



**Public Water Supply Program
Comprehensive Capital Development Plan
2017**

DRAFT



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TABLE OF CONTENTS

EXECUTIVE SUMMARY

SECTION 1 - OVERVIEW

- Funding Sources
- Public Water Supply Program Budget Overview Summary

SECTION 2 - EXPENDITURES

- Principal and Interest
- Operation and Maintenance
- Reservoir Protection & Restoration

SECTION 3 - REVENUE

- Projected Annual Water Marketing Program Water Use
- Revenue from Capped Contract Water Sales
- Revenue from Administration and Enforcement
- Revenue from Operational Reserve Transfer
- Revenue from State Water Plan Fund
- Revenue from Water Assurance Fund
- Revenue from Access District

SECTION 4 – FUTURE USE STORAGE

- Future Use Storage - Call Schedule
- Unfunded Liability - Perry and Milford Reservoirs Future Use Storage

SECTION 5 - WATER MARKETING RATE

- Program Funding Needs
- Specific Use Accounts
- Variable Rate for Marketing Contracts
- Projected Debt Paydown Schedule

SECTION 6 - PROTECTION & RESTORATION ACTIVITIES

- Revenue for Master Plan PWS Capital Fund
- Current List of Reservoir P&R Projects

SECTION 7 - FUTURE ADDITIONS TO PLAN

- Payment breakdown at Milford & Perry – WQ pool increase
- Total Reservoir P&R Costs in State

APPENDIX A - PWS Program Comprehensive Capital Development Plan Budget Overview

APPENDIX B - PWS Program Budget Tables

EXECUTIVE SUMMARY

The Kansas Water Office (KWO) operates the Kansas Water Marketing and Water Assurance programs as part of its Public Water Supply Program. Pursuant to K.S.A. 82a-1308, the KWO has continued to update and publish the *Water Marketing Capital Development and Storage Maintenance Plan*. The purpose of this plan is to provide for the long-term planning of future Water Marketing Program needs, including acquisition of all the water supply storage under federal contracts, potential new storage development and protection and restoration of the storage owned by the State. Since 2017, this plan has only included the revenues and expenditures of the marketing program.

KWO has developed the Public Water Supply Program Comprehensive Capital Development (CCDP) Plan in order to account for all revenue and expenses related to the State's public water supply storage. The CCDP interconnects additional funding sources related to state-owned public water supply storage, including the Water Assurance Program and State Water Plan funds specifically tied to PWS storage, as included herein. The CCDP also includes a detailed breakdown of the specific funding sources and amounts currently tied to each separate Kansas federal reservoir.

As part the Reservoir Roadmap completed in 2010 by the KWO, the 2014 State Water Plan, as well as the Vision for the Future of Water Supply in Kansas, the development of long-term plans for securing, protecting, and restoring Kansas water supplies into the future was highlighted as a major need in Kansas. The specific challenges to managing reservoir water supplies include protecting the reservoir storage by decreasing sedimentation, restoring storage lost to sedimentation at key reservoirs, and identifying a method to pay for unfunded storage and operation and maintenance costs.

The 2013 *Water Marketing Capital Development and Storage Maintenance Plan* for the first time included recommendations for expenditures related to reservoir restoration at John Redmond Reservoir. As the reservoirs containing state-owned storage supply continue to age, the need to identify specific projects and funding for protection and restoration projects continues to grow. The primary purpose of the CCDP is to include an enhanced planning tool to identify specific sources of revenue for Reservoir Protection and Restoration (P&R) activities. Potential benefits and funding for these activities extend beyond the water marketing program users, and thus, the CCDP helps to identify additional sources for P&R project funding and implementation.

An additional purpose of the CCDP is to promote project planning and communication of funding needs for projects that will have the greatest benefit to the PWS program. The CCDP includes a shorter-term plan to utilize projected program revenues for identified P&R projects that will have the greatest benefit to the PWS Program. The KWO is currently working to develop a "Master Plan" that will include additional detail related to the P&R activities planned under the CCDP. The plan is to update the P&R projects in detail based on the specific funding amounts and prioritized projects.

SECTION 1 - OVERVIEW

The Public Water Supply Program Comprehensive Capital Development (CCDP) Plan includes all funding sources and expenditures related to the acquisition, operation, maintenance, protection and restoration of the state-owned surface water supply storage. Kansas has contracts with the Corps for purchase of water supply storage in fourteen (14) reservoirs; (12) twelve of those have storage currently committed to, and being paid for by, the customers of the Water Marketing Program, eight (8) of the reservoirs have storage that has been sold to Assurance Districts for district members, and five (5) of the reservoirs have Future Use storage that has been purchased by the State, but has not yet been called into service.

The table below includes the breakdown by reservoir of the Water Supply Storage. The storage amounts in the table, in acre-feet, are based on those included in KWO's "*Surplus Water Available in Water Marketing Program Lakes Calendar Year 2017*", and take into account annual sedimentation rate at each reservoir.

	Water Supply Storage (2017)					
	Water Quality/Other	Water Marketing	Water Assurance	Access District	Reserve Capacity	Future Use
Big Hill		8,074				14,479
Clinton	22,341	56,433				37,583
Council Grove	9,591	18,374	6,262		8,081	
Elk City	4,955	20,219			10,020	
Hillsdale	16,794	18,791				40,543
John Redmond	15,054	43,646	4,500			
Kanopolis	23,782	10,448		10,305		
Marion	28,616	36,503	343		14,292	
Melvern	97,413	14,719	10,660		25,884	
Milford		56,974	67,160			242,260
Perry			32,030			160,113
Pomona	13,308	801	12,457		25,679	
Toronto		400				
Tuttle Creek	135,698		77,919		16,301	
Total	367,552	285,382	211,331	10,305	100,257	494,978

Reservoir Storage Pools

As noted in the table above, each of the water supply reservoirs are separated into different components, or pools, based on the designated use of the storage. Definitions of each of the storage pool designations are included herein. Also, as an example, the chart on the following page has been included to indicate the current percentage breakdown of the storage pools in Council Grove Lake.

Water Quality/Other

The Water Quality pool is utilized to make established minimum releases intended to maintain flow in the stream below the lake. The Corps retains ownership of this storage. The Other pool includes storage that has been contracted by the Corps to a local water supplier and storage that has, like the Water Quality pool, been retained by the Corps. Since the State does not own either of these pools, for the purposes of the CCDP, these two pools are grouped together herein.

Water Marketing

This storage pool is owned by the State through contract with the Corps, and is utilized to serve the long-term needs of municipal and industrial users who have marketing contracts with KWO.

Water Assurance

This storage pool has been purchased from the State by an assurance district to provide district members (municipal and industrial water right holders on mainstem rivers below federal reservoirs) with an assurance of a water supply during times of low natural flow. Releases are made by the Corps as prescribed in operations agreements with KWO and each assurance district.

Access District

This storage pool has been purchased by the Access District in accordance with the purchase contract between the KWO and the Access District. The water supply storage purchased by the Access District can supplement downstream flows to provide the ability for Access District members to make use of their reasonable and justified authorized quantities under their water rights through drought conditions.

Reserve Capacity

The Reserve Capacity pool is storage within the water supply pool that has been purchased and called into service by the State, but is not contracted to marketing or assurance customers.

Future Use

Future Use storage is considered storage that is not currently in service. Some of the water supply contracts between the Corps and the KWO allow the State to defer payments on the storage until the storage is needed. The Corps retains ownership of Future Use storage until the State calls that storage into service. As shown in Table 1, there are currently five (5) reservoirs containing Future Use storage.

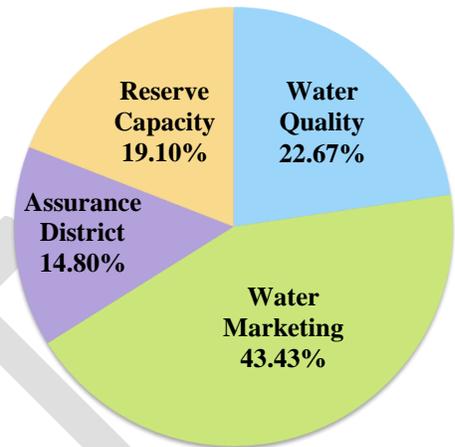


Figure 1. Reservoir Storage Pool Breakdown for Council Grove Lake

FUNDING SOURCES

The CCDP interconnects all funding sources related to state-owned public water supply storage. For the purposes of this plan, the following funding sources are represented as part of the comprehensive plan and are further described herein: State Water Plan Fund, Water Marketing Fund, Water Assurance Fund, and Access District Fund.

State Water Plan Fund

The State Water Plan Fund (SWPF) was created by the 1989 Legislature to provide a permanent, dedicated and stable source of funding for water-related programs and projects identified in the Kansas Water Plan. The statutory authorization for the SWPF is K.S.A. 82a-951, and actual allocations of funds are made by the Legislature on an annual basis. The fund includes a mix of fees, State General Fund (SGF) and demand transfers provided annually to finance projects and programs to implement the State Water Plan. Beginning in 2006, an annual transfer from the SGF in the amount of \$6,000,000 was made to the SWPF for water-related projects, along with an additional transfer of \$2,000,000 from the Economic Development Initiatives Fund (EDIF). These transfers to the SWPF have not been made in full since 2008.

A number of water-related agencies receive funding from the SWPF. Requests for funding from the SWPF are made by agencies through the budget process and coordinated by the Kansas Water Office. These requests are reviewed by the Kansas Water Authority, which recommends funding levels to the Governor and the Legislature.

Water Marketing Fund

The Water Marketing Fund receives money from revenue collected on water supplied under contracts with public water suppliers and industries from state owned storage in federal reservoirs. Over half of the state's population is served directly or indirectly by Water Marketing contracts.

Revenue from all sources received is used to pay the Corps of Engineers for the principal and interest costs associated with storage construction and operation and maintenance of the reservoirs. The State Water Plan Storage Act provides for distribution of remaining funds after all costs have been paid, to the State General Fund and to the Conservation Storage Water Supply Fund.

Water Assurance Fund

The Water Assurance Fund receives money from three water assurance districts. The purpose of the water assurance program is to allow for coordinated operation water storage space in federal reservoirs to satisfy downstream municipal and industrial water rights during drought conditions. Water right holders are therefore assured to receive enhanced flow during times of drought while the state operates the reservoirs in a basin as a system for increased efficiency in water delivery.

The districts are charged for the costs incurred by the State for both principal and interest associated with storage construction and operation and maintenance of the storage dedicated to the use of the districts. Payments from the assurance districts are passed through to the Corps of Engineers for principal and interest and operation and maintenance costs. In addition, the districts are charged for the cost to administer and enforce the program. These funds are transferred to the Water Marketing Fund to cover a portion of the cost of positions funded by the Water Marketing Fund.

Access District Fund

The Access District Fund receives money from the Lower Smoky Hill Water Supply Access District. In 2011, legislation was passed for the Lower Smoky Hill Water Supply Access Program (K.S.A 82a-2301 et seq., as amended), which was a step toward drought contingency for surface water users below Kanopolis Reservoir. The legislation allowed surface water right holders below Kanopolis Reservoir and the city of Salina to voluntarily join together to obtain storage in the lake to cover the desired portion of their authorized water right quantities.

In 2016, the Lower Smoky Hill Water Supply Access District was formed, and the Access District purchased a portion of the water supply pool from Kanopolis Reservoir through lump sum payment to the State in accordance with the purchase contract between the KWO and the Access District. The water supply storage in Kanopolis purchased by the Access District can supplement the Smoky Hill River streamflow to provide the ability for Access District members to make use of their reasonable and justified authorized quantities under their water rights through drought conditions.

The Access District is charged for the cost incurred by the State for operation and maintenance of the storage dedicated to the use of the district. Payments from the Access District are passed through to the Corps of Engineers for operation and maintenance costs. In addition, the Access District is charged for the cost to

administer and enforce the program. These funds are transferred to the Water Marketing Fund to cover a portion of the cost of positions funded by the Water Marketing Fund.

PUBLIC WATER SUPPLY PROGRAM BUDGET OVERVIEW SUMMARY

To date, the KWO has developed and published the *Water Marketing Program Capital Development & Storage Maintenance Plan* which has provided for the long-term planning of future Program needs, including acquisition of all the water supply storage under federal contracts, potential new storage development and protection and restoration of the storage owned by the State. The purpose of this document is to replace the existing *Water Marketing Program Capital Development & Storage Maintenance Plan* by expanding the previously published plan to include all funding sources related to PWS storage acquisition, maintenance and protection.

The “Public Water Supply Program Comprehensive Capital Development Plan Budget Overview” is included as Appendix A of this plan. This document indicates the budgeted and projected revenues and expenditures for all funding sources related to the PWS program, as described in Section 1 of this plan. Sections 2 and 3 of this plan provide additional detail with regard to the revenues and expenses included in the Budget Overview. Other components included as part of the overview are described below.

“**Marketing Revenue for Master Plan**” – The amounts of this funding shown each year are planned to be utilized for paying down existing debt related to state-owned storage (Debt Paydown Funding) and for funding protection and restoration (P&R) projects (Protection & Restoration Funding). The funds are generated from water sales associated with marketing contracts, as well as a portion of Operational Reserve funds transferred from the previous year.

“**Master Plan PWS Capital Fund**” – Included at the bottom of the Budget Overview is a list of the planned P&R projects list by associated funding source. These amounts depend on budgeted funds from all programs that are planned for the implementation of PWS capital projects, and vary in size, cost, and type. The projects planned for the current budget year are shown on the right-hand side of the page as “Master Plan PWS Projects”.

The KWO is currently working to develop a “Master Plan” that will include additional detail regarding the P&R activities planned under the CCDP. The P&R projects referenced in the Budget Overview will be based on detail provided in the Master Plan. Examples of P&R projects include streambank stabilization projects and best management practices (BMPs) to reduce sedimentation and improve water quality of the PWS storage at state-owned reservoirs. Section 6 of this plan includes a list of the P&R projects planned to be implemented as part of the PWS Capital Fund.

“**Long Term Model Projection Assumptions**” – Listed in the upper right-hand corner of the Budget Overview are the assumptions that have been included in the development of the current CCDP. The assumptions are related to the following major components:

- Assumptions for Water Use Projections – A list of assumptions regarding future water use projections associated with the existing water marketing contracts that were utilized in the development of the current CCDP.
- Assumptions for Call-In Storage and Bonding – As part of the long-term planning related to debt service and future use storage, a call-in schedule has been developed and is included as a table on the Budget Overview page. The assumptions regarding bonding terms for the final calls for the associated future use storage is listed, as included in the development of the CCDP.

- Future Additions to Long-Term Plan – This list includes items for continued development as part of longer-term planning (beyond projections included in Budget Overview). Included in the current list are the Future Use Storage call-ins for Milford and Perry reservoirs, which are not included in the current projections within the marketing program. KWO is continuing to develop a long-term strategy for this unfunded liability, which is discussed further in Section 8 of this plan.

“Future Use Storage – Call-In Schedule” – This table indicates the call-in schedule for the Future Use Storage associated with the reservoirs listed. The table includes the call year, the incremental acre-feet (AF) of future use storage associated with the specific call, and the percent of storage in service. The schedule is part of the assumptions built into the long-term CCDP.

“Budgeted Debt Paydown” – This table indicates the planned debt paydown by year that has been incorporated into the current CCDP. The planned debt paydown is indicated by reservoir, and refers to the debt payoff associated with the existing purchase contracts for storage. The storage contracts for reservoirs in which there is future use storage are further indicated as either the original contract amount (not including Future Use Storage purchase), or a number to indicate paying off the debt associated with an incremental call-in of future use storage. The debt paydown schedule is projected based on the CCDP, and depends on the amount of marketing revenue available from the previous year of water sales. For planning purposes, the debt paydown schedule shown on the Budget Overview sheet has been utilized for the development of the water marketing program variable rate schedule as shown.

“Water Marketing Program Variable Rate” – This chart indicates the project marketing variable rate based on the current CCDP. By statute, the Kansas Water Authority approves the variable rate for marketing contracts on an annual basis. The Budget Overview sheet will be updated annually based on the approved variable rate for the current calendar year.

“2018 Revenue Requirements All Programs” – The pie chart on the Budget Overview sheet indicates the total amount of revenue provided by all programs as included in the CCDP for the indicated year. The chart breaks down the required revenue into the following categories: Total Principal & Interest (P&I), Total Operation & Maintenance (O&M), Administration & Enforcement (A&E), Total Protection & Restoration (P&R), and Debt Paydown.

SECTION 2 – EXPENDITURES

The tables in Appendix B summarize the expenses of all of the principal and interest payments and operation and maintenance costs which are paid to the Corps of Engineers annually. The administration and enforcement costs to the Programs are those incurred by the Kansas Water Office (KWO) and the Division of Water Resources, Department of Agriculture. The table also includes a summary of the budgeted and projected expenses for reservoir protection and restoration projects planned to be funded by all programs.

Principal and Interest to Corps

The State is obligated to fully pay the capital costs of the water supply storage assigned to the all of the PWS Programs – including the Water Marketing, Water Assurance, and Access District programs. The contracts with the federal government typically give the state 50 years to pay the cost associated with the purchase of all of the contracted storage. Amortization schedules are included in each contract.

In five reservoirs, (Big Hill, Clinton, Hillsdale, Milford and Perry) the state has been able to delay payment until storage space is needed and the storage is called into service. An immediate payment is made on the principal

and interest; the operation and maintenance costs would be incurred in the following year. This storage that is not in service is referred to as future use storage.

The Principal and Interest (P&I) costs paid by each program are associated with the amount of water supply storage in each reservoir assigned to each by contract. The CCDP spreadsheet model includes a separate tab for each reservoir, which includes the percentage breakdown of each designated pool. Each tab includes the amount of P&I paid by each PWS program.

Operation and Maintenance

The Water Marketing Program and Assurance Program pay the annual operation, maintenance and repair costs incurred by the Corps of Engineers for that portion of the storage space assigned to each program. In addition to these two programs, State Water Plan funds are utilized to pay the portion of the annual operation and maintenance costs associated with the portion of the state-owned storage in Reserve Capacity. These costs vary from year to year and from reservoir to reservoir. The CCDP is updated annually to include current cost estimates for O&M submitted to the KWO by the Corps. In past years, actual billings have been very close to the estimates. Operation and maintenance costs by reservoir are shown in Table 7.

Administration and Enforcement

The Water Marketing Program pays for administration and enforcement costs to the state to operate and administer the Program. The Access District Program also pays a small portion of administration and enforcement costs as shown in Table 1. Costs have increased in the last few years due to salaries and wages for employees being shifted from the State General Fund to the Water Marketing Fund as well as an increase in KWO operating expenses. Annual expenses are shown in Table 1.

Reservoir Restoration and Protection

Sediment deposition reduces the water supply yield from a reservoir. A major component of the PWS Comprehensive Capital Development Plan is the budgeting and planning for projects that will restore and protect the water supply storage in the state-owned reservoirs. As part of the 50-year Vision for the Future of Water in Kansas, PWS capital projects, such as streambank stabilization projects above the reservoirs, were identified as a need in order to meet long-term water public water supply needs in Kansas. The storage that the state owns in these reservoirs is considered an asset, and management of the state's assets includes maintenance of the storage to ensure long-term viability.

As indicated in Table 1, the Water Marketing Fund and State Water Plan fund will continue to pay for the John Redmond Bond for the next several years. This bond was utilized to pay for the costs of reservoir restoration at John Redmond. Additional P&R projects will be identified for funding through the Master Plan.

SECTION 3 - REVENUE

Revenue for the PWS Program comes from water sales, reimbursement for administration expenses from the Water Assurance Program and occasional use of funds from specific use accounts.

Projected Annual Water Marketing Program Water Use (Table 3)

Projected annual water marketing program revenue is dependent upon the quantity of water projected to be billed to water marketing customers into the future. The estimated billable quantities are based on water paid for

historically by each customer, including increases in water paid for due to graduated use schedule increases, projected into the future using a linear equation.

In projecting future years, the increase in the variable rate quantities and the decrease in capped rate quantities are based on the assumption that when the term of the capped rate contracts end, the contracts will be renewed as variable rate contracts with the same quantity as the capped contracts. The exception to this is the Westar contract at Milford for Jeffrey Energy Center which expires in 2022. This plan projects this contract not being renewed and all use being backed up by the Water Assurance Program storage.

Additional assumptions with regard to water use projections are listed on the Budget Overview sheet, and are made a part of this CCDP as follows:

- The existing capped rate contracts for Douglas County RWD #4 and Douglas County RWD #5 end in 2019, and are assumed not to be renewed.
- The Wolf Creek marketing contract ending in 2017 will be renewed as a variable rate contract with the same quantity as the current capped rate contract.

Revenue from Capped Contract Water Sales

Initial Water Marketing Program legislation (1974) established a maximum rate for a contract at \$0.10 per 1,000 gallons. All contracts prior to March 17, 1983 are capped at the \$0.10 per 1,000 gallon rate. Projected (2017 - 2023) annual revenue from the capped contracts is based on the estimated billable quantity in Table 3 multiplied by the \$0.10/1,000 gallon rate. Between 2018 and 2023 this revenue line decreases as the capped contracts expire.

Revenue from Variable Rate Contract Water Sales

The variable rate for water paid for under a variable rate contract is set using the factors set forth by K.S.A. 82a-1308a. Projected annual revenue from the variable rate contracts is based on the estimated billable quantity in Table 3 multiplied by the marketing variable rate. The variable rate is subject to annual review and approval.

Revenue from Administration and Enforcement

The Water Marketing Fund pays the expenses associated with administration (salary and operations) of the Assurance Program, as well as the Marketing Program. The Water Marketing Program is reimbursed for administration and enforcement costs incurred by the Water Assurance Program, which is included as “Assurance A&E Transfer” in Table 2.

Revenue from Operational Reserve Transfer

As shown in the Budget Overview table, this CCDP proposes to utilize the existing Operational Reserve account to transfer excess funds generated from the previous year’s water sales associated with marketing contracts. The amount transferred is available to be utilized for program expenses. The projected annual Operation Reserve Transfer amounts are shown in Table 2. At this time, the current balance of \$396,638 is proposed to be maintained as operational reserve.

Revenue from State Water Plan Fund

Table 2 includes the revenue provided by the State Water Plan fund for PWS program needs. As mentioned in the previous section, State Water Plan funding is utilized to pay the operation and maintenance costs from the Corps that is charged to the Marketing Program per the storage purchase contracts with the Corps. In addition,

State Water Plan funds are utilized for reservoir protection and restoration projects. The goal of these projects is to continue monitoring and assessment work necessary to maintain water supply storage, as well as the planning and implementation of projects that will serve to restore and protect the storage. As shown in the Budget Overview, State Water Plan funds were budgeted in 2017 for the following projects tied to reservoir P&R:

John Redmond Bond Payment – In 2014, the Legislature approved a 20 million dollar plan to dredge John Redmond. The dredging portion of the project was completed in 2016, restoring a portion of the reservoir water supply storage pool. The cost for the project was bonded and State Water Plan funds are dedicated to support approximately 75% of the annual bond payment, with the Water Marketing Program supporting the remaining 25% of bond payment. The State Water Plan funds utilized for this payment are shown as revenue in the Budget Overview and Table 1 in Appendix B.

Tuttle Streambank Stabilization Projects – In 2016 and 2017, a portion of State Water Plan funds (\$400,000 each year) were allocated to fund streambank stabilization projects above Tuttle Creek Lake in an effort to reduce sediment entering the lake from highly eroding sites above the reservoir. At this time, no additional funding is projected for this project; however, as part of the Vision implementation plan, efforts to obtain additional funding for this project are on-going.

On-Going Statewide Monitoring & Assessment – The budgeted amounts from the State Water Plan are shown in the Budget Overview for this ongoing monitoring and assessment work related to the water supply storage in state-owned reservoirs. This includes support for LiDAR development/enhancement, streamgaging, sediment monitoring studies, and funding for bathymetric surveys.

John Redmond Bathymetric & Sediment Monitoring – The budgeted amounts for bathymetric survey information/analysis and sediment monitoring studies at and above John Redmond are shown for 2017 – 2019.

Revenue from Water Assurance Fund

Table 2 includes the revenue provided by the Water Assurance program for PWS program needs. The State is obligated to fully pay the capital costs of the water supply storage assigned to the all of the PWS Programs – including the Water Marketing, Water Assurance, and Access District programs. The portion of principal and interest and operation and maintenance payments made by the Water Assurance Program are represented in Table 2 as PWS program revenue.

Revenue from Access District

Table 2 includes the revenue provided by the Access District for PWS program needs. In accordance with the agreement between KWO and the Access District, the Access District provides payment for a portion of the annual principal and interest and operation and maintenance costs associated with the purchased storage in Kanopolis Lake. The agreement set the annual principal and interest payments at a fixed amount of \$43,724 for 20 years, beginning in 2017.

The Access District is also obligated to pay the portion of operation and maintenance costs passed on to KWO from the Corps for the portion of purchased storage in Kanopolis. These payments begin in 2018.

The Access District also makes an annual payment to KWO for program administration and enforcement. The agreement set the beginning A&E payment of \$15,000, with a 4% annual increase.

The amount of revenue shown for the Access District in 2017 reflects the lump sum payment in the amount of \$2,477,067 made by the Lower Smoky Hill River Access District, plus the principal and interest and first payment of \$15,000 for A&E costs.

SECTION 4 – FUTURE USE STORAGE

Future Use storage is considered storage that is not currently in service. Some of the water supply contracts between the Corps and the KWO allow the State to defer payments on the storage until the storage is needed. The Corps retains ownership of Future Use storage until the State calls that storage into service. As shown on the table in Section 1, there is currently future use storage in Big Hill, Clinton, Hillsdale, Milford and Perry Lakes.

The future use storage in Big Hill, Milford and Perry Lakes has not been called into service because no anticipated additional marketing customers have been identified. Of these three lakes, only Milford Lake supports an existing marketing customer, which is Westar's Jeffrey plant. This marketing contract ends in 2022, and is not anticipated to be renewed. The Water Marketing Program is not paying the Corps of Engineers capital cost or operation and maintenance costs nor is the storage committed to a user of the Water Marketing Program in Big Hill and Perry Lakes. However, that state has committed under contract with the Corps of Engineers to purchase this storage within 50 years of the first use of the reservoir, or to renegotiate contracts. This storage was identified in an independent program review as an unfunded liability to the Water Marketing Program. Interest continues to accrue against the capital cost prior to calling it into service.

Future Use Storage – Call Schedule

The 2014 *Water Marketing Program Capital Development & Storage Maintenance Plan* included a schedule to call all of the remaining future use storage in Clinton, Hillsdale and Big Hill reservoirs into service by the end of their respective contract terms. The costs associated with calling in future use storage in these reservoirs will be paid by the Water Marketing Program. The schedule leaves a significant increment, hence a significant ending payment for Hillsdale Reservoir (2031), Clinton Reservoir (2027) and Big Hill (2029). The long-term model utilized for the CCDP includes the assumption that the payment for the final future use calls for these three reservoirs will be bonded in order to prevent a spike in the marketing program variable rate. A 20 year payoff would lessen the impact of those final increment calls and allow payoff during a time that more customers are paying the variable rate. As stated on the Budget Overview, the bonds are assumed to be financed over a 20-year period at 5% interest.

As part of the development of this CCDP, KWO evaluated the 2014 call schedule. The intent was to evaluate the long-term stability of the marketing program to fund the future use calls, and to determine whether modifications to the current call schedule would alleviate the long-term debt service to the program. This plan proposes a modified call schedule as follows, which includes two changes to the previous call schedule (highlighted in yellow).

Future Use Storage – Proposed Call Schedule

Calendar Year	BIG HILL RESERVOIR			CLINTON RESERVOIR			HILLSDALE RESERVOIR			MILFORD RESERVOIR			PERRY RESERVOIR		
	AF Call	Total AF	% in Service	AF Call	Total AF	% in Service	AF Call	Total AF	% in Service	AF Call	Total AF	% in Service	AF Call	Total AF	% in Service
2010		9,200	35.80		53,520	60.00		13,250	25.00		101,650	33.88		25,000	16.67
2014							3,533	16,783	31.67						
2020				8,900	62,420	70.00	3,533	20,316	38.33						
2024	7,200	16,400	63.81												
2025							10,000	30,316	57.20						
2027				26,780	89,200	100.00									
2029	9,300	25,700	100.00												
2030							22,684	53,000	100.00						
2034										198,350	300,000	100.00			
2041													125,000	150,000	100.00

The first proposed modification is to the call schedule for Hillsdale Lake. The previous schedule included calling in 3,534 AF of future use storage in 2025. This plan proposes calling in an additional 6,466 AF of future use storage in 2025, for a total of 10,000 for that incremental call. This modification saves the state significant principal and interest costs associated with bonding the final call, and provide more stability for the marketing program (see Marketing Rate section).

The second proposed modification includes the addition of an incremental call of 7,200 AF of future use storage in Big Hill in 2024. As with the Hillsdale call schedule modification, this incremental call will provide significant savings to the marketing program in principal and interest costs associated with the final call and benefits the marketing program variable rate structure after the final call year.

Unfunded Liability - Perry and Milford Reservoirs Future Use Storage

As discussed above, this plan includes a schedule to call all of the remaining future use storage in Clinton, Hillsdale and Big Hill reservoirs into service by the end of their respective contract terms. Perry and Milford reservoirs provide important support to the Kansas River system; as such, it is anticipated that a portion of the future use storage would be acquired and dedicated to the use of the Kansas River Water Assurance District (KWAD).

Based on projected future water supply use needs of the KWAD, additional assurance storage will not be needed before the future use storage calls for Milford (2034) and Perry (2041). After the Jeffrey (Westar) contract ends in 2022, no water marketing customers are anticipated to be served by the marketing storage in Milford Lake at this time. This creates a time gap between the call in of future use storage in Milford and Perry and the need for the associated storage. The KWO is continuing the development of a strategy to fund the future use calls at Milford and Perry. The development of a plan for this unfunded liability will be incorporated into future updates of this CCDP (see Section 7 Future Additions to Plan).

SECTION 5 – WATER MARKETING RATE

The purpose of the Water Marketing rate as established in 1983, and continuing today, is to insure that the revenue into the Program is adequate to meet the expected expenses of the Program. Those expenses include annual payments for principal and interest on storage under federal contract, operation and maintenance cost for that storage and the state’s administration and enforcement cost associated with operating the Program (as included in Section 2 of this plan).

The Water Marketing Program operates on a cash basis, with a variable rate set each year that is adequate to meet the expected expenses. Currently, seventy five percent of water paid for under the Water Marketing Program is by customers with contracts that predate the 1983 establishment of the current variable rate structure, such that their rate is capped at \$0.10; revenue collected from those contracts makes up over half of the Program total revenue.

The variable rate under which the remaining 25% of water paid for is set using the factors shown in the text box below. The fifth component, “an amount necessary to meet the needs of the *Water Marketing Program Capital Development and Storage Maintenance Plan* as approved by the Kansas Water Authority”, is the most significant factor to ensure sufficient revenue is available to meet the needs of the Program.

The *Capital Development and Storage Maintenance Plan* was established as a way to look at the total needs of the Program and to determine the appropriate variable rate under the Water Marketing Program. (See text box, this page). The Water Marketing rate for calendar year 2018 is \$0.392.

K.S.A. 82a-1308a sets forth the procedure for the annual establishment of the rate to be charged for water under the Water Marketing Program. The annual rate is based upon computation of five components described in the law, as follows:

1. An amount necessary to repay the amortized capital costs associated with the state’s conservation water supply capacity. (capital cost component)
2. An amount as interest on money advanced from the State General Fund for the Water Marketing Program to initially acquire storage space. (interest component)
3. Administration and enforcement expenses. (A&E component)
4. Operation, maintenance, and repair costs. (O&M component)
5. An amount necessary to meet the needs of the program as shown in the *Water Marketing Program Capital Development and Storage Maintenance Plan* approved by the Kansas Water Authority. (depreciation reserve component)

K.S.A. 82a-1315b(b) provides for the Kansas Water Authority to approve the rate by July 15th of each year. The rate established becomes effective January 1 of the following year.

PROGRAM FUNDING NEEDS

The CCDP model includes a comparison of annual projected Program expenses to the anticipated annual revenue in order to determine the required variable rate necessary to meet the needs of the program. This information determines the variable rate

The formulas of the first four rate components, as provided in Kansas Administrative Regulations (K.A.R.) 98-5-5, assumes all customers pay the same rate. Only contracts signed after July 1, 1983 are true variable rate contracts. The contracts signed before then are capped at \$0.10 per 1,000 gallons. As a result, the amount of revenue generated by the capital costs, A&E, and O&M rate components (1, 3 and 4 above) are insufficient to cover those costs. The deficit is being covered by the revenue generated by the interest and depreciation reserve rate components (2 and 5 above). The depreciation reserve rate component was intended to generate funds to be placed in the conservation storage development fund to be used for future acquisition of storage.

Because of this situation, this *Water Marketing Program Capital Development and Storage Maintenance Plan* was developed to look at all expenses and all revenues to establish a variable rate that will allow the program to meet all expenses, acquire the funds to call the future use storage into service, and provide funding for reservoir protection and restoration projects.

Specific Use Accounts

Conservation Storage Fund Deposits

The State Conservation Storage Water Supply Fund was established as a savings fund for acquisition, development or maintenance of state owned public water supply storage. This Fund has a current balance of \$368,187. This Plan does not contain a deposit into, or expenditure from, the Conservation Storage Fund Account.

Operation and Maintenance Set-Aside Account

In 1991, an Operation and Maintenance (O & M) Set-Aside Account within the Water Marketing Fund was established. It enables the Program to pay for any unusually high O & M expenses without causing abnormally high spikes in the rate. Up to 1 cent per 1,000 gallons of revenue from purchasers may be credited to this account if there is any remaining revenue after expenses are met. This Plan does not contain a deposit into, or expenditure from, the O&M Set-Aside Account.

Operational Reserve

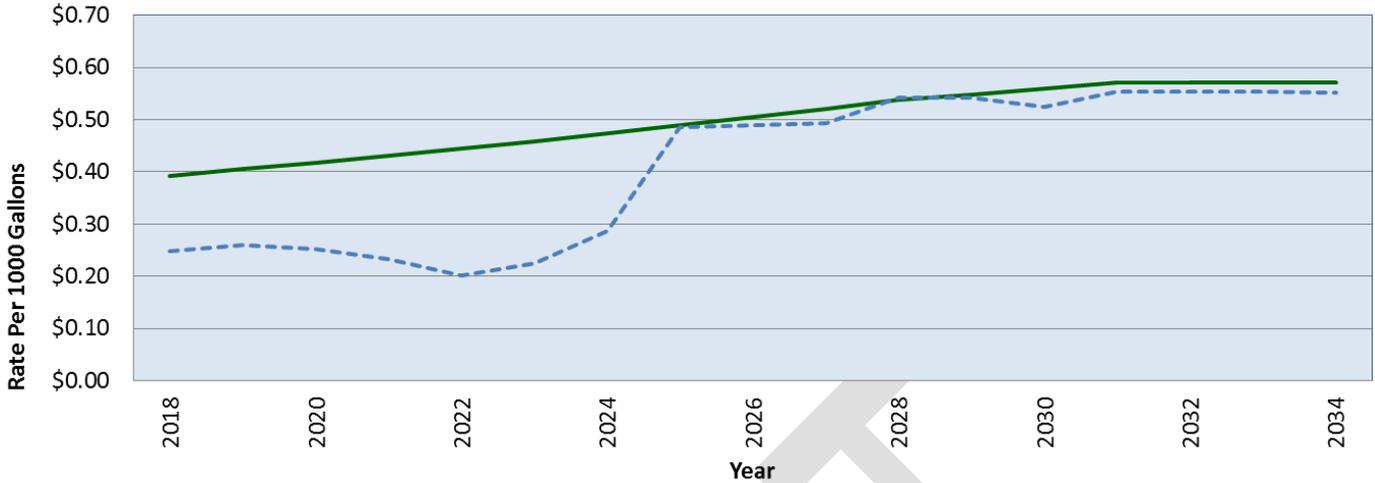
The Water Marketing Program operates on a cash basis. Each calendar year, major revenues are received in January and February and major expenditures occur in September and October. The monthly cash flow is an important operational consideration. An operational reserve accommodates the uncertainty of projecting water sales revenue. In previous Plans, the KWA approved the goal of developing and maintaining an operational reserve of \$500,000, an approximate 25% operating reserve. The current balance in the Operational Reserve account is \$396,638. This plan proposes to utilize the existing Operational Reserve account to transfer excess funds generated from the previous year's water sales associated with marketing contracts. The amount transferred is available to be utilized for program expenses.

Variable Rate for Marketing Contracts

Prior to this updated plan, the Authority had sought to flatten out variations in the rate to be able to lend financial stability to both customers and the Program. A stepped increase in the variable rate was adopted by the KWA in conjunction with discussions on reservoir restoration. The previously approved flattened rate was projected to provide adequate revenue to cover program expenses and provide funding for protection and restoration projects.

The development of this CCDP included an evaluation the flattened rate against the long-term needs of the program. It was determined that due to the future use storage calls that will be made within the next 20 years, the previously approved flattened rate would not meet program needs in the long-term. This plan includes an update to the variable rate structure with an annual increase of 3.2% through 2028, a 2% annual increase from 2029 to 2031, and then a flattened rate. The projected long-term variable rate included in the CCDP model is shown in the following chart.

PROJECTED LONG-TERM WATER MARKETING PROGRAM VARIABLE RATE



The dashed line shown in the above project rate structure indicates the required variable rate necessary to meet the minimum program expenses, which include capital costs (P&I) and operation and maintain costs owed to the Corps, and administrative costs associated with the state-owned water supply storage. Costs for reservoir protection and restoration and future use debt liabilities are not included in the require rate. The green line indicates the variable marketing rate structure incorporated into this plan. The difference between the two lines represents marketing revenue that is planned to be utilized for debt paydown and protection and restoration projects as described herein.

The long-term projected rate structure included herein will be reviewed and updated as conditions within the marketing program change. The long-term variable rate structure will continued to be evaluated and updated based on future program changes, and will be incorporated into future updates of this CCDP.

Projected Debt Paydown Schedule

This plan proposes to utilize a portion of the marketing revenue from water sales to pay down the debt associated with the state’s water supply storage. The table included below indicates the planned debt paydown by year that has been incorporated into this plan.

Year	Reservoir Storage	Debt Payoff	Total Payoff
2019	Elk City	\$ 422,184	\$ 1,150,689
	John Redmond	\$ 728,505	
2020	Big Hill	\$ 964,794	\$ 1,208,882
	Council Grove	\$ 244,088	
2021	Hillsdale (Orig.)	\$ 1,326,123	\$ 1,650,528
	Marion	\$ 324,405	
2022	Hillsdale #2	\$ 2,268,075	\$ 2,268,075
2023	Hillsdale #1	\$ 2,483,622	\$ 2,483,622
2024	Hillsdale #3	\$ 3,218,753	\$ 3,218,753
2025	Clinton (Orig. & #1)	\$ 1,382,955	\$ 1,382,955

The planned debt paydown is indicated by reservoir, and refers to the debt payoff associated with the existing purchase contracts for storage. The storage contracts for reservoirs in which there is future use storage are

further indicated as either the original contract amount (not including Future Use Storage purchase), or a number to indicate paying off the debt associated with an incremental call-in of future use storage.

The debt paydown schedule is projected based on the CCDP, and depends on the amount of marketing revenue available from the previous year of water sales. For planning purposes, the debt paydown schedule shown on the Budget Overview sheet has been utilized for the development of the water marketing program variable rate schedule as shown.

SECTION 6 - PROTECTION & RESTORATION ACTIVITIES

In addition to developing capital or water supply storage to meet program needs, the state is charged with managing and maintaining the existing state-owned storage to meet the water supply needs of existing and projected PWS customers. The specific challenges to managing reservoir water supplies include protecting the reservoir storage by decreasing sedimentation, restoring storage lost to sedimentation at key reservoirs, and identifying a method to pay for unfunded storage and operation and maintenance costs.

As stated in previous sections of the CCDP, one of the primary purposes of the CCDP is to include the identification of specific sources of revenue for Reservoir Protection and Restoration (P&R) activities. Potential benefits and funding for these activities extend beyond the water marketing program users, and thus, the CCDP helps to identify additional sources for P&R project funding and implementation.

Revenue for Master Plan PWS Capital Fund

As shown in the Budget Overview, this CCDP proposes that a portion of the projected revenue from the marketing program be utilized to fund P&R projects that will have the greatest benefit to the PWS Program. The amount of funding available each year for these projects will depend on actual marketing revenues. As of the date of this publication, the projected 5-year (2018 – 2022) total amount of revenue available for P&R funding is approximately \$915,000.

The CCDP Budget Overview page also includes a comprehensive list of the planned P&R projects listed by associated funding source, which includes the portion projected to be provided by marketing revenue (as described in the above paragraph). These amounts depend on budgeted funds from all programs that are planned for the implementation of PWS capital projects, and will vary in size, cost, and type. Examples of P&R projects include streambank stabilization projects and best management practices (BMPs) to reduce sedimentation and improve water quality of the PWS storage at state-owned reservoirs.

The KWO is currently working to develop a “Master Plan” that will include additional detail regarding the P&R activities planned under the CCDP. The P&R projects referenced in the Budget Overview will be based on detail provided in the Master Plan.

Future updates to the CCDP will reflect changes in the availability of P&R funding and additional information associated with planned P&R projects.

Current List of PWS Protection & Restoration Projects

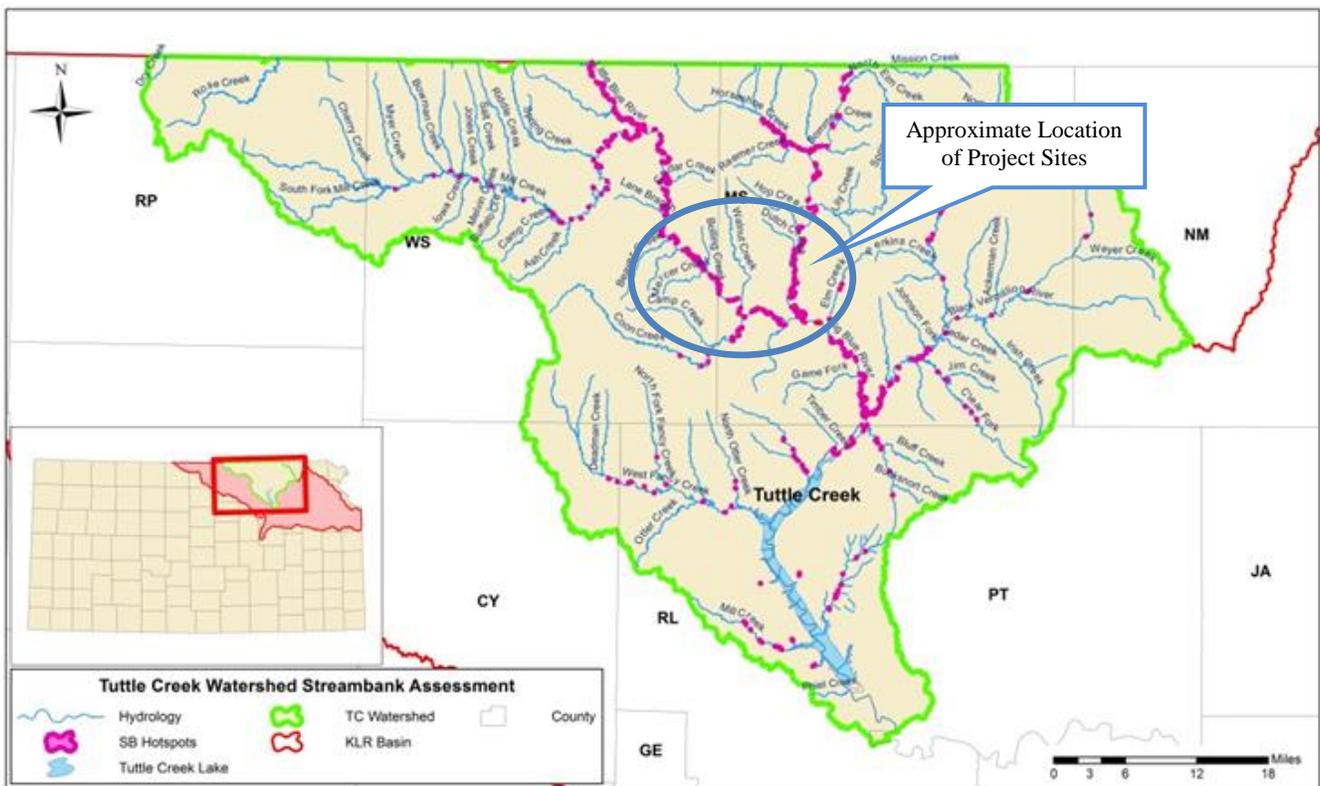
The projects planned for 2018 are shown on the right-hand side of the page as “Master Plan PWS Projects”, and are as listed below, with additional detail for each project also included herein.

2018 MASTER PLAN PWS PROJECTS

• Tuttle SB Stabilization Project	\$ 1,200,000	KDHE SRF Loan
• SB Stabilization Sites Above Redmond	\$ 700,000	JR Bond
Total	\$ 1,900,000	

Tuttle SB Stabilization Project - \$1,200,000 Loan Funds

Per KWA's approval in February 2017, KWO entered into a loan agreement with the Kansas Department of Health and Environment for a Kansas Water Pollution Control Revolving Fund loan in the amount of \$1,200,000, with 100% principal forgiveness. The loan funds will be used for the design and construction of multiple high priority streambank stabilization sites along the Little Blue and Big Blue Rivers above Tuttle Creek Lake. The primary purpose of the project is to reduce sediment reaching Tuttle Creek Reservoir by stabilizing actively eroding bank sites. The map included herein indicates the approximate location of the sites planned for stabilization as part of this project.



Stabilization Sites Above Redmond - \$700,000 John Redmond Bond Funds

As part of the overall John Redmond Dredging project, a portion of the bond funds are dedicated to the implementation of streambank stabilization projects above John Redmond Reservoir aimed at reducing sediment entering the lake. It is estimated that this funding will facilitate the design and implementation of approximately 9-11 sites. As of the date of this CCDP, the proposed sites for implementation have been identified, and the project is moving forward to the planning and design phase.

SECTION 7 - FUTURE ADDITIONS TO PLAN

Payment breakdown at Milford and Perry – WQ pool increase

Section 4 of the CCDP discusses the unfunded liability associated with the future use storage obligations of the state. As previously stated, the unfunded liability associated with the future use storage in Milford and Perry reservoirs is not currently addressed in the CCDP. Current projections indicate that the demand for the future use storage in these two reservoirs is beyond the end of the contract period. Due to the time gap created between the obligated call-in of this future use storage and the need for the storage based on projected customer demands, there is a need to develop a funding strategy for this specific liability.

In addition to the time gap mentioned above, there is also a potential to reallocate a portion of the future use water supply storage in Milford and Perry to a water quality pool. Typically, Corps of Engineers reservoirs with state-owned storage have a designated water quality pool to support minimum releases; however, there is currently no designated water quality pool in either Perry or Milford. Drought simulations of the Kansas River/Reservoir system model indicate that releases from future use storage in Perry and Milford are required in order to maintain downstream flow targets (based on 2045 capacity). The reallocation of a portion of the future use storage in Milford and Perry to water quality storage would reduce the state's financial obligation associated with the current future use storage.

The KWO is committed to the development of a strategy to fund the future use calls at Milford and Perry, and continued to correspondence with the Corps of Engineer regarding reallocation of future use to water quality storage. The development of a plan for this unfunded liability will be incorporated into future updates of this CCDP.

Total Reservoir P&R Costs in State

The KWO is working to determine the total costs associated with reservoir protection and restoration project needs in the state. This information will be incorporated into future updates of the CCDP.

APPENDIX A

BUDGET OVERVIEW
Public Water Supply Program
Comprehensive Capital Development Plan

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APPENDIX B

PWS PROGRAM BUDGET TABLES

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Table 1. Projected Expenses	2017	2018	2019	2020	2021	2022
Principal and Interest to Corps						
Water Marketing Fund	\$1,424,442	\$1,424,442	\$1,189,590	\$1,840,178	\$1,617,087	\$1,311,880
Water Assurance Fund	\$13,744	\$13,744	\$13,744	\$480	\$0	\$0
Access District Fund	\$43,724	\$43,724	\$43,724	\$43,724	\$43,724	\$43,724
Total P&I Expense to Corps	\$1,481,910	\$1,481,910	\$1,247,058	\$1,884,382	\$1,660,811	\$1,355,604
Operation & Maintenance to Corps						
Water Marketing Fund	\$791,106	\$770,517	\$1,114,370	\$995,803	\$980,823	\$970,651
State Water Plan Fund	\$364,553	\$353,004	\$482,809	\$446,232	\$452,830	\$454,005
Water Assurance Fund	\$298,540	\$329,044	\$496,228	\$356,577	\$349,672	\$361,036
Access District Fund	\$0	\$38,383	\$71,574	\$17,535	\$20,117	\$20,739
Total O&M Expense to Corps	\$1,454,199	\$1,490,948	\$2,164,981	\$1,816,146	\$1,803,442	\$1,806,432
Administration & Enforcement						
Water Marketing Fund	\$889,704	\$947,835	\$974,187	\$735,871	\$764,363	\$792,855
Access District Fund	\$15,000	\$15,600	\$16,224	\$16,873	\$17,548	\$18,250
Total A&E Expense	\$904,704	\$963,435	\$990,411	\$752,744	\$781,911	\$811,105
Reservoir Protection & Restoration						
John Redmond Bond Payment						
Water Marketing Fund	\$756,450	\$410,324	\$411,074	\$414,574	\$410,574	\$414,324
State Water Plan Fund	\$916,550	\$1,260,426	\$1,260,426	\$1,260,426	\$1,260,426	\$1,260,426
Tuttle SB Stabilization Projects	\$400,000	\$0	\$0	\$0	\$0	\$0
On-Going Monitoring & Assessment	\$369,889	\$463,699	\$481,282	\$0	\$0	\$0
Redmond Bath. & Sediment Monitoring	\$217,500	\$100,000	\$100,000	\$0	\$0	\$0
Total P&R Expenses	\$2,660,389	\$2,234,449	\$2,252,782	\$1,675,000	\$1,671,000	\$1,674,750
Total Projected Expenses	\$6,501,202	\$6,170,742	\$6,655,233	\$6,128,271	\$5,917,164	\$5,647,890

Table 2. Revenue

Water Marketing Contract Revenue						
Capped Contract Sales	\$1,615,069	\$1,132,458	\$1,133,447	\$892,988	\$892,941	\$835,569
Variable Rate Contract Sales	\$1,706,826	\$3,680,569	\$3,832,126	\$4,956,748	\$5,155,344	\$5,631,396
Total Marketing Revenue	\$3,321,895	\$4,813,027	\$4,965,573	\$5,849,736	\$6,048,284	\$6,466,965
Assurance A&E Reimbursement	\$95,003	\$98,803	\$102,755	\$106,865	\$111,140	\$115,585
Operational Reserve Transfer	\$0	\$0	\$8,023	\$3,247	\$2,896	\$1,399
State Water Plan Fund						
O&M Payments to Corps	\$364,553	\$353,004	\$363,000	\$446,232	\$452,830	\$454,005
John Redmond Bond Payment	\$916,550	\$1,260,426	\$1,260,426	\$1,260,426	\$1,260,426	\$1,260,426
Tuttle SB Stabilization Project	\$400,000	\$0	\$0	\$0	\$0	\$0
On-Going Monitoring & Assessment	\$369,889	\$463,699	\$481,282	\$0	\$0	\$0
Redmond Bath. & Sediment Monitoring	\$217,500	\$100,000	\$100,000	\$0	\$0	\$0
Water Assurance Fund						
P&I Payments to Corps	\$13,744	\$13,744	\$13,744	\$480	\$0	\$0
O&M Payments to Corps	\$298,540	\$329,044	\$496,228	\$356,577	\$349,672	\$361,036
Access District Revenue	\$2,535,791	\$97,707	\$131,523	\$78,132	\$81,389	\$82,713
Total Projected Revenue	\$8,533,465	\$7,529,455	\$7,922,554	\$8,101,695	\$8,306,637	\$8,742,130

Table 3. Projected Water Use (1000 GPY)	2017	2018	2019	2020	2021	2022
Capped Contracts Billable Quantity	16,150,695	11,324,583	11,334,470	8,953,311	8,953,169	8,355,690
Variable Contracts Billable Quantity	4,491,647	9,385,375	9,462,039	11,858,249	11,961,354	12,654,823
Total Billable Quantity (1000 GPY)	20,642,342	20,709,958	20,796,509	20,811,559	20,914,523	21,010,513

Table 4. Specific Use Accounts						
Conservation Storage Fund Deposits	\$0	\$0	\$0	\$0	\$0	\$0
Conservation Storage Fund Expenditures	\$0	\$0	\$0	\$0	\$0	\$0
Conservation Development Fund Balance	\$368,187	\$368,187	\$368,187	\$368,187	\$368,187	\$368,187
O&M Set-Aside Account Deposits	\$0	\$0	\$0	\$0	\$0	\$0
O&M Set-Aside Account Expenditures	\$0	\$0	\$0	\$0	\$0	\$0
O&M Set-Aside Account Balance	\$137,461	\$137,461	\$137,461	\$137,461	\$137,461	\$137,461
Operational Reserve Deposits	\$0	\$8,023	\$3,247	\$2,896	\$1,399	\$390,618
Operational Transfer to Revenue	\$0	(\$8,023)	(\$3,247)	(\$2,896)	(\$1,399)	(\$390,618)
Operational Reserve Balance	\$396,638	\$396,638	\$396,638	\$396,638	\$396,638	\$396,638