



# Central Basin Municipal Water District Engineer's Report

## Central Basin Standby Charge 2018/2019 ENGINEER'S REPORT

**Intent Meeting: May 10, 2018**  
**Public Hearing: June 25, 2018**

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# ENGINEER'S REPORT AFFIDAVIT

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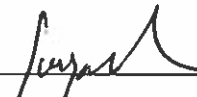
## Central Basin Standby Charge

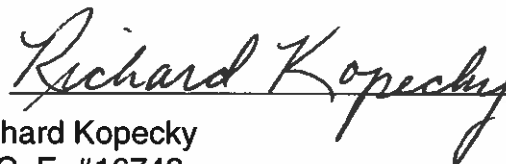
Central Basin Municipal Water District Engineer's Report,  
County of Los Angeles, State of California

This Report describes the improvements, budgets, parcels and assessments to be levied for Fiscal Year 2018/2019. Reference is hereby made to the Los Angeles County Assessor's maps for a detailed description of the lines and dimensions of the parcels within the District. The undersigned respectfully submits the enclosed Report as directed by the City Council.

Dated this 12th day of June, 2018.

Willdan Financial Services  
Assessment Engineer  
On Behalf of the City of Grand Terrace

By:   
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By:   
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## INTRODUCTION

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The Central Basin Municipal Water District (the “District”) is a public agency in southeast Los Angeles County. The District was formed in 1952 by popular vote to provide supplemental imported water supplies to local retail agencies. Currently, there are approximately 2 million people within the District’s 227-square-mile service area. The District Diagram of Section VIII. shows the District’s service area, including cities and political subdivisions.

The District has been a leader in changing the manner in which scarce water resources are managed in Southern California. Over the past 25 years, the District has implemented a plan to reduce the need for imported water from Northern California and the Colorado River, and insulate its service area from future water shortages. This “drought-proofing” plan is founded on aggressive water conservation, including flow-reducing plumbing hardware and education, and water recycling.

In 1990, the District took a significant step in its drought-proofing plan by commencing construction on a recycled water distribution system. This new system was envisioned to provide a source of non-potable water completely independent of drought-sensitive imported supplies, for use in non-potable applications, such as irrigation and industry. Today, the District’s recycled water system serves over 378 individual sites with a water supply of more than 5,000 acre-feet that would otherwise be served by potable sources such as groundwater and imported water that are used by all customers in the service area. During future imported water shortages, recycled water will not be subject to reduction – essentially a water supply insurance policy for all residents.

Pursuant to the provisions of the Municipal Water District Act of 1911 (Water Code Section 71638, et seq.), the District began levying an assessment in 1991. The assessment, called a “standby charge”, is levied on all property owners within its service area to help recover the cost of drought-proofing the service area. The purpose of this Engineer’s Report is to 1) describe the District’s recycled water program and its benefits to all residents within the District’s service area, and 2) explain the standby charge, and how it is calculated and imposed. To this end, the report also gives historical context to the water recycling program and describes the water supply outlook in Southern California as well as the District’s water resource management approach.

## Section I. Historical Context

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Much of the impetus for the current water recycling efforts statewide, and particularly in Southern California, began after the drought of 1976-77. These two years are the fourth and first driest years, respectively, in California recorded history. The socioeconomic impact of those two years was significant with economic losses of \$2.5 billion<sup>1</sup> statewide. The drought of 1987-92 strongly reinforced the need for recycled water programs because the supply is not subject to hydrologic variability or other uncertainties as imported water sources. These sources, the Colorado River and the Sacramento-San Joaquin River Delta are significant because they provide Southern California with about 50 percent of its water supply. At the same time, environmental and hydrologic conditions highlight the long-term trend toward decreasing reliability of these imported supplies while the state's population continues to increase in every region.

The State Legislature realized the potential for recycled water to play a significant role in mitigating future water shortages when it set a goal in 1991 of 1 million acre-feet of water recycled by 2020. Today, California's water agencies recycle about 669,000 acre-feet annually<sup>1</sup>. The California Department of Water Resources ("DWR") estimates that statewide, there is a potential of 1.35 million to 1.75 million acre-feet annually of additional water supply from recycled water.

In 2008, as part of Governor Schwarzenegger's comprehensive water plan, the 20x2020 Water Conservation Plan was initiated to maximize water efficiency between 2009 and 2020. Recycled water programs and conservation projects are key to achieving this goal of 20% reduction by year 2020. Although the District is not required by state law to establish conservation targets for its service area as part of the 20x2020 legislation, most of the individual retail cities and agencies are. Therefore, the District engaged with the Gateway Regional Water Management Authority to establish a plan for the Central Basin service area which most cities and agencies agreed to comply with. As such, the District added the 20x2020 regional plan to its 2010 Urban Water Management Plan ("UWMP") which was approved in June 2011. The last update of the District's UWMP was in 2015.

### Water Supply Outlook

California's increasing population is a driving force behind the increasing water demands. California's population increased from about 30 million in 1990 to about 38.8 million in 2014 and is growing at a rate of about 800,000 annually. By 2060, California expects to have a population of 52.7 million people. Central Basin's service area is expected to increase at a slightly lower rate of growth from the present 2 million to nearly 2.5 million by 2060. The DWR reports new surface storage facilities in Southern California (such as Diamond Valley Lake) and the expansion of groundwater storage programs will help lessen the impact of future droughts and increase local reliability.

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<sup>1</sup> "WateReuse Association 2011

DWR also states that water agencies should continue to develop water resource programs such as recycled, conservation, and conjunctive use programs to meet future demand.

## **Section II. Water Resource Management Approach**

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For more than four decades, the District was strictly an imported water wholesaler, purchasing supply from the Bay-Delta and Colorado River through Metropolitan Water District (“MWD”) to supplement local groundwater supplies. Since the early 1990’s, the District has embarked on an ambitious plan to help make its service area more drought resistant through more efficient use of supplies and resources already available. Water conservation and water recycling are at the heart of this resource management approach. The District also assists local groundwater producers and agencies in protecting groundwater supplies and optimizing the use of the groundwater basins.

Water conservation is a demand-management method aimed at reducing the consumption of potable water (groundwater and imported water) at the point where it is put to use. Water recycling is the beneficial re-use of wastewater for specific non-potable applications such as irrigation. Both conservation and recycling are effective tools for reducing reliance on imported water and extending the use of locally available supplies – essentially “drought-proofing” the area against future imported water shortages.

### **Past and Current Water Conservation Efforts**

In 1991, the District joined a state effort to conserve water and signed the “Memorandum of Understanding” regarding urban water conservation in California and agreed to implement the established conservation Best Management Practices (“BMPs”). The District is committed to implementing proven and reliable water conserving technologies and educational programs for conservation within its jurisdiction.

In partnership with MWD, cities, water retailers, federal and state agencies, the District’s conservation programs have been responsible for providing various opportunities and programs to the communities the District serves. Also, local contractors can assist with program implementation. The programs include the distribution and installation of indoor and outdoor water conserving devices, and the availability of rebate programs for high-efficiency clothes washers, high efficiency toilets, waterless urinals, and commercial, industrial and institutional devices within the District’s service area.

Combined with plumbing codes, public information, school education, and other conservation efforts, the District programs have resulted in a significant water savings. As described in the District’s 2010 Urban Water Management Plan (“UWMP”),

conservation efforts by the District have resulted in savings estimated at 15,000 acre-feet each year or about 6 percent of total annual demand. In addition, the UWMP shows that conservation and recycling programs are working to increase efficiency. Since 2000, overall water demand in the District's service area has remained relatively constant while population has increased by over 300,000 over the same period.

In 2006, the Central Basin Board of Directors took a bold leadership role by adopting the first ever, Water Conservation Master Plan. ("Master Plan") This Master Plan serves as a road map for Central Basin's long term water savings efforts. The goal is to evaluate existing conservation measures, as well as identify the latest trends and technology in the market to develop a viable, innovative, regional strategy to preserve our water resources. During the first year, after the Master Plan was adopted, the conservation goal was exceeded by 107%! In the following two years, the conservation goal was exceeded by 173% and 178%, respectively. The Master Plan was updated in 2011 and again in 2015 to include state and federal legislation issues, funding limitations and state standards as they have changed since its adoption.

In 2009, in response to the drought conditions and low supplies of surface water throughout the state, Central Basin launched a new water conservation campaign called "Shut Your Tap!" This campaign consists of community partnerships to promote water conservation within Central Basin's 24-city service area. Central Basin has continue the campaign to focus on providing assistance to the greater Los Angeles County region in meeting the State's aggressive 20X2020 water conservation goal.

Central basin has been successful in receiving grant funding for conservation programs at the federal, state and local levels through agencies such as the United States Department of energy, the California State Department of Water resources and the Metropolitan Water District of Southern California. As an example, in 2015, as part of a Department of Energy grant, Central Basin completed the first federally funded water and energy grant. The grants goal is to show the nexus between water and energy through the smoothening of recycled water peak demand periods lessening the need for higher powered pumps thus providing energy and cost savings.

The District continues to be on the cutting edge developing new and viable programs that conserve water to help maintain a safe and reliable water supply.



## **Section III. Description of Water Recycling Program**

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In 1989, the District, in partnership with MWD and the County Sanitation Districts of Los Angeles County (“CSDLAC”), began planning the implementation of a program to deliver recycled water to a significant portion of the District’s service area.

The two recycled water projects that resulted from this planning, E. Thornton Ibbetson (Century) Recycled Water Project and Esteban E. Torres (Rio Hondo) Recycled Water Project are interconnected and operate as one distribution system. The combined projects are now referred to as the Central Basin Recycled Water Project. The program will continue to grow as additional customers are identified and expansion is determined to be economically feasible. The recycled water program provides the District’s service area with a reliable, local water supply that reduces dependence on imported water.

### **E. Thornton Ibbetson Century Recycled Water Project**

Construction on the first part of the program, the Century Project, began in December 1989 and the first customers were connected in February 1992. Construction of the entire Century Project was completed in August 1993.

The District acquires water from the Los Coyotes Water Reclamation Plant (a CSDLAC facility), and uses the City of Cerritos’ pump station and the Hollydale Pump Station to distribute recycled water through several miles of pipeline.

### **Esteban E. Torres Rio Hondo Recycled Water Project**

In 1991, District staff prepared a feasibility study and implementation plan for the Century Project. Design of project facilities was completed and construction on portions of the project began in February 1993. Those portions of the project are now in operation and delivering water to customers.

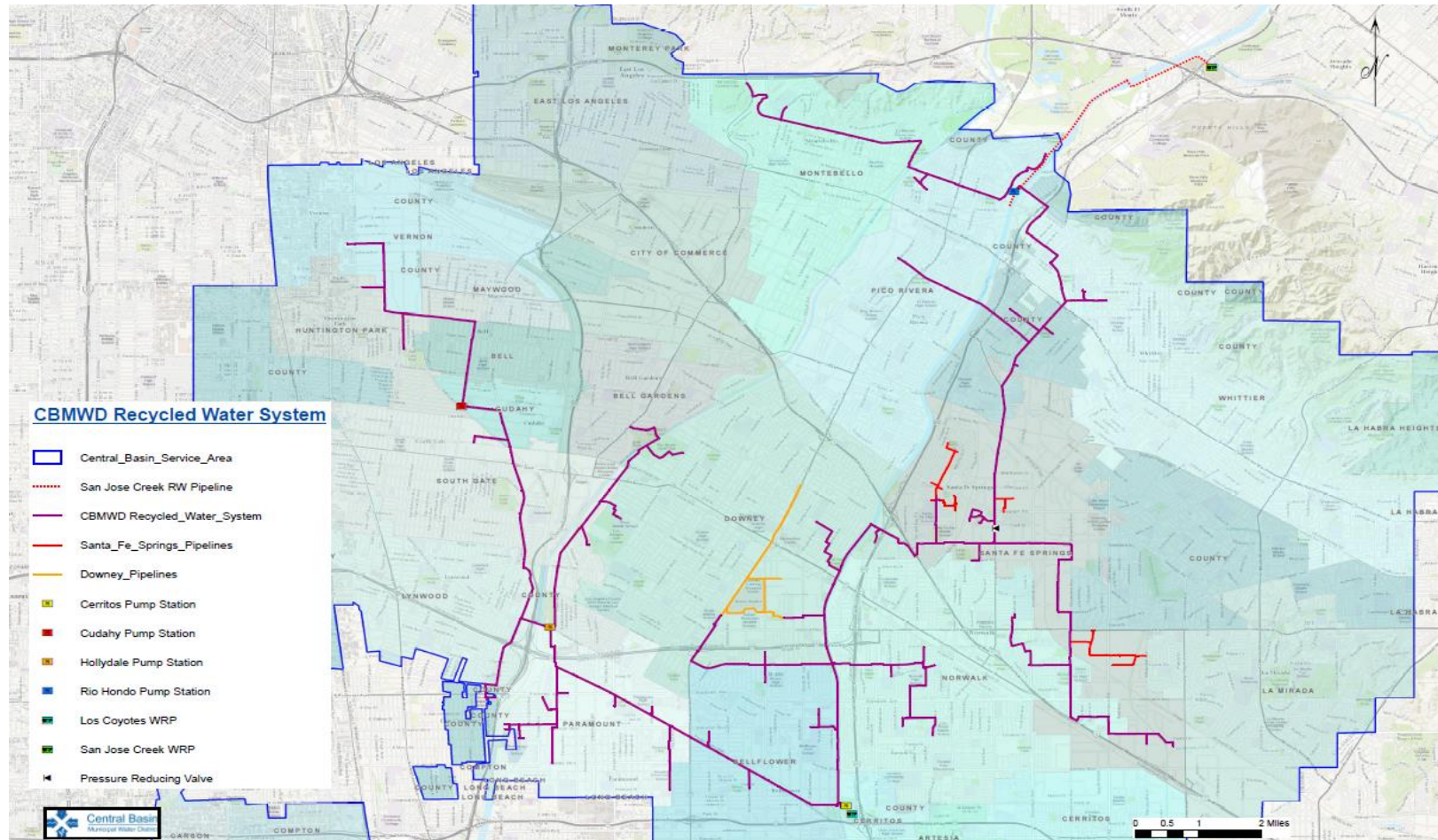
The District acquires water from the San Jose Creek Water Reclamation plant (a CSDLAC facility), and uses the Rio Hondo Pump Station to distribute recycled water through several miles of pipeline.

### **Recycled Water Distribution and Use**

In an attempt to drought-proof the area, the District has aggressively marketed and connected irrigation and industrial users to the recycled water system. Current irrigation uses include schools, golf courses, freeway landscape, parks, cemeteries, nurseries, and street medians. Current industrial uses include concrete mixing, carpet dying and cooling towers. Figure 1 shows the existing facilities of recycled water system.



**FIGURE 1**  
**CBMWD**  
**EXISTING RECYCLED WATER FACILITIES**  
**(Fiscal Year 2018/2019)**  
**Central Basin Municipal Water District Recycled Water System**



## Section IV. Capital Improvement Plans

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The District's Capital Improvement Projects Plan and Five (5) Year Recycled Water Facilities Plan (Recycled Water Master Plan) seeks to expand the existing recycled water distribution system. Current conditions, new regulations, and available funding through Proposition 84 have accelerated the District's expansions efforts.

Plans included in the FY 2018/2019 Preliminary Capital Improvement Projects Plan are described below.

### Project

#### **Gateway Cities Recycled Water Expansion Project**

##### Project Description

The City of South Gate, the City of Bell Gardens, the City of Lynwood, and the Central Basin Municipal Water District are considering partnering to expand the District's existing system into their cities to supply more sites recycled water. Under a bundled project named the Gateway Cities Regional Recycled Water Expansion System Project, submitted for Proposition 84 funding, the benefit will be providing 453 acre-feet per year ("AFY") of water savings, and water quality improvement. This will be done by preparing planning, design, and environmental documentation for pipelines that will extend the District's recycled water system. After completing this portion of the project, the partnering agencies plan to look to Proposition 1 funding and loans for the design and construction of the project. The Project will provide 453 AFY of recycled water to irrigate nine parks and schools, thus reducing the need for potable water supply at these facilities. The Project is named the Gateway Cities Project. The environmental and design portion of the project has been completed.

**City of Bell Gardens** - Plans, Specifications, and Estimate of Probable Construction Costs for the Gateway Regional Recycled Water System Expansion in the City of Bell Gardens, CA. This Project consists of approximately 5,500 linear feet ("LF") of recycled pipeline varying in diameter between 8" and 16". The proposed recycled pipeline will begin with a connection to the existing 16" recycled pipeline in Garfield Avenue at Park Lane. The new recycled pipeline will include approximately 2,950 LF of 16" diameter recycled water pipeline heading in a northerly direction along Garfield Avenue to Florence Place. At Florence Place the recycled water pipeline will be reduced to a 12" diameter pipe heading east for 2,320 LF along Florence Place from Garfield Avenue to Sudan Avenue. Prior to reaching Sudan Avenue, at the intersection of Florence Place and Emil Avenue an 8" diameter recycled water pipeline will head in a northerly direction for 230 LF along Emil Avenue. The new recycled water pipeline will serve Veterans Park and Suva Elementary/Intermediate School Complex.

**City of Lynwood** - Plans, Specifications, and Estimate of Probable Construction Costs for the Gateway Regional Recycled Water System Expansion in the City of Lynwood, CA. This Project consists of approximately 7,920 LF of 12" diameter recycled water pipeline. The proposed recycled water pipeline will connect to an existing 12" diameter pipeline in Wright Road and extend 6,120 LF in a westerly direction along Fernwood Avenue to Bullis Road. At Bullis Road the recycled water pipeline will proceed in a northerly direction along Bullis Road for approximately 1,800 LF to the Lynwood Civic Center Complex. The new recycled water pipeline will serve the new Lynwood Linear Park along Fernwood Avenue, the Lynwood City Park, and the Lynwood City Hall Complex along Bullis Road.

**City of South Gate** - The work will consist of the preparation of Plans, Specifications, and Estimate of Probable Construction Costs for The Gateway Regional Recycled Water System Expansion in the City of South Gate, CA. This Project consists of the construction of approximately 21,500 LF of recycled pipeline varying in diameter between 8" and 18". The proposed recycled pipeline will begin with a connection to the existing 18" recycled pipeline in Atlantic Avenue at Southern Avenue. Beginning at Park Avenue the new recycled water pipeline will extend along Southern Avenue to Alameda Street approximately 14,400 LF. At Alameda Street, the pipeline will head in a southerly direction approximately 3,900 LF to Sequoia Drive. In addition, approximately 2,000 LF of pipeline will be constructed in California Avenue north from Southern Avenue to South Gate City Hall and another segment will extend approximately 1,200 LF along State Street from Southern Avenue to Firestone Boulevard. The new recycled water system extension will serve South Gate Park, State Street Park, South Gate Middle School, Stanford Avenue Park, American Apparel, Koos Manufacturing Co., South Gate City Hall, South Gate High School, South Gate East High School, and the Jordan Downs Recreation Center and High School Complex.

## Project

### **Mayberry Park Recycled Water Pipeline Project**

#### Project Description

This project expands the recycled water system into the city of Whittier. The water purveyor for this site is Golden State Water Company. This expansion is estimated to increase recycled water sales by 21 acre-feet per year.

The expansion consists of approximately 1,200 linear feet of 4-6 inch pipeline. The pipeline alignment taps into the existing Central Basin 16-inch ductile iron recycled water pipeline at the intersection of Shoemaker Avenue and Lakeland Avenue in the City of Norwalk, and goes east on Lakeland Avenue to reach the park.

## Project

### **Phelan Elementary School Recycled Water Pipeline Project**

#### Project Description

This project expands the recycled water system into the city of Whittier. The water purveyor for this site is the San Gabriel Valley Water Company. This expansion is estimated to increase recycled water sales by 10 acre-feet per year.

The expansion consists of approximately 590 linear feet of pipeline. This alignment taps into the existing Central Basin 12-inch ductile iron recycled water pipeline at the intersection of Mines Avenue and Cully Avenue in the City of Whittier. The alignment goes southwest on Cully Avenue until the point of connection.

An additional alignment option is under consideration that would allow for a decreased length of pipeline. This option decreases the length of the pipeline by approximately 40 linear feet. This alternative alignment taps into the existing Central Basin 12-inch ductile iron recycled water pipeline at the intersection of Mines Avenue and Glengarry Avenue. The alignment goes southwest on Glengarry to the back of the school site. This alignment would require movement of the point of connection for the irrigation system on-site.

## **Section V. Benefits of Water Recycling Program**

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The District's water recycling program creates multiple benefits for both potable and recycled water users within its service area:

- All property owners and residents benefit from the increase in the availability of potable water resulting from the use of recycled water for non-potable uses that would have otherwise been met with potable water.
- The expansion of drought proofing the potable supply due to its replacement with recycled water will be particularly beneficial during drought conditions, when the availability of imported water can be significantly reduced, thus impacting the potable supply. Drought-proofing will also help mitigate adverse economic impacts, which typically accompany a severe drought.
- Recycled water users benefit from a supply that is not subject to hydrologic variability locally or in other parts of the state that contribute to the imported supply. This is particularly beneficial to commercial and industrial users which rely on a firm,



dependable supply of water for their operations. Water supply reliability is an incentive for industry to remain in, or locate in, the District's service area.

- Recycled water users can also benefit from a lower per unit water cost than potable, in most cases, the difference depending primarily on the amount of imported water included in the potable supply.

## **Section VI. Long Range Financial Planning**

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The District has also developed an approach to recovering the costs of its recycled water program. The approach has been to not only ensure that adequate revenue is recovered to fund the program, but also to create a blend of revenue sources that would equitably distribute the fixed and variable cost components of the program to the appropriate beneficiaries.

To this end, program costs were divided into two broad categories:

- 1) costs attributable to the development of the program (fixed) and,
- 2) costs attributable to operation and maintenance of the system (variable).

### **Variable Costs**

The District determined that operation and maintenance costs of the distribution system would be paid directly by those customers purchasing the recycled water. This is considered equitable on the basis that recycled water customers receive the direct benefit of the recycled water and pay in proportion to the quantity of water they purchase.

### **Fixed Costs**

The District also determined that the benefit of this new water source could not be reflected through the sale of recycled water alone. As stated above, the increase in the availability of potable water is a benefit to every property owner within the District's service area. As such, it is appropriate that the capital and replacement costs of the recycled water program be partially recovered through a parcel charge known as a Standby Charge.

Table 1 shows the District's projected budget, including operating expenses, debt service, and capital for fiscal year 2018/2019. Revenues are projected to exceed operating expenses, with the balance being used to contribute toward replenishing the District's reserves that were significantly reduced through an early defeasance of debt related to the recycled distribution system in fiscal year 2012/2013. The debt service is proposed to be recovered through the standby charge.

**TABLE 1**  
**Determination of Total Standby Charge Revenue Requirement**

| <b>PROJECTED BUDGET</b><br><b>FY 2018/2019</b><br><b>(\$ millions)</b> |                 |
|--|-----------------|
| Revenues (without standby)   | \$32.97         |
| Operating Expenses   | (32.38)         |
| Debt Service & Capital   | (3.21)          |
| Budget Deficit   | <u>\$(2.62)</u> |
| <b>Standby Charge Amount</b>   | <b>\$3.27</b>   |

**External Funding**

The District has been aggressive in seeking external financial assistance to help defray the cost of the recycled water program. The federal, state and regional organizations that have contributed financially to the development of the program include the U.S. Department of Interior through the U.S. Bureau of Reclamation, the U.S. Department of Energy, Department of Water Resources, the Metropolitan Water District of Southern California, San Gabriel Valley Water Quality Authority and the State of California through the Greater Los Angeles County Integrated Regional Water Management Plan.

**Section VII. Rate and Method**

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In the calculation of the standby charge, it is necessary to first define the Benefiting Unit. The number of total Benefiting Units is divided into the total standby charge revenue required to determine the standby charge per Benefiting Unit.

The definition of a Benefiting Unit for the purposes of this parcel assessment is founded on the determination that the economic value of one acre-foot of water, in terms of employment and production, is several times greater than the actual cost of that acre-foot of supply provided. Because the District is in the business of providing water, it was deemed appropriate that the Benefiting Unit be defined as one acre, or portion thereof.

As shown in Table 2, the District’s service area includes 310,729 parcels encompassing 73,898 acres. For the purposes of this report, a Benefiting Unit is described as either (a) any parcel with 1 acre or less; or, (b) any acre, or portion thereof, within a parcel with 1 or more acres. Therefore, the District’s service area has approximately 327,230 Benefiting Units. The FY 2018/2019 parcel assessment (calculated by dividing the projected standby charge requirement by total Benefiting Units) is approximately \$10 per Benefiting Unit.

**PROPOSED STANDBY CHARGE FOR FY 2018/2019**

The District pledged current and future standby charge proceeds in its bond agreements dated 2008 and 2010. For FY 2018/2019, the District will continue to use standby charge proceeds to repay principal and interest payments obligated under bond agreements. The proposed assessment level and methodology for FY 2018/2019 will remain the same as FY 2017/2018.

**TABLE 2**  
**Projected Benefiting Units**

|                                  | ACRES<br>≤1    | ACRES<br>>1   | Total          |
|----------------------------------|----------------|---------------|----------------|
| <b><u>Improved Parcels</u></b>   |                |               |                |
| Parcels                          | 295,207        | 6,285         | <b>301,492</b> |
| Acres                            | 48,192         | 18,543        | <b>66,735</b>  |
| Benefiting Units                 | 295,207        | 18,676        | <b>313,883</b> |
| <b><u>Unimproved Parcels</u></b> |                |               |                |
| Parcels                          | 7,906          | 1,331         | <b>9,237</b>   |
| Acres                            | 1,730          | 5,433         | <b>7,163</b>   |
| Benefiting Units                 | 7,906          | 5,442         | <b>13,348</b>  |
| <b><u>Total</u></b>              |                |               |                |
| Parcels                          | 303,113        | 7,616         | <b>310,729</b> |
| Acres                            | 49,922         | 23,977        | <b>73,898</b>  |
| <b>Benefiting Units</b>          | <b>303,113</b> | <b>24,117</b> | <b>327,230</b> |

The method of, and formula for, this assessment is proposed as \$10 per Benefiting Unit (i.e., \$10 per parcel of 1 acre or less; or \$10 per acre, or portion thereof, for parcels 1 acre or more). The estimated revenue for FY 2018/2019 is approximately \$3,272,303.20. The levy of this assessment is proposed under the Municipal Water District Act, Alternative Procedures.

**SUMMARY**

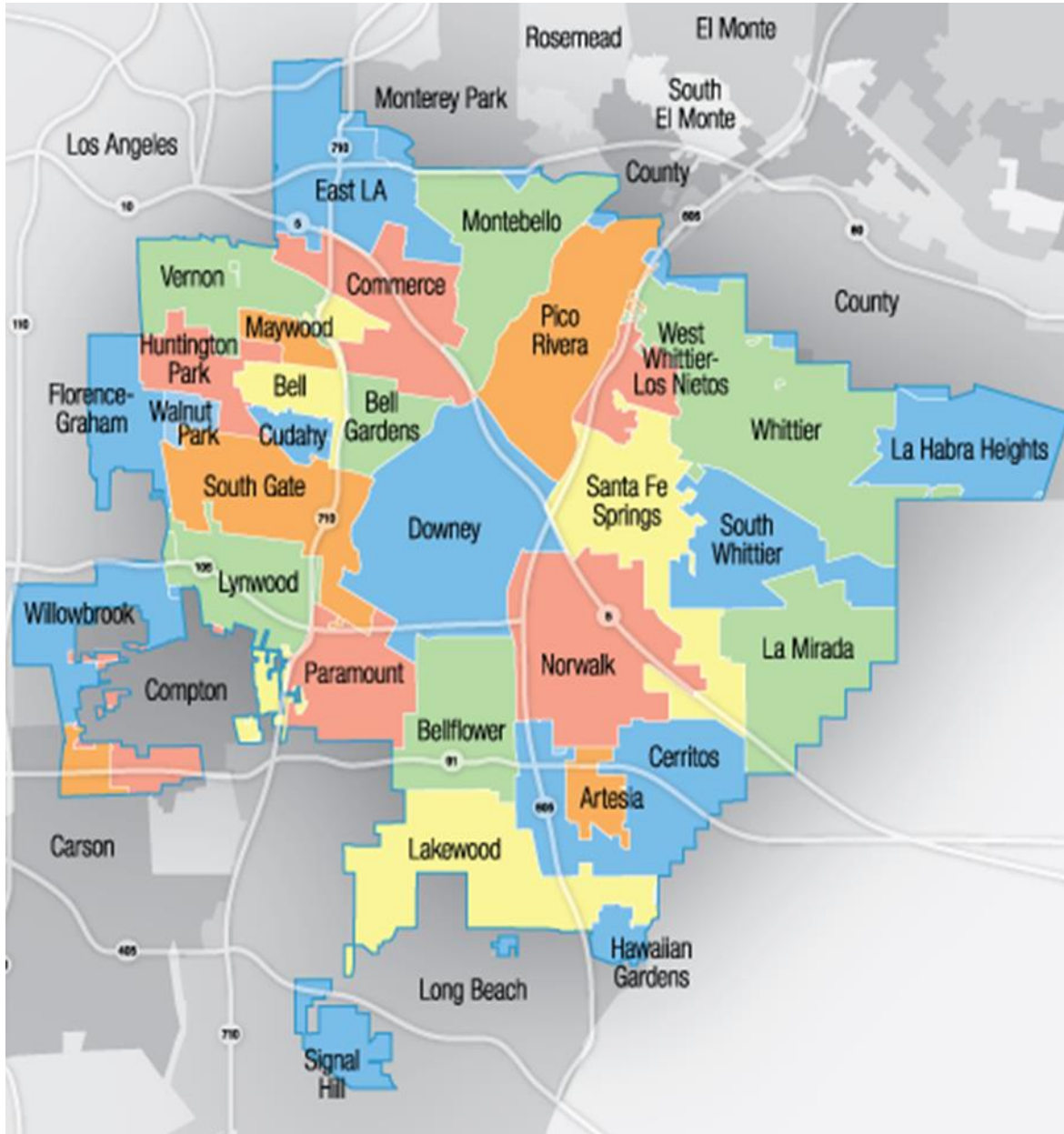
The benefits described in this Engineer’s Report far exceed the recommended charge. Conservation of potable water through demand management and recycled water helps to “drought-proof” the entire service area by increasing the potable supply for all property owners within the District. The standby charge recognizes that there are economic benefits to land from extending potable water supplies through the use of recycled water, whether or not such lands are directly using the recycled water. The



performance of the financial plan will be reevaluated annually to ensure that the program expectations are being realized.

## Section VIII. District Diagram

### *Service Area Map and Incorporated Cities*



## Section IX. Standby Charge Roll

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The Standby Charge Roll is voluminous, is on file with the Board, and is hereby included by reference.