** | | | *$ 131,520,000* | |
| **EXP. ACCURACY - HIGH** | | | *$ 213,720,000* | |

Prepared by

Woodard & Curran

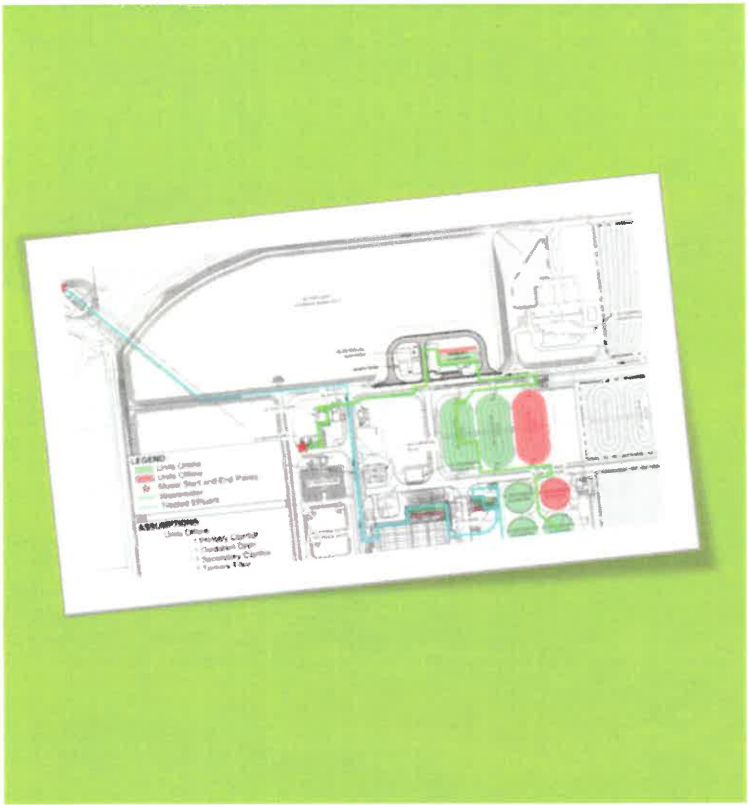
801 T Street, Sacramento, CA 95811

# SPWA Proposed Capacity Projects based on Capacity Analysis & Biosolids Study Findings

Tracie Mueller, PE and Arashdeep Singh, PE

June 3, 2026

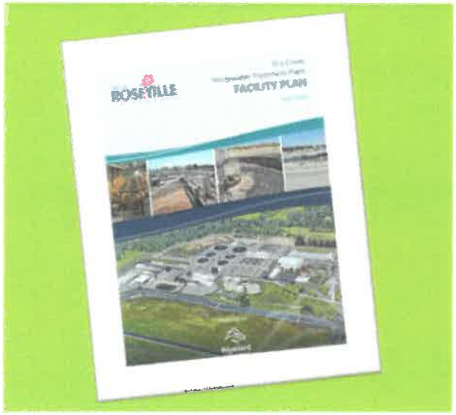
# Agenda



- Overview of Studies
- Background and Approach
- Pleasant Grove Capacity Analysis
- Dry Creek Capacity Analysis
- Biosolids Study
- Key Takeaways and Next Steps

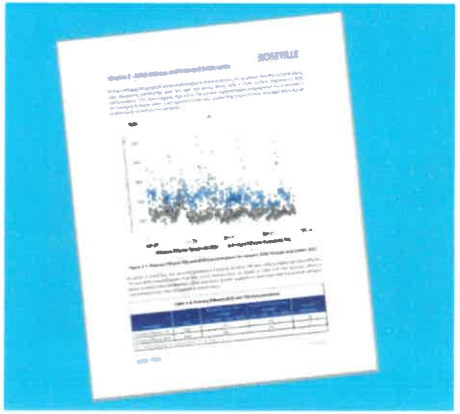
SOUTH PLACER Wastewater Authority

# Overview of Studies




Dry Creek WWTP
Capacity Analysis


Pleasant Grove WWTP
Capacity Analysis

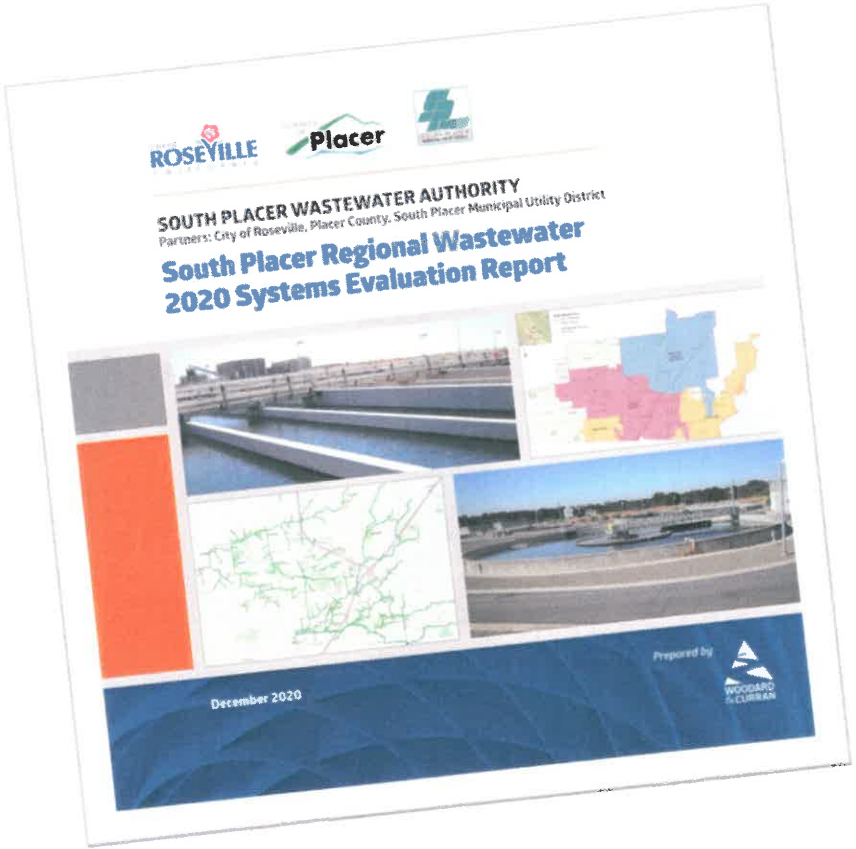



Dry Creek WWTP
Biosolids Study

SOUTH PLACER
Wastewater
Authority

# Background - How We Got Here

- 2020 System Evaluation (supports connection fee updates)
- Identified potential capacity constraints at both plants
- Initiated PG and DC capacity analyses in 2021
- Advanced DC Expansion early due to projected secondary limits
- Biosolids effort expanded from optimization to long-term planning driven by regulatory pressure and disposal costs

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# Background Continued - Reassessment

- Project Management change in 2024
- DCWWTP Expansion project definition phase required re-evaluation of design criteria
- Updated flow projections in 2025
  - Projections are lower than previously estimated
    - DCWWTP Prior projection: ~14.7 MGD (2045 ADWF)
    - DCWWTP Updated projection: ~11.1 MGD
- Focus on Secondary optimization (SVI, MLSS)
  - Optimization defers future capacity projects
- Improved use of EQ basins -> Mitigate Peaking Factor Risk
- Met with Partners to discuss I&I contributing to higher Peaking Factor
- Projects right-sized and phased

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# Pleasant Grove WWTP Capacity Analysis

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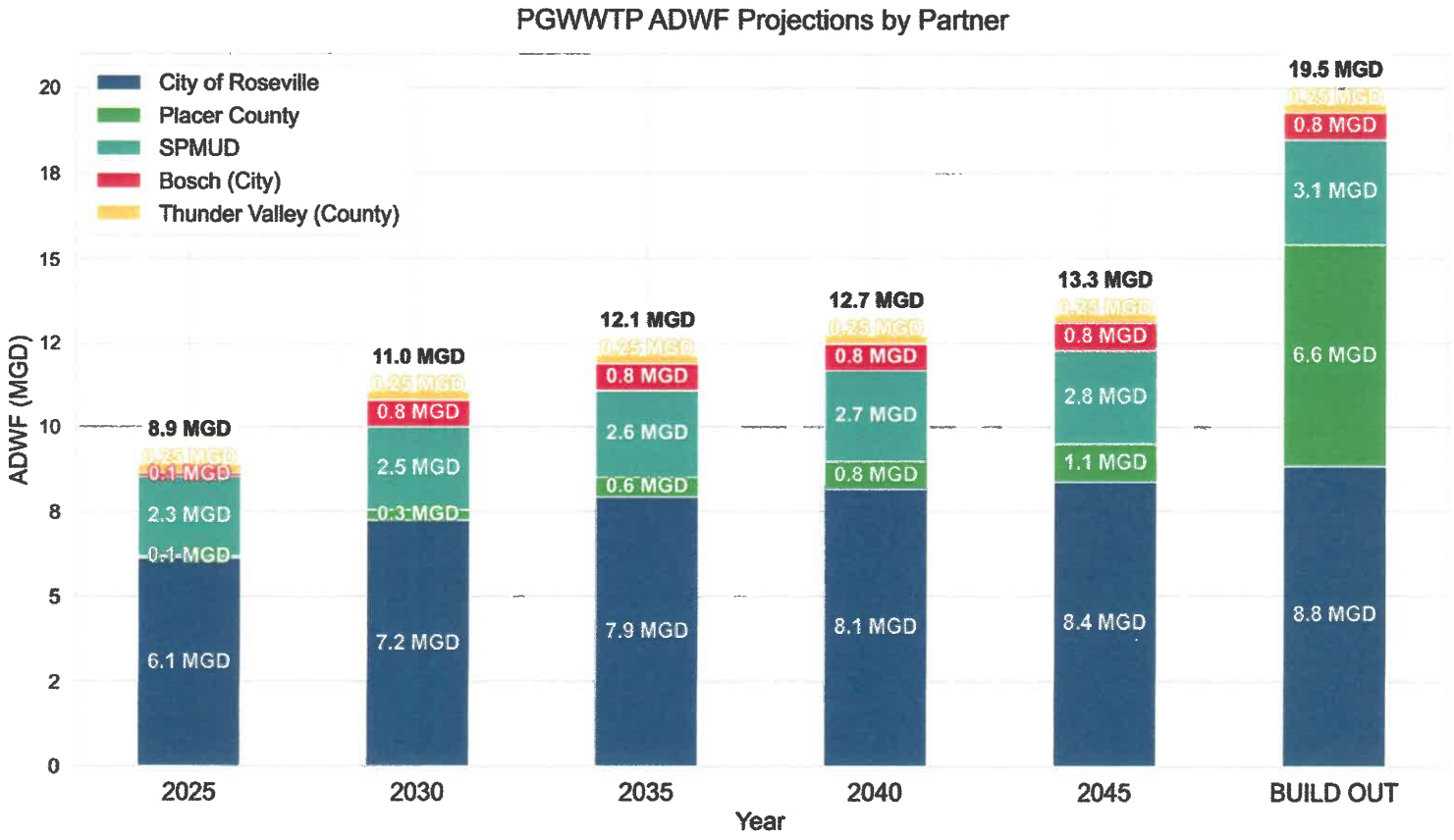
# PGWWTP Flow Projections

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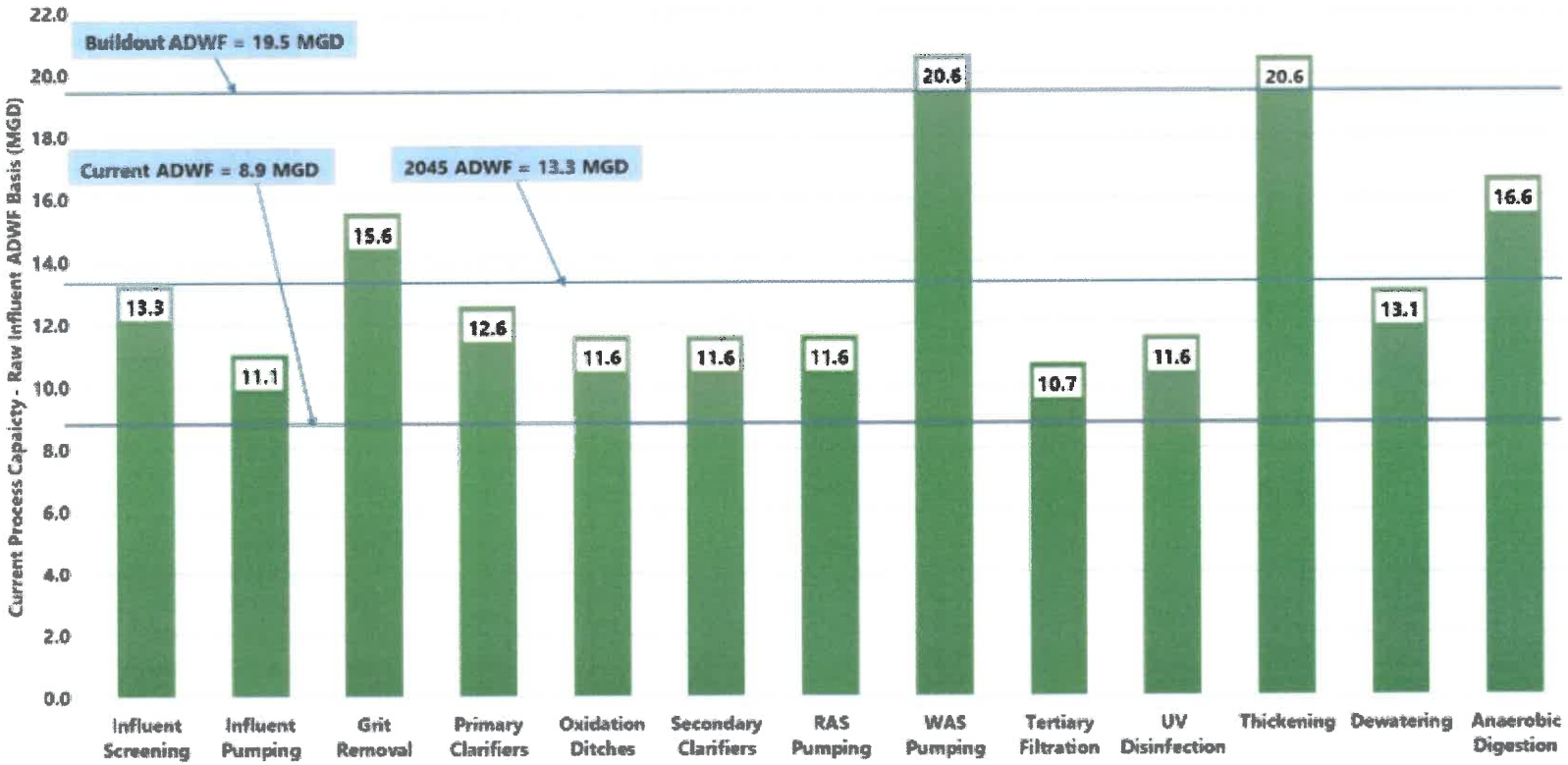
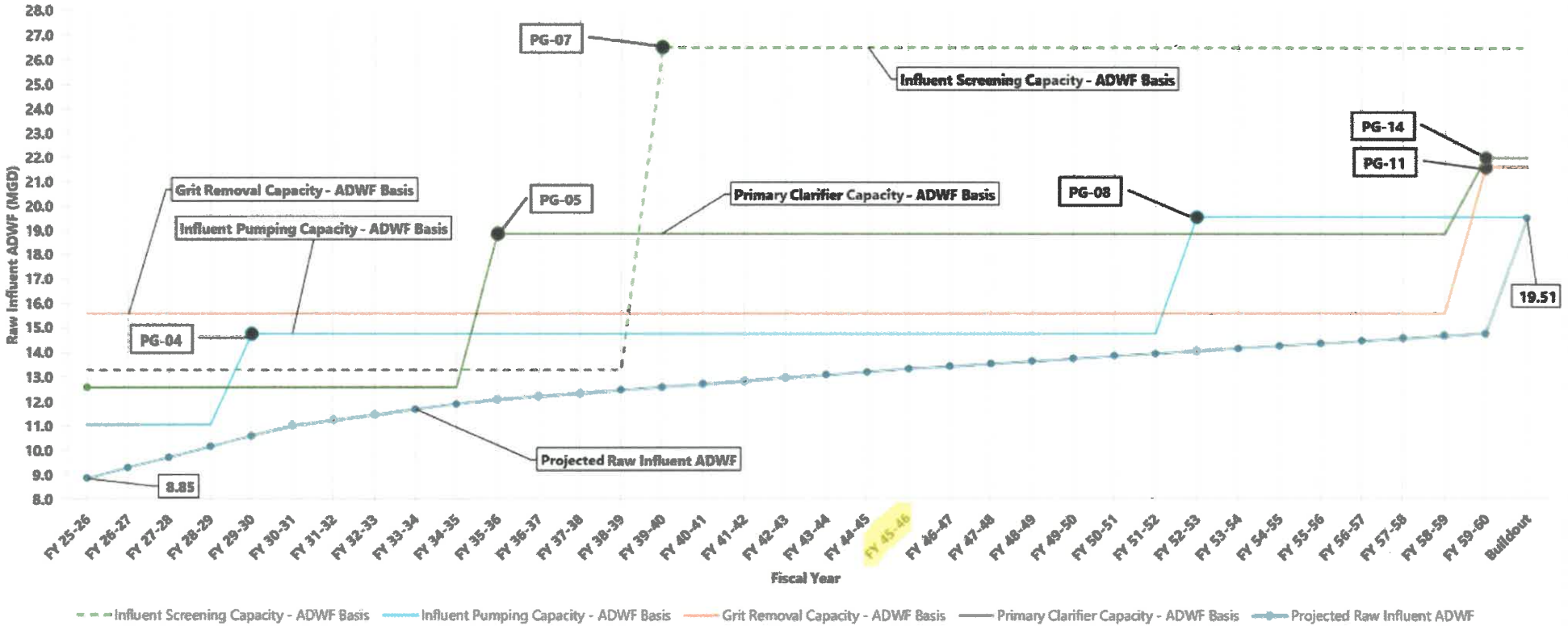
# PGWWTP Current Capacity Utilization




SOUTH PLACER Wastewater Authority

# PGWWTP Preliminary + Primary Process Capacity

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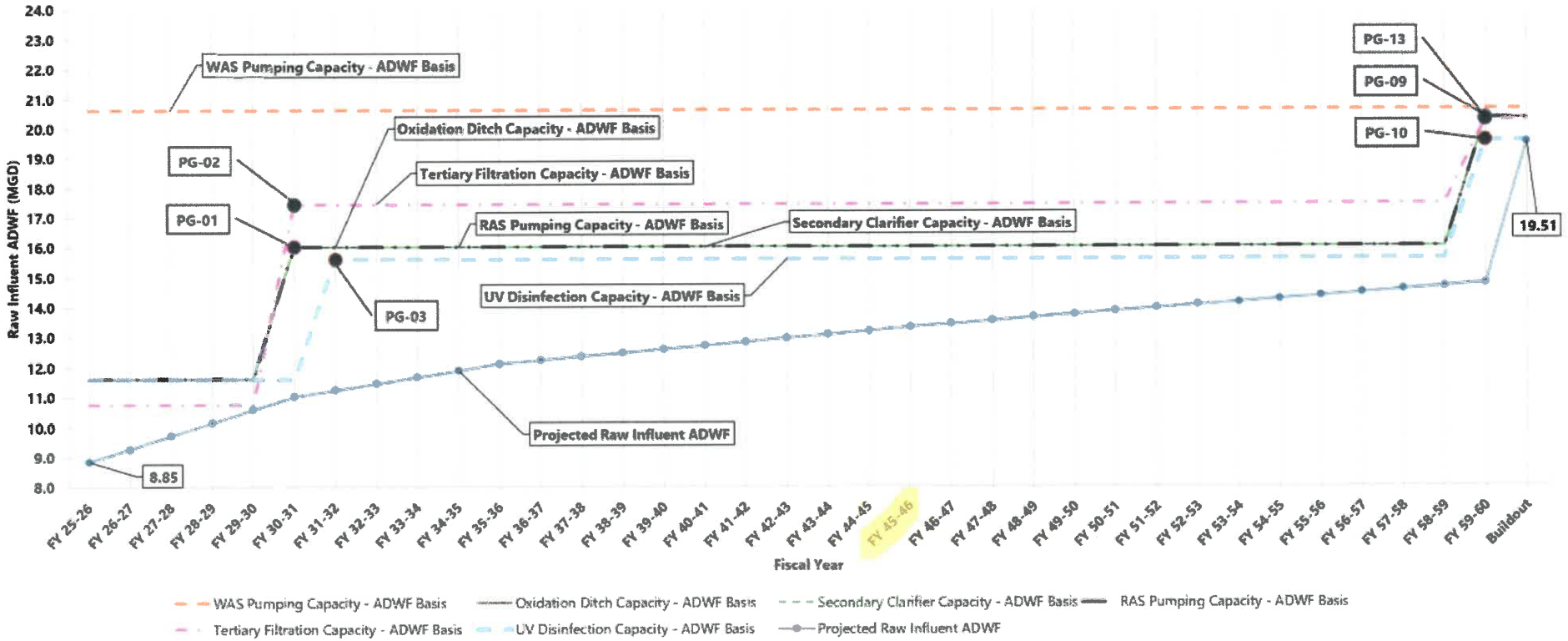
# PGWWTP Secondary + Tertiary Process Capacity

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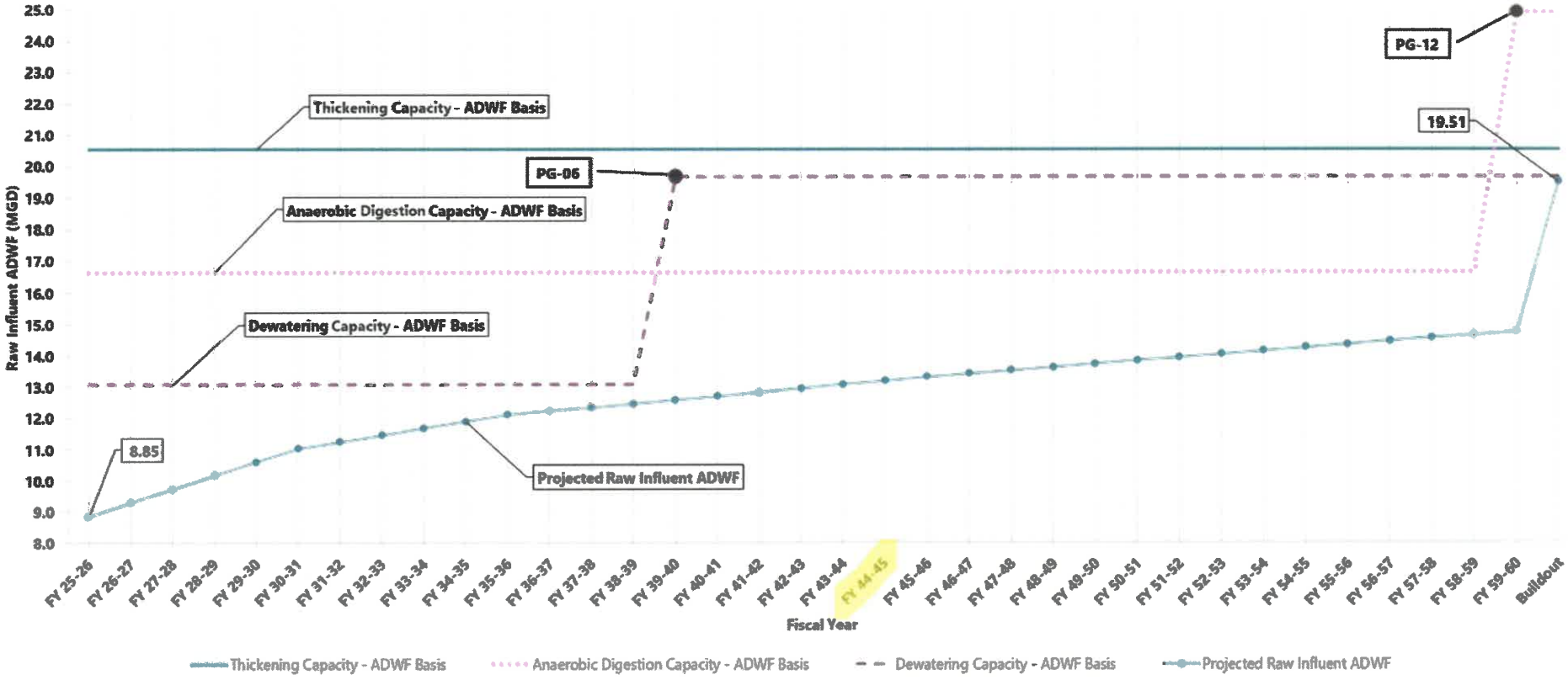
# PGWWTP Solids Handling Process Capacity

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# PGWWTP Capacity Projects Cost Summary (2045)

| Project ID | Project Name | Commission Project[3] | Total Project Cost (2025 $)[2] | Escalated Total Project Cost[1] |
|---|---|---|---|---|
| PG-01 | Secondary Treatment Settleability, Pumping, Control, and Aeration Improvements | 2031 | $43,800,000 | $50,700,000 |
| PG-02 | Tertiary Filtration - New CDF Units, Phase 1 | 2031 | $29,300,000 | $33,900,000 |
| PG-03 | UV Disinfection - New Unit, Phase 1 | 2031 | $11,500,000 | $13,200,000 |
| PG-04 | Influent Pump Station - Additional Pump | 2030 | $1,500,000 | $1,700,000 |
| PG-05 | Primary Clarifiers - New Units, Phase 1 | 2035 | $19,700,000 | $25,600,000 |
| PG-06 | Dewatering - New Unit | 2039 | $13,300,000 | $19,300,000 |
| PG-07 | Influent Screening - New Unit | 2040 | $2,800,000 | $4,200,000 |

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# Dry Creek WWTP Capacity Analysis

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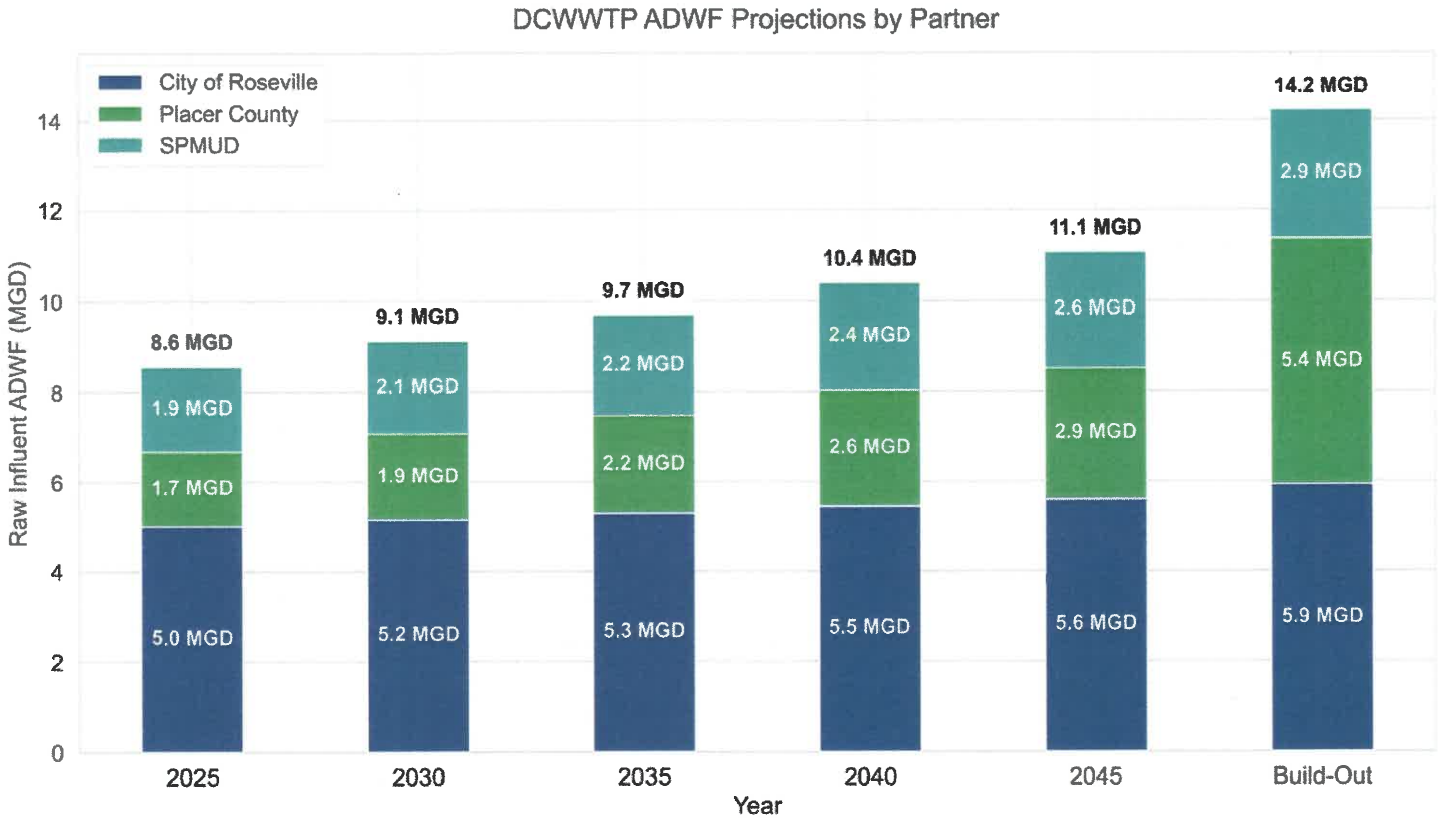
# DCWWTP Flow Projections

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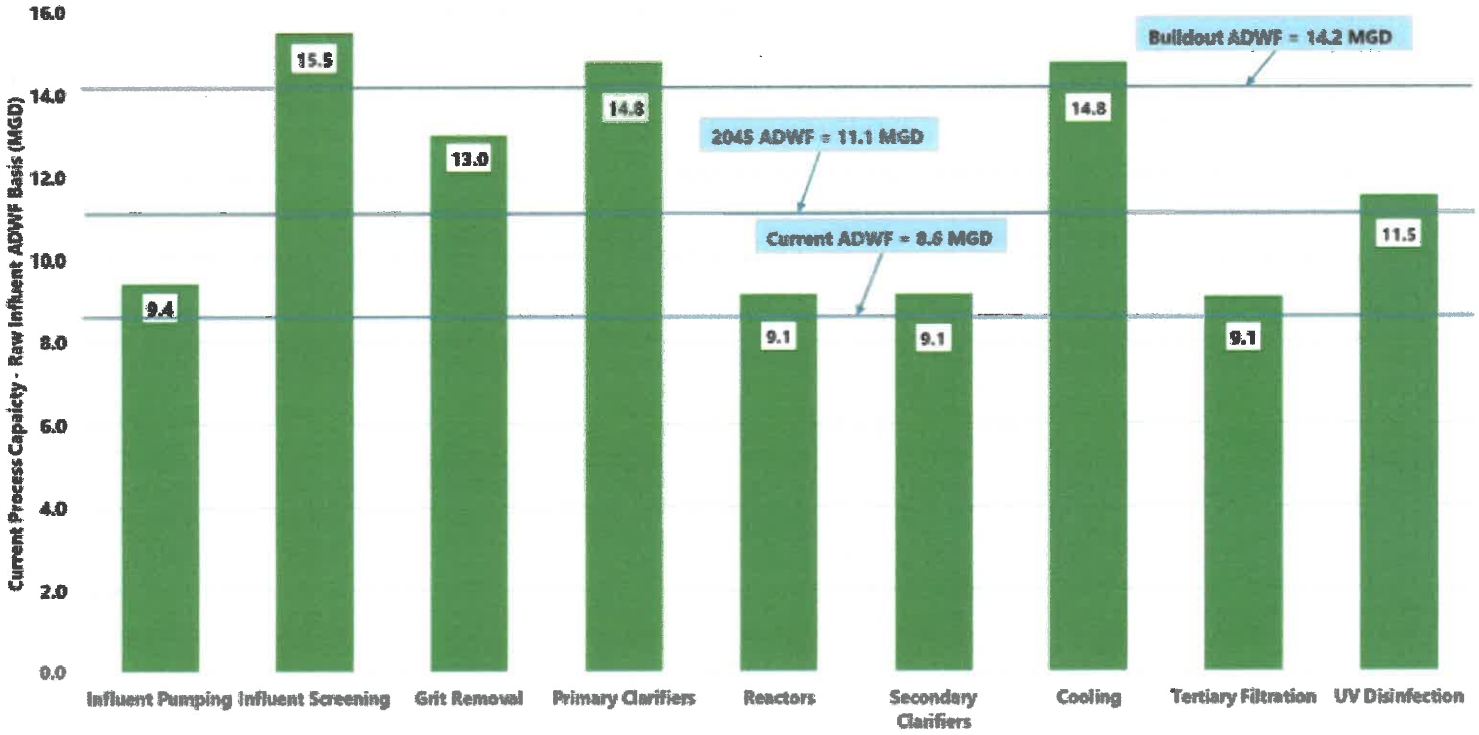
# DCWWTP Current Capacity Utilization

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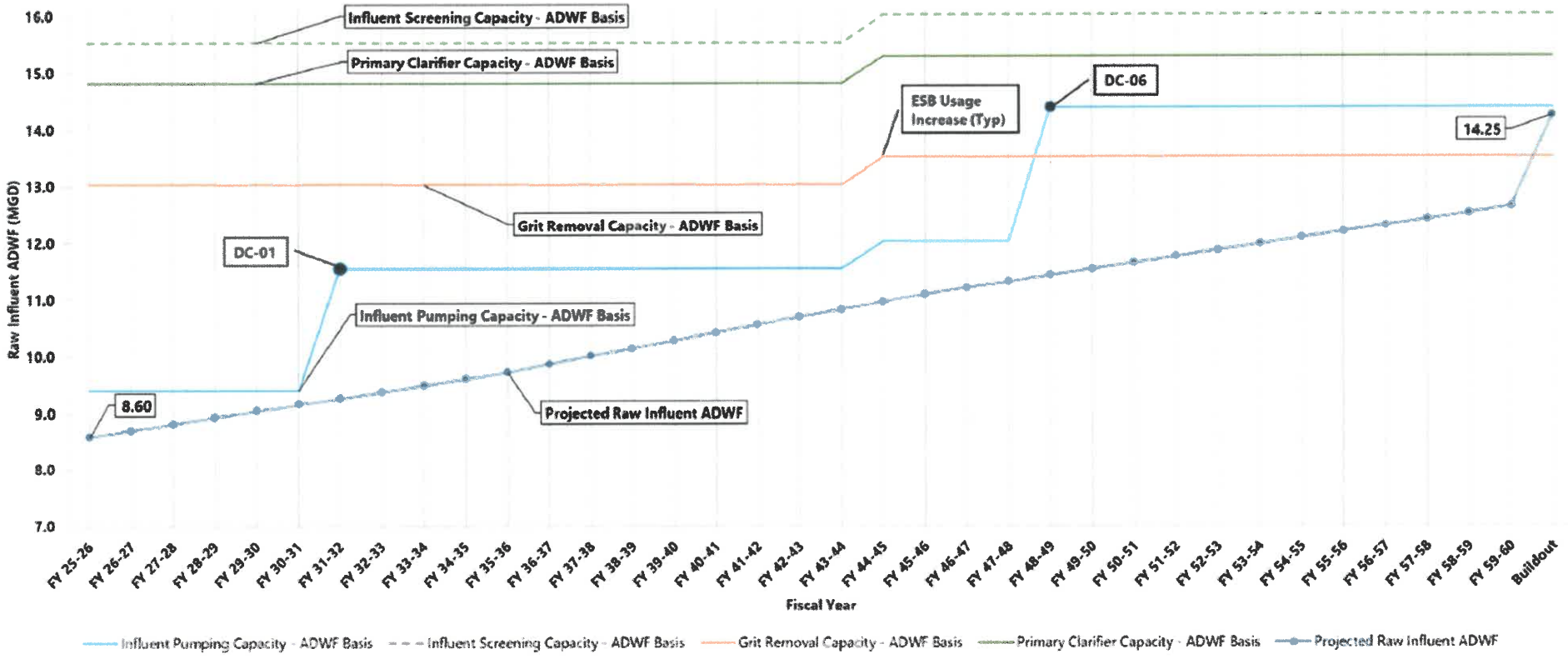
# DCWWTP Preliminary + Primary Process Capacity

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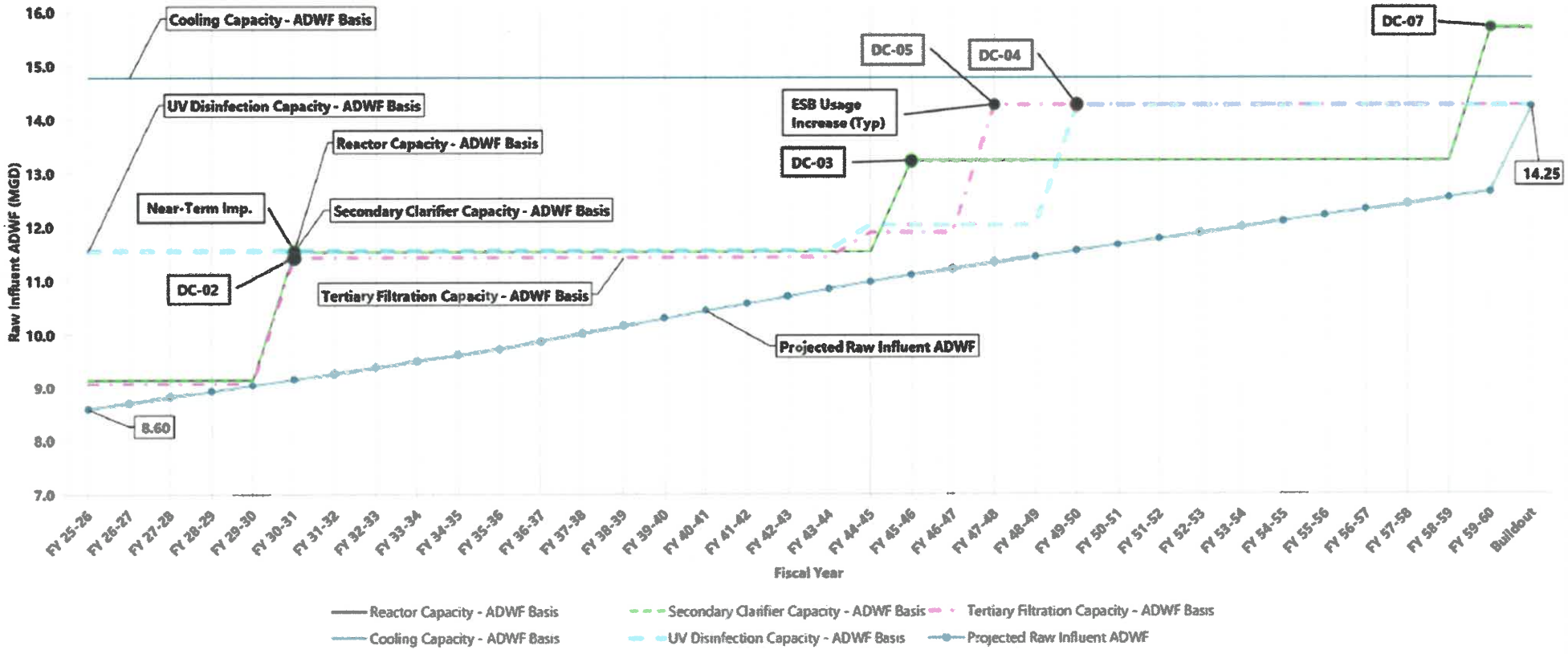
# DCWWTP Secondary + Tertiary Process Capacity




SOUTH PLACER Wastewater Authority

# DCWWTP Capacity Projects Cost Summary (2045)

| Project ID | Project Name | Commission Project[3] | Total Project Cost (2025 $)[2] | Escalated Total Project Cost[1] |
|---|---|---|---|---|
| DC-EX | Secondary Treatment Improvements | -- | -- | $47,800,000 |
| DC-01 | Influent Improvements | 2030 | -- | $16,500,000 |
| DC-02 | Tertiary Filtration - New Unit, Phase 1 | 2030 | $16,700,000 | $18,700,000 |

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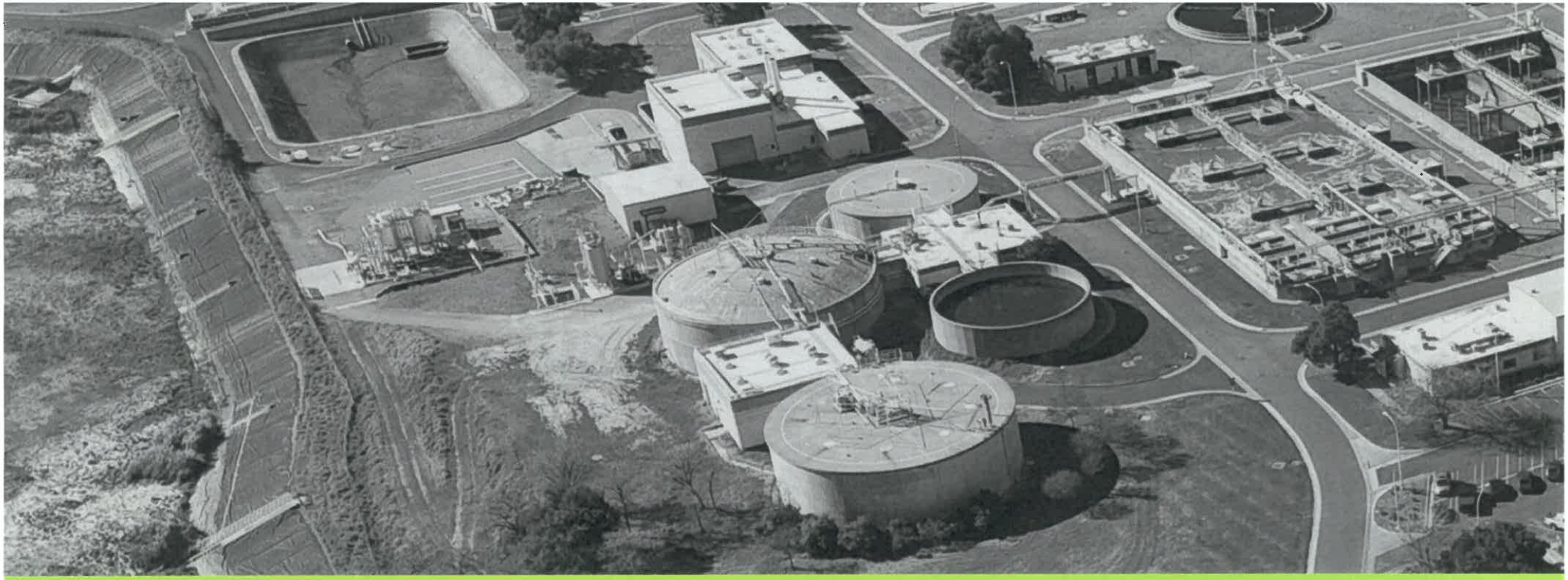
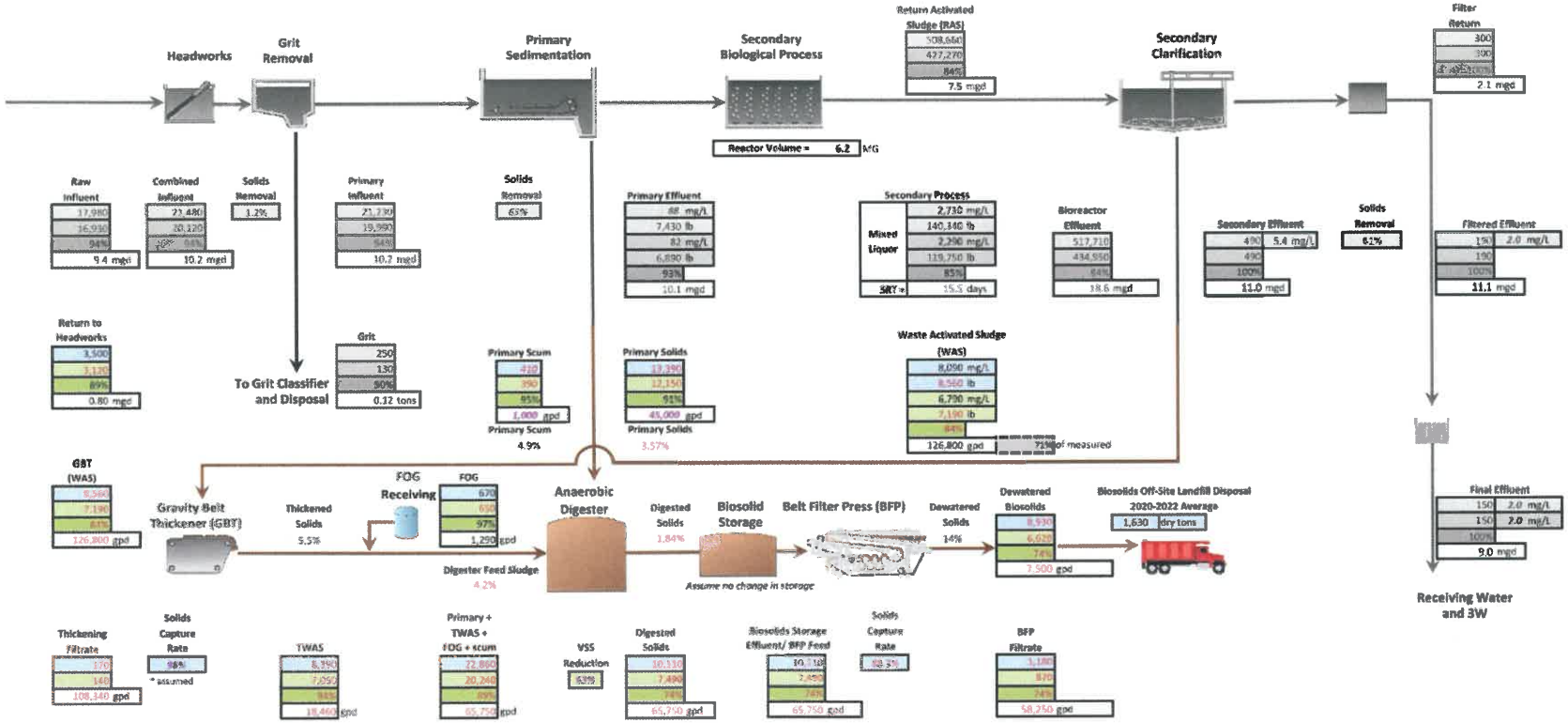


# Dry Creek WWTP Biosolids Study

SOUTH PLACER Wastewater Authority

# DCWWTP Current Solids Treatment Process

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# DCWWTP Biosolids Projects Cost Summary Table

| Project | General Scope of Work | Existing Facility Reaches 75% Capacity[a] | Begin Engineering Planning | Commission Project | Cost Ratio R/R[b]: Capacity | Construction Cost | | Total Project Cost | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Current (2026), million $ | Escalated[b], million $ | Current (2026), million $ | Escalated[b], million $ |
| **Digester Expansion** | **Provide a third digester.** | **2026** | **FY 34/35** | **FY 37/38** | **0.0** | **11.19** | **15.78** | **12.77** | **20.48** |
| **Digester Rehabilitation** | **Replace mixing systems in existing digesters, boilers and heat exchangers. Expand digestion building. Rehabilitate Digester 1.** | **2026** | **FY 27/28** | **FY 31/32** | **0.9** | **7.26** | **8.21** | **10.65** | **11.89** |
| **Two Centrifuges Operated 24/7** | **Replace existing BFPs with two centrifuges and supporting hopper and loading system for conveying and loading dewatered cake to trucks.** | **2026** | **FY 30/31** | **FY 33/34** | **0.45** | **9.58** | **11.78** | **10.93** | **13.32** |

Total SPWA Cost Escalated $29M

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## Next Steps

- Initiate near term projects:
  - DCWWTP Tertiary Filtration Project (Sept 2026)
  - PGWWTP Secondary Treatment Improvements Project (Sept 2026)
  - PGWWTP Tertiary Filtration Project (Sept 2026)
  - PGWWTP UV Disinfection System Expansion (January 2027)
  - PGWWTP Digester System Rehabilitation (June 2027)
- Staff to review project costs to 2024 connection fee and return to SPWA Board with summary and possible recommendation
- SPWA Systems Evaluations every 5 years (2025 approved)
- Capacity evaluations every 10 years (2035)

# The End

Agenda
Item 5

SOUTH PLACER Wastewater Authority

# AUTHORITY COMMUNICATION

**TO:** South Placer Wastewater Authority Board of Directors **DATE:** May 20, 2026

**FROM:** Sean Bigley, SPWA Executive Director

**AUTHORITY COMMUNICATION NO.: AC 26-17**

**SUBJECT: Equivalent Dwelling Units Update**

*For SPWA Board Meeting – June 3, 2026*

## ACTION REQUESTED

No action needed, for informational purposes only.

## BACKGROUND

Over the past three years, the SPWA Board of Directors has discussed the topic of EDU assumptions, with a specific focus on age-restricted housing. Based on the outcome of the February 4, 2026, SPWA Board Meeting, the SPWA Executive Director convened a second staff-level workshop on May 11, 2026, with the partner agencies (Placer County, City of Roseville and the South Placer Municipal Utility District) to discuss the following topics:

1. **Debrief of the Panel Discussion at the February 4, 2026, SPWA Board Meeting**

2. **Next steps**
   What would be needed for a local EDU study?

3. **Parameters for a localized study**
   Overview of SPWA agreements and legal direction

4. **Discussion**
   Do we have consensus on an approach on next steps that will be reportable to the SPWA Board in June?

5. **Other topics**
   Survey SPWA partner staff on topics or concepts that the SPWA Board Members need more information and/or clarity on.

The key outcomes from May 11, 2026, staff-level workshop were:

- Regarding the CASA Flows and Loads Study, information that is missing is:
  - No analysis of age-restricted housing.
  - Peak flow analysis was missing.
  - Much of the data was collected Pre-Covid Pandemic and not representative of current usage patterns.

- A summary of all known publicly available information was presented by Placer County (Attachment 1) that could be useful to identify lines of converging evidence to be used

independently, or in conjunction with a localized EDU study, which included:

- Census data on people per unit in the SPWA Service Area for single family residential (SFR), multi-family residential (MFR), and age-restricted (AR). Ratios of AR to SFR and MFR to SFR were 0.69 and 0.74, respectively.

- The CASA Study showed MFR was lower than SFR for:
  - Flows by approximately 14-15% based on Table 4.5 on Page 4-13, and
  - TSS load by approximately 22-24% based on Table 4.17 on Page 4-35, and
  - BOD load by approximately 6-7% based on Table 4.15 on Page 4-35.

- For reference, a *Table of Ratio of AR and MFR to SFR* can be found in Attachment 1, Page 2, to this staff report titled *Technical Memo prepared by Placer County: Summary of Age Restricted and Multifamily to Single Family.*

- Placer County is convening a staff-level technical work group to do a deeper dive into the analysis prepared by Placer County staff (Attachment 1). A meeting is scheduled for June 1, 2026, with the SPWA staff team to discuss the methods used.

- City of Roseville and the South Placer Municipal Utility District staff felt that a localized EDU study could use a combination of staff developed data/analysis with some additional work by a qualified consultant.

- Placer County stated that they do not have the ability to perform an in-house EDU study. Placer County staff stated that they advocate the use of existing publicly available information to work toward consensus between the SPWA partner agencies of ratios of AR to SFR and MFR to SFR less than one, recognizing a decision could be made by the SPWA Board.

- Staff driven work would be dependent upon staff capacity available by each agency.

- During the May 11, 2026, staff-level workshop, there was consensus on an outline of a localized EDU Study Scope as follows:

  - **Phase 1** - Have SPWA staff conduct a high-level financial analysis on scenario-based financial impacts that could come from modifying EDU assumptions, including impacts to local and regional connection fees and resulting revenue, impacts to wastewater utility rates charged to utility customers and revenue and risks related to outstanding bond requirements and covenants as a result of any impacts that could occur for revenue, as a result of modifying EDU assumptions. If there is a need for deeper analysis, consultant resources may need to be utilized.

  - This initial financial analysis would help inform partner agency's boards and councils, as well as the SPWA Board to determine if the localized study should proceed or not to Phase 2.

- **Phase 2** – Examine winter water usage with GIS data and some consultant support to better classify water users.

- **Phase 3** – Phase 3 would focus on localized flow monitoring over a recommended sample time and due to staff capacity would likely be a combination of staff work and consultant support.

- **Phase 4** – If needed, conduct sampling on loading factors within the flow. Due to staff capacity, this would likely be a combination of staff work and consultant support.

- Also, during the May 11, 2026, staff-level workshop, Osman Mufti, SPWA legal counsel provided an overview of the three agreements that govern the SPWA, noting that:

  - The SPWA Joint Powers Authority (JPA) has powers limited to meeting the financial obligations related to ensuring that wastewater treatment capacity is sufficient to meet the needs of the JPA members. Also, the SPWA is responsible for making sure that JPA's debt obligations are met per the bond covenants.

  - Discussion on EDU assumptions rest solely with Placer County, City of Roseville and the South Placer Municipal Utility District. Thus, the right to conduct an EDU study and any actions to change EDU assumptions rest with Placer County, City of Roseville and the South Placer Municipal Utility District, not SPWA. Funding of any EDU study is the responsibility of Placer County, City of Roseville and the South Placer Municipal Utility District and any decisions to undertake an EDU study or make any resulting changes to EDU's rests solely with Placer County, City of Roseville and the South Placer Municipal Utility District.

  - Also discussed was the requirement that EDU assumptions have to be the same across all three partner agencies. However, partner agencies may choose to charge a lower regional connection fee independently; however, what is due to the SPWA is the same and that any funding delta would have to be made up by partner agencies using their own local funds.

- Finally, during the May 11, 2026, staff-level workshop, staff from Placer County, City of Roseville and the South Placer Municipal Utility District discussed what areas of information staff felt that SPWA staff could provide more information to the SPWA Board in the future:

  - Nexus between connection fees and utility rates as it pertains to EDU assumptions.

  - Overview of the SPWA capital program – both for Operations and Maintenance (O&M) and treatment capacity, with discussion on nuances and terminology.

  - Discussion that a SPWA Board Orientation will be needed in the February 2027 time frame given changes from the November 2026 election.

SOUTH PLACER Wastewater Authority

- Action items from the May 11, 2026, staff-level workshop are:
    - With the outline of the phased EDU Study scope, SPWA staff will be working with the consulting community to update the scope and cost for a high-level financial analysis (if additional consultant resources are needed) and the cost of a localized EDU study.
    - Following the delivery of an updated scope and cost, the SPWA Director will send letters with the proposed EDU Study scope and cost to Placer County, City of Roseville and the South Placer Municipal Utility District to get a decision, in writing, from each agency, as follows:
        - Does your agency wish to participate in the development of a high-level financial analysis and a localized EDU Study, as proposed?
        - If yes to the first question, does your agency want to lead the development of an MOU Cost Share Agreement and to be the administrative lead for the project?
        - If yes to the first question, does your agency agree to participate in all phases, as proposed, or just Phase 1, to start?
    - The deadline for written responses from each agency to the SPWA Executive Director will be July 31, 2026. This deadline may be subject to change.
    - The resulting written responses from Placer County, City of Roseville and the South Placer Municipal Utility District will be shared with the SPWA Board at the September 2026 board meeting; and, as needed, the SPWA Executive Director will seek further direction from the SPWA Board depending upon the outcome.

Approved by:

Dennis Kauffman

Digitally signed by Dennis Kauffman
Date: 2026.05.26 15:31:11 -07'00'

Dennis Kauffman
Chief Financial Officer

Submitted and Approved by:

SP Bigley

Sean Bigley
Executive Director

SOUTH PLACER Wastewater Authority

**Attachment 1– Technical Memo prepared by Placer County: *Summary of Age Restricted and Multifamily to Single Family***

**MEMORANDUM**
**PUBLIC WORKS**
**ENVIRONMENTAL ENGINEERING DIVISION**
County of Placer

**TO:** SPWA Board of Supervisors and TAG **DATE:** May 7, 2026

**FROM:** Robin Mahoney, P.E., Environmental Utilities Program Manager

**SUBJECT:** Summary of Age Restricted and Multifamily to Single Family

---

## EXECUTIVE SUMMARY

Publicly available information on ratios of age restricted (AR) and multi-family residential (MFR) to single-family residential (SFR) is presented in Attachment A. Census Data Means and Methods are presented in Attachment B.

## ATTACHMENTS

Attachment A – Table of Ratio of AR and MFR to SFR
Attachment B – Census Data Means and Methods

# ATTACHMENT A

| Table 1. Ratio of AR and MFR to SFR | | | | |
|---|---|---|---|---|
| **Source** | **Basis of Data** | **AR / SFR** | **MFR / SFR** | **Notes** |
| Placer County Ordinance - SMD 1 | Table 2-9 of Metcalf & Eddy - 3rd Edition | 0.714 | 0.714 | Gal/unit/day for 'Typical Home' is 70 and for 'Apartment - High Rise' is 50. |
| CASA Study | Local Flow and Loading Study | N/A | 0.84 - 0.85 | Average and Median Flow Results; Loading concentration results are |
| Census Data - persons per household | Census Data | 0.69 | 0.74 | Attached Memorandum with Means and Methods |
| SPWA Desktop Study | Factors used by other local agencies | see below | see below | Presented at June 27, 2024 SPWA Board Meeting |
| - Central San | Factors used by other local agencies | 1 | 0.847 | Rate Study 2015 |
| - EBMUD | Factors used by other local agencies | 1 | 0.55 for <500sf | Rate Study 2023 |
| - EBMUD | Factors used by other local agencies | 1 | 0.70 for > 500sf | Rate Study 2023 |
| - SASD (Regional San / Sac Sewer) | Factors used by other local agencies | 0.6 | 0.75 | Rate Study 2015 |
| - Sonoma Water | Factors used by other local agencies | 1 | 0.8 | Rate Study 2020 |
| - Delta Diablo | Factors used by other local agencies | 1 | 1 | Rate Study 2021 |
| - SFPUC | Factors used by other local agencies | 1 | 0.97 | Rate Study 2023 |
| - Fairfield Suisun Sewer District | Factors used by other local agencies | 1 | 0.6 for <1,200 sf | Rate Study 2022 |
| - Fairfield Suisun Sewer District | Factors used by other local agencies | 1 | 1 for > 1,200sf | Rate Study 2022 |
| - City of Santa Clara | Factors used by other local agencies | 1 | 0.95 | Rate Study 2023 |
| - City of San Jose | Factors used by other local agencies | 1 | 0.67 | Rate Study 2023 |
| - City of San Luis Obispo | Factors used by other local agencies | 1 | 1 | Unknown Rate Study Date |
| - City of Pismo Beach | Factors used by other local agencies | 1 | 0.63 | Rate Study 2023 |
| - Orange County Sanitation District | Factors used by other local agencies | 1 | 0.7 | Unknown Rate Study Date |
| - Irvine Ranch Water District | Factors used by other local agencies | 1 | 1 | Rate Study 2021 |
| - City of Folsom | Factors used by other local agencies | 0.78 | 0.78 | Unknown Rate Study Date |
| - El Dorado Irrigation District | Factors used by other local agencies | 1 | 0.75 | Unknown Rate Study Date |

ATTACHMENT B

# MEMORANDUM

**Date:** April 29, 2026

**TO:** Robin Mahoney, Environmental Engineering Program Manager

**FROM:** Andrew Myers, Geographic Information Systems Analyst, Environmental Utilities

**SUBJECT:** SPWA Demographics

## BACKGROUND

Placer County Environmental Utilities is seeking to better understand the average household size (number of people per household) within the South Placer Wastewater Authority (SPWA) service area. To support this effort, Environmental Utilities utilized GIS tools available through ESRI's software platform and publicly available information including parcel data, land use data and 2020 US Census data augmented by American Community Surveys (ACS). Analysis was conducted in ESRI Business Analyst Online (BAO) and was geographically limited to the SPWA 'Ultimate Service Area Boundary'. Only residential areas were considered in the analysis. The analysis included three household type categories: Single Family Homes (SFH), Multi-Family Homes (MFH) and two distinct age-restricted communities (55+).

## DATA AND METHODS

### DATA SOURCES

- SPWA Ultimate Service Area Boundary (South Placer Regional Wastewater 2020 Systems Evaluation Report, Woodard and Curran, 2020) Report
- Placer County Parcels with Land Use (Placer County Assessor) Land Information Search - Public Site
    - SFH Query: Use_Cd_N IN ('SINGLE FAM RES, HALF PLEX', 'SINGLE FAM RES, CONDO')
        - Mobile home parks not included
        - Residence on commercial land not included
        - Commercial residential mixed use not included
        - Residential auxiliary imp not included
    - MFH Query: Use_Cd_N IN ('2 SINGLE FAM RES, DUPLEX', '3 SINGLE FAM RES, TRIPLEX', 'APARTMENTS, 4 UNITS OR MORE')

- Two 55+ communities, Del Webb Sun City in Roseville and Springfield at Whitney Oaks in Rocklin, were included in the analysis. Both communities were excluded from the SFH category described above

- ESRI Business Analyst Online
  - United States Census Bureau Census.gov | U.S. Census Bureau
  - 2025 American Community Surveys (ACS) American Community Survey (ACS)
  - Documentation and Apportionment
    - Data in Business Analyst—ArcGIS Business Analyst help | Documentation
    - Data apportionment reference—ArcGIS Business Analyst help | Documentation
    - Data apportionment | ArcGIS REST APIs | Esri Developer

METHODS

1) Placer County parcels were 'clipped' to the SPWA Ultimate Service Boundary (2020 Systems Evaluation Report)
2) SFH and MFH layers were created in GIS using the definition queries above to create two separate non-overlapping layers.
   a. For ease of processing and analysis in BAO the SFH polygon was 'simplified' with a tolerance of 5' (i.e. reduced vertex count and simplify polygon geometry)
3) The two 55+ communities (Del Webb/Springfield) layers were created using parcel configuration and publicly available community maps.
4) Polygons were input into ESRI's BAO and two reports were generated for each polygon (PDF)
   a. Demographic and Income Profile: includes average household size
   b. American Community Survey (ACS) Population Summary: includes more detailed household information

**RESULTS**

| Land Use / Community | Average Household Size (ACS 2025) | Ratio to SFH |
|---|---|---|
| Single Family Housing (SFH) | 2.83 | 1.0 |
| Multi Family Housing (MFH) | 2.1 | 0.74 |
| Del Webb/Springfield (55+) | 1.69 | 0.69 |

**FIGURES**

Figure 1: Residential Areas by Land Use

**ATTACHMENTS**

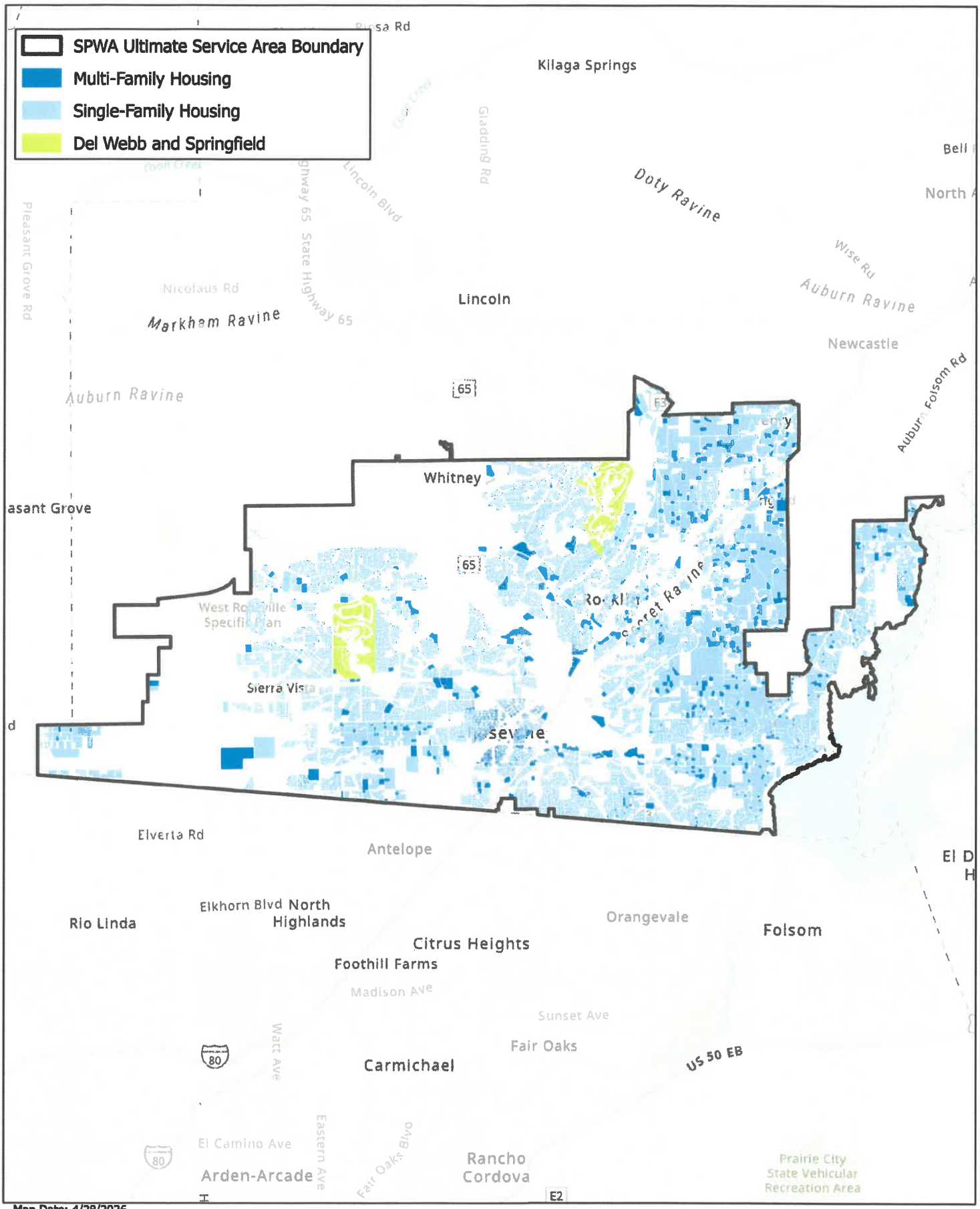
Attachment 1: Demographic and Income Profiles

Attachment 2: ACS Population Summaries

COUNTY OF Placer

# Figure 1: Residential Areas by Land Use

Public Works ▪ Environmental Engineering ▪ 3091 County Center Drive, Suite 170 ▪ Auburn, CA 95603
(530) 889-6846 office ▪ (530) 886-4908 fax ▪ www.placer.ca.gov




Map Date: 4/28/2026

**Figure 1. SPWA Residential Areas by Land Use**

# Attachment 1: Demographic and Income Profiles

Public Works ▪ Environmental Engineering ▪ 3091 County Center Drive, Suite 170 ▪ Auburn, CA 95603
(530) 889-6846 office ▪ (530) 886-4908 fax ▪ www.placer.ca.gov

# Demographic and Income Profile

Single-Family Housing

| Summary | Census 2020 | 2025 | 2030 |
|---|---|---|---|
| Total Population | 89,731 | 94,346 | 98,587 |
| Total Households | 30,632 | 33,083 | 35,072 |
| Family Households | 23,800 | 25,143 | 26,601 |
| Average Household Size | 2.90 | 2.83 | 2.79 |
| Owner Occupied Housing Units | 23,566 | 25,894 | 27,563 |
| Renter Occupied Housing Units | 7,066 | 7,189 | 7,509 |
| Median Age | 41.1 | 41.7 | 42.1 |

| Trends 2025 - 2030 | Area | State | National |
|---|---|---|---|
| Population | 0.9% | 0.1% | 0.4% |
| Households | 1.2% | 0.3% | 0.6% |
| Family Population | 1.1% | 0.3% | 0.5% |
| Owner Occupied Housing Units | 1.3% | 0.5% | 0.0% |
| Median Household Income | 2.7% | 2.3% | 2.5% |

| Population by Age | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| 0-4 | 4,746 | 5.3% | 4,859 | 5.2% | 5,073 | 5.2% |
| 5-9 | 6,043 | 6.7% | 5,846 | 6.2% | 5,668 | 5.8% |
| 10-14 | 6,844 | 7.6% | 6,617 | 7.0% | 6,382 | 6.5% |
| 15-19 | 6,792 | 7.6% | 6,310 | 6.7% | 6,095 | 6.2% |
| 20-24 | 4,703 | 5.2% | 5,325 | 5.6% | 5,010 | 5.1% |
| 25-29 | 3,876 | 4.3% | 5,348 | 5.7% | 6,018 | 6.1% |
| 30-34 | 4,603 | 5.1% | 4,985 | 5.3% | 6,467 | 6.6% |
| 35-39 | 5,900 | 6.6% | 5,592 | 5.9% | 5,991 | 6.1% |
| 40-44 | 6,206 | 6.9% | 6,592 | 7.0% | 6,165 | 6.3% |
| 45-49 | 6,278 | 7.0% | 6,390 | 6.8% | 6,689 | 6.8% |
| 50-54 | 6,392 | 7.1% | 6,383 | 6.8% | 6,376 | 6.5% |
| 55-59 | 6,574 | 7.3% | 6,260 | 6.6% | 6,202 | 6.3% |
| 60-64 | 5,761 | 6.4% | 6,263 | 6.6% | 5,991 | 6.1% |
| 65-69 | 4,822 | 5.4% | 5,380 | 5.7% | 5,855 | 5.9% |
| 70-74 | 4,088 | 4.6% | 4,471 | 4.7% | 5,057 | 5.1% |
| 75-79 | 2,648 | 3.0% | 3,579 | 3.8% | 4,035 | 4.1% |
| 80-84 | 1,640 | 1.8% | 2,206 | 2.3% | 3,034 | 3.1% |
| Age 85+ | 1,815 | 2.0% | 1,941 | 2.1% | 2,478 | 2.5% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

## Demographic and Income Profile | Single-Family Housing |

| Households by Income | 2025 | | 2030 | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| <$10,000 | 1,274 | 3.9% | 1,223 | 3.5% |
| $10,000-14,999 | 283 | 0.9% | 234 | 0.7% |
| $15,000-19,999 | 339 | 1.0% | 264 | 0.8% |
| $20,000-24,999 | 712 | 2.1% | 577 | 1.6% |
| $25,000-29,999 | 371 | 1.1% | 310 | 0.9% |
| $30,000-34,999 | 547 | 1.6% | 453 | 1.3% |
| $35,000-39,999 | 716 | 2.2% | 595 | 1.7% |
| $40,000-44,999 | 491 | 1.5% | 414 | 1.2% |
| $45,000-49,999 | 671 | 2.0% | 576 | 1.6% |
| $50,000-59,999 | 1,130 | 3.4% | 980 | 2.8% |
| $60,000-74,999 | 1,827 | 5.5% | 1,671 | 4.8% |
| $75000-99999 | 3,033 | 9.2% | 2,870 | 8.2% |
| $100,000-124,999 | 3,449 | 10.4% | 3,372 | 9.6% |
| $125,000-149,999 | 2,882 | 8.7% | 2,865 | 8.2% |
| $150000-199999 | 4,913 | 14.8% | 5,332 | 15.2% |
| $200,000-249,999 | 3,926 | 11.9% | 4,925 | 14.0% |
| $250,000-299,999 | 2,541 | 7.7% | 3,269 | 9.3% |
| $300,000-399,999 | 2,185 | 6.6% | 2,938 | 8.4% |
| $400,000-499,999 | 629 | 1.9% | 910 | 2.6% |
| $500,000+ | 1,162 | 3.5% | 1,294 | 3.7% |
| Median Household Income | $138,639 | - | $158,244 | - |
| Average Household Income | $175,552 | - | $193,383 | - |
| Per Capita Income | $62,700 | - | $70,053 | - |

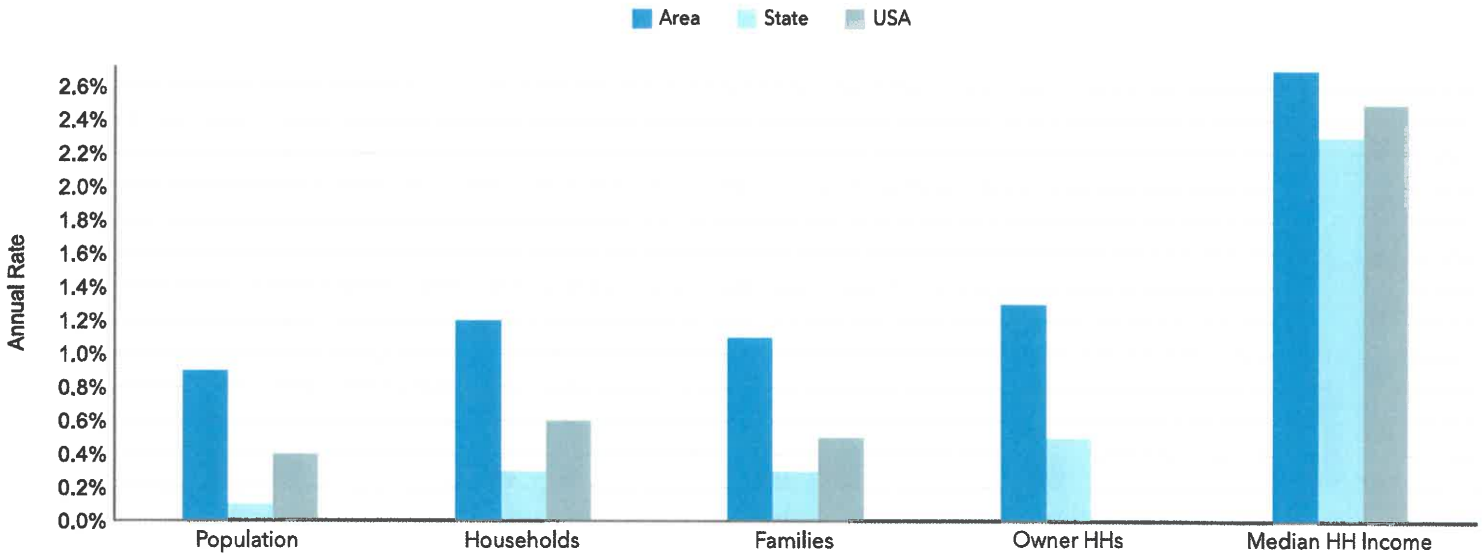
| Race and Ethnicity | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| White Alone | 62,229 | 69.3% | 61,995 | 65.7% | 62,298 | 63.2% |
| Black Alone | 1,709 | 1.9% | 2,002 | 2.1% | 2,152 | 2.2% |
| American Indian | 673 | 0.8% | 687 | 0.7% | 717 | 0.7% |
| Asian Alone | 10,195 | 11.4% | 12,467 | 13.2% | 14,324 | 14.5% |
| Pacific Islander | 280 | 0.3% | 332 | 0.3% | 366 | 0.4% |
| Some Other Race | 3,544 | 4.0% | 4,127 | 4.4% | 4,597 | 4.7% |
| Two or More Races | 11,101 | 12.4% | 12,736 | 13.5% | 14,132 | 14.3% |
| Hispanic (Any Race) | 12,390 | 13.8% | 14,146 | 15.0% | 15,716 | 15.9% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

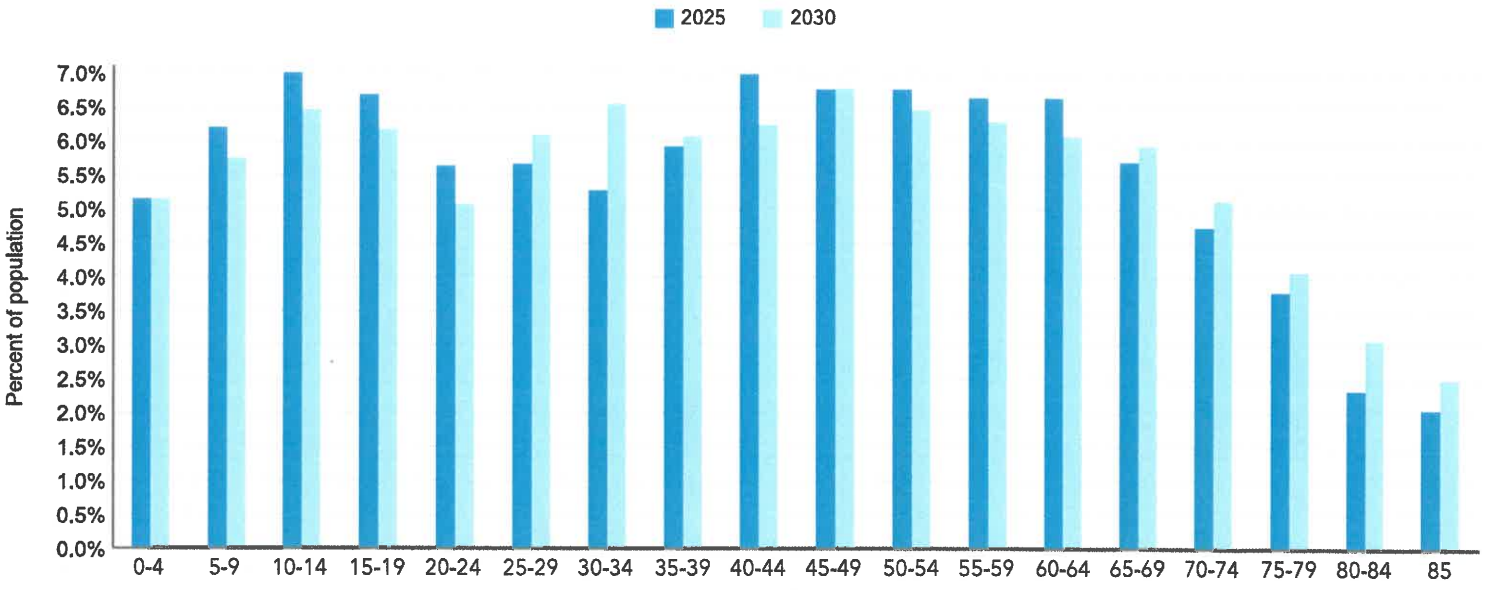
## Key Indicators for 2025

| 94,346 | 33,083 | 2.83 | 41.7 | 62,498 |
|---|---|---|---|---|
| Total Population | Total Households | Average Household Size | Median Age | Daytime Population |

## Trends: 2025 - 2030 Annual Rate




## Population by Age

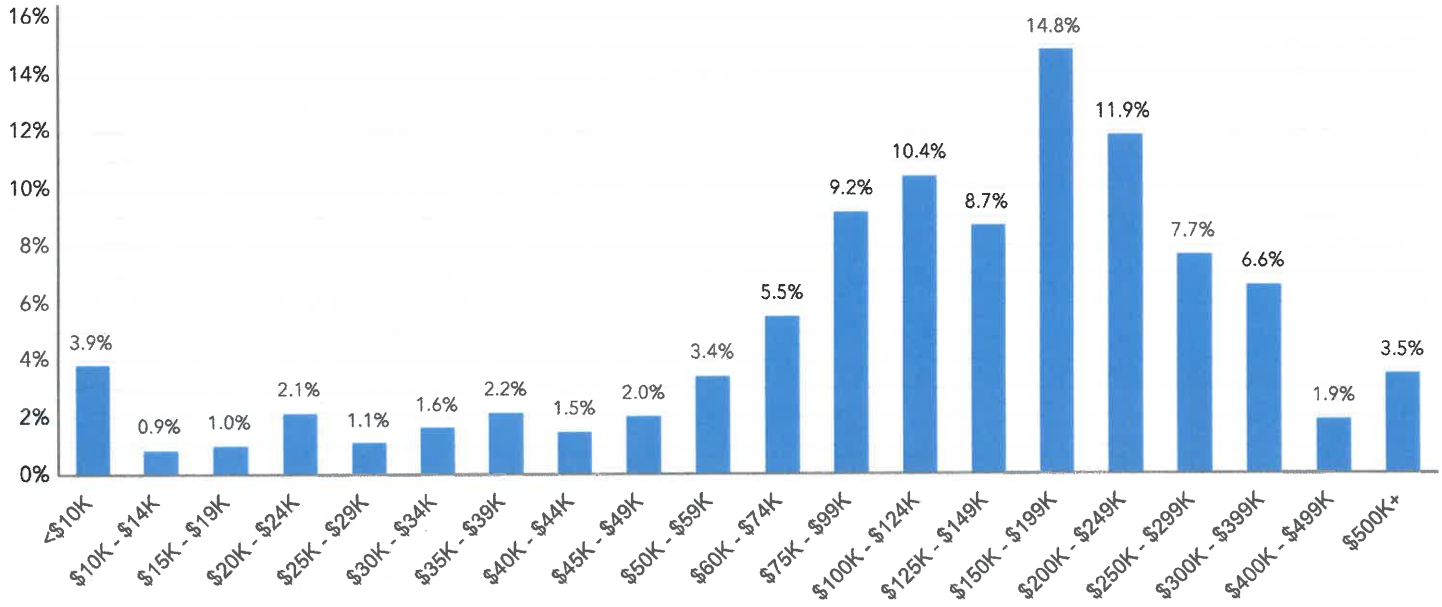



Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

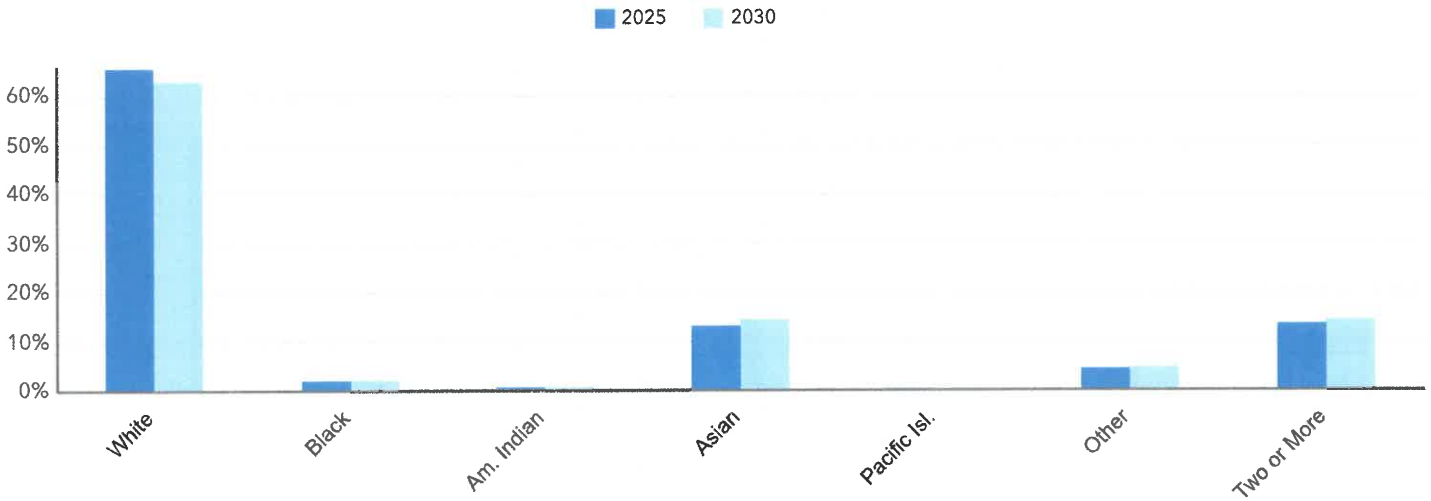
## Key Indicators for 2025

| $138,639 | $715,653 | 179 | 73 | 65 |
|---|---|---|---|---|
| Median Household Income | Median Net Worth | Esri Wealth Index | Esri Housing Affordability Index | Esri Diversity Index |

## Households by Income for 2025




## Population by Race




Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

# Demographic and Income Profile

Multi-Family Housing

| Summary | Census 2020 | 2025 | 2030 |
|---|---|---|---|
| Total Population | 19,398 | 20,639 | 21,354 |
| Total Households | 9,123 | 9,663 | 10,150 |
| Family Households | 5,621 | 5,738 | 6,008 |
| Average Household Size | 2.09 | 2.10 | 2.07 |
| Owner Occupied Housing Units | 3,562 | 3,921 | 4,235 |
| Renter Occupied Housing Units | 5,561 | 5,742 | 5,915 |
| Median Age | 36.5 | 37.4 | 38.4 |

| Trends 2025 - 2030 | Area | State | National |
|---|---|---|---|
| Population | 0.7% | 0.1% | 0.4% |
| Households | 1.0% | 0.3% | 0.6% |
| Family Population | 0.9% | 0.3% | 0.5% |
| Owner Occupied Housing Units | 1.6% | 0.5% | 0.0% |
| Median Household Income | 2.0% | 2.3% | 2.5% |

| Population by Age | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| 0-4 | 1,079 | 5.6% | 1,127 | 5.5% | 1,157 | 5.4% |
| 5-9 | 1,258 | 6.5% | 1,145 | 5.5% | 1,119 | 5.2% |
| 10-14 | 1,293 | 6.7% | 1,293 | 6.3% | 1,156 | 5.4% |
| 15-19 | 1,228 | 6.3% | 1,315 | 6.4% | 1,281 | 6.0% |
| 20-24 | 1,346 | 6.9% | 1,433 | 6.9% | 1,496 | 7.0% |
| 25-29 | 1,608 | 8.3% | 1,672 | 8.1% | 1,759 | 8.2% |
| 30-34 | 1,450 | 7.5% | 1,648 | 8.0% | 1,624 | 7.6% |
| 35-39 | 1,441 | 7.4% | 1,426 | 6.9% | 1,584 | 7.4% |
| 40-44 | 1,250 | 6.4% | 1,485 | 7.2% | 1,419 | 6.7% |
| 45-49 | 1,217 | 6.3% | 1,270 | 6.2% | 1,458 | 6.8% |
| 50-54 | 1,119 | 5.8% | 1,244 | 6.0% | 1,240 | 5.8% |
| 55-59 | 1,119 | 5.8% | 1,086 | 5.3% | 1,174 | 5.5% |
| 60-64 | 1,026 | 5.3% | 1,099 | 5.3% | 1,046 | 4.9% |
| 65-69 | 820 | 4.2% | 973 | 4.7% | 1,032 | 4.8% |
| 70-74 | 722 | 3.7% | 788 | 3.8% | 919 | 4.3% |
| 75-79 | 494 | 2.5% | 644 | 3.1% | 706 | 3.3% |
| 80-84 | 377 | 1.9% | 446 | 2.2% | 572 | 2.7% |
| Age 85+ | 552 | 2.9% | 544 | 2.6% | 613 | 2.9% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

| Households by Income | 2025 | | 2030 | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| <$10,000 | 558 | 5.8% | 536 | 5.3% |
| $10,000-14,999 | 152 | 1.6% | 132 | 1.3% |
| $15,000-19,999 | 222 | 2.3% | 182 | 1.8% |
| $20,000-24,999 | 322 | 3.3% | 275 | 2.7% |
| $25,000-29,999 | 157 | 1.6% | 138 | 1.4% |
| $30,000-34,999 | 258 | 2.7% | 224 | 2.2% |
| $35,000-39,999 | 349 | 3.6% | 309 | 3.0% |
| $40,000-44,999 | 205 | 2.1% | 182 | 1.8% |
| $45,000-49,999 | 269 | 2.8% | 245 | 2.4% |
| $50,000-59,999 | 522 | 5.4% | 482 | 4.8% |
| $60,000-74,999 | 675 | 7.0% | 652 | 6.4% |
| $75000-99999 | 1,266 | 13.1% | 1,316 | 13.0% |
| $100,000-124,999 | 1,145 | 11.8% | 1,221 | 12.0% |
| $125,000-149,999 | 833 | 8.6% | 937 | 9.2% |
| $150000-199999 | 1,262 | 13.1% | 1,458 | 14.4% |
| $200,000-249,999 | 559 | 5.8% | 683 | 6.7% |
| $250,000-299,999 | 373 | 3.9% | 473 | 4.7% |
| $300,000-399,999 | 308 | 3.2% | 406 | 4.0% |
| $400,000-499,999 | 76 | 0.8% | 115 | 1.1% |
| $500,000+ | 152 | 1.6% | 183 | 1.8% |
| Median Household Income | $96,921 | - | $106,967 | - |
| Average Household Income | $123,035 | - | $135,443 | - |
| Per Capita Income | $50,479 | - | $56,365 | - |

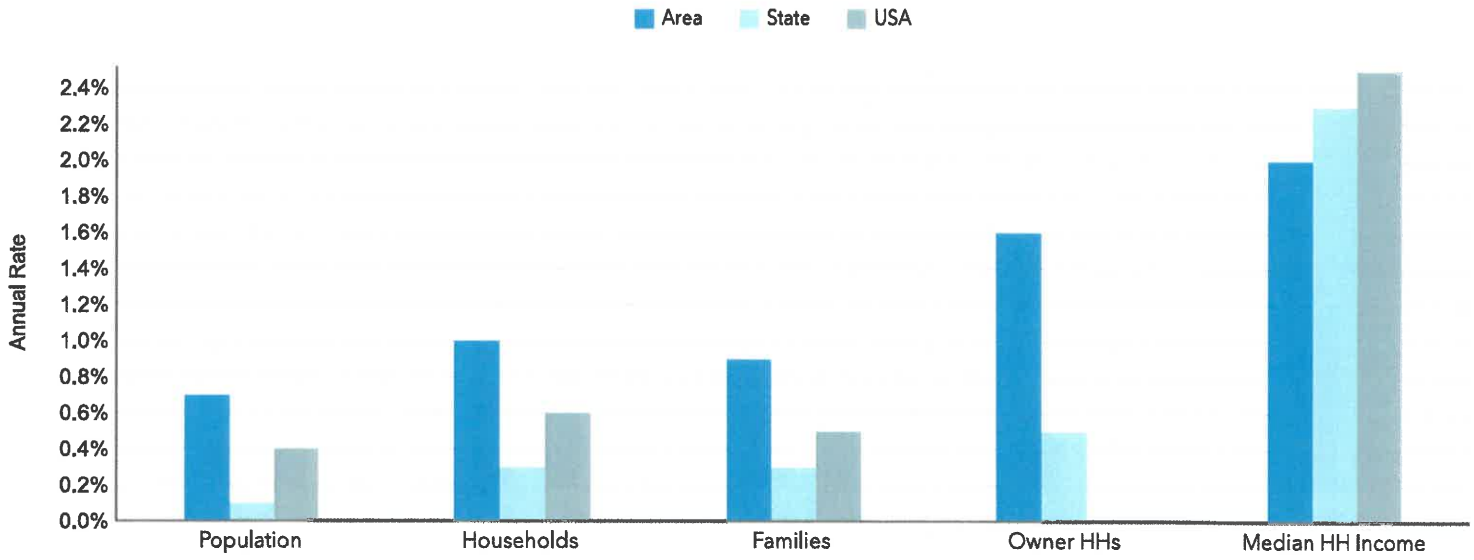
| Race and Ethnicity | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| White Alone | 12,713 | 65.5% | 12,784 | 61.9% | 12,707 | 59.5% |
| Black Alone | 546 | 2.8% | 654 | 3.2% | 690 | 3.2% |
| American Indian | 141 | 0.7% | 151 | 0.7% | 156 | 0.7% |
| Asian Alone | 2,291 | 11.8% | 2,834 | 13.7% | 3,184 | 14.9% |
| Pacific Islander | 73 | 0.4% | 87 | 0.4% | 97 | 0.5% |
| Some Other Race | 1,126 | 5.8% | 1,276 | 6.2% | 1,401 | 6.6% |
| Two or More Races | 2,507 | 12.9% | 2,853 | 13.8% | 3,119 | 14.6% |
| Hispanic (Any Race) | 3,259 | 16.8% | 3,671 | 17.8% | 4,017 | 18.8% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

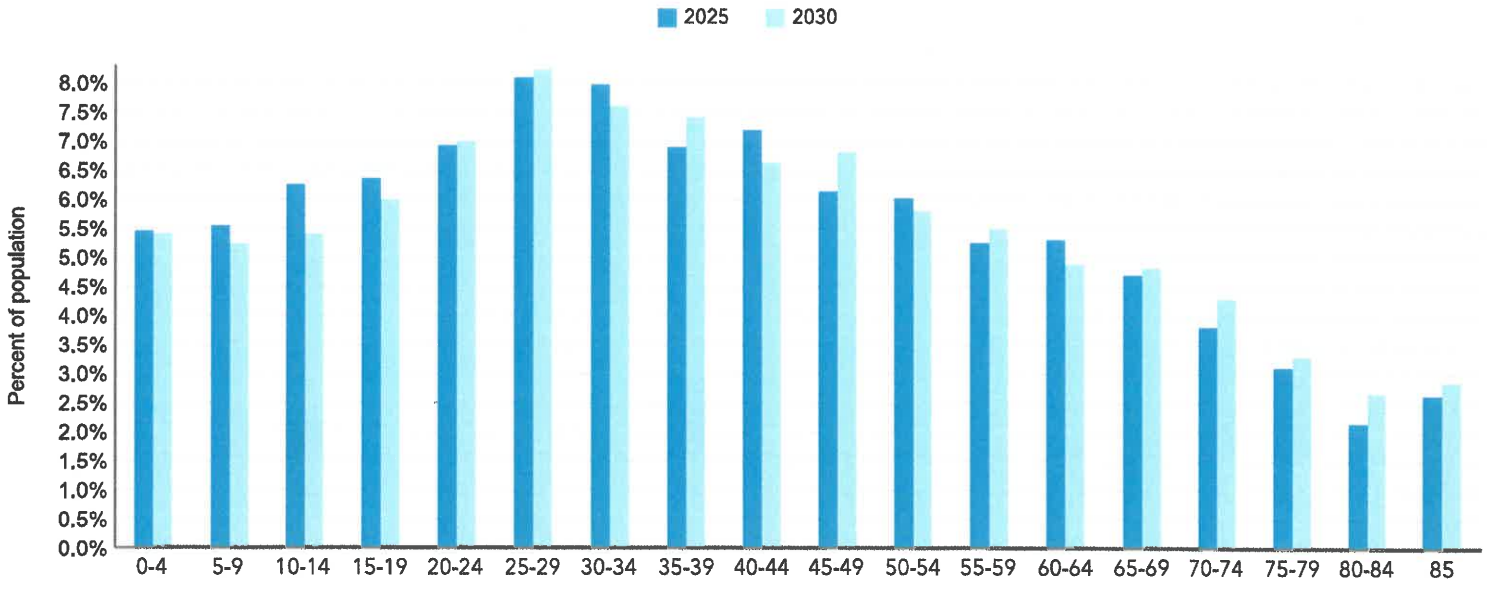
## Key Indicators for 2025

| 20,639 | 9,663 | 2.10 | 37.4 | 15,160 |
|---|---|---|---|---|
| Total Population | Total Households | Average Household Size | Median Age | Daytime Population |

## Trends: 2025 - 2030 Annual Rate




## Population by Age

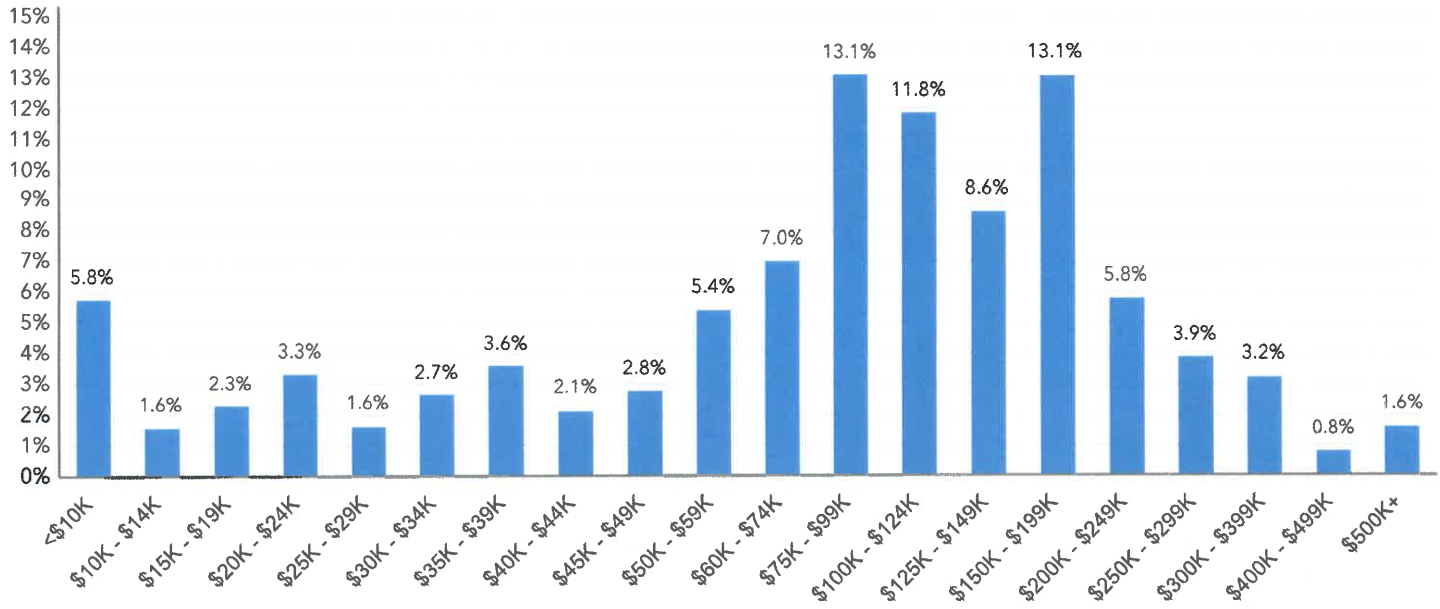



Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

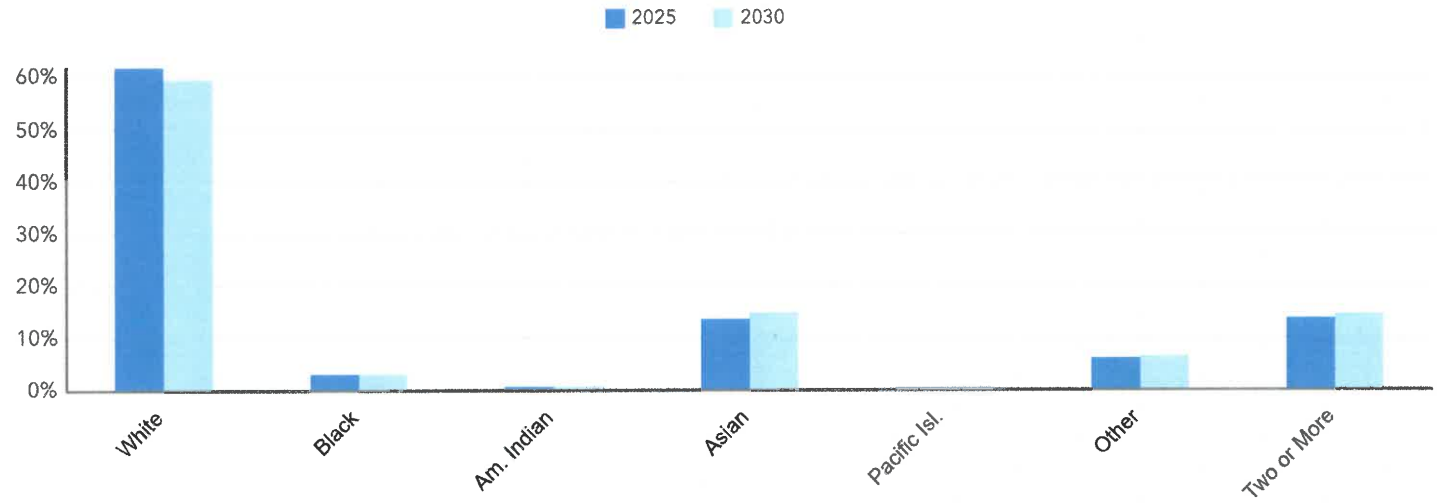
## Key Indicators for 2025

| $96,921 | $127,555 | 89 | 56 | 70 |
|---|---|---|---|---|
| Median Household Income | Median Net Worth | Esri Wealth Index | Esri Housing Affordability Index | Esri Diversity Index |

## Households by Income for 2025




## Population by Race




Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

# Demographic and Income Profile

Del Webb/Springfield

| Summary | Census 2020 | 2025 | 2030 |
|---|---|---|---|
| Total Population | 2,913 | 2,818 | 2,808 |
| Total Households | 1,674 | 1,668 | 1,689 |
| Family Households | 973 | 924 | 883 |
| Average Household Size | 1.74 | 1.69 | 1.66 |
| Owner Occupied Housing Units | 1,449 | 1,450 | 1,477 |
| Renter Occupied Housing Units | 225 | 218 | 212 |
| Median Age | 71.6 | 72.7 | 73.7 |

| Trends 2025 - 2030 | Area | State | National |
|---|---|---|---|
| Population | -0.1% | 0.1% | 0.4% |
| Households | 0.3% | 0.3% | 0.6% |
| Family Population | -0.9% | 0.3% | 0.5% |
| Owner Occupied Housing Units | 0.4% | 0.5% | 0.0% |
| Median Household Income | 1.8% | 2.3% | 2.5% |

| Population by Age | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| 0-4 | 34 | 1.2% | 37 | 1.3% | 39 | 1.4% |
| 5-9 | 55 | 1.9% | 44 | 1.6% | 45 | 1.6% |
| 10-14 | 79 | 2.7% | 64 | 2.3% | 50 | 1.8% |
| 15-19 | 102 | 3.5% | 79 | 2.8% | 62 | 2.2% |
| 20-24 | 43 | 1.5% | 72 | 2.6% | 57 | 2.0% |
| 25-29 | 20 | 0.7% | 47 | 1.7% | 80 | 2.9% |
| 30-34 | 22 | 0.8% | 28 | 1.0% | 61 | 2.2% |
| 35-39 | 53 | 1.8% | 35 | 1.2% | 40 | 1.4% |
| 40-44 | 60 | 2.1% | 64 | 2.3% | 42 | 1.5% |
| 45-49 | 84 | 2.9% | 70 | 2.5% | 74 | 2.6% |
| 50-54 | 105 | 3.6% | 87 | 3.1% | 74 | 2.6% |
| 55-59 | 154 | 5.3% | 131 | 4.7% | 108 | 3.9% |
| 60-64 | 196 | 6.7% | 200 | 7.1% | 164 | 5.8% |
| 65-69 | 319 | 10.9% | 260 | 9.2% | 278 | 9.9% |
| 70-74 | 403 | 13.8% | 355 | 12.6% | 312 | 11.1% |
| 75-79 | 439 | 15.1% | 421 | 14.9% | 400 | 14.3% |
| 80-84 | 383 | 13.2% | 409 | 14.5% | 420 | 15.0% |
| Age 85+ | 362 | 12.4% | 416 | 14.8% | 503 | 17.9% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

| Households by Income | 2025 | | 2030 | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| <$10,000 | 54 | 3.2% | 49 | 2.9% |
| $10,000-14,999 | 14 | 0.8% | 10 | 0.6% |
| $15,000-19,999 | 23 | 1.4% | 17 | 1.0% |
| $20,000-24,999 | 103 | 6.2% | 89 | 5.3% |
| $25,000-29,999 | 24 | 1.4% | 20 | 1.2% |
| $30,000-34,999 | 47 | 2.8% | 40 | 2.4% |
| $35,000-39,999 | 57 | 3.4% | 48 | 2.8% |
| $40,000-44,999 | 48 | 2.9% | 42 | 2.5% |
| $45,000-49,999 | 40 | 2.4% | 34 | 2.0% |
| $50,000-59,999 | 78 | 4.7% | 72 | 4.3% |
| $60,000-74,999 | 128 | 7.7% | 121 | 7.2% |
| $75000-99999 | 265 | 15.9% | 270 | 16.0% |
| $100,000-124,999 | 190 | 11.4% | 201 | 11.9% |
| $125,000-149,999 | 110 | 6.6% | 125 | 7.4% |
| $150000-199999 | 233 | 14.0% | 257 | 15.2% |
| $200,000-249,999 | 94 | 5.6% | 104 | 6.2% |
| $250,000-299,999 | 63 | 3.8% | 75 | 4.4% |
| $300,000-399,999 | 60 | 3.6% | 70 | 4.1% |
| $400,000-499,999 | 11 | 0.7% | 16 | 0.9% |
| $500,000+ | 27 | 1.6% | 28 | 1.7% |
| Median Household Income | $94,469 | - | $103,237 | - |
| Average Household Income | $124,847 | - | $134,515 | - |
| Per Capita Income | $69,975 | - | $76,655 | - |

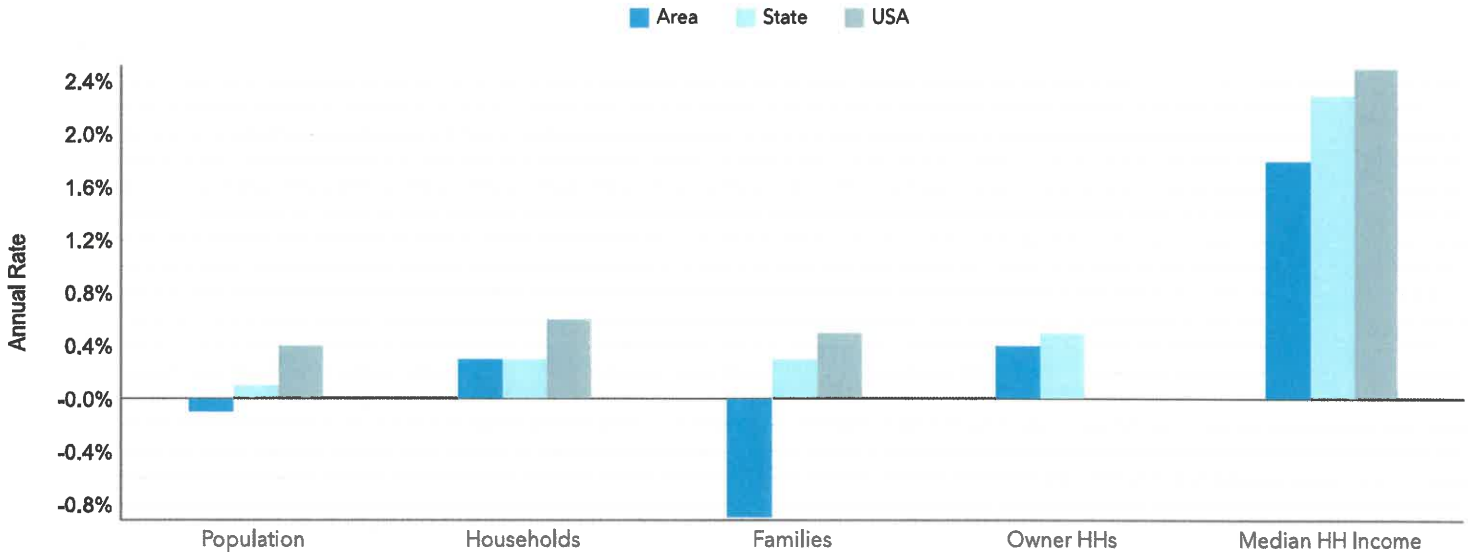
| Race and Ethnicity | Census 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| White Alone | 2,457 | 84.3% | 2,314 | 82.1% | 2,259 | 80.5% |
| Black Alone | 24 | 0.8% | 27 | 1.0% | 28 | 1.0% |
| American Indian | 5 | 0.2% | 5 | 0.2% | 5 | 0.2% |
| Asian Alone | 160 | 5.5% | 184 | 6.5% | 204 | 7.3% |
| Pacific Islander | 4 | 0.1% | 5 | 0.2% | 5 | 0.2% |
| Some Other Race | 41 | 1.4% | 44 | 1.6% | 47 | 1.7% |
| Two or More Races | 222 | 7.6% | 240 | 8.5% | 259 | 9.2% |
| Hispanic (Any Race) | 209 | 7.2% | 224 | 7.9% | 243 | 8.7% |

Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

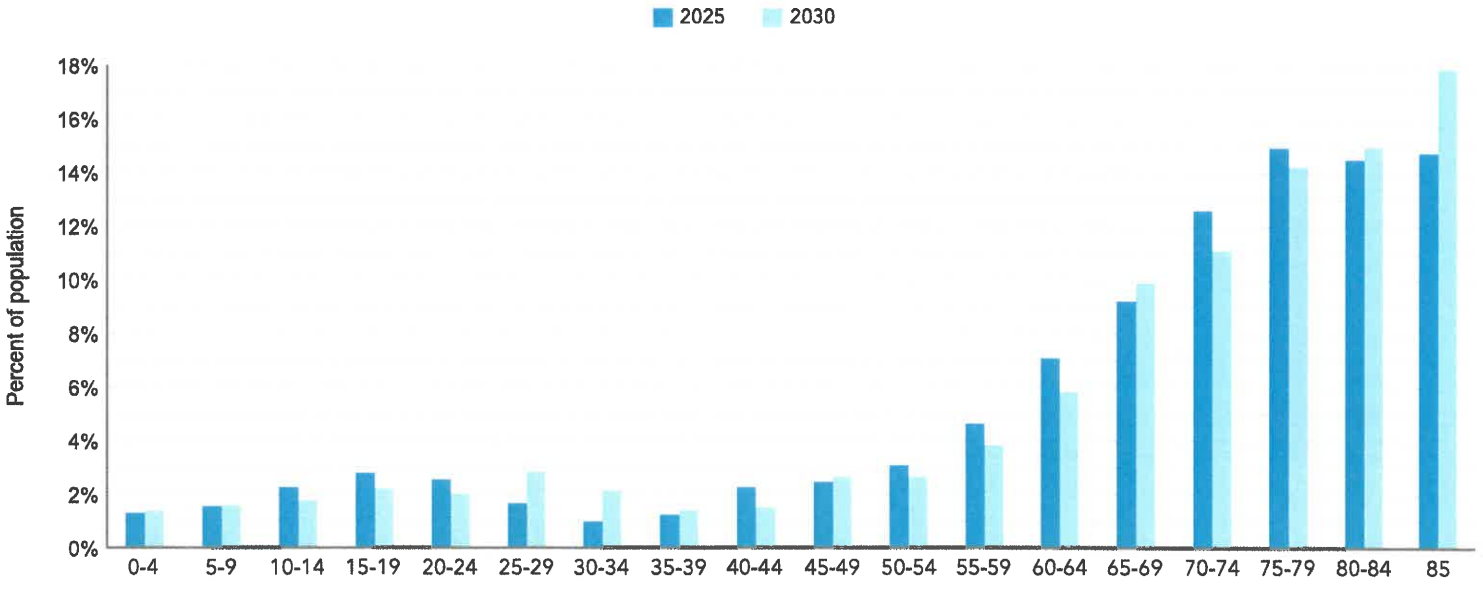
## Key Indicators for 2025

| 2,818 | 1,668 | 1.69 | 72.7 | 2,300 |
|---|---|---|---|---|
| Total Population | Total Households | Average Household Size | Median Age | Daytime Population |

## Trends: 2025 - 2030 Annual Rate




## Population by Age

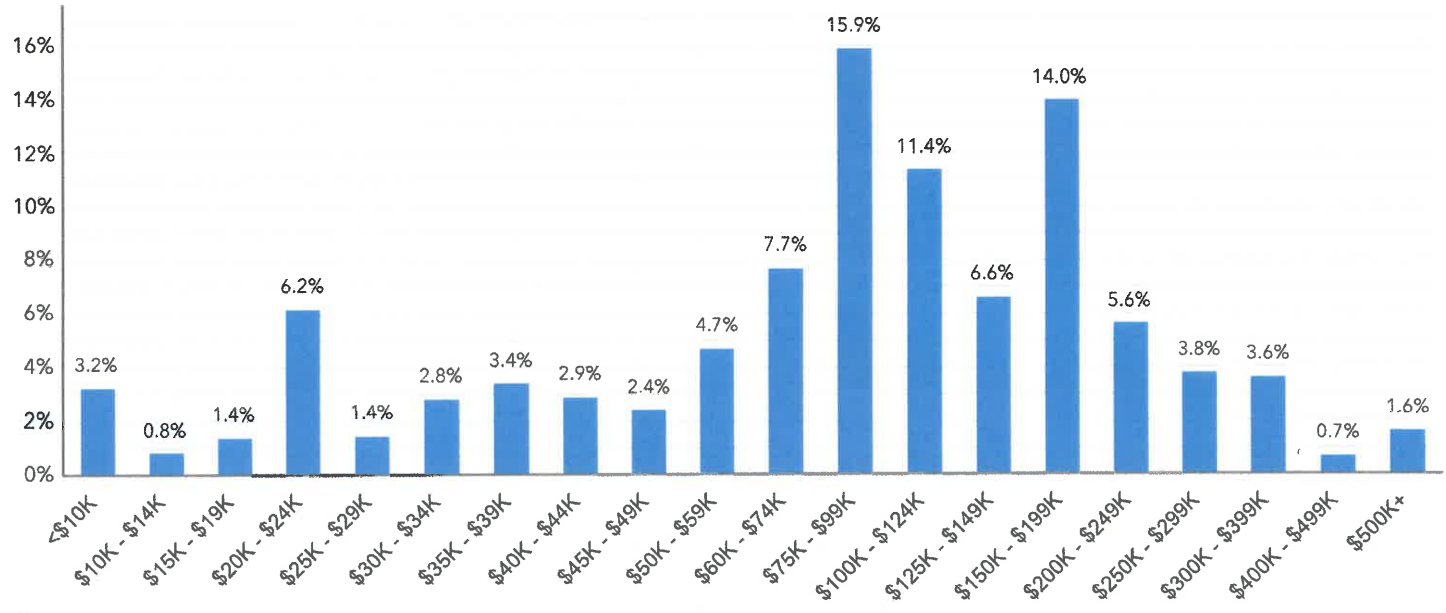



Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

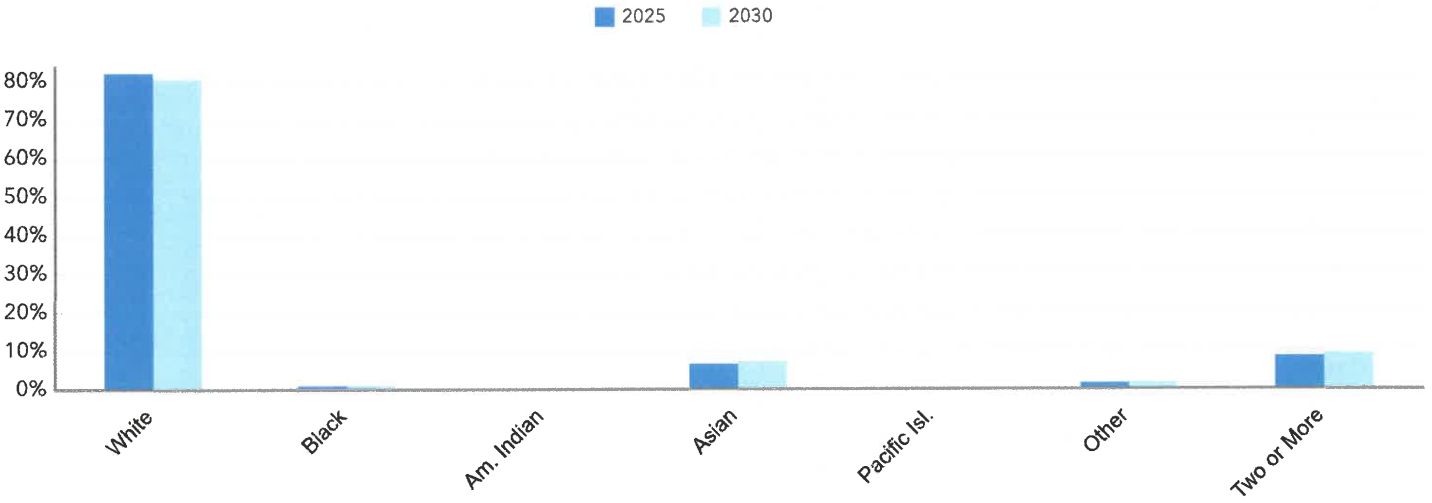
## Key Indicators for 2025

| $94,469 | $829,581 | 168 | 53 | 42 |
|---|---|---|---|---|
| Median Household Income | Median Net Worth | Esri Wealth Index | Esri Housing Affordability Index | Esri Diversity Index |

## Households by Income for 2025




## Population by Race




Source: Esri forecasts for 2025 and 2030. U.S. Census Bureau 2020 decennial Census data

# Attachment 2: ACS Population Summaries

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# ACS Population Summary

Single-Family Housing

| Totals | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total Population | 92,340 | | 63 | |
| Total Households | 31,956 | | 19 | |
| Total Housing Units | 32,867 | | 19 | |
| **Household Size and Type** | | | | |
| Households with Pop 65+ | 10,489 | 32.8% | 13 | |
| 1-Person | 3,114 | 9.7% | 14 | |
| 2+ Person Family | 7,078 | 22.1% | 13 | |
| 2+ Person Nonfamily | 297 | 0.9% | 10 | |
| Households with No Pop 65+ | 21,468 | 67.2% | 18 | |
| 1-Person | 2,785 | 8.7% | 21 | |
| 2+ Person Family | 17,410 | 54.5% | 17 | |
| 2+ Person Nonfamily | 1,273 | 4.0% | 13 | |
| **Household Type by Relatives and Non-relatives** | | | | |
| Total | 91,512 | 100.0% | 63 | |
| In Family Households | 81,496 | 89.1% | 66 | |
| In Married-Couple Family | 68,880 | 75.3% | 65 | |
| Relatives | 68,498 | 74.9% | 65 | |
| Nonrelatives | 382 | 0.4% | 13 | |
| In Male Householder-No Spouse Present-Family | 3,785 | 4.1% | 40 | |
| Relatives | 3,444 | 3.8% | 35 | |
| Nonrelatives | 340 | 0.4% | 22 | |
| In Female Householder-No Spouse Present | 8,831 | 9.7% | 37 | |
| Relatives | 8,230 | 9.0% | 34 | |
| Nonrelatives | 602 | 0.7% | 18 | |
| In Nonfamily Households | 10,016 | 10.9% | 26 | |
| **Households by Disability Status** | | | | |
| Total | 31,956 | 100.0% | 19 | |
| With 1+ Persons w/Disability | 6,863 | 21.5% | 12 | |
| With No Person w/Disability | 25,093 | 78.5% | 19 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

## ACS Population Summary | Single-Family Housing |

| Population Age 3+ by School Enrollment | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 89,586 | 100.0% | 61 | |
| Enrolled in school | 23,965 | 26.8% | 34 | |
| Enrolled in nursery school, preschool | 1,114 | 1.2% | 15 | |
| Public school | 610 | 0.7% | 15 | |
| Private school | 504 | 0.6% | 15 | |
| Enrolled in kindergarten | 1,294 | 1.4% | 12 | |
| Public school | 1,117 | 1.2% | 12 | |
| Private school | 177 | 0.2% | 12 | |
| Enrolled in grade 1 to grade 4 | 4,636 | 5.2% | 17 | |
| Public school | 4,271 | 4.8% | 17 | |
| Private school | 365 | 0.4% | 12 | |
| Enrolled in grade 5 to grade 8 | 5,365 | 6.0% | 24 | |
| Public school | 4,860 | 5.4% | 25 | |
| Private school | 504 | 0.6% | 18 | |
| Enrolled in grade 9 to grade 12 | 5,692 | 6.4% | 17 | |
| Public school | 5,329 | 5.9% | 16 | |
| Private school | 363 | 0.4% | 30 | |
| Enrolled in college undergraduate years | 4,821 | 5.4% | 19 | |
| Public school | 3,948 | 4.4% | 14 | |
| Private school | 872 | 1.0% | 22 | |
| Enrolled in graduate or professional school | 1,044 | 1.2% | 14 | |
| Public school | 541 | 0.6% | 12 | |
| Private school | 503 | 0.6% | 12 | |
| Not enrolled in school | 65,621 | 73.2% | 34 | |
| **Households by Presence of People Under 18 by Household Type** | | | | |
| Households with one or more people under 18 years | 11,854 | 37.1% | 16 | |
| Family households | 11,739 | 36.7% | 16 | |
| Married-couple family | 9,459 | 29.6% | 16 | |
| Male householder, no wife present | 745 | 2.3% | 11 | |
| Female householder, no husband present | 1,535 | 4.8% | 11 | |
| Nonfamily households | 115 | 0.4% | 15 | |
| Households with no people under 18 years | 20,102 | 62.9% | 18 | |
| Married-couple family | 10,996 | 34.4% | 14 | |
| Other family | 1,752 | 5.5% | 14 | |
| Nonfamily households | 7,354 | 23.0% | 17 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

## ACS Population Summary | Single-Family Housing |

| Households by Poverty Status | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 31,956 | 100.0% | 19 | |
| Income in the past 12 months below poverty level | 1,876 | 5.9% | 25 | |
| Married-couple family | 516 | 1.6% | 11 | |
| Other-Male householder (no wife present) | 119 | 0.4% | 29 | |
| Female householder (no husband present) | 287 | 0.9% | 19 | |
| Nonfamily household - male householder | 396 | 1.2% | 95 | |
| Nonfamily household - female householder | 557 | 1.7% | 13 | |
| Income past 12 months at or above poverty level | 30,081 | 94.1% | 18 | |
| Married-couple family | 19,939 | 62.4% | 17 | |
| Other-Male householder (no wife present) | 1,176 | 3.7% | 12 | |
| Female householder (no husband present) | 2,450 | 7.7% | 13 | |
| Nonfamily household - male householder | 2,581 | 8.1% | 13 | |
| Nonfamily household - female householder | 3,935 | 12.3% | 12 | |
| Poverty Index | 47 | | | |

| Households by Public Assistance and Other Income | | | | |
|---|---|---|---|---|
| Total | 31,956 | 100.0% | 19 | |
| With public assistance income | 666 | 2.1% | 10 | |
| No public assistance income | 31,290 | 97.9% | 19 | |
| With Food Stamps/SNAP | 1,328 | 4.2% | 16 | |
| With No Food Stamps/SNAP | 30,628 | 95.8% | 19 | |
| Social Security Income | 9,714 | 30.4% | 13 | |
| No Social Security Income | 22,242 | 69.6% | 18 | |
| Retirement Income | 9,265 | 29.0% | 17 | |
| No Retirement Income | 22,691 | 71.0% | 18 | |

| Population by Ratio of Income to Poverty | | | | |
|---|---|---|---|---|
| Total | 91,833 | 100.0% | 63 | |
| Under .50 | 2,441 | 2.7% | 28 | |
| .50 to .99 | 2,415 | 2.6% | 33 | |
| 1.00 to 1.24 | 1,869 | 2.0% | 60 | |
| 1.25 to 1.49 | 1,510 | 1.6% | 47 | |
| 1.50 to 1.84 | 2,315 | 2.5% | 42 | |
| 1.85 to 1.99 | 1,384 | 1.5% | 52 | |
| 2.00 and over | 79,899 | 87.0% | 64 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Single-Family Housing |

| Households by Type and Size | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Family Households | 24,488 | 76.6% | 18 | |
| 2-Person | 9,687 | 30.3% | 13 | |
| 3-Person | 5,842 | 18.3% | 14 | |
| 4-Person | 5,241 | 16.4% | 13 | |
| 5-Person | 2,625 | 8.2% | 15 | |
| 6-Person | 847 | 2.7% | 19 | |
| 7+ Person | 246 | 0.8% | 20 | |
| Nonfamily Households | 7,469 | 23.4% | 17 | |
| 1-Person | 5,898 | 18.5% | 19 | |
| 2-Person | 1,236 | 3.9% | 12 | |
| 3-Person | 294 | 0.9% | 15 | |
| 4-Person | 13 | 0.0% | 20 | |
| 5-Person | 14 | 0.0% | 21 | |
| 6-Person | 0 | 0.0% | 0 | |
| 7+ Person | 14 | 0.0% | 42 | |
| **Population Age 5 to 17 by Language Spoken** | | | | |
| Speak only English | 14,786 | 16.9% | 33 | |
| Speak Spanish | 778 | 0.9% | 98 | |
| Speak English "very well" or "well" | 709 | 0.8% | 63 | |
| Speak English "not well" | 67 | 0.1% | 50 | |
| Speak English "not at all" | 2 | 0.0% | 10 | |
| Speak other Indo-European languages | 965 | 1.1% | 26 | |
| Speak English "very well" or "well" | 930 | 1.1% | 27 | |
| Speak English "not well" | 34 | 0.0% | 20 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak Asian and Pacific Island languages | 489 | 0.6% | 21 | |
| Speak English "very well" or "well" | 394 | 0.5% | 17 | |
| Speak English "not well" | 70 | 0.1% | 30 | |
| Speak English "not at all" | 25 | 0.0% | 50 | |
| Speak other languages | 155 | 0.2% | 51 | |
| Speak English "very well" or "well" | 141 | 0.2% | 51 | |
| Speak English "not well" | 15 | 0.0% | 45 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |

## ACS Population Summary | Single-Family Housing |

| Population Age 18 to 64 by Language Spoken | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Speak only English | 44,337 | 50.7% | 39 | |
| Speak Spanish | 2,865 | 3.3% | 24 | |
| Speak English "very well" or "well" | 2,550 | 2.9% | 21 | |
| Speak English "not well" | 197 | 0.2% | 24 | |
| Speak English "not at all" | 118 | 0.1% | 67 | |
| Speak other Indo-European languages | 3,928 | 4.5% | 28 | |
| Speak English "very well" or "well" | 3,636 | 4.2% | 26 | |
| Speak English "not well" | 265 | 0.3% | 15 | |
| Speak English "not at all" | 27 | 0.0% | 38 | |
| Speak Asian and Pacific Island languages | 3,160 | 3.6% | 29 | |
| Speak English "very well" or "well" | 2,920 | 3.3% | 25 | |
| Speak English "not well" | 214 | 0.2% | 29 | |
| Speak English "not at all" | 25 | 0.0% | 18 | |
| Speak other languages | 620 | 0.7% | 27 | |
| Speak English "very well" or "well" | 613 | 0.7% | 26 | |
| Speak English "not well" | 7 | 0.0% | 18 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| **Population Age 65+ by Language Spoken** | | | | |
| Speak only English | 12,817 | 14.7% | 17 | |
| Speak Spanish | 856 | 1.0% | 36 | |
| Speak English "very well" or "well" | 762 | 0.9% | 23 | |
| Speak English "not well" | 78 | 0.1% | 57 | |
| Speak English "not at all" | 16 | 0.0% | 53 | |
| Speak other Indo-European languages | 766 | 0.9% | 16 | |
| Speak English "very well" or "well" | 541 | 0.6% | 16 | |
| Speak English "not well" | 92 | 0.1% | 15 | |
| Speak English "not at all" | 133 | 0.2% | 26 | |
| Speak Asian and Pacific Island languages | 899 | 1.0% | 11 | |
| Speak English "very well" or "well" | 656 | 0.7% | 12 | |
| Speak English "not well" | 169 | 0.2% | 10 | |
| Speak English "not at all" | 73 | 0.1% | 15 | |
| Speak other languages | 51 | 0.1% | 8 | |
| Speak English "very well" or "well" | 40 | 0.0% | 9 | |
| Speak English "not well" | 9 | 0.0% | 9 | |
| Speak English "not at all" | 2 | 0.0% | 14 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

**Workers Age 16+ By Means of Transportation**

| | | | | |
|---|---|---|---|---|
| Total | 43,598 | 100.0% | 36 | |
| Drove alone | 30,114 | 69.1% | 30 | |
| Carpooled | 2,571 | 5.9% | 12 | |
| Public transportation (excluding taxicab) | 305 | 0.7% | 17 | |
| Bus or trolley bus | 258 | 0.6% | 19 | |
| Light rail, streetcar or trolley | 7 | 0.0% | 32 | |
| Subway or elevated | 2 | 0.0% | 8 | |
| Long-distance/Commuter Train | 37 | 0.1% | 41 | |
| Ferryboat | 0 | 0.0% | 0 | |
| Taxicab | 64 | 0.1% | 53 | |
| Motorcycle | 124 | 0.3% | 21 | |
| Bicycle | 73 | 0.2% | 11 | |
| Walked | 343 | 0.8% | 12 | |
| Other means | 359 | 0.8% | 10 | |
| Worked at home | 9,644 | 22.1% | 19 | |

**Workers Age 16+ By Travel Time to Work**

| | | | | |
|---|---|---|---|---|
| Less than 5 minutes | 857 | 2.5% | 15 | |
| 5 to 9 minutes | 2,734 | 8.1% | 13 | |
| 10 to 14 minutes | 5,081 | 15.0% | 17 | |
| 15 to 19 minutes | 5,800 | 17.1% | 17 | |
| 20 to 24 minutes | 4,224 | 12.4% | 16 | |
| 25 to 29 minutes | 2,182 | 6.4% | 18 | |
| 30 to 34 minutes | 4,609 | 13.6% | 15 | |
| 35 to 39 minutes | 1,253 | 3.7% | 13 | |
| 40 to 44 minutes | 1,419 | 4.2% | 14 | |
| 45 to 59 minutes | 2,952 | 8.7% | 17 | |
| 60 to 89 minutes | 1,417 | 4.2% | 14 | |
| 90 or more minutes | 1,427 | 4.2% | 20 | |
| Average Travel Time to Work (in minutes) | N/A | | N/A | |

## ACS Population Summary | Single-Family Housing |

| Workers Age16+ by Place of Work | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 43,598 | 100.0% | 36 | |
| Worked in state and in county of residence | 28,864 | 66.2% | 29 | |
| Worked in state and outside county of residence | 14,480 | 33.2% | 24 | |
| Worked outside state of residence | 253 | 0.6% | 14 | |
| **Sex by Class of Worker** | | | | |
| Total | 44,363 | 100.0% | 36 | |
| Male | 23,510 | 53.0% | 22 | |
| Employee of private company workers | 15,146 | 34.1% | 20 | |
| Self-employed in own incorporated business | 1,559 | 3.5% | 12 | |
| Private not-for-profit wage and salary workers | 1,381 | 3.1% | 16 | |
| Local government workers | 1,695 | 3.8% | 11 | |
| State government workers | 1,840 | 4.1% | 11 | |
| Federal government workers | 395 | 0.9% | 15 | |
| Self-employed in own not incorporated business | 1,460 | 3.3% | 10 | |
| Unpaid family workers | 34 | 0.1% | 17 | |
| Female | 20,854 | 47.0% | 21 | |
| Employee of private company workers | 11,546 | 26.0% | 18 | |
| Self-employed in own incorporated business | 737 | 1.7% | 9 | |
| Private not-for-profit wage and salary workers | 2,590 | 5.8% | 15 | |
| Local government workers | 2,455 | 5.5% | 9 | |
| State government workers | 1,749 | 3.9% | 14 | |
| Federal government workers | 226 | 0.5% | 13 | |
| Self-employed in own not incorporated business | 1,545 | 3.5% | 10 | |
| Unpaid family workers | 6 | 0.0% | 15 | |
| **Gross Rent as a Percentage of Household Income** | | | | |
| <10% of Income | 198 | 3.0% | 20 | |
| 10-14.9% of Income | 324 | 4.9% | 13 | |
| 15-19.9% of Income | 710 | 10.6% | 9 | |
| 20-24.9% of Income | 905 | 13.6% | 13 | |
| 25-29.9% of Income | 784 | 11.7% | 12 | |
| 30-34.9% of Income | 681 | 10.2% | 14 | |
| 35-39.9% of Income | 427 | 6.4% | 15 | |
| 40-49.9% of Income | 734 | 11.0% | 12 | |
| 50+% of Income | 1,574 | 23.6% | 12 | |
| Gross Rent % Inc Not Computed | 337 | 5.0% | 9 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Single-Family Housing |

| Females Age 20-64 by Age of Children | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 26,274 | 100.0% | 21 | |
| Own children under 6 years only | 2,155 | 8.2% | 14 | |
| In labor force | 1,549 | 5.9% | 17 | |
| Not in labor force | 606 | 2.3% | 15 | |
| Own children under 6 years and 6 to 17 years | 1,777 | 6.8% | 12 | |
| In labor force | 1,168 | 4.4% | 11 | |
| Not in labor force | 609 | 2.3% | 10 | |
| Own children 6 to 17 years only | 6,880 | 26.2% | 13 | |
| In labor force | 5,239 | 19.9% | 12 | |
| Not in labor force | 1,641 | 6.2% | 12 | |
| No own children under 18 years | 15,462 | 58.8% | 19 | |
| In labor force | 11,611 | 44.2% | 19 | |
| Not in labor force | 3,852 | 14.7% | 15 | |
| **Population and Presence of a Computer** | | | | |
| Total | 91,512 | 100.0% | 63 | |
| Population <18 in Households | 22,026 | 24.1% | 28 | |
| Have a Computer | 21,794 | 23.8% | 36 | |
| Have No Computer | 232 | 0.3% | 87 | |
| Population 18-64 in Households | 54,469 | 59.5% | 42 | |
| Have a Computer | 54,016 | 59.0% | 42 | |
| Have No Computer | 453 | 0.5% | 75 | |
| Population 65+ in Households | | | | |
| Have a Computer | 14,426 | 15.8% | 18 | |
| Have No Computer | 591 | 0.6% | 17 | |
| **Households and Internet Subscriptions** | | | | |
| Total | 31,956 | 100.0% | 19 | |
| With an Internet Subscription | 30,593 | 95.7% | 19 | |
| Dial-Up Alone | 19 | 0.1% | 12 | |
| Broadband | 27,114 | 84.8% | 18 | |
| Satellite Service | 2,975 | 9.3% | 13 | |
| Other Service | 263 | 0.8% | 14 | |
| Internet Access with no Subscription | 469 | 1.5% | 17 | |
| With No Internet Access | 894 | 2.8% | 15 | |

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Under 19 years: | 23,357 | 25.4% | 37 | |
| One Type of Health Insurance: | 20,809 | 22.6% | 37 | |
| Employer-Based Health Ins Only | 16,188 | 17.6% | 35 | |
| Direct-Purchase Health Ins Only | 1,757 | 1.9% | 35 | |
| Medicare Coverage Only | 12 | 0.0% | 11 | |
| Medicaid Coverage Only | 2,547 | 2.8% | 35 | |
| TRICARE/Military Hlth Cov Only | 305 | 0.3% | 79 | |
| VA Health Care Only | 0 | 0.0% | 0 | |
| 2+ Types of Health Insurance | 1,915 | 2.1% | 21 | |
| No Health Insurance Coverage | 634 | 0.7% | 56 | |

| Health Insurance Coverage by Age | | | | |
|---|---|---|---|---|
| 19 to 34 years: | 14,874 | 16.2% | 29 | |
| One Type of Health Insurance: | 12,878 | 14.0% | 28 | |
| Employer-Based Health Ins Only | 9,625 | 10.5% | 28 | |
| Direct-Purchase Health Ins Only | 1,411 | 1.5% | 20 | |
| Medicare Coverage Only | 33 | 0.0% | 12 | |
| Medicaid Coverage Only | 1,675 | 1.8% | 17 | |
| TRICARE/Military Hlth Cov Only | 112 | 0.1% | 29 | |
| VA Health Care Only | 21 | 0.0% | 52 | |
| 2+ Types of Health Insurance | 1,267 | 1.4% | 22 | |
| No Health Insurance Coverage | 730 | 0.8% | 21 | |

| Health Insurance Coverage by Age | | | | |
|---|---|---|---|---|
| 35 to 64 years: | 38,471 | 41.8% | 31 | |
| One Type of Health Insurance: | 34,351 | 37.3% | 30 | |
| Employer-Based Health Ins Only | 28,237 | 30.7% | 28 | |
| Direct-Purchase Health Ins Only | 3,374 | 3.7% | 20 | |
| Medicare Coverage Only | 281 | 0.3% | 29 | |
| Medicaid Coverage Only | 2,122 | 2.3% | 16 | |
| TRICARE/Military Hlth Cov Only | 267 | 0.3% | 16 | |
| VA Health Care Only | 69 | 0.1% | 14 | |
| 2+ Types of Health Insurance | 3,177 | 3.5% | 17 | |
| No Health Insurance Coverage | 943 | 1.0% | 15 | |

 

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| 65+ years: | 15,271 | 16.6% | 19 | |
| One Type of Health Insurance: | 4,469 | 4.9% | 12 | |
| Employer-Based Health Ins Only | 652 | 0.7% | 10 | |
| Direct-Purchase Health Ins Only | 56 | 0.1% | 11 | |
| Medicare Coverage Only | 3,759 | 4.1% | 13 | |
| TRICARE/Military Hlth Cov Only | 0 | 0.0% | 0 | |
| VA Health Care Only | 1 | 0.0% | 4 | |
| 2+ Types of Health Insurance: | 10,733 | 11.7% | 19 | |
| Employer-Based & Direct-Purchase Insurance | 11 | 0.0% | 19 | |
| Employer-Based Health & Medicare Insurance | 3,947 | 4.3% | 16 | |
| Direct-Purchase Health & Medicare Insurance | 2,649 | 2.9% | 20 | |
| Medicare & Medicaid Coverage | 917 | 1.0% | 11 | |
| Other Private Health Insurance Combos | 2 | 0.0% | 12 | |
| Other Public Health Insurance Combos | 214 | 0.2% | 15 | |
| Other Health Insurance Combinations | 2,992 | 3.3% | 13 | |
| No Health Insurance Coverage | 69 | 0.1% | 11 | |

| Civilian Population Age18+ by Vetran Status | | | | |
|---|---|---|---|---|
| Total | 70,111 | 100.0% | 43 | |
| Veteran | 4,826 | 6.9% | 12 | |
| Nonveteran | 65,285 | 93.1% | 43 | |
| Male | 34,021 | 48.5% | 26 | |
| Veteran | 4,460 | 6.4% | 11 | |
| Nonveteran | 29,561 | 42.2% | 25 | |
| Female | 36,090 | 51.5% | 25 | |
| Veteran | 366 | 0.5% | 24 | |
| Nonveteran | 35,724 | 51.0% | 25 | |

Source: U.S. Census 2019-2023 American Community Survey. **Data Note:** N/A means not available. Ratio of Income to Poverty Level represents persons for whom poverty status is determined. Household income represents income in 2023, adjusted for inflation.

**Margin of error (MOE)**: The MOE is a measure of the variability of the estimate due to sampling error. MOEs enable the data user to measure the range of uncertainty for each estimate with 90 percent confidence. The range of uncertainty is called the confidence interval, and it is calculated by taking the estimate +/- the MOE. For example, if the ACS reports an estimate of 100 with an MOE of +/- 20, then you can be 90 percent certain the value for the whole population falls between 80 and 120.

**Reliability**: Symbols represent threshold values Esri has established from the Coefficients of Variation (CV) to designate the usability of the estimates. The CV measures the amount of sampling error relative to the size of the estimate, expressed as a percentage.

- High Reliability: Small CVs (less than or equal to 12 percent) are flagged green and are considered reasonably reliable.
- Medium Reliability: Estimates with CVs between 12 and 40 are flagged yellow and should be used with caution.
- Low Reliability: Large CVs (over 40 percent) are flagged red and are considered very unreliable.

# ACS Population Summary

Multi-Family Housing

| Totals | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total Population | 18,926 | | 264 | |
| Total Households | 8,977 | | 130 | |
| Total Housing Units | 9,558 | | 137 | |
| **Household Size and Type** | | | | |
| Households with Pop 65+ | 2,556 | 28.5% | 54 | |
| 1-Person | 1,184 | 13.2% | 43 | |
| 2+ Person Family | 1,306 | 14.5% | 45 | |
| 2+ Person Nonfamily | 65 | 0.7% | 19 | |
| Households with No Pop 65+ | 6,421 | 71.5% | 124 | |
| 1-Person | 1,386 | 15.4% | 77 | |
| 2+ Person Family | 4,270 | 47.6% | 102 | |
| 2+ Person Nonfamily | 764 | 8.5% | 55 | |
| **Household Type by Relatives and Non-relatives** | | | | |
| Total | 18,588 | 100.0% | 264 | |
| In Family Households | 14,718 | 79.2% | 250 | |
| In Married-Couple Family | 11,095 | 59.7% | 181 | |
| Relatives | 11,010 | 59.2% | 181 | |
| Nonrelatives | 85 | 0.5% | 30 | |
| In Male Householder-No Spouse Present-Family | 1,144 | 6.2% | 179 | |
| Relatives | 1,093 | 5.9% | 175 | |
| Nonrelatives | 51 | 0.3% | 73 | |
| In Female Householder-No Spouse Present | 2,480 | 13.3% | 85 | |
| Relatives | 2,289 | 12.3% | 75 | |
| Nonrelatives | 191 | 1.0% | 64 | |
| In Nonfamily Households | 3,871 | 20.8% | 105 | |
| **Households by Disability Status** | | | | |
| Total | 8,977 | 100.0% | 130 | |
| With 1+ Persons w/Disability | 2,036 | 22.7% | 44 | |
| With No Person w/Disability | 6,941 | 77.3% | 133 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

## ACS Population Summary | Multi-Family Housing |

| Population Age 3+ by School Enrollment | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 18,251 | 100.0% | 258 | |
| Enrolled in school | 4,505 | 24.7% | 111 | |
| Enrolled in nursery school, preschool | 252 | 1.4% | 22 | |
| Public school | 150 | 0.8% | 18 | |
| Private school | 102 | 0.6% | 21 | |
| Enrolled in kindergarten | 257 | 1.4% | 33 | |
| Public school | 238 | 1.3% | 34 | |
| Private school | 19 | 0.1% | 25 | |
| Enrolled in grade 1 to grade 4 | 742 | 4.1% | 32 | |
| Public school | 686 | 3.8% | 29 | |
| Private school | 56 | 0.3% | 25 | |
| Enrolled in grade 5 to grade 8 | 894 | 4.9% | 88 | |
| Public school | 809 | 4.4% | 87 | |
| Private school | 85 | 0.5% | 18 | |
| Enrolled in grade 9 to grade 12 | 956 | 5.2% | 19 | |
| Public school | 922 | 5.1% | 18 | |
| Private school | 34 | 0.2% | 17 | |
| Enrolled in college undergraduate years | 1,110 | 6.1% | 52 | |
| Public school | 877 | 4.8% | 34 | |
| Private school | 234 | 1.3% | 46 | |
| Enrolled in graduate or professional school | 294 | 1.6% | 31 | |
| Public school | 163 | 0.9% | 28 | |
| Private school | 131 | 0.7% | 28 | |
| Not enrolled in school | 13,746 | 75.3% | 166 | |
| **Households by Presence of People Under 18 by Household Type** | | | | |
| Households with one or more people under 18 years | 2,800 | 31.2% | 88 | |
| Family households | 2,787 | 31.0% | 88 | |
| Married-couple family | 1,924 | 21.4% | 31 | |
| Male householder, no wife present | 289 | 3.2% | 84 | |
| Female householder, no husband present | 574 | 6.4% | 25 | |
| Nonfamily households | 13 | 0.1% | 22 | |
| Households with no people under 18 years | 6,177 | 68.8% | 94 | |
| Married-couple family | 2,270 | 25.3% | 65 | |
| Other family | 520 | 5.8% | 32 | |
| Nonfamily households | 3,387 | 37.7% | 79 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

## ACS Population Summary | Multi-Family Housing |

| Households by Poverty Status | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 8,977 | 100.0% | 130 | |
| Income in the past 12 months below poverty level | 848 | 9.4% | 36 | |
| Married-couple family | 156 | 1.7% | 26 | |
| Other-Male householder (no wife present) | 63 | 0.7% | 39 | |
| Female householder (no husband present) | 143 | 1.6% | 57 | |
| Nonfamily household - male householder | 181 | 2.0% | 27 | |
| Nonfamily household - female householder | 304 | 3.4% | 33 | |
| Income past 12 months at or above poverty level | 8,128 | 90.5% | 129 | |
| Married-couple family | 4,038 | 45.0% | 68 | |
| Other-Male householder (no wife present) | 417 | 4.6% | 84 | |
| Female householder (no husband present) | 759 | 8.5% | 30 | |
| Nonfamily household - male householder | 1,380 | 15.4% | 56 | |
| Nonfamily household - female householder | 1,535 | 17.1% | 67 | |
| Poverty Index | 76 | | | |

| Households by Public Assistance and Other Income | | | | |
|---|---|---|---|---|
| Total | 8,977 | 100.0% | 130 | |
| With public assistance income | 252 | 2.8% | 39 | |
| No public assistance income | 8,725 | 97.2% | 130 | |
| With Food Stamps/SNAP | 676 | 7.5% | 43 | |
| With No Food Stamps/SNAP | 8,301 | 92.5% | 129 | |
| Social Security Income | 2,514 | 28.0% | 52 | |
| No Social Security Income | 6,463 | 72.0% | 124 | |
| Retirement Income | 1,979 | 22.0% | 104 | |
| No Retirement Income | 6,998 | 78.0% | 83 | |

| Population by Ratio of Income to Poverty | | | | |
|---|---|---|---|---|
| Total | 18,634 | 100.0% | 264 | |
| Under .50 | 780 | 4.2% | 94 | |
| .50 to .99 | 812 | 4.4% | 91 | |
| 1.00 to 1.24 | 478 | 2.6% | 52 | |
| 1.25 to 1.49 | 1,103 | 5.9% | 109 | |
| 1.50 to 1.84 | 994 | 5.3% | 101 | |
| 1.85 to 1.99 | 367 | 2.0% | 39 | |
| 2.00 and over | 14,101 | 75.7% | 261 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Multi-Family Housing |

| Households by Type and Size | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Family Households | 5,577 | 62.1% | 110 | |
| 2-Person | 2,342 | 26.1% | 107 | |
| 3-Person | 1,617 | 18.0% | 28 | |
| 4-Person | 1,019 | 11.4% | 24 | |
| 5-Person | 427 | 4.8% | 17 | |
| 6-Person | 133 | 1.5% | 23 | |
| 7+ Person | 39 | 0.4% | 22 | |
| Nonfamily Households | 3,400 | 37.9% | 79 | |
| 1-Person | 2,570 | 28.6% | 81 | |
| 2-Person | 758 | 8.4% | 55 | |
| 3-Person | 58 | 0.6% | 15 | |
| 4-Person | 8 | 0.1% | 21 | |
| 5-Person | 0 | 0.0% | 5 | |
| 6-Person | 0 | 0.0% | 0 | |
| 7+ Person | 6 | 0.1% | 42 | |
| **Population Age 5 to 17 by Language Spoken** | | | | |
| Speak only English | 2,496 | 14.0% | 99 | |
| Speak Spanish | 141 | 0.8% | 23 | |
| Speak English "very well" or "well" | 137 | 0.8% | 22 | |
| Speak English "not well" | 4 | 0.0% | 10 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other Indo-European languages | 230 | 1.3% | 26 | |
| Speak English "very well" or "well" | 224 | 1.3% | 25 | |
| Speak English "not well" | 6 | 0.0% | 25 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak Asian and Pacific Island languages | 96 | 0.5% | 37 | |
| Speak English "very well" or "well" | 92 | 0.5% | 38 | |
| Speak English "not well" | 4 | 0.0% | 11 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other languages | 32 | 0.2% | 39 | |
| Speak English "very well" or "well" | 32 | 0.2% | 39 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |

| Population Age 18 to 64 by Language Spoken | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Speak only English | 9,101 | 51.0% | 141 | |
| Speak Spanish | 744 | 4.2% | 44 | |
| Speak English "very well" or "well" | 669 | 3.7% | 44 | |
| Speak English "not well" | 69 | 0.4% | 33 | |
| Speak English "not at all" | 7 | 0.0% | 16 | |
| Speak other Indo-European languages | 1,130 | 6.3% | 98 | |
| Speak English "very well" or "well" | 828 | 4.6% | 87 | |
| Speak English "not well" | 263 | 1.5% | 75 | |
| Speak English "not at all" | 40 | 0.2% | 56 | |
| Speak Asian and Pacific Island languages | 672 | 3.8% | 33 | |
| Speak English "very well" or "well" | 635 | 3.6% | 28 | |
| Speak English "not well" | 37 | 0.2% | 33 | |
| Speak English "not at all" | 0 | 0.0% | 1 | |
| Speak other languages | 121 | 0.7% | 17 | |
| Speak English "very well" or "well" | 119 | 0.7% | 15 | |
| Speak English "not well" | 2 | 0.0% | 15 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| **Population Age 65+ by Language Spoken** | | | | |
| Speak only English | 2,649 | 14.8% | 97 | |
| Speak Spanish | 110 | 0.6% | 15 | |
| Speak English "very well" or "well" | 94 | 0.5% | 10 | |
| Speak English "not well" | 17 | 0.1% | 34 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other Indo-European languages | 173 | 1.0% | 39 | |
| Speak English "very well" or "well" | 104 | 0.6% | 31 | |
| Speak English "not well" | 23 | 0.1% | 17 | |
| Speak English "not at all" | 46 | 0.3% | 30 | |
| Speak Asian and Pacific Island languages | 134 | 0.8% | 16 | |
| Speak English "very well" or "well" | 82 | 0.5% | 21 | |
| Speak English "not well" | 50 | 0.3% | 13 | |
| Speak English "not at all" | 2 | 0.0% | 19 | |
| Speak other languages | 10 | 0.1% | 26 | |
| Speak English "very well" or "well" | 0 | 0.0% | 0 | |
| Speak English "not well" | 7 | 0.0% | 17 | |
| Speak English "not at all" | 3 | 0.0% | 15 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

**Workers Age 16+ By Means of Transportation**

| | | | | |
|---|---|---|---|---|
| Total | 9,426 | 100.0% | 161 | |
| Drove alone | 6,637 | 70.4% | 160 | |
| Carpooled | 680 | 7.2% | 48 | |
| Public transportation (excluding taxicab) | 54 | 0.6% | 62 | |
| Bus or trolley bus | 51 | 0.5% | 65 | |
| Light rail, streetcar or trolley | 0 | 0.0% | 0 | |
| Subway or elevated | 0 | 0.0% | 0 | |
| Long-distance/Commuter Train | 3 | 0.0% | 5 | |
| Ferryboat | 0 | 0.0% | 0 | |
| Taxicab | 4 | 0.0% | 24 | |
| Motorcycle | 20 | 0.2% | 37 | |
| Bicycle | 34 | 0.4% | 19 | |
| Walked | 121 | 1.3% | 37 | |
| Other means | 124 | 1.3% | 45 | |
| Worked at home | 1,752 | 18.6% | 55 | |

**Workers Age 16+ By Travel Time to Work**

| | | | | |
|---|---|---|---|---|
| Less than 5 minutes | 184 | 2.4% | 31 | |
| 5 to 9 minutes | 815 | 10.6% | 43 | |
| 10 to 14 minutes | 1,258 | 16.4% | 88 | |
| 15 to 19 minutes | 1,286 | 16.8% | 57 | |
| 20 to 24 minutes | 858 | 11.2% | 66 | |
| 25 to 29 minutes | 575 | 7.5% | 63 | |
| 30 to 34 minutes | 1,015 | 13.2% | 66 | |
| 35 to 39 minutes | 368 | 4.8% | 34 | |
| 40 to 44 minutes | 397 | 5.2% | 57 | |
| 45 to 59 minutes | 412 | 5.4% | 41 | |
| 60 to 89 minutes | 269 | 3.5% | 23 | |
| 90 or more minutes | 236 | 3.1% | 32 | |
| Average Travel Time to Work (in minutes) | N/A | | N/A | |

## ACS Population Summary | Multi-Family Housing |

| Workers Age16+ by Place of Work | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 9,426 | 100.0% | 161 | |
| Worked in state and in county of residence | 6,424 | 68.2% | 158 | |
| Worked in state and outside county of residence | 2,962 | 31.4% | 81 | |
| Worked outside state of residence | 40 | 0.4% | 22 | |
| **Sex by Class of Worker** | | | | |
| Total | 9,501 | 100.0% | 162 | |
| Male | 5,049 | 53.1% | 122 | |
| Employee of private company workers | 3,545 | 37.3% | 116 | |
| Self-employed in own incorporated business | 225 | 2.4% | 39 | |
| Private not-for-profit wage and salary workers | 378 | 4.0% | 27 | |
| Local government workers | 306 | 3.2% | 20 | |
| State government workers | 234 | 2.5% | 30 | |
| Federal government workers | 86 | 0.9% | 48 | |
| Self-employed in own not incorporated business | 272 | 2.9% | 22 | |
| Unpaid family workers | 4 | 0.0% | 28 | |
| Female | 4,452 | 46.9% | 89 | |
| Employee of private company workers | 2,827 | 29.8% | 83 | |
| Self-employed in own incorporated business | 100 | 1.1% | 23 | |
| Private not-for-profit wage and salary workers | 405 | 4.3% | 25 | |
| Local government workers | 464 | 4.9% | 27 | |
| State government workers | 321 | 3.4% | 23 | |
| Federal government workers | 113 | 1.2% | 21 | |
| Self-employed in own not incorporated business | 222 | 2.3% | 22 | |
| Unpaid family workers | 0 | 0.0% | 0 | |
| **Gross Rent as a Percentage of Household Income** | | | | |
| <10% of Income | 52 | 1.0% | 19 | |
| 10-14.9% of Income | 140 | 2.6% | 22 | |
| 15-19.9% of Income | 719 | 13.4% | 87 | |
| 20-24.9% of Income | 620 | 11.6% | 53 | |
| 25-29.9% of Income | 530 | 9.9% | 27 | |
| 30-34.9% of Income | 618 | 11.5% | 73 | |
| 35-39.9% of Income | 385 | 7.2% | 31 | |
| 40-49.9% of Income | 609 | 11.4% | 37 | |
| 50+% of Income | 1,566 | 29.3% | 75 | |
| Gross Rent % Inc Not Computed | 115 | 2.1% | 19 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Multi-Family Housing |

| Females Age 20-64 by Age of Children | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 5,545 | 100.0% | 97 | |
| Own children under 6 years only | 542 | 9.8% | 25 | |
| In labor force | 295 | 5.3% | 25 | |
| Not in labor force | 247 | 4.5% | 28 | |
| Own children under 6 years and 6 to 17 years | 355 | 6.4% | 23 | |
| In labor force | 223 | 4.0% | 15 | |
| Not in labor force | 132 | 2.4% | 23 | |
| Own children 6 to 17 years only | 1,134 | 20.5% | 24 | |
| In labor force | 911 | 16.4% | 21 | |
| Not in labor force | 223 | 4.0% | 21 | |
| No own children under 18 years | 3,514 | 63.4% | 96 | |
| In labor force | 2,786 | 50.2% | 89 | |
| Not in labor force | 728 | 13.1% | 35 | |
| **Population and Presence of a Computer** | | | | |
| Total | 18,588 | 100.0% | 264 | |
| Population <18 in Households | 4,075 | 21.9% | 114 | |
| Have a Computer | 3,989 | 21.5% | 116 | |
| Have No Computer | 86 | 0.5% | 307 | |
| Population 18-64 in Households | 11,647 | 62.7% | 170 | |
| Have a Computer | 11,543 | 62.1% | 170 | |
| Have No Computer | 104 | 0.6% | 34 | |
| Population 65+ in Households | | | | |
| Have a Computer | 2,629 | 14.1% | 96 | |
| Have No Computer | 237 | 1.3% | 29 | |
| **Households and Internet Subscriptions** | | | | |
| Total | 8,977 | 100.0% | 130 | |
| With an Internet Subscription | 8,288 | 92.3% | 129 | |
| Dial-Up Alone | 7 | 0.1% | 19 | |
| Broadband | 7,354 | 81.9% | 126 | |
| Satellite Service | 584 | 6.5% | 47 | |
| Other Service | 89 | 1.0% | 19 | |
| Internet Access with no Subscription | 176 | 2.0% | 29 | |
| With No Internet Access | 512 | 5.7% | 42 | |

## ACS Population Summary | Multi-Family Housing |

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Under 19 years: | 4,283 | 23.1% | 118 | |
| One Type of Health Insurance: | 3,657 | 19.7% | 117 | |
| Employer-Based Health Ins Only | 2,580 | 13.9% | 82 | |
| Direct-Purchase Health Ins Only | 168 | 0.9% | 24 | |
| Medicare Coverage Only | 0 | 0.0% | 0 | |
| Medicaid Coverage Only | 844 | 4.5% | 68 | |
| TRICARE/Military Hlth Cov Only | 65 | 0.4% | 84 | |
| VA Health Care Only | 0 | 0.0% | 0 | |
| 2+ Types of Health Insurance | 546 | 2.9% | 43 | |
| No Health Insurance Coverage | 80 | 0.4% | 38 | |

| Health Insurance Coverage by Age | | | | |
|---|---|---|---|---|
| 19 to 34 years: | 4,528 | 24.4% | 125 | |
| One Type of Health Insurance: | 3,935 | 21.2% | 123 | |
| Employer-Based Health Ins Only | 2,814 | 15.2% | 116 | |
| Direct-Purchase Health Ins Only | 396 | 2.1% | 37 | |
| Medicare Coverage Only | 18 | 0.1% | 35 | |
| Medicaid Coverage Only | 637 | 3.4% | 33 | |
| TRICARE/Military Hlth Cov Only | 42 | 0.2% | 58 | |
| VA Health Care Only | 28 | 0.2% | 62 | |
| 2+ Types of Health Insurance | 394 | 2.1% | 27 | |
| No Health Insurance Coverage | 199 | 1.1% | 25 | |

| Health Insurance Coverage by Age | | | | |
|---|---|---|---|---|
| 35 to 64 years: | 6,851 | 36.9% | 128 | |
| One Type of Health Insurance: | 5,856 | 31.5% | 125 | |
| Employer-Based Health Ins Only | 4,664 | 25.1% | 93 | |
| Direct-Purchase Health Ins Only | 454 | 2.4% | 27 | |
| Medicare Coverage Only | 67 | 0.4% | 12 | |
| Medicaid Coverage Only | 558 | 3.0% | 44 | |
| TRICARE/Military Hlth Cov Only | 86 | 0.5% | 82 | |
| VA Health Care Only | 27 | 0.1% | 38 | |
| 2+ Types of Health Insurance | 668 | 3.6% | 30 | |
| No Health Insurance Coverage | 326 | 1.8% | 49 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| 65+ years: | 2,902 | 15.6% | 96 | |
| One Type of Health Insurance: | 841 | 4.5% | 26 | |
| Employer-Based Health Ins Only | 163 | 0.9% | 19 | |
| Direct-Purchase Health Ins Only | 5 | 0.0% | 16 | |
| Medicare Coverage Only | 673 | 3.6% | 24 | |
| TRICARE/Military Hlth Cov Only | 0 | 0.0% | 0 | |
| VA Health Care Only | 1 | 0.0% | 5 | |
| 2+ Types of Health Insurance: | 2,039 | 11.0% | 94 | |
| Employer-Based & Direct-Purchase Insurance | 0 | 0.0% | 0 | |
| Employer-Based Health & Medicare Insurance | 703 | 3.8% | 29 | |
| Direct-Purchase Health & Medicare Insurance | 527 | 2.8% | 90 | |
| Medicare & Medicaid Coverage | 281 | 1.5% | 21 | |
| Other Private Health Insurance Combos | 0 | 0.0% | 0 | |
| Other Public Health Insurance Combos | 33 | 0.2% | 29 | |
| Other Health Insurance Combinations | 495 | 2.7% | 21 | |
| No Health Insurance Coverage | 22 | 0.1% | 15 | |

| Civilian Population Age18+ by Vetran Status | | | | |
|---|---|---|---|---|
| Total | 14,699 | 100.0% | 192 | |
| Veteran | 1,070 | 7.3% | 98 | |
| Nonveteran | 13,629 | 92.7% | 164 | |
| Male | 7,167 | 48.8% | 132 | |
| Veteran | 941 | 6.4% | 97 | |
| Nonveteran | 6,226 | 42.4% | 90 | |
| Female | 7,532 | 51.2% | 107 | |
| Veteran | 129 | 0.9% | 51 | |
| Nonveteran | 7,403 | 50.4% | 106 | |

Source: U.S. Census 2019-2023 American Community Survey. **Data Note:** N/A means not available. Ratio of Income to Poverty Level represents persons for whom poverty status is determined. Household income represents income in 2023, adjusted for inflation.

**Margin of error (MOE)**: The MOE is a measure of the variability of the estimate due to sampling error. MOEs enable the data user to measure the range of uncertainty for each estimate with 90 percent confidence. The range of uncertainty is called the confidence interval, and it is calculated by taking the estimate +/- the MOE. For example, if the ACS reports an estimate of 100 with an MOE of +/- 20, then you can be 90 percent certain the value for the whole population falls between 80 and 120.

**Reliability**: Symbols represent threshold values Esri has established from the Coefficients of Variation (CV) to designate the usability of the estimates. The CV measures the amount of sampling error relative to the size of the estimate, expressed as a percentage.

High Reliability: Small CVs (less than or equal to 12 percent) are flagged green and are considered reasonably reliable.

Medium Reliability: Estimates with CVs between 12 and 40 are flagged yellow and should be used with caution.

Low Reliability: Large CVs (over 40 percent) are flagged red and are considered very unreliable.

# ACS Population Summary

Del Webb/Springfield

| Totals | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total Population | 2,738 | | 136 | |
| Total Households | 1,561 | | 71 | |
| Total Housing Units | 1,608 | | 70 | |
| **Household Size and Type** | | | | |
| Households with Pop 65+ | 1,271 | 81.4% | 79 | |
| 1-Person | 542 | 34.7% | 66 | |
| 2+ Person Family | 707 | 45.3% | 58 | |
| 2+ Person Nonfamily | 22 | 1.4% | 19 | |
| Households with No Pop 65+ | 289 | 18.5% | 58 | |
| 1-Person | 51 | 3.3% | 14 | |
| 2+ Person Family | 223 | 14.3% | 73 | |
| 2+ Person Nonfamily | 16 | 1.0% | 30 | |
| **Household Type by Relatives and Non-relatives** | | | | |
| Total | 2,738 | 100.0% | 136 | |
| In Family Households | 2,073 | 75.7% | 130 | |
| In Married-Couple Family | 1,757 | 64.2% | 136 | |
| Relatives | 1,753 | 64.0% | 136 | |
| Nonrelatives | 5 | 0.2% | 29 | |
| In Male Householder-No Spouse Present-Family | 49 | 1.8% | 39 | |
| Relatives | 46 | 1.7% | 34 | |
| Nonrelatives | 3 | 0.1% | 21 | |
| In Female Householder-No Spouse Present | 266 | 9.7% | 58 | |
| Relatives | 264 | 9.6% | 57 | |
| Nonrelatives | 2 | 0.1% | 32 | |
| In Nonfamily Households | 665 | 24.3% | 70 | |
| **Households by Disability Status** | | | | |
| Total | 1,561 | 100.0% | 71 | |
| With 1+ Persons w/Disability | 661 | 42.3% | 48 | |
| With No Person w/Disability | 900 | 57.7% | 69 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low

## ACS Population Summary | Del Webb/Springfield |

| Population Age 3+ by School Enrollment | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 2,724 | 100.0% | 135 | |
| Enrolled in school | 177 | 6.5% | 67 | |
| Enrolled in nursery school, preschool | 10 | 0.4% | 27 | |
| Public school | 4 | 0.1% | 19 | |
| Private school | 6 | 0.2% | 43 | |
| Enrolled in kindergarten | 8 | 0.3% | 17 | |
| Public school | 6 | 0.2% | 21 | |
| Private school | 2 | 0.1% | 14 | |
| Enrolled in grade 1 to grade 4 | 28 | 1.0% | 40 | |
| Public school | 28 | 1.0% | 40 | |
| Private school | 0 | 0.0% | 0 | |
| Enrolled in grade 5 to grade 8 | 41 | 1.5% | 33 | |
| Public school | 32 | 1.2% | 28 | |
| Private school | 9 | 0.3% | 29 | |
| Enrolled in grade 9 to grade 12 | 37 | 1.4% | 32 | |
| Public school | 36 | 1.3% | 32 | |
| Private school | 2 | 0.1% | 13 | |
| Enrolled in college undergraduate years | 35 | 1.3% | 34 | |
| Public school | 32 | 1.2% | 33 | |
| Private school | 3 | 0.1% | 36 | |
| Enrolled in graduate or professional school | 18 | 0.7% | 15 | |
| Public school | 8 | 0.3% | 26 | |
| Private school | 10 | 0.4% | 13 | |
| Not enrolled in school | 2,548 | 93.5% | 104 | |
| **Households by Presence of People Under 18 by Household Type** | | | | |
| Households with one or more people under 18 years | 94 | 6.0% | 38 | |
| Family households | 94 | 6.0% | 38 | |
| Married-couple family | 77 | 4.9% | 37 | |
| Male householder, no wife present | 0 | 0.0% | 0 | |
| Female householder, no husband present | 17 | 1.1% | 29 | |
| Nonfamily households | 0 | 0.0% | 0 | |
| Households with no people under 18 years | 1,467 | 94.0% | 74 | |
| Married-couple family | 715 | 45.8% | 59 | |
| Other family | 121 | 7.8% | 27 | |
| Nonfamily households | 631 | 40.4% | 62 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Del Webb/Springfield |

| Households by Poverty Status | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 1,561 | 100.0% | 71 | |
| Income in the past 12 months below poverty level | 53 | 3.4% | 28 | |
| Married-couple family | 5 | 0.3% | 10 | |
| Other-Male householder (no wife present) | 1 | 0.1% | 7 | |
| Female householder (no husband present) | 3 | 0.2% | 18 | |
| Nonfamily household - male householder | 0 | 0.0% | 0 | |
| Nonfamily household - female householder | 44 | 2.8% | 34 | |
| Income past 12 months at or above poverty level | 1,508 | 96.6% | 72 | |
| Married-couple family | 787 | 50.4% | 58 | |
| Other-Male householder (no wife present) | 21 | 1.3% | 16 | |
| Female householder (no husband present) | 113 | 7.2% | 23 | |
| Nonfamily household - male householder | 147 | 9.4% | 33 | |
| Nonfamily household - female householder | 440 | 28.2% | 55 | |
| Poverty Index | 27 | | | |

| Households by Public Assistance and Other Income | | | | |
|---|---|---|---|---|
| Total | 1,561 | 100.0% | 71 | |
| With public assistance income | 5 | 0.3% | 14 | |
| No public assistance income | 1,556 | 99.7% | 71 | |
| With Food Stamps/SNAP | 63 | 4.0% | 52 | |
| With No Food Stamps/SNAP | 1,497 | 95.9% | 68 | |
| Social Security Income | 1,240 | 79.4% | 78 | |
| No Social Security Income | 320 | 20.5% | 50 | |
| Retirement Income | 1,038 | 66.5% | 79 | |
| No Retirement Income | 523 | 33.5% | 45 | |

| Population by Ratio of Income to Poverty | | | | |
|---|---|---|---|---|
| Total | 2,738 | 100.0% | 136 | |
| Under .50 | 29 | 1.1% | 20 | |
| .50 to .99 | 51 | 1.9% | 19 | |
| 1.00 to 1.24 | 8 | 0.3% | 17 | |
| 1.25 to 1.49 | 110 | 4.0% | 43 | |
| 1.50 to 1.84 | 76 | 2.8% | 50 | |
| 1.85 to 1.99 | 34 | 1.2% | 27 | |
| 2.00 and over | 2,430 | 88.8% | 131 | |

## ACS Population Summary | Del Webb/Springfield |

| Households by Type and Size | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Family Households | 930 | 59.6% | 56 | |
| 2-Person | 757 | 48.5% | 59 | |
| 3-Person | 108 | 6.9% | 84 | |
| 4-Person | 43 | 2.8% | 23 | |
| 5-Person | 19 | 1.2% | 23 | |
| 6-Person | 2 | 0.1% | 20 | |
| 7+ Person | 0 | 0.0% | 0 | |
| Nonfamily Households | 631 | 40.4% | 62 | |
| 1-Person | 593 | 38.0% | 63 | |
| 2-Person | 38 | 2.4% | 17 | |
| 3-Person | 0 | 0.0% | 0 | |
| 4-Person | 0 | 0.0% | 0 | |
| 5-Person | 0 | 0.0% | 0 | |
| 6-Person | 0 | 0.0% | 0 | |
| 7+ Person | 0 | 0.0% | 0 | |

| Population Age 5 to 17 by Language Spoken | | | | |
|---|---|---|---|---|
| Speak only English | 100 | 3.7% | 65 | |
| Speak Spanish | 6 | 0.2% | 13 | |
| Speak English "very well" or "well" | 4 | 0.1% | 12 | |
| Speak English "not well" | 2 | 0.1% | 23 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other Indo-European languages | 7 | 0.3% | 26 | |
| Speak English "very well" or "well" | 7 | 0.3% | 26 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak Asian and Pacific Island languages | 6 | 0.2% | 27 | |
| Speak English "very well" or "well" | 6 | 0.2% | 27 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other languages | 0 | 0.0% | 0 | |
| Speak English "very well" or "well" | 0 | 0.0% | 0 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Del Webb/Springfield |

| Population Age 18 to 64 by Language Spoken | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Speak only English | 674 | 24.9% | 112 | |
| Speak Spanish | 14 | 0.5% | 40 | |
| Speak English "very well" or "well" | 14 | 0.5% | 32 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other Indo-European languages | 41 | 1.5% | 34 | |
| Speak English "very well" or "well" | 41 | 1.5% | 34 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak Asian and Pacific Island languages | 20 | 0.7% | 36 | |
| Speak English "very well" or "well" | 18 | 0.7% | 27 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 2 | 0.1% | 14 | |
| Speak other languages | 6 | 0.2% | 18 | |
| Speak English "very well" or "well" | 6 | 0.2% | 18 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |

| Population Age 65+ by Language Spoken | | | | |
|---|---|---|---|---|
| Speak only English | 1,712 | 63.3% | 103 | |
| Speak Spanish | 43 | 1.6% | 28 | |
| Speak English "very well" or "well" | 29 | 1.1% | 31 | |
| Speak English "not well" | 14 | 0.5% | 31 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other Indo-European languages | 53 | 2.0% | 26 | |
| Speak English "very well" or "well" | 37 | 1.4% | 29 | |
| Speak English "not well" | 16 | 0.6% | 13 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak Asian and Pacific Island languages | 26 | 1.0% | 26 | |
| Speak English "very well" or "well" | 26 | 1.0% | 26 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |
| Speak other languages | 0 | 0.0% | 0 | |
| Speak English "very well" or "well" | 0 | 0.0% | 0 | |
| Speak English "not well" | 0 | 0.0% | 0 | |
| Speak English "not at all" | 0 | 0.0% | 0 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

**Workers Age 16+ By Means of Transportation**

| | | | | |
|---|---|---|---|---|
| Total | 640 | 100.0% | 94 | |
| Drove alone | 460 | 71.9% | 68 | |
| Carpooled | 14 | 2.2% | 17 | |
| Public transportation (excluding taxicab) | 4 | 0.6% | 25 | |
| Bus or trolley bus | 4 | 0.6% | 25 | |
| Light rail, streetcar or trolley | 0 | 0.0% | 0 | |
| Subway or elevated | 0 | 0.0% | 0 | |
| Long-distance/Commuter Train | 0 | 0.0% | 0 | |
| Ferryboat | 0 | 0.0% | 0 | |
| Taxicab | 0 | 0.0% | 0 | |
| Motorcycle | 3 | 0.5% | 22 | |
| Bicycle | 0 | 0.0% | 0 | |
| Walked | 2 | 0.3% | 16 | |
| Other means | 9 | 1.4% | 15 | |
| Worked at home | 148 | 23.1% | 50 | |

**Workers Age 16+ By Travel Time to Work**

| | | | | |
|---|---|---|---|---|
| Less than 5 minutes | 4 | 0.8% | 37 | |
| 5 to 9 minutes | 11 | 2.2% | 21 | |
| 10 to 14 minutes | 66 | 13.4% | 29 | |
| 15 to 19 minutes | 63 | 12.8% | 29 | |
| 20 to 24 minutes | 76 | 15.4% | 35 | |
| 25 to 29 minutes | 28 | 5.7% | 25 | |
| 30 to 34 minutes | 97 | 19.7% | 44 | |
| 35 to 39 minutes | 8 | 1.6% | 39 | |
| 40 to 44 minutes | 6 | 1.2% | 27 | |
| 45 to 59 minutes | 84 | 17.1% | 113 | |
| 60 to 89 minutes | 13 | 2.6% | 18 | |
| 90 or more minutes | 36 | 7.3% | 22 | |
| Average Travel Time to Work (in minutes) | N/A | | N/A | |

## ACS Population Summary | Del Webb/Springfield |

| Workers Age16+ by Place of Work | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 640 | 100.0% | 94 | |
| Worked in state and in county of residence | 431 | 67.3% | 100 | |
| Worked in state and outside county of residence | 207 | 32.3% | 62 | |
| Worked outside state of residence | 2 | 0.3% | 14 | |
| **Sex by Class of Worker** | | | | |
| Total | 669 | 100.0% | 98 | |
| Male | 307 | 45.9% | 84 | |
| Employee of private company workers | 222 | 33.2% | 75 | |
| Self-employed in own incorporated business | 10 | 1.5% | 15 | |
| Private not-for-profit wage and salary workers | 11 | 1.6% | 20 | |
| Local government workers | 19 | 2.8% | 30 | |
| State government workers | 11 | 1.6% | 29 | |
| Federal government workers | 4 | 0.6% | 18 | |
| Self-employed in own not incorporated business | 28 | 4.2% | 12 | |
| Unpaid family workers | 0 | 0.0% | 0 | |
| Female | 362 | 54.1% | 57 | |
| Employee of private company workers | 175 | 26.2% | 36 | |
| Self-employed in own incorporated business | 6 | 0.9% | 28 | |
| Private not-for-profit wage and salary workers | 49 | 7.3% | 16 | |
| Local government workers | 20 | 3.0% | 49 | |
| State government workers | 81 | 12.1% | 107 | |
| Federal government workers | 0 | 0.0% | 0 | |
| Self-employed in own not incorporated business | 31 | 4.6% | 32 | |
| Unpaid family workers | 0 | 0.0% | 0 | |
| **Gross Rent as a Percentage of Household Income** | | | | |
| <10% of Income | 0 | 0.0% | 0 | |
| 10-14.9% of Income | 5 | 2.1% | 17 | |
| 15-19.9% of Income | 10 | 4.2% | 13 | |
| 20-24.9% of Income | 9 | 3.8% | 28 | |
| 25-29.9% of Income | 30 | 12.6% | 21 | |
| 30-34.9% of Income | 23 | 9.7% | 36 | |
| 35-39.9% of Income | 15 | 6.3% | 43 | |
| 40-49.9% of Income | 20 | 8.4% | 19 | |
| 50+% of Income | 123 | 51.7% | 71 | |
| Gross Rent % Inc Not Computed | 3 | 1.3% | 18 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Del Webb/Springfield |

| Females Age 20-64 by Age of Children | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Total | 401 | 100.0% | 59 | |
| Own children under 6 years only | 14 | 3.5% | 39 | |
| In labor force | 14 | 3.5% | 39 | |
| Not in labor force | 0 | 0.0% | 0 | |
| Own children under 6 years and 6 to 17 years | 12 | 3.0% | 19 | |
| In labor force | 9 | 2.2% | 23 | |
| Not in labor force | 2 | 0.5% | 10 | |
| Own children 6 to 17 years only | 53 | 13.2% | 31 | |
| In labor force | 40 | 10.0% | 28 | |
| Not in labor force | 14 | 3.5% | 25 | |
| No own children under 18 years | 322 | 80.3% | 60 | |
| In labor force | 243 | 60.6% | 63 | |
| Not in labor force | 79 | 19.7% | 28 | |

| Population and Presence of a Computer | | | | |
|---|---|---|---|---|
| Total | 2,738 | 100.0% | 136 | |
| Population <18 in Households | 150 | 5.5% | 25 | |
| Have a Computer | 150 | 5.5% | 76 | |
| Have No Computer | 0 | 0.0% | 0 | |
| Population 18-64 in Households | 754 | 27.5% | 117 | |
| Have a Computer | 754 | 27.5% | 117 | |
| Have No Computer | 0 | 0.0% | 0 | |
| Population 65+ in Households | | | | |
| Have a Computer | 1,786 | 65.2% | 105 | |
| Have No Computer | 48 | 1.8% | 64 | |

| Households and Internet Subscriptions | | | | |
|---|---|---|---|---|
| Total | 1,561 | 100.0% | 71 | |
| With an Internet Subscription | 1,487 | 95.3% | 72 | |
| Dial-Up Alone | 2 | 0.1% | 15 | |
| Broadband | 1,339 | 85.8% | 72 | |
| Satellite Service | 140 | 9.0% | 25 | |
| Other Service | 16 | 1.0% | 39 | |
| Internet Access with no Subscription | 25 | 1.6% | 36 | |
| With No Internet Access | 49 | 3.1% | 27 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Del Webb/Springfield |

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| Under 19 years: | 165 | 6.0% | 80 | |
| One Type of Health Insurance: | 143 | 5.2% | 75 | |
| Employer-Based Health Ins Only | 119 | 4.3% | 74 | |
| Direct-Purchase Health Ins Only | 15 | 0.5% | 27 | |
| Medicare Coverage Only | 0 | 0.0% | 0 | |
| Medicaid Coverage Only | 7 | 0.3% | 14 | |
| TRICARE/Military Hlth Cov Only | 2 | 0.1% | 23 | |
| VA Health Care Only | 0 | 0.0% | 0 | |
| 2+ Types of Health Insurance | 22 | 0.8% | 76 | |
| No Health Insurance Coverage | 0 | 0.0% | 0 | |
| **Health Insurance Coverage by Age** | | | | |
| 19 to 34 years: | 78 | 2.8% | 62 | |
| One Type of Health Insurance: | 74 | 2.7% | 64 | |
| Employer-Based Health Ins Only | 68 | 2.5% | 67 | |
| Direct-Purchase Health Ins Only | 4 | 0.1% | 18 | |
| Medicare Coverage Only | 0 | 0.0% | 0 | |
| Medicaid Coverage Only | 2 | 0.1% | 10 | |
| TRICARE/Military Hlth Cov Only | 0 | 0.0% | 0 | |
| VA Health Care Only | 0 | 0.0% | 0 | |
| 2+ Types of Health Insurance | 0 | 0.0% | 0 | |
| No Health Insurance Coverage | 3 | 0.1% | 23 | |
| **Health Insurance Coverage by Age** | | | | |
| 35 to 64 years: | 660 | 24.1% | 87 | |
| One Type of Health Insurance: | 583 | 21.3% | 67 | |
| Employer-Based Health Ins Only | 450 | 16.4% | 63 | |
| Direct-Purchase Health Ins Only | 97 | 3.5% | 31 | |
| Medicare Coverage Only | 6 | 0.2% | 20 | |
| Medicaid Coverage Only | 20 | 0.7% | 17 | |
| TRICARE/Military Hlth Cov Only | 10 | 0.4% | 13 | |
| VA Health Care Only | 1 | 0.0% | 8 | |
| 2+ Types of Health Insurance | 64 | 2.3% | 133 | |
| No Health Insurance Coverage | 13 | 0.5% | 18 | |

Source: U.S. Census Bureau, 2019-2023 American Community Survey. Reliability: high medium low 

## ACS Population Summary | Del Webb/Springfield |

| Health Insurance Coverage by Age | 2019 - 2023 ACS Estimate | Percent | MOE (±) | Reliability |
|---|---|---|---|---|
| 65+ years: | 1,834 | 67.0% | 104 | |
| One Type of Health Insurance: | 394 | 14.4% | 49 | |
| Employer-Based Health Ins Only | 15 | 0.5% | 21 | |
| Direct-Purchase Health Ins Only | 7 | 0.3% | 20 | |
| Medicare Coverage Only | 372 | 13.6% | 48 | |
| TRICARE/Military Hlth Cov Only | 0 | 0.0% | 0 | |
| VA Health Care Only | 0 | 0.0% | 0 | |
| 2+ Types of Health Insurance: | 1,440 | 52.6% | 107 | |
| Employer-Based & Direct-Purchase Insurance | 0 | 0.0% | 0 | |
| Employer-Based Health & Medicare Insurance | 561 | 20.5% | 117 | |
| Direct-Purchase Health & Medicare Insurance | 275 | 10.0% | 49 | |
| Medicare & Medicaid Coverage | 36 | 1.3% | 23 | |
| Other Private Health Insurance Combos | 0 | 0.0% | 0 | |
| Other Public Health Insurance Combos | 13 | 0.5% | 13 | |
| Other Health Insurance Combinations | 555 | 20.3% | 46 | |
| No Health Insurance Coverage | 0 | 0.0% | 0 | |

| Civilian Population Age18+ by Vetran Status | | | | |
|---|---|---|---|---|
| Total | 2,587 | 100.0% | 135 | |
| Veteran | 408 | 15.8% | 38 | |
| Nonveteran | 2,179 | 84.2% | 134 | |
| Male | 1,092 | 42.2% | 74 | |
| Veteran | 378 | 14.6% | 37 | |
| Nonveteran | 714 | 27.6% | 78 | |
| Female | 1,495 | 57.8% | 73 | |
| Veteran | 30 | 1.2% | 26 | |
| Nonveteran | 1,465 | 56.6% | 73 | |

Source: U.S. Census 2019-2023 American Community Survey. **Data Note:** N/A means not available. Ratio of Income to Poverty Level represents persons for whom poverty status is determined. Household income represents income in 2023, adjusted for inflation.

**Margin of error (MOE):** The MOE is a measure of the variability of the estimate due to sampling error. MOEs enable the data user to measure the range of uncertainty for each estimate with 90 percent confidence. The range of uncertainty is called the confidence interval, and it is calculated by taking the estimate +/- the MOE. For example, if the ACS reports an estimate of 100 with an MOE of +/- 20, then you can be 90 percent certain the value for the whole population falls between 80 and 120.

**Reliability**: Symbols represent threshold values Esri has established from the Coefficients of Variation (CV) to designate the usability of the estimates. The CV measures the amount of sampling error relative to the size of the estimate, expressed as a percentage.

- High Reliability: Small CVs (less than or equal to 12 percent) are flagged green and are considered reasonably reliable.
- Medium Reliability: Estimates with CVs between 12 and 40 are flagged yellow and should be used with caution.
- Low Reliability: Large CVs (over 40 percent) are flagged red and are considered very unreliable.