



City of Morro Bay
Water Reclamation Facility Project

MONTHLY REPORT AUGUST 2019

FINAL | September 2019





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State of California, P.E. 73351

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Abbreviations

APE	Area of Potential Effect
BDR	Basis of Design Report
BOD	Biochemical Oxygen Demand
CCC	California Coastal Commission
CDP	Coastal Development Permit
CDR	Concept Design Report
CEQA	California Environmental Quality Act
CPT	Cone Penetration Test
CWSRF	Clean Water State Revolving Fund
DDW	Division of Drinking Water
EPA	Environmental Protection Agency
ESCP	Enhanced Source Control Program
FEIR	Final Environmental Impact Report
GMP	Guaranteed Maximum Price
IPR	Indirect Potable Reuse
IUP	Intended Use Plan
IWS	Industrial Waste Survey
KPI	Key Performance Indicator
MBPFC	Morro Bay Public Facilities Corporation
MBR	Membrane Bioreactor
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
PCO	Potential Change Order
PPP	Pollution Prevention Program
RO	Reverse Osmosis
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office
SPI	Schedule Performance Index
TSO	Time Schedule Order
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFW	United States Fish and Wildlife
UVAOP	Ultraviolet Advanced Oxidation Process
WIFIA	Water Infrastructure Finance and Innovation and Act

WRF Water Reclamation Facility
WRFCAC Water Reclamation Facility Citizens Advisory Committee
WWE Water Works Engineers

Section 1

PROJECT OVERVIEW

1.1 General Project Status Update

All components of the Water Reclamation Facility Project (Project) are currently in progress. City staff and the Program Manager (Carollo) are actively working with the design-build team (DB team) and the pipeline designer to advance the design of the Water Reclamation Facility (WRF) and Conveyance Facilities project components, respectively. In August 2019, City staff and the Program Manager continued to focus on moving the WRF component of the Project into construction. In order to start construction, the following activities must be completed:

- Property and Easement Acquisition.
 - Purchase the WRF site currently owned by Tri W.
 - Acquire both the temporary and permanent easements on property adjacent to Teresa Road owned by the Martz 2003 Trust.
- Funding Agency Coordination.
 - Negotiate and sign the final loan agreement with the Water Infrastructure Finance and Innovation and Act (WIFIA).
 - Facilitate completion of the Clean Water State Revolving Fund's (CWSRF's) Environmental Checklist.
- Coastal Development Permit (CDP) Receipt.
- Environmental Documentation Completion.
 - Receipt of the Final Environmental Impact Report (FEIR) addendum by the City Council.

A status update for these specific activities related to the start of construction is provided below. Brief updated on the status of each Project components is also provided as well.

1.1.1 Property and Easement Acquisition

In August 2019, the City received appraisals from Schenberger, Taylor, McCormick & Jecker, Inc. (STMJ) for the Tri W property and necessary easements owned by the Martz 2003 Trust. City staff is finalizing the purchase agreements with the two property owners and anticipates bringing these purchase agreements to City Council at the October 08, 2019 meeting.

1.1.2 Funding Agency Coordination

City staff and the Program Manager have been working with the City Attorney and WIFIA staff for the last several months to finalize the terms and specific language of the WIFIA loan agreement. The WIFIA loan agreement will cover 49 percent of the total \$126 million cost for the Project. Final edits have been provided to the City by WIFIA staff and it is anticipated that the final loan agreement will come back to City Council for review and approval at the October 08, 2019 meeting.

In addition to loan terms, the Program Manager has been working to facilitate the review of both the WIFIA and CWSRF applications with their respective staffs. Specifically, CWSRF requires an applicant to complete the Environmental Checklist before construction can begin. These activities include coordination with various stakeholders including the United States Fish and Wildlife (USFW), National Marine Fisheries Service (NMFS), and the State Historic Preservation Office (SHPO). All of these consultation efforts are underway and City staff anticipates having a completed Environmental Checklist in October 2019.

1.1.3 Coastal Development Permit Receipt

On July 11, 2019, CCC approved the City's CDP with special conditions. On July 19, 2019, the City received a Notice of Intent (NOI) to issue the CDP 3-19-0463 that included several conditions that must be met before either the CDP can be issued or before construction can be started. In order to receive the CDP, the City must satisfy Special Condition 1 (Revised Final Plans) and Special Condition 2 (Construction Plans). A third condition, Special Condition 6 (Recycled Water Management Plan), must be satisfied before construction of the Project can begin. The Program Manager is currently working with the DB team to finalize and submit these documents to CCC staff before the end of September 2019.

1.1.4 Environmental Documentation Completion

On August 08, 2019, Environmental Science Associates (ESA) completed the FEIR Addendum for the Project. While not required by the California Environmental Quality Act (CEQA) to be circulated, the State Water Board requires that all environmental documents for projects that receive CWSRF funding be circulated for a minimum period of 14 days. Hard copies of the FEIR Addendum and supporting documentation were received by the State Clearinghouse and San Luis Obispo County Clerk's Office on August 14, 2019. The FEIR Addendum was put on the agenda for the September 10, 2019 City Council meeting and City Council approved a motion to receive and file the addendum.

1.2 Water Reclamation Facility

The design of the WRF has been progressing since the agreement with the DB team was signed in October 2018. On August 31, 2019, the DB team delivered the 60-percent design submittal for review by the Program Manager and City staff. A internal workshop was held on August 12, 2019 to review the design submittal. The 90-percent design submittal will be delivered to the City in November 2019.

1.2.1 Membrane Bioreactor Procurement

Occurring in parallel with the development of the WRF design effort, City staff, the DB team, and the Program Manager have been working on procurement of the major equipment for the WRF. Since it is the heart of the wastewater treatment process, the first system being procured is the membrane bioreactor (MBR). The City's Project will also be the first potable reuse project in the state utilizing a MBR. At the end of August 2019, after several months of review and discussion, the DB team officially selected Suez as the MBR supplier.

Procurement for the headworks equipment has been completed and the selected manufacturer will be announced shortly. Procurement for the reverse osmosis (RO) system is also currently underway and proposals were received on August 30, 2019.

1.3 Conveyance Facilities

Over the last several months, the Program Manager has addressed the challenges with advancement of the Conveyance Facilities design due to access to the Vistra Energy Corporation (Vistra) property. At this time, all of the field investigations necessary to advance the design have been completed, and the 60-percent design submittal was submitted by Water Works Engineers (Water Works) to the City. A design workshop was held on September 16 and 17, 2019 to discuss the components of the 60-percent design.

1.4 Recycled Water Facilities

Challenges to advancement of the hydrogeological work to support design of the Recycled Water Facilities have also resulted from problems accessing the Vistra property. Several months ago, the City's hydrogeologist (GSI) completed Phase 1 of the hydrogeology work for the Project focused on long-term nitrate concentrations and the potential for seawater intrusion in the Lower Morro Groundwater Basin. GSI also completed the first component of the Phase 2 hydrogeology work focused on identifying the optimal groundwater injection location. The work consisted of pump testing of an existing well on Errol Street and cone penetration tests (CPTs) at the east injection area.

The next step in the hydrogeology work includes completion of Phase 2 or improved characterization at the west injection area. Completion of this component of the work has been contingent upon accessing the Vistra property to drill a pilot injection well or use an existing Morro Bay Mutual Water Company (MBMWC) well to conduct the pumping and injection tests. The City has reached an agreement with Vistra regarding use of the MBMWC well. Testing for this well can be started once the City receives the final CDP, which is anticipated in late September 2019.

1.5 Quarterly Budget Revision

The original \$126 million baseline budget was developed in June 2018 (Q4 Fiscal Year 2017/2018) and was used as the basis for the rate study prepared by Bartle Wells. At the beginning of each fiscal year, the budget is updated and used as the measure of performance for the Project during that upcoming fiscal year. The budget is then reviewed and reconciled on a quarterly basis so it can be compared to both the current fiscal year and baseline budgets. The next budget reconciliation will occur at the end of Q1 Fiscal Year 2019/2020 (September 30, 2019). A summary of the baseline, reconciled quarterly, and fiscal year budgets are summarized in Table 1. Subsequent budget reconciliations (quarterly) and fiscal year budgets (annual) will also be presented in this table for reference.

Table 1 Budget Revision Summary

Project Component	Baseline (Q4 FY 17/18)	Quarterly Reconciliation (Q3 FY 18/19)	Current Fiscal Year (Q4 FY 18/19)
Water Reclamation Facility	\$62,414,000	\$74,059,000	\$72,891,000
Conveyance Facilities	\$21,087,000	\$27,108,000	\$28,864,000
Recycled Water Facilities	\$8,593,000	\$5,366,000	\$5,283,000
General Program	\$24,403,000	\$11,614,000	\$11,714,000
Construction Contingency ⁽¹⁾	\$9,444,000	\$6,450,000	\$7,132,000
Total	\$125,941,000	\$124,597,000	\$125,884,000

Notes:

(1) Increase in construction contingency is due to funds being shifted back from the Water Reclamation Facility into the contingency fund (only \$1.9 million of the budgeted \$2.5 million was used to fund the potential change orders [PCOs] approved by City Council for the Project in May 2019).

Increases to the Project budget since the budget reconciliation in Q3 Fiscal Year 2018/2019 can be attributed to the following:

- Addition of a trenchless crossing to the design of the Conveyance Facilities along the bike path at Willow Camp Creek following completion of the wetland delineation as part of the supplementary biological report prepared by Kevin Merk (approximately \$1 million).
- Additional potholing for design of the Conveyance Facilities necessary to identify utility locations and avoid construction change orders (approximately \$150,000).
- Additional land acquisition costs for purchase of the Tri-W property following initial estimates from the appraiser (approximately \$300,000).

Table 2 summarizes some of the key accomplishments and critical challenges identified for the Project in August 2019.

Table 2 Project Accomplishments and Challenges

Project Component	Key Accomplishments	Critical Challenges	Actions to Overcome Challenges	Likely Outcomes
General Project	Receipt of the FEIR Addendum by the City Council			
		Completion of the funding, property acquisition, and permitting work necessary to start construction by the end of October 2019	Actively working with the CCC, CSWRF, WIFIA, various property owners, and permitting stakeholders to expedite these processes.	Continued delays to the start of construction will result in impacts to the WRF cost.
Water Reclamation Facility	Selection of Suez as the MBR supplier			
	Selection of the headworks equipment supplier			
	Received the 60 Percent Design Submittal			
Conveyance Facilities	Received the 60 Percent Design Submittal			
		Schedule recovery due to issues access Vistra and PG&E property	Work with WWE to expedite the final design schedule (options could include eliminating some intermediate deliverables)	Without expediting the schedule, delayed construction completion could impact the schedule for start-up of the WRF
Recycled Water Facilities		Schedule recovery due to issues access Vistra and PG&E property	Work with GSI to expedite the completion of the Phase 2 hydrogeology work	Without expediting the schedule, the completion of the injection wells could be delayed (does not impact compliance with the time schedule order [TSO])

Section 2

KEY PERFORMANCE MEASURES

2.1 Performance Measures

A set of five (5) Key Performance Indicators (KPIs) were established to readily measure the progress of the Project. These KPIs represent various success factors associated with the WRF project management and delivery that were established by the Program Manager and City staff and are summarized as Table 3. The Project's performance is also illustrated graphically in Figures 1 and Figure 2

Table 3 WRF Project Performance Measures

Performance Measure	Data	Target ⁽¹⁾	Current	Delta	Status	Ⓜ	Ⓜ	Ⓜ
1: Total Project Costs	Total Project Projected Cost at Completion versus the Baseline Budget (budget as of 6/30/19)	\$125.9 M	\$125.9 M	0.0%	Ⓜ	Estimated cost within 5% of target budget	Estimated cost > 5% above target budget	Estimated cost > 10% above target budget
1.1: WRF Costs	On Site WRF Projected Cost at Completion versus the Baseline Budget (budget as of 6/30/19)	\$77.3 M	\$77.3 M	0.0%	Ⓜ	Estimated cost within 5% of target budget	Estimated cost > 5% above target budget	Estimated cost > 10% above target budget
1.2: Conveyance Facilities Costs¹	Conveyance Facilities Projected Cost at Completion versus the Baseline Budget (budget as of 6/30/19)	\$31.3 M	\$31.3 M	0.0%	Ⓜ	Estimated cost within 5% of target budget	Estimated cost > 5% above target budget	Estimated cost > 10% above target budget
1.3: Recycled Water Facilities Costs¹	Off Site Injection Facilities Projected Cost at Completion versus the Baseline Budget (budget as of 6/30/19)	\$5.6 M	\$5.6 M	0.0%	Ⓜ	Estimated cost within 5% of target budget	Estimated cost > 5% above target budget	Estimated cost > 10% above target budget
1.4: General Project Costs⁽²⁾	General Project Projected Cost at Completion versus the Baseline Budget (budget as of 6/30/19)	\$11.7 M	\$11.7 M	0.0%	Ⓜ	Estimated cost within 5% of target budget	Estimated cost > 5% above target budget	Estimated cost > 10% above target budget
2: Program Manager Cost Performance Index⁽³⁾	Ratio of Program Manager Earned Value to Actual Invoiced Cost-to-Date (as of 8/31/19)	1.00	0.97	-0.03	Ⓜ	>= 1.00	0.99 to 0.90	< 0.90
3: Project Schedule Performance Index⁽⁴⁾	Ratio of Actual Percent Complete to Planned Percent Complete (as of 8/31/19)	1.00	0.91	-0.09	Ⓜ	>=1.00	0.99 to 0.80	<0.80
4: Conveyance Pipeline Installed	Feet of conveyance pipeline installed (thru 8/31/19)	18,500 LF	0.0 LF	0.0%	Ⓜ	<= 5%	> 5% and <=7.5%	> 7.5%
5: Compliance Date Countdown	Days Remaining to Compliance Date (as of 8/31/19)	1,277 days	851 days	-426 days	Ⓜ	>= 365 days	364 days and 180 days	> 179 days

Notes:

(1) The target costs represent the Fiscal Year 2019/2020 current budget of \$125,884,000. The original baseline budget used as the basis of the rate increase is \$125,941,000.

(2) General Project Costs include Program Management, funding, permitting, etc. as well as approximately \$5 million of accumulated costs for the Project before Carollo became Program Manager in April 2018.

(3) Program Manager's budget performance is being impacted by a delay in the annual budget amendment. Tasks including Routine Update Meetings and Project Controls were originally funded through June 2019.

(4) Delays associated with access to Vistra and PG&E property have resulted in schedule delays impacting hydrogeology work and completion of the Conveyance Facilities final design and hydrogeology work needed for the Recycled Water Facilities preliminary and final design.

Section 3

PROJECT COSTS

3.1 Project Budget

The overall budget status for the Project is summarized in Table 4. The top half of the table provides a summary of total estimated Project costs, including original and current estimated costs for the entire Project. The bottom half of Table 4 shows the total amount of work currently under contract and provides a summary of total charges.

Table 4 WRF Project Overall Budget Status (thru August 2019)

Summary of Total WRF Project Cost	
Original Baseline WRF Project Budget ⁽¹⁾	\$125,941,000
Current Fiscal Year WRF Project Budget ⁽²⁾	\$125,884,000
Current WRF Project Budget (as of 6/30/19) ⁽³⁾	\$125,884,000
Budget Percent Change (Current versus Baseline)	0.0%
Total Expenditures for August 2019	\$866,520
Total Expenditures to Date (thru 8/31/19 invoices)	\$12,287,142
Percent of Current WRF Project Budget Expended	10.2%
Summary of Contracted Work	
Total Contracted Amount	\$77,246,016
Percent of Current WRF Project Budget Contracted	61.4%
Total Contracted Amount Expended	\$11,193,947
Percent of Contracted Amount Expended	14.5%
Remaining WRF Project Contracted Amount	\$66,052,070

Notes:

- (1) Developed in June 2018 as the basis of the approved rate surcharge that took effect in July 2019.
- (2) The budget for the Project is reviewed on an annual basis at the end of each fiscal year (June 30th) and is used as the basis of performance for the Project for the upcoming fiscal year.
- (3) The Project budget is reconciled on a quarterly basis and compared to the current fiscal year budget (i.e., September 30th, December 31st, and March 31st)

3.2 Project Cash Flow

Presented in Figure 1 are the projected and actual expenditures for the Project through August 2019 compared to the current fiscal year budget developed at the end of Fiscal Year 2018/2019 as the basis for the upcoming fiscal year (i.e., July 01, 2019 through June 30, 2020). The line graph shows the cumulative expenditures for the Project and the bars show the discrete monthly expenditures. Actual and budgeted expenditures from 2013 to the end of Fiscal Year 2018/2019 have been combined to improve readability. Total expenditures over that period were \$11,013,825. A milestone has been added to the cumulative forecasted expenditures. This milestone corresponds to the substantial completion of the WRF, which coincides with the City being in compliance with the TSO issued by the Regional Water Quality Control Board (RWQCB) in June 2018.

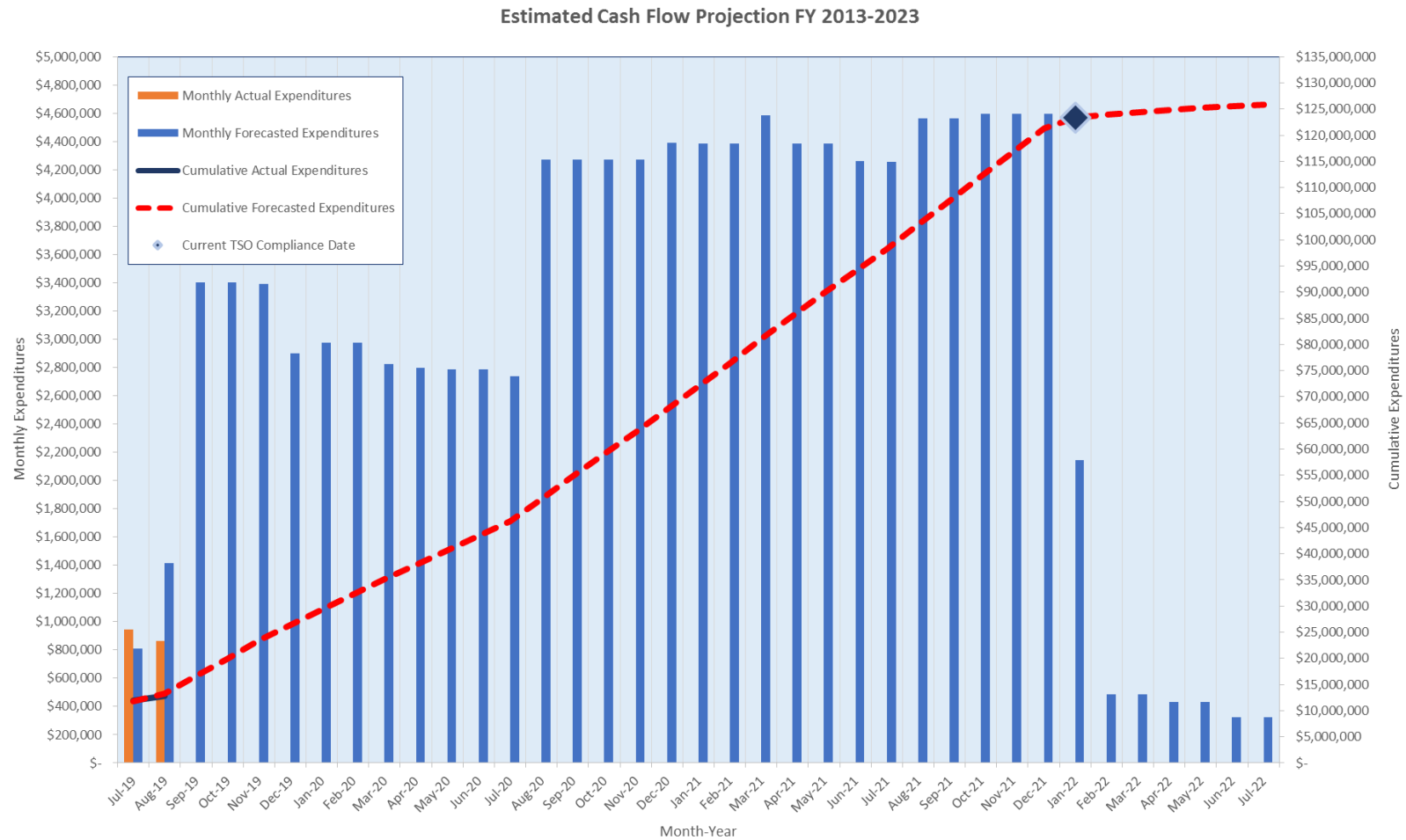


Figure 1 Project Cash Flow Projections and Actual Expenditures

Section 4

PROJECT SCHEDULE

A summary of the Project schedule is presented in Figure 2. The light blue bars for each major task represent the planned progress based on the baseline schedule developed at the end of Q4 Fiscal Year 2018/2019. The dark blue bars represent the current actual progress as of September 17, 2019. For each major line item, the schedule performance index (SPI) has been provided as well as an overall SPI for the entire Project. The SPI is a ratio of the current actual percent complete versus the planned percent complete. A SPI of greater than 1.00 indicates that the Project is on or ahead of schedule and a SPI of less than 1.00 indicates the Project is running behind the planned schedule.

4.1 Project Milestones

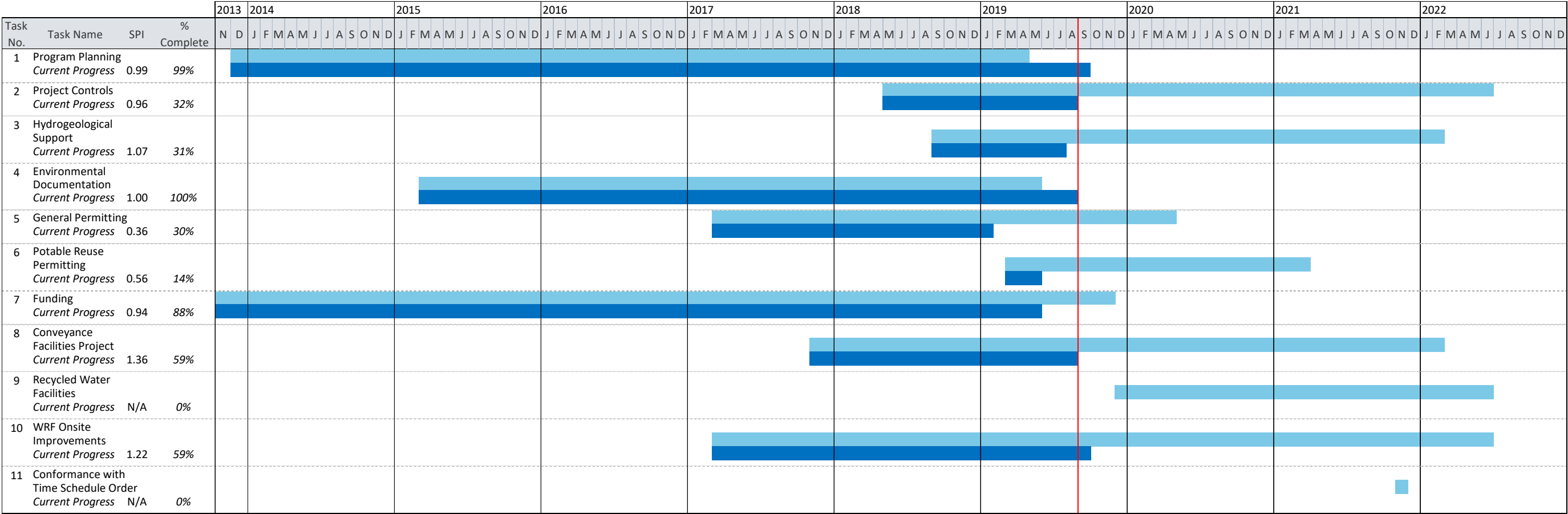
In June 2018, the City received a TSO from the RWQCB. The TSO requires the City to comply with a time schedule that will, within five years of adoption, allow the City to achieve full compliance with biochemical oxygen demand (BOD) and total suspended solids (TSS) final effluent limitations established in Order No. R3-2017-0050. In addition to the final compliance date, a number of intermediate milestones are provided in Table 5 (Compliance Schedule) of the TSO. Presented in Table 5 are the milestones in the TSO.

Table 5 Project Construction Milestones

Required Actions	Compliance Due Date	Planned Compliance Date	Actual Compliance Date
Release of Public Draft EIR	March 30, 2018	-	March 30, 2018
Release of Updated Rate Study	June 30, 2018	-	July 05, 2018
Proposition 218 Hearing	August 30, 2018	-	September 11, 2018
Certification of Final EIR	June 30, 2018	-	August 14, 2018
Award of Contract for WRF	September 30, 2018	-	October 23, 2018
Develop, Implement, and Submit Pollution Prevention Plan (PPP) for BOD and TSS	December 01, 2018	TBD ⁽¹⁾	-
Award of Contract for Construction of Conveyance Facilities	November 30, 2019	July 31, 2020	-
Completion of WRF Improvements with Completion Report	December 30, 2022	December 29, 2021	-
Full compliance with final effluent limitations	February 29, 2023	December 29, 2021	-

Notes:

- (1) The City and Program Manager have noted this requirement in the previous quarterly progress reports sent to the RWQCB (as required by the TSO). The City has requested that the Enhanced Source Control Program (ESCP) required as part of the Title 22 Engineer's Report be considered acceptable for this requirement in lieu of the PPP identified in the TSO.



Project SPI: 0.91
Program % Complete: 62%

Figure 2 Project Milestone Summary