

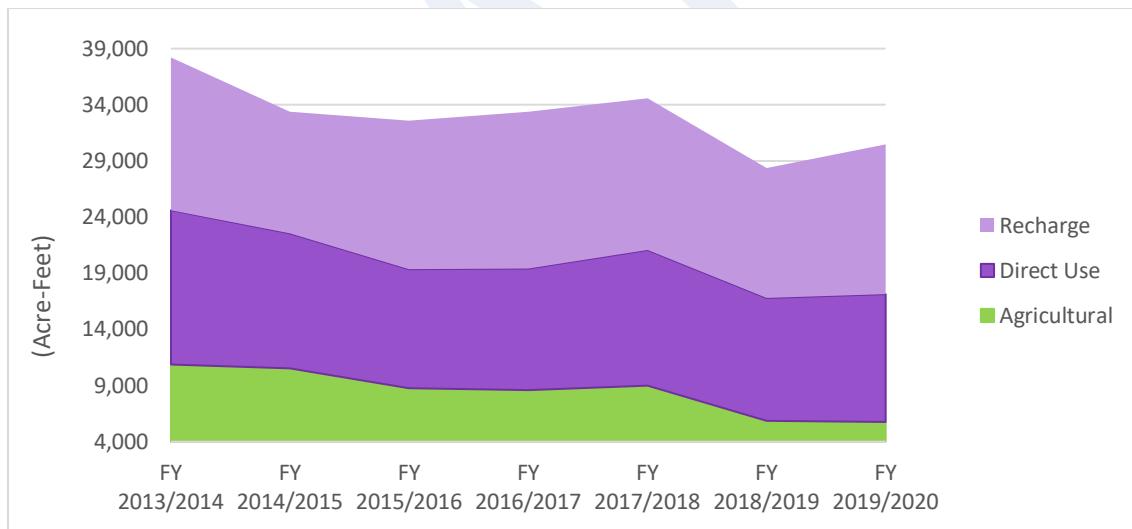
**City of Rialto and Western Riverside County Regional Wastewater Authority**  
**EXTERNAL SUPPLY SOURCES WHITE PAPER**

**Introduction**

The concept of securing additional external water supplies began as early as 2012 with focused discussions occurring in 2014, when IEUA’s Regional Contracting Agencies expressed greater interest in acquiring additional supply sources external of the Chino Basin to supplement existing recycled water supplies. These external supplies were intended to augment IEUA’s recycled water supplies during the summer months when the recycled water demands would outpace available supplies. In order to meet the recycled water direct use commitments during these periods of peak demand, the IEUA recycled water system was balanced by shutting off recycled water supplies to the groundwater recharge basins. At the time, the interest was to bring in additional supplies so that recycled water demands could be met during the peak summer months for agricultural and other direct use in the southern service area.

Maximizing groundwater recharge became an increased priority for some of the Contracting Agencies, however spreading basin capacity was unavailable when the supplies were most accessible during the winter months; therefore, the idea of bringing in additional supplies during the summer months was a good way of addressing the issues of peak demands and the lack of recharge basin capacity.

Conditions have changed since the initial 2014 concept as recycled water direct use demands in the southern service area have declined due to land use conversions from agricultural to residential/commercial development (**Figure 1**), resulting in excess available supplies.



*Figure 1 – Recycled Water Use Over Time*

IEUA directs as much recycled water for groundwater recharge as possible, except for days in the summer months when demand is greatest and supplies to some recharge basins are shut off. With the San Sevaine groundwater recharge basin improvements recently completed in 2020, the maximum recycled water recharge capacity has increased to over 16,000 acre-feet (AF) per year, which is largely utilized over a 9-month period. However, with excess supplies available, especially during the winter months of the year, and existing recharge basin capacity being fully subscribed, alternatives to store the proposed external supplies would be needed. Potential concepts explored include a combination of adding new recharge basin capacity (i.e., by extending the regional recycled water pipeline to other basins such as the Montclair/College Heights basins) and/or constructing injection wells. The cost of adding pipeline capacity, additional recycled water recharge basin capacity, and even 5,000-10,000 AF of external supplies were all

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considered in the 2015 Recycled Water Program Strategy (RWPS). However, projected growth and recycled water demands were anticipated to be much greater at the time of the study. An increase in conservation practices due to drought and decrease in recycled water direct use demands due to land use conversions has resulted in both considerably lower recycled water supplies and recycled water demands over the last several years, with that pattern expected to continue forward. **Table 1** below is based on the initial RWPS analysis and has been revised with current data/projections to show estimated recycled water demands and supplies, assuming 17,000 AF released to the Santa Ana River as well as the ability to utilize theoretical maximum basin capacities.

<b>Demands &amp; Supplies (AF)</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>
<b>Total RW Supply<sup>1</sup></b>	56,370	56,388	60,155	63,526	64,781
- Santa Ana River Discharge	17,000	17,000	17,000	17,000	17,000
- RW Direct Use Demand <sup>1</sup>	22,580	17,115	20,870	23,275	24,704
<b>Potential RW GWR Supply</b>	16,790	22,274	22,285	23,251	23,077
- RW GWR Basin Capacity <sup>2</sup>	13,175	17,275	20,300	20,300	20,300
+ Proposed External Supplies	0	0	6,000	6,000	6,000
<b>GWR Supplies Over Capacity</b>	<b>3,615</b>	<b>4,999</b>	<b>7,985</b>	<b>8,951</b>	<b>8,777</b>

**Table 1 – Recycled Water Demands & Supplies**

1. Projected Recycled Water (RW) Reuse Supply and Direct Use Demands from 2021 Demand Forecast Study
2. Estimated theoretical maximum RW Groundwater Recharge (GWR) Basin Capacity from 2018 Recharge Master Plan Update (RMPU); the 2023 RMPU is currently underway and may result in changes to the RW GWR Basin Capacity estimates

As shown in **Table 1**, potential available recharge supplies continue to exceed even the theoretical maximum basin capacities. This limitation is largely due to what can be feasibly used during the summer as opposed to winter months (seasonality), pump and pipeline capacity constraints, and overall percolation performance at each of the basins. Once the 2018 RMPU recommended projects are completed, the theoretical maximum recycled water basin capacity is estimated to rise to approximately 20,300 AF. While there is some additional physical capacity at various basins to recharge more water, the RWPS and RMPU studies found that much of the projects needed to expand such recycled water recharge capacity would be either currently cost prohibitive or prohibitive from a regulatory standpoint. With regards to regulatory requirements, sufficient stormwater or imported water must also be recharged at basins in order to meet minimum blend requirements to allow recharge of recycled water, or its recycled water contribution (RWC); recycled water also cannot be recharged within close proximity to production wells. As such, the alternative to add new basin capacity to accommodate 6,000 AF of external supplies is currently not considered to be a viable option due to regulatory and capacity constraints and has not been included in the Capital Improvement Plan.

As noted, recharge basin availability is limited during the winter months due to the need to also recharge any stormwater, resulting in excess IEUA recycled water supplies. Therefore, new injection wells would likely be the more feasible option to maximize both unused IEUA recycled water supplies and external supplies. The current regulatory requirement is to advance purify the current tertiary treated recycled water before it can be injected into the groundwater basin, thereby needing advanced water purification facilities (AWPF) in addition to injection to make reliable and consistent use of the supplies. Advanced water purification of the external supplies thus also provides much greater flexibility in where and how the supplies can be utilized.

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The current drivers for the IEUA Contracting Agencies are to: enhance water reliability, utilize unused recycled water supplies, and bring in external water supplies through partnerships within the Chino Basin watershed. The external supplies under consideration are from Western Riverside County Regional Wastewater Authority (WRCRWA) and the City of Rialto.

## **Background**

Since 2014, IEUA has been working with Jurupa Community Services District (JCSD) and Western Municipal Water District (Western) through a Memorandum of Understanding to develop a regional recycled water interconnection (WRCRWA RW Intertie). WRCRWA has received the approval for their Change of Use Petition from the State Water Resources Control Board which allows for the diversion of 100% of its recycled water for beneficial reuse. JCSD has indicated an interest in pursuing other opportunities instead of the regional interconnection concept that has been developed in the Memorandum of Understanding (MOU); however, Western along with the remaining members of the WRCRWA Joint Powers Authority are interested in a regional partnership and started discussions in mid-2020. Currently, WRCRWA's National Pollutant Discharge Elimination System (NPDES) permit limit for Total Dissolved Solids (TDS) is 620 milligrams per liter (mg/L), which is higher than IEUA's permit limit of 550 mg/L. The WRCRWA agencies do not currently have a recycled water distribution system and therefore discharge 100% of the effluent to the Santa Ana River. The current concept for the principles of agreement include purchase of 4.5 MGD of recycled water between the months of May 1 through October 31 (2,500 AFY).

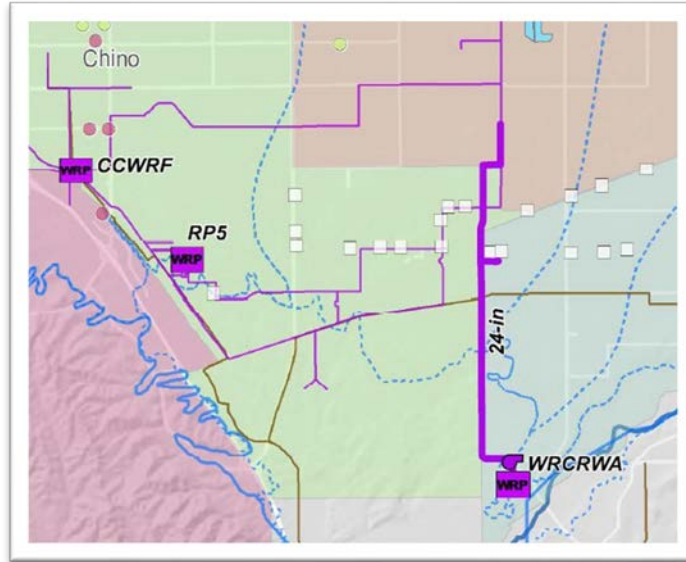
IEUA began discussions with the City of Rialto (Rialto) regarding available external supply sources in 2019. Rialto currently discharges its treated effluent to the Santa Ana River and does not have a recycled water distribution system within its service area. Their NPDES permit limit for TDS is 490 mg/L, which is lower than IEUA's limit of 550 mg/L. The Santa Ana River Multi-Species Habitat Conservation Plan (MSHCP) has identified that the Rialto wastewater treatment plant (WWTP) effluent during the summer months has an adverse impact on native species. By removing this flow from the river, this adverse impact can be mitigated; therefore, Rialto's supply (3,500 AF per year, between May 1 through October 31) is also available as a possible external supply source.

Rialto and Western are interested in marketing their unused recycled water supply. IEUA and its Contracting Agencies are interested in securing supplemental supplies during the summer months to maximize the use of recycled water supplies throughout the year. These objectives could be met through a regional partnership.

## **Supplies from WRCRWA**

The proposed principles of agreement between IEUA and Western comprises a pump station and 5 miles of 24-inch pipeline from the WRCRWA treatment plant to the IEUA 930 pressure zone (**Figure 2**), where a constant flow of 4.5 million gallons per day (MGD) (2,500 AF per year) over 6 months is available for purchase. In exchange for the capital investment and operation of the facilities, IEUA will have the first right of refusal to divert any flows in excess of the 4.5 MGD during the summer months or any flows beyond the summer months from WRCRWA's recycled water system to IEUA's recycled water system.

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**Figure 2 – Proposed WRCRWA Connection**

The estimated capital cost for the design and construction of the project is \$26 million (in 2019 dollars). There is also approximately \$2.6 million in grant funding from the Department of Water Resources (DWR) through the Santa Ana Watershed Project Authority (SAWPA) that may be available. As discussed previously, due to recharge basins capacity that is fully subscribed, AWPf and injection facilities will allow for groundwater storage of the unused IEUA supplies and the external supplies instead of discharging it to the Santa Ana River.

The proposed commodity rate is based on what the IEUA agencies can afford to pay for the purchase price, taking into consideration the capital investment, and operational and maintenance costs for the treatment and storage of the water. The assumptions for developing the commodity rate are shown in **Table 2** as follows:

Discount Rate	4.00%
Interest Rate on Debt (SRF)	2.00%
Financing Term (Years)	30
Interconnection Project Cost	\$ 23,400,000
Interconnection Annual O&M	\$ 234,000
Base Deliveries (\$/AF)	\$ 225
Energy, Injection, Treatment O&M (\$/AF)	\$ 765
Metropolitan Rates Escalation	3%
All Other Costs Escalation	2%
Volume (AF)	2,500
Deal Term (Years, Max 50)	50

**Table 2 – WRCRWA Commodity Rate Assumptions**

Depending on the purchase terms, the associated commodity rate may vary from \$120 per AF for 35 years, to \$225 per AF for 50 years (**Table 3**).

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<b>Term [Years]</b>	<b>Commodity Rate</b>
<b>50</b>	\$225/AF
<b>45</b>	\$190/AF
<b>40</b>	\$150/AF
<b>35</b>	\$120/AF

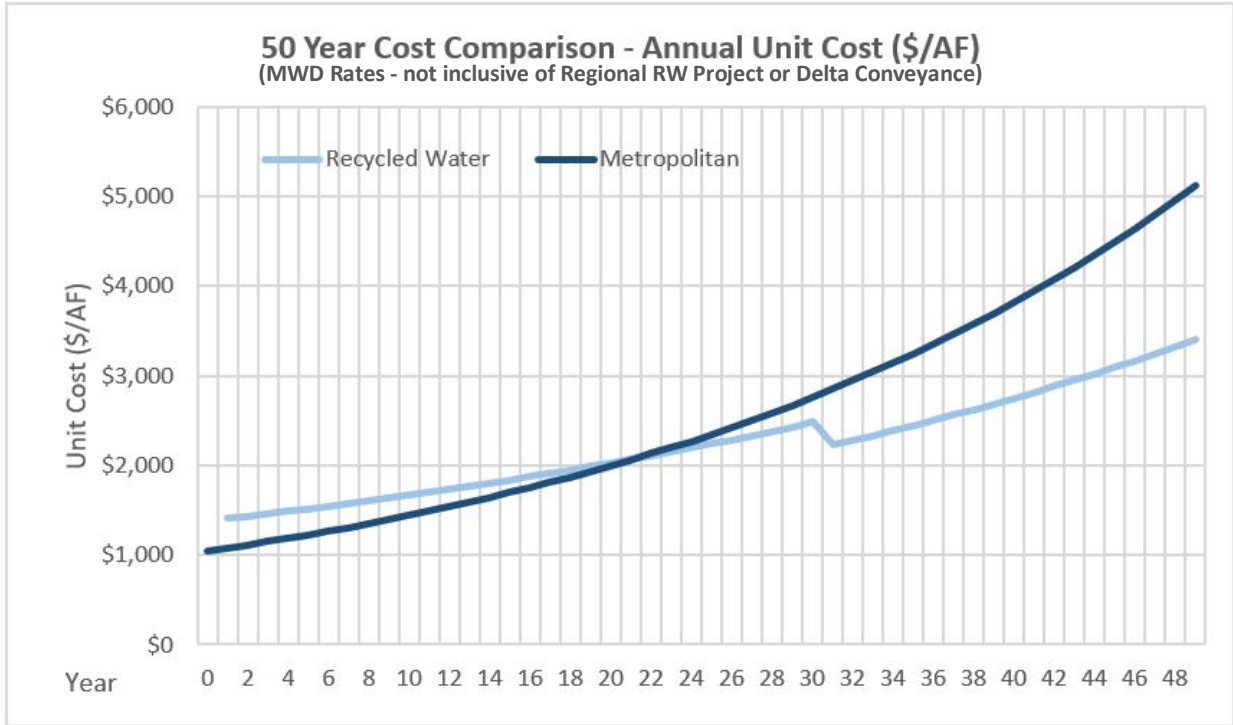
**Table 3 – WRCRWA Supply Term-based Commodity Rates**

<b>Comparison of Rates (WRCRWA)</b>	<b>Rates</b>
<b>MWD “All-In Rate” 2021</b>	~\$1,050/AF
<b>Term Sheet Rate 2021\$</b>	\$1,500/AF
<b>NPV (50 Years)</b>	\$900/AF

**Table 4 – Comparison of WRCRWA Supply Rate with MWD**

It is IEUA’s recommendation to pursue a 50-year term in order to actualize the cost benefit of this external supply. Once debt service payments for the estimated project capital costs are completed in 30 years, the annual unit cost for the supply is expected to drop below the projected Metropolitan Water District of Southern California (MWD) imported water annual unit cost for the subsequent 20 years (**Figure 3**). The 50-year term consists of annual debt service payments of \$1.3 million per year (or \$510 per AF) and operations and maintenance (O&M) costs of \$2 million per year (or \$765 per AF, in 2021 dollars). In comparison to the MWD all-in rate of approximately \$1,050 per AF (MWD rate without the Regional RW Project and Delta Conveyance costs), the WRCRWA term sheet rate is \$1,500 per AF in 2021 dollars with a net present value (NPV) of \$900 per AF (**Table 4**). The term sheet rate includes the debt service payments for the capital costs, O&M, and the commodity rate.

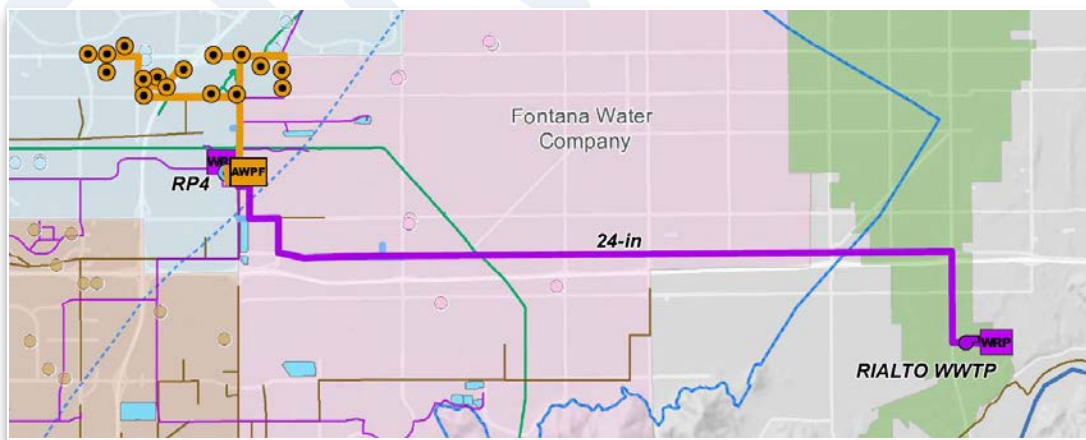
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**Figure 3 – 50 Year WRCRWA Supply – MWD Cost Comparison**

**Supplies from Rialto**

A proposed principle of agreement between IEUA and Rialto comprises a pump station and 10 miles of 24-inch pipeline (Figure 4) from the Rialto treatment plant to IEUA’s Regional Plant No. 4 (RP-4), where 7 MGD (3,500 AF per year) for 6 months are available for purchase. The estimated capital cost for the design and construction of this project is \$53 million (in 2019 dollars).



**Figure 4 – Proposed Rialto Connection**

The proposed commodity rate of \$275 per AF for 50 years is based on what the IEUA agencies can afford to pay for the purchase price, with consideration for the \$2.9 million (\$830 per AF) of annual debt service

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payment costs for the capital investment, and \$1.9 million (\$530 per AF) of annual O&M costs (in 2021 dollars) for the treatment and storage of the water. The assumptions for developing the commodity rate are shown in **Table 5** as follows:

Discount Rate	4.00%
Interest Rate on Debt (SRF)	2.00%
Financing Term (Years)	30
Interconnection Project Cost	\$ 53,000,000
Interconnection Annual O&M	\$ 530,000
Base Deliveries (\$/AF)	\$ 275
Energy, Injection, Treatment O&M (\$/AF)	\$ 530
Metropolitan Rates Escalation	3%
All Other Costs Escalation	2%
Volume (AF)	3,500
Deal Term (Years, Max 50)	50

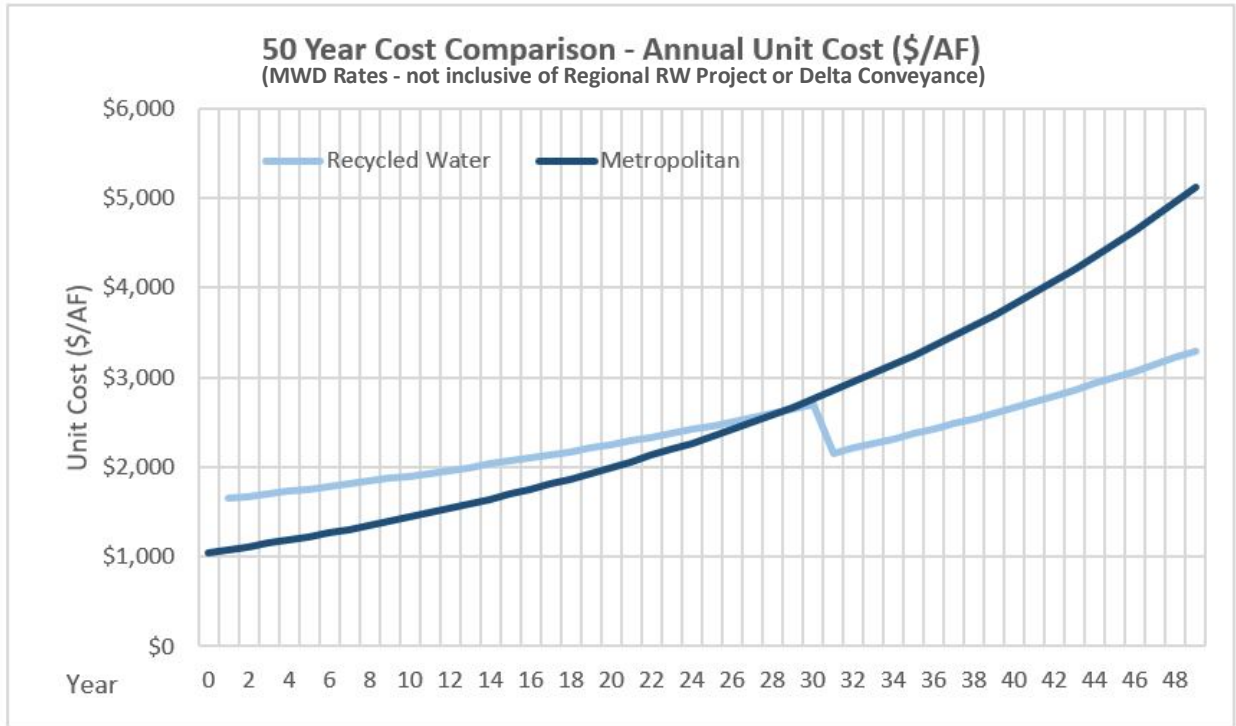
**Table 5 – Rialto Commodity Rate Assumptions**

In comparison to the MWD all-in rate of approximately \$1,050 per AF (MWD rate without the Regional RW Project and Delta Conveyance costs), the Rialto term sheet rate is \$1,635 per AF in 2021 dollars with a net present value (NPV) of \$900 per AF (**Table 6**). The term sheet rate includes the debt service payments for the capital costs, O&M, and the commodity rate. Similar to the proposed WRCRWA project, once debt service payments for the estimated Rialto project capital costs are completed in 30 years, the annual unit cost for the supply is expected to drop below the projected MWD imported water annual unit cost for the subsequent 20 years (**Figure 5**).

<b>Comparison of Rates (Rialto)</b>	<b>Rates</b>
<b>MWD “All-In Rate” 2021</b>	~\$1,050/AF
<b>Term Sheet Rate 2021\$</b>	\$1,635/AF
<b>NPV (50 Years)</b>	\$900/AF

**Table 6 – Comparison of Rialto Supply Rate with MWD**

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**Figure 5 – 50 Year Rialto Supply – MWD Cost Comparison**

### Closing

The true value of these external supplies is in how these proposed projects can provide regional benefits, such as acquiring local reliable water supplies, meeting water quality objectives, salt/nutrient management objectives, maximizing the use of unused recycled water supplies that is otherwise discharged as effluent, increasing groundwater storage capability, and future use of the interconnection capacity.

There are various ways to configure the funding of these proposed external supply projects. As described above, the primary components of the project costs are the capital, O&M, and the commodity rate for the external supply. When these components are combined and broken down into an annual cost, it is shown as the term sheet rate in **Tables 4 and 6**.

- One option to consider would be to treat the capital expenses as a fixed cost, with the philosophy that all IEUA agencies would benefit from the projects in the water quality improvement of the basin and securing additional local supplies which would reduce the stress on existing supplies, and therefore all agencies would support in funding the capital expenses through a pro rata basis centered on each agency’s total equivalent dwelling units (EDUs). The O&M and commodity rate expenses for the purchase of the full WRCRWA and Rialto supplies would be paid by the interested agencies under this option. This methodology would be similar to the concept of the investments in the Regional Recycled Water Infrastructure since 2000.
- Another option to consider is to treat the entirety of the term sheet rate as a variable rate in which interested agencies would purchase the full 2,500 AF of WRCRWA supply and the 3,500 AF of Rialto supply each year at the respective variable term sheet rates, which may adjust over time based on variations in O&M costs.



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These are the current options under consideration but discussions with potentially interested parties are ongoing. IEUA is also in the process of conducting Recycled Water Rate Workshops, where the primary focus is how to fund the existing fixed costs, which is primarily debt service.

On March 25, 2021, the Regional Technical Committee was presented the External Supply Sources as an informational item to introduce the draft conceptual terms. The Cities of Montclair and Ontario and Cucamonga Valley Water District expressed support in the development of the projects and the continued discussions, while the remaining agencies expressed potential interest in the future with reservation on how their respective agency may be affected with rates to support the development of these external supplies. IEUA will continue to refine the terms of an agreement, determine next steps to implement the project, and update the Regional Contracting Agencies. The External Supply Sources draft regional partnership was brought to the Regional Technical Committee on April 29, 2021 and to the Regional Policy Committee on May 6, 2021 as an informational item.

DRAFT