

**East Valley Water District Letter to  
City of Highland Dated January 16, 2015  
outlining the Project with  
attachments presented to  
City Council on January 27, 2015**

**Attachment 3**



# EAST VALLEY WATER DISTRICT

LEADERSHIP • PARTNERSHIP • STEWARDSHIP

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January 16, 2015

Joe Hughes, City Manager  
City of Highland  
27215 Baseline  
Highland, CA 92346

Mr. Hughes:

East Valley Water District strives to be a community-centered organization that is devoted to fostering relationships with the community in a manner that allows local businesses and residents to succeed and thrive. Over the last three years, the District has been working diligently to evaluate our community's water supply and sewer system needs, both now and in the future. As a result of our 2012 Master Plan, the District identified areas of significant need in order to address sewer conveyance capacity limitations. As an organization proud to service residents of Highland, in addition to other jurisdictions, we fully understand and appreciate the General Planning efforts of land management agencies, and our responsibility as the water and sewer provider to develop cost-effective solutions in conjunction with these efforts.

Over the past several months the District has completed a Recycled Water Feasibility Study that analyzed several opportunities that could potentially provide solutions to the long and short term challenges we are facing as it relates to water supply and sewer services. This effort considered several aspects of this issue and included an evaluation of various locations of a future Recycled Water Facility. Beyond the infrastructure needs of the community, the development of recycled water locally and regionally is a critical solution to the water supply emergency facing California.

The final feasibility report recommended that the District consider constructing a facility on the property owned by the District at Sterling Avenue between 5th and 6th Streets. This location has several advantages for this use because the elevation is ideal to maximize gravity for transporting the flows, the surrounding land uses are in line with this facility, and it is within proximity to reuse sites.

Recognizing that the goal of this proposed project is to better serve current and future residents of this region, the District understands the importance of collaborating with other agencies charged with serving the same constituents. This project has created opportunities for multiple public service organizations to demonstrate our ability to come together to achieve the missions that we have been



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entrusted. As a result of these discussions, the District is incorporating the input that we have received, and taking a look at potential improvements that could be considered to enhance the benefits of this effort, including reviewing other locations within East Valley Water District's service area.

An option the District would like the City of Highland and others to consider is an alternate location for the facility, west of the original recommendation. This location would be a combination of property owned by the District, and other parcels currently for sale on Del Rosa Avenue between 5th and 6th Streets, within the City of Highland. The District is confident that the benefits and advantages that were the foundation for recommendations made in the Feasibility Study would also apply to this alternate location. We also believe that there is opportunity for this new location to provide additional benefits to the community.

The District understands that the most successful programs are those that are developed with multiple partners using a cooperative process. With collaboration in mind, we would like to reach out to the City of Highland to invite you to have an increased level of coordination and communication in order to allow our organizations the opportunity to work together to develop solutions to the challenges the region faces.

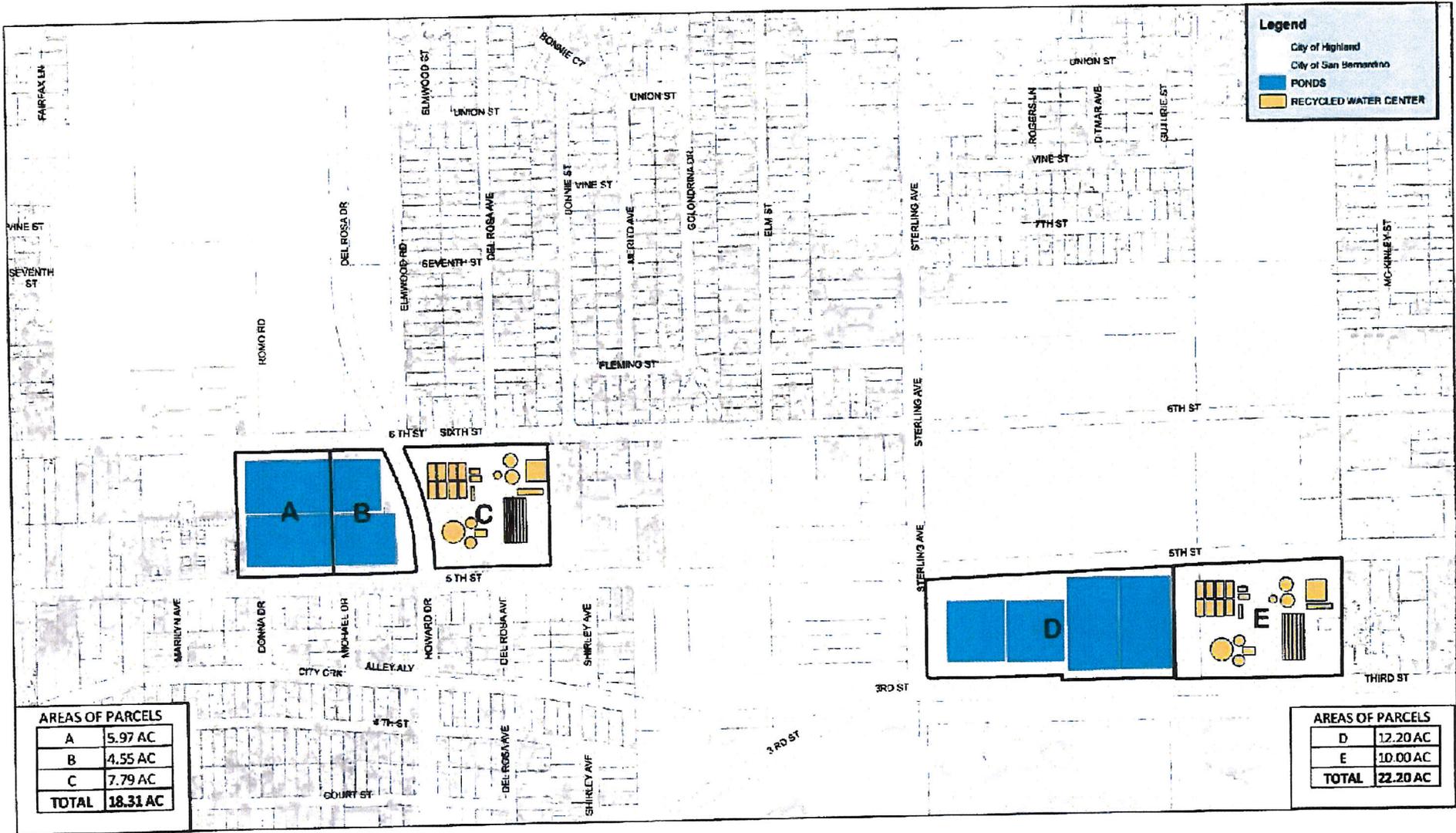
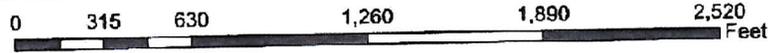
Attached you will find a map with the current and alternate locations, copies of the Recycled Water Feasibility Study Executive Summary, and the presentation that was presented to the Board of Directors on September 24, 2014. I would request that you review this information and contact me with any suggestions as to how you would like to proceed.

I look forward to your feedback and working closer with you and your staff in the future.

Sincerely,

John Mura  
General Manager/CEO

# ALTERNATE LOCATION FOR RECYCLED WATER CENTER



**Legend**

- City of Highland
- City of San Bernardino
- POND'S
- RECYCLED WATER CENTER

**AREAS OF PARCELS**

A	5.97 AC
B	4.55 AC
C	7.79 AC
<b>TOTAL</b>	<b>18.31 AC</b>

**AREAS OF PARCELS**

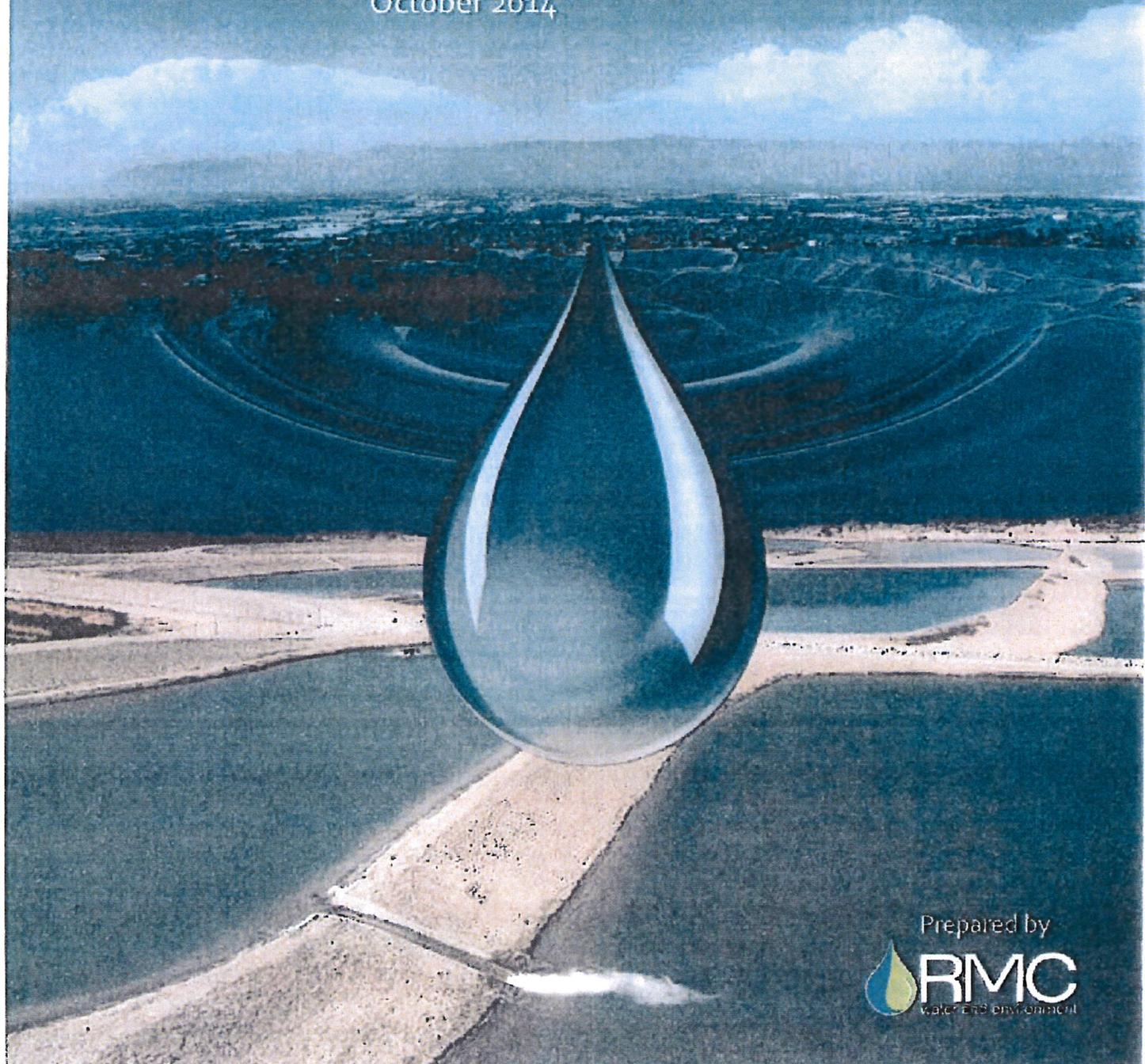
D	12.20 AC
E	10.00 AC
<b>TOTAL</b>	<b>22.20 AC</b>



# East Valley Water District Recycled Water Feasibility Study

## Executive Summary

October 2014



Prepared by  
**RMC**  
water and environmental



## Executive Summary

The East Valley Water District (District) has a historic opportunity to provide an increased level of service to its customers through implementation of a recycled water program. A recycled water program will provide the District's customers with the following benefits:

- A new, locally controlled, highly reliable source of water to help meet the District's and the region's water supply needs;
- Greater control over the cost of wastewater treatment by bringing that component of service completely under the control of the District; and
- Reduced costs associated with providing long-term service to the existing customer base and reduced cost of connection and service for new customers.



It is recommended that the District initiate a recycled water program to treat all flows collected by the District by constructing the Sterling Recharge Facility. It is recommended that the Sterling Recharge Facility be a Membrane BioReactor (MBR) facility, with the treated flows used for groundwater recharge, providing the greatest benefit to the District's customers. This approach makes the District self-reliant rather than relying on the City of San Bernardino for treatment and disposal.

## Unique Opportunity

The timing could not be better for the East Valley Water District to implement the Sterling Recharge Facility. Some of the factors creating the unique timing of this opportunity include:

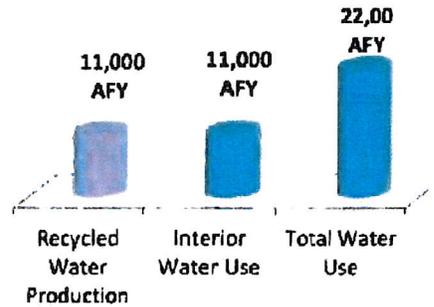
1. California is currently in the third year of severe drought, bringing to light the availability and reliability of the District's water supplies. Implementing projects to protect against the impacts of future droughts is critical to providing a long-term reliable water supply. The most appropriate response for the District is to develop a locally-controlled, sustainable recycled water supply.
2. California is facing continued challenges and costs associated with importing water through the Sacramento-San Joaquin Delta, including water deliveries to the District's service area. The most appropriate response for the District is to develop a locally-controlled, sustainable recycled water supply that can augment imported water supplies.
3. The California legislature has passed historic groundwater management legislation that will bring a greater focus on groundwater management throughout California, including the Bunker Hill Groundwater Basin underlying the District. The most appropriate response for the District is to develop a locally-controlled, sustainable recycled water supply to assist in managing the local groundwater basin.
4. The California State Water Resources Control Board has an objective of creating over 1 million acre-feet of recycled water use by the year 2020, and over 2 million acre-feet per year by the year 2030. The State is providing incentivized funding to assist in meeting this goal. The most appropriate response for the District is to develop a locally-controlled, sustainable recycled water supply in support of the State's objective.



5. The California legislature has placed a bond measure on the November, 2014 ballot to provide \$7.5 billion of funding for water development in California. The most appropriate response for the District is to access potentially available funding to develop a locally-controlled, sustainable recycled water supply.

## Need for Recycled Water

The District currently relies on the City of San Bernardino to treat its wastewater, which is then discharged to the Santa Ana River. The treated water from the San Bernardino treatment plant is a valuable resource that is not presently available to serve the water supply needs of the District's customers. The Bunker Hill Groundwater Basin, which lies beneath all of the District's service area, has seen declining water levels over the past several years as local runoff has diminished and imported water deliveries have been reduced. In fact, the Bunker Hill Groundwater Basin is at historic lows in terms of the amount of water in the basin.



Recycled water will provide a drought-proof supply equal to the interior water use of the District's customers providing assurance of critical water supply in future droughts

Using recycled water to help recharge the groundwater basin would be a significant local water supply to use to assist in managing the Bunker Hill Groundwater Basin levels and providing a long-term reliable water supply. Further, the recycled water production will be approximately equal to the indoor use of treated water delivered by the District to its customers, providing its water customers with a drought-proof supply for indoor water use.

## Avoided Costs

The District's recently completed water and wastewater master plans identified the need for additional water supply and the need for increased wastewater conveyance capacity. Implementing the proposed Sterling Recharge Facility will provide additional water supply and will reduce the level of required investment in wastewater system conveyance improvements. The estimated savings to the District's customers in the required level of wastewater infrastructure improvements is estimated to be approximately \$20 million.

## Why Groundwater Recharge?

Groundwater recharge was found to be the most appropriate use due to a number of factors, including lower cost, increased local water supply, and long-term benefits to the District's customers. Other uses of recycled water were evaluated, but were found to be less advantageous.

The use of recycled water to replenish groundwater basins has been successfully implemented throughout Southern California since the early 1950s. The use of recycled water for groundwater recharge is regulated by the State of California, who earlier this year adopted a new set of regulations



for increased recycled water use, paving the way for increasing the use of recycled water for recharging groundwater basins and improving water supply reliability.

Implementing the Sterling Recharge Facility would provide a reliable local water supply for the region and help offset the need for increased amounts of imported water. Some of the key benefits that would result from using recycled water for groundwater recharge are summarized in the table below.

**Key Benefits of a Groundwater Recharge Program**

Benefit Category	Benefit Description
Water Supply Reliability	Provides new source of water supply that is reliable, "drought-proof," and locally- controlled Diversifies regional water supply portfolio
Resource Management	Provides year-round beneficial use for recycled water Promotes highest and greatest beneficial use of recycled water
Integration/Synergies with Other Practices	Augments current groundwater recharge practices employed by the San Bernardino Valley Municipal Water District
Consistency with State Goals and Objectives	Embraces State guidelines and policies relative to recycled water, groundwater management, and diversification of water supplies

**What are the Options?**

Three fundamental approaches for meeting the District's wastewater treatment needs were evaluated:

- Continue to send all of the District's flows to the City of San Bernardino
- Treat 60 percent of the District's flows at a new plant located on Sterling Avenue
- Treat all of the District's flows at a new plant located on Sterling Avenue

These three fundamental approaches were evaluated on a comparative cost basis over a 20-year planning period. The results showed that there is a clear advantage to the District's customers if the District the Sterling Recharge Facility and treats all flows.

If the District were to continue to send flows to San Bernardino, costs would increase approximately 24% over the next 20 years, as compared to increasing only 7% over the same period of time if the District constructs a plant and treats all flows. Furthermore, there is a similar advantage to the cost per EDU (Equivalent Dwelling Unit) for future connections if the District treats all flows.

Project Option	Comparative 20-Year Cost Increase
All Flow Treated by City of San Bernardino	24%
60% of Flow Treated by District	19%
All Flow Treated by District	7%

Treating all flows provides the least increase in cost of the three options available to East Valley Water District.

clear

This relative comparison of costs has assumed the cost of treatment by the City of San Bernardino does not increase over the next 20 years, and that the value of the recycled water similarly does not increase over the next 20 years. Both of these assumptions are conservative in their nature and therefore reinforce the conclusion that the least cost option is for the District to implement a recycled water program.





## Value of the Created Resource

Recycled water will constitute a new water resource for the District. The value of this resource is best established by comparing it to the existing cost of California State Project Water. The current cost of State Project Water (2014) is \$662 per acre-foot, delivered to the East Branch turnout near Highland, California. The cost of State Project Water will increase in the future due to a number of factors, including the cost of the Delta fix, currently known as the Bay Delta Conservation Plan (BDCP). A 10 MGD plant flow will generate approximately 11,200 acre-feet per year of water with a relative current annual value of approximately \$7.4 million.

## Proposed Project

The proposed project consists of constructing an MBR-based recycled water treatment plant, associated pipelines and pumping stations, with recharge to the groundwater basin. Several facility sites were evaluated for use and ranked based on specific criteria. The District-owned property located at Sterling and 5<sup>th</sup> Avenues, adjacent to the San Bernardino Airport, has been selected as the most appropriate site for the proposed facility. The site lends itself well to potential multi-beneficial development options, which will be explored during project implementation.

The Sterling Recharge Facility would be constructed on a District-owned parcel of land, located at Sterling Avenue between East 5<sup>th</sup> Street and East 3<sup>rd</sup> Street. Approximately half of the service area flows would be intercepted at the intersection of East 6<sup>th</sup> Street and diverted to the new treatment plant. The remaining portion of the service area flows would be captured at the low end of the collection system and pumped east along East 5<sup>th</sup> Street to the new treatment plant.

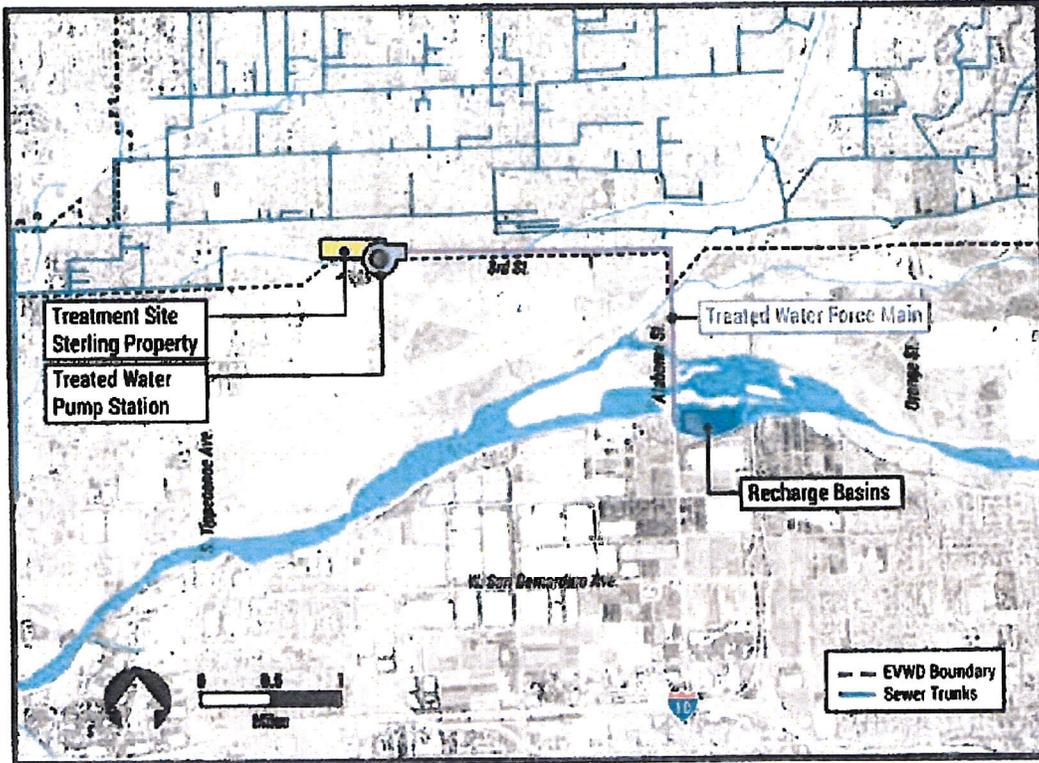
The treatment plant would utilize the most advanced technology – Membrane BioReactors (MBR) - to produce disinfected tertiary Title 22 recycled water that would meet all applicable requirements for recharge into the Bunker Hill Groundwater Basin. Recharge is proposed to be through existing recharge basins, facilitated by cooperating agreements between the District and the owners of the existing basins.

### Recycled water is a valuable resource.

- A 10 MGD plant will produce 11,200 acre-feet per year
- An acre-foot of State Project Water costs \$662
- The value of 10 MGD of water is \$7.4 million per year



The proposed site is owned by the District and is located adjacent to the San Bernardino Airport.



The proposed project includes a new treatment plant located near Sterling Avenue on District property

### Consistency with the Community

An MBR treatment facility utilizes the most up-to date technology available. Use of this technology lends itself to making the treatment facility a good neighbor in any neighborhood due to the smaller foot-print of the treatment process, which provides the ability to enclose the treatment facility to eliminate odors and noise impacts to the surrounding community. The proposed plant location is adjacent to the San Bernardino Airport. There are numerous commercial/industrial development opportunities being considered on surrounding properties, and the treatment facility can be constructed in a manner to be consistent with the potential development opportunities.



MBR technology provides the ability to build and operate a treatment plant that is a good neighbor – producing no odors and no noise





Similar treatment plants have been constructed and are in use in communities throughout the country. District officials visited three similar facilities – a demonstration facility in Anaheim, California, and two treatment plants near Seattle, Washington– the Lighthouse Plant and the Brightwater Plant. All three of these facilities produce high-quality recycled water with no odor or noise impacts to the surrounding community.

A similar approach can be utilized for the East Valley facility. The Sterling Recharge Facility can be designed to:

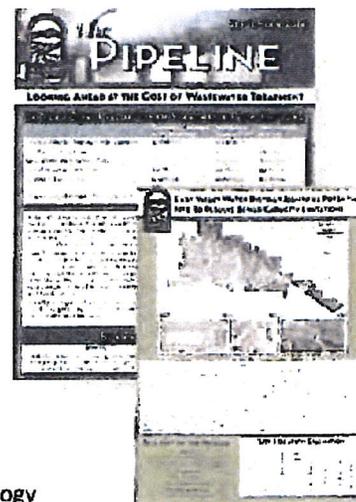
- Be consistent with developments surrounding or near the proposed facility site;
- Be a multi-use site, where other development could be made on the District's existing land in concert with a new treatment plant;
- Be designed to produce no odors or noise;
- Be aesthetically pleasing; and
- Provide opportunities for community uses such as meetings, training, classrooms, and similar uses.

## Community Involvement

The District has conducted and will continue to conduct an extensive community outreach program for the Sterling Recharge Facility project. Monthly workshops were conducted to inform the Board and the public about the project, the project issues, opportunities, and recommendations.

The District conducted community forums, provided information in the newspaper, in mailers, and on its website to assist in informing the public about the challenges facing the District and the opportunity that can be afforded by implementing a recycled water program.

The District conducted a public tour of the Anaheim Water Recycling Demonstration Facility. The City of Anaheim facility is located adjacent to City Hall and employs the same MBR technology that is being recommended for East Valley Water District.



The District conducted an extensive outreach program to inform the community and to receive input to the planning process.

**The financial benefit to the local economy from construction of a recycled water treatment plant is estimated to be \$215 million.**

## Economic Benefits

Investment in the Sterling Recharge Facility recycled water program will result in additional benefits to the local economy. According to estimates provided by SRRI, a group associated with the Sacramento Area Commerce and Trade Organization, a \$1 million investment in infrastructure and public works projects generates an additional \$825,858 of output through indirect and induced activities. Constructing the Sterling Recharge Facility, with a capital cost of approximately \$118 million, would have an added local economic benefit of \$97 million, providing a net financial benefit of \$215 million to the local economy. Further,



according to the SRRI estimates, construction of a new facility would generate over 800 direct construction jobs, and over 1,400 total new jobs.

## Budgetary Cost Estimate

The following table summarizes the estimated costs for each major component for the proposed project. These estimates are budgetary cost estimates and should be refined as project planning progresses. Costs presented below are based on the ultimate plant capacity of 10 MGD.

### 10 MGD Project Budgetary Cost Estimate

Project Components	Estimated 10 MGD Project Cost
Water Reclamation Plant	\$103.3 M
Treated Water Conveyance System	\$15.2 M
<b>Total Capital Cost</b>	<b>\$118.5 M</b>

Implementation of the Sterling Recharge Facility will be phased. The existing flows from the entire District are approximately 6 MGD, necessitating a minimum initial plant capacity of 6 MGD. Projected flows will require increases in the treatment plant to a future capacity 10 MGD. The initial treatment plant capacity and associated phasing will be refined during the next phase of the project. Presented below are the budgetary cost estimates of an initial 6 MGD treatment plant that can be expanded to a future 10 MGD capacity. Under this scenario, the treated water conveyance system is constructed to accommodate the full projected flow of 10 MGD.

### 6 MGD Project Budgetary Cost Estimate

Project Components	Estimated 6 MGD Project Cost
Water Reclamation Plant	\$61.4 M
Treated Water Conveyance System	\$15.2 M
<b>Total Capital Cost</b>	<b>\$76.6 M</b>

## Implementation Plan

Implementation of Sterling Recharge Facility will require numerous activities – permitting, environmental reviews, financial evaluations, engineering development, and ultimately construction and initiation of operations. The timeline requires a focused, parallel approach to permitting, environmental compliance, and preliminary design.



Prepared by

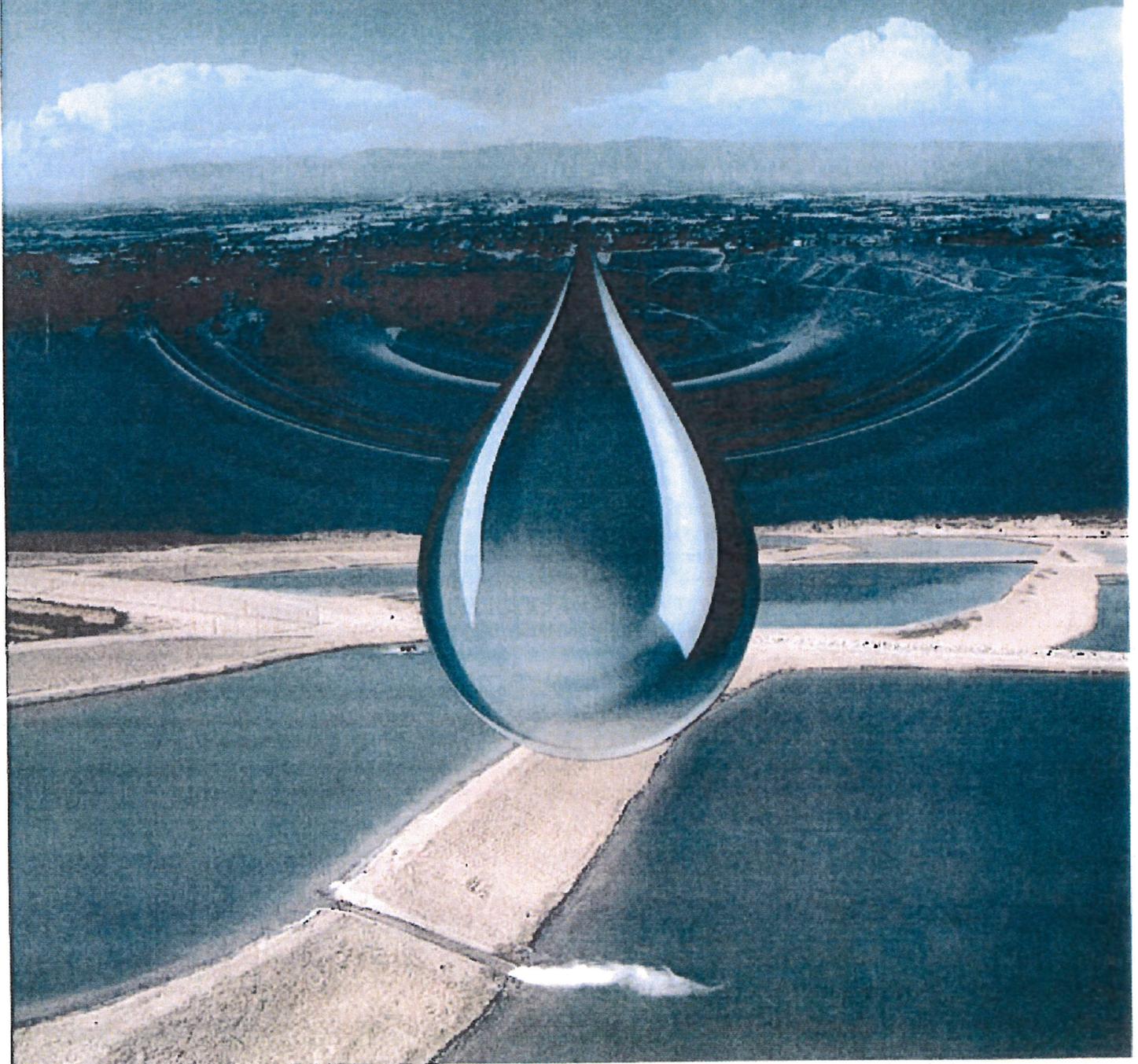


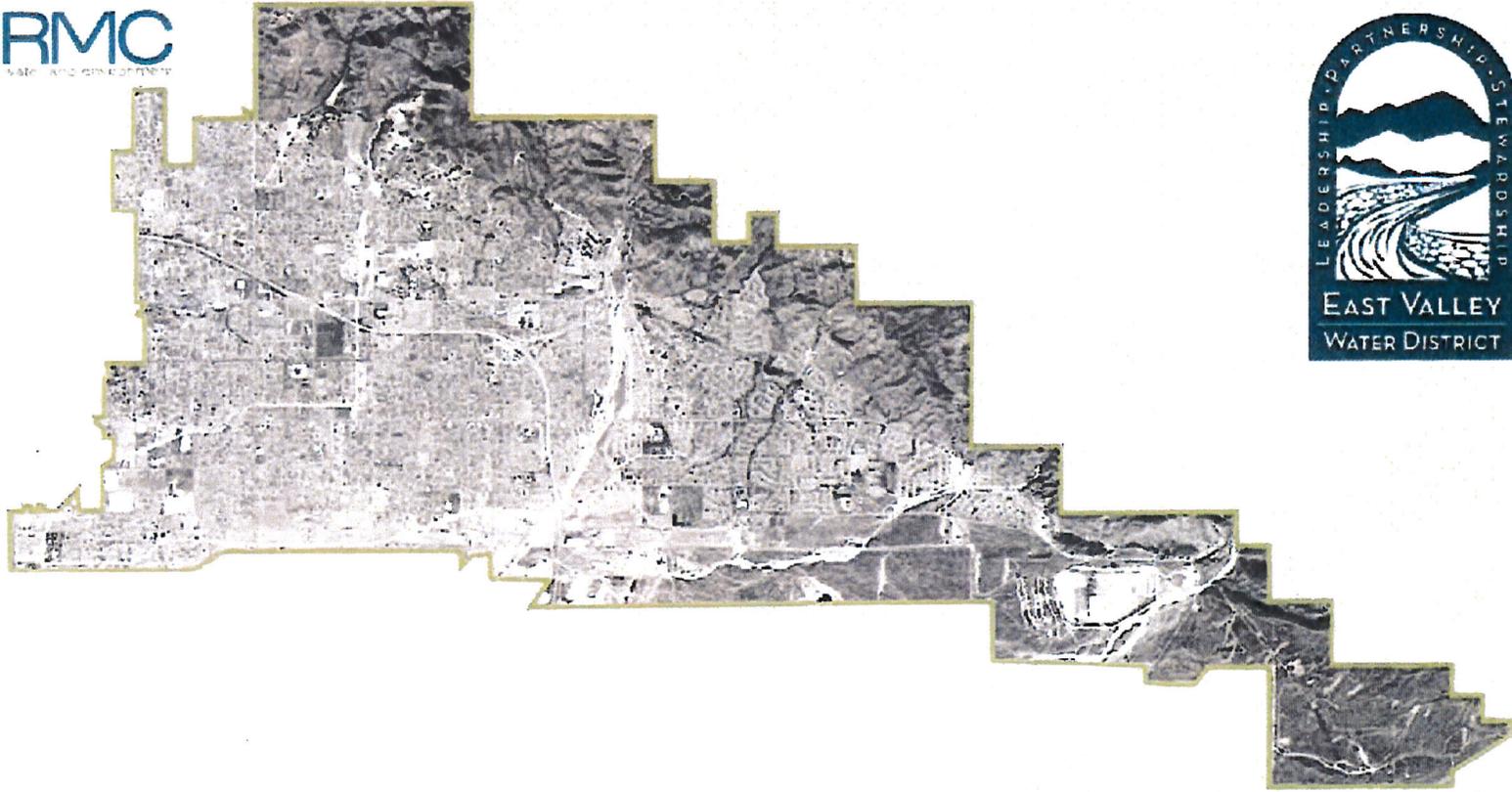
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[rmcwater.com](http://rmcwater.com)

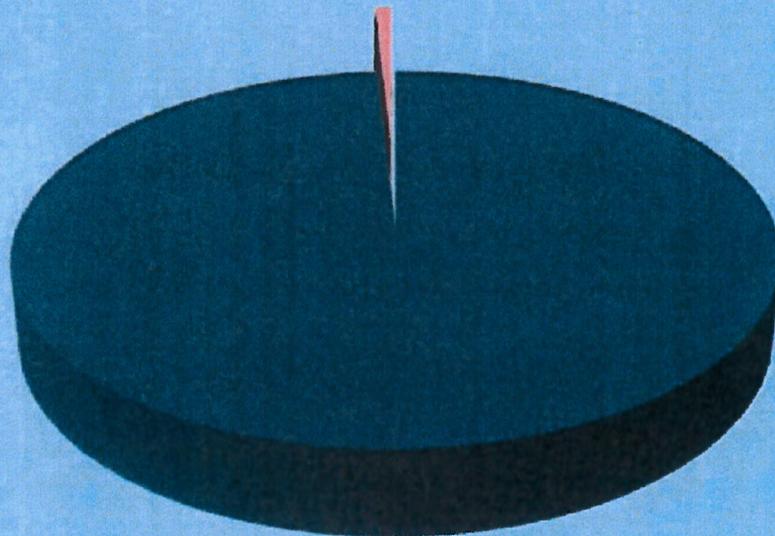




# Water Reclamation Plant Feasibility Study Executive Summary

# Current Capacity vs. Long-term Needs

## Current System Capacity



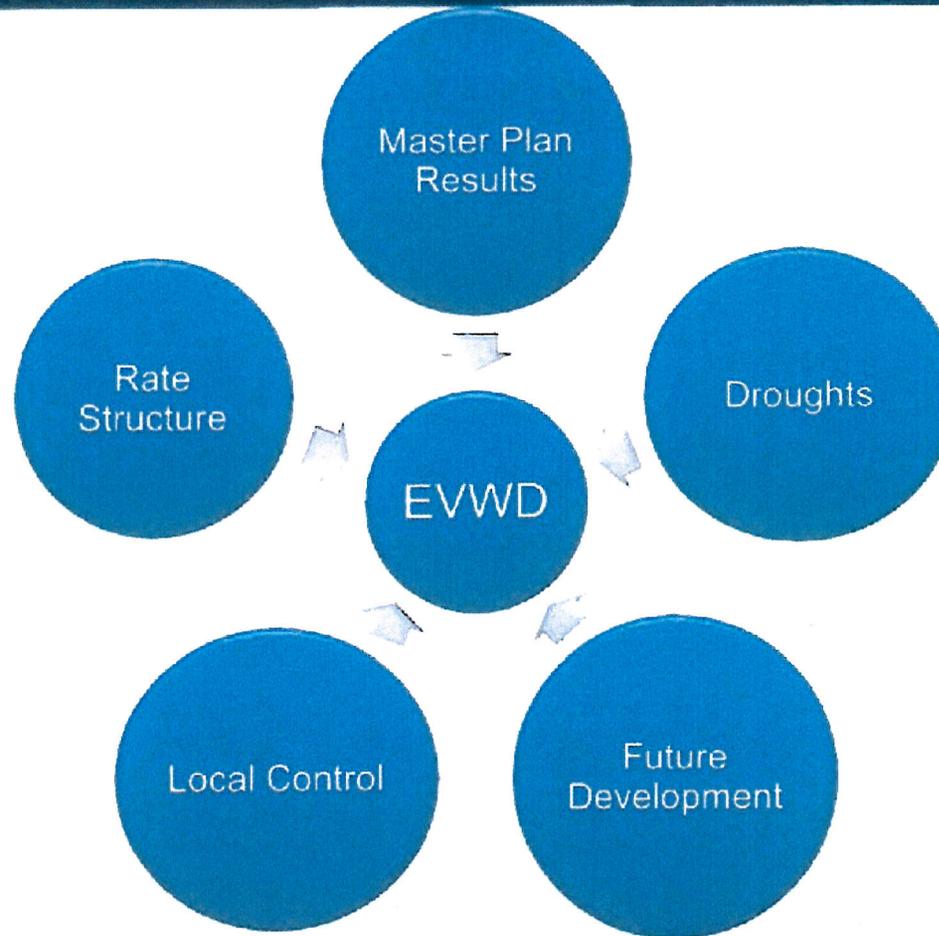
■ Current Usage: 26,530 Units

■ Remaining: 220 Units

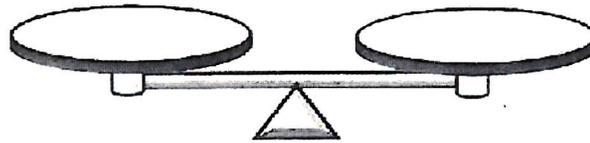
Approximately 6,000 units have been included in approved Land Use Agency Master Plan documents.



# Challenges We Face Today



# Weighing the Policy Considerations



**CONTINUE WITH TREATMENT AT  
SAN BERNARDINO**

No new water supply

Reliance on City of San Bernardino

Higher CIP pipeline costs

**TREATMENT BY EAST VALLEY**

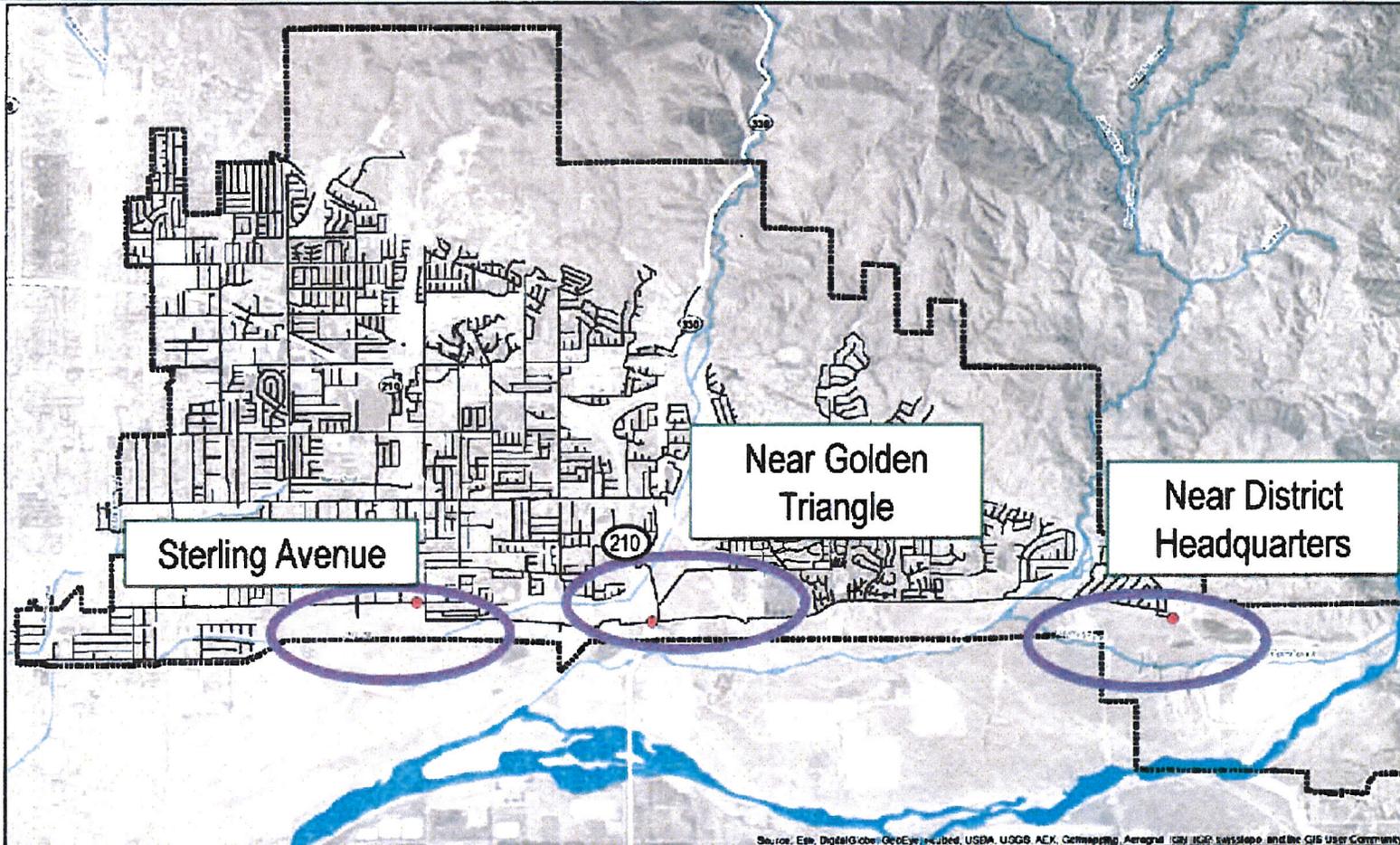
New water supply

Improved local control

Reduced CIP pipeline costs



# Evaluated Three Potential Plant Locations



Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AEK, Getmapping, Aergrid, IGN, IGP, swisstopo, and the GIS User Community

# Evaluation Lead to Selection of Sterling Avenue Site

	Near Headquarters	Near Golden Triangle Area	Sterling Between 3 <sup>rd</sup> and 5 <sup>th</sup> 
Available Flow	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Land Uses	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Impacts to Community	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Energy Impacts	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Site Availability	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Proximity to Reuse Sites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proximity to Recharge Sites	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Relative Lower Ranking     Relative Higher Ranking



# Evaluation of Potential Recycled Water Uses

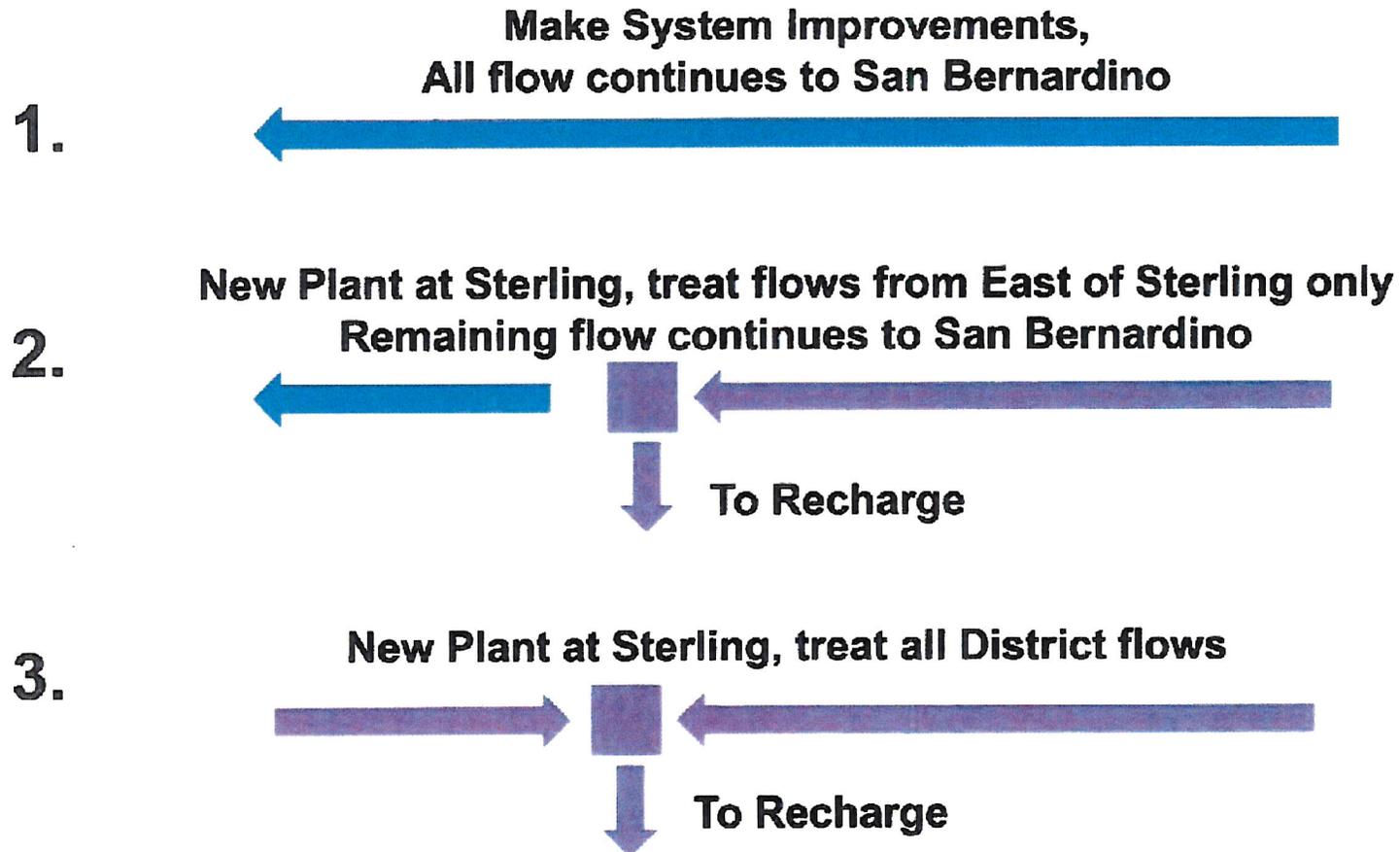
	Urban Irrigation	Commercial/Industrial	Groundwater Recharge 
Infrastructure Requirements	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Full Use of Available RW	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Ease of Implementation	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Cost to Implement	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Relative Lower Ranking

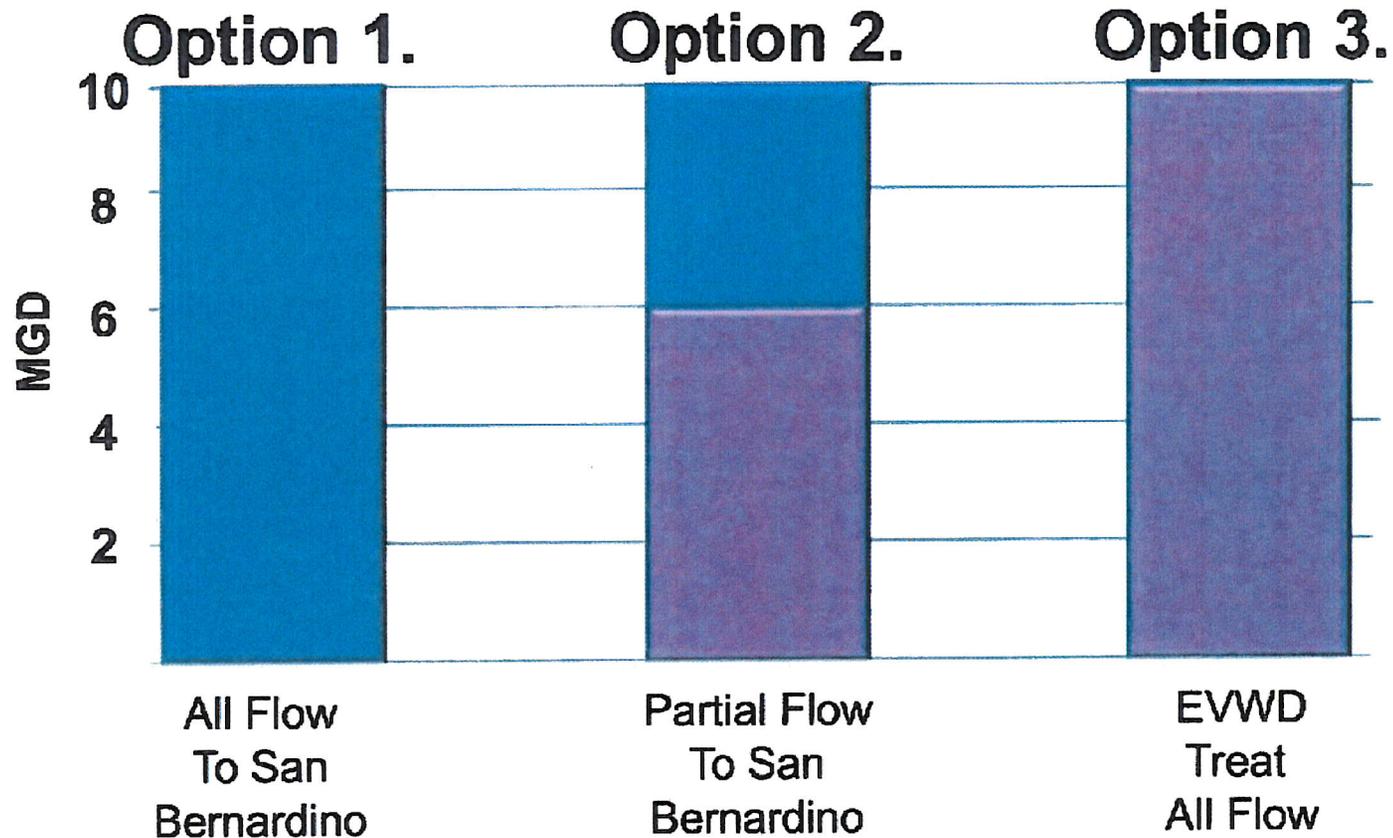
Relative Higher Ranking



# Evaluation Focused on Three Options

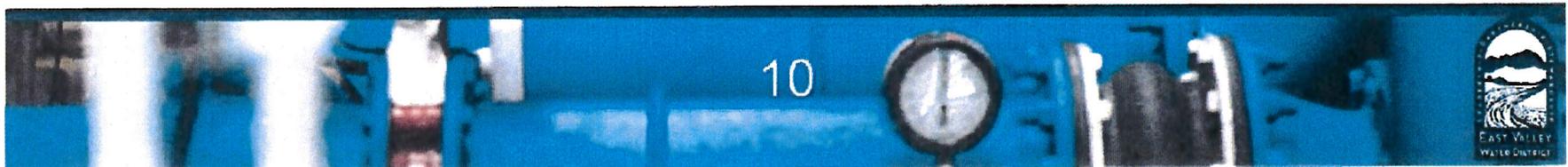


# The Treatment Options Require Different Plant Capacities



# Comparing the Options

- Capital Cost
- Annual Operations and Maintenance Cost
- Value of Water Produced
  
- 20-year total cost analysis
- Cost must be allocated between existing and new connections



# Relative Comparison of Available Options Indicates Treatment of All District Flows is Best Option

	1. All Flow to San Bernardino	2. Partial Treatment at Sterling	3. Treatment at Sterling for Entire District
20-yr Cost to EVWD for Treatment at San Bernardino	\$221 Million	\$136 Million	-
20-yr Cost for Treatment by East Valley	-	\$120 Million	\$200 Million
20-yr Cost of New Treatment Facility		\$61 Million	\$103 Million
20-yr Cost of Infrastructure to EVWD	\$34 Million	\$29 Million	\$45 Million
20-yr Value of Water to East Valley	-	(\$89 Million)	(\$148 Million)
Percent Increase to Existing Cost	24%	19%	7%

Costs represent total costs over 20 – years of operation



# Impacts to New Development - Relative Comparison

New Development Costs	1. All Flow to San Bernardino	2. Partial Treatment at Sterling	3. Treatment at Sterling for Entire District
Capacity Cost for 4 MGD Treatment at San Bernardino	\$30.1 Million		
Treatment Impact of Future Demands		\$34.4 Million	\$41.3 Million
Collection System Impact of Future Demands	\$34.6 Million	\$17.5 Million	\$8.9 Million
Estimated Cost per EDU	\$7,525	\$6,800	\$5,840
		-\$725	-\$1,685



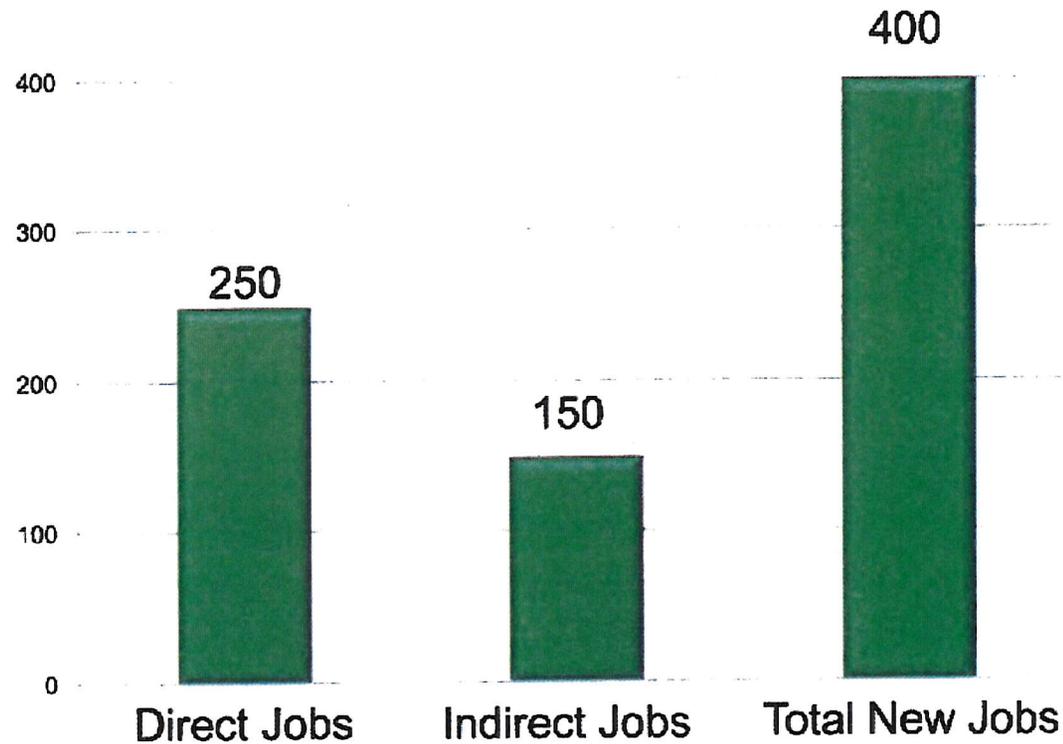
# There are Opportunities for Multi-Use Development at Sterling



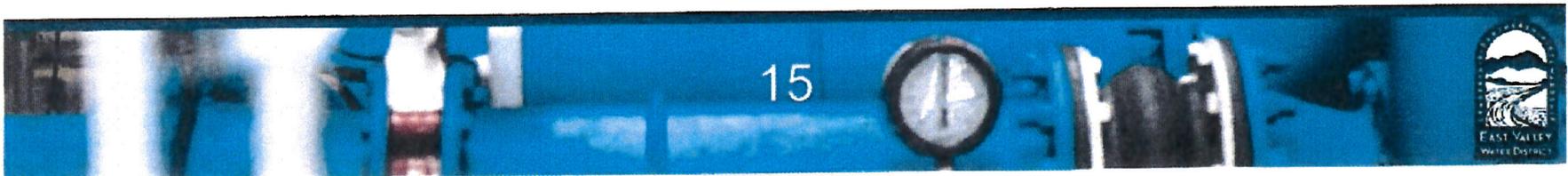
# There are Opportunities for Multi-Use Development at Sterling



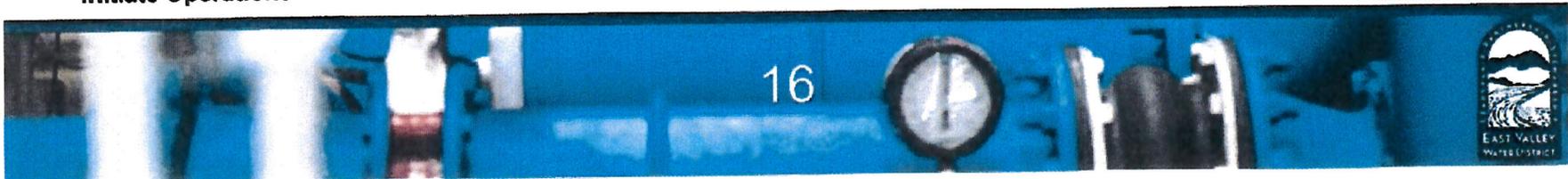
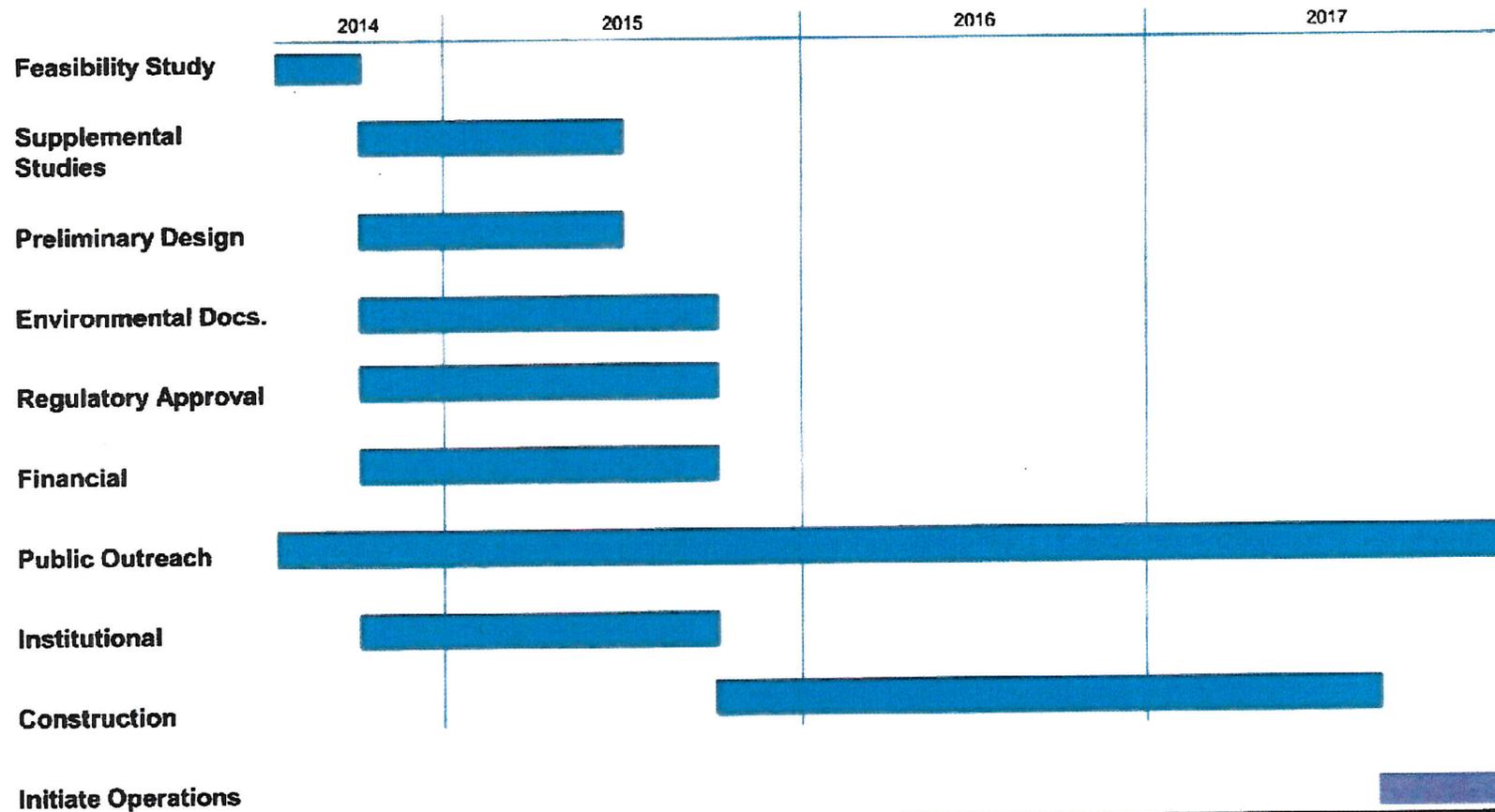
# Potential Job Creation from 10 MGD Facility and \$100 to \$120 Million Capital Investment



Job creation estimates based on information from the Judicial Council of California



# Implementation Will Require Numerous Concurrent Tasks



# Reaching Out to the Community

- 6 Public Workshops/Meetings
- 5 Monthly Print Advertisements
  - Ran a total of 11 times
- 5 Monthly Bill Inserts
  - +110,000 pieces
- 7 Newspaper Articles
- Website Content
- Neighborhood Meetings by Request
- Tours

**the PIPELINE** SEPTEMBER 2014

**LOOKING AHEAD AT THE COST OF WASTEWATER TREATMENT**

**20 YEAR COST EVALUATION OF WASTEWATER FLOW OPTIONS**

Flow Option	20 Year Cost	20 Year Cost	20 Year Cost
Cost to EYWD for Treatment at San Bernardino	\$728 Million*	\$728 Million*	\$728 Million*
Cost for Treatment by East Valley	\$720 Million	\$720 Million	\$720 Million
Value of New Water in East Valley			\$100 Million
Cost of Infrastructure to EYWD	\$45 Million	\$45 Million	\$45 Million
Potential to Existing Cost	\$200 Million	\$200 Million	\$200 Million

\* Cost includes the cost of the San Bernardino Municipal Sewer Master Plan

**EAST VALLEY WATER DISTRICT IDENTIFIES POTENTIAL SITE TO RESOLVE SEWER CAPACITY LIMITATIONS**

As part of the feasibility study, potential sites were identified for the consideration of the new sewer and water treatment facility. The East Valley Water District facility is currently under construction and will be completed in 2015. The cost for needed infrastructure is estimated by San Bernardino to be approximately \$100 million over the next 20 years. After the additional benefits of a new water supply Water District, the net cost to existing sewer flow period (existing capacity) would be \$25 million.

These figures highlight the importance of finding a site to resolve sewer capacity limitations and the value of a new water supply.

**By a Party on the Project**

**SITE LOCATION EVALUATION**

Site	Area	Area	Area	Area
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

