North San Joaquin Water Conservation District
Proposition 218 Water Rate Study
December 2014

Section 1 – Overview and History of the District

In 1996, California voters approved Proposition 218, which amended the California Constitution by adding Article XIII C and XIII D. Article XIII D, section 6 governs the imposition of property-related fees by public agencies. A public agency proposing to adopt a new or increase to an existing property-related fee must follow certain procedural requirements, including holding a public hearing and mailing notice of the protest public hearing to affected property owners. In subsequent cases interpreting Proposition 218, the courts have determined that water charges are property-related fees subject to Article XIII D, section 6, and that the required notice be sent only to record parcel owners, not tenants or customers. The substantive requirements of Proposition 218 require that (1) revenues from a property-related fee may not exceed the funds required to provide the service; (2) revenues from the fee may not be used for any purpose other than that for which the fee was imposed; (3) the fee may not exceed the proportional cost of the service attributable to a property; (4) the service for which the fee is imposed must be actually used by, or immediately available to, the property owner; and (5) a fee may not be imposed for general governmental services, such as police and fire services, or services that are available to the public at large in the same manner they are available to paying property owners.

Purpose of this rate study is to establish that the revenues from the proposed water rates are required to cover the direct and indirect costs for the delivery of surface water to irrigators within the North San Joaquin Water Conservation District (District or NSJWCD) for calendar years 2015, 2016, 2017, 2018, and 2019. ONLY THOSE PARCEL OWNERS WHO TAKE DELIVERY OF DISTRICT WATER ARE SUBJECT TO THESE RATES.

Rates are based upon the estimated District's direct and indirect costs to deliver that water (commonly referred to as "cost of service") and assumes that parcels requesting District water can reasonably be served by the existing District facilities. These rates will include both fixed and variable costs components as detailed below, together with the methodology used to allocate the costs to surface water users. The rates adopted by the District Board will be the maximum rates permission without instituting a new Proposition 218 rate setting process. In reviewing and adopting the District's annual budget, the Board will be required to determine the specific water rates to be charged each year, which rates must be less than the maximum rates adopted through this current process and must be based upon the then cost of service.

The District was organized in 1948 under provisions of the State of California Water Conservation Act of 1931, and is an independent district. As an independent district, the

District has its own board of directors elected by the district's own voters. The District was originally formed for the purpose of distributing water from the American River, which was to be delivered by the Folsom South Canal, an element of the American River Project being constructed by the U.S. Bureau of Reclamation; however, this project was not completed and the Folsom South Canal terminates well north of the District's boundary.

The District encompasses approximately 155,070 acres east of and to the north of the City of Lodi. Approximately 4,740 acres are within the city limits of the City of Lodi and another 5,600 acres are within Lodi's sphere of influence. Portions of the District are located to the north and south of the Mokelumne River; therefore the District overlies portions of two groundwater basins, the Cosumnes and Eastern San Joaquin Sub-Basins as defined by the California Department of Water Resources (DWR Bulletin 118). Boundaries of the District are shown in, **Figure 1 - Amended Map to Accompany Permit 10477**.

In December 1948, the District filed Application 12842 to appropriate water from the Mokelumne River. A competing application was filed by East Bay Municipal Water District (EBMUD) in June 1949. By Decision 858 (D-858) dated July 3, 1956, the California State Engineer, predecessor to the State Water Resources Control Board (SWRCB) granted EBMUD's application with priority over the District's. Permit 10477 was issued to the District for interim water based on EBMUD's unused entitlements and future demands. Under an agreement with EBMUD, EBMUD stores up to 20,000 Acre-feet (AF) for the District depending upon Mokelumne River water condition. The District can then divert water during the irrigation season. The amount available for diversion is dependent upon Mokelumne River water conditions with the full 20,000 AF only available during wet water years. Subsequent to EBMUD agreement, the District agree to reduce this amount to 19,000 AF with the remaining 1,000 AF going to California Department of Fish and Wildlife (CDFW) for in-stream flow needs.

In 1996, the District adopted a Groundwater Management Plant (GMP) pursuant to the requirements of AB 3030 to identify basin management objectives to address declining groundwater elevations, degradation of groundwater quality, and securing reliable surface water supplies. Continuing efforts to seek a more reliable surface water supply from the Mokelumne River and other sources, participation in regional efforts to manage groundwater, promotion of more efficient use of water, and development of groundwater recharge facilities were actions identified in the GMP. The Northeastern San Joaquin County Groundwater Banking Authority (GBA), of which the District is a member, adopted in 2004 an Eastern San Joaquin Groundwater Basin Management Plan. The District has actively pursued the objectives of the GMP and the GBA's Management Plan. In addition, the District participated in the Farmington Groundwater Recharge and Seasonal Habitat Study and construction and operation of the District's CalFed Facility on the Mokelumne River (see Section 2.2 below).

The initial water permit issued to the District required the District to put the water to beneficial use by December 1, 1970. Since this initial permit was issued, the District has requested and received four extensions of time from the SWRCB. Currently the District has a request for an

extension time and additional points of diversion (POD), including one POD for a new project Tracy Lake Groundwater Recharge Project (Tracy Lake Project), under consideration by the SWRCB. Financing for the Tracy Lake Project is being provided by a $300,000 grant from the Bureau of Reclamation, which was awarded in September 2011, with the substantial balance of the funding being provided by the issuance and sale of Improvement District No. 1 (Tracy Lake Improvement District) warrants. Completion of the Tracy Lake Project will be significant in helping the District in its efforts to put their available surface water to beneficial use.

Section 2 - Description of Existing and Proposed Diversion and Distribution Facilities

The District currently owns three diversion pump stations on the Mokelumne River with a fourth to be constructed during the summer of 2015 for the Tracy Lake Project. These facilities are the only water diversion and delivery systems owned by the District. The District does not currently own or operate any groundwater facilities. All of these river diversion facilities are equipped with CDFW approved fish screens, and each has their own distinct operating conditions associated with the hydraulics of the diversion pump station and distribution system. These facilities are commonly referred to as the North System, Woodbridge/CalFed System, South System, and Tracy Lake, which are shown as points of diversion 2, 3, 4, and 8 respectively on the following Figure 1, Amended Map to Accompany Permit 10477, Wagner & Bonsignore.

2.1 North System

The North System is located on the north side of the Mokelumne River with the pump station being located off of Tretheway Road approximately mid-way between Acampo Road and Woodbridge Road at river mile 53.7+/-. Addition of a fish screen to this pump station was a retrofit on the existing intake channel. Thus water is diverted by gravity through the existing fish screen into the intake channel to the pump station. This configuration severely limits the capacity of the pump station as it is dependent upon a high enough river stage to create a sufficient hydraulic gradient to divert water into the intake channel; therefore, maximum capacity can only be achieved when the river stage is high. Flows from the pump station are pumped in a pipeline north in Tretheway Road to Acampo Road and then west in Acampo Road almost to Highway 99. Much, if not all, of the distribution system was constructed of cast-in-place concrete pipe (CIPCP) and therefore is not reinforced pipe and does not have provisions for expansion and contraction. As a result the pipeline paralleling Acampo Road reportedly has major structural cracks in the pipe walls and thus leaks such that when the system is operated, it floods Acampo Road to the point that it is impassible. Thus this system, for future use will require both modifications to the intake structure and major rehabilitation of the distribution system. There are currently no funds available to perform this needed work. Consequently, for purposes of this Rate Study, it is assumed that the District will not deliver any water to the North System.

2.2 Woodbridge/CalFed

Woodbridge/CalFed is also located on the north side of the Mokelumne River with the pump station being located off of Woodbridge Road at river mile 48.0+/-. This project was funded by a CalFed grant as a groundwater recharge project. This is the newest facility owned by the District. CalFed discharges into a recharge basin several thousand feet from the pump station. This facility was designed and constructed as an integrated facility including fish screen, pump station sump and pump; therefore, its operation is not hydraulically limited on the intake side of the pump station during years when water is available. However, there are some limitations on the discharge side, either the pump was oversized or the recharge area was undersized, as the valve on the discharge is partially closed and thus throttles the flow when the pump station is operated. Further study is needed to determine farmers who are willing to fund improvements to the distribution system in order to take surface irrigation water through this river diversion and the extent and cost of those improvements. Consequently, for purposes of this Rate Study, it is assumed that the District will not deliver any water to the Woodbridge/CalFed System.

2.3 South System

The South System is located on the south side of the Mokelumne River with the pump station being located off of Tretheway Road at river mile 51.3+/-. The South System was designed, constructed, and operated as a gravity delivery system. This system is the District's largest system in terms of distribution facilities and service area and has two distinct distribution branches. Currently, this is the only District system that is capable of diverting flows to irrigators. Flows are pumped down Tretheway Road to Brandt Road at which point the flow splits going east and west.

Eastern Branch: The easterly branch consists of pipes, open ditches and natural drainage courses. After going approximately 2,000 feet in Brandt Road, this branch discharges into a ditch which conveys the flow south under Highways 12 and 88 before discharging into Bear Creek. Further down Bear Creek, the flow can then be redirected into Pixley Slough just south of Harney Lane through a gated culvert, crossing again under Highway 88 and flowing westerly in Pixley Slough, which has a variety of diversion dams to facilitate capture of the diverted water by irrigators on adjacent lands.

Western Branch: Flows going west in Brandt Road are contained within pipes throughout the route. These flows are diverted south, after approximately 1,000 feet, before being diverted and passing under Highway 12. The pipeline then parallels Highway 12 to a location south of Victor before turning south and continuing to a point where it discharges into Pixley Slough at a location approximately one half mile upstream of Alpine Road. Currently this portion of the distribution system is comprised of a variety of pipe types. Pipe materials include some that are suitable for limited pressure operation such as PVC and some that are not. A significant portion of the system appears to be constructed of cast-in-place concrete pipe (CIPCP), which is non-

reinforced concrete pipe and does not have provisions for expansion and contraction. As a result much of the alignment that is constructed of this material currently leaks water even under gravity operation. Conversion to pressure operation would require significant rehabilitation of this portion of the distribution system.

River Diversion Facility: The fish screen located at this site is also a retrofit much like the North System; however, at this location there is a pump located at the fish screen, which helps create a hydraulic gradient through the screen and discharges into the slough leading to the diversion pumps. Historical operation of the South System pump station has been limited to the operation of a 100 HP and 40 HP pump that diverted water from the slough into the gravity distribution system. Each of these two pumps has a separate PG&E metered service so the run time for each during the past few years can be determined. System operation required that these pumps be monitored on a daily basis or more frequent basis and manually operated to match supply and demand. Otherwise diverted water would flow further on down Bear Creek or Pixley Slough outside the District's service area. As a result, this system requires a significant amount of ditchtender attention, which is reflected in the budgeted amount for South System operation.

Currently the South System has two booster pump stations that lift water from the gravity distribution system for flood irrigation of adjacent parcels. These two pump stations are located on the eastern branch of the distribution system, one is located on the South side of Brandt Road approximately 2,000 feet east of the junction with Tretheway Road and the other is located approximately 1,500 feet north of Highway 12, and half a mile east of the junction with Tretheway Road. These two facilities have assigned PG&E meter number ending in 1040 and 1020 respectively. As these two pump stations only benefit individual parcels, it is proposed that they be declared surplus to the District's needs and be either sold to the adjacent property owner or demolished as they do not meet current electrical code and change of ownership would probably require upgrading them to current code to obtain service from PG&E.

2.4 Tracy Lake

The Tracy Lake facility is proposed for a location on the north side of the Mokelumne River with the pump station being located at river mile 31.2+/-. Facilities to be located at this site include a fish screen, sump with pump platform, pumps and approximately 1,000 feet of discharge pipeline which terminates at an erosion control apron in Tracy Lake. Operation of the Tracy Lake System will involve diversion from the Mokelumne River and discharge into Tracy Lake, which will serve as both a recharge and flow regulation facility. While there are two Tracy Lakes, this facility only involves the South Tracy Lake. All references in this Rate Study to "Tracy Lake" are to the South Tracy Lake. Water will be diverted from the lake to irrigate lands within the Improvement District boundary via landowner owned and operated pumps. The pump station to be constructed for the diversion facilities will have a variable frequency drive to

facilitate operation of the lake in a manner that balance the diversion rate with the irrigation, evaporation, and percolation demands thereby minimizing loss of District water down the Mokelumne River or elevating the lake levels above agreed to operational levels. Water diverted will be water that EBMUD stores for the District and releases in response to a request from the District. Operation of this system will require close coordination with EBMUD and Woodbridge Irrigation District (WID) in accordance with the recently adopted Coordinated Agreement for Operation of Tracy Lake Project among the three water agencies.

As this is a new facility, there are a variety of attributes designed for this facility to enhance operation and control of the pump station, thereby reducing labor costs and enhancing data management. Water level stage data in the river and in the lake will be continuously monitored as will be the diversion flow rate into Tracy Lake. This data will be accessible in real time via a website for review by the system operator, the District, EBMUD and WID.

Section 3 - Systems to be included in Rate Study

This rate study is limited to the District's South System and Tracy Lake System (Improvement District No. 1) service areas and does not include either the North System or the Woodbridge/CalFed System. In the future if either or both North and Woodbridge/CalFed systems are improved such that the District could deliver Mokelumne River water to identifiable customers, then a new 218 Water Rate Study for the District will be prepared, to include those parcels that could take water from system.

Section 4 – Service Areas

This section presents a discussion of the parcels for which surface water is immediately available for use from the South System and the Tracy Lake System. Both diversion facilities are unique in terms of their operation and potential for providing surface water to irrigators within District boundaries. Each service area by virtue of its unique and distinct characteristics will need a separate analysis to develop a water rate for their respective service area.

Proposition 218 requires that the service for which the water rate charges are imposed must be actually used by, or immediately available to, the property owner. Therefore, this Rate Study endeavors to identify those parcels, for which District surface water may be "immediately available," that is which are immediately adjacent to or are within a reasonably short distance from the South System or Tracy Lake System.

4.1 South System

In an effort to identify which parcels have the potential to benefit from the operation of the South System, the attached map presented in Appendix A was developed showing all parcels within 2,000 feet of the existing distribution system. It is <u>not</u> envisioned that the District will provide water under pressure to any parcel. If the customer wants the water under a higher pressure as required, for example, a drip system, they will have to provide their own pumping

facilities to boost the pressure. With this service limitation in mind, the 2,000-foot envelope was identified based on maps of properties adjacent to the existing distribution system. However, if a parcel outside this envelope wants to become a customer, then that customer will have to provide at the customer's expense the necessary pumping and conveyance facilities needed to connect the existing South System to the customer's parcel as well as acquire any necessary easements for those facilities across adjacent lands. This approach to identifying potential customers for the South System may be overly conservative, as the ability to serve some properties is unknown at this time as the distribution system component nearest to them may be unserviceable. In addition, the irrigation demands for all the acreage identified, greatly exceeds the amount of surface water available and the capacity of the existing diversion and distribution facilities. However, as part of the operation of the system, maintenance will be performed as required in an effort to provide surface water to all customers that request service and can be served on a first come first serve basis.

4.2 Improvement District No. 1 (Tracy Lake)

To fund the construction of the Tracy Lake Project, Improvement District No. 1 was formed, consisting of 1,311 acres, in accordance with Water Code Sections 75170, et seq. Eligible parcel owners to receive notice under this Proposition 218 process will be limited to those parcels that are currently within the boundaries of Improvement District No. 1 as shown in Appendix B. The Improvement District No. 1 boundaries and parcels are identified in "Landowner Agreement for Tracy Lake Groundwater Recharge Project" (Agreement) as approved by the District and the Landowners in November 2011. In accordance with this agreement, Annual operation and maintenance (O&M) Costs are to be divided between Tracy Lake and the District in the ratio of 65% and 35%, respectively. At the end of each calendar year, the costs are to be review and adjustments made in a "True-up" of the (O&M costs as detailed in the Agreement.

In the future, if lands in addition to the 1,311 acres currently in Improvement District No. 1 wish to be included within the improvement district, they can be included but must pay their proportionate share of the capital costs incurred by the landowner for the diversion facilities. Any new lands desiring to receive water through the Tracy Lake Project must join and be included in Improvement District No. 1.

Section 5 - NSJWCD Finances and Budget

The current source of income to NSJWCD is their share of property taxes, collected by San Joaquin County, which is approximately $240,000 per year. This revenue is used for the general and administrative costs of the District (also known as fixed or overhead costs) and to help cover some of the District's variable costs. Variable costs are those directly associated with the delivery of surface water or water sales and include power, maintenance of physical facilities, labor associated with operation of the diversion and distribution system, etc. Fixed costs are

those associated with NSJWCD's general and administrative expenses and are indirect costs for the diversion and sale of surface water.

5.1 Fixed Costs

To better quantify these fixed or overhead costs, which are to be allocated among all parcel owners **who take delivery of District water** within the South System and Tracy Lake System, the following **Table 1 - NSJWCD Proposed and Projected Overhead Budget** was developed. This table lists overhead costs by category identified in the current budget for 2015. Expenditures for 2015 included one-time costs for legal efforts associated with NSJWCD application to the SWRCB requesting an extension of time to put the water under the District's water right permit to beneficial use and to add additional points of diversion (POD). Therefore, the Estimated Budget for 2016 was developed assuming a reduction in these costs, and a reduction in other overhead categories as appropriate. Thus, it can be seen that the overhead costs were significantly reduced and these costs are used in the allocation of overhead costs to the various beneficiaries to NSJWCD diverting and using surface water. As part of this study, the variable costs will be allocated to the South and Tracy Lake systems for recovery as appropriate from the beneficiaries of that system and are discussed later in this report.

Table 1 - NSJWCD Proposed and Projected Overhead Budget

Overhead Expenditure Category	Proposed Budget 2015	Estimated Budget 2016
1. Professional Services	$11,850	$11,850
2. Legal Fees/Water Rights	$56,600	$20,610
3. Dues/Membership	$4,200	$4,200
4. Administrative Expenses	$47,585	$43,860
Total	**$122,245**	**$80,520**

While a more detailed presentation of the various line items in the categories presented above can be found by reviewing the District's annual budget, a brief description follows for general clarity. "Professional Services" includes San Joaquin County Auditor and Tax Collector services and the services of the District's independent auditor. "Legal Fees/Water Rights" includes General Counsel and Special Water Counsel legal service and some annual reporting to Department of Water Resources, etc. Dues/Membership is for participation in the GBA and other professional organizations to the benefit of the District's objective of enhancing groundwater management. "Administrative Expenses" includes expenses such as office rent, telephone, bookkeeping, consultants' expenses, insurance, etc.

Allocation of the overhead costs presented in **Table 1 – NSJWCD Proposed and Projected Overhead Budget** is a significant issue in the development of water rates for both the South System and Tracy Lake. The method of allocation proposed is based on the concept that the overhead costs presented benefit all parcels within the District, and these parcels that can be

divided into two categories, direct users and in-lieu users. Direct users are those parcels that take and pay for surface water; whereas, in-lieu users are those parcels that benefit by virtue of the fact those that are using surface water are not competing for groundwater. In other words, in-lieu users benefit from less extractions from the basin, which equates to a benefit, and their interest is assigned to the overall District.

NSJWCD can divert a maximum of 19,000 AF of water when the water is available pursuant to its water rights permit and agreement with EBMUD, which normally occurs during the wettest 50% of water years. In the best case scenario, assuming that NSJWCD could divert this amount, the amount delivered at the farm-gate would be significantly less by virtue of system leakage, currently estimated at approximately 30%. Thus of the 19,000 AF diverted, approximately 13,000 AF would be delivered to the farm-gate and 6,000 AF would be lost to the groundwater basin due to leakage and seepage. Thus on a mass balance basis, 13,000 AF would go to direct users and the in-lieu users would have the benefit of the 13,000 AF directly used, plus the 6,000 AF of recharge for a total benefit of 19,000 AF. Total benefit to the groundwater basin from direct and in-lieu use would be 32,000 AF. On a percentage basis the direct users would have approximately 41% and the in-lieu users would have 59% of the benefit associated with NSJWCD using all of the surface water available under their permit. Therefore, it is proposed to allocate overhead costs among the two groups in accordance with these percentages as shown in **Table 2 – NSJWCD Allocation of Overhead.**

Table 2 – NSJWCD Allocation of Overhead

Total Overhead Cost	Cost to NSJWCD (59%)	Cost to Surface Water Customers (41%)	Cost per AF to Surface Water Customers
$80,520	$47,507	$33,013	$2.54

5.2 Variable Cost

In the past, when the District could divert and pump water from the Mokelumne River, water was sold to District customers at a rate of $50 per acre. The $50 per acre rate did not cover the cost of operation and maintenance of the pumping and distribution facilities. The purpose of this rate study is to establish a water rate for the delivery of surface water that will reflect the projected cost of pumping and delivering surface water to customers of the South System and the Tracy Lake System and thus cover the District's actual costs. Rates developed will only be for water delivered. Both of these systems have distinct costs associated with the operation and maintenance of their systems, which will be combined with their proportionate share of the District's overall overhead costs, to develop an individual rate for each system. The rates presented below do not include the costs incurred by the irrigator in each system for re-pumping or pressuring the water, they merely reflect the cost associated with delivery to the farm-gate.

5.2.1 South System

In developing the following **Table 3 – Proposed O & M Budget and Annual Charges for South System**, it is assumed that 3,000 AF are diverted and delivered to South System irrigators. Historically during the past period of record, 2009-2011, the amount diverted varied from approximately 1,000 to 2,500 AF. Variations in this amount, the actual amount diverted, and associated costs will be reviewed annually by the District's Board. Currently the District is evaluating ways to increase the customer base and thus water use in the South System. **Depending upon water availability and demand within the South System, the proposed per-AF rate would be adjusted annually by the Board. For example, if the South System demand increased to 6,000 AF and 6,000 AF are delivered, then the proposed per-AF rates set forth below would be reduced for that irrigation season based on an analysis of the operating costs.**

In developing the table presented the following assumptions were made. "Power Costs" were escalated by 5% per year based on input from PG&E using Rate Schedule AG-4. "Labor Costs" are assumed to increase by 2% annually. The "Labor Cost Ops" category is for operation of the South System, whereas "Maintenance" is the labor cost associated with maintaining the District's facilities. "Replacement" costs are for the materials and supplies necessary to repair and maintain the system. These costs were based in part on historical records and past budgets. The "EBMUD" line item reflects the cost to the District of $2 per AF paid to EBMUD for storing and releasing the District's water. The "Compliance" line item assumes that there will be some work associated with documenting surface water use in this system and water loss either through percolation and surface conveyance losses. A "10% Contingency" was identified and determined to be appropriate based on the age and unknowns regarding the operation of the South System. "District Overhead" was assigned in accordance with value presented in Table 2 and is assumed to remain constant during the 5 year rate period shown. Major repair or system improvement identified during the rate period will be addressed by alternative capital financing means.

Table 3 – Proposed O & M Budget and Annual Charges for South System

	Category	2015	2016	2017	2018	2019
1	**Power Cost**	$ 120,000.00	$ 126,000.00	$ 132,300.00	$ 138,915.00	$ 145,860.75
2	**Labor Cost Ops**	$ 30,000.00	$ 30,600.00	$ 31,212.00	$ 31,836.24	$ 32,472.96
3	**Maintenance**	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
4	**Replacement**	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00
5	**Insurance**	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
6	**Measurement**	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00
7	**EBMUD**	$ 6,000.00	$ 6,000.00	$ 6,000.00	$ 6,000.00	$ 6,000.00
8	**Subtotal**	**$ 215,500.00**	**$ 222,100.00**	**$ 229,012.00**	**$ 236,251.24**	**$ 243,833.71**
9	**10% Contingency**	$ 21,550.00	$ 22,210.00	$ 22,901.20	$ 23,625.12	$ 24,383.37
10	**Subtotal**	**$ 237,050.00**	**$ 244,310.00**	**$ 251,913.20**	**$ 259,876.36**	**$ 268,217.09**
11	**District Overhead**	**$ 7,620.00**	**$ 7,620.00**	**$ 7,620.00**	**$ 7,620.00**	**$ 7,620.00**
12	**Subtotal**	$ 244,670.00	$ 251,930.00	$ 259,533.20	$ 267,496.36	$ 275,837.09
13	**Cost per AF**	**$ 81.56**	**$ 83.98**	**$ 86.51**	**$ 89.17**	**$ 91.95**

5.2.2 Tracy Lake System

Financing for the capital costs associated with the Tracy Lake diversion pump station is being provided by both Grant Funds from the U.S. Bureau of Reclamation and assessments against the Landowner properties within Improvement District No.1 boundaries.

Unlike the South System, the Tracy Lake System is a brand new surface water delivery system and is legally structured as a separate improvement district as described above. As an improvement district, the NSJWCD Board levies an annual per-ACRE O&M assessment on all lands within the improvement district, which assessment becomes a lien on those lands. Most of the cost categories set forth in Table 3 for the South System are covered by this annual per-ACRE O&M assessment and not by a water rate charge as with the South System. Levying of annual per-ACRE O&M assessment is covered by a separate Proposition 218 assessment process, which only involves those parcels within Improvement District No. 1. Table 4 below is included in this Rate Study so that the public can see how District overhead costs are proposed to be allocated between the two systems and so that a comparison can be made between the District costs for the South System versus the Tracy Lake System.

In structuring the Tracy Lake Project and Improvement District No. 1, the District recognized (1) the landowners' substantial financial contribution, now approaching $1 million, toward paying for the project and (2) the direct and in-lieu groundwater recharge benefits of the project. Annual O&M costs are to be shared 65% to the Improvement District landowners and 35% by NSJWCD with provisions for a "true-up" of the actual costs at the end of the year based upon water diverted and costs incurred. What costs are to be included in the annual per-acre O&M improvement district assessment are set forth in the "Landowner Agreement For Tracy Lake Groundwater Recharge Project" (Landowner Agreement), which was executed by the District

and the Landowners. This agreement addresses the financing, permitting, construction, management, and operation of the Tracy Lake Project.

This agreement is very specific about how diverted water and the Operation and Maintenance costs for this water are to be shared between the District and the Landowners. O&M costs are to be shared 35% to 65% respectively with provisions for adjustments at the end of the year based on water used and costs incurred. For the first year of operation of the Tracy Lake Project, the District's water charge for an appropriate share of the District's overhead and administrative expenses that are not directly allocable to the project is limited to $2 per AF, after that the amount is subject to the determination of the NSJWCD Board in a manner required by law and at the same time the District sets water charges for other surface water users. **The Tracy Lake System water charge is in addition to the annual per-ACRE O&M assessment.**

In developing the following **Table 4 – Propose O & M Budget and Annual Charges for Tracy Lake**, it is assumed that 3,000 AF are diverted which is a conservative amount necessary for the irrigation needs of the landowners, percolation from Tracy Lake, and evaporation losses. Variations in this amount and the actual amount that is diverted will be addressed in the annual true-up of costs. "Power Cost" were escalated by 5% per year based on input from PG&E using Rate Schedule AG-4B and Labor costs are assumed to increase by 2% annually. "Maintenance" and "Replacement" costs are assumed to be low during 2016, 2017, 2018, and 2019 since this is a new facility with warranty provisions on some of the equipment. The EBMUD line item reflects the cost to the District for storing and releasing water when requested. In the "Measurement" line item it is assumed that operation of the project will entail significant flow measurement and reporting activities. A 5% "Contingency" is identified in the Agreement between the District and Landowners, and the Subtotal reflects a summation of those costs for operation of the Tracy Lake Project with the following lines showing the allocation of costs per the Agreement. District Overhead in 2016 reflects the first year of operation, after and only after does this increase per the Agreement, the same as for all other classes of water users in the District. For this table, 2016 is assumed as the first year of operation of the Project as the project will be constructed during the 2015 construction season and is not scheduled to be online until September 2015. In calculating the District Water Charge (Overhead), line 13, it was assumed that the water demand for the Landowners is 1.75 AF/Acre for an annual demand of approximately 2,300 AF, with the remaining water being lost to evaporation and percolation.

Table 4 – Proposed O & M Budget and Annual Charges for Tracy Lake

	Category	2016	2017	2018	2019
1	**Power Cost**	$ 37,800.00	$ 39,690.00	$ 41,674.50	$ 43,758.23
2	**Labor Cost**	$ 7,500.00	$ 7,650.00	$ 7,803.00	$ 7,959.06
3	**Maintenance**	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
4	**Replacement**	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
5	**Insurance**	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
6	**Measurement**	$ 6,000.00	$ 6,000.00	$ 6,000.00	$ 6,000.00
7	**EBMUD**	$ 6,000.00	$ 6,000.00	$ 6,000.00	$ 6,000.00
8	**Subtotal**	$ 61,800.00	$ 63,840.00	$ 65,977.50	$ 68,217.29
9	**5% Contingency**	$ 3,090.00	$ 3,192.00	$ 3,298.88	$ 3,410.86
10	**Subtotal**	**$ 64,890.00**	**$ 67,032.00**	**$ 69,276.38**	**$ 71,628.15**
11	**District Share**	$ 22,711.50	$ 23,461.20	$ 24,246.73	$ 25,069.85
12	**Landowner Share**	**$ 42,178.50**	**$ 43,570.80**	**$ 45,029.64**	**$ 46,558.30**
13	**District Water Charge**	**$ 4,588.50**	**$ 5,826.19**	**$ 5,826.19**	**$ 5,826.19**
14	**Total Landowner**	**$ 46,767.00**	**$ 49,396.99**	**$ 50,855.84**	**$ 52,384.49**
15	**Cost/AF**	**$ 20.39**	**$ 21.53**	**$ 22.17**	**$ 22.84**
16	**Cost/Acre**	**$ 35.67**	**$ 37.68**	**$ 38.79**	**$ 39.96**

5.2.3 Groundwater Pumping

Using District surface water in lieu of pumping groundwater benefits groundwater within the District by (1) not pumping groundwater and (2) providing surface water in excess of crop ET to recharge the groundwater. However, in setting surface water rates, the District Board is mindful of the need for surface water rates to be competitive with the cost of pumping groundwater. For a comparison of pumping costs, the following **Table 5 – Estimated Power Costs for Groundwater Pumping** to present a range of power costs for pumping groundwater. Costs presented provide an estimate for delivery with no pressure at the well head, under the line labeled flood irrigation for low to zero head at the well head, which would be comparable to taking delivery of South System surface water from the District. To addresses those situations where drip irrigation is used, the next line labeled drip irrigation assumes that the water would be delivered at the well head by the well pump under a pressure of approximately 40 psi. It should be recognized that this table does not include labor costs associated with the labor required nor the maintenance costs associated with a groundwater facility. Also, these costs are for the pumping water level not the static level as shown on San Joaquin County's groundwater contour maps. Drawdown in a well under pumping conditions can add significantly to the total lift and thus power consumption and cost.

Table 5 – Estimated Power Costs for Groundwater Pumping

Depth to Groundwater Pumping Level	100 ft	120 ft	140 ft	160 ft	180 ft	200 -ft
Power Costs/AF - Flood Irrigation	$41	$50	$58	$66	$75	$81
Power Costs/AF - Drip Irrigation	$81	$90	$100	$106	$115	$120

For comparison, the Tracy Lake projects power costs are estimated to be approximately $12/AF which is less than the costs presented above. This lower cost is mainly attributable to the much lower lift, approximately 30 feet, and much higher efficiency associated with a new pump and premium efficiency electric motor. The South System has power costs of approximately $40/AF as the lift is much higher to achieve gravity flow in the system from approximately Brandt Road south and the lower efficiency of the pump stations associated with their age and wear.

Section 6 – Proposed Water Rates

Based upon the above analysis, the following Table with proposed water rates for water delivered to the farm gate are proposed.

Table 6 – Water Rates per Acre-Foot of Water Delivered

	2015	2016	2017	2018	2019
South System	$81.56	$83.98	$86.51	$89.17	$91.95
Tracy Lake System	Under Construction	$20.39	$21.53	$22.17	$22.84

If approved by the NSJWCD Board after the public hearing on the proposed rates, the above rates would be the maximum allowable per-AF rates for each year designated. The above rates have been calculated based upon 3,000 AF being delivered to South System irrigators. If 6,000 AF is actually delivered based upon then water availability and demand, then the South System per-AF rate would be halved. As discussed above, the Tracy Lake System water rate is in addition to the annual per-ACRE capital assessment to be levied on all lands within Improvement District No. 1.