



Rosedale-Rio Bravo Water Storage District
Kern County, California

2018 Engineer's Report in Support of Proposed Assessment Increase and Implementation of a Water Charge

Date: February 9, 2018
GEI Project No: 1701276



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Abbreviations, Acronyms, and Definitions

ac	acre
af	acre-foot
Board	Board of Directors of Rosedale-Rio Bravo Water Storage District
CPI-U	Consumer Price Index, All Items, for All Urban Consumers, for the western region, City "Size Class B/C"
CWF	California WaterFix
Delta	Sacramento River-San Joaquin River Delta
District	Rosedale-Rio Bravo Water Storage District
ET	Evapotranspiration of Applied Water and rainfall
ETAW	Evapotranspiration of Applied Water
GIS	Geographic Information System
GSP	Groundwater Sustainability Plan
ITRC	Irrigation Training and Research Center at Cal Poly San Luis Obispo
KCWA	Kern County Water Agency
KGA	Kern Groundwater Authority
O&M	Operation and Maintenance
Project	All those rights and obligations of the District that exist as of the date of this report
SGMA	Sustainable Groundwater Management Act (2014)
SWP	State Water Project

1 Introduction and Background

1.1 The District

Formed in 1959, the Rosedale-Rio Bravo Water Storage District (“District” or “Rosedale”) encompasses about 44,000 total acres of the San Joaquin Valley portion of Kern County, immediately to the west of the City of Bakersfield. Property within Rosedale includes lands developed to irrigated agricultural uses, predominantly in the western portion of the District, and lands developed to industrial and residential uses, predominantly along the eastern edge of Rosedale, and some lands which remain undeveloped (Rosedale 2013). Of the acreage developed to irrigated agriculture, about one-half is currently planted to permanent crops --- predominately almonds.

Similar to other areas developed in reliance on pumped groundwater in the San Joaquin Valley, groundwater levels in the area of the District were declining prior to District formation as groundwater was pumped for beneficial use on overlying lands. Irrigated agriculture was the primary water-using land use, and it relied solely on pumped groundwater. The State Department of Water Resources compiled data regarding average groundwater levels across the area of the proposed District prior to formation. In particular, for the ten-year period extending from 1947 to 1957, groundwater levels declined at an average annual rate of four to five feet, with the last three years of that period averaging nine feet per year (DWR 1959). To address declining groundwater levels, the District was organized in 1959¹ to implement a plan for recharging the underlying groundwater with “... surplus waters to be obtained from the Friant-Kern Canal of the Central Valley Project or from any other sources that may be available, including the Kern River, Feather River Project², etc.” (Boyle Engineering 1960)

At the outset of the District’s operations, the District constructed water conveyance facilities and recharge (or spreading) basins, the initial construction of which was completed in 1962. Improvements, facilities, and properties have been subsequently added in furtherance of the District’s goal of enhancing the groundwater aquifer underlying lands within the District for the benefit of all landowners within the District. For example, the District has participated in the construction and expansion of the 21-mile long Cross Valley Canal, which provides a means of conveying water from the California Aqueduct to the District.

In contrast to a number of other water agencies, the District does not generally deliver water directly to landowners within the District; rather, available surface water supplies are brought into the area and used to recharge the groundwater basin from which landowners pump for their overlying use. In this manner, the District’s capital and operations and maintenance

¹ The District is an independent special district, organized on May 5, 1959, under provisions of California Water Storage District Law (Division 14 of the Water Code of the State of California).

² “Feather River Project” is an early reference to what ultimately became known as the “State Water Project”.

requirements have been reduced relative to districts that have constructed projects for the purpose of delivering water directly to landowners.

In addition to the development of the necessary infrastructure, the District has executed both short- and long-term agreements for the procurement of surface water supplies to be used for recharge. These agreements currently provide for the delivery of water from the following sources of supply: 1) Kern River; 2) State Water Project (“SWP”); and 3) Central Valley Project (“CVP”). The District has also entered into water banking arrangements with other water agencies which have been structured to provide a net supply to the District (from supplies available to those agencies).

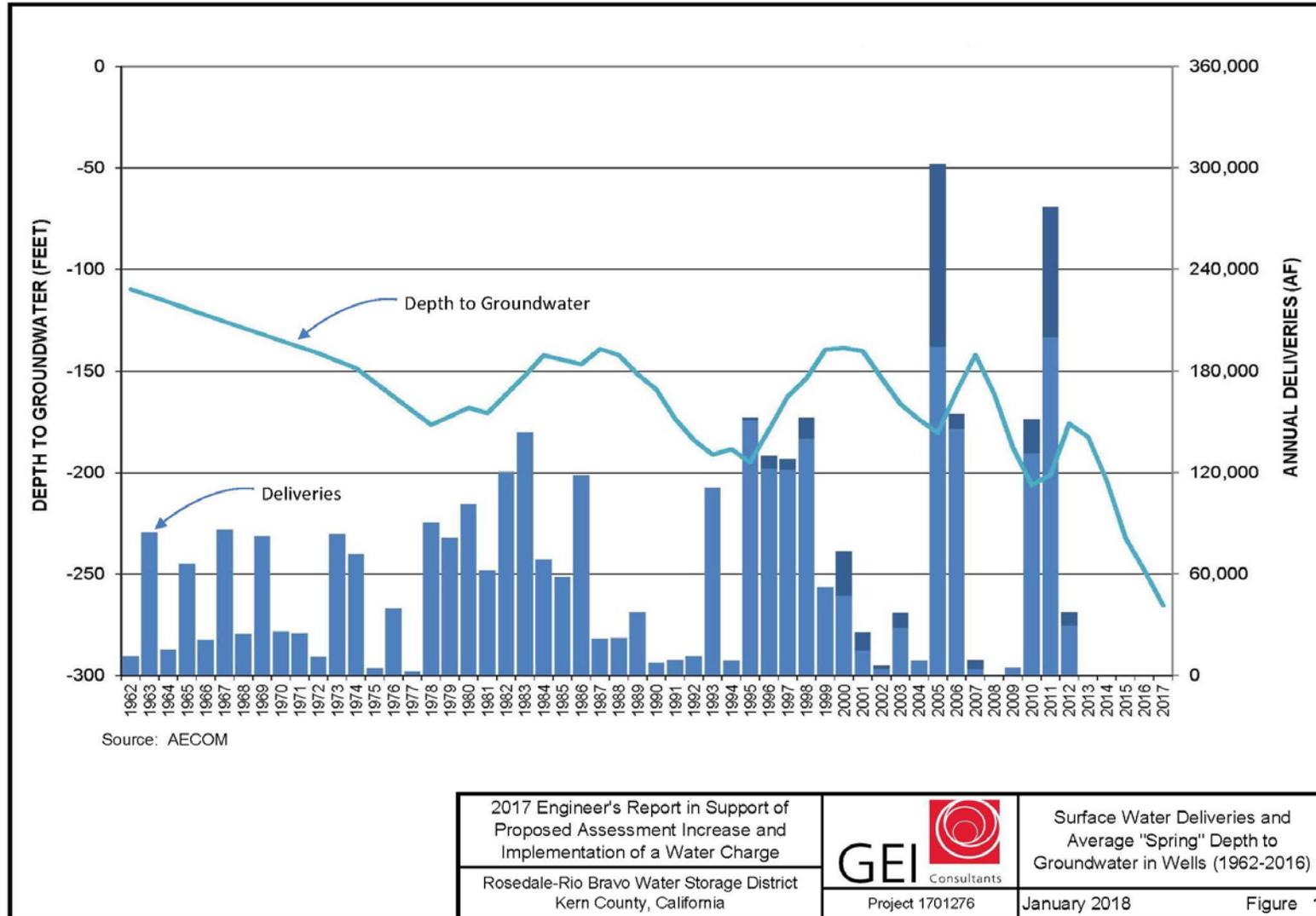
In recent years, the District has acquired interests in property to provide additional recharge and generate additional water supplies for District landowners. These acquisitions include recharge lands both inside and outside of the District’s boundaries, and the acquisition of approximately 3,300 acres on the South Fork of the Kern River (commonly referred to as the “Onyx Ranch” property). Some of these acquisitions (i.e., McAllister and Onyx Ranch) were financed by the District through the issuance of Certificates of Participation in 2011 and 2013.

In addition, recognizing the increasing cost of water and the potential impacts to water supply reliability from both environmental and legal restrictions in the Sacramento-San Joaquin Delta, the District has developed and entered into a number of water management agreements with other water districts, both within and outside of Kern County. These agreements are designed to either increase water supplies available to District landowners, or to generate revenues to offset the increasing cost of water supplies. Rosedale has been able to capitalize on its strategic location and favorable aquifer characteristics by developing water banking programs under which other water districts deliver water into Rosedale in “wet” years and “bank” the water in Rosedale for a future return. The benefit of these programs is generally that more water is delivered to Rosedale than it is obligated to return (usually on a 2 for1 basis); this allows Rosedale to augment its water supplies and mitigate fluctuations or reductions in its supplies, which, in turn, can improve groundwater levels within the District to the benefit of all landowners within the District.

Figure 1 shows the average depth to groundwater for the 55-year period extending from 1962 to 2016 in Rosedale and the annual importation of surface water under the District’s Project.³

³ For the purposes of this report, Rosedale defines its “Project” as all those rights and obligations of the District which have been obtained or incurred to further the District’s efforts to acquire and recharge water supplies within the groundwater basin underlying lands within the District for the benefit of District landowners.

Figure 1. Surface Water Deliveries and Average Depth to Groundwater in Wells (1962-2016)



In 2014, California enacted legislation known as the Sustainable Groundwater Management Act (SGMA), which provides a framework for sustainable management of groundwater supplies by local authorities like Rosedale. The act requires the formation of local groundwater sustainability agencies (GSAs) that must assess conditions in their local water basins and adopt locally-based management plans. The act requires GSAs to implement plans and achieve long-term groundwater sustainability within approximately 20 years. Rosedale anticipates that its Project in the future will include additional water management programs, including the acquisition of additional water supplies and/or the implementation of demand management measures, in order to implement sustainable groundwater management within the District boundaries.

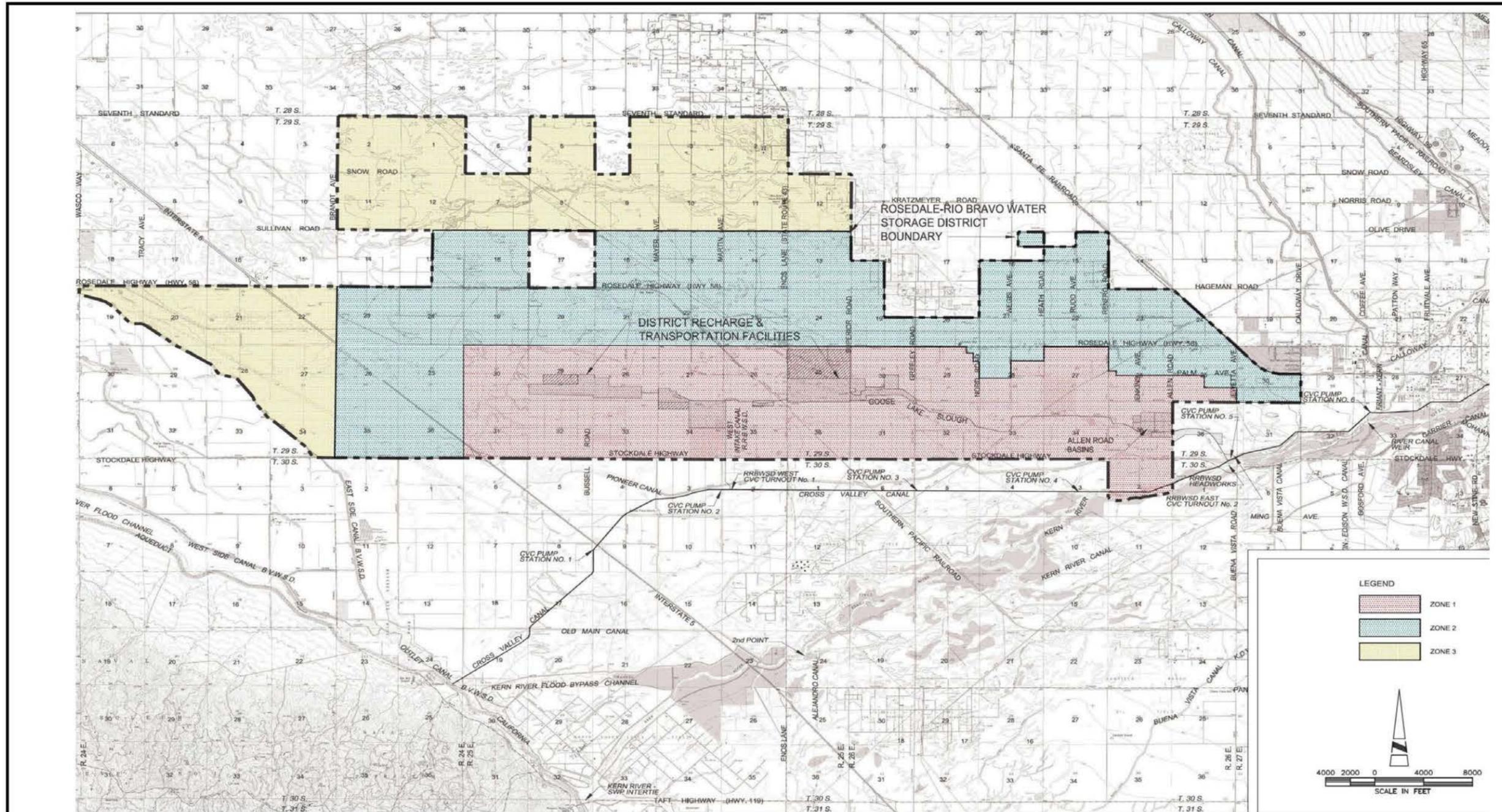
1.2 Cost-Recovery Program

The District has both expenses and revenues. In the context of this report, “cost recovery” refers to the assessments or charges that the District sets in order to cover those expenses that remain after consideration of all other sources of revenue. In addition to out-of-pocket expenses, consideration is also given to monies required to fund or maintain reserves established by the District. The District has entered into water supply contracts and has been engaged in other water management activities requiring the recovery of costs for the construction, maintenance, and operation thereof for more than 50 years.

The District levied its first assessment in 1959 on a per-acre basis to recover administrative costs. This acreage-based assessment was fixed uniformly on all lands in the District, and this continued to be the practice through 1974. The annual per-acre charge varied from year to year as a function of District costs. Over this period of years, there was one year, 1968, when a charge for debt service was also included.

Beginning in 1975 and continuing for the next 30 years, the annual assessment included three components; an administrative component, a debt service component, and a water toll component. Further, the water toll component varied between three areas of the District which were and are referred to as zones. In particular, the water toll for Zone 2 was less than Zone 1, and the toll for Zone 3 was set less than Zones 1&2. Figure 2 shows the District's overall boundary, along with the boundaries of the three zones. Based on a recent Assessment Roll, the approximate portion of the District within each zone is listed following: Zone 1 – 30%; Zone 2 – 42%; and Zone 3 – 28%. Both the administrative component and the debt service component have been set uniformly across all assessed lands within the District.

Figure 2. District Map



Source: AECOM

2017 Engineer's Report in Support of Proposed Assessment Increase and Implementation of a Water Charge			District Map	
Rosedale-Rio Bravo Water Storage District Kern County, California			Project 1701276	January 2018

With regard to the water toll differential between zones, the higher charge was set for the zone closest to the Goose Lake Slough (Zone 1), where the District's recharge operations take place, and slightly lower charges were set for the two zones which are more distant from the Goose Lake Slough. Based on discussions with District management, the differential in this charge between zones was understood to reflect greater perceived water-level benefit closer to the Slough and relatively lesser benefit with distance from the Slough historically. Any differential in water-level benefit is now believed to be transitory and relatively small considering the dynamic nature of groundwater levels in response to highly-variable spreading and relatively constant pumping. Accordingly, as further discussed in Section 2.5, the District is proposing to eliminate the zone differential in the future.

For the last ten years (2006-2015), the debt service component has been zero and the administrative component has been relatively constant (\$5.16 to \$5.50 per acre). The assessment is set annually to recover costs and to fund or maintain reserves. The water toll component has fluctuated, depending upon the revenues and expenses of the District in a particular year. In 2017, the total annual Assessment was \$52.50 per acre for Zone 1; \$50.50 for Zone 2; and \$48.50 for Zone 3. Table 1 summarizes the District charges for 2017. The current assessment level is the maximum available to the District without undergoing a Proposition 218 proceeding.

Table 1. Summary of District Charges for 2017

(values in \$ per Assessed acre)

Zone	Administrative	Water Toll	Total
Zone 1	\$5.50	\$47.00	\$52.50
Zone 2	\$5.50	\$45.00	\$50.50
Zone 3	\$5.50	\$43.00	\$48.50

The District's cost-recovery program involves the following generalized steps each year:

- 1) Estimate all District expenses, including funding of reserves.
- 2) Estimate all District revenues (excepting that to be collected under the District assessment).
- 3) Estimate budget shortfall as (1) – (2), which is the total amount to be collected under the District assessment. (The charge per acre is simply this total amount divided by the total assessed acreage within the District.)

Going forward, Rosedale seeks to develop a cost-recovery program that adequately and efficiently recovers the cost required to operate and maintain the Project for the benefit of all lands within the District; and provides a funding mechanism for future projects that ensure maintenance of sustainable water supplies within the District.

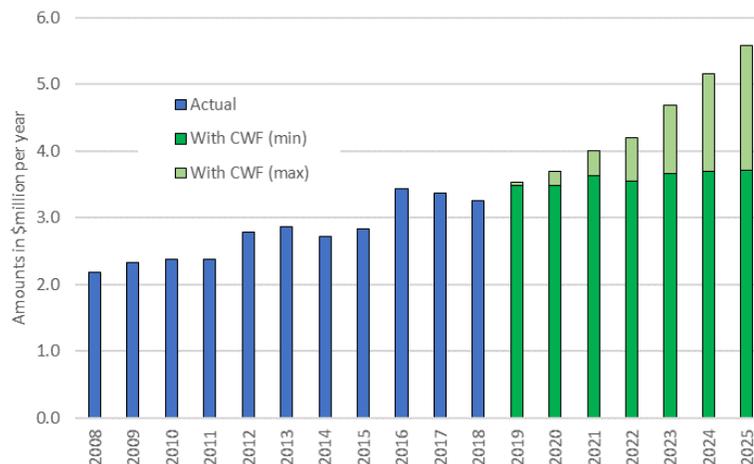
1.3 Need for Increase in District Charges

As noted hereinabove, the District has levied an annual Assessment on a per-acre basis for over 50 years and is proposing to continue that practice to “balance” its annual budget for acquiring, constructing, maintaining, and operating its Project. To date, the District has not imposed a charge on the volume of water used; however, the District is proposing to implement such a volumetric charge, referred to hereinafter as the “Water Charge”. The need for an increase in the amount of the Assessment and the need for a Water Charge are described in the subsections which follow.

1.3.1 Assessment

Annually, the District develops a budget which reflects the revenues and expenses of constructing, operating, and maintaining its Project. The largest year-in-year-out expense items are debt service and the SWP water supply contract. The annual cost of the SWP contract has increased significantly over the years and this trend is expected to continue. In this regard, DWR is currently proposing the “California WaterFix” (CWF) to address environmental concerns regarding the pumping and export of water from the Delta and to stabilize the reliability of SWP supplies in the future over those that would otherwise be available under current SWP operating criteria. Based on the information available regarding the California WaterFix Project at this time, it appears that the District will incur significant cost increases in its SWP bill in the future through its participation in the California WaterFix project. Figure 3 is a bar chart which shows the District’s annual SWP bill over the last ten years, as well as annual projections of that bill with the District’s participation in the California WaterFix. This figure illustrates an annual increase of about 5 percent in the SWP bill over the last ten years, and a more significant increase going forward with the California WaterFix.

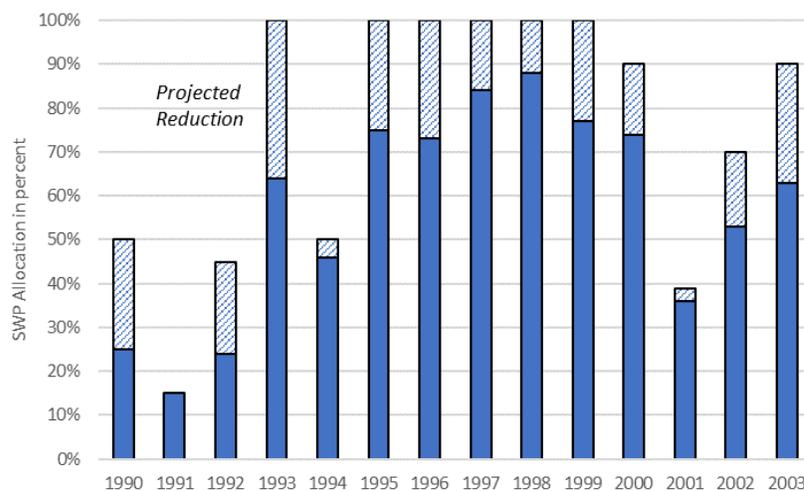
Figure 3. Actual and Projected SWP Costs



During the last decade, the largest source of District revenue has been attributable to two water management programs; a sale program with Coachella Valley Water District (“Coachella”) and a banking/sale program with Buena Vista Water Storage District and Castaic Lake Water Agency

(“Castaic”). Annual revenue from the program with Coachella has been on the order of \$4.4 million. The District’s ability to deliver water to Coachella and subsequently receive payment is contingent upon 1) having demonstrated that the District has met all overlying landowner demands and is in balance; and 2) having an adequate accounting of “exportable” water available for delivery to Coachella. Reduced yield from SWP supplies, as well as the reduced frequency and amount of high-flow Kern River supplies available to the District, have diminished the balance of supplies available to the District to make available under the Coachella program. These conditions are expected to continue for the foreseeable future. The reliability and supply available from the SWP have diminished due to environmental and regulatory restrictions in the Delta and (more recently) drought conditions throughout California. This is illustrated in Figure 4 below, which shows the adverse impact of the above-mentioned environmental and regulatory constraints on the projected water supply available to the District from the SWP.

Figure 4. Projected Reductions in Annual SWP Allocations



In particular, the figure shows the projected annual allocations of SWP water (in blue) and the projected reductions relative to historical allocations (in light blue crosshatch) for the period extending from 1990 through 2003.⁴ In other words, the total height of each bar in the figure represents the historical SWP allocation for a given year, and the light blue crosshatched portion is the projected reduction in supply for the given year in the future, assuming the same hydrologic conditions. For example, if hydrologic year 1993 was repeated going forward, the SWP allocation can be expected to be 64 percent instead of the allocation of 100 percent that was available in 1993, which implies a reduction in supply of 36 percent. The District’s contract for SWP water would yield 29,900 acre-feet in a year with an allocation of 100 percent. Accordingly, a reduction of 36 percent in the SWP allocation is a reduction of more than 10,000 acre-feet in the water available to the District in a repeat of 1993 hydrology.

⁴ The projected SWP allocations shown in Figure 4 were taken from Table B.6 of the *SWP Delivery Capability Report 2015*, prepared by the State of California Department of Water Resources, April 2015 Draft.

In light of these conditions, District staff is projecting that revenue from the Coachella program will not be as reliable in the future as it has been in the past.⁵ Accordingly, the District has amended its Financial Management Plan to include a “Rate Stabilization Reserve” that may be used, in part, to offset District expenses in years that revenue is not received from the Coachella program. This results in the need to increase the amount that could be collected under the District’s assessment in future years to ensure sufficient reserves are funded to mitigate potential budget deficits.

Increasing expenses, the need to adjust reserves to ensure continued operations, and the potential for future reductions in revenues from the Coachella program require the District to increase the maximum District Assessment which may be levied. As is discussed below, based on 39,468 Assessed Acres, the increased costs to operate and maintain the Project and potential reduction in revenue could necessitate an increase in the Assessment level to as much as \$205 per acre. Accordingly, the District is in a position where the potential Assessment level must be increased in order to offset reasonably projected budget deficits. It is important to note that the proposed increase is to the maximum assessment level that the District Board of Directors may set in any given year. The assessment shall be set annually based upon the revenue requirements of the District for that particular year and will fluctuate accordingly. The assessment level could be lowered for one or more years and then raised in a subsequent year so long as it does not exceed the maximum total amount authorized by the proposed Proposition 218 proceeding.

1.3.2 Water Charge

The Board of Directors is also proposing to implement a “Water Charge” that is based on the volume of water used over and above the amount that the District’s Project historically generates on a per-parcel basis within the District boundaries. This is a new charge and is driven by the need to manage the underlying groundwater reservoir in a sustainable manner, which is something that has been hindered in the short term by hydrology, with the most recent period of drought, and in the long term by regulatory constraints which have been imposed on pumping from the Sacramento-San Joaquin River Delta, which have resulted in a declining yield of the District’s contract for imported water from the State Water Project. Management of the area’s water resources in a sustainable manner is not just a District initiative; it has been mandated by the State of California’s passage of the Sustainable Groundwater Management Act in 2014.

Section 3 provides a description of the proposed Water Charge and its implementation.

1.4 Proposition 218 and Report Organization

The passage of Proposition 218 in the late 1990s added Article XIII(D) to the Constitution of the State of California, which requires that any new or increased assessments be subject to a landowner vote. In this regard, Proposition 218 requires, among other matters, the preparation of an “Engineer’s Report” (ref. Section 4(b) of Article XIII(D)). Section 4(c) of Article XIII(D) sets forth the basic requirements for the notice to be provided to landowners, which sets the

⁵See Memorandum to Board of Directors from Dan Bartel, Re: Potential Establishment of Rate Stabilization Reserve, dated December 18, 2017.

stage for the required assessment ballot proceeding (sometimes referred to as the “election”). Two additional resources were consulted for guidance in establishing the scope of this report: 1) the Association of California Water Agencies’ “Proposition 218 Local Agency Guidelines for Compliance” (2007 Update); and 2) the Governor’s Office of Planning and Research “A Planner’s Guide to Financing Public Improvements” (June 1997). The resulting scope of this Engineer’s Report as it relates to the District’s Assessment is summarized following in the form of questions.

- 1) *Why is a special assessment needed?*
- 2) *What are the total annual amount, basis, and duration of the assessment?*
- 3) *What are the special benefits?*
- 4) *Who benefits?*
- 5) *How should the assessment be allocated to those who benefit?*
- 6) *Is the assessment reasonable given the benefits provided?*
- 7) *What is the proposed assessment on a parcel-by-parcel basis?*

These questions are addressed in Section 2 for the proposed District Assessment. Pursuant to the recent California Supreme Court Decision in *City of San Buenaventura v. United Water Conservation District et al*, the Water Charge as proposed in Section 3 is not subject to Proposition 218. However, for continuity and explanation of the rationale, the proposed Water Charge is included in this Engineer’s Report. Finally, Section 4 provides a summary of the overall cost-recovery proposal.

2 Assessment

The District has levied an annual Assessment on a per-acre basis for more than 50 years to fund the operation of its adopted Project for the benefit of its landowners. In particular, the Assessment is the mechanism by which the District covers expenses which are in excess of revenues and funds the necessary reserves. The lands which are subject to the Assessment are referred to herein as Assessed Acres, which includes all lands within Rosedale-Rio Bravo Water Storage District, except those that are exempt from the District's assessments.⁶ Currently, the Assessed Acres total approximately 39,468.⁷ The Assessment is set annually by the Board of Directors after consideration of the District's proposed budget and anticipated expenses and revenues. As noted in Table 1, the 2017 Assessment ranged from \$48.50 to \$52.50 per acre (depending on zone). To date, the Assessment has been collected by the County of Kern with the property tax bill and it is likely that this practice will continue.

2.1 Why Is a Special Assessment Needed?

A special assessment is needed to fund the operation of the District's adopted Project and avoid budget deficits. The Assessment is not new; rather, there is a need to increase the maximum Assessment level to reflect increased costs and decreased revenues which will otherwise result in budget deficits, which were identified previously in Section 1.3. For example, as described above, the District's SWP costs have increased about 5 percent annually over the past five years. Such increases are projected to continue in the future. Similarly, the District's potential participation in the California WaterFix project is also anticipated to increase its SWP costs. To date, the District has coped with increasing expenses and the costs of Project improvements by entering into long-term water sales and banking arrangements, which have developed significant offsetting revenues; however, one of the two principal arrangements cannot be considered consistently reliable going forward; namely, the water sales arrangement with Coachella Valley Water District. (See discussion in Section 1.3, above). Additionally, the District has updated its reserve requirements in the District's amended Financial Management Plan.

Absent authorization to increase the Assessment above historical maximum levels, the District may not be able to cover Project expenses and maintain the necessary reserves if faced with reduced revenues from the District's water management programs (reference discussion in Section 1.3.1, above). Failure to meet Project expenses will result in an inability to maintain and operate the Project. This would likely result in intervention by the State Water Resources Control Board to require the sustainability of the groundwater basin, which would likely include mandatory restrictions on the amount of groundwater that is allowed for overlying use.

⁶ Lands exempt from District Assessments include District-owned lands, lands owned by the governmental entities that do not receive the benefit of the District's Project (such as roadway rights-of-way) and lands within the District boundaries that do not, and cannot, receive a special benefit from the District Project.

⁷ Based on Assessment roll prepared by AECOM in, which is attached to this report as Appendix A.

2.2 What Are The Total Annual Amount, Basis, And Duration Of The Assessment?

The maximum Assessment level is based on the District's actual year-end expenses and revenues for calendar-year 2017, with adjustments to individual line items for changes which are anticipated over the next five years. As noted in Section 1.3, two of the largest changes include increases in SWP costs and a potential decrease in water management program revenues, both of which are outside of the District's control and would necessitate an increase in the amount of the Assessment.

With regard to the District's contract for the importation of SWP water, there is a history of increasing costs (reference Section 1.3.1). Anticipated increases over the next five years are based on this history and participation in the California WaterFix. Estimates of the District's SWP bill with participation in the California WaterFix (under several different scenarios) have been used to inform this report.

The water sales program with Coachella is contingent on maintenance of an exportable balance of water supplies pursuant to the conditions of the program, and District staff has estimated that this contingency may not continue to be met under a continuation of the "dry" conditions experienced by the District over the past decade, in which case this source of revenue could be reduced to zero in certain years. With that said, District staff also believes that there will continue to be water sales under this long-term arrangement in the future, albeit at reduced levels and/or frequency compared to the experience to date. Any revenues received from the program in the future will be used to offset Project expenses (and reduce the Assessment level) just as they have been used in the past. However, in the near term, the District's Board of Directors must be prepared for an annual budget which does not include this significant source of revenue in any given year. Accordingly, the District amended its Financial Management Plan to provide for the establishment of a Rate Stabilization Reserve that accounts for the potential reduction in revenues from the District's water management program with Coachella, as well as annual swings in energy costs and capital replacement. Such a reserve would help to ensure that the District maintains financial stability in years that revenue from the Coachella program is reduced.

Table 2 presents the actual year-end expenses and revenues by principal categories for calendar-year 2017, as provided by the District. Each year, District management considers recent expenses and revenues, along with its knowledge of changed conditions or upcoming events which impact these going forward, and prepares projected annual budgets for the next ten years. For the purposes of this report, the projected budget for 2023 was used, with certain adjustments, as the basis for determining the maximum level of the Assessment over the next five years. This budget is also shown in Table 2, along with the implied increase or decrease by line item compared to 2017 actual expenses and revenues. For purposes of this report, adjustments to the District's projected budget for 2023 included the following:

Table 2. Adjustments to 2017 Expenses and Revenues for the Purpose of Developing the Maximum Required Assessment over the Next Five Years

	2017 Actual	(+)	Increase/ (Decrease)	(=)	2023 Projected
EXPENSE CATEGORIES:					
Salaries, Wages, & Benefits	1,494,740		170,792		1,665,532
Water Purchases & Fees	3,622,228		1,077,772	(a)	4,700,000
Operations - Pumping Costs	638,843		(96,629)		542,214 (b)
Operations	2,028,349		(1,172,268)	(c)	856,081
Utilities	51,823		16,412		68,235
Maintenance	98,715		3,538		102,253
Administration	261,374		177,879	(d)	439,253
Professional Services	649,989		100,011	(e)	750,000
Capital Improvements	8,388,548		(6,588,548)	(f)	1,800,000 (g)
Debt Service	3,522,862		0		3,522,862
Reserves	0		2,500,000	(h)	2,500,000
Total Expenses:	\$20,757,471		(3,811,040)		\$16,946,431
REVENUE CATEGORIES:					
Refunds and Credits	377		(377)		0
Coachella Water Sales Program	4,387,290		0		4,387,290 (i)
Castaic Water Banking Program	4,419,459		0		4,419,459 (j)
Reimbursements	9,000,000		(9,000,000)	(j)	0
Interest Income	38,000		(38,000)		0
Other Revenue	150,000		(100,000)		50,000
Total Revenues:	\$17,995,126		(9,138,377)		\$8,856,749
Budget Deficit:					\$8,089,682
Assessed Acres					39,468
Assessment Required to Offset Budget Deficit (\$/acre - rounded)					\$205

General Notes:

- (1) 2023 Projected based on District's projection, with line item adjustment factors reduced by 2% to remove an allowance for CPI-U from the projections.
- (2) For the purposes of this report, the 2023 budget does not include reimbursable expenses in the list of expense items, nor does it include the corresponding revenue in the list of revenue items, inasmuch as they are offsetting and do not affect the conclusions reached in this report.

Specific Notes:

- (a) Increase includes about \$0.6M for the SWP obligation (based on actual increases over the last several years and projections with the California Water Fix) and \$0.5M for other water purchases.
- (b) Reimbursable pumping expenses (which can be on the order of \$2M) are not included. See General Note (2).
- (c) Decrease attributable to higher than average costs in a very wet 2017 and the expected elimination of about \$0.2M in property taxes going forward.
- (d) Increase primarily attributable to participation in the Kern Groundwater Authority, which is significantly increasing its activities and corresponding expenses as SGMA compliance ramps up.
- (e) Reflects increase in District-specific SGMA compliance and project implementation activities.
- (f) Significant capital expenses in 2017 were unique to that year and are not included in the 2023 budget.
- (g) Includes about \$0.8M for planned projects and \$1M for projects related to new water management programs or additions and improvements in the District's project, such as the District's share of the proposed Kern Fan Banking Project.
- (h) The 2017 budget did not include funding reserves; however, going forward, the District has adopted a financial management plan which includes up to \$2.5M per year depending on the reserve balance.
- (i) Long-term contract with provisions for indexing the amount to the CPI-U.
- (j) See General Note (2).

- 1) The District's projection of expenses and revenues included an allowance for CPI. This allowance was removed, inasmuch as the maximum Assessment proposed herein, if approved, will be subject to adjustment by the CPI-U for a period of five years.
- 2) Reimbursable expenses with a corresponding reimbursable revenue were removed since one offsets the other and has no effect on the calculation of the required Assessment.

Notable increases in expenses from 2017 to 2023 include the following:

- 1) "Water Purchases and Fees" --- Table 2 indicates an increase of almost \$1.1 million, which reflects about \$0.6 million for the District's SWP obligation (based on actual increases over the last several years and projections of increased costs with participation in the California WaterFix) and about \$0.5 million for other water purchases.
- 2) "Reserves" --- Explicitly funding reserves with an expense line item has not been the District's practice to date; however, under its recently adopted Financial Management Plan, this will be the District's practice going forward to mitigate the potential loss of water sales revenue in any given year and other factors outside of the District's control (such as power and energy costs) which could measurably increase the budget deficit. Accordingly, the implied increase is \$2.5 million, as shown in Table 2.

Notable decreases in expenses and revenues from 2017 to 2023 include the following:

- 1) "Operations" --- In this regard, it is noted that the District's philosophy has been to budget for the "average" condition. Table 2 indicates a decrease of almost \$1.2 million which is attributable to higher than average operations costs in a very wet 2017 and the expected elimination of about \$0.2 million in property taxes going forward.
- 2) "Capital Improvements" --- Table 2 indicates a decrease of about \$6.6 million, which is attributable to significant improvements and expenses which were unique to 2017. It is also noted that most of the capital expenses in 2017 were reimbursable under the District's water management programs.
- 3) "Reimbursements" --- Table 2 indicates a decrease of \$9 million because, as previously noted, reimbursable items have been removed from both expenses and revenues in the projected budget, inasmuch as they are offsetting and do not affect the conclusions in this report.

As shown in Table 2, the budget shortfall implied by the projected expenses and revenues is almost \$8.1 million. Absent the use of District reserves, this is the amount that must be collected under the Assessment (under this scenario). As shown in Table 2, based on 39,468 Assessed Acres, this implies a maximum unit rate of \$205 per acre (rounded). While this is a significant increase over present Assessment levels, it is important to note the following:

- 1) This is the maximum amount for which the Board of Directors seeks authorization through this Prop. 218 process; however, the Assessment is set annually by the Board of Directors in the amount necessary to fund District operations and reserves, which may be less than this amount in a given year.
- 2) This amount does not eliminate the District's financial risk. There are reasonable scenarios under which the proposed maximum Assessment would not be sufficient to offset the budget deficit and the District would be forced to pursue other options, such as short-term borrowing.

The Assessment is expected to continue so long as the District has expenses in excess of revenues as a result of the construction, operation, and maintenance of its adopted Project, which is expected to continue indefinitely. The proposed maximum Assessment level amount would remain in effect until changed through a subsequent Proposition 218 election, with the exception of increases over the next five years, at the discretion of the Board, based on the Consumer Price Index (CPI-U)⁸, all without further proceedings under "Proposition 218". It is important to reemphasize that the Assessment level being proposed is a maximum level; the annual amount will be set by the Board in open and public meetings, after consideration of anticipated District revenues and expenses. It is anticipated that once District reserves are fully funded, the annual assessment amount will be reduced until such time as it is necessary to replenish funds in reserve which have been expended. Funding and then utilizing reserves in years of decreased revenue is intended to reduce the year-to-year fluctuation of the annual assessment.

2.3 What Are The Special Benefits?

Lands which are located within the Rosedale-Rio Bravo Water Storage District benefit from being located within an organized district with the authority to manage, preserve, and protect the water resources of the area and which is actively engaged in activities in this regard.

Additionally, by being in an organized district with an imported water supply, landowners (1) have access to improved groundwater conditions and supplies; (2) are more likely to maintain local control of the underlying groundwater resource; and (3) are better positioned to comply with legal mandates relating to water supplies and use, such as those imposed by SGMA; (4) are less likely to face mandatory cutbacks in water use than lands that are not located within an organized district that has developed a water supply project which imports water supplies; and (5) are less likely to be subject to a supplemental zone of benefit assessment and/or other charge imposed by the Kern County Water Agency.

The District's adopted Project provides water supply benefits through both long-term and short-term arrangements for importation of supplemental surface water supplies, primarily from the State Water Project, Central Valley Project, and the Kern River. All lands within the District

⁸ As used herein, "CPI-U" refers to Consumer Price Index, All Items, for All Urban Consumers, for the western region, City "Size Class B/C", (December 2017 = 149.92). <https://www.bls.gov/regions/west/data/xg-tables/ro9xg01.htm> [Accessed: 19 Jan 2018]

which depend on water to support the adopted land use have developed in reliance on pumped groundwater. The importation and recharge of surface water supplies offsets groundwater use, thereby enhancing, preserving and extending the utility of the underlying groundwater resource. This has the effect of improving water supply reliability and reducing groundwater pumping lifts and associated pumping costs relative to the alternative. It also improves the long-term viability of using the lands within the District for productive purposes (i.e. agricultural, industrial, residential uses, etc). Over the last 20 years (1997-2016), the District's Project has generated approximately 65,600 acre-feet per year on average for the benefit of District Landowners, which equates to approximately 1.66 acre-feet per assessed acre within the District.

In this regard, recall that Figure 1 illustrates the annual fluctuations of average groundwater levels over time, along with a bar chart showing water which has been imported for recharge under the District's Project. Absent the District Project, landowners within the District could only rely on precipitation and the basin's safe yield for a water supply. The amount of water available from these sources is not likely sufficient to meet the demands of an average urban or agricultural user (reference Table 3 in Section 3). Accordingly, owners of lands within the District are afforded a special benefit, unique from the public in general.

2.4 Who Benefits?

The benefits described in Section 2.3 are equally available to all Assessed Acres located within the Rosedale-Rio Bravo Water Storage District, irrespective of present land use practices. All landowners within the District receive the special benefit of improved groundwater conditions as a result of the Project. This has the effect of improving water supply reliability and reducing groundwater pumping lifts and associated pumping costs relative to nearby areas which do not lie within an established district. These benefits are received regardless of whether a landowner pumps groundwater or relies on a water company within the District to provide water to the landowner from groundwater supplies. In each situation, the benefit of groundwater reliability and reduced pumping costs are passed down to the water user. Further, all Assessed Acres have equal access to groundwater enhanced by the District's adopted Project. Accordingly, all lands within Rosedale are judged to have access to a pro-rata portion, based on acreage, of the benefits associated with the Project.

2.5 How Should The Assessment Be Allocated To Those Who Benefit?

Since 1976, there have been three Assessment Zones, with a relatively small differential in the Assessment between each zone (reference Section 1.2.2). This differential was attributable to an assumption that the District's then existing water spreading operations benefitted groundwater levels for lands closer to the spreading ponds more than lands more distant from the ponds. While this differential in the Assessment has persisted for the last 40 years, it has never been increased; rather, it has remained at a relatively nominal amount. Any differential in water-level benefit is believed to be transitory and relatively small considering the dynamic nature of groundwater levels in response to highly-variable spreading and relatively constant pumping and,

further, considering large-scale groundwater recharge and recovery operations that have been developed both inside and outside the District. Further, all Assessed Acres have equal access to groundwater enhanced by the District's adopted Project. All lands within Rosedale are judged to receive a pro-rata share, based on acreage, of the benefits associated with the Project. Accordingly, it is considered reasonable and equitable to levy the Assessment equally on all Assessed Acres. Based on the proposed maximum total Assessment, the maximum unit Assessment would be \$205 per acre (see Table 2).

2.6 Is The Assessment Reasonable Given The Benefits Provided?

As noted in Section 1.1, prior to the importation of surface water under the District's adopted Project, the average decline in groundwater levels was on the order of four to five feet per year for the prior ten years and about nine feet per year for the prior three years. Since the importation of SWP water supplies commenced in the mid-1970s, and prior to the beginning of the most recent period of extended drought in 2012, groundwater levels went up in "wet" years and down in "dry" years, generally fluctuating within a range of about 50 feet (between wet-period highs and dry-period lows). However, during the historical drought period from 2012-2016, groundwater levels fell below the referenced 35-year observed operating range. The continued viability of the economies within the District, including the agricultural, industrial, and residential economies, as well as the expansion of those economies over time, depends on a sustainable supply of groundwater, which is benefitted by the District's importation and recharge of surface water supplies. Among other matters, declining water levels translates to increased costs for power, energy, O&M, and capital for groundwater pumping, and may cause restrictions in available land uses under the requirements of SGMA. Short of reducing the demand for water, the District's water importation and recharge strategy is the only means of mitigating groundwater level declines and achieving a sustainable condition to permit continued utilization of lands within the District. The Assessment increase, as proposed, is based on, and limited to, recovering costs necessary to operate and maintain the Project, which benefits all parcels equally. Accordingly, the Assessment for any particular parcel does not exceed the reasonable cost of the proportional special benefits conferred on that parcel as a result of the District Project.

2.7 What Is The Proposed Assessment On A Parcel-By-Parcel Basis?

In practice, the assessment on a given parcel would be the annually adopted rate per acre multiplied by the Assessor's acreage for the parcel. If approved in the subject Proposition 218 balloting process, the maximum rate beginning in the 2019 tax year would be \$205 per acre. Recall that the Assessment rate is set and adopted annually to recover the District's annual costs of operating and maintaining the Project, which includes funding established reserves. Accordingly, as noted in Section 2.2, the rate in any given year may be set at less than the maximum, depending upon other District revenues, at the discretion of the Board of Directors. Also as noted in Section 2.2, the maximum rate will change annually over the next five years to correspond with changes in the CPI-U.

Based on the proposed maximum Assessment of \$205 per acre, the maximum total Assessment by parcel has been calculated and is presented in Appendix A.

3 Water Charge

The Board of Directors is proposing to implement a “Water Charge” based on the volume of water used over and above the amount that the District’s Project historically generates on a per-acre basis within the District boundaries. This is driven by the goal of preventing overdraft in the District and to manage the underlying groundwater aquifer in a sustainable manner for the benefit of the District’s landowners.

The Water Charge proposed herein is intended to fund the District’s efforts to ensure a sustainable water supply available to all District landowners in the future. The Project, as currently existing, provides all lands within the District with a pro-rata share of groundwater benefit, based on acreage. However, certain landowners within the District need or elect to utilize an amount of water in excess of that provided by the Project in any given year. In order to meet such demands, thereby minimizing overdraft conditions and sustaining the groundwater aquifer, the District must either augment water supplies and/or manage demands. The Water Charge is proposed to fund the costs of augmenting water supplies and/or managing demands. To date, the District has focused on supply augmentation; however, demand management is a water resource management strategy which should be employed going forward in view of the significant dependence on imported water and the reduced reliability of these water supplies; the recent period of extended and severe drought and the uncertain role of “climate change” with regard to future water supply availability and reliability; and the increased competition for “available” water supplies in the wake of passage of the Sustainable Groundwater Management Act.

If adopted, the Water Charge will be implemented immediately using the methodology described in this report. However, given that specific water usage cannot be determined in advance, the initial Water Charge for individual parcels or landowners will not be determined until approximately May 2019.

3.1 Proposed Approach or Basis

It is proposed that a volumetric charge be imposed on all water use in excess of the water that is provided by the “safe yield” of the basin, rainfall, and the water historically recharged by the District under the District’s Project, where the latter is referred to as “Project Water” herein. The District’s 2016 Operations Report is the source of historical data for these items of supply. Some definitions, as well as description and adoption of methods of measurement and/or estimation, are addressed in the subsections which follow. The charge will be used by the District to fund the development of additional water supplies and/or to fund demand-management measures, such as land acquisition and retirement, which may be used by the District for recharge purposes (depending upon proximity to existing facilities). The charge will be collected by the County of Kern with the property tax bill and will be based upon annual

water-use information collected by the District as described below. The District will provide the County with the annual amount of the charge per parcel.

The Water Charge will not be imposed on lands within the District that are (i) within the incorporated City of Bakersfield, or (ii) zoned residential, commercial, or industrial and developed to those uses. Based on data described hereinafter, water use for urban lands or lands zoned residential, commercial, or industrial will be less than the average annual water supply described above.⁹ Accordingly, it is unlikely that these lands would trigger the Water Charge. Further, the large number of such parcels (currently in excess of 7,000) would make the required effort of monitoring and reporting use on a parcel-by-parcel basis cost prohibitive.

3.1.1 Safe Yield

There are many definitions of safe yield, legal and otherwise; however, for the purposes of this report, it refers to any groundwater benefit available to landowners that does not relate to Rosedale's efforts to import surface water supplies that are recharged into the groundwater aquifer underlying the District. While it is anticipated that this benefit will be evaluated and established in the Groundwater Sustainability Plan to be adopted by Rosedale pursuant to SGMA, it will not be determined unilaterally; rather, it is subject to regional agreement among the overlying users of the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. Until such time as this occurs, or the Board of Directors determines otherwise based upon available information, a non-precedent-setting unit value of 0.3 acre-feet per acre will be used in the calculations described herein. This is the value used by AECOM in the District's 2016 Operations Report.¹⁰ By definition, this unit value is intended to reflect a long-term average; the actual safe yield in any given year is dependent upon hydrology, which is highly variable from year to year in the region.

3.1.2 Project Water

Project Water is considered to be that which is recharged within or by the District for the benefit of its landowners, all of whom have access to the underlying groundwater reservoir for overlying use. The nature of the District's Project is such that recharge is highly variable from year to year, ranging from zero to about 275,000 acre-feet within the District with more managed outside of the District¹¹, and there can be several consecutive years with little to no recharge. Accordingly, it is appropriate to consider an average annual recharge amount. Therefore, in determining "Project Water" for the purpose of comparing water supplies to water uses, it is proposed to utilize the average annual net recharge attributable to the District's Project over the last 20-year period (1997-2016), where "net" refers to the gross volume of water diverted into the District less estimated losses to evaporation. For this purpose, the allowance for evaporation will be 3 percent, which is consistent with the Kern Fan MOU.

⁹ See March 3, 2005 Memo from Monique Roberts of Boyle Engineering.

¹⁰ While the unit value of 0.3 acre-feet per acre has been used locally from time to time; the District expects it to change as SGMA is implemented in the basin.

¹¹ Based on the District's Operational Log for 2017, more than 275,000 acre-feet was physically brought into the District out of almost 400,000 acre-feet which the District controlled, with the remainder managed outside of the District.

While the 20-year period extending from 1997 through 2016 will be used initially, a rolling 20-year average will be used going forward. It is intended that the annual average for the period be representative of the long-term average that can reasonably be anticipated going forward. If and when the prior 20-year period is not considered representative owing to changed conditions, adjustments may be required in the methodology. Tables included in the District's 2016 Operations Report provide the basis for determining the average annual amount for 1997-2016, which is approximately 65,600 acre-feet per year. Based on Assessed Acres totaling 39,468, this results in "Project Water" amounting to 1.66 acre-feet per acre per year, which amount will be used for purposes of calculating the Water Charge.

3.1.3 Water Use

As used herein, Water Use is defined as the total annual consumptive use of water (also referred to as total evapotranspiration or "ET") and transfers under the District's water management programs. The total ET is intended to reflect the ET of applied water, as well as the ET of rainfall. In recent years, ET has been estimated by applying remote sensing techniques, and it is proposed that these techniques, or other functionally equivalent means, be used to estimate ET for the purposes described in this report, as opposed to using a metering device at each well. Though not the only provider, one such provider of these data is the Irrigation Training and Research Center ("ITRC") located at Cal Poly San Luis Obispo. ITRC has been retained by the Kern Groundwater Authority¹² to develop estimates of historical ET for several years. By applying GIS techniques to the ET images generated by ITRC, the estimated ET corresponding to a specific area can be extracted on an annual (or more frequent) basis. In this manner, Assessor's parcel boundaries will be applied to the ET images for the purpose of developing an estimate of the total annual ET for each parcel for a given year, in addition to the total annual ET for the District as a whole.¹³ The projected long-term average Water Use for the District under existing conditions has been estimated from data in the District's 2016 Operations Report at about 105,000 acre-feet annually.¹⁴ Going forward, this will be updated annually as the average of the last five years.

3.1.4 Water Supply Deficiency

The average annual water supply deficiency is the amount by which District-wide projected average annual Water Use exceeds total water supplies. Table 3 shows the average annual water supply deficiency which is implied by comparing Water Use under existing conditions (2012-2016) with the average annual total water supplies (sum of safe yield, Project Water, and rainfall) for the last 20 years (1997-2016). As shown, this amount is indicated to be on the order of 9,000 acre-feet annually.

¹² Rosedale-Rio Bravo Water Storage District is a member of the Kern Groundwater Authority.

¹³ Annual ET for each parcel and the District will be determined for the calendar year (January 1 to December 31).

¹⁴ This estimate is based on existing conditions (represented by the average of the last five years; 2012-2016) and is based on data included in the District's 2016 Operations Report (AECOM 2017).

Table 3. Summary of District-Wide Water Supply, Water Use, and Implied Water Supply Deficiency

	Total Amount (af/yr)	Notes	Report Refs.
(+) Safe Yield	12,936	(a)	Sec. 3.1.1
(+) Rainfall	17,481	(b)	
(+) Project Water	65,616	(c)	Sec. 3.1.2
(=) Water Supply	96,033 (2.43 af/ac/yr)	(d)	
(-) Water Use	105,069	(e)	Sec. 3.1.3
(=) Water Supply Deficiency	9,036		Sec. 3.2.1

Notes:

(a) Amount reported for 2016 in RRBWSD's 2016 Operations Report (AECOM November 2017) [Table 1: Col. 4c]

(b) 1997-2016 average annual rainfall as reported in RRBWSD's 2016 Operations Report (AECOM November 2017) [Table 1: Col. 4a]

(c) 1997-2016 average annual water supplies as reported in RRBWSD's 2016 Operations Report (AECOM November 2017) [(Table 1: "Total Supplies" - Cols. 4a and 4c) -(Table 2: Cols. 2b, 2c, and 2d)].

(d) Unit amount based on 39,468 Assessed Acres.

(e) 2012-2016 average annual water use as reported in RRBWSD's 2016 Operations Report (AECOM November 2017) [Table 2: Col. 1c + Col. 2a]

3.2 Unit Water Charge

Since the cost of a new water supply, assuming it could be found, is highly variable and speculative, it is proposed to initially base the Water Charge on a demand-management strategy. Under this approach, and assuming that long-term average water supply is less than long-term average water use, it is intended that the Water Charge generate revenue to buy land(s) within the District for the purpose of retiring it from water-using purposes (and potentially for use as recharge facilities).¹⁵ Over time, it is intended that enough land be purchased and retired in this

¹⁵ If water supplies become available, the District may also use Water Charge revenues to acquire additional water supplies in lieu of implementing the demand management strategy described in this report.

manner such that long-term water supply and water use are in relative balance. The unit Water Charge is a function of the water use which will be avoided for each acre retired; land cost; and the demand-management planning horizon. In particular, the land cost per acre is divided by the avoided water use per acre, which yields a cost per acre-foot of avoided water use. The initial unit Water Charge is equal to this amount divided by the planning horizon in years. While this strategy is the basis for the Water Charge, the District will place a high priority on and endeavor to develop additional water supply programs to minimize the amount of land retirement which may be required.

3.2.1 Avoided Water Use

For each acre retired, a certain amount of water use will be avoided and, for purposes of this report, this amount is the evapotranspiration of applied water (“ETAW”). While this amount depends on the crop and other factors, an average amount will be used for the purposes of this report. The total crop ET divided by the total irrigated acreage on a District-wide basis provides an average crop ET per acre. This amount is then reduced by the ET of rainfall to get the ET of applied water. The District has estimated this average unit amount to be about 2.6 acre-feet per acre.¹⁶

3.2.2 Land Cost

Stating the obvious, agricultural land costs fluctuate with changes in market conditions. With that said, after consultation with a licensed real estate appraiser familiar with the District, it is proposed that the cost be initially set at \$25,000 per acre, which is reflective of anticipated average prices in the District for agricultural lands in the near term.¹⁷

3.2.3 Demand Management Planning Horizon

For the purpose of setting the Water Charge under a demand-management strategy, it is assumed that it will take 20 years to generate the revenue necessary to retire enough land to bring water supplies and water use into balance.¹⁸

3.2.4 Initial Water Charge

Recall that the unit Water Charge is calculated as the land cost per acre (\$25,000) divided by the avoided water use per acre (2.6 af/ac) divided by the planning horizon in years (20 yrs). Accordingly, the maximum initial unit Water Charge is calculated as \$480 per acre-foot.¹⁹

3.3 Calculation of Water Charge

The District will calculate Water Use on a parcel-by-parcel basis in accordance with Section 3.1.3 for the year prior to the year in which landowner-by-landowner Water Charges are to be set and

¹⁶ [Crop ET (86,035 af based on 2012-2016) divided by irrigated acres (28,491)] minus ET of rainfall (0.41 feet).

¹⁷ Based on letter from Alliance Appraisal dated February 7, 2018.

¹⁸ SGMA empowers the District to achieve sustainability within 20 years.

¹⁹ \$25,000/acre divided by 2.6 acre-feet/acre divided by 20 years.

sum these parcel-by-parcel amounts for each landowner, along with the Assessed Acres for each landowner. If the annual Water Use for a given landowner is equal to or less than the available Water Supply (calculated as the unit Water Supply [from Table 3] multiplied by the landowner's total Assessed Acres), then there is no Water Charge. If the Water Use is more than the available Water Supply, then the Water Charge will be imposed on the amount of water used in excess of the landowner's pro rata portion of the Water Supply.

The following is an example of the implementation of the Water Charge and is based on a hypothetical landowner with several parcels which collectively total 500 (Assessed) acres, and for which the previous year's annual total Water Use was estimated to be 1,300 acre-feet (based on methods described in Section 3.1.3).

- Determine the amount of the Water Supply available to the landowner in this example.

$$= 2.43 \text{ af per acre} \times 500 \text{ acs} = \mathbf{1,215 \text{ af}}$$

- Determine amount of Water Use (for prior year) which is in excess of Water Supply (if any).

$$= 1,300 \text{ af} - 1,215 \text{ af} = \mathbf{85 \text{ af}}$$

- Determine the total Water Charge.

$$= \$480 \text{ per af} \times 85 \text{ af} = \mathbf{\$40,800}$$

4 Summary of Proposed Changes to Rosedale's Cost-Recovery Program

For the purposes of this report, Rosedale defines its "Project" as all those rights and obligations of the District which have been obtained or incurred to further the District's efforts to acquire and recharge water supplies within the groundwater basin underlying lands within the District for the benefit of District landowners. This section presents a summary of the District's cost-recovery program as proposed hereinabove. In simplest terms, an increase in the maximum level of the per-acre Assessment is proposed and a method for implementing a Water Charge is proposed, each of which is briefly summarized. It is noted that this summary is not considered a substitute for the information and detail provided in the rest of the report.

4.1 Assessment

Following is a list of observations which have been prepared in summary of the District's Assessment:

- 1) The District has levied an Assessment for over 50 years to cover Project expenses which are in excess of all other sources of revenue; however, an increase in the maximum amount of the Assessment is subject to a ballot process under Proposition 218 and this report has been prepared in support of that process.
- 2) There are two primary factors which drive the need to increase the District's Assessment authority above present levels; a) the potential loss of revenue from the water management program with Coachella Valley Water District; and b) increasing expenses -- primarily (but not limited to), the District's State Water Project ("SWP") obligation.
- 3) Currently, there are 39,468 acres within the District which are subject to the Assessment ("Assessed Acres").
- 4) If the recent drought period continues, the potential reduction in revenue from Coachella may become a very real possibility. To illustrate the potential impact, the annual revenue from this source is presently about \$4.6 million. In the absence of this revenue and, in the absence of reserves, this amount would have to be funded by the Assessment, which is equivalent to about \$116 per Assessed Acre.
- 5) The District's SWP bill has increased over the last several years and will further increase with the District's participation in the California WaterFix.
- 6) To mitigate the short-term loss of significant revenues and/or increased expenses, the District has amended its Financial Management Plan to include a line item in the

- District's annual budget up to \$2.5 million to fund necessary reserves.
- 7) Fundamentally, the physical benefit of the District's Project is the recharge/replenishment of the underlying groundwater resource upon which all water-using development within the District relies. In addition, there are corresponding institutional benefits.
 - 8) All lands which have been developed, or have the potential to be developed, in reliance on pumped groundwater are considered to benefit equally and will be assessed equally going forward in proportion to Assessed Acres.
 - 9) After considering District expenses and revenues over the near term, the maximum proposed Assessment is almost \$8.1 million, which implies a maximum rate of \$205 per Assessed Acre.
 - 10) The maximum proposed Assessment for a given parcel is \$205 multiplied by the parcel's acreage. This maximum amount may be adjusted annually, for a period of five years following adoption, to reflect changes in a consumer price index specified in the Engineer's Report.
 - 11) The maximum proposed Assessment does not eliminate the risk of a budget shortfall that would require the District to pursue short-term financing to fund its operations.

4.2 Water Charge

Following is a list of observations which have been prepared in summary of the proposed Water Charge:

- 1) The District's Board of Directors has determined that a Water Charge will be necessary to implement a program of water supply augmentation and/or demand reduction with the objective of reaching "sustainability" regarding the use of groundwater within the District.
- 2) Water use by a given landowner in excess of available water supplies would trigger the Water Charge for that landowner.
- 3) For this purpose, "water use" is defined as total evapotranspiration ("ET") plus water transfers. Total ET will be determined on a parcel-by-parcel basis using a consistently applied methodology such as that provided by available remote sensing techniques.
- 4) For this purpose, available water supplies include safe yield, rainfall, and Project Water. Project Water is considered to be that which is recharged within or by the District for the benefit of its landowners. Initially, this results in available water supplies totaling

2.43 acre-feet per Assessed Acre.

- 5) All Assessed Acres for a given landowner will be considered in the aggregate when comparing water use to available water supply. If the aggregate water use is less than the aggregate water supply, the Water Charge will not apply. If the aggregate water use is greater than the water supply, then the Water Charge will be applied to the volume of such excess use.
- 6) The initial Water Charge in dollars per acre-foot will be based on demand retirement and will be calculated as follows:

$$\text{Water Charge} = \frac{\text{Land Cost per acre}}{(20 \text{ yrs} \times \text{ETAW})}$$

Where, \$25,000 is the assumed cost to acquire one acre of irrigated agricultural land; 20 years is the time period within which “sustainability” must be achieved (also referred to as the planning horizon in this report); and ETAW is the average ET of applied water (in acre-feet per acre) for lands developed to irrigated agricultural uses within the District (initially 2.6 af/ac). Accordingly, the initial unit charge will be \$480 per acre-foot.

- 7) Lands within the District that are: (a) within the incorporated City of Bakersfield, or (b) zoned residential, commercial, or industrial and developed to those uses will be exempted from the Water Charge.

5 References

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Appendix A

Assessment Roll (Bound Separately)