

MEMORANDUM

Riverside Public Utilities

DATE:

TO: AL ZELINKA; CITY MANAGER

FROM: TODD JORGENSON, INTERIM GENERAL MANAGER, PUBLIC UTILITIES DEPARTMENT

KRIS MARTINEZ, DIRECTOR, PUBLIC WORKS DEPARTMENT

RE: MEMORANDUM OF UNDERSTANDING FOR PRODUCTION AND DISTRIBUTION OF RECYCLED WATER

This Memorandum of Understanding (MOU) is between the City of Riverside's Public Utilities Department (RPU) and Public Works Department (PW) (sometimes referred to herein as Department or Departments).

1. Overview

PW is responsible for the treatment of wastewater and production of recycled water at the Riverside Regional Water Quality Control Plant (RWQCP) under the City's Waste Discharge and Producer/User Reclamation Permit. RPU is responsible for the distribution of recycled water to their customers as covered under the Master Reclamation Permit.

This MOU sets forth the methodology which recycled water will be treated and produced by PW and conveyed to RPU for distribution.

2. Effective Date

This MOU will be effective as of ______ and will remain in effect until cooperatively amended or terminated by mutual consent of RPU and PW.

3. Customers

Existing users of recycled water except for The Toro Company (5825 Jasmine St, Riverside, CA 92504) will become customers of RPU. RPU will evaluate the feasibility of making the Toro Company its customer when the recycled water pipeline is extended to the customer's property. PW will continue to provide

recycled water to the Toro Company until RPU has extended a service line to the customer's premise or Toro terminates its agreement with PW.

4. Interconnection and Access

Intertie Location

Intertie location is defined as the boundary point between Public Works (PW) recycled water production and Public Utilities (RPU) recycled water distribution. The intertie location is identified in Exhibit A and is located near the northwest corner of Chlorine Contact Basin #2 (CCB2).

RWQCP Access

PW will provide reasonable access to RPU at the RWQCP to perform operation and maintenance activities, and to repair the recycled water system. RPU will notify the PW dispatch center at least 48 hours in advance of non-emergency maintenance or repairs. RPU will enter the RWQCP through the main gate off Acorn Street and sign in at the Administration Office prior to commencing work. RPU may access its recycled water facilities at the RWQCP for emergencies from the gate located near the intersection of Van Buren Blvd. and Jurupa Ave. RPU will only utilize this entrance when timely entrance from the main gate off Acorn Street is not granted and RPU believes that prompt access to RPU recycled water facilities is warranted to prevent failure of the recycled water system, or risk to health and safety of people. PW will provide RPU with updated keys to the emergency access gate at Van Buren Blvd. and Jurupa Ave.

4.1 Operations

4.1.1 Regular Operations

PW will maintain and operate the RWQCP such that the following operating parameters are met. Phase 1 and Phase 2 are shown in this MOU within Exhibit D:

- Time of operation 24/7
- Flow (gpm) 100 to 2,500 gpm in Phase 1; 100 to 3,500 gpm in Phase 2
- Pressure at CCB2 Recycled Water Booster Station discharge: between 100 to 115 psi
- Annual Volume (acre-feet per year): Up to 600 AFY in Phase 1 and up to 3,370 AFY in Phase 2
- Recycled Water that meets Title 22 water quality regulation requirements
- Minimum and maximum chorine residuals of 0.15 mg/L and 3 mg/L respectively at PW's sample point at CCB2

4.1.2 Start-up

RPU will provide at least two weeks advance notice to PW regarding commencement of deliveries of recycled water. The start-up will be coordinated

between RPU and PW's operations staff to ensure expected flow and pressure are available at the point of interconnection. Details of startup will be coordinated between the staffs of the Departments in the month prior to the start-up.

4.1.3 Planned Shut Downs

The Department initiating the planned shutdown of delivery of recycled water shall notify the other Department's contact persons via email at least two weeks in advance of any planned shutdowns. The non-initiating Department shall acknowledge the receipt of the email by responding to the notification email. Should the initiating Department not receive the acknowledgement email within 2 business days of sending of the notification email, the initiating Department shall contact the other Department's contact persons via phone.

4.1.4 Emergency Shut Downs

If a Department needs to shut down or stop the delivery of recycled water in an emergency, the initiating Department shall notify the other Department's contact persons via phone as quickly as possible. The contact shall be made in the order listed on the contact sheet until a live person is reached. The contacting party shall not rely on voicemail. A contact sheet listing phone numbers for such persons for emergency and planned shutdowns is attached in Exhibit B.

5. Water Quality and Regulatory Reporting

PW will be responsible for providing recycled water that meets California Code of Regulations Title 22 requirements under its Waste Discharge and Producer/User Reclamation Permit at the intertie. PW will complete all necessary water quality testing, inspection, monitoring, and regulatory reporting as required in its permit. PW will provide all necessary production and water quality information to RPU. RPU will be responsible for any necessary water quality testing, inspection, monitoring within the distribution system. RPU will complete all necessary reporting to comply with its Master Reclamation Permit.

6. Capital Improvements (Production and Distribution)

6.1 Design

RPU and PW will coordinate on design and construction of all capital improvements related to recycled water at the RWQCP to ensure satisfactory production and distribution of recycled water. RPU will reimburse PW for all costs associated with design of facilities at the RWQCP solely dedicated or constructed for the delivery of recycled water to RPU at the intertie.

6.2 Construction Management

PW will manage construction projects within the RWQCP facility as determined appropriate by mutual PW/RPU agreement. RPU will reimburse PW for all costs associated with construction management of facilities at the RWQCP solely dedicated or constructed for the delivery of recycled water to RPU at the intertie.

6.3 Construction Cost

RPU will be responsible for costs associated with capital improvements within the RWQCP facility necessary to deliver recycled water to its customers, but not the costs for meeting effluent discharge requirements (water quantity and quality) pf PW's Waste Discharge and Producer/User Reclamation Permit.

The following facilities/equipment are to be constructed as part of the Phase 1 recycled water distribution system:

- A. A surge-tank near the southwest boundary of the RWQCP
- B. An ultra-sonic flow meter to measure flow leaving the RWQCP

C. A SCADA panel to acquire operating data and control the operation of the surge tank

- D. Electrical and instrumentation wiring to instruments and the SCADA panel
- E. Either an RTU unit or fiber optic connection to send data to Utilities Operations Center (UOC)

RPU will be responsible for constructing, installing and maintaining these facilities and equipment. RPU will also be responsible for capital improvements needed for its Phase 2 expansion of the recycled water system, which will include a pump station expansion. Details of the Phase 2 improvements will be provided at a later date. If the on-site recycled water pipeline or the CCB2 Booster Station needs to be relocated to accommodate PW's needs, PW will bear the full cost of relocation.

- 7. Maintenance
 - 7.1 Maintenance and Repair

PW is responsible for maintenance and repair of all pipelines, valves, meters, conduit, and other equipment pertaining to the recycled water system on its side of the intertie location. Likewise, RPU is responsible for maintenance and repair of all pipelines, valves, meters, conduit, and other equipment pertaining to the recycled water system on its side of the intertie location. Maintenance of RPU's underground facilities within the RWQCP will be repaired by PW at RPU's expense. PW will commit to timely repairs and will coordinate with RPU

regarding cost prior to commencement of work. Should repairs be delayed, RPU reserves the right to make its own repairs within the RWQCP as necessary to keep the recycled water distribution system operational.

If maintenance, repair, or other work performed by PW, RPU, or their respective contractors causes damage to the recycled water system (e.g. PW contractor damages recycled water line on RPU side of the intertie location), the Department responsible for the damage will bear the full cost of repair and repairs will be performed in a timely manner and to the other Department's satisfaction.

7.2 Metering and Billing

RPU will be responsible for installing and maintaining (including annual calibration) of the flow meter located at the southwest corner of the RWQCP.

PW will be responsible for maintaining and calibrating the CCB2 meter.

PW will be responsible for reading the two meters on a monthly basis and producing a monthly bill. It is proposed that PW will read both meters on the first business day of each month and provide bills to RPU by no later than 10th of the month.

PW will bill RPU monthly for electricity costs (calculated in accord with Section 8) and annually for maintenance costs.

RPU will pay PW one lump-sum payment to utilize recycled water facilities within the RWQCP for the life of the identified facilities.

8. Electricity Costs (Monthly Billing)

The electricity charge will be billed monthly based on meter read from the flow meter located at the southwest corner of the RWQCP. PW shall charge \$60/AF for electricity cost for 2018. This rate will retroactively be adjusted to reflect actual cost. PW shall calculate electricity cost based on the following methodology:

- 1. Calculate the total and individual flows to RPU and internal usage (including to Toro) each month.
- 2. Charge \$60 for each acre-feet of water delivered to RPU for electricity till December 31, 2018.
- 3. Calculate blended unit electricity cost for each calendar year by dividing total amount paid for electricity for the RWQCP by the total KWh consumed by the RWQCP for the same year.

- 4. From SCADA readings, calculate the total electricity consumption by the booster station for the entire calendar year in each year after 2018.
- 5. Calculate percentage of the total flow from the booster station that was delivered to RPU.
- 6. Calculate the annual electricity cost by using the following equation:



7. If this cost is higher than \$60/AF, PW will issue an electricity cost adjustment bill to RPU to pay and set the monthly unit electricity charge for the year to the new cost. If this cost is lower than \$60/AF then PW will issue a credit towards future bills to RPU and set the monthly unit electricity charge for the upcoming year.

The \$5/AF charge is intended to cover all ancillary costs associated with billing such as meter reading, bill generation, etc. and operations of the system such as opening and closing valves, operational coordination related to the distribution of the recycled water system.

9. Maintenance Cost (Annual Billing)

The maintenance cost for the recycled water booster station shall be divided between the Departments equally (i.e. 50% paid by RPU, 50% paid by PW). The maintenance cost for the booster station is being and will continue to be tracked via City's Oracle UWAM based asset management system. A maintenance cost bill will be sent by PW annually with documentation showing the cost breakdown to RPU for review and payment.

10. Capital Cost (One-time Lump-sum)

RPU shall pay one lump-sum payment in the amount of \$3,742,928 to acquire the right to use 100% of the capacity of the existing 36-inch pipeline (shown in

green in Exhibit A) and up to 50% of the current capacity of the CCB2 Recycled Water Booster Station. A summary of capital costs and the breakdown is given in Table 1.

Table 1: Recycled Water Capital Cost Payment						
Item	RPU's Share of Construction Costs	Interest Paid	Principal Balance Remaining			
Recycled Water Booster						
Station	\$2,103,839	\$762,176	\$1,852,506			
36-Inch Pipeline	\$664,474	\$212,440	\$585,093			
Totals	\$2,768,312	\$974,616	\$2,437,600			
	RPU Pay	<u>\$3,742,928</u>				

RPU will be required to pay for replacement of the 36-inch recycled water pipeline at the end of its useful life, only if the pipeline is still required for recycled water distribution. RPU will share a flow-weighted portion of the cost to replace the CCB2 Recycled Water Booster Station with PW at the end of its useful life. The original cost memorandum that was created to achieve consensus between the two departments is attached in Exhibit C.

11. Communication

PW and RPU will continue to hold periodic meetings to discuss operations, expansion projects, and billing.

11.1 Operations Meeting

RPU and PW's operating and engineering staff will meet monthly for the first 6 months after commencement of the first delivery of recycled water. If no major issues are encountered during the first six month period, this meeting should be henceforth conducted once every quarter. The following topics are expected to be discussed in these meetings, but staff may include other topics:

- Operational successes and issues
- Planned shut-downs
- Updates to the contact list
- Monthly and annual billing
- SCADA and instrumentation
- Condition of recycled water facilities
- Expected future demand
- Water quality

- Regulatory compliance and reporting
- RWQCP expansion and modification
- Recycled Water Distribution System expansion and modification

RPU's Water Operation Manager (currently David Garcia) will be responsible for organizing these meeting. Principal Engineer for the RWQCP (currently Ernest Marquez) will be responsible for PW's communication and attendance. It is proposed that these meetings are either held at the RWQCP or at the UOC.

11.2 Billing Meeting

RPU and PW will meet at least once a year to go over billing of recycled water. The following topics are expected to be discussed in these meetings, but staff may include other topics:

- Monthly delivery and flows
- Year-to-date electricity charge calculations
- Year-to-date maintenance charges

RPU's Senior Engineer in Planning (currently Gaurav Agarwal) will be responsible for organizing these meetings. Principal or Senior Analyst for the RWQCP will be responsible for PW's communication and attendance.

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<u>Exhibit A</u>



<u>Exhibit B</u>

	Recycled Water Emergency Contact List					
	Name	Title	Office Extension	Email		
Jtilities	Cliff Bellinghausen	Chief Water Operator	X6318	DO NOT EMAIL IN CASE OF EMERGENCY		
	David Garcia	Water Operations Manager	X5612	DO NOT EMAIL IN CASE OF EMERGENCY		
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Pul						
ıbic Works	PW Dispatch		951.333.9450	DO NOT EMAIL IN CASE OF EMERGENCY		
	On-Call Senior Operator		951.712.2307	DO NOT EMAIL IN CASE OF EMERGENCY		
	Gilbert Perez	Wastewater Operations Manager	X6276	DO NOT EMAIL IN CASE OF EMERGENCY		
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	Recycled Water Non-Emergency Contact List					
	Name	Title	Office Extension	Email		
olic Utilities	David Garcia	Water Operations Manager	X5612	DAGarcia@riversideca.gov		
	Cliff Bellinghausen	Chief Water Operator	X6318	CBellinghausen@riversideca.gov		
	Gaurav Agarwal	Senior Water Engineer	X5379	gagarwal@riversideca.gov		
Pu						
Works	Edward Filadelfia	Technical & Compliance Manager	X6080	ejfiladelfia@riversideca.gov		
	Gilbert Perez	Wastewater Operations Manager	X6276	giperez@riversideca.gov		
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RPU - PW Recycled Water Contact List

Exhibit C

Memorandum

- To: Todd Jorgenson, Kris Martinez
- **CC:** Arshad Syed, Oscar Khoury, David Garcia, Michael Plinski, Craig Justice, Edward Filadelfia, Ernest Marquez
- From: Gaurav Agarwal, Michael Roberts
- Date: 8/7/2017
- **Re:** Recycled Water Facilities Related Payment Public Works from Riverside Public Utilities Water

Recommendation

<u>Capital Cost</u>

Public Works (PW) and Public Utilities - Water (RPU) staffs have come to an agreement on allocation of recycled water related construction costs at the Regional Water Quality Control Plant (Plant) between the two departments. However, staffs differ in opinion about how to calculate the total payment in 2017 for facilities constructed between 2004 and 2012. The recommendations of the two staffs are summarized in the table below.

Recycled Water Payment Recommendations							
Item	RPU's Share of Construction Costs	Interest Paid	Principal Balance Remaining				
Recycled Water Booster Station	\$2,103,839	\$762,176	\$1,852,506				
36-Inch Pipeline	\$664,474	\$212,440	\$585,093				
Totals	\$2,768,312	\$974,616	\$2,437,600				
PW Staff RPU Staff	<u>\$3,742,928</u> <u>\$2,437,600</u>						

Maintenance Cost

Staffs agreed that the maintenance cost for the recycled water booster station be divided between the two departments equally (i.e. 50% paid by RPU, 50% paid by PW).

Electricity Costs

It is agreed that PW will charge \$60/AF for pumping charge. This rate will be retroactively be adjusted to reflect actual cost.

Description

Recycled Water Booster Station at CCB2

The technical memorandum about the recycled water booster station at CCB2 submitted as part of the 100% design submittal in 2008 by Lee & Ro, Inc. provides details about the sizing of the booster station. On page 1-1 of the technical memorandum, Lee & Ro specify RPU's Recycled Water EIR as one the documents considered in the sizing of the booster station. On page 2-3, within Table 2.3-1, the maximum peak flow rate is calculated to be 4,800 gpm and would occur during peak daytime use. Of that peak demand, 60% was attributed to the on-site usage at the Plant and the remaining 40% was attributed to RPU's recycled water customers such as Van Buren Golf Course, RERC, etc. On page 2-4, the technical memorandum also points toward design enhancements made for future expansion of the booster station to accommodate increased retail recycled water demand. To account for the expansion elements of the booster station, staffs agreed to divide the capital cost of the booster station equally (50%/50%) between RPU and PW.

The total project cost of the recycled water booster station at CCB2 was \$4,931,641. Approximately \$723,963 of that cost is attributable to change orders unrelated to the core function of the booster station (e.g. basin handrails, contact basin covers, etc.) leaving a total of \$4,207,678 to be equally divided between RPU and PW.

The majority of project expenses were funded by 2009 Sewer Revenue bonds. As detailed in Attachment A, for the portion of the project attributable to the booster station, interest expenses incurred since commencement of the project total \$1,524,352 to be divided equally between RPU and PW.

PW Staff recommends RPU's payment to PW to include RPU's share the original cost of the construction costs plus the interest calculated based on the 2009 Sewer Revenue bonds. Based on this recommendation RPU should pay \$2,866,015 for the booster station.

RPU Staff recommends that RPU's the payment to PW be based on the principal balance remaining on the booster station of \$1,852,506 which is calculated based on proration of the principal balance of the 2009 Sewer Revenue bonds that remains.

36-inch Recycled Water Pipeline

The 36-inch diameter pipeline on the discharge side of the booster station is solely used to supply recycled water to RPU's retail customers. Thus, staffs agreed that the pipeline is fully attributable to RPU. This project was funded by 2009 Sewer Revenue bonds. As detailed in Attachment A, project costs totaled \$664,474 and interest costs totaled \$212,440 for a total of \$876,913. Thus PW staff recommends that RPU pays \$876,913 for the pipeline. RPU staff recommends that RPU pays the balance of the principal which equals \$585,093.

Maintenance Cost - Recycled Water Booster Station at CCB2

Based on the agreed upon capital cost allocation for the booster station, staffs agreed that the maintenance cost should be proportional to the capital cost allocation i.e. 50% - RPU, 50% PW.

Electricity Cost - Recycled Water Booster Station at CCB2

In a 2011 technical memorandum about cost of recycled water RPU, MWH calculated the pumping cost to be \$45/AF. Upon reviewing the calculations, RPU proposed that the total dynamic head (TDH) be lowered to 245 ft. from 290 ft. and the unit cost of electricity be increased to reflect PW's current blended unit cost of \$0.11/kWhr. These adjustments lowered the pumping cost to \$41/AF. PW's calculated the actual cost by calculated kWhrs used at the booster station from the amperage and voltage data from SCADA and multiplying it by PW's blended unit cost of electricity. The actual cost calculated by PW was \$76/AF. Staffs are of the opinion that that difference between the actual and theoretical pumping costs is due to the fact that the pumps are operating at far below their design capacities and even with the presence of variable frequency drives on the pumps, actual efficiency is much lower than the efficiency used in calculating the theoretical pumping cost. Staffs are of opinion that once the Phase 1 system of the recycled water is operational, the increased demand will increase the efficiency of the pumps. Thus staffs agreed to a unit pumping rate of \$60/AF which will be retroactively adjusted annually to match to the actual cost. Staff proposed to July 1st of each year to be the true-up date. RPU staff proposed installation of an electric sub-meter at the booster station to circumvent the need to calculate electricity usage via SCADA data. RPU has agreed to be responsible to install the sub-meter.

<u>Exhibit D</u>

