Not an Offer to Sell Securities. The Long-Range Financing Plan is for informational purposes, and is not an offer to buy or sell, or a solicitation of an offer to buy, and may not be relied upon in connection with the purchase or sale of any security. No information or representations with respect to the sale by the Water Authority of any security may be relied upon other than information and representations contained in the Preliminary Official Statement and final Official Statement approved by the Water Authority for use in connection therewith.

To receive an Official Statement please contact:

San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123
858-522-6600

Or visit our website at http://www.sdcwa.org/
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1.0 Executive Summary

With the completion of several landmark construction projects, the Water Authority has transitioned from an organization focused on constructing new facilities to an organization focused on the operations and maintenance of existing facilities. Looking forward, the Capital Improvement Program (CIP) is driven by the Water Authority’s Asset Management Program, which includes the Water Authority’s relining program. The Asset Management Program seeks to optimize asset Renewal and Rehabilitation (R&R) decisions.

The primary goal of the Water Authority’s LRFP is to support the long-term fiscal sustainability of the Water Authority. It identifies the financial policies that guide the Water Authority’s prudent management of financial risk, and outlines how the Water Authority plans to finance the CIP. It also provides details regarding key underlying assumptions and provides long-term financial forecasts. This document was last updated in 2008 and is being prepared to provide future financial information to stakeholders. The remainder of this executive summary highlights the important features of the 2015 LRFP and contains brief summaries of each chapter of the 2015 LRFP.
1.1 Highlights of the 2015 LRFP

**Highlights Completion of Significant Water Reliability Projects.** With the completion of the San Vicente Dam Raise Project, the crown jewel of the Water Authority’s Emergency Storage Program, and commercial operations of the Carlsbad Desalination Plant, the Water Authority has reached a significant milestone in its long history of water supply diversification. Known for doing what it says and making difficult decisions, these Water Authority accomplishments are nothing short of groundbreaking. **Section 4, Capital Improvement Program,** focuses on the Water Authority’s plan to optimize the life-cycle costs of its assets through its innovative Asset Management Program.

**Addresses the Near-Term Financial Impacts of the Statewide Demand Regulations.** With dry hydrologic conditions in its primary watersheds and unprecedented statewide water use regulations, the Water Authority is facing significant near-term demand reductions. Several sections of this LRFP provide enhanced discussion of drought-related impacts. **Section 3, Regional Water Sales Projections,** provides discussion of the expected impacts of water use regulations, local supply development, and El Niño conditions on water demands. **Section 6, Water Authority Financial Forecast,** incorporates the impacts of reduced water sales volumes, increased rates from the Water Authority’s main supplier, Metropolitan Water District of Southern California (MWD), and deliveries of desalinated water. Finally, **Section 8, Risk Sensitivity Analysis,** also analyzes the potential volatility in net revenues that could result from reduced water sales.

**Provides Additional Information Regarding Key Assumptions, Sensitivity Analyses, and Non-Bonded Liabilities.** Water sales projections, local supplies, cost of imported water, and CIP expenditures drive LRFP financial projections. **Section 3, Regional Water Sales Projections,** and **Section 4, Capital Improvement Program,** describe these key assumptions. In addition to the drought impacts discussed above, **Section 8, Risk Sensitivity Analysis** also looks at the potential exposure to variations in capacity charge revenues and interest rates. Finally, though the Water Authority’s unfunded pension and retiree healthcare costs are small, relative to total outstanding debt, a detailed description of these liabilities is included in **Section 9, Appendices,** for reference.

1.2 LRFP Section Descriptions

**Section 2—Financial Management Objectives and Policies.** This section describes Water Authority capital financing and reserve policies; discusses these policies as tradeoffs between the financial management objectives of cost efficiency, predictable rates, and intergenerational equity; and elaborates on the Water Authority’s strong credit ratings from Fitch Ratings, Standard & Poor’s, and Moody’s Investors Service.

---

**Key Policy Recommendation**

The PAYGO/Cash funding target mix has been updated to 30% from the 23% target set in 2008. The new target mix reflects the types of CIP projects on the horizon and the availability of PAYGO funds to support the new target. This plan will reduce future debt issuance and will be viewed favorably by rating agencies.

---

**Senior Lien Ratings**

<table>
<thead>
<tr>
<th>Fitch</th>
<th>S&amp;P</th>
<th>Moody’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA+</td>
<td>AA+</td>
<td>Aa2</td>
</tr>
</tbody>
</table>

**Subordinate Lien Ratings**

<table>
<thead>
<tr>
<th>Fitch</th>
<th>S&amp;P</th>
<th>Moody’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>AA</td>
<td>Aa3</td>
</tr>
</tbody>
</table>
**Section 3—Regional Water Sales Projections.** This section describes the Water Authority’s expected long-term water sales forecast (see *Chart 1-1*). Not only does it provide additional detail as to the breakdown in sales volumes among customer classes, but it also highlights the local and imported supply sources being developed to meet the demand. The forecast reflects near-term drought impacts of extraordinary conservation measures and mandatory cutbacks to agricultural customers within the region. Lastly, the section discusses the various challenges facing the State Water Project (SWP).

![Chart 1-1 Water Sales Forecast](chart.png)

**Section 4—Capital Improvement Program.** This section describes various elements of the Water Authority’s CIP. It discusses the expected $582 million ten-year CIP projection and summarizes the current $2.8 billion lifetime CIP by project categories and status. It also provides information demonstrating the Water Authority’s track record of CIP execution. *Chart 1-2* shows the expected CIP expenditures during the planning period.

![Chart 1-2 Annual CIP Expenditures](chart2.png)
**Section 5—Capital Financing Plan.** This section provides a detailed overview of the debt instruments the Water Authority anticipates using to finance the CIP and the methodology used to optimize the long-term financing mix (Chart 1-3). The outstanding $2.15 billion in long-term and short-term debt, and projections of approximately $168.5 million of future debt are necessary to fund the Water Authority’s existing CIP (Chart 1-4).

**Chart 1-4  Existing & Projected Debt Service**

(1) Excludes Desal Pipeline Bond debt issue.
* Net of the Build America Bond (BABs) subsidy.
**Variable-rate debt includes Commercial Paper and Extendable Commercial Paper programs, and Series 2011S-1 debt.

**Section 6—Water Authority Financial Forecast.** This section demonstrates the overall feasibility of the Water Authority’s capital financing plan. It provides a brief description of the Water Authority’s rates and charges, highlighting the Water Authority’s fixed revenue sources. The comprehensive ten-year projection of sources and uses of funds incorporates the impact of all debt projected to be issued during the planning period. Both rate and debt service coverage projections demonstrate that the Water Authority can prudently implement the CIP with a manageable long-term growth in water rates over the planning period.
High and low rate and charge forecasts for Municipal and Industrial (M&I) customers have been developed to provide guidance on the anticipated trends in rates and charges.\(^1\) The high rate and charge projection is based upon a water sales outlook that includes continued restrictions on water demand in addition to a slow rebound in future sales (low sales levels), a win in the MWD litigation and a restructuring of their rates to comply with the law, a high rate forecast for MWD’s rates that takes into account planning costs for Cal WaterFix (capital costs for the State’s current plan for addressing the Bay-Delta issues are not included in the LRFP projection period), an aggressive development of member agency local supplies, and a higher than expected CIP funding levels. The low rate projection is based upon water demands and sales levels returning to levels in line with average levels, a win in the MWD litigation and a restructuring of their rates to comply with the law, a moderate development of member agency local supplies, and a lower than expected CIP funding level. All of the financial projections presented in the LRFP are based upon the high-rate forecast, which provides stakeholders with conservative financial projections. Chart 1-5 shows that over the planning period the high-rate and low-rate forecasts project a compounded annual growth in M&I rates of 4.8% and 1.6%, respectively.

Chart 1-6 below shows that projected senior lien debt service coverage during the planning period will be at the Board-established target of 1.50 times.

(1) Customer Service, Storage, and Supply Reliability Charges converted to $/AF based on sales forecast.
**Section 7—Funds and Reserves.** The financial collapse of 2008 highlighted the importance of maintaining adequate liquidity. This section describes the Water Authority’s seven major operating and capital funds, their authorized uses, Board-approved funding policies, and projected cash balances. The projections in this section, summarized in *Chart 1-7*, demonstrate that the Water Authority will have sufficient liquidity to meet both its operating and capital investment commitments under the high-rate scenario assumptions.

*Chart 1-7*  Projected Year-End Fund Balances

Water Authority actively evaluates and prepares for different types of risk. This section analyzes the Water Authority’s exposure to variability in water sales volumes, interest rates, and local economic activity. *Table 1-1* demonstrates how hydrologic risks that the Water Authority faces in Calendar Year 2016 may impact the Water Authority financially. California is currently facing a variety of water supply and demand challenges. The table illustrates the financial impact of additional reductions in sales. It is important to note that the impact of the statewide mandatory demand reductions on M&I customers and MWD’s reduction of 15% on Transitional Special Agricultural Water Rate (TSAWR) sales have already been factored into the demand and financial projection provided in the document. Therefore, the table illustrates the financial impact of reductions in demand below the regulated levels or if wet weather further suppresses demand, in spring of 2016.

**Table 1-1  Financial Impact of Calendar Year 2016 Water Sales Volatility**

<table>
<thead>
<tr>
<th>Percent Sales Loss</th>
<th>Sales Loss (Acre-Feet)</th>
<th>Revenue Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water Sales</td>
<td>Treatment</td>
</tr>
<tr>
<td>Change in M&amp;I Demand</td>
<td>5%</td>
<td>(18,933)</td>
</tr>
<tr>
<td>Change in TSAWR</td>
<td>5%</td>
<td>(1,725)</td>
</tr>
<tr>
<td>Units</td>
<td>370,800</td>
<td>359,721</td>
</tr>
<tr>
<td>Rate Impact</td>
<td>$5.85/AF</td>
<td>$9.79/AF</td>
</tr>
<tr>
<td>Change in M&amp;I Demand</td>
<td>15%</td>
<td>(56,798)</td>
</tr>
<tr>
<td>Change in TSAWR</td>
<td>15%</td>
<td>(5,176)</td>
</tr>
<tr>
<td>Units</td>
<td>329,484</td>
<td>321,855</td>
</tr>
</tbody>
</table>
| Rate Impact | $19.75/AF | $32.82/AF | $12.00/AF | $64.57/AF
Section 9—Appendices. This section provides detailed information regarding the Water Authority’s outstanding bonded debt as well as its non-bonded obligations. These include Quantification Settlement Agreement (QSA) - related environmental and socioeconomic mitigation payments, and post-employment obligations such as pension and retiree health benefits. Table 1-2 displays the Water Authority’s bonded debt and other liabilities as of June 30, 2015. In September 2015, the Water Authority refunded $185 million of the Water Authority’s obligations related to the 2008A Certificates of Participation (COP’s) and the 2010A Water Revenue Bonds for a net present value savings of $15 million. The Water Authority participates in the CalPERS pension system. The Water Authority has consistently made the full annual pension contribution calculated by CalPERS. In Fiscal Year 2015, the Water Authority’s Other Post-Employee Benefits (OPEB) related to retiree healthcare were funded through a series of payments to the California Employers’ Retiree Benefit Trust. As of June 30, 2015, the Water Authority had an OPEB Actuarial Surplus of $92,000.

1.3 Conclusion

Since 1991, when drought conditions threatened the San Diego region with mandatory supply cutbacks, the Water Authority has made tremendous progress in improving water reliability through supply diversification and improvements in facilities. Long-range supply, facilities, and financial planning have been central to this success. The 2015 LRFP marks another execution milestone. Anchored in the principles of prudent financial management, the LRFP promotes transparency, providing all stakeholders with a clear picture of Water Authority finances now and in the future. The 2015 LRFP key conclusions are: an estimated $168.5 million in new debt will be issued during the LRFP planning period; the high and low rate and charge projections illustrate both feasibility and affordability of the CIP; and the recommended policy enhancements support the Water Authority’s long-term fiscal sustainability.

For additional information, please contact: San Diego County Water Authority, Finance Department, 4677 Overland Avenue, San Diego, CA 92123.
EXECUTIVE SUMMARY

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2.0 Financial Management Objectives and Policies

The Water Authority’s financial management objectives and policies support the Water Authority’s overarching strategic goals. These overarching goals are incorporated into the Water Authority’s 2014-2019 Business Plan which aligns resources and provides a “roadmap” for achieving its mission of providing a safe and reliable water supply for the region. The Long-Range Financing Plan (LRFP) contains goals, objectives, and policies that promote the prudent management of financial risks and ensure a sustainable financial infrastructure for the Water Authority. The Credit Rating and Investor Relations Program contains goals, objectives, and strategies for marketing the Water Authority’s credit to key stakeholders in the financial community.

In charting a course of prudent financial management, the Water Authority developed several key policies, which are contained in this LRFP. In 2006, following the recommendations of the Rate Model Working Group (RMWG) and Administrative and Finance Committee, the Board amended the Water Authority’s financial policies regarding the Rate Stabilization Fund (RSF) and Debt Service Coverage Ratio (DSCR). As part of the amendments, the Board established a target funding level for the RSF that better protects the Water Authority against the financial impact of 2.5 years of wet weather or mandatory restrictions, and established a maximum fund balance equal to the financial impact of 3.5 years of wet weather or mandatory restrictions. In addition, it established a senior lien target DSCR of 1.50 times and provided the authority to establish separate funds for known, specific future expenses such as stored water purchases.

In today’s challenging water supply environment, the Water Authority must focus on the goal of maintaining long-term fiscal sustainability and align financial policies and objectives to support that goal. In 2012, the Fiscal Sustainability Task Force (FSTF) was established by the Board to evaluate the Water Authority’s long-term fiscal sustainability. The FSTF completed its work at the March 2014 Board meeting. At that meeting, the Administrative and Finance Committee was charged with developing a recommendation that addressed all of the outstanding fiscal sustainability items identified by the FTSF in a comprehensive manner.

In March 2015, the Board approved a comprehensive recommendation, that when viewed in its entirety, reflect a balanced and equitable approach to changes in the rate and charge structure, and achieves the goals of fiscal sustainability. The adopted recommendations were as follows:

- Implement a new Supply Reliability Charge
- Allocate non-commodity revenues to all rate and charge categories
- Allocate the debt and equity payments for the Carlsbad Desalination Plant to the Melded Supply Rate
- Extend the Transitional Special Agriculture Water Rate through 2020

The adopted recommendations were made to both the rate and charge structure and the cost allocation methodology, which will help reduce water sales revenue volatility.

Together the Water Authority’s rate and charge structure and reserve policies act to reduce revenue volatility, provide smooth and predictable rates and charges, and protect against wet weather and mandatory restrictions. Furthermore, the strengthened key financial ratios support the maintenance of the Water Authority’s AA+ rating.
/Aa2/AA+ credit ratings and access to lower interest rates. More detail related to these and other policies involving capital financing and reserve levels are discussed further in this section.

The aim of this section is threefold:

- Describe key Water Authority financial policies, the Fiscal Sustainability Guiding Principles, and the Comprehensive Independent Cost of Service Reviews
- Provide a context for understanding the policies in terms of financial management objectives
- Present the Water Authority’s credit ratings

2.1 Key Water Authority Financial Policies

The Water Authority’s financial policies cover a range of diverse activities. For the purpose of long-range financial planning, those relating to capital financing and reserve levels are of particular importance. The following section describes in more detail each of the Water Authority’s key financial policies.

---

**Capital Financing Policies**

- Debt Service Coverage Ratio (DSCR)
- Fixed/Variable-Rate Debt Mix

---

**Reserve Policies**

- Operating Fund
- Rate Stabilization Fund
- Guiding Financial Principles

2.1.1 Capital Financing Policies

**Debt Service Coverage Ratio.** The DSCR measures the availability of current financial resources to pay for debt service. It is the ratio of the most recent year’s net revenues divided by the most recent year’s debt service. For example, a DSCR of 1.00 means that after paying all operating expenses, an issuer has exactly enough funds to pay its debt service obligations.
The DSCR is a key metric used by credit rating agencies and investors to assess the credit worthiness of an issuer. In this way it is similar to the income to loan ratio used in qualifying for a home mortgage. All other things being equal, a higher DSCR means less borrowing, better credit ratings, and a lower cost of debt. Conversely, a lower DSCR means more borrowing, lower credit ratings, and more expensive debt.

The Water Authority’s General Resolution is the document governing outstanding debt issues. In this document, the Water Authority contractually commits to setting rates so as to maintain a minimum DSCR of 1.20 times on senior lien debt. The Water Authority also covenants to maintaining net revenues of at least 1.00 times on all outstanding senior and subordinate obligations.

**Senior Lien Debt Service Coverage Ratio Target.** Highly-rated issuers generally have DSCR’s that exceed the covenanted levels. In 2006, the Water Authority’s Board adopted a senior lien DSCR policy target of 1.50 times. This DSCR target provides levels appropriate to preserve the long-term financial integrity of a ‘AA’ rated agency. In addition to this 1.50 times policy target, the Board also adopted another policy target of 1.00 times on senior lien debt net of capacity charge revenues.

**Fixed/Variable-Rate Debt Mix.** Fixed/variable-rate debt mix refers to the relative amount of fixed- and variable-rate debt an agency has outstanding. Over any significant period of time, variable-rate debt has outperformed long-term fixed-rate debt. For this reason, variable-rate debt is an important part of any capital financing plan. With these lower rates, however, comes added interest rate volatility. *Chart 2-1* shows the variability of certain short-term rate indices since 1995. As can be seen, within any given year, the cost of variable-rate debt can rise or fall significantly and can put pressure on annual debt service budgets. However, in recent years the rates have been relatively stable and low. In the larger financial context, variable-rate debt provides a natural hedge against changes in investment earnings. On a net basis, interest expense on the portfolio of outstanding debt and invested cash balances will be more volatile with a 100% fixed-rate debt portfolio than with some mix of variable and fixed-rate debt. For this reason, a level of variable-rate exposure is a prudent financial decision.

The Water Authority’s fixed/variable-rate debt mix will vary over time depending on the schedule of future debt issuance and the amortization of outstanding debt. For planning purposes, the percentage of outstanding debt that is variable-rate is limited to 30%. This is consistent with the level of invested reserves maintained by the Water Authority as well as credit rating agency guidelines.

---

* SIFMA - Securities Industry and Financial Markets Association
  - a seven-day high-grade market index comprised of tax-exempt variable rate demand obligations; LIBOR - London Interbank Offered Rate - a benchmark interest rate index for adjustable rate mortgages, business loans, and financial instruments.
2.1.2 Reserve Policies

**Operating Fund.** The most readily available Water Authority reserves are held in the Operating Fund. Described more fully in Section 7.0, the Operating Fund is intended to manage working capital requirements of the Water Authority. As such, it is sized at 45-days of annual operating expense. Five million dollars of the Operating Fund is held for emergency repair purposes.

**Rate Stabilization Fund (RSF).** In its examination of Water Authority financial policies, the member agency workgroup described earlier looked at the overall levels of Water Authority financial reserves and reviewed funding policies for the Water Authority’s RSF. Water Authority financial advisors conducted a comparative analysis of national and statewide water agency financial reserves which highlighted a wide variation among agencies in the level of reserves being driven by each agency’s particular situation.

In reviewing funding policies for the RSF, the member agency workgroup characterized and quantified the financial risks actually facing the Water Authority - hydrology risk, interest rate risk, and capacity charge revenue risk. Hydrology risk refers to the decrease in sales volumes and net financial margin caused by either wet weather or mandatory drought restrictions. Interest rate risk refers to the change in net interest cost on the Water Authority’s portfolio of debt and investments. Capacity charge risk refers to the change in capacity charge revenue resulting from changes in development activity and timing, and number of new system connections.

In 2006, the Board adopted funding policies for the RSF based on hydrology risk. Described more fully in Section 7.0, the funding policies establish target and maximum funding levels for the RSF equal to 2.5 and 3.5 years respectively, of the net financial loss resulting from extreme wet weather or mandatory drought restrictions. The targets are based upon the analysis of historical rainfall. As shown in Chart 2-2, wet years tended to occur in “clusters” of two to three years with an average of 2.5 years, which is the basis for the target. The policy also identifies appropriate uses for RSF monies including meeting debt service coverage targets, paying for operating expenses, and smoothing rates. Chart 2-3 graphs the projected target and maximum levels of the Water Authority’s RSF, which increase over time as the cost of water increases.
2.1.3 Financial Guiding Principles

The Guiding Principles were developed to create a framework to support the Board’s policy deliberations. The Guiding Principles are to be used when evaluating any recommended changes to existing rates and charges or financial policies. Because evaluating financial policies can be challenging, the Guiding Principles are structured to provide very basic evaluation criteria to quickly identify policy changes that merit further consideration and those that do not. The Guiding Principles are listed below:

- Contribute to maintaining a AA+ or better credit rating
- Adhere to industry Cost of Service Principles
- Ensure all beneficiaries of services pay a fair share of costs
- Provide equity for all Member Agencies
- Result in the consistent application of Board rate-setting and other financial policies
- Support intergenerational equity
- Fulfill all legal requirements
- Result in an appropriate level of fixed revenues for fixed obligations
- Consider our dynamic environment
- Maintain or enhance our fundamental mission
- Be consistent in the Water Authority’s position on rate-setting and fiscal sustainability here and at MWD

These criteria were chosen because they are seen as supporting the Water Authority’s long-term fiscal sustainability.

2.2 Financial Management Objectives

This section provides a context for understanding the Water Authority’s financial policies in terms of certain financial management objectives - cost-efficiency, predictable rates, and intergenerational equity. It describes these objectives and illustrates how the financial policies strike a balance between them.

Cost Efficiency. The cost efficiency objective relates to maintaining the lowest possible revenue requirement from water sales. All other things being equal, lower expenses translate into lower rates for member agencies.

Predictable Rates. The predictable rates objective relates to managing the volatility in rates from year to year. Rate stability allows customers to plan effectively based on a stable and predictable cost of water. This objective is particularly important for wholesale water suppliers, such as the Water Authority, whose rates serve as long-term investment benchmarks that can influence member agency capital investment decisions.

Intergenerational Equity. The intergenerational equity objective relates to sharing the cost for capital improvements between current and future ratepayers. Investments in regional facilities for supply, conveyance, and treatment are expensive; and these facilities have service lives of up to 100 years. Intergenerational equity means that the cost burden for these large and long-lived investments is borne by the range of both current and future beneficiaries.
2.2.1 Capital Financing Policies

**Debt Service Coverage.** The debt service coverage policy represents the most complex tradeoff of the objectives discussed previously. For example, in terms of cost efficiency, though higher DSCRs lead to increases in near-term revenue requirements, they also yield cost efficiencies in other areas. Higher coverage means less debt outstanding, a higher credit rating, and lower interest expense over time. DSCR policies can also have significant impact on the financial management goal of rate predictability. In the absence of reserves, DSCR targets close to legally covenanted levels provide an issuer with very little choice in mitigating an unfavorable variance in revenues and expenses other than to raise rates. Lastly, because it impacts the level of debt outstanding, DSCR policies also impact intergenerational equity. Generally speaking, low coverage and a high degree of debt outstanding allocates a greater share of costs to future ratepayers. The following table details the tradeoffs between lower and higher coverage.

**Table 2-1 Debt Service Coverage**

<table>
<thead>
<tr>
<th>Management Objective</th>
<th>Lower DSCR</th>
<th>Higher DSCR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost Efficiency</strong></td>
<td>Lowers near-term revenue requirement and rates</td>
<td>Increases near-term revenue requirement and rates</td>
</tr>
<tr>
<td></td>
<td>Weakens credit ratings and increases interest expense</td>
<td>Strengthens credit ratings and decreases interest expense</td>
</tr>
<tr>
<td><strong>Predictable Rates</strong></td>
<td>Lower margin for managing volatility in net revenue means more volatile rates</td>
<td>Greater margin for managing volatility in net revenue means less volatile rates</td>
</tr>
<tr>
<td><strong>Intergenerational Equity</strong></td>
<td>More debt means cost burden shifted to future generations</td>
<td>Less debt means cost burden shifted to current generation</td>
</tr>
</tbody>
</table>

**Fixed/Variable-Rate Debt Mix.** The fixed/variable-rate debt mix represents a tradeoff between cost efficiency and stable rates. As with adjustable rate mortgages, the generally lower variable interest rate comes with interest rate volatility. As mentioned earlier, the one subtlety here relates to variable-rate debt acting as a hedge against any period of declining returns in an agency’s investment portfolio.

**Table 2-2 Fixed/Variable-Rate Debt Mix**

<table>
<thead>
<tr>
<th>Management Objective</th>
<th>Variable-Rate Debt</th>
<th>Fixed-Rate Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost Efficiency</strong></td>
<td>Historically lowest average cost-of-funds</td>
<td>Historically more expensive than variable-rate debt</td>
</tr>
<tr>
<td><strong>Predictable Rates</strong></td>
<td>Water rates may vary with interest expense; though partially hedged by interest earnings on invested funds</td>
<td>Water rates vary less as interest expense locked-in at time of borrowing</td>
</tr>
</tbody>
</table>
**Reserve Policies.** Reserve policies involve tradeoff among all three objectives. Though funding reserves may increase near-term costs, a lack of reserves means that any volatility in revenues and expenditures will be directly and immediately passed on to customers in terms of water rates. With adequate reserves, the impact of volatility in net revenues to the Water Authority need not result in rate shock to member agencies. Given the nature and degree of the financial risk facing the Water Authority, adequate financial reserves are essential to prudent financial management. Moreover, once built, financial reserves invested in taxable securities can be very cost effective for a tax-exempt debt issuer. One intergenerational consideration also relates to reserves such as the Water Authority’s Stored Water Fund. The goal of this fund is to spread the cost responsibility of certain large expenditures over time.

**Table 2-3 Reserve Policies**

<table>
<thead>
<tr>
<th>Management Objectives</th>
<th>Lower Reserves</th>
<th>Higher Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost Efficiency</strong></td>
<td>Decreases near-term revenue requirement and rates</td>
<td>Increases near-term revenue requirement and rates; however, reserve earnings mitigate impact</td>
</tr>
<tr>
<td></td>
<td>Weakens credit ratings and increases interest expense</td>
<td>Strengthens credit ratings and decreases interest expense</td>
</tr>
<tr>
<td><strong>Predictable Rates</strong></td>
<td>Lower margin for managing volatility in net revenue means more volatile rates</td>
<td>Greater margin for managing volatility in net revenue means less volatile rates</td>
</tr>
<tr>
<td><strong>Intergenerational Equity</strong></td>
<td>Reserve shortfalls borne by ratepayers at time of expenditure</td>
<td>Reserve is funded by ratepayers over time</td>
</tr>
</tbody>
</table>

**Debt/Cash Funding Mix.** Debt and cash are the funding sources for capital projects. Therefore, the debt/cash funding mix drives the amount of debt issued. Typically the availability of cash to fund the Capital Improvement Program (CIP) is what determines the funding mix. Cash to fund the CIP can be generated incrementally over time or built into a rate increase. In some instances, the debt service coverage targets for an entity can generate sufficient funds to support a healthy cash funding level.

**Table 2-4 Debt/Cash Funding Mix**

<table>
<thead>
<tr>
<th>Management Objectives</th>
<th>Less Debt</th>
<th>More Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost Efficiency</strong></td>
<td>Less debt means less interest and lower total cost over the life of an asset</td>
<td>More debt means more interest and higher total cost over the life of an asset</td>
</tr>
<tr>
<td><strong>Predictable Rates</strong></td>
<td>More cash funding required which if not available increases rate and charge volatility</td>
<td>Lower cash funding level maintains cash balances and limits any impacts on rate and charge volatility</td>
</tr>
<tr>
<td><strong>Intergenerational Equity</strong></td>
<td>Current ratepayers contribute funds to pay for capital projects</td>
<td>Future ratepayers pay for capital projects financed with debt</td>
</tr>
</tbody>
</table>
Section 2.3    Water Authority Credit Ratings

Though high underlying credit ratings are not an end in-and-of themselves, they are one of the best measures of success in creating a financially sustainable enterprise. The Water Authority has underlying credit ratings from Standard & Poor’s, Fitch Ratings, and Moody’s Investors Service. Table 2-5 provides each agency’s rating scale for investment grade securities with the Water Authority’s long-term underlying ratings highlighted. These ratings show that the Water Authority is a highly rated entity.

In 2010, Moody’s and Fitch recalibrated their municipal ratings. Both agencies recalibrated municipal ratings to its global rating scale which is used to rate other credits including sovereign, sub-sovereign, financial institution, project finance, structured finance and corporate obligations. This was a response to the increase in “cross-over” investors in municipal bonds, driven by the high levels of taxable municipal bond issuance due to the authorization of the Build America Bond program. Cross-over investors wanted to be able to more easily compare municipal and non-municipal credit quality. While the recalibration did not represent change in either rating agency’s opinion of the Water Authority’s underlying credit quality, the Water Authority’s Moody’s rating was revised from Aa3 to Aa2 and its Fitch rating was revised from AA to AA+ due to the new global scale criteria.

Credit ratings are a combination of both quantitative and qualitative analysis. Table 2-6 presents information from a recently published Fitch Ratings research report that contain median ratings ratios for the universe of Fitch-rated water and sewer credits. The median ratios are provided for each of the ‘A’ through ‘AAA’ rated categories. The table shows that the Water Authority finances a moderate share of its CIP from debt, has a lower debt service coverage ratio and less cash on hand than the Fitch medians. The difference reflects a number of factors including the fact that the Water Authority is a large wholesale agency with low outstanding debt per customer, and has a very favorable ratio of fixed revenues to fixed costs. Other positive rating factors include a strong and diversified regional economy, exceptional long-term planning, water supply diversification, a track record of execution, and prudent and capable financial management.

The direct financial value of a strong credit rating is a function of investor perceptions of risk. Chart 2-4 shows the value of ‘AA’ credit rating vs. ‘A’ credit rating since 1999 in terms of basis points savings on long-term debt. What the graph clearly demonstrates is that the value of a strong credit rating varies over time.
SECTION 2.0

Long-Range Financing Plan

Table 2-6  Fitch Ratings 2015 Water & Sewer Median Statistics

<table>
<thead>
<tr>
<th>Statistic</th>
<th>AAA (median)</th>
<th>AA (median)</th>
<th>A (median)</th>
<th>Water Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>339,172</td>
<td>188,163</td>
<td>139,915</td>
<td>3,140,181</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$62,688</td>
<td>$50,597</td>
<td>$43,197</td>
<td>$59,830</td>
</tr>
<tr>
<td>Total Outstanding Long-Term Debt/Customer</td>
<td>$1,259</td>
<td>$1,934</td>
<td>$2,218</td>
<td>$543</td>
</tr>
<tr>
<td>Percent CIP Debt Financed</td>
<td>0%</td>
<td>35%</td>
<td>64%</td>
<td>77%</td>
</tr>
<tr>
<td>Current Senior Lien Debt Service Coverage</td>
<td>4.4x</td>
<td>2.5x</td>
<td>2.4x</td>
<td>1.5x</td>
</tr>
<tr>
<td>Minimum Projected Debt Service Coverage</td>
<td>2.3x</td>
<td>1.6x</td>
<td>1.3x</td>
<td>1.5x</td>
</tr>
<tr>
<td>Days Cash On Hand</td>
<td>481</td>
<td>442</td>
<td>366</td>
<td>87*</td>
</tr>
<tr>
<td>Days of Working Capital</td>
<td>537</td>
<td>439</td>
<td>285</td>
<td>267</td>
</tr>
</tbody>
</table>

(1) Fitch August 2015 Ratings Report
   Source: Fitch Ratings

The Great Recession ushered in the demise of the bond insurance industry, which historically provided an easy and available way to access competitive rates. Since 2008, the lack of AAA bond insurance caused more municipal issuers to issue debt based on their underlying ratings, resulting in increased scrutiny from the investor community and wider credit spreads between AAA, AA, and A rated credits. While the bond insurance industry has rebounded somewhat, not one of the insurance providers is rated triple AAA from any of the three main rating agencies, and capacity is limited. Therefore, maintaining strong credit ratings is still crucial to successfully managing long-term borrowing costs.

Additionally, strong credit ratings will allow the Water Authority more market access and will provide greater flexibility to respond to market changes. This is especially important due to the nature of the Water Authority's debt portfolio, which includes $50 million of extendable commercial paper. Extendable commercial paper is not backed by a bank liquidity or credit facility. In the event that extendable commercial paper cannot be remarketed, it will bear interest at a penalty rate for up to 150 days. During this time, the Water Authority would have to either use cash or issue debt to pay off the extendable commercial paper. Strong market access and flexibility to respond to market changes will help keep the Water Authority in a strong financial position, especially during volatile market conditions.

Chart 2-4  Spread Between “AA” & ‘A’ Rated Debt
   - The Benefit of Staying “AA”

* 100 basis points equal 1%; As of September 30, 2015.
3.0 Regional Water Sales Projections

In keeping with its mission of providing a safe and reliable water supply, the Water Authority has actively pursued a strategy of supply diversification that includes the acquisition and importation of additional water supplies, the development of additional local water supply projects, and enhancements to the reliability of its water supply via augmentation of local and regional water storage capacity. The Water Authority’s service area receives its water supply from two sources:

- Imported Water
- Local Supplies

Local supply sources consist of surface water, groundwater and recycled water, and seawater desalination starting in December 2015. Water Authority imported supplies include a water conservation and transfer agreement with the Imperial Irrigation District (IID) and water conserved by two projects, the All-American Canal Lining Project and the Coachella Canal Lining Project. Since 1990, an average of approximately 15% of the region’s water supply has come from local sources within Water Authority’s service area. Two of these local supplies, surface water and groundwater, are cyclical in nature and can be heavily dependent upon annual rainfall.

This section provides an overview of fundamental assumptions used to develop the water sales projections utilized in the Long-Range Financing Plan (LRFP). Included in this LRFP is discussion on how water sales are projected considering near-term and long-term impacts from the State Water Resources Control Board (SWRCB) Emergency Regulation, mandatory supply allocation from Metropolitan Water District (MWD), the Water Authority’s “When in Drought” conservation campaign, member agency local supply development, and future water supply challenges.

3.1 Water Demand and Sales Forecast

Demand for water in the Water Authority’s service area can be divided into two basic categories: Municipal and Industrial (M&I) and agricultural water certified under the Water Authority’s Transitional Special Agricultural Water Rate program (TSAWR). On an average annual basis, M&I demand constitutes approximately 85% to 90% of the San Diego region’s water consumption. While agricultural water, used mostly for irrigating groves and crops, accounts for the remaining 10% to 15% of demand. Water demand in Fiscal Year 2015 totaled approximately 539,400 acre-feet, with 498,300 acre-feet of M&I and 41,100 acre-feet of agricultural water use.

Since the mid-1990’s, the Water Authority has utilized an econometric modeling approach to forecast long-range water demands (25-year planning horizon) within its service area. Demand projections are updated every five years, coinciding with the Urban Water Management Plan (UWMP) update required by the California Department of Water Resources. These projections are developed using multiple regression analysis that correlate sector-level water demands to weather (precipitation and temperature), price of water, and forecasted demographic and economic variables provided by the San Diego Association of Governments (SANDAG) - the San Diego area regional land use planning agency. Since SANDAG’s projections are based on general plan
data provided by local land use jurisdictions, this process ensures direct linkage between forecasted long-range water demands and projected development identified in local general plans.

The normal-year UWMP demand forecast serves as the foundation and starting point for development of the Water Authority’s water sales forecast. Adjustments are made to the normal-year demand projections to account for factors influencing near term (2017-2019) water sales and anticipated changed conditions from the UWMP assumptions. Modifications to the forecast start with incorporating the impact of the Water Authority’s response to ongoing dry conditions across California. With the SWRCB adoption of an Emergency Regulation in May 2015, one of the key factors influencing near-term water sales was set in motion. The Emergency Regulation was in response to Governor Brown’s unprecedented Executive Order aimed at reducing urban water use statewide by 25%. For Water Authority member agencies, this equates to required reductions varying from 12% to 36% over the June 2015 through February 2016 timeframe - compared to water use over the same period in 2013. Through November 2015, cumulative regional total potable M&I water use was down 24% compared to 2013 totals.

Additionally, in response to MWD’s decision to implement a 15% cutback to its supplies in Fiscal Year 2016, the Water Authority Board took action in May 2015 to declare the Mandatory Supply Cutback Stage of the Water Authority’s Water Shortage and Drought Response Plan. As part of this action, the Water Authority Board approved establishing member agency supply allocations for the M&I and TSAWR classes of service for Fiscal Year 2016. MWD’s allocation commenced July 1, 2015 and is scheduled to terminate on June 30, 2016. In May 2015, the Water Authority Board also took action to limit outdoor irrigation of ornamental landscape and turf to two days per week.

In April 2014, the Water Authority launched a water conservation campaign targeting retail customer water use in response to continuing drought conditions. As a result of Water Authority and member agency ramped-up conservation efforts, demands within the Water Authority’s service area dropped by roughly 55,200 acre-feet or nine percent between Fiscal Year 2014 and Fiscal Year 2015.

The influence of potential El Niño impacts was also incorporated into the near-term sales projections. Scientists from the National Weather Service’s Climate Prediction Center (CPC) stated that atmospheric and oceanic anomalies in 2015 continue to reflect a strong El Niño. In December 2015, the CPC indicated the El Niño condition is expected to remain strong through the winter months of 2015-16, and gradually weaken through spring 2016. As a result, Southern California has a higher probability of experiencing wet winter conditions which can result in augmented member agency local surface water and groundwater supplies, as well as an overall damping effect on water demand.
Finally, out-year (2020-2026) sales were adjusted to account for member agency anticipated local potable reuse project development beyond the current suite of local water supply projects incorporated into the Water Authority’s 2010 UWMP supply projections. As a prudent financial planning measure, the potable reuse projects were factored into the LRFP water sales projections. These projects have long-term impacts on water sales due to the one-for-one offset to demands on the Water Authority. *Table 3-1* contains a summary of potable reuse projects anticipated to be developed over the LRFP ten-year planning horizon.

**Table 3-1  Member Agency Potable Reuse Projects**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Start Date</th>
<th>Annual Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of San Diego Pure Water</td>
<td>2021</td>
<td>16,800 af/yr</td>
</tr>
<tr>
<td>Padre Dam MWD Advanced Water Purification - Phase 1</td>
<td>2021</td>
<td>2,000 af/yr</td>
</tr>
<tr>
<td>Padre Dam MWD Advanced Water Purification - Phase 2</td>
<td>2025</td>
<td>9,000 af/yr</td>
</tr>
<tr>
<td>North County Potable Reuse</td>
<td>2025</td>
<td>8,000 af/yr</td>
</tr>
</tbody>
</table>

*Chart 3-1* shows annual projected Water Authority M&I and agricultural sales over the LRFP planning period. Included in the forecast are estimated impacts associated with: water savings projections from conservation efforts by the Water Authority and its member agencies, the influence of projected El Niño weather effects, water use reductions due to the SWRCB Emergency Regulation and MWD supply allocation, modest demand recovery and growth, member agency local supply use and development, and additional local potable reuse development. Revenue projections presented in the LRFP are based on this water sales forecast.
3.2 Local Supplies

Local resources developed and managed by Water Authority member agencies are critical to securing a diverse and reliable supply for the region. As Chart 3-2 shows, these supplies include surface water, groundwater, recycled water, and desalinated seawater. Additionally, local recycled water and seawater desalination projects not only reduce demands for imported water, but also provide agencies with a drought-resilient supply.

Figure 3-1 highlights surface water storage reservoirs in the San Diego region. Since 1980, median annual surface water yield regionwide has totaled 64,100 acre-feet. However, annual surface water yield has varied substantially due to fluctuating hydrologic cycles, from a low of 4,100 acre-feet in Fiscal Year 2015 to a high of 140,300 acre-feet in Fiscal Year 1984. Based on information provided to the Water Authority by its member agencies, local surface water supplies are projected to approach an average yield of 51,700 acre-feet annually toward the end of the ten-year forecast period.
In November 2012, the Water Authority entered into a formal Water Purchase Agreement (WPA) with Poseidon Water detailing commercial and financial terms for the purchase of desalinated ocean water produced at the Carlsbad Desalination Project (CDP) and delivered to the Water Authority's regional aqueduct system. The CDP came on-line in December 2015 and will produce between 48,000 acre-feet and 56,000 acre-feet annually. The CDP is located on an approximate six-acre parcel adjacent to the Encina Power Station in Carlsbad, California. The project has been in development since 1998 and has been incorporated into the Water Authority’s supply and facility planning documents including the 2003 Water Facilities Master Plan and the 2005 and 2010 Urban Water Management Plans. Construction began on the project in late 2012, and commercial production began on December 23, 2015.

Even though groundwater is much less plentiful in the San Diego region than other areas of the state, maximizing groundwater development is another component of the region’s diversified water supply portfolio. The forecast assumes groundwater production, currently reduced due to on-going drought conditions, will approach levels consistent with 2010 UWMP projections by 2020.

Seawater desalination
is a key component of the Water Authority’s supply diversification strategy. Development of seawater desalination in San Diego County assists the region in diversifying its water resources, reduces dependence on imported supplies, and provides a new drought-proof locally-produced treated water supply.

Fundamental to developing a diverse supply mix for the region is the use of existing water supplies more efficiently through implementation of water recycling projects. Water recycling is the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-drinking purposes. Agencies in the San Diego region use recycled water to fill ponds and ornamental fountains; to irrigate parks, campgrounds, golf courses, freeway medians, and nursery stock; and to control dust on construction sites. Recycled water is also used in certain industrial processes and for flushing toilets and urinals in non-residential buildings. More recently, recycled water fill stations have been constructed to bring recycled water supplies closer to the customers that can use it. For the purposes of this forecast, the continued development of non-potable water recycling projects is assumed to be consistent with the recycled water projections shown in the 2010 UWMP.

Along with recycled water, development of potable reuse water supplies is viewed as the next increment of potable water supply for the San Diego region. The potable reuse process employs advanced multi-barrier and advanced oxidation treatment technologies that separate pollutants from the water, disinfecting and purifying it to a drinking water standard that fully complies with and exceeds both federal and state drinking water quality standards. Water Authority member agencies have indicated a high level of interest in developing potable reuse projects. Eleven member agencies have indicated their intent to implement potable reuse projects for a potential total production of over 100,000 acre-feet of drinking water per year by 2035. The Water Authority is assisting regional efforts to advance potable reuse through public outreach, technical collaboration, and coordination on regulatory issues. For the purposes of this ten-year forecast, development of potable reuse projects, as shown previously in Table 3-1, is additive to the recycled water projections shown in the 2010 UWMP.
Chart 3-3 shows projected local supply development within the region based on input from Water Authority member agencies. These supplies, which include the commissioning of the CDP in Calendar Year 2015, represent one-third of the overall regional demand by 2026.

3.3 Imported Water Supply Projections

Historically, the Water Authority has relied on imported water supplies purchased from MWD to meet a majority of its member agencies’ needs. Figure 3-2 shows the major water conveyance systems in California. MWD’s supplies come from the State Water Project (SWP) and the Colorado River. Until the late 1980s, MWD’s supplies were sufficient to meet its customers’ needs. However, during the 1987-1992 drought, MWD supplies dwindled to levels that forced it to reduce deliveries to its member agencies. As a result of the shortages, the Water Authority began aggressively pursuing actions to increase water supply reliability through diversification of the region’s supply sources.
3.3.1 Water Authority Supplies

In the mid-1990s, the Water Authority began negotiations with IID for a water transfer agreement. In 2003, the Water Authority solidified a historic agreement with IID for the long-term transfer of conserved Colorado River water to San Diego County. The Water Conservation and Transfer Agreement (Agreement) is the largest agriculture-to-urban water transfer in United States history. Through the Agreement, Colorado River water conserved by voluntary farmland fallowing programs, implementation of on-farm conservation methods, and development of IID water distribution system efficiency projects is transferred to the Water Authority for use in San Diego County. In Calendar Year 2003, the Water Authority received the first water transfer totaling 10,000 acre-feet. The volume of IID transfer water increases annually according to a pre-determined schedule until it reaches its maximum of 200,000 acre-feet per year in 2021. In Calendar Year 2016, the transfer volume will be 100,000 acre-feet.

Additionally, as part of the Quantification Settlement Agreement (QSA) and related contracts, the Water Authority was assigned MWD’s rights to 80,200 acre-feet per year of conserved water from projects that lined portions of the All-American and Coachella Canals. The projects reduce the loss of water that occurred through seepage, and the conserved water is delivered to the Water Authority. This conserved water will provide the San Diego region with a 8.5 million acre-feet over the 110-year life of the QSA Agreement.

Chart 3-4 shows the breakdown of the projected imported Water Authority supplies (excluding MWD purchases) that will be used to meet water demands within the Water Authority’s service area. By 2021, deliveries of water from the IID transfer and the All-American and Coachella Canal lining projects are expected to yield 280,200 acre-feet per year.
3.3.2 Metropolitan Water District Supplies

Although the Agreement and canal lining projects reduce the Water Authority’s demand for MWD supplies, water purchases from MWD continue to be an important element of the Water Authority’s supply portfolio.

As previously noted, MWD obtains its water from the Colorado River Aqueduct (which it owns and operates), and the SWP. Water availability from the Colorado River is governed by a system of priorities and water rights that has been established over many years. The Colorado River Lower Basin states (California, Arizona, and Nevada) have an annual apportionment of 7.5 million acre-feet (MAF) of water divided as follows:

- California, 4.4 MAF *
- Arizona, 2.8 MAF
- Nevada, 0.3 MAF

* MWD’s allocation of California’s apportionment is 550,000 acre-feet (MWD also receives yield from a conservation program with IID that dates to 1988).

MWD’s other water source, the SWP, is owned by the State of California and operated by the Department of Water Resources (DWR). MWD’s maximum contract amount of SWP supplies is 1.91 MAF per year, an amount it has received once. However, its SWP allocation is set each year by DWR based on winter runoff into reservoir storage and snow pack levels.

3.4 Future Supply Challenges

The Water Authority is closely monitoring potential water supply challenges and pursuing options to address those challenges, including developing contingency plans for the judicial pumping restrictions imposed, and partnering with Northern California agencies to augment water supplies. Additionally, the Water Authority has adopted a drought management plan in the event of a supply shortage.

3.4.1 State Water Project Pumping Restrictions

On December 15, 2008, the U.S. Fish and Wildlife Service (USFWS) released a biological opinion on the impacts of the SWP and Central Valley Project on Delta smelt. On June 4, 2009, the National Marine Fisheries Service released a biological opinion for salmonid species. These biological opinions contain water supply restrictions that impact deliveries from the SWP, depending on hydrologic conditions. The implementation of pumping restrictions has resulted in the loss of about 1.5 million acre-feet of State Project water for southern California since 2008. On October 6, 2014, the Federal Central Valley Project Contractors and State Water Contractors filed a petition with the U.S. Supreme Court requesting that the U.S. Supreme Court review the Ninth Circuit Court’s decision that upheld the restrictions. Impacts resulting from this litigation and ruling cannot be determined at this time.

The operational flexibility of the Delta pumps may be further impacted by the California Fish and Game Commission’s February 2008 designation of the longfin smelt as a candidate species. An agreement settling the longfin smelt litigation was approved on February 2, 2011. Acting under the provisions of the agreement, the USFWS on April 2, 2012 issued its finding that the Bay-Delta longfin smelt population warrants protection
under the Endangered Species Act (ESA) and will be added to the list of candidates for ESA protection, to be reviewed annually. It should be noted that the restriction period may overlap those already in place for the delta smelt.

An initiative known as the Bay-Delta Conservation Plan/California Water Fix (Water Fix), commenced in late 2013 with release of a Draft Environmental Impact Report/Environmental Impact Statement. The Water Fix proposes to construct a new dual tunnel facility to convey water from the northern part of the delta to the existing SWP and Central Valley Project diversion facilities in the southern part of the delta. The Water Fix is envisioned to reduce adverse hydrologic conditions and improve ecosystem functions in the delta. However, the Water Fix does not provide any assurances that this very complex and expensive project will actually improve delta water supply reliability. Consequently, there is considerable uncertainty among the potential funding entities that the project is cost effective. It is anticipated that additional pumping restrictions will be imposed by state and federal regulatory agencies should the Water Fix not be pursued, or if the envisioned Water Fix ecosystem benefits are not realized by its construction. This would result in even less water supply reliability for the millions of Californians that rely on Bay-Delta supplies.

The Water Authority is addressing these issues through careful water supply planning.

### 3.4.2 Supply Augmentation

In response to the supply challenges, the Water Authority has taken prudent actions to implement water supply augmentation measures. The Water Authority initiated negotiations with northern California entities regarding potential multi-year water transfers and securing long-term storage capacity. As part of the QSA, the Water Authority received approximately $30.5 million for use in its groundwater program. In a demand and supply analysis utilizing data from its 2005 UWMP, the Water Authority acknowledged a maximum potential need for up to 95,000 acre-feet of additional carryover storage capacity beyond the 100,000 acre-feet of carryover storage provided by the newly expanded San Vicente Reservoir.

With this in mind, the Water Authority sought to partner with agencies overlying a groundwater basin for a conjunctive use project. The project would allow water to be delivered and stored during times of above normal precipitation and extracted from the basin and delivered to the Water Authority either by wheeling through various facilities, exchanges, or a reduction in demands on the Water Authority.

In June 2008, the Water Authority executed an agreement for 30,000 acre-feet of storage and capacity rights in the Semitropic Water Storage District's Original Water Bank in the southern part of the San Joaquin Valley in Kern County. The cost was approximately $11.8 million. In August 2008, the Water Authority acquired 10,000 units (which equates to 40,000 acre-feet of storage, together with rights to certain capacities) in the Semitropic-Rosamond Water Bank Authority for $15 million. Subsequently, the Water Authority purchased 23,077 acre-feet of water from Butte Water District and Sutter Extension Water District. With conveyance and carriage losses, the Water Authority was able to put 16,117 acre-feet of water into Semitropic’s original water bank, where it remains stored for future use.
3.4.3 Water Shortage and Drought Response Plan

While the Water Authority and its member agencies have plans in place to ensure a reliable water supply, there is always some level of uncertainty associated with maintaining and developing local and imported supplies. Therefore, as a prudent water management measure, the Water Authority, in coordination with its member agencies, developed a regional Water Shortage and Drought Response Plan (WSDRP). The WSDRP contains a suite of regional actions the Water Authority may take to avoid water shortages that require allocation of supplies. However, if supply cutbacks are necessary, the WSDRP also contains a fair and equitable methodology to allocate Water Authority supplies to its member agencies. Section 5 of the WSDRP contains a description of the Water Authority's water supply allocation methodology.

The WSDRP has been activated twice by the Board of Directors since its adoption by the Board in May 2006. The first activation occurred in June 2007, and was triggered by a report released by the MWD that characterized the 2007 water year as being dry throughout California and stated MWD would need to draw a significant amount of water from its storage supplies to meet demands. The WSDRP was most recently activated by the Water Authority Board in February 2014, in response to Governor Brown's January 17, 2014 declaration of a statewide emergency due to drought.

On April 1, 2015, with the state in its fourth year of drought and the snowpack in the Northern Sierra Nevada at a historic low of five percent of average, Governor Brown issued an unprecedented Executive Order aimed at reducing urban water use statewide by 25%. On May 5, 2015, in accordance with the Governor's directive, the SWRCB adopted Resolution No. 2015-0032 to put in place an Emergency Regulation for statewide urban water conservation. The Emergency Regulation includes specific conservation standards that took effect June 1, 2015 and requires urban water suppliers to reduce usage through February 2016, as compared to the amount used in 2013. The target reduction varies between 4% and 36% statewide; for Water Authority member agencies, the range is between 12% to 36%. This equates to an approximately 20% overall demand reduction for the San Diego region. Water Authority member agencies are mandated to reduce their potable urban demands by their required percentage reduction during the months of June 2015 through February 2016 compared to the same months in 2013. The conservation mandate does not apply to suppliers such as the Water Authority that function solely in a wholesale capacity.
Additionally, in response to MWD’s decision to implement a 15% supply reduction in Fiscal Year 2016 and the SWRCB Emergency Regulation for statewide urban water conservation, the Water Authority Board took the following actions at its May 14, 2015 meeting:

- Declared the Mandatory Supply Cutback Stage of the Water Authority’s WSDRP, and approved member agency supply allocations for M&I and TSAWR for Fiscal Year 2016
- Set penalties for local agencies that exceed their M&I and TSAWR supply allocations
- Restricted the irrigation of ornamental landscapes and turf with potable water to no more than two days a week across the region to help agencies meet their reduction targets

Since the SWRCB Emergency Regulation went into effect on June 1, 2015, the San Diego region has reduced potable water demand beyond the reduction required by the SWRCB Emergency Regulation. The unprecedented drop in San Diego region demands due to the Emergency Regulation has significantly influenced the Water Authority’s projected sales and resulting rate ramp. While water conservation is an important tool in managing drought, the Water Authority is advocating that if the state extends the Emergency Regulation it should adopt a more sustainable approach that combines demand management with investments made in drought-resilient supplies such as potable reuse, seawater desalination, long-term transfers of conserved water and other supplies not affected by California’s drought.
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4.0 Capital Improvement Program

The Water Authority has a long history of planning and executing large and complex capital projects. A major part of the Capital Improvement Program (CIP) planning process is focused on maintaining accurate project construction schedules and cost estimates. This began with the 1987 Water Distribution Study, followed by the 2008 Comprehensive Reliability and Cost Assessment of the CIP, and the 2013 Master Plan Update. Most recently the Water Authority approved its Asset Management Plan to ensure the safety and reliability of the Water Authority’s pipelines and facilities. This close monitoring of the CIP and assets enables the Water Authority to base its Long-Range Financing Plan (LRFP) on timely and accurate data.

The Water Authority’s budget for the CIP peaked with the construction of major water infrastructure projects in Fiscal Year 2007. The current 30-year CIP budget of $2.8 billion, with an appropriation of $136.8 million for Fiscal Years 2016 and 2017, reflects the shift from major construction projects to asset management and the optimization of the existing aqueduct system. The Water Authority is projecting to spend $582 million over the next ten years on CIP projects. A significant portion of the current CIP is expected to be spent beyond the ten-year LRFP planning period.

This section provides a historical perspective on the evolution of the current CIP and a discussion of the adopted CIP. The adopted CIP is the basis for the capital expenditures, incorporated into the capital financing plan, presented in Section 5.0.

4.1 History of the Water Authority’s CIP

1987 Water Distribution Study. The beginnings of a capital improvement program within the Water Authority can be traced back to 1987. In November 1987, staff presented the Water Authority’s Board (Board) with the Water Distribution Study, which analyzed the population growth and water demand projections through the year 2010. The information was analyzed to project the future demands for supplemental water from the Metropolitan Water District (MWD) and to determine the future requirements for water transmission pipelines and water treatment facilities.

The study proposed eight pipeline projects to meet the projected demand and increase the reliability of the aqueduct system. The need at that time to increase the capacity of the aqueduct system was based on the conclusion that the projected total demand was estimated to exceed capacity by 1990. In addition to the capacity limitations, it was discovered that Pipeline 3, a prestressed concrete cylinder pipeline and the only pipeline to several agencies south of Interstate 8, was being damaged by corrosion at several locations. An additional pipeline, the proposed Pipeline 4 Extension, Phases I and II was needed to add reliability to the system in the event Pipeline 3 failed.
1989 Water Distribution Plan. The issues raised by the 1987 Water Distribution Study led to the creation of a Water Distribution Plan, which was finished in the summer of 1989. The Water Distribution Plan was presented to the Board and adopted in August 1989. In so doing, the Water Authority Board created its CIP. The plan was titled, “The Water Distribution Plan, A Capital Improvement Program Through the Year 2010.” The resolution of the Board adopting the CIP in 1989 stated in part that: “In order to meet the existing and future needs of its member agencies and the 2.25 million people whom they serve, it is necessary that existing pipeline capacities and filtration facilities be significantly improved.”

The Water Distribution Plan contained projects designed to meet the objectives of increased capacity, yield from existing water treatment plants, water supplies, and reliability of the aqueduct system.

Annual Review and Update of the CIP. In September 1990, staff proposed that the CIP be reviewed and revised annually. The annual review of the CIP allowed the program to be more responsive to changing conditions, particularly with respect to changes in demand projections and the changing needs of member agencies. The changes resulted in the addition of projects and the acceleration or delay of project schedules that resulted from adopted changes in project priorities. In addition, the review allowed for the update of cost estimates as detailed design information became available.

Adoption of the Water Authority Strategic Plan. In 1995, the Water Authority adopted the Strategic Plan. The Strategic Plan prioritized the goals required to achieve the mission of the Water Authority to provide a safe and reliable supply of water to its member agencies. In 2007, the Water Authority determined an update to the 1995 Strategic Plan was necessary in order to align the Strategic Plan and the Water Authority’s Business Plan. An updated Strategic Plan was adopted in April 2008.

Capital Facility Planning. Facility needs are assessed by the Water Resources Department and are reviewed and approved through the Water Authority’s CIP. This program is annually brought to the Board for approval. The program provides for rolling ten-year infrastructure need forecasts based upon 30-year planning projections. The annual update identifies and categorizes needed facilities, estimates costs, and provides completion schedules. Progress towards meeting the objectives identified in the previous year’s CIP update are included in the annual Board review.

Regional Water Facilities Master Plan. In June 1997, the Board approved a Regional Water Facilities Master Plan project. The purpose of this project was to assess future water demands and supplies through the year 2030 and recommend the best facilities’ solution to the region’s needs. In March 2014, the Board approved an update to the Regional Water Facilities Master Plan as well as the first ever Water Authority Climate Action Plan. The update also included preparation of a Supplemental Program Environmental Impact Report (SPEIR), which was certified by the Board in March 2014. The Climate Action Plan and SPEIR were prepared to address, in a comprehensive manner, potential environmental and cumulative impacts in compliance with the California Environmental Quality Act (CEQA) and the California Global Warming Solution Act of 2006 (AB32).

The 2013 Regional Water Facilities Optimization and Master Plan Update will serve as the guiding document for new infrastructure improvements proposed by the Water Authority over the next 25 years to ensure the safe and reliable delivery of water to the 3.2 million people in the service area. This update focused on optimizing the substantial investments recently made by the Water Authority and its member agencies in new treatment, storage and conveyance facilities, determining facilities, and determining how best to integrate new water supplies, such as desalinated seawater, into the existing regional water system in the most cost-effective manner possible. Using supply and demand projections from the 2010 Urban Water Management Plan, the Master Plan
SECTION 4.0          Long-Range Financing Plan

Update adopted a scenario planning approach to assess a reasonable range of future supply outcomes, including factors outside of the Water Authority’s control that may affect the need and timing for new infrastructure improvements and new supply development. An adaptive management approach, regarding future decisions on new supply development that considers future local and statewide water supply conditions and actions was recommended.

Adoption of the Emergency Storage Project. The Emergency Storage Project (ESP) was one of the initial ten projects included in the first CIP but only as a planning phase project. As planning work moved forward to include best alternative selection and a programmatic Environmental Impact Report (EIR) process, the costs of the project came into focus. In June 1998, the ESP project was adopted by the Board with a budget of $730 million with the goal of providing adequate storage to meet emergency needs. The ESP is a system of reservoirs, interconnected pipelines, and pumping stations designed to make water available to the San Diego region in the event of an interruption in imported water deliveries. Currently the ESP is a $1.5 billion program and consists of 18 projects with only six remaining to be completed, three of which are substantially complete.

The San Vicente Dam raise (part of the Emergency Storage Project) is the tallest dam raise in the United States and the tallest of its type in the world. The dam was raised 117 feet using roller-compacted concrete. The dam was raised to store additional water for regional use during times of water scarcity. The dam’s original height was 220 feet with a storage capacity of 90,000 acre-feet of water. The new height of the dam allows for an additional 152,000 acre-feet of water storage, for a total of 242,000 acre-feet.

San Vicente Dam Raise, construction 2010

Water Authority Business Plan. In late 2003, staff began work to refine the focus of its efforts to align its activities with the evolving vision of the Regional Water Facilities Master Plan, which was adopted by the Board in June 2004. What resulted was the implementation plan to diversify the water supplies portfolio and build new facilities that could store, transport, and treat those new supplies to meet future regional demands. The staff presented the Water Authority’s Business Plan to the Board in 2004. The Business Plan is updated biennially and is based on a five-year horizon. The most recent update is the 2014-2019 Business Plan, presented to the Board in July 2014. The plan describes the key focus areas (water supply, water facilities, and core business), programs, key issues, management strategies and goals necessary to carry out the policies, and strategic direction set forth by the Water Authority Board of Directors in support of its mission. The LRFP is a Core Business goal in the 2014-2019 Business Plan.
**CIP Re-costing and Comprehensive Reliability and Cost Assessment.** In March 2006, the Board formed a construction ad hoc committee to provide policy guidance to the staff on the issue of escalating costs of construction. The central issue proved to be demand for construction materials, and services were outstripping the supply of these resources resulting in significantly higher costs. Following the CIP re-costing activities, a second board ad hoc committee was formed in September 2006 to provide guidance to staff in determining the most appropriate mix of water supply, facilities, and core business policies that impact revenues, costs, and member agency rates. The goal was to find the best balance of policies and actions to deliver the highest level of reliability to the region at the most affordable cost.

**Asset Management.** The Water Authority’s infrastructure is worth an estimated $3.2 billion. The Water Authority adopted an Asset Management Plan in January 2009 to define which assets will be included in the Asset Management Program and how asset management will be implemented and managed within the organization. Asset management is the second largest component of the CIP and includes all activities required to derive the most value from an asset through its life cycle. The overarching goal of the program is that planning, design, construction, operation, maintenance, or the surplus of assets is completed at the optimum time to ensure water delivery system reliability at the lowest cost and least impact to member agencies. During the Fiscal Years 2016 and 2017 budget development process the Water Authority reviewed current and future asset management needs. The process included condition assessment, risk assessment, and prioritization. An effective Asset Management Program will ensure a high degree of reliability and lower overall costs.

The Asset Management Program is comprised of several projects, the largest of which are Infrastructure Rehabilitation and the Relining and Pipe Replacement Program. The Infrastructure Rehabilitation Project represents the implementation of several industry best practices such as performing condition assessments, developing an asset registry, determination of remaining useful life, undertaking risk assessments, and planning rehabilitation or replacement projects. The Relining and Pipe Replacement Program represents the rehabilitation efforts specifically related to prestressed concrete cylinder pipe. Due to the higher risks associated with failure of this type of pipe, it remains the priority for rehabilitation.
4.2 Adopted Capital Improvement Program

Through June 30, 2015, over $3.2 billion has been spent to complete various capital projects since 1989. The present 30-year CIP budget is $2.8 billion. When a project has been completed and placed in service it is no longer included in the CIP budget. A significant portion, approximately $1 billion, of the CIP budget is projected beyond the LRFP planning period.

Projects in the CIP. Table 4-1 summarizes the status of the CIP budget as of June 30, 2015 by project category. The projects are primarily a mix of pipeline, Asset Management, ESP, water supply, system-wide improvements, flow control and pumping facilities, and projects that are reimbursable through state and federal funding.

Table 4-1  Summary of CIP Categories & Projected Expenditures ($ Millions)

<table>
<thead>
<tr>
<th>CIP Category</th>
<th>Lifetime Budget</th>
<th>Cumulative Expenditures</th>
<th>Projected Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>June 30, 2015 *</td>
<td>FY 2016 - FY 2026</td>
</tr>
<tr>
<td>Asset Management</td>
<td>$730.0</td>
<td>$322.5</td>
<td>$247.2</td>
</tr>
<tr>
<td>Emergency Storage Project [ESP]</td>
<td>846.0</td>
<td>734.7</td>
<td>111.4</td>
</tr>
<tr>
<td>Planning Studies 1</td>
<td>47.3</td>
<td>6.8</td>
<td>40.4</td>
</tr>
<tr>
<td>New Facilities</td>
<td>217.9</td>
<td>91.1</td>
<td>123.0</td>
</tr>
<tr>
<td>Mitigation and Other</td>
<td>111.6</td>
<td>51.1</td>
<td>60.5</td>
</tr>
<tr>
<td>Total</td>
<td>$1,952.8</td>
<td>$1,206.12</td>
<td>$582.5</td>
</tr>
</tbody>
</table>

* Estimated expenditures

(1) Dollar value includes design, planning and construction dollars.

- The largest single aggregation of projects for Fiscal Years 2016-2026 is Asset Management
- A substantial amount of future facilities work will be in the relining and replacement of aging pipelines and rehabilitation of existing infrastructure. Expenditures in support of these activities are forecast to average $22 million a year over the next ten years
- The balance of projects over the next 20 years beyond the ESP and Asset Management will be in the construction of additional pipelines, pump stations, a flow regulatory structure and various system improvements

Relining and Pipeline Replacement Program
The Water Authority is projecting expenditures of $582 million over the next ten years on capital improvement projects. *Chart 4-1* shows the breakout of projects, with a significant portion of the Asset Management Program allocated to the Relining Program. Approximately one quarter of the projected $582 million (or $136 million), will be spent in Fiscal Years 2016 and 2017.

*Chart 4-2* shows the projected annual CIP expenditures for all 39 projects over the next ten years. These projected annual expenditures form the capital funding needs of the Water Authority during the LRFP planning period. As shown, the funding needs diminish over time as the projects are completed. The Water Authority’s Relining and Pipe Replacement Program and the Infrastructure Rehabilitation projects represent the majority of projected continuing expenditures after Fiscal Year 2020 and through Fiscal Year 2026.
5.0 Capital Financing Plan

The capital financing plan for the Water Authority's Capital Improvement Program (CIP) is an important driver of the Long-Range Financing Plan (LRFP). The capital financing plan considers the Water Authority's financial goals and objectives and the mix of current and future funds available for capital investment to determine the optimal funding sources for the projected CIP expenditures. The optimal funding mix is achieved by balancing the use of Pay-As-You-Go (PAYGO) funds and debt proceeds to fund the CIP against the rate and charge increases required to support the funding mix. Figure 5-1 illustrates the forces shaping the LRFP.

The capital financing plan also looks at the appropriate mix of debt instruments, particularly the balance between fixed-rate and variable-rate obligations, to minimize the Water Authority's cost of capital and interest rate risk. With the goal of enhancing the Water Authority’s ability to manage interest rate risk, the staff periodically reviews new financial products available. The Water Authority has never considered or utilized any derivative products.

This section provides a detailed overview of the debt instruments that the Water Authority anticipates using to finance the current CIP, the methodology used to optimize the CIP financing mix, and the fundamental assumptions underlying the new debt service projections and the projected debt service schedules for new debt.

5.1 Water Authority Borrowing Options

The California State Constitution and various State Supreme Court decisions interpreting the Constitution set forth the powers of public agencies to borrow money. The powers of the Water Authority to incur indebtedness are further dictated by California statues, most importantly the legislation under which it is organized, the County Water Authority Act (Act), which was adopted in 1943 and has been amended from time to time. The Act authorizes the Water Authority to issue general obligation bonds secured by property taxes when approved by voters (Section 45-7), and to issue voter-approved revenue bonds (Section 45-7.5). The Act also authorizes the Water Authority to enter various obligations without voter approval. The Act authorizes “contracts to incur indebtedness” (Section 45-8) and authorizes the Water Authority to purchase property (Section 4.5-5(4)); both such forms of contract can be used to secure a borrowing through the issuance of Certificates of Participation (COPs) and Joint Powers Authority (JPA) Revenue Bonds. The Act also authorizes short-term revenues certificates (Section 45-8.2), under which the Water Authority has issued commercial paper (CP) and extendable commercial paper (ECP). The Water Authority may issue water revenue refunding bonds under the Local Agency Revenue Bond Refunding Law (Articles 10 and 11 of Chapter 3 of Part 1 of Division 2 of Title 5 of the California Government Code).
The following describes the Water Authority's debt instrument options. Of these available tools, the Water Authority has and anticipates continuing to utilize JPA Revenue Bonds, CP and ECP, to finance the CIP.

**General Obligation Bonds.** With two-thirds voter approval, the Water Authority can issue General Obligation (GO) bonds, which are secured by a supplemental ad valorem property tax. The Water Authority last issued such bonds in 1966 and retired the last of such debt in 2004. Due to voter-approval requirements and the lack of a direct link between the assessed value of a property and the use of water, there are no current plans to utilize such debt in the future.

**Revenue Bonds.** The Act also provides for issuance of revenue bonds under another statute, the Revenue Bond Act of 1941. Bonds issued under this act require majority voter approval. Due to voter-approval requirements and a number of outdated provisions, the statute is rarely used by any California entity, including the Water Authority.

**Taxable Build America Bonds.** The Water Authority has issued taxable Build America Bonds (BABs) under the same authorization as the JPA Revenue Bonds. In 2009, the U.S. government introduced the BABs program into an ailing tax-exempt bond market to help states and localities pursue needed capital projects. BABs provided a direct federal payment subsidy equal to 35% of the taxable borrowing costs on taxable bonds. The subsidy led to a lower net borrowing cost. It should be noted that the subsidy payments have been reduced as a result of the United States federal government budget sequestration. The BABs program has expired, but similar subsidy based programs may be established in the future.

**JPA Revenue Bonds.** The Water Authority may also finance projects through Chapter 5 of Division 7 of Title 1 of the California Government Code, water revenue bonds issued by a joint exercise of powers authority, pursuant to the Joint Exercise of Powers Act. In 2009, the Water Authority and the California Municipal Finance Authority formed the San Diego County Water Authority Financing Agency to assist the Water Authority in the financing of public capital improvements. Pursuant to the Joint Exercise of Powers Act, the San Diego County Water Authority Financing Agency is authorized to issue bonds for the purpose of financing, refinancing or providing reimbursement for costs incurred in connection with the construction, expansion, remodeling, renovation, furnishing, equipping or acquisition of public capital improvements.

The structure of the JPA revenue bonds is the same as COPs, as shown in Figure 5-3. Bonds are secured by contracts of indebtedness or installment sale agreements, which are payable from Net Water Revenues. The final maturity for JPA revenue bonds can be up to 40 years. Legal provisions also require that senior debt service is covered by net revenues by at least 120% and additional issuance is governed by the same requirements set forth for COPs.
While JPA revenue bonds are not structurally different from COPs, they are preferred by investors and price and trade at stronger levels. This is due to investor perceptions that COPs are an inherently weaker credit than JPA revenue bonds because other COP structures can be subject to appropriation risk and extraordinary redemption provisions. While the Water Authority’s COPs do not carry either of these risks, investor misperception and misunderstanding remains, making JPA revenue bonds the preferable instrument for new money borrowing going forward.

**Water Revenue Refunding Bonds.** Under the Local Agency Revenue Bond Refunding Law, the Water Authority may issue water revenue refunding bonds to refund outstanding installment sale agreement, contracts of indebtedness and commercial paper obligations of the Water Authority. Such bonds are payable from water revenues on the same basis as COPs and JPA Revenue Bonds. Water revenue refunding bonds are well received by investors, but can only be used if all of the bond proceeds will be used for refunding (i.e., if there is no new money borrowing).

**Water Revenue Certificates of Participation.** In the past the Water Authority has used COPs as its primary long-term debt funding instrument. COPs are a common vehicle by which California governments borrow money, and are viewed by investors as a form of municipal revenue bond. Typically, a COP securitizes a governmental payment obligation under some form of contract other than a bond indenture. COPs can be used in connection with a variety of municipal financings, such as governmental lease financing, conduit financing of non-profit organizations and, as is the case with the Water Authority, for enterprise revenue financing.

Two forms of contracts have supported the Water Authority’s COPs. Contracts to incur indebtedness are specifically authorized by the Act (the actual contract the Water Authority executes has been called a “Contract of Indebtedness”). The amount of debt authorized by this vehicle cannot exceed one-tenth of one percent of the assessed value of the Water Authority’s service area. This limitation Constrains the maximum amount of outstanding Contracts of Indebtedness to approximately $382 million.
(based upon the Fiscal Year 2014 assessed valuation), a small amount relative to the Water Authority's overall capital needs. The Water Authority currently has approximately $148.5 million of Contracts of Indebtedness outstanding, all securing COPs, and does not intend to issue such Contracts of Indebtedness in the foreseeable future.

In addition, the Water Authority can exercise its power to acquire property and enter into installment purchase or installment sale agreements, which are then used to secure COPs. This legal structure is a common form of water enterprise financing used by general law cities, counties, and special districts throughout the State to accommodate efficient borrowing practices. For the Water Authority, this approach to COPs allows for borrowing in excess of the limitation on Contracts of Indebtedness.

Both of the types of contracts that support Water Authority COPs—Contracts of Indebtedness and installment sale agreements—are limited by the Act to 40 years. As such, the Water Authority's COPs are limited to a term not to exceed 40 years as well. Prior to adoption of State Bill 290 in 1999, the limitation on installment sale agreement contracts was 20 years. Since then, the Water Authority's practice has been to issue 30-year COPs, although it may wish to consider the possibility of issuing 40-year COPs.

The Water Authority's COPs provide a strong form of security to an investor, very similar to the security provided by revenue bonds. These security features include a pledge of Net Revenues (total revenues less operating and maintenance expenses), a covenant to maintain rates so as to produce net revenues that are at least 120% of total COP debt service, and requirements that must be met prior to the issuance of additional indebtedness.

The Water Authority's issuance of COPs is facilitated by the San Diego County Water Authority Financing Corporation (SDCWAFC), a California nonprofit benefit corporation, which was created by the Water Authority specifically to facilitate these financings by serving as counterparty to the installment sale agreements and Contracts of Indebtedness securing Water Authority COPs. The SDCWAFC has no assets or liabilities, and assigns all of its interests in the contracts, including its right to receive COP payments, to a bank acting as a trustee. The basic structure of a Water Authority COP issue is portrayed in Figure 5-3.

COPs can be issued as either fixed-rate or variable-rate instruments. To date, all of the Water Authority's COPs have been fixed-rate. There are two types of variable-rate COPs the Water Authority would likely consider. One, variable-rate demand obligations, are typically remarketed on a daily or weekly basis. A bank liquidity facility, similar to that provided for the CP program, insures that an investor can “put” the bonds back to the issuer when the bonds cannot be immediately remarketed to new investors.

The second form of variable-rate COP would be indexed notes. The interest rates on these notes reset weekly based on the Securities Industry and Financial Markets Association (SIFMA) index or a percentage of the London Interbank Offered Rate (LIBOR) index plus a fixed spread that would be determined at the initial pricing of the bonds. The bonds would be sold with a long-dated nominal final maturity but have a mandatory tender date between one and five years. On the mandatory tender date, the Water Authority would be required to either remarket the bonds at a new spread to the index, refund the bonds with another debt instrument, or pay the bonds with cash on hand. The benefit of indexed notes over variable-rate demand obligations is that indexed notes do not require a bank liquidity facility, which can be expensive or difficult to secure depending on market and regulatory conditions.
**Commercial Paper.** Under Section 8.2 of the Act, the Water Authority may issue short-term revenue certificates with a maturity of up to 270 days. This provision accommodates the issuance of CP, a form of variable-rate financing. Like COPs, the Water Authority’s CP is secured by net revenues, but on a subordinate basis to the Water Authority’s long-term debt (i.e., COP payments). The rate covenant related to CP requires the Water Authority to maintain net revenues at a level that covers all Water Authority obligations by 100%.

While each issuance of CP has a maturity of 270 days or less, as shown in Figure 5-4, the principal payments of maturing securities are usually funded with a subsequent issue of CP; this process is referred to as “rolling” the CP. A bank line of credit in the form of a revolving note purchase agreement, commonly referred to as a liquidity facility, is used to ensure that funds are available to pay investors at each maturity in the unlikely event of a failed reissuance. While some entities use CP for temporary financing during construction, and refund their CP with some form of long-term debt, the Water Authority has utilized this form of financing to create a more permanent variable interest rate component of its capital structure. Table 5-1 on the following page summarizes key characteristics of the various types of debt.

**Extendable Commercial Paper.** In 2014, the Water Authority authorized the issuance of ECP in its debt policy. Mechanically, ECP is similar to traditional CP. The notes also carry the same security provisions as CP, wherein principal and interest are paid from a subordinate lien on net revenues and the rate covenant requiring that net revenues cover all Water Authority obligations by 100% still applies. The main difference is that ECP does not require a bank liquidity facility which is why ECP offers a lower cost of funds than traditional CP. Instead, ECP notes are issued with an original final maturity of up to 120 days, as shown in Figure 5-5. If the ECP notes are not remarketed on the original final maturity, the maturity date is extended up to 150 days and the ECP notes will bear interest at a higher predetermined reset rate. During the 150 days, the Water Authority must either remarket the ECP, refund it with another debt instrument, or pay it off with cash.
Table 5-1 Characteristics of Various Types of Debt

<table>
<thead>
<tr>
<th>Types of Debt</th>
<th>Security</th>
<th>Repayment Term Limit</th>
<th>Procedure</th>
<th>Credit Quality (from Highest to Lowest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO Bonds</td>
<td>- Ad valorem property taxes</td>
<td>50 Years</td>
<td>2/3 voter approval</td>
<td>Strongest credit quality</td>
</tr>
<tr>
<td></td>
<td>- Water sales net revenue</td>
<td></td>
<td></td>
<td>Strong credit quality (not as strong as GO Bonds)</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
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<td></td>
<td>- Standby charges</td>
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<td></td>
<td>- Capacity charges</td>
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<td></td>
<td>- Interest on cash balances</td>
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<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue Bonds</td>
<td>- Water sales net revenue</td>
<td>40 Years</td>
<td>Majority voter approval</td>
<td>Strong credit quality (on par with Revenue Bonds)</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Standby charges</td>
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<td></td>
<td>- Capacity charges</td>
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<td></td>
<td>- Interest on cash balances</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxable Build America</td>
<td>- Water sales net revenue</td>
<td>40 Years</td>
<td>Board action</td>
<td>Strong credit quality (on par with Revenue Bonds)</td>
</tr>
<tr>
<td>Bonds (BABs)</td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>only available</td>
<td>- Standby charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in 2009 and 2010</td>
<td>- Capacity charges</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Interest on cash balances</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPA Revenue Bonds</td>
<td>- Water sales net revenue</td>
<td>40 Years</td>
<td>Board action</td>
<td>Better than COPs</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td>Slightly worse than Revenue Bonds</td>
</tr>
<tr>
<td></td>
<td>- Standby charges</td>
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<td></td>
<td>- Capacity charges</td>
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<td>- Interest on cash balances</td>
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<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Revenue Refunding Bonds</td>
<td>- Water sales net revenue</td>
<td>40 Years</td>
<td>Board action</td>
<td>Better than COPs</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td>Slightly worse than Revenue Bonds</td>
</tr>
<tr>
<td></td>
<td>- Standby charges</td>
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<td>- Capacity charges</td>
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<td>- Interest on cash balances</td>
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<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COPs</td>
<td>- Water sales net revenue</td>
<td>40 Years</td>
<td>Board action</td>
<td>Slightly worse than JPA Revenue Bonds</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
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<td></td>
<td>- Standby charges</td>
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<td>- Capacity charges</td>
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<td></td>
<td>- Interest on cash balances</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>- Water sales net revenue</td>
<td>Rates reset periodically but are limited to 270 days or less</td>
<td>Board action</td>
<td>Subordinate lien, but strengthened with highly-rated liquidity facility</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Standby charges</td>
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<td>- Capacity charges</td>
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<td></td>
<td>- Interest on cash balances</td>
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<td></td>
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<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extendable Commercial Paper</td>
<td>- Water sales net revenue</td>
<td>Rates reset periodically but are limited to 120 days or less</td>
<td>Board action</td>
<td>Subordinate lien without a liquidity facility</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure access charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Standby charges</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Capacity charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Interest on cash balances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Property taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Series 2011S-1 subordinate bonds are issued under this authority.
5.2 Optimizing the Capital Financing Mix

The Water Authority’s CIP funding sources include accumulated revenues (fund balances), future revenues allocated towards capital expenditures (pay-as-you-go financing) and future revenues allocated towards debt service (sometimes referred to as “pay-as-you-use” financing). All of these funding sources must be integrated into the capital financing plan.

Desalination Facility Financing and Water Authority Obligations  The project incorporates an innovative risk transfer arrangement within the financing structure. The project is being delivered through a public-private-partnership model with Poseidon Water under which risks associated with the design, construction, and operation of the desalination plant were transferred from the Water Authority to Poseidon Water and its investors.

The project was financed in part with proceeds of two series of bonds issued by the California Pollution Control Financing Authority in December 2012. The Water Authority has entered into a take and pay water purchase agreement under which it will pay only for water delivered which meets specific quality standards.

Any financial shortfalls resulting from reductions in water deliveries meeting such quality standards are borne by Poseidon Water.

Optimizing the capital financing plan is a complex and iterative process that involves several key steps. These steps are: determining the annual CIP funding mix of cash and debt; determining the mix of types of debt; and creating principal amortization schedules for proposed debt. Each step must balance the goals outlined in Section 2.0: cost efficiency, predictable rates, and intergenerational equity with rate and charge increases. Chart 5-1 shows the target CIP funding mix. A discussion of the optimization steps are provided next.
5.2.1 Target Cash and Debt Financing Profile

Like any business enterprise, the Water Authority needs to determine the best mix of resources to finance both its operations and its CIP. The cash and debt financing profile identifies the annual use of fund balances (cash) and debt to fund CIP outlays. The cash/debt profile seeks to maintain a level of cash investment into existing (renewal and replacement) and new system assets that both minimizes the Water Authority’s debt and maintains intergenerational equity among ratepayers.

Even though most of the assets that will be financed in the CIP have long useful lives, there are several reasons why a mix of pay-as-you-go and debt financing is recommended. First, cash funding throughout the CIP horizon ensures that current customers are always contributing funds towards the capital investments they are benefiting from, and not deferring these costs entirely to future generations of ratepayers. In addition, there are certain sources that should be available for such funding: Generally Accepted Accounting Principles requires that the Water Authority expense its prior capital expenditures by recording depreciation, which was $45.8 million for the fiscal year ending June 30, 2015. If rates are set to create balanced operations, there should be some rate revenues to offset that expense, which can be used to fund renewal and replacement of the expiring existing capital assets.

Furthermore, the bond market requires that an agency's rate structure generate a margin of revenues over operating and debt expenditures. The Water Authority has covenanted as part of its senior lien debt issues to maintain a minimum debt service coverage ratio of 1.20 times; that is, total revenues, minus operating and maintenance expenses, ignoring depreciation (standard for water revenue enterprise debt) must be at least 1.20 times the amount of annual senior lien debt service. The Water Authority has adopted internal policies that set the goal for senior lien debt service coverage even higher at 1.50 times. This policy reflects a desire to bolster the Water Authority’s credit quality, which in turn serves to lower the Water Authority’s cost of debt and to mitigate the amount of debt borne by the water system in the future by increasing the cash funding of the CIP. The additional revenue required to meet the coverage target of 1.50 times is available for capital investment.

As shown in Charts 5-2 and 5-3, over the projection period the Water Authority expects to meet its enhanced debt service coverage target of 1.50 times and its overall coverage requirement of 1.00 times.
By meeting this 1.50 times coverage target, the Water Authority’s revenues would generate sufficient resources to fund approximately 30% of future CIP expenditures with cash, or approximately $594 million, and the balance financed with debt. Of the $2.8 billion CIP budget, approximately $1.2 billion has been expended on various projects, leaving an unspent balance in the CIP budget of approximately $1.6 billion. Under the high-rate scenario assumption, during the LRFP planning period, cash is projected to fund $423 million of the $1.6 billion of the unspent CIP budget. The percent of capital expenditures financed with cash is a common performance metric used by the credit markets and rating agencies in evaluating utilities. A common target for this performance metric is 20% or more.

Another factor in a long-term plan of finance is the timing of the use of cash funds. By varying the financing source mix over time, different pressures are alleviated or created. For instance, as more debt is used to finance the CIP, debt service coverage requirements also increase, putting stress on water rates. At the same time, cash can be invested at taxable interest rates; the potential for investments to yield higher rates of return than the cost of borrowing. The availability of fund balances also enhances the Water Authority’s ability to pay for unanticipated capital expenditures. These factors make it advantageous to maintain some level of cash and investments. The financing mix profile balances these options to achieve efficient and stable water rates.

**Cash Funding Target Level**

The long-term (2008-2026) cash funding target level increased from 23% to 30%, which is = to approximately $423M of the CIP’s expenditures during the LRFP planning period.
**Chart 5-4** below illustrates the mix of cash and debt planned to be used to finance the CIP over the projection period. As the chart shows, the amount of cash and debt used varies from year to year.

**Chart 5-4  CIP Funding Mix***

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Annual Expenditures in Millions ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>60.1</td>
</tr>
<tr>
<td>2017</td>
<td>32.9</td>
</tr>
<tr>
<td>2018</td>
<td>75.1</td>
</tr>
<tr>
<td>2019</td>
<td>19.3</td>
</tr>
<tr>
<td>2020</td>
<td>30.5</td>
</tr>
<tr>
<td>2021</td>
<td>101.7</td>
</tr>
<tr>
<td>2022</td>
<td>5.1</td>
</tr>
<tr>
<td>2023</td>
<td>18.6</td>
</tr>
<tr>
<td>2024</td>
<td>21.0</td>
</tr>
<tr>
<td>2025</td>
<td>22.1</td>
</tr>
<tr>
<td>2026</td>
<td>15.5</td>
</tr>
</tbody>
</table>

* Expenditures are based upon the high-rate CIP projections.

### 5.2.2 Fixed/Variable Debt Mix (Target)

The next step in developing the capital financing plan is selecting the appropriate mix of fixed and variable-rate debt. To determine the optimal amount of fixed and variable-rate debt to fund the CIP, the benefits and risks each has to offer must be evaluated in the context of the prevailing interest rate environment, governing policy goals and objectives and the current and projected fund balances.

Fixed-rate debt offers the advantage of a set debt service payment schedule upon which budgets and projections can be based, but typically requires higher interest rates. In 2015, approximately 76% of the Water Authority’s outstanding debt is fixed-rate debt.

Variable-rate debt, on the other hand, offers a few potential benefits over fixed-rate debt. First, variable-rate debt typically offers lower interest rates because interest rate risk is borne by the issuer not the investor. Often, variable-rate debt represents the longest term bonds in a debt portfolio, as the interest rate savings are greatest when compared to the fixed-rates of a comparable long-term bond. Second, it offers a great deal of flexibility in regards to principal repayment. These bonds can be refunded or prepaid on any payment date with no prepayment penalty.

Because the interest rate paid on variable-rate debt changes as often as on a daily basis, this type of debt introduces uncertainty into debt service payment budgets and projections. In the current interest rate environment, projecting short-term interest rate movements can be challenging. Another challenge associated with variable-rate debt is the potential for interest rates to rise steeply causing debt service payments to increase as well. This is often referred to as interest rate risk.
An important factor that mitigates the interest rate risk associated with variable-rate debt is the cash resources held by the Water Authority in the Operating, Stored Water, and RSF funds. To the extent that the Water Authority maintains cash resources, any increase in interest rate paid on variable-rate debt is offset, or hedged, by an increase in investment earnings on cash reserves. This is due to the fact that investment earnings tend to move parallel to the interest rates on variable-rate debt. It should also be noted that lower interest rates reduce investment earnings (interest rate risk is inherent on the investment side). Thus variable-rate debt can actually reduce budgetary risk, as the impacts of lower interest rates can be offset by lower than budgeted payments on outstanding variable-rate debt.

The relative desirability of fixed and variable-rate debt also depends on the interest rate environment and the shape of the yield curve at any given point in time. For example, during a period where interest rates are near historical lows, fixed long-term debt may be very attractive. On the other hand, in an environment where interest rates are high and expected to decline, variable-rate debt may be attractive. As shown in Chart 5-5, the current interest rate environment is very favorable for both fixed and variable-rate debt with rates near historical lows.

The Water Authority currently limits the amount of variable-rate debt to a maximum of 30% of the outstanding debt. The projected use of fixed and variable is developed based upon projected fund balances and meeting the policy limit. The mix of fixed and variable-rate debt used to fund the CIP during the LRFP planning period is shown in Chart 5-6. It should be noted that the actual use of debt in the future may vary slightly from what is shown. A total of approximately $168.5 million in debt is planned to be issued over the LRFP planning period which includes the cost of issuance. Of the $168.5 million 59% is fixed-rate debt with the remaining 41% being variable-rate debt.

*Expenditures are based upon the high-rate CIP projections.
5.2.3 Debt Structure and Principal Amortization

The last step is developing the debt structure and principal amortization schedules for the new fixed and variable-rate debt. Generally, the Water Authority structures each bond issue to provide a smooth and level total debt service payment schedule over the subsequent 30 years to minimize near and long-term water rate impacts and to equitably spread the cost of the debt over current and future ratepayers. To achieve this debt service structure, a large share of the principal retirement for each new bond issue is placed in the latter years, after previously issued debt has been retired. By deferring the amortization of the principal of the new debt issued during the peak years of CIP expenditures and paying interest only on a portion of the new debt over the earlier years, the total debt service can remain fairly level.

Longer-term debt better matches the expected useful service life of many of the assets financed by public utilities, and help mitigate the rate impacts from new debt issues by enhancing the Water Authority’s ability to “wrap” the new debt around the existing debt. Debt longer than 30 years has become more common among utilities as a result of a relatively flat yield curve, with 40-year interest rates being only moderately higher than 30-year rates. In 2010, the Water Authority issued a 39-year Build America Bond (BABs).

Even with a 40-year term, many of the assets funded with debt will still be in service after the debt is retired. For example, many of the Water Authority’s existing pipeline assets are now over 30 years old and have been fully financed by previous ratepayers; the San Vicente Dam is expected to have a 100-year service. Therefore, extending the term of the debt does not necessarily violate the goal of intergenerational equity by shifting costs to future ratepayers. To the contrary, it may better match the benefits of long lived assets to all ratepayers, now and in the future.

The Water Authority’s variable-rate debt, which is made up of the traditional and extendable commercial paper programs assumes a 30-year amortization schedule. This ensures that the amortization schedule matches the expected service life of the assets funded with the proceeds.
The Water Authority’s Commercial Paper Program assumes principal is amortized over a 30-year period. Chart 5-7 and Table 5-2, 5-3, and 5-4 below shows the Water Authority’s current debt obligations and projected debt repayment schedules. Section 5.4 shows the projected debt service payments for new debt over the planning period.

**Table 5-2 Outstanding Long-Term Debt as of October 31, 2015**

<table>
<thead>
<tr>
<th>Issue Name</th>
<th>Final Maturity</th>
<th>Original Par Amount</th>
<th>Amount Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Revenue Certificates of Participation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series 1998A</td>
<td>2028</td>
<td>$180,000,000</td>
<td>$11,685,000</td>
</tr>
<tr>
<td>Series 2005A</td>
<td>2022</td>
<td>107,455,000</td>
<td>57,375,000</td>
</tr>
<tr>
<td>Series 2008A</td>
<td>2038</td>
<td>558,015,000</td>
<td>370,205,000</td>
</tr>
<tr>
<td>JPA [Water Authority Financing] Bonds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series 2010A</td>
<td>2027</td>
<td>98,495,000</td>
<td>41,990,000</td>
</tr>
<tr>
<td>Series 2010B [Taxable Build America Bonds]</td>
<td>2049</td>
<td>526,135,000</td>
<td>526,135,000</td>
</tr>
<tr>
<td>Water Revenue Refunding Bonds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series 2011A</td>
<td>2027</td>
<td>139,945,000</td>
<td>119,100,000</td>
</tr>
<tr>
<td>Series 2011B</td>
<td>2031</td>
<td>94,540,000</td>
<td>94,540,000</td>
</tr>
<tr>
<td>Series 2013A</td>
<td>2034</td>
<td>299,105,000</td>
<td>299,105,000</td>
</tr>
<tr>
<td>Series 2015A</td>
<td>2029</td>
<td>184,795,000</td>
<td>184,795,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$ 2,118,485,000</strong></td>
<td><strong>$ 1,704,930,000</strong></td>
</tr>
</tbody>
</table>

**Table 5-3 - Subordinate Lien Fixed-Rate Debt as of October 31, 2015**

<table>
<thead>
<tr>
<th>Issue Name</th>
<th>Final Maturity</th>
<th>Original Par Amount</th>
<th>Amount Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Revenue Refunding Bonds, Series 2011S-1</td>
<td>2017</td>
<td>$86,630,000</td>
<td>$86,630,000</td>
</tr>
</tbody>
</table>

**Table 5-4 - TECP & ECP Program Summary as of October 31, 2015**

<table>
<thead>
<tr>
<th>Short-Term Active Debt Instruments</th>
<th>Size</th>
<th>Liquidity Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 1 (ECP)</td>
<td>$50,000,000</td>
<td>n/a</td>
</tr>
<tr>
<td>Series 5</td>
<td>$100,000,000</td>
<td>Wells Fargo Bank, N.A.</td>
</tr>
<tr>
<td>Series 7</td>
<td>$100,000,000</td>
<td>J.P. Morgan Chase Bank N.A.</td>
</tr>
<tr>
<td>Series 8</td>
<td>$110,000,000</td>
<td>Bank of Tokyo Mitsubishi, UFJ</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$360,000,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
5.3 Significant Debt Program Assumptions

A variety of structuring decisions are made each time the Water Authority issues debt and a number of similar assumptions are incorporated in the planning process to project future debt service. These key assumptions governing new debt projections are discussed below.

**Term.** All debt is assumed to be amortized over a 30-year term. This includes fixed and variable-rate debt. While long-term 40-year debt will be considered, 30-year debt represents a more conservative assumption.

**Fixed and Variable Interest Rates.** In projecting fixed-rate debt for the capital financing plan, interest rates are derived from the ten-year historical average of a municipal interest rate index, adjusted for the Water Authority's strong credit characteristics.

For short-term debt interest rate projections, the current interest rate of 0.15% is trended to a historical interest rate of 2.5% over the next three years. All long term debt projections assume a 5.5% interest rate.

All of the debt that has been issued by the Water Authority meets the Federal Tax Code requirements for tax-exempt debt, reducing the cost of borrowing. The capital financing plan assumes that all future debt will be tax-exempt as well, and that any expenditure that would not qualify for tax-exempt financing would be financed with Water Authority cash or within the de minimis portion of bond proceeds allowed for under the Tax Code for “private activity” projects. That being said, the Water Authority may find it appropriate to issue some taxable debt from time-to-time and accept the higher interest cost in exchange for greater flexibility in the use of proceeds.

**Issuance Costs and Capitalized Interest.** The Cost of Issuance is projected at 1.5% of the par amount and annual fees are based upon current fees escalated. These costs will include underwriting fees, legal fees, financial advisory fees, credit enhancement fees, and other miscellaneous fees typically associated with a bond financing.

The projections may assume that interest during project construction is funded out of debt proceeds (called “capitalized interest”). Since it is assumed that debt is issued in three-year increments, the interest expenditures during this three-year period may be capitalized.

**Principal Amortization.** In some instances principal payment is deferred to smooth debt service. This is done on a case by case basis and is reflected in the projected debt service payments.

**Debt Service Reserve.** Unless otherwise stated, all new debt issuances include funds for the debt service reserve requirements. The required reserve for each issuance is set to the maximum annual debt service payment for that issue.
5.4 Schedule of Future Debt Issuance

Future fixed-rate debt issuances and their estimated size are summarized in Table 5-5 below. It should be noted that all fixed-rate debt is issued on a senior lien basis and is included in the debt service coverage ratio presented in Chart 5-2. Chart 5-7 shows the projected debt service payments for existing and proposed debt. In addition to the fixed rate debt issuances, approximately $68.6 million of new CP will be issued from time to time over the LRFP planning period as shown in Chart 5-6. The projected debt service payments shown in Chart 5-7 includes projected payments on new CP issuances.

Table 5-5  Projected Senior Lien Debt Issuances*

<table>
<thead>
<tr>
<th>Projected Issuance</th>
<th>Issue Amount (Millions $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 2017A</td>
<td>41.7</td>
</tr>
<tr>
<td>Series 2020A</td>
<td>26.0</td>
</tr>
<tr>
<td>Series 2023A</td>
<td>32.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$99.9</strong></td>
</tr>
</tbody>
</table>

* Does not include variable-rate debt.

Chart 5-8 shows the impact of the projected senior lien and CP debt issuances on the Water Authority’s annual debt service payments. As shown, the debt service payment increases over the LRFP planning period are minor and reflect the reduced CIP spending levels. The projections presented here reflect a 30-year term. It is important to note that at the time of issuance longer-term debt will be considered.
6. Water Authority Financial Forecast

In 2003, the Water Authority’s Board implemented a new rate structure designed to more effectively allocate the cost of service to its customers and to increase the proportion of revenues collected by fixed charges. The new rate categories include fixed Storage and Customer Service Charges, and variable Transportation, Melded Municipal and Industrial (M&I) Treatment and Melded M&I Supply Rates. In March 2015, the Board further enhanced the rate and charge structure by creating the Supply Reliability Charge (SRC). The rate and charge structure provides a balance of fixed and variable revenues limiting the financial impact of fluctuations in water sales.

This section provides a brief description of the Water Authority’s rates and charges and a forecast of the Water Authority’s sources and uses of funds. The forecast represents the Water Authority’s conservative projections, which are based upon current and historical data. It is important to note that these projections are subject to change and should be viewed as estimates. Section 8.0 provides an analysis of select non-deterministic (i.e. random) variables critical to the execution of this plan. The remainder of this section provides an overview of the Water Authority’s various sources and uses of funds and the financial projections.

6.1 Water Authority Rates and Charges

The Water Authority collects revenues from a variety of sources. Some sources are fixed, not dependent on water sales or the local economy, and others are variable, based upon the amount of water sold or the economy (capacity charges).

The Water Authority’s rates and charges are summarized in Figure 6-1 below. The water rates can be split into two types; fixed and commodity (variable). The Customer Service, Storage, and SRC are fixed while the Melded Supply and Treatment Rates, and the Transportation Rate are based upon water purchased. Other rates and charges include the Infrastructure Access Charge (IAC) and property taxes. Capital charges include the System Capacity and the Treatment Capacity Charges and the Water Standby Availability Charge. A description of each of the Water Authority’s rates and charges are provided below.

Figure 6-1  Water Authority Rates & Charges

<table>
<thead>
<tr>
<th>WATER RATE CATEGORIES</th>
<th>Fixed Charges ($M)</th>
<th>Commodity (variable) Rates ($/AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service Charge</td>
<td>Melded Supply Rate</td>
<td></td>
</tr>
<tr>
<td>Storage Charge</td>
<td>Melded Treatment Rate</td>
<td></td>
</tr>
<tr>
<td>Supply Reliability Charge</td>
<td>Transportation Rate</td>
<td></td>
</tr>
<tr>
<td>OTHER RATES AND CHARGES</td>
<td>Infrastructure Access Charge ($/ME)</td>
<td></td>
</tr>
<tr>
<td>Property Taxes ($M)</td>
<td>System Capacity Charge ($/ME)</td>
<td></td>
</tr>
<tr>
<td>CAPITAL CHARGES</td>
<td>Treatment Capacity Charge ($/ME)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Standby Availability Charge ($/Parcel)</td>
<td></td>
</tr>
</tbody>
</table>
6.1.1 Water Authority Fixed Water Charges

**Customer Service Charge.** The Customer Service Charge is set to recover costs that are necessary to support the functioning of the Water Authority, develop policies, and implement programs that benefit the region as a whole. The Customer Service Charge is allocated among the member agencies on the basis of each agency’s share of the three-year rolling average of all deliveries (excludes member agency wheeled water).

**Storage Charge.** The Storage Charge is set to recover costs associated with the Emergency Storage Project (ESP) and the Carryover Storage Program (CSP). The Storage Charge is allocated among the member agencies on the basis of each agency’s share of the three-year rolling average of all non-agricultural deliveries. In return for not paying the Storage Charge, agricultural customers (participants in the Transitional Special Agricultural Water Rate (TSAWR) program) agree to receive a level of service during an emergency that is less than that received by the Water Authority’s M&I customers. The level of service reduction agricultural customers experience will be double the rate of the targeted system-wide reductions, up to a maximum of 90%.

**Supply Reliability Charge.** This charge recognizes the importance of equitably recovering the cost of the Water Authority’s investments in long-term water supply reliability in accordance with cost of service principals and California law. As adopted by the Board, the SRC recovers a portion of the water supply costs associated with the Carlsbad Desalination Plant and the Imperial Irrigation District’s (IID) water transfers. Together these supplies are the cornerstones of the supply reliability diversification efforts and the Water Authority’s most reliable water supplies. In addition to recovering a proportionate share of the cost of water supply reliability, the SRC also helps to reduce water sales revenue volatility by increasing the amount of fixed revenues. The SRC is allocated to member agencies based upon their pro rata share of the Water Authority’s five-year rolling M&I deliveries (agricultural deliveries are not included).

6.1.2 Water Authority Commodity Rates

**Melded Untreated M&I Supply Rate.** The per acre-foot Melded Untreated M&I Supply Rate recovers the cost of water to the Water Authority. The melded supply rate includes the costs of water purchased from Metropolitan Water District of Southern California (MWD) and IID, the costs of water supplies from the canal lining projects, the MWD transportation costs for non-MWD supplies, desalination supply costs, and system losses. In addition, the rate recovers certain fixed costs associated with the Quantification Settlement Agreement (QSA), and may recover costs of certain operating budget expenditures associated with the procurement of water and wheeling.

The largest component of the Melded Untreated M&I Supply Rate is MWD’s water supply rates. In 2003, MWD replaced its “postage stamp” water rate structure and implemented a revised rate structure that recovers expenditures by different rate categories. The revised structure unbundles or itemizes MWD’s charges into system access/distribution, power, and treatment (included in the Melded M&I Treatment Rate), and establishes a two-tiered pricing (inclining block) structure for water supplies (see also Rate Case Litigation). In 2003, MWD member agencies were asked to make a ten-year financial commitment — termed “purchase orders” — to purchase at least 60% of each agency’s maximum historic annual firm (base) demand for MWD water “supply.” In exchange, the agency may purchase up to 90% of its base demand at the preferable Tier 1 rate. For an agency that does not enter into a purchase order agreement with MWD, it may purchase up to 60% of its base demand at the Tier 1 rate. MWD extended purchase orders for two years in 2013. In 2015, MWD “reset” the purchase orders for another ten years, with terms largely the same. Under the 2015 purchase orders, MWD would assess Tier 2 rate on an agency only if its purchases over the ten-year term exceed the 90% base demand. With the

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(1) Water supply rate only, which does not include distribution, power, or treatment rates.
implementation of the Water Authority’s supply diversification plan, and associated reduced reliance on MWD, the Water Authority has not entered into a purchase order agreement with MWD since 2013.

**Melded M&I Treatment Rate.** Effective January 1, 2006, the Water Authority implemented a Melded Treatment Rate. This per-acre-foot rate is designed to recover the Water Authority’s water treatment costs. The Melded M&I Treatment Rate includes the costs of purchasing treated water from MWD, the operating and capital costs associated with the Water Authority’s agreement with Helix Water District’s Levy Water Treatment Plant, operating costs associated with the Olivenhain Treatment Plant, and the operating and capital costs associated with the Water Authority’s Twin Oaks Valley Treatment Plant.

**Transportation Rate.** The Transportation Rate is a uniform rate set to recover capital, and operating and maintenance costs of the Water Authority’s aqueduct system including all facilities used to physically transport the water to member agency meters. The Transportation Rate is charged to each acre-foot of water as delivered by the Water Authority through Water Authority facilities. An acre-foot is about 326,000 gallons, enough water to meet the average household needs of two families for one year. All users, member agencies, and third-party wheelers pay the Transportation Rate.

**Transitional Special Agricultural Water Rate.** Through the TSAWR program, agricultural water users are able to purchase untreated water at the MWD rate. The TSAWR program rates correspond to a lower level of water supply reliability for its participants than M&I customers receive. The Melded Treatment rate is paid by TSAWR customers for treatment services. This program has been extended through December 31, 2020.

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**RATE CASE LITIGATION**

Since 2010, the Water Authority has filed three lawsuits challenging rates set by MWD. A final judgment entered in San Francisco Superior Court in November 2015, affirmed earlier victories by the San Diego County Water Authority in two of the cases. Key elements of the judgment are:

- The invalidation of MWD’s unlawful transportation rates for 2011-2014
- An order directing MWD to pay the Water Authority $188.3 million in contract damages plus interest
- A finding that MWD has under-calculated the Water Authority’s right to MWD water by tens of thousands of acre-feet of water per year

The judge also ordered MWD to “enact only legal transportation and wheeling rates in the future” and set all rates and charges based upon cost causation. The third case has been stayed by stipulation of the parties.

The Water Authority’s Board of Directors already has determined that the agency will deduct its litigation expenses and return the remaining money to its 24 member agencies in proportion to their payment of MWD’s illegal overcharges over the four years in dispute.

MWD has said it will appeal the trial court’s decision, a move that could significantly delay payment of the Water Authority’s judgment.

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(1) As of November 2015, MWD owes the Water Authority $46.6 million in prejudgment interest, an amount that will continue to accrue simple post-judgment interest of 7% annually.
6.1.3 Other Rates and Charges

The Water Authority also levies other rates and charges on its member agencies. These include:

**Infrastructure Access Charges.** In June 1998, the IAC was adopted by the Board to provide an additional source of fixed revenue to help stabilize the Water Authority’s revenues. By increasing fixed revenues, the IAC helps to mitigate water sales revenue volatility that can result from sudden changes in water demand/availability and/or economic cycles. The IAC is a fixed charge that is levied on all retail water meters within the Water Authority’s service area. The IAC maintains a minimum ratio of projected fixed revenues to projected fixed expenditures of 25% in any future fiscal year, excluding fixed water rate revenues. Fixed expenditures are defined as debt service (principal and interest payments), 80% of operations and maintenance expenditures, and a portion of the Local Water Supply Development program costs.

**Property Taxes & In Lieu-Charges.** The Water Authority is empowered, under the Act, to levy taxes on all taxable property within its boundaries for the purpose of paying its voter-approved general obligation bonds (G.O. Bonds), or for other Water Authority purposes, subject to certain limitations in the Act, the California Revenue and Taxation Code, and the California Constitution.

The San Diego County Assessor determines assessed valuation, and the Water Authority’s Board of Directors levies the property taxes annually. The taxes levied are billed and collected by the County of San Diego and are remitted to the Water Authority throughout the year. The tax rate set by the Water Authority’s Board is based upon the assessed valuation of taxable property within the Water Authority’s service area. The City of San Diego pays the Water Authority an in-lieu charge instead of the tax levy. The Water Authority no longer receives the debt service assessment for the 1966 Waterworks Bonds, since this issue was retired in November 2003.

The Water Authority also receives a portion of the one-percent ad valorem property tax levied by the County pursuant to Article XIII A of the California Constitution, which it uses for annual operating expenditures and debt service.

6.1.4 Capital Charges

The Water Authority's rates and charges include fees designed to recover a portion of the capital costs for the region’s water system. Revenues generated by these charges are restricted to capital costs, which includes debt service. These charges include:

**Water Standby Availability Charges.** On April 12, 1990, the Board of Directors adopted Resolution 90-17 for Standby Charges, under Section 45-5.2 of the Act and Article 23 of the Water Authority's Administrative Code. The charge is $10 per acre per year, or $10 for a parcel less than one acre per year. The charge for each parcel that includes more than one acre shall be determined by multiplying the total number of acres in said parcel by $10. The charge is added to the Secured Tax Roll collected via the San Diego County property tax collection process and remitted by the County to the Water Authority.

(1) Debt service and equity payments made for the desalination plant are excluded from this calculation. Payments for the desalination pipeline bonds are included.
**System Capacity Charges.** In May 1990, the Water Authority’s Board of Directors adopted a System Capacity Charge on all new or larger retail water meters installed. The charge is designed to recover a proportionate share of the capital costs associated with providing services to new connections in the Water Authority’s service area. This follows existing Government Code (Section 54991), which states that System Capacity Charges “shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed.” In May 2005, the Board approved a change in the System Capacity Charge calculation methodology, which balances the extra capacity present in the system financed by existing customers with the benefits of use by future customers.

**Treatment Capacity Charges.** In May 2005, the Board also approved the creation of a Treatment Capacity Charge to help fund the Water Authority’s regional water treatment facility. The charge recovers a portion of the capital costs from the future users of the facility. Like the System Capacity Charge, the fee is based upon the size of the meter installed.

### 6.1.5 MWD Pass-Through Charges

Additional charges include MWD’s Readiness-to-Serve Charge and MWD’s Capacity Charge, formerly known as the Capacity Reservation Charge. These charges are passed through to member agencies based upon the member agencies historical water usage. The charge and allocation method is discussed below.

**MWD Readiness-to-Serve Charge.** The Readiness-to-Serve Charge (RTS) recovers MWD’s debt service for construction projects necessary to meet the reliability and water quality needs of current water users, as opposed to new customers. MWD passes these costs to its member agencies based upon the member agency’s share of the ten-year rolling average firm water deliveries. This ensures that all member agencies pay a share of the fixed costs necessary to meet existing demand for MWD’s water. The MWD Standby Charge revenues, which MWD collects from ratepayers in the Water Authority’s service area, offset the RTS charge paid by the Water Authority. The charge is expected to increase as MWD’s debt service on new reliability and water quality related construction projects increases.

MWD recently began to collect payment of delinquencies on its Standby Charge revenue from the Water Authority. These delinquency charges are being paid by the Water Authority and are not passed on to the member agencies. The Water Authority keeps penalties and interest collected on the delinquent accounts.

**MWD Capacity Charge.** The Capacity Charge is a fixed charge levied on an agency’s maximum daily flows over the three previous fiscal years. It recovers the cost of providing peak capacity within the distribution system, and is designed to encourage member agencies to shift demands and avoid placing large daily peaks on the MWD system during the summer months. Daily flow measured between May 1 and September 30 for purposes of billing the Capacity Charge will include deliveries (except long-term seasonal storage deliveries) made by MWD to a member agency or member agency customer including water transfers, exchanges, and agricultural deliveries. As part of a separate surface reservoir operating agreement to manage seasonal peaking, the Water Authority is expected to reserve its full available capacity. The Water Authority’s Board has directed that the Capacity Charge be recovered proportionally based on a five-year rolling average of member agency flows during coincident peak weeks.
6.2 Projected Rates and Charges

Future rates and charges will be determined by many factors that include water supply availability, water demand, water supply costs, capital costs, operating costs, etc. These factors have long-term rate and charge impacts making it difficult to project the Water Authority long-term rates and charges. To provide guidance on the anticipated rate and charge trends, a high and low range of rates have been developed which deviate from the expected CIP and Water Sales shown in Sections 3 & 4. The high rate and charge projection is based upon a water sales outlook that includes continued restrictions on water demand, in addition to a slow rebound in future sales and the aggressive development of member agency local supplies. Other high sales assumptions include a win in the MWD litigation and a restructuring of their rates to comply with the law, a high-rate forecast for MWD's rates that takes into account planning costs for Cal WaterFix (capital costs for the State's current plan for addressing the Bay-Delta issues are not included in the LRFP projection period), and a higher than expected Capital Improvement Program (CIP) funding level. The low rate projection is based upon water demands and sales levels returning to levels in line with average demand growth and supply levels, a win in the MWD litigation, and a restructuring of their rates to comply with the law, the moderate development of member agency local supplies and a lower than expected CIP funding level.

Table 6-1 Projected M&I Treated Water Rates ($/AF) *(Calendar Year)

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</tr>
</thead>
<tbody>
<tr>
<td>High-Rate Scenario</td>
<td>1,493</td>
<td>1,674</td>
<td>1,647</td>
<td>1,766</td>
<td>1,841</td>
<td>1,929</td>
<td>2,007</td>
<td>2,089</td>
<td>2,182</td>
<td>2,302</td>
<td>2,393</td>
</tr>
<tr>
<td>Low-Rate Scenario</td>
<td>1,438</td>
<td>1,528</td>
<td>1,406</td>
<td>1,410</td>
<td>1,458</td>
<td>1,493</td>
<td>1,532</td>
<td>1,565</td>
<td>1,605</td>
<td>1,660</td>
<td>1,691</td>
</tr>
</tbody>
</table>

* Overall M&I water rates are estimated by including the Water Authority’s Melded Supply, Melded Treatment and Transportation rates, with the Customer Service, Storage, and Supply Reliability Charges converted to a dollar per acre-foot basis.

The rate and charge projections in Chart 6-1 show the overall M&I rate per acre-foot of treated water. The overall rate includes the Water Authority’s fixed water charges and commodity rates. The fixed water charges are converted to an average rate (i.e. $/acre-foot) by dividing them by the projected water sales. The commodity rates and the average fixed water rates are then summed to calculate the Water Authority’s overall M&I water rate. As the chart shows, rates and charges are projected to continue to increase throughout the LRFP planning period as the debt service payments related to the CIP ramp up and water supply costs continue to increase. The Compound Annual Growth Rates (CAGR) of the high and low projections are 4.8% and 1.6%, respectively. Chart 6-1 shows the estimated overall high and low M&I water rate estimates which includes both the fixed charges (i.e. Storage Charge) converted to a cost per acre-foot and the commodity water rates.
It is important to note that even if the Water Authority’s rates and charges do not change, the overall M&I water rate is subject to change if the water sales forecast changes. For example, the difference between the Calendar Year 2016 overall M&I water rate presented in the Water Authority’s Adopted Operating and Capital Improvement Program Multi-Year Budget for Fiscal Years 2016 & 2017 and what is presented in the LRFP is the result of changes in the water sales forecast (i.e. water conservation levels). The Water Authority’s Calendar Year 2016 adopted rates and charges have not changed. The overall M&I water rate is only intended to provide a simple summary of the Water Authority’s water rates and charges for illustrative purposes.

The projected IAC over the LRFP planning period are shown in Table 6-2. The IAC is projected to increase over the LRFP planning period as debt service and other fixed costs increase.

### Table 6-2  Infrastructure Access Charge (Calendar Year)

<table>
<thead>
<tr>
<th>IAC ($/ME per month)</th>
<th>2016</th>
<th>2018</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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<tbody>
<tr>
<td></td>
<td>2.76</td>
<td>3.01</td>
<td>3.20</td>
<td>3.27</td>
<td>3.32</td>
<td>3.37</td>
<td>3.40</td>
<td>3.44</td>
<td>3.46</td>
</tr>
</tbody>
</table>

#### 6.3 Projected Sources of Funds

A financial projection for the Water Authority was developed using the high rate and charge assumptions for CIP, water sales, capital financing plan, and other assumptions provided in this section. This provides a conservative estimate of the Water Authority’s expected financial performance but deviates slightly from the expected CIP and water sales data provided in previous sections. Chart 6-2 and Table 6-3 below show the projected sources of funds for the planning period.

### Table 6-3  Revenues & Other Funding Sources* (Fiscal Year)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Gross Water Sales</td>
<td>$479.31</td>
<td>$518.00</td>
<td>$527.36</td>
<td>$534.18</td>
<td>$571.66</td>
<td>$612.77</td>
<td>$656.83</td>
<td>$694.67</td>
<td>$725.78</td>
<td>$750.81</td>
<td>$774.35</td>
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<tr>
<td>Investment Income</td>
<td>4.43</td>
<td>4.31</td>
<td>4.37</td>
<td>3.98</td>
<td>3.98</td>
<td>3.90</td>
<td>3.82</td>
<td>4.54</td>
<td>5.30</td>
<td>6.06</td>
<td>6.63</td>
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<tr>
<td><strong>Capital Contributions</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>System Capacity Charges</td>
<td>14.60</td>
<td>14.75</td>
<td>14.89</td>
<td>15.04</td>
<td>15.19</td>
<td>15.35</td>
<td>15.50</td>
<td>15.65</td>
<td>15.81</td>
<td>15.97</td>
<td>16.13</td>
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<tr>
<td>Treatment Capacity Charges</td>
<td>0.40</td>
<td>0.40</td>
<td>0.41</td>
<td>0.41</td>
<td>0.42</td>
<td>0.42</td>
<td>0.43</td>
<td>0.43</td>
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<tr>
<td>Contributions in Aid of Construction</td>
<td>-</td>
<td>2.30</td>
<td>0.11</td>
<td>0.50</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Infrastructure Access Charges</td>
<td>30.43</td>
<td>31.25</td>
<td>32.66</td>
<td>33.88</td>
<td>34.94</td>
<td>35.81</td>
<td>36.51</td>
<td>37.08</td>
<td>37.55</td>
<td>37.94</td>
<td>38.27</td>
</tr>
<tr>
<td>Hydroelectric Revenue</td>
<td>3.54</td>
<td>3.54</td>
<td>3.44</td>
<td>3.45</td>
<td>3.65</td>
<td>3.66</td>
<td>3.66</td>
<td>3.67</td>
<td>3.67</td>
<td>3.68</td>
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<tr>
<td>Other Income 1</td>
<td>11.72</td>
<td>12.52</td>
<td>12.56</td>
<td>12.59</td>
<td>12.63</td>
<td>12.67</td>
<td>12.71</td>
<td>12.76</td>
<td>12.80</td>
<td>12.84</td>
<td>12.83</td>
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<tr>
<td>Fund Withdrawals (Deposits)</td>
<td>136.74</td>
<td>36.69</td>
<td>86.52</td>
<td>62.94</td>
<td>30.19</td>
<td>82.94</td>
<td>(24.27)</td>
<td>3.50</td>
<td>(24.39)</td>
<td>(27.64)</td>
<td>(33.75)</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$704.12</strong></td>
<td><strong>$646.94</strong></td>
<td><strong>$705.76</strong></td>
<td><strong>$695.69</strong></td>
<td><strong>$696.63</strong></td>
<td><strong>$791.76</strong></td>
<td><strong>$729.72</strong></td>
<td><strong>$797.09</strong></td>
<td><strong>$802.03</strong></td>
<td><strong>$825.46</strong></td>
<td><strong>$844.23</strong></td>
</tr>
</tbody>
</table>

* Based upon the high rate and charge scenario assumptions. Numbers may not foot due to rounding.

(1) Includes the Build America Bonds (BABs) interest rate subsidy.
**Gross Water Sales.** Gross water sales projections were developed based upon the baseline assumptions. The increase in revenues over time is due to increasing rates and charges as well as a return to modest demand recovery and growth.

**Infrastructure Access Charge.** The IAC revenue forecast is based upon the IAC shown in *Table 6-2.* As discussed previously, the IAC is calculated to help cover a percentage of the Water Authority’s fixed costs. The increase in revenues is due to increases in the number of system meter equivalents (MEs), which is based upon SANDAG projections, and the IAC increases.

**Property Tax and in-Lieu Charges.** Property taxes and in-lieu charge revenues are projected using a 2% growth rate. The primary driver for increases in this revenue stream are increases in assessed value and improvements. In recent years, this revenue source has been relatively flat due to real estate market conditions. Going forward the region should see a slow increase in home values and home sales.

**Investment Income.** The Water Authority receives income from investing its cash balances. Investment income on the cash balances in the Operating Fund, Rate Stabilization Fund, and Debt Service Reserve Fund is available to fund general Water Authority operating expenditures. The Pay-As-You-Go (PAYGO) Fund investment income is restricted to pay for capital expenditures or debt service. The Construction Fund investment income is used to fund construction expenditures and is included as part of the available funds, thus reducing the issuance sizing accordingly.

Investment income projections are based upon projected cash balances and prevailing interest rates. Interest rate projections are based upon a three-year trend from current rates to the 15-year average earning rate.
**Capital Contributions.** Capital contributions are independent of water use and are fixed to recover costs associated with new system capacity/reliability or maintaining existing system capacity/reliability. The use of capital contributions revenue is restricted to paying for capital expenditures and is deposited in the PAYGO Fund to ensure proper use of the funds.

Capital contributions are made up of Water Standby Availability Charges, System Capacity Charges, Treatment Capacity Charges, and Contributions in Aid of Construction (CIAC). Each of these revenue sources is discussed below.

**Water Standby Availability Charges** are based upon parcels/ acres in the Water Authority’s service area. This revenue stream is projected to remain flat with no rate increases anticipated.

**System Capacity and Treatment Charge** revenues are projected to initially drop and then remain relatively flat with increases in the charges being moderated by a slower rate of new system connections. Revenues are projected using a 1% annual increase. Section 8 of the LRFP provides an analysis of the potential impact variability in capacity charges have on the Water Authority’s financial position.

**Contributions in Aid of Construction (CIAC)** are contributions from member agencies for capital projects. Typically these revenues are restricted to specific projects/uses. In some instances, a member agency may reimburse the Water Authority for improvements to their system as part of a Water Authority project.

**Hydroelectric Revenues.** The Water Authority owns and operates two hydroelectric facilities that generate revenues. These facilities include a facility at Lake Hodges and the Rancho Peñasquitos facility. The ability to produce power at the Rancho Peñasquitos facility can be impacted by low flow rates as a result of reduced member agency demands. These revenues are projected to remain flat with an annual inflation adjustment of 2%.

**Other Income.** Other income includes encroachment permits, easements, gain/loss on the sale of assets, delinquency fees, plan-check reimbursements, and operating grants. These revenues are projected to remain flat.

**Net Fund Withdrawals (Deposits).** Cash fund withdrawals provide an important source of funds for the Water Authority. Fund withdrawals may be made to meet annual operations and maintenance, CIP or debt service expenses, to stabilize water rates and charges, or to comply with debt service coverage and operating fund policies. Deposits are made when funds are available once all of the fiscal year operational or fund policy requirements are met (i.e. deposit into the RSF) or when planned (i.e. Stored Water Fund deposits).
6.4 Uses of Funds

The following chart and table shows the projected use of funds over the planning period. The largest uses of funds include:

- Water Purchases
- Capital Budget
- Debt Service
- Operations and Maintenance

Table 6-4  Expenditures (Fiscal Year) *

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</tr>
</thead>
<tbody>
<tr>
<td>Water Purchases</td>
<td>$367.72</td>
<td>$394.77</td>
<td>$390.50</td>
<td>$387.72</td>
<td>$411.03</td>
<td>$450.08</td>
<td>$491.18</td>
<td>$522.81</td>
<td>$548.85</td>
<td>$574.32</td>
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<td>Capital Budget</td>
<td>72.85</td>
<td>50.75</td>
<td>110.09</td>
<td>96.66</td>
<td>76.29</td>
<td>127.16</td>
<td>18.41</td>
<td>50.17</td>
<td>20.15</td>
<td>22.13</td>
<td>15.47</td>
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<tr>
<td>Debt Service</td>
<td>124.64</td>
<td>135.06</td>
<td>137.03</td>
<td>142.55</td>
<td>144.60</td>
<td>147.96</td>
<td>148.87</td>
<td>150.87</td>
<td>151.73</td>
<td>151.60</td>
<td>151.56</td>
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<tr>
<td>Operating Budget</td>
<td>49.39</td>
<td>48.96</td>
<td>50.43</td>
<td>52.12</td>
<td>53.69</td>
<td>55.30</td>
<td>56.96</td>
<td>58.66</td>
<td>60.42</td>
<td>62.24</td>
<td>64.10</td>
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<td>QSA Environmental/Other Commitments</td>
<td>15.02</td>
<td>17.40</td>
<td>17.71</td>
<td>16.63</td>
<td>11.02</td>
<td>11.26</td>
<td>14.30</td>
<td>14.57</td>
<td>20.88</td>
<td>15.18</td>
<td>13.61</td>
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<tr>
<td>Stored Water Expenditures *</td>
<td>74.50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Total</td>
<td>$704.12</td>
<td>$666.94</td>
<td>$705.76</td>
<td>$695.69</td>
<td>$696.63</td>
<td>$791.76</td>
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<td>$797.09</td>
<td>$802.03</td>
<td>$825.46</td>
<td>$844.23</td>
</tr>
</tbody>
</table>

* Based upon the high rate and charge scenario assumptions.

(1) Includes management fees and charges.
(2) Includes equipment purchases and hydropower operations and maintenance costs.
(3) Other Commitments includes the 2012 Pipeline Bonds.
(4) Stored water purchases and withdrawals are not shown due to their variability.

Water purchases include all expenditures incurred by the Water Authority for supply and treatment. The Water Authority purchases water from MWD, IID, and the Carlsbad Desalination Plant; and incurs costs operations and maintenance costs associated with the canal lining program. Other expenditures include MWD’s transportation charges for transporting the IID and canal lining water to the Water Authority’s system, MWD’s RTS Charge, MWD’s Capacity Charge, and the Water Authority’s local supply development credit programs. Water treatment costs are those associated with either MWD or water treatment contracts that the Water Authority has with other entities, including the operations contract for its Twin Oaks Water Treatment Plant.

(1) Includes cost related to the plant operations and excludes payments on the pipeline bonds.
In addition to MWD's per acre-foot cost of water, MWD also charges its member agencies an RTS and Capacity Reservation Charge. These charges are passed through to the Water Authority's member agencies, so they have no net revenue or expenditure impact.

MWD water rates and charges for 2017-2026 are projected using an average annual increase of 7.4%. The IID water supply rate is inflated based upon expected inflation. Other water purchase costs are projected based upon MWD rates and other costs.

**IID Agreement & The Price Stability Realized**

In 2009, the Water Authority and IID reached an agreement setting the price schedule for the IID transfer water. A key element of that agreement was the annual escalation rate for the price of the water from 2016 through 2034. The agreement ties the annual increase of the IID supply rate to the Gross Domestic Product Implicit Price Deflator as published by the Bureau of Economic Analysis of the United States Department of Commerce, which is a general inflation index.

This stabilizes the price the Water Authority will pay for this highly reliable water supply, which is expected to be near 50% of the Water Authority’s water supply mix once deliveries reach the full amount of 200,000 acre-feet.

**Chart 6-4 IID & Canal Lining Delivery Schedule**

![ IID & Canal Lining Delivery Schedule Chart ]
**Operating Budget.** The operating budget makes up a small portion of the Water Authority’s overall expenditures, 6.8% for Fiscal Year 2016. In recent years, the Water Authority has seen increased demands including the commencement of operations at the Lake Hodges Hydroelectric Facility, regional conservation, community outreach, regulatory compliance, and supply development. Through judicious review of expenditures, prudent management of labor costs, and a culture of continuous improvement, the Water Authority has only seen minimal increases in recent years.

**Debt Service (Existing and Projected).** The Water Authority’s current debt service expenditures include three Certificates of Participaton (COPs) issues, two Water Authority Financing Agency Bonds (Series 2010A&B), four Water Revenue Refunding bonds, three outstanding Commercial Paper (CP) series, and one Extendable Commercial Paper (ECP) series. The scheduled principal and interest payments are shown in Table 6-5. The projected debt service payments are based upon the assumptions provided in Section 5.3.

Total debt service is projected to slightly increase over the Planning Period as the CIP continues to be funded, as shown in Table 6-5 and Chart 6-5.

---

**Table 6-5  Existing Long-Term Debt Service (Accrual Basis)***

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Interest</th>
<th>Principal</th>
<th>Total Long-Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>$78,490,721</td>
<td>$26,550,000</td>
<td>$105,040,721</td>
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<tr>
<td>2017</td>
<td>$76,649,750</td>
<td>$41,560,000</td>
<td>$118,209,750</td>
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<tr>
<td>2018</td>
<td>$74,564,302</td>
<td>$44,620,000</td>
<td>$119,184,302</td>
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<tr>
<td>2019</td>
<td>$72,439,714</td>
<td>$42,390,000</td>
<td>$114,829,714</td>
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<tr>
<td>2020</td>
<td>$70,389,081</td>
<td>$44,925,000</td>
<td>$115,314,081</td>
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<tr>
<td>2021</td>
<td>$68,236,946</td>
<td>$49,040,000</td>
<td>$117,276,946</td>
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<tr>
<td>2022</td>
<td>$65,839,904</td>
<td>$51,410,000</td>
<td>$117,249,904</td>
</tr>
<tr>
<td>2023</td>
<td>$63,364,073</td>
<td>$51,290,000</td>
<td>$114,654,073</td>
</tr>
<tr>
<td>2024</td>
<td>$60,914,864</td>
<td>$53,700,000</td>
<td>$114,614,864</td>
</tr>
<tr>
<td>2025</td>
<td>$58,260,098</td>
<td>$56,325,000</td>
<td>$114,585,098</td>
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<tr>
<td>2026</td>
<td>$55,453,766</td>
<td>$59,460,000</td>
<td>$114,913,766</td>
</tr>
<tr>
<td>2027</td>
<td>$52,589,095</td>
<td>$62,315,000</td>
<td>$114,904,095</td>
</tr>
<tr>
<td>2028</td>
<td>$49,068,788</td>
<td>$63,020,000</td>
<td>$112,088,788</td>
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<tr>
<td>2029</td>
<td>$45,960,568</td>
<td>$66,105,000</td>
<td>$112,065,568</td>
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<tr>
<td>2030</td>
<td>$42,690,095</td>
<td>$70,475,000</td>
<td>$113,165,095</td>
</tr>
<tr>
<td>2031</td>
<td>$39,211,634</td>
<td>$73,925,000</td>
<td>$113,136,634</td>
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<tr>
<td>2032</td>
<td>$35,698,511</td>
<td>$69,700,000</td>
<td>$105,398,511</td>
</tr>
<tr>
<td>2033</td>
<td>$32,685,450</td>
<td>$72,685,000</td>
<td>$105,370,450</td>
</tr>
<tr>
<td>2034</td>
<td>$29,350,044</td>
<td>$86,620,000</td>
<td>$115,970,044</td>
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<tr>
<td>2035</td>
<td>$25,448,074</td>
<td>$60,900,000</td>
<td>$86,348,074</td>
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<td>2036</td>
<td>$22,602,817</td>
<td>$63,725,000</td>
<td>$86,327,817</td>
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<tr>
<td>2037</td>
<td>$19,624,093</td>
<td>$66,685,000</td>
<td>$86,309,093</td>
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<tr>
<td>2038</td>
<td>$16,505,613</td>
<td>$69,770,000</td>
<td>$86,275,613</td>
</tr>
<tr>
<td>2039</td>
<td>$13,635,646</td>
<td>$73,925,000</td>
<td>$86,560,646</td>
</tr>
<tr>
<td>2040</td>
<td>$12,604,693</td>
<td>$76,695,000</td>
<td>$89,300,693</td>
</tr>
<tr>
<td>2041</td>
<td>$11,532,527</td>
<td>$77,755,000</td>
<td>$89,287,527</td>
</tr>
<tr>
<td>2042</td>
<td>$10,417,440</td>
<td>$80,870,000</td>
<td>$91,287,440</td>
</tr>
<tr>
<td>2043</td>
<td>$9,257,965</td>
<td>$90,020,000</td>
<td>$99,277,965</td>
</tr>
<tr>
<td>2044</td>
<td>$8,052,279</td>
<td>$91,220,000</td>
<td>$99,272,279</td>
</tr>
<tr>
<td>2045</td>
<td>$6,798,416</td>
<td>$92,465,000</td>
<td>$99,263,416</td>
</tr>
<tr>
<td>2046</td>
<td>$5,494,548</td>
<td>$93,760,000</td>
<td>$99,254,548</td>
</tr>
<tr>
<td>2047</td>
<td>$4,138,649</td>
<td>$95,110,000</td>
<td>$99,248,649</td>
</tr>
<tr>
<td>2048</td>
<td>$2,728,556</td>
<td>$96,510,000</td>
<td>$99,238,556</td>
</tr>
<tr>
<td>2049</td>
<td>$1,262,242</td>
<td>$97,965,000</td>
<td>$99,227,242</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,241,961,788</strong></td>
<td><strong>$1,693,245,000</strong></td>
<td><strong>$2,935,206,788</strong></td>
</tr>
</tbody>
</table>

* Net of Build America Bond (BABs) subsidy.
**Capital Budget.** The capital budget reflects the CIP provided in Section 4. The projected costs are adjusted for inflation and represent the best estimate of annual project costs.

**Stored Water Fund Expenditures.** The Water Authority is currently purchasing water to fill the San Vicente Dam’s storage capacity. Sufficient funds are available to complete the initial fill, which is expected to be completed within the current budget period and to fill other Water Authority storage capacity. The sale of water from storage will depend on water supply conditions. Therefore only the initial purchases are currently being shown.

**QSA Environmental/Other Commitments.** These costs include Equipments Replacement Fund Transfers and are based upon scheduled payments. Other commitments include costs associated with plan-check reviews, conservation programs and operating grants that are reimbursable. These expenditures are only tracked for the budget period. Projected expenditures (beyond Fiscal Year 2016) are assumed to be offset by other revenues.

---

**Desal Pipeline Bonds: How Funds are Paid**

The Water Authority’s payment of the Carlsbad Desalination Project is split into two parts:

- Payments made pursuant to the Water Purchase Agreement for desalinated water are treated as Operations and Maintenance costs and included in the water purchases.
- Debt service payments for the Series 2012 Pipeline Bonds are made on a super-subordinate basis and show as part of the Water Authority’s Other Commitments.
## Table 6- 6  Financial Projections (Fiscal Year) *

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Sales</td>
<td>$479,307</td>
<td>$517,996</td>
<td>$527,358</td>
<td>$539,179</td>
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<td>Capital Contributions</td>
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<td></td>
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<td></td>
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<tr>
<td>Water Standby Availability Charges</td>
<td>11,250</td>
<td>11,258</td>
<td>11,275</td>
<td>11,292</td>
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<td>System Capacity Charges</td>
<td>14,600</td>
<td>14,746</td>
<td>14,893</td>
<td>15,042</td>
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<td>Treatment Capacity Charges</td>
<td>400</td>
<td>404</td>
<td>408</td>
<td>412</td>
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<td>Infrastructure Access Charges</td>
<td>30,434</td>
<td>31,250</td>
<td>32,659</td>
<td>33,880</td>
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<tr>
<td><strong>TOTAL OPERATING REVENUE</strong></td>
<td>$535,991</td>
<td>$575,654</td>
<td>$586,593</td>
<td>$599,805</td>
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<td>Less Deposits to/plus Withdrawals from the Rate Stabilization Fund</td>
<td>24,178</td>
<td>30,827</td>
<td>17,500</td>
<td>(2,798)</td>
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<tr>
<td><strong>Non-Operating Revenue</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Investment Income(1)</td>
<td>3,119</td>
<td>3,300</td>
<td>3,610</td>
<td>3,348</td>
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<td>Property Taxes and In-Lieu Charges</td>
<td>11,700</td>
<td>11,934</td>
<td>12,173</td>
<td>12,416</td>
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<td>Hydroelectric Revenue</td>
<td>3,540</td>
<td>3,540</td>
<td>3,440</td>
<td>3,450</td>
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<td>BABs Interest Rate Subsidy</td>
<td>10,534</td>
<td>11,303</td>
<td>11,303</td>
<td>11,303</td>
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<tr>
<td>Other Revenue</td>
<td>1,181</td>
<td>1,216</td>
<td>1,252</td>
<td>1,290</td>
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<td><strong>TOTAL NON-OPERATING REVENUE</strong></td>
<td>$30,074</td>
<td>$31,293</td>
<td>$31,778</td>
<td>$31,807</td>
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<td><strong>TOTAL REVENUE</strong></td>
<td>$590,065</td>
<td>$606,947</td>
<td>$618,371</td>
<td>$631,612</td>
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<td><strong>Net Water Revenue Available for Debt Service</strong></td>
<td>$173,304</td>
<td>$194,215</td>
<td>$195,120</td>
<td>$189,155</td>
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<td><strong>Long-Term Debt Service</strong> *</td>
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<tr>
<td>Interest on Long-Term Debt</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998A COPs</td>
<td>555</td>
<td>555</td>
<td>555</td>
<td>555</td>
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<tr>
<td>2005A COPs</td>
<td>2,891</td>
<td>2,152</td>
<td>1,367</td>
<td>725</td>
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<td>2008A COPs</td>
<td>19,688</td>
<td>18,332</td>
<td>17,583</td>
<td>16,792</td>
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<td>2010A Bonds</td>
<td>2,319</td>
<td>1,717</td>
<td>1,551</td>
<td>1,370</td>
</tr>
<tr>
<td>2010B Bonds (BABs)</td>
<td>32,294</td>
<td>32,294</td>
<td>32,294</td>
<td>32,294</td>
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<tr>
<td>2011A Refunding Bonds</td>
<td>5,685</td>
<td>5,304</td>
<td>4,919</td>
<td>4,569</td>
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<td>2011B Refunding Bonds</td>
<td>4,707</td>
<td>4,707</td>
<td>4,707</td>
<td>4,707</td>
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<tr>
<td>2013A Refunding Bonds</td>
<td>13,982</td>
<td>13,982</td>
<td>13,982</td>
<td>13,878</td>
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<td>2015A Refunding Bonds</td>
<td>6,905</td>
<td>8,910</td>
<td>8,910</td>
<td>8,852</td>
</tr>
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<td>2017A Bonds</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>2020A Bonds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2023A Bonds</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td><strong>Total Interest on Long-Term Debt</strong></td>
<td>$89,025</td>
<td>$87,953</td>
<td>$85,867</td>
<td>$83,743</td>
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<td><strong>Principal on Long-Term Debt</strong></td>
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<tr>
<td>2005A COPs</td>
<td>13,880</td>
<td>15,005</td>
<td>14,690</td>
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<tr>
<td>2008A COPs</td>
<td>1,150</td>
<td>14,505</td>
<td>17,320</td>
<td>8,315</td>
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<td>2010A Bonds</td>
<td>3,975</td>
<td>4,130</td>
<td>4,295</td>
<td>4,470</td>
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<tr>
<td>2010B Bonds (BABs)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2011A Refunding Bonds</td>
<td>7,545</td>
<td>7,920</td>
<td>8,315</td>
<td>8,650</td>
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<tr>
<td>2011B Refunding Bonds</td>
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<td>-</td>
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<tr>
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<td>2020A Bonds</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>2023A Bonds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Principal on Long-Term Debt</strong></td>
<td>$26,550</td>
<td>$41,560</td>
<td>$44,620</td>
<td>$42,390</td>
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<tr>
<td><strong>Long-Term Debt Service</strong></td>
<td>$115,575</td>
<td>$129,513</td>
<td>$130,487</td>
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<td>Interest on Short-Term Debt</td>
<td>7,019</td>
<td>4,270</td>
<td>5,228</td>
<td>6,366</td>
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<td><strong>Principal on Short-Term Debt</strong></td>
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<td>-</td>
<td>8,647</td>
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<tr>
<td><strong>Total Short-Term Debt Service</strong></td>
<td>$7,019</td>
<td>$4,270</td>
<td>$5,228</td>
<td>$15,014</td>
</tr>
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<td><strong>Fees on Debt</strong></td>
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<tr>
<td>Long-Term Debt</td>
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<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Short-Term Debt Management Fees</td>
<td>2,032</td>
<td>2,032</td>
<td>2,070</td>
<td>2,158</td>
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<tr>
<td><strong>Total Fees</strong></td>
<td>$2,047</td>
<td>$2,047</td>
<td>$2,047</td>
<td>$2,047</td>
</tr>
<tr>
<td><strong>TOTAL DEBT SERVICE</strong></td>
<td>$124,641</td>
<td>$135,832</td>
<td>$137,802</td>
<td>$143,322</td>
</tr>
</tbody>
</table>

Senior Lien Debt Service Coverage Ratio | 1.50x | 1.50x | 1.50x | 1.50x |
Overall Debt Service Coverage Ratio     | 1.41x | 1.45x | 1.44x | 1.34x |

* Projections are based upon the high rate and charge scenario assumptions.

1. Investment income earned on short-term- and long-term debt proceeds and the RSF fund are excluded.
2. Does not include debt related management or other fees, or super subordinate Desal Pipeline debt service.
### Long-Range Financing Plan

#### Projected

<table>
<thead>
<tr>
<th></th>
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<th>2021</th>
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### San Diego County Water Authority

San Diego County Water Authority

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SECTION 6.0

Financial Forecast

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7.0 Funds and Reserves

The Water Authority maintains a number of different funds dedicated to support financial operations. Each fund serves a specific purpose which can be generally categorized as either an operating, capital, or debt service reserve fund. Funds categorized as operating provide monies for system operations, emergencies, working capital, debt service, and capital projects. The Water Authority’s operating funds include the Operating Fund, the Rate Stabilization Fund (RSF), and the Stored Water Fund. Capital funds hold monies for the Capital Improvement Program (CIP) and related asset expenditures. The Debt Service Reserve Fund contains reserves held in trust for the benefit of investors in the Water Authority’s long-term debt and currently consists of the 1998A Certificate of Participation (COP) debt issuances and was funded with cash from proceeds from the debt issuances; these funds are applied to debt service if pledged revenues are insufficient to satisfy the debt service requirements.

Figure 7-1 illustrates how the Water Authority’s rates and charges flow into the various funds. The funds are split into unrestricted and restricted. Unrestricted funds can be used for any type of expenditure while restricted funds are limited to capital expenditures such as in the case of the Pay-As-You-Go (PAYGO) Fund. It should be noted that the Construction and Debt Service Reserve Funds are not shown since their funding source is debt proceeds.

Figure 7-1 Flow of Revenues

- It is important to note that the Water Authority’s overall fund balances fluctuate over time, especially with respect to capital funds, which are funded by proceeds from debt issuances and then spent down over a two-to-three year period. The balance of this section provides a brief description of each fund held by the Water Authority and its function within the Long-Range Financing Plan (LRFP).
7.1 Description of Specific Funds and Policies

**Operating Fund.** The Operating Fund holds the Water Authority’s working capital and emergency operating reserve. In April 2003, the Water Authority amended its Operating Fund policy from a 60-day minimum balance of average annual operating expenditures to a target balance of 45 days of average annual operating expenditures. Common to both policies is a requirement that $5 million of such calculated amount must be designated and held available for emergency repairs to the Water Authority’s system due to unforeseen events. The Operating Fund provides working capital to ensure that even with mismatching cash receipts and disbursements, the Water Authority has ample liquidity/working capital.

**Rate Stabilization Fund.** In Fiscal Year 1990, the Water Authority established the RSF for the purpose of collecting amounts of water revenues greater than expenditures in years of high water sales. Funds can then be used to mitigate “rate shock” in years of low water sales and/or to manage the debt service coverage level. In August 2006, the Board adopted the current policy governing the RSF balances. The current policy replaced the old policy of setting a minimum and maximum balance with a target and a maximum balance. The RSF target balance is equal to the financial impact of 2.5 years of wet weather or mandatory drought regulations and the maximum fund balance is set equal to the financial impact of 3.5 years of wet weather or mandatory drought regulations. The effect of the current policy is to create a target for fund balances that is tied to the real financial impacts/risks that the fund is designed to protect against.

As a general rule, the Water Authority will transfer portions of its net water revenues exceeding the Board’s 1.5 times debt service coverage policy into the RSF. From time to time, as needed, the Water Authority will transfer amounts from its RSF into water revenues to manage its debt service ratio, or to help provide adequate working capital to the Operating Fund.

**Stored Water Fund.** In 2006, the Board created the Dam-Fill Fund as a separate fund to support the purchase of water for the initial filling of San Vicente Dam Raise Project. As such, the Dam-Fill Fund was structured as a sinking fund designed only to provide funds for the initial dam-fill water purchases and then be eliminated. In 2010, the Dam-Fill Fund was renamed to the Stored Water Fund.
**Pay-As-You-Go Fund.** The PAYGO Fund was established in Fiscal Year 1990 to serve as a mechanism to collect System and Treatment Capacity Charges and Water Standby Availability Charges to be used to fund CIP expenditures. The PAYGO Fund is a capital fund; therefore, all monies in the fund, including investment income, are restricted to capital expenditures including debt service. Contributions in Aid of Construction (CIAC) from member agencies are also deposited into the PAYGO Fund. CIAC are funds paid to the Water Authority by its member agencies for capital projects constructed on their behalf.

The Water Authority has some flexibility when determining the annual draws from PAYGO. Typically, the expenditure of PAYGO funds occur when bond proceeds are exhausted or when a project does not qualify for tax exempt financing.

**Construction Fund.** Similar to the PAYGO Fund, the Construction Fund is a capital fund. The Construction Fund is funded with the proceeds from the Water Authority's sale of debt (See Section 5.0). The Water Authority's Construction Fund is currently comprised of unspent proceeds of the Series 2010B and investment income.

Upon the sale of any single issue of tax-exempt debt, federal tax law currently dictates that the Water Authority must spend the proceeds of the issue within a prescribed period of time. As a result, the Construction Fund will typically fluctuate over two-to-three year periods as funds are raised through debt issuance, and then spent prior to the next issuance. It is anticipated that the spend down of the Series 2010B proceeds will be completed in the spring of 2017.

**Debt Service Reserve Fund.** The Debt Service Reserve Fund was created to hold the required legal reserve for Water Authority debt issues. Such reserves are held for the purpose of making an issue's annual debt service payments in the event that the Water Authority's pledged revenues are insufficient to make such payments. The reserve requirement is held in this fund until it is expended, generally to fund the last payment of the debt issuance. Interest earned on the Debt Service Reserve Fund is transferred into the Operating Fund and is not restricted. In Fiscal Year 2015, the Debt Service Reserve Fund totaled $12.2 million comprised of a reserve for the Series 1998A COP debt issuance.

**Equipment Replacement Fund.** In 2003, the Board separated the Equipment Replacement Fund from the Operating Fund. The Equipment Replacement Fund is funded by annual draws from the Operating Fund per depreciation schedules for small capital and operating equipment, such as computers, vehicles, the Supervisory Control and Data Acquisition (SCADA) system, etc. It is used to replace equipment that has reached the end of its effective useful life.
7.2 Projected Fund Balances

Projected fund balances over the planning period under the high-rate scenario assumptions are presented in the Chart and Table 7-1. The fund balance projections are based upon the sources and uses of funds data presented in Section 6.0. The Construction Fund exhibits the most volatility as debt is issued and the proceeds are spent down. In general, the funds are relatively stable with the PAYGO fund being drawn down over the initial projection period to provide cash funding for the CIP. It should also be noted that the Operating Fund can be used to fund CIP projects.

Table 7-1 Projected Year-End Fund Balances (Fiscal Year) *

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* Based upon the high rate and charge scenario assumptions.

(1) Stored water purchases and withdrawals are not shown due to their variability.
As shown in *Charts 7-2* the Operating Fund meets the Water Authority's fund balance target throughout the planning period. *Chart 7-3* illustrates the fluctuations in the RSF levels are primarily due to the financial impact of changes in water demand levels. The accumulated revenues in the RSF prior to Fiscal Year 2016 are used to support gradual increases in rates and charges to adjust to a new lower level of water sales while still meeting Board's debt service coverage reserve target. While withdrawals in the initial years support the transition to the lower level of sales, *Chart 7-3* shows increases in RSF fund balance starting in 2020. The projected 2026 RSF fund balance is at the target level.
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8.0 Risk Sensitivity Analysis

The Water Authority will be exposed to a mix of financial risks during the long-range financial planning period that are common to most water agencies. The financial crisis of 2008 showed that even the most careful planning can be disrupted by extreme conditions. Looking forward, there is the potential for major changes in both the economic and capital markets as the business cycle plays out. Preparing for them is a challenge. As part of its continuous improvement efforts, the Water Authority actively evaluates and prepares for different types of risk. The recent work done on the Water Authority’s fiscal sustainability evaluated several financial risks and resulted in the implementation of a new fixed charge.

Figure 8-1 provides an overview of the major financial risk factors that the Water Authority may face in the future. These factors are grouped into macroeconomic factors, local economic forces, and water sales. The foremost category of risk is water sales – the potential for diminished sales due to multiple years of wet/drought conditions or due to shortages of water available to sell. Reductions in water sales represent the most significant financial risk that the Water Authority will face during the planning period.

The principal local economic risk to the Water Authority is activity in the housing market, primarily significant swings in capacity charge revenues. As discussed in Section 6.0, these are fees paid when individuals and developers purchase water meters. Under typical economic conditions, capacity charges may be expected to supply about 17% of Water Authority net revenue during the planning period.

The primary macroeconomic factor affecting the Water Authority is the prevailing interest rate environment. Interest rates impact both the cost of borrowing and the investment income the Water Authority receives on its cash balances. As discussed previously, the impact of changes in interest rates depends on cash balances and the amount of variable rate debt outstanding.

This section describes the major risks identified above and provides an analysis of the potential impacts these risks may have on the future financial position of the Water Authority.
8.1 Water Sales Volatility

In 2003 and in 2015, the Water Authority modified its rate and charge structure to protect from wide swings in water sales revenue, by collecting a balanced mix of fixed and variable charges from its member agencies. In addition to enhancing revenue stability, the changes to the rate and charge structure also enhances the equity between member agencies when paying for long-term water reliability projects. Together, the Storage and Customer Service Charges makeup approximately 55% of the Water Authority’s projected net revenues and 35% of the estimated gross water sales revenue including the Supply Reliability Charge. This translates into better revenue stability in spite of water sales volatility.

Despite its fixed-rate structure, the Water Authority continues to have some exposure to water sales variability. The largest component of variability is on the per-acre-foot transportation rate, which directly varies with acre-foot sales. The second largest source of variability is the melded Municipal and Industrial (M&I) supply rate. This rate creates a weighted cost of sales from the different sources of water that the Water Authority purchases, and also recovers various other costs of supply, such as Imperial Irrigation District (IID) socioeconomic payments, annual costs of the Semitropic groundwater storage agreements, and a portion of debt service on the canal lining projects that is not reimbursed by state grants, etc. All of these costs are included in the melded M&I supply rate and factored into this variable-rate. If sales are lower than projected, the rates will under-recover the fixed cost components. In addition, at current pricing, supplies from MWD cost less in the near-term than supplies from either IID or the desalination plant, which have a contractually fixed delivery schedule. Therefore, in a reduced sales environment, the Water Authority will roll off of the less expensive Metropolitan Water District (MWD) supplies, and the higher-cost IID/desalination supplies will compose a larger share of the water purchases, again leading to under-recovery on the melded rate.

An additional, but lesser source of revenue variability is on the melded treatment rate. This rate is composed of several different sources of treated water with different costs. Some of these supplies are base-loaded due to contractual arrangements, or as in the case of the Water Authority’s Twin Oaks Valley Treatment Plant, must be used to the greatest possible capacity to operate at the lowest per unit cost rate. To the extent that the treatment facilities have different existing or implicit unit rates, variations in water sales may produce additional shortages or surpluses in revenue.

California is currently facing a variety of water supply and demand challenges. Table 8.1 illustrates the financial impact of additional reductions in water sales. It is important to note that the impact of the statewide mandatory demand reductions on the M&I sector and 15% cutback to Transitional Special Agricultural Water Rate (TSAWR) customers (based on MWD’s Fiscal Year 2016 supply allocation), are factored into the demand and financial projections provided in the document. Therefore, the table illustrates the financial impact of reducing demand below the regulated levels or if wet weather suppresses demand in spring of 2016.
The M&I decreases is significant and impacts transportation, supply, and treatment and the TSAWR cut results in a modest loss of transportation revenues. The net impact of the loss of revenues is reflected in the Revenue Impact column with corresponding Rate Impacts highlighted in gray. The Rate Impact shows the amount rates would need to increase to recover the loss of revenues. The Water Authority maintains adequate reserves to be able to prevent unscheduled mid-cycle rate increases resulting from unforeseen water sales decreases.

### 8.2 Changes in Interest Rates

The Water Authority uses Commercial Paper (CP), a short-term debt instrument with maturities not exceeding 270 days, to diversify its debt portfolio and achieve its variable-rate exposure. As a short-term tax-exempt borrowing instrument, interest rates have been quite low, averaging 1.1% over the past ten years. The Water Authority’s CP interest rates have ranged from a low of 0.06% to a high of 3.7%. The standard deviation (a standardized measure of the data’s dispersion) of the CP interest rate is 1.3%, indicating that 68% of the time, interest rates should range from almost 0% (the lower bound on interest rates) to 2.4%, and 95% of the time, representing two standard deviations, interest rates should range between almost 0% and nearly 3.7%.

At the time of this Long-Range Financing Plan, short-term variable interest rates have been trading near historical lows as the Federal Reserve had maintained the Federal Funds Target Rate at 0-0.25% from December 2008 to December 2015. The Water Authority has no variable rate debt exposure other than its CP Programs, which include traditional commercial paper and Extendable Commercial Paper (see Section 5.0 for full discussion) that performs similarly to traditional commercial paper. The Water Authority’s CP Programs continues to trade very favorably and its interest costs continue to be very low.

The Water Authority’s cash balances provide a natural hedge against short-term interest expense due to the fact that when interest rates on the CP programs rise they are offset by an increase in investment earnings. The Water Authority invests in taxable securities such as treasuries and agencies, corporate CP and the Local Agency Investment Fund. When compared to the Water Authority’s tax-exempt CP interest costs, these securities at a minimum tend to earn the difference in yield associated with a taxable interest earnings, and may earn additional yield corresponding to the longer term of the investment. The Government Code, with certain

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<td>15%</td>
<td>(56,798)</td>
<td>(23,328)</td>
</tr>
<tr>
<td>Change in TSAWR</td>
<td>15%</td>
<td>(5,176)</td>
<td>(543,454)</td>
</tr>
<tr>
<td>Total</td>
<td>(61,974)</td>
<td>(23,328)</td>
<td>(6,507,245)</td>
</tr>
<tr>
<td>Units</td>
<td>329,484</td>
<td>321,855</td>
<td>132,193</td>
</tr>
<tr>
<td>Rate Impact</td>
<td>$19.75/AF</td>
<td>$32.82/AF</td>
<td>$12.00/AF</td>
</tr>
</tbody>
</table>
exceptions, permits local government to invest in maturities for up to five years, whereas CP is limited to a maximum investment term of 270 days. At the time of publishing this plan, the average days to maturity of the Water Authority’s investment portfolio is 401 days, and the average term is 905 days.

Chart 8-1 shows a history of CP interest rate and investment earnings rates. As can be seen from the graphic, investment earnings rates have almost always exceeded CP interest rates. This is because investments earn returns at taxable levels and CP interest rates are based on tax-exempt levels.

Investment earnings and interest expense have a strong positive correlation. Over the ten-year period, investment earnings and interest expense had a correlation coefficient of 0.95 (zero indicates no degree of correlation, and one indicates a perfect correlation), so it is apparent then that cash fund balances provide a natural hedge against interest rate expenses. The green line shows the percent of outstanding CP to the Water Authority’s cash balances (excluding debt proceeds). Over the majority of this time period, the Water Authority had more cash and investments than outstanding CP, which provided a good hedge against interest rate fluctuations.

Chart 8-2 looks at projected CP usage and cash balances for the planning period. The cash balances presented only include cash funds that hedge variable rate debt interest expense. Therefore, the Construction and Debt Service Reserve Funds are not included because they typically earn a fixed rate of return (i.e. Guaranteed Investment Contract) and, therefore, do not hedge against changing interest rates. The percent hedged represents the amount of outstanding CP over certain investments.
The result of this analysis provides a range of net interest rate exposure to the Water Authority. Chart 8-3 shows the range of projected risks at average, minimum, and maximum computed at one standard deviation above the means. In the early years, the Water Authority’s CP interest expense is less than its cash and investment earnings, which mean the negative values represent additional investment earnings that offset the entire cost of the CP programs. As we move beyond 2017, the Water Authority’s cash and investment balance is drawn down over time so that the amount of cash and investments hedging the CP Program goes down to 35%, as shown in Chart 8-2. At this point in the curve, the Water Authority approaches its maximum interest rate exposure, at one standard deviation above the means, which ranges from $2.5 million to $6.3 million for the average rate and high-rate scenarios. There are several possible approaches that can be used to mitigate this risk.

- Manage the ratio of outstanding CP to cash balances by reducing the amount of CP or by increasing reserve levels
- Reduce the variability of interest rates by transitioning to a fixed-rate instrument
- When developing the biennial budget, use an adequately conservative interest rates for interest expense and investment earnings to make it unlikely that net interest rate exposure will increase above projected levels
- Maintain an adequate Rate Stabilization Fund (RSF) to accommodate variations in interest expense

The Water Authority relies on a certain amount of variable or short-term debt exposure to decrease its overall cost of capital, so the first option is not practical. The Water Authority does not have a swap policy at the present time, so the second option cannot be used. The Water Authority practices a combination of the third and fourth approaches. Budgets and financial plans use interest rates which are somewhat likely to understate investment returns, and potentially overstate interest rates payable for CP. In addition, the Water Authority maintains an RSF sized to provide protection against a 95% exceedance of 2.5 to 3.5 years of extremely wet weather. As discussed in the hydrologic risk section, unless all risks happen concurrently, this reserve capacity can also be used to protect against interest rate risk as well as connection fee revenue risk.
8.3   Capacity Charge Revenues

Capacity charge revenue is comprised of system and treatment capacity charges and are a highly variable form of revenue. The chart below examines capacity charge revenues that have been collected since the inception of the charge in 1991. The bars reflect the revenue received and the line reflects the calculated number of meter sales for each fiscal year.

Revenue received via capacity charges is indicative of the region’s housing market, as revenue is collected upon a building permit being issued. Chart 8-5 summarizes the historical building permits issued annually for single family and multi-family residences. Similar to the chart for capacity charge revenues, the housing slump in the mid-90’s and the recession that began in late 2007 are readily apparent and show an 80% reduction in revenues.

As a result of increases in building permit activity, a sign of an improving economy, revenue from capacity charges has also been increasing since a low in 2010.

The variability in the capacity charge data presented in Chart 8-4 can be expressed in terms of its standard deviation, a common statistical term. Over the 25-year period that the charge has been in effect, the average or mean is $17.0 million. Utilizing the standard deviation calculation, the most likely range of values (approximately 68%) will fall within one standard deviation from the mean (which equates to +/- $8.7 million). Based on these data points, it can be extrapolated that the Water Authority would most likely receive revenue between $8.3 million and $25.7 million. This aligns well with the Water Authority’s current conservative estimate of $15 million for Fiscal Year 2016.

In preparation of the LRFP, the Water Authority has maintained its current conservative approach to ensure that it is protected from excessive variability in capacity charge revenues. The overall projection takes into account historical data and forecasted information on growth.

Source: U.S. Census Bureau
9.0 Appendices

9.1 Summary of Outstanding Obligations

The Water Authority is authorized to issue Certificates of Participation (COPs), Tax Exempt Commercial Paper (TECP), General Obligation Bonds, Revenue Bonds, Assessment Bonds and Variable Rate Demand Bonds (VRDBs) to meet its funding needs.

9.1.1 Revenue Bonds

**Water Revenue Refunding Bonds, Series 2015A.** On September 9, 2015, the Water Authority issued $184,795,000 of Water Revenue Refunding Bonds, Series 2015A (the 2015A Bonds) to refinance a portion of the design, acquisition, and construction of various capital projects of the Water Authority's CIP by advance refunding a portion of the 2008A Certificates in the amount of $142,445,000 and a portion of the 2010A Water Revenue Bonds in the amount of $52,375,000.

The 2015A Bonds have stated interest rates ranging from 2.00 percent to 5.00 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2029. No debt service reserve fund was created to secure the 2015A Bonds. The 2015A bonds were issued at a Premium of $33,756,117.

**Water Revenue Refunding Bonds, Series 2013A.** On March 13, 2013, the Water Authority issued $299,105,000 of Water Revenue Refunding Bonds, Series 2013A (the 2013A Bonds) to refinance a portion of the design, acquisition, and construction of various capital projects of the Water Authority's CIP by advance refunding a portion of the 2004A Certificates in the amount of $344,785,000.

The 2013A Bonds have stated interest rates ranging from 3.00 percent to 5.00 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2034. No debt service reserve fund was created to secure the 2013A Bonds. The principal balance of outstanding bonds at June 30, 2015 was $299,105,000, or $345,507,557 net of unamortized premium of $46,402,557. The principal balance of outstanding bonds at June 30, 2014 was $299,105,000, or $347,960,549 net of unamortized premium of $48,855,549.

**Water Furnishing Revenue Bonds, Series 2012 (Series 2012 Pipeline Bonds).** On December 20, 2012, the California Pollution Control Financing Authority (the Issuer) issued $203,215,000 of Water Revenue Refunding Bonds, Series 2012 (the 2012 Pipeline Bonds) to pay a portion of the cost of constructing a pipeline to connect the Carlsbad reverse osmosis desalination plant (Plant) to the existing distribution system of the San Diego County Water Authority. The issuer loaned the proceeds to the San Diego County Water Authority Financing Agency to construct the Pipeline. Upon completion of the Plant and Pipeline, the Water Authority is obligated to make installment payments to the San Diego County Water Authority Financing Agency

The 2012 Pipeline Bonds have stated interest rate of 5.00 percent payable semi-annually on January 1 and July 1. Their maturities extend to November 21, 2045. No debt service reserve fund was created to secure the 2012 Pipeline Bonds. The 2012 Pipeline Bonds are limited obligations of the issuer payable solely from
pipeline loan repayments and contracted shortfall payments should they be necessary from Poseidon Resources (Channelside) L.P. per the terms of the Water Purchase Agreement. The principal balance of outstanding bonds at June 30, 2015 and 2014 was $203,215,000.

**Water Revenue Refunding Bonds, Series 2011A.** On August 11, 2011, the Water Authority issued $139,945,000 of Water Revenue Refunding Bonds, Series 2011A (the 2011A Bonds) to refinance a portion of the design, acquisition, and construction of various capital projects of the Water Authority’s CIP by advance refunding a portion of the 2002A Certificates in the amount of $150,270,000.

The 2011A Bonds have stated interest rates ranging from 0.45 percent to 5.00 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2027. No debt service reserve fund was created to secure the 2011A Bonds. The principal balance of outstanding bonds at June 30, 2015 was $119,100,000, or $131,462,389 net of unamortized premium of $12,362,389. The principal balance of outstanding bonds at June 30, 2014 was $126,285,000, or $139,684,789 net of unamortized premium of $13,399,789.

**Water Revenue Refunding Bonds, Series 2011B.** On September 28, 2011, the Water Authority issued $94,540,000 of Water Revenue Refunding Bonds, Series 2011B (the 2011B Bonds) to refinance a portion of the design, acquisition, and construction of various capital projects of the Water Authority’s CIP by advance refunding a portion of the 2002A and 2004A Certificates in the amount of $62,085,000 and $36,290,000, respectively.

The 2011B Bonds have stated interest rates ranging from 3.00 percent to 5.00 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2031. No debt service reserve fund was created to secure the 2011B Bonds. The principal balance of outstanding bonds at June 30, 2015 was $94,540,000, or $104,449,447 net of unamortized premium of $9,909,447. The principal balance of outstanding bonds at June 30, 2014 was $94,540,000, or $105,072,031 net of unamortized premium of $10,532,031.

**Subordinate Lien Water Revenue Refunding Bonds, Series 2011S-1.** On July 21, 2011, the Water Authority issued $86,630,000 of Subordinate Lien Water Revenue Refunding Bonds, Series 2011S-1 (the 2011S-1 Bonds) to refinance a portion of the design, acquisition, and construction of various capital projects of the Water Authority’s CIP by refunding the Water Authority Commercial Paper Notes, Series 2 in the amount of $100,000,000.

The 2011S-1 Bonds have stated interest rates ranging from 3.00 percent to 5.00 percent payable semi-annually on January 1 and July 1. Their maturities extend to July 1, 2016. No debt service reserve fund was created to secure the 2011S-1 Bonds. The principal balance of outstanding bonds at June 30, 2015 was $86,630,000, or $89,424,701 net of unamortized premium of $2,794,701. The principal balance of outstanding bonds at June 30, 2014 was $86,630,000, or $92,219,417 net of unamortized premium of $5,589,417.

**Water Revenue Bonds, Series 2010A (Non-AMT Tax Exempt).** On February 4, 2010, the SDCWAFGA issued $98,495,000 of Water Revenue Bonds, Series 2010A (Non-AMT Tax-Exempt) (the 2010A Bonds) for the design, acquisition, and construction of various capital projects in furtherance of the Water Authority’s CIP. In addition, proceeds were used to refund a portion of the 1998A Certificates in the amount of $51,005,000. The balance of proceeds were be used to finance CIP projects, including interest incurred during construction.
The 2010A Bonds have stated interest rates ranging from 4.00 percent to 5.25 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2027. No debt service reserve fund was created to secure the 2010A Bonds. The principal balance of outstanding bonds at June 30, 2015 was $94,365,000, or $100,115,204 net of unamortized premium of $5,750,204. The principal balance of outstanding bonds at June 30, 2014 was $96,925,000, or $103,171,620 net of unamortized premium of $6,246,620.

**Water Revenue Bonds, Series 2010B (Taxable Build America Bonds).** On February 4, 2010, the SDCWAFA issued $526,135,000 of Water Revenue Bonds, Series 2010B (Taxable Build America Bonds) (the 2010B Bonds) for the design, acquisition, and construction of various capital projects in furtherance of the Water Authority’s CIP. The 2010B Bonds have a stated interest rate of 6.138 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2049. No debt service reserve fund was created to secure the 2010B Bonds.

The 2010B Bonds were designated as Taxable Build America Bonds (BABs) under the provisions of the American Recovery and Reinvestment Act of 2009, the interest with respect to which is not excluded from gross income for federal income tax purposes, but is exempt from State of California personal income taxes. The Water Authority receives semi-annual subsidy payments from the United States Treasury equal to 35 percent of the interest payable on the 2010B Bonds. Subsidy payments were reduced by 7.3 percent and 7.2 percent in Fiscal Years 2015 and 2014, respectively, under Congressionally-mandated sequestration. Sequestration consists of across-the-board federal budget cuts that were implemented in March 2013, triggered by Congress’ failure to reach agreement over how to significantly cut the federal deficit. The sequestration reduction rate will be applied unless and until a law is enacted that cancels or otherwise impacts the sequestration, at which time the sequestration reduction rate is subject to change. Although the sequestration was effective March 2013, the Water Authority received the full amount of the subsidy during Fiscal Year 2013. The principal balance of outstanding bonds at June 30, 2015 and 2014 was $526,135,000.

9.1.2 Certificates of Participation (COPs)

**Water Revenue Certificates of Participation, Series 2008A.** On May 21, 2008, the Water Authority issued $558,015,000 of Water Revenue Certificates of Participation, Series 2008A (the 2008A Certificates) for the design, acquisition, and construction of various capital projects in furtherance of the Water Authority’s CIP. In addition, proceeds were used to refund a portion of the 1997A Certificates in the amount of $63,165,000.

The 2008A Certificates have stated interest rates ranging from 4.00 percent to 5.00 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2038.

The 2008A Certificates require that a reserve be maintained in an amount equal to the lesser of $23,670,625 or one-half of maximum annual debt service on the 2008A Certificates. At June 30, 2015, the reserve requirement was fully satisfied by a Reserve Surety Policy issued by FSA. The 2008A Certificates are also insured by FSA.

On February 3, 2015, the Water Authority legally defeased a portion of the 2008A Certificates maturing on May 1, 2016 in the aggregate principal amount of $12,100,000. The principal balance of outstanding certificates at June 30, 2015 was $512,650,000, or $526,730,058 net of unamortized premium of $14,080,058. The principal...
The principal balance of outstanding certificates at June 30, 2015 was $57,375,000, or $63,084,412 net of unamortized premium of $5,709,412. The principal balance of outstanding certificates at 2014 was $70,885,000, or $77,429,936 net of unamortized premium of $6,544,936.

**Water Revenue Certificates of Participation, Series 1998A.** To provide funds for the design and construction of the Water Authority’s Emergency Storage Project and other water system improvements in furtherance of the Water Authority’s Capital Improvement Program, the Water Authority issued 1998A Water Revenue Certificates of Participation on November 17, 1998, in the aggregate principal amount of $180,000,000. On March 9, 2005, the Water Authority issued Water Revenue Refunding Certificates of Participation, Series 2005A (the 2005A Certificates) to advance refund a portion of the 1998A Certificates in the amount of $117,310,000. At June 30, 2015, the amount of defeased debt outstanding of the 1998A Certificates was $0.

On February 4, 2010, the San Diego County Water Authority Financing Agency issued Water Revenue Bonds, Series 2010A (Non-AMT Tax-Exempt) to refund a portion of the 1998A Certificates in the amount of $51,005,000. The 1998A Certificates have stated interest rates ranging from 4.50 percent to 5.25 percent payable semi-annually on May 1 and November 1. Their maturities extend to May 1, 2028. The 1998A Certificates required that a reserve be maintained in an amount equal to the lesser of $15,391,555 or maximum annual debt service on the 1998A Certificates. After the refunding from the 2005A Certificates, the reserve requirement was reduced to $12,240,775. At June 30, 2015, the reserve was fully funded. The certificates are insured by Financial Guaranty Insurance Company (FGIC). The principal balance of outstanding certificates at June 30, 2015 and 2014 was $11,685,000.

**9.1.3 Commercial Paper**

The Water Authority has a Tax-Exempt Commercial Paper (TECP) program through which it can borrow funds on a tax exempt basis for periods up to 270 days to provide financing for the Water Authority’s Capital Improvement Program (CIP). The Water Authority has remarketing agreements with five separate broker-dealers: Bank of America Securities LLC/Merrill Lynch, Citi group Global Markets Inc., Goldman, Sachs and Co., JPMorgan Chase & Co., and Morgan Stanley and Co. LLC. The remarketing fees for the various dealer agreements range from 0.05 percent to 0.10 percent per annum on the par amount of TECP outstanding. No advances have been made under any of the revolving credit and term loan agreements during the fiscal years ended June 30, 2015 and 2014.
In Fiscal Year 2014, the Water Authority added an Extendable Commercial Paper (ECP) program to provide financing for the Water Authority’s CIP. ECP offers a lower cost of funds than TECP, but is only available to highly rated agencies like the Water Authority. The Water Authority has the ability to access the capital markets and redeem the notes before the end of the 150 day extension period. ECP maturities are limited to between 1 and 120 days to allow a 150 day extension period and maintain a maximum maturity of 270 days. There is no bank support associated with ECP; therefore, the dealers play a more central role. This moderately sized program provides the Water Authority significant cost savings and the opportunity to add a new debt instrument to enable the debt portfolio to be better optimized.

The TECP and ECP notes are secured and payable on a parity basis solely from net water revenues and are subordinate to the Water Revenue Certificates of Participation (COP), Water Revenue Bonds, and Water Revenue Refunding Bonds. At June 30, 2015 and 2014, the Water Authority had short-term debt outstanding of $360,000,000.

**Commercial Paper Notes, Series 5.** On June 29, 2011, the Commercial Paper Notes, Series 5 (the Series 5 Notes) were issued for a total maximum authorized amount of $100,000,000. The Series 5 Notes have liquidity support in the form of a revolving credit and term loan agreement with Wells Fargo Bank, N.A. and, unless otherwise extended, will terminate on June 27, 2016. Effective March 3, 2014, the Water Authority pays annual commitment fees of 0.33 percent based on the par amount of the commitment. At June 30, 2015 and 2014, the balance outstanding was $100,000,000.

**Commercial Paper Notes, Series 7.** On June 26, 2013, the Commercial Paper Notes, Series 7 (the Series 7 Notes) were issued for a total maximum authorized amount of $100,000,000. The Series 7 Notes have liquidity support in the form of a revolving credit and term loan agreement with JPMorgan Chase Bank, N.A. and, unless otherwise extended, will terminate on June 24, 2016. During the term of the agreement, the Water Authority pays annual commitment fees of 0.36 percent based on the par amount of the commitment. At June 30, 2015 and 2014, the balance outstanding was $100,000,000.

**Commercial Paper Notes, Series 8.** On April 2, 2014, the Commercial Paper Notes, Series 8 (the Series 8 Notes) were issued for a total maximum authorized amount of $110,000,000. The Series 8 Notes have liquidity support in the form of a revolving credit and term loan agreement with Bank of Tokyo-Mitsubishi UFJ, Ltd. and, unless otherwise extended, will terminate on June 27, 2017.

During the term of the agreement, the Water Authority pays annual commitment fees of 0.33 percent based on the par amount of the commitment. At June 30, 2015 and 2014, the balance outstanding was $110,000,000.

**Extendable Commercial Paper Notes, Series 1.** On June 19, 2014, the Extendable Commercial Paper Notes, Series 1 (the Series 1 ECP Notes) were issued for a total maximum authorized amount of $50,000,000. The Water Authority has appointed Merrill Lynch, Pierce, Fenner & Smith Incorporated and Morgan Stanley & Co. LLC as co-dealers for the Series 1 ECP Notes. ECP does not have bank liquidity support. At June 30, 2015 and 2014, the balance outstanding was $50,000,000.
9.1.4 Other Obligations

QSA Environmental

Contributions Payable. Contributions Payable concern the Water Authority’s payment obligations for environmental and socioeconomic impacts related to the Quantification Settlement and other connected Agreements. These payments include contributions to the QSA JPA for environmental mitigation pursuant to the QSA JPA Creation and Funding Agreement, and payments to the IID on behalf of the Imperial Valley Socioeconomic Improvement Committee, the Local Entity, to mitigate third-party socioeconomic impacts of the Conserved Water Transfer Agreement.

(1) On April 25, 2007, the QSA JPA approved an agreement to modify the schedule of contributions payable pursuant to the QSA JPA Creation and Funding Agreement in order to more appropriately match environmental mitigation funding obligations. On May 20, 2015, the QSA JPA approved an agreement for a second modification of payment schedules pursuant to the QSA JPA Creation and Funding Agreement in order to conform to the long term financing plan. The outstanding balance of the payment obligation at June 30, 2015 and 2014 was $41,157,100 and $43,819,895, respectively. The total contributions payable are as follows:

Table 9-1 QSA JPA Creation and Funding Agreement

<table>
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<th>Year</th>
<th>Principal</th>
<th>Interest</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>2016</td>
<td>$5,665,713</td>
<td>$2,410,633</td>
<td>$8,076,346</td>
</tr>
<tr>
<td>2017</td>
<td>7,977,816</td>
<td>2,076,570</td>
<td>10,054,386</td>
</tr>
<tr>
<td>2018</td>
<td>8,568,383</td>
<td>1,596,431</td>
<td>10,164,814</td>
</tr>
<tr>
<td>2019</td>
<td>7,579,399</td>
<td>1,085,268</td>
<td>8,664,667</td>
</tr>
<tr>
<td>2020</td>
<td>2,179,549</td>
<td>630,504</td>
<td>2,810,053</td>
</tr>
<tr>
<td>2021-2025</td>
<td>8,197,849</td>
<td>1,589,492</td>
<td>9,787,341</td>
</tr>
<tr>
<td>2026</td>
<td>988,391</td>
<td>59,302</td>
<td>1,047,693</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$41,157,100</strong></td>
<td><strong>$9,448,200</strong></td>
<td><strong>$50,605,300</strong></td>
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</table>

(2) On May 14, 2007, the Water Authority and the IID executed the Settlement Agreement Resolving Present and Future Disputes under Sections 14.5 and 18.1 of the Revised Fourth Amendment to the IID/Water Authority Conserved Water Transfer Agreement pursuant to which the Water Authority will pay $40,000,000 according to a payment schedule in the Agreement for third-party socioeconomic impacts as a result of the Conserved Water Transfer Agreement by and between the two agencies. The outstanding balance of the payment obligation at June 30, 2015 and 2014 was $5,880,000 and $8,820,000, respectively. This obligation is non-interest bearing. The total contributions payable are as follows:

Table 9-2 IID Third Party Socioeconomic Impacts Agreement

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<th>Year</th>
<th>Principal</th>
<th>Interest</th>
<th>Total</th>
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<tbody>
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<td>2016</td>
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<td>-</td>
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<tr>
<td>2017</td>
<td>2,940,000</td>
<td>-</td>
<td>2,940,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$5,880,000</strong></td>
<td>-</td>
<td><strong>$5,880,000</strong></td>
</tr>
</tbody>
</table>
Defined Benefit Pension Plans

California Public Employees’ Retirement System

Plan Description

All qualified full-time Water Authority employees are required to participate in the Water Authority’s Miscellaneous Plan with the California Public Employees’ Retirement System (CalPERS), an agent multiple-employer public employee defined benefit pension plan. CalPERS provides retirement, disability benefits, and death benefits to plan members and beneficiaries. CalPERS acts as a common investment and administrative agent for participating public entities within the State of California. A menu of benefit provisions as well as other requirements is established by state statutes within the Public Employees’ Retirement Law. The Water Authority selects optional benefit provisions from the benefit menu by contract with CalPERS and adopts those benefits through Board approval. Benefit provisions and all other requirements are established by state statute, Water Authority resolution, and contracts with employee bargaining groups.

Effective January 1, 2013, Water Authority new hires who meet the definition of “new employee” and “new member” accrue and receive defined benefit pension plan benefits in accordance with the California Public Employees’ Pension Reform Act (PEPRA) of 2013.

Benefits Provided. CalPERS provides service retirement and disability benefits, annual cost of living adjustments and death benefits to plan members, who must be public employees and beneficiaries. Benefits are based on years of credited service, equal to one year of full time employment. Members with five years of total service are eligible to retire at age 50 with statutorily reduced benefits. All members are eligible for non-duty disability benefits after ten years of service. The death benefit is the Optional Settlement 2W Death Benefit. The cost of living adjustments are applied as specified by the Public Employees’ Retirement Law.

Contributions. Current participants are required to contribute eight percent of their annual covered salary to fund the Plan. The Water Authority pays seven percent of the employees’ required contribution and the employee pays the remaining one percent required contribution. For the fiscal years ended June 30, 2015 and 2014, the amount contributed by the Water Authority on behalf of the employees (the seven percent contribution) was $1,732,011 and $1,802,194, respectively.

The Water Authority is required to contribute the remaining amounts, the required employer contribution rate multiplied by the covered salary, necessary to fund the benefits for its members, using the actuarial basis recommended by CalPERS actuaries and actuarial consultants, and adopted by the CalPERS Board of Administration.

Net Pension Liability. The Water Authority’s net pension liability for the Plan is measured as the total pension liability, less the pension plan’s fiduciary net position. The net pension liability of the Plan is measured as of June 30, 2014, using an annual actuarial valuation as of June 30, 2013, rolled forward to June 30, 2014, using standard update procedures. As of June 30, 2015, the Water Authority had a Net Pension Liability of $57.8 million. For additional information see Note 12 in the FY2015 Comprehensive Annual Financial Report.
**Plan Description.** The Water Authority established a Terminal Pay Plan (TPP), effective December 10, 2007.

**Other Post-Employment Benefits (OPEB)**

**Plan Description.** The Water Authority has established a Retiree Healthcare Plan (Plan), a single-employer defined benefit retiree healthcare plan. The Plan, administered by the Water Authority, provides employees who retire directly from the Water Authority, at a minimum age of 55, with a minimum of five years of service, a cash subsidy for monthly medical insurance premiums up to a cap of $200 per employee or $320 for employee plus spouse. Payments cease at age 65 when the retiree or spouse is eligible for Medicare. If applicable, a cash subsidy for the monthly medical premium continues up to a cap of $160 for a spouse until age 65 is attained. Surviving spouses are also eligible for this benefit. The Plan and its contribution requirements are established by Memoranda of Understanding with the applicable employee bargaining units and may be amended by agreements between the Water Authority and the bargaining units.

Employees who retire directly from the Water Authority at a minimum age of 55 with a minimum of five years of CalPERS service are eligible to continue medical coverage as a participant with active employees at a blended premium rate until eligible for Medicare at age 65 as an implied subsidy. A separate financial report is not prepared for the Plan.

**Funding Policy.** The annual contribution is based on projected pay-as-you-go financing requirements. For the fiscal years ended June 30, 2015 and 2014, the Water Authority’s cash contributions were $127,116 and $110,650 in current premiums, which covered 65 and 61 retirees and their spouses, respectively. The estimated implied subsidy for the fiscal years ended June 30, 2015 and 2014 was $167,648 and $145,350, resulting in total payments of $294,764 and $256,000, respectively. A payment of $4,300,000 was made by the Water Authority to fully fund California Employers’ Retiree Benefit Trust (CERBT), an OPEB trust administrator and affiliate program of CalPERS, for the purpose of prefunding obligations. The total contribution of $4,594,764 is the total fiscal year 2015 contribution for the liability of current and past services. As of June 30, 2015, the Water Authority had an OPEB actuarial surplus of $ 92,000. For additional information see Note 13 in the Fiscal Year 2015 Comprehensive Annual Financial Report.

Actuarial valuations of an ongoing plan involve estimates of the values of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trends. Amounts determined regarding the funded status of the Plan and the annual required contributions of the employer are subject to continual revisions as actual results are compared with past expectations and new estimates are made about the future.

The schedule of funding progress, presented as RSI, immediately following the Notes to the Financial Statements, presents multi-year trend information about whether the actuarial value of Plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.
9.2 Investment Policy

SAN DIEGO COUNTY WATER AUTHORITY

Annual Statement of Investment Policy

Calendar Year 2015

INTRODUCTION

The purpose of this document is to identify various policies and procedures that enhance opportunities for a prudent and systematic investment policy and to organize and formalize investment related activities. The ultimate goal is to enhance the economic status of the Water Authority while protecting its funds.

The Board of Directors and, upon formal delegation, the Treasurer for the San Diego County Water Authority, duly authorized to invest Water Authority monies by California Government Code, are trustees of Water Authority funds and therefore fiduciaries subject to the prudent investor standard.

SCOPE

It is intended that this policy cover all funds and investment activities under the direct authority of the San Diego County Water Authority, except for the employee’s retirement and deferred compensation funds. For investment purposes, the Water Authority manages the Operating Fund, Rate Stabilization Fund, Pay-As-You-Go Fund, Equipment Replacement Fund and Stored Water Fund together as the Pooled Operating Fund. The funds under the direct authority of the San Diego County Water Authority are accounted for in the Comprehensive Annual Financial Report and include:

*Operating Fund* – Holds the Water Authority’s working capital and emergency operating reserve.

*Rate Stabilization Fund* – Established to mitigate future water rate increases.

*Pay-As-You-Go Fund (PAYGO)* – Funds are dedicated for construction outlays and debt service.

*Equipment Replacement Fund* – Used to purchase minor capital equipment such as computer systems, vehicles, etc.

*Stored Water Fund* – Used to purchase water to fill Water Authority reservoirs.

*Construction (CIP) Fund* – Holds the proceeds of long-term debt and commercial paper to be expended for construction.

*Debt Service Reserve Fund* – Holds the required legal reserve for Water Authority debt issues.
OBJECTIVES

The investment policies and practices of the Board of Directors and the Treasurer for the San Diego County Water Authority are based upon limitations placed on it by governing legislative bodies. These policies have three primary goals:

1. To assure compliance with all Federal, State and Local laws governing the investment of monies under the control of the Treasurer.

2. To protect the principal monies entrusted to this organization.

3. To generate the maximum amount of investment income within the parameters of this Annual Statement of Investment Policy.

These goals are enhanced by the following objectives in order of importance.

A. **Safety:** It is the primary duty and responsibility of the Treasurer to protect, preserve and maintain cash and investments placed in his/her trust. Each investment transaction shall seek to ensure that capital losses are avoided, whether from institution default, broker-dealer default, or erosion of market value of securities. The Treasurer shall evaluate or cause to have evaluated each potential investment, seeking both quality in issuer and in underlying security or collateral. Diversification of the portfolio will be used in order to reduce exposure to principal loss.

B. **Liquidity:** An adequate percentage of the portfolio will be maintained in liquid short-term securities which can be converted to cash if necessary to meet disbursement requirements. Since all cash requirements cannot be anticipated, investment in securities with active secondary markets will be utilized. These securities will have a low sensitivity to market risk.

C. **Yield:** Yield should become a consideration only after the basic requirements of safety and liquidity have been met.

D. **Public Trust:** All participants in the investment process shall act as custodians of the public trust. Investment officials shall recognize that the investment portfolio is subject to public review and evaluation. The overall program shall be designed and managed with a degree of professionalism that is worthy of the public trust. In a diversified portfolio it must be recognized that occasional measured losses are inevitable, and must be considered within the context of the overall portfolio’s investment return, provided that adequate diversification has been implemented.
PRUDENT INVESTOR STANDARD

The Board of Directors and Treasurer adhere to the guidance provided by the “prudent investor standard”, California Government Code (Section 53600.3), which obligates a fiduciary to insure that “When investing, reinvesting, purchasing, acquiring, exchanging, selling, or managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency. Within the limitations of this section and considering individual investments as part of an overall strategy, investments may be acquired as authorized by law.”

DELEGATION OF AUTHORITY

The investment, per this policy, of Water Authority idle monies is annually delegated to the Treasurer by the Board of Directors who shall thereafter assume full responsibility for those transactions until the delegation of authority is revoked or expires. The Treasurer may delegate the day-to-day operations of investing to his/her designee(s), but not the responsibility for the overall investment program. A memorandum will be forwarded to the General Manager indicating the individual who is acting on the behalf of the Treasurer which details the period of time the designee will be responsible for the investment function. All transactions will be reviewed by the Treasurer on a regular basis to assure compliance with this Annual Statement of Investment Policy.

ETHICS AND CONFLICT OF INTEREST

Officers and employees involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program, or which could impair their ability to make impartial investment decisions. Employees and investment officers shall disclose any material financial interest in financial institutions that conduct business with this jurisdiction, and they shall further disclose any large personal financial/investment positions that could be related to the performance of the Water Authority’s portfolio. Employees and officers shall subordinate their personal investment transactions to those of the Water Authority, particularly with regard to the timing of purchases and sales, and shall avoid transactions that might impair public confidence. All officers and employees involved in the investment of public funds are required to comply with the Water Authority’s Conflict of Interest Code.

AUTHORIZED INVESTMENT INSTRUMENTS - POOLED OPERATING FUND

The Water Authority is governed by the California Government Code, Sections 53600 et seq. Within the context of these limitations, the following investments are authorized:

Local Agency Investment Fund (LAIF): The Water Authority may invest in the Local Agency Investment Fund established by the State Treasurer for the benefit of local agencies (Government Code Section 16429.1(b)). In order to ensure that LAIF is purchasing securities that comply with the Government Code, the monthly LAIF report shall be reviewed by the Treasurer. The fund must have twenty-four hour liquidity. The maximum permitted investment will be governed by State Law (currently $50 million).
Bankers’ Acceptances: The Water Authority may invest in prime self-liquidating bankers’ acceptances (Government Code Section 53601(g)) limited to banks rated a minimum of “A” by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings. The maximum investment maturity will be restricted to 180 days. Maximum portfolio exposure will be limited to 20 percent and single-issuer holdings to no more than 5 percent per issuer.

Treasury Securities: The Water Authority may invest in United States Treasury notes, bonds, bills, or certificates of indebtedness, or those for which the faith and credit of the United States are pledged for the payment of principal and interest (Government Code Section 53601(b)). The purchase of zero-coupon, or strips, is not permitted. Because these investments are the safest possible, there is no maximum portfolio limit. Maximum investment maturities will be restricted to five years.

Repurchase Agreements: The Water Authority may invest (Government Code Section 53601(j)) in overnight and term repurchase agreements with primary dealers of the Federal Reserve Bank of New York rated “A” or better by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings with which the Water Authority has entered into a master repurchase agreement. This agreement will be modeled after the Public Securities Association’s master repurchase agreement.

All collateral used to secure this type of transaction is to be delivered to a third party prior to release of funds. The third party will have an account in the name of the San Diego County Water Authority. The market value of securities used as collateral for repurchase agreements shall be monitored on a daily basis by the Treasurer and will not be permitted to fall below 102 percent of the value of the repurchase agreement. Collateral shall not include strips, zero-coupon instruments or instruments with maturities in excess of five years. The right of substitution will be granted, provided that permissible collateral is maintained.

In order to conform with provisions of the Federal Bankruptcy Code which provides for the liquidation of securities held as collateral for repurchase agreements, the only securities acceptable as collateral shall be securities that are direct obligations of and guaranteed by the U.S. Government and Agency securities as permitted under this policy. The Water Authority will maintain a first perfected security interest in the securities subject to the repurchase agreement and shall have a contractual right to liquidation of purchased securities upon the bankruptcy, insolvency or other default of the counterparty. Maximum portfolio exposure will be limited to 20 percent and maturities that do not exceed one year.

Reverse Repurchase Agreements: The Water Authority may enter (Government Code Section 53601(j)) into reverse repurchase agreements only “with primary dealers of the Federal Reserve Bank of New York or with a nationally or state-chartered bank that has or has had a significant banking relationship with a local agency”, and when an unanticipated cash outflow can be met more advantageously by agreeing to a reverse repurchase agreement rather than selling securities outright. In this situation, the reverse shall not exceed 92 days, and shall be matched to a known cash inflow of sufficient size to repay the principal and interest of the reverse repurchase agreement.

The Water Authority may also enter into reverse repurchase agreements when proceeds obtained through the reverse can be reinvested at a higher rate. The spread and reverse must be reviewed by the Treasurer prior to the transaction taking place. Reverse repurchase agreements entered into may not exceed a maximum maturity of 92 days unless the minimum spread between the rate on the investment and cost of funds is guaranteed in writing, in which case the maximum maturity is limited to one year. In all cases, the transaction must be matched as to maturity and dollars invested with its corresponding reinvestment.
In both situations a master repurchase agreement modeled after the Public Securities Association is required prior to the transaction taking place. In all cases, the security being reversed must have been held in the portfolio for a minimum of 30 days. Restrictions placed on repurchase agreements also apply to reverse repurchase agreements. Maximum portfolio exposure will be limited to 20 percent of the total portfolio value excluding the proceeds of reverses. This transaction requires written approval of the Treasurer.

Securities lending is not considered a reverse repurchase transaction and is not authorized under this section.

Certificates of Deposit: The Water Authority may invest in certificates of deposits issued by a state or national bank, savings association or federal association, a state or federal credit union located in California (Government Code Section 53630 et seq). A written depository contract is required with all institutions that hold Water Authority deposits. The Treasurer may waive collateral requirements for the portion of any deposit insured pursuant to federal law. Securities placed in a collateral pool must provide coverage for at least 110 percent of all deposits that are placed in the institution. Acceptable pooled collateral is governed by California Government Code Section 53651. Real estate mortgages are not considered acceptable collateral by the Water Authority, even though they are permitted in Government Code Section 53651(m). As provided under Government Code Section 53660, the bank or agent of depository is required to provide the Water Authority with a regular statement of pooled collateral. This report will state that they are meeting the 110 percent collateral rule (Government Code Section 53652(a)), a listing of all collateral with location and market value, plus an accountability of the total amount of deposits secured by the pool.

No bank shall receive Water Authority funds that has a long-term debt rating by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings less than “A”; however, deposits of up to the federal deposit insurance limit are allowable in any institution that insures its deposits pursuant to federal law, regardless of the ratings by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings. The maximum deposited in any one institution without collateral shall not exceed the amount covered by federal deposit insurance.

All banks accepting Water Authority deposits are required to provide annual information regarding compliance to the Community Reinvestment Act. Banks are required to maintain a minimum rating of “satisfactory” as defined under the Community Reinvestment Act.

As per Section 53638 of the California Government Code, any deposit shall not exceed the total paid-up capital and surplus of any depository bank, nor shall the deposit exceed the total net worth of any institution.

Maximum portfolio exposure is limited to 15 percent. Maximum investment maturity will be restricted to five years.

Placement Service Deposits: The Water Authority may invest in deposits placed with a private sector entity that assists in the placement of deposits with eligible financial institutions located in the United States (Government Code Section 53601.8). The full amount of the principal and the interest that may be accrued during the maximum term of each deposit shall at all times be insured by federal deposit insurance. Excluding certificates of deposit invested pursuant to this section, a maximum of 10 percent may be placed with any one private sector entity that assists in placing deposits. The combined maximum portfolio exposure to deposits placed pursuant to this section and Negotiable Certificates of Deposit is limited to 15 percent. Maximum investment maturity will be restricted to five years.
Negotiable Certificates of Deposit: The Water Authority may invest in negotiable certificates of deposit issued by a nationally or state-chartered bank or a state or federal association or by a state- or federally-licensed branch of a foreign bank (Government Code Section 53601(i)). Securities must have a minimum rating of “AA” by at least one of the three credit rating agencies (Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings), and not rated lower than “A” by the other two.

As per Section 53638 of the California Government Code, any deposit shall not exceed the total paid-up capital and surplus of any depository bank, nor shall the deposit exceed the total net worth of any institution.

The combined maximum portfolio exposure to Negotiable Certificates of Deposit and deposits invested pursuant to a Placement Service Deposit entity is limited to 15 percent and single-issuer holdings to no more than 5 percent per issuer. Maximum investment maturity is restricted to five years.

Commercial Paper: The Water Authority may invest in the highest grade of commercial paper (Government Code Section 53601(h)) as rated by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings (“A1/P1/F1”), issued only by general corporations that are organized and operating within the United States and having total assets in excess of $500 million. The general corporation must also have an “A” rating or higher for the issuers debentures, other than commercial paper, if any, as provided by Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings. Purchases shall not exceed ten percent of the outstanding paper of the issuing general corporation. Maximum investment maturity will be restricted to 270 days. Maximum portfolio exposure is limited to 25 percent and single-issuer holdings to no more than 5 percent per issuer.

Medium-Term Notes: The Water Authority may invest in corporate and depository institution debt securities issued by corporations organized and operating within the United States or by depository institutions licensed by the United States or any state and operating within the United States (Government Code Section 53601(k)). Securities must have a minimum rating of “AA” by at least one of the three credit rating agencies (Moody’s Investors Service, Standard & Poor’s, or Fitch Ratings) and not rated lower than “A” by the other two. Permissible types of notes include fixed rate and variable rate. Maximum investment maturity is restricted to five years. Maximum portfolio exposure is limited to 30 percent and single-issuer holdings to no more than 5 percent per issuer.

Municipal Securities: The Water Authority may invest in: (i) Registered treasury notes or bonds issued by any of the 50 United States, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by a state or by a department, board, agency, or authority of any state (Government Code Section 53601(c)(d)); and (ii) Bonds, notes, warrants, or other evidence of debt issued by a local agency or municipality located within California, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by the local agency, or by a department, board, agency, or authority of the local agency (Government Code Section 53601(a)(e)). Securities must have a minimum rating of “A” as rated by Moody’s Investors Service, Standard and Poor’s, or Fitch Ratings. Maximum maturity is limited to 5 years. Maximum portfolio exposure is limited to 20 percent and single-issuer holdings to no more than 5 percent per issuer.

Agencies: The Water Authority may invest in federal agency or United States government-sponsored enterprise obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises (Government Code Section 53601(f)). Permissible types of securities include discount, coupon and variable rate security issues. Callable securities are limited to a minimum of one-time call only, with a maximum allocation of 20 percent of the portfolio. Maximum maturity is limited to 5 years. Maximum portfolio exposure is limited to 85 percent.
**Supranationals:** The Water Authority may invest in United States dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development, International Finance Corporation, or Inter-American Development Bank. Securities must be eligible for purchase and sale within the United States and have a minimum rating of “AA” as rated by Moody’s Investors Service, Standard and Poor’s, or Fitch Ratings. Maximum maturity is limited to 5 years. Maximum portfolio exposure is limited to 10 percent and single-issuer holdings to no more than 5 percent per issuer.

**Money Market Funds:** The Water Authority may invest in funds authorized under Government Code Section 53601(l)(2) that have a minimum asset size of $500 million. Composition of the fund is limited to investments that are authorized by this Annual Statement of Investment Policy. Funds must have the highest rating by two of the three largest nationally recognized statistical rating organizations, or have an investment adviser registered with the Securities and Exchange Commission with not less than five years’ experience investing in the securities and obligations authorized by this investment policy. Any fund shares purchased will not include any type of commission. Maximum portfolio exposure is limited to 15 percent.

**Local Government Investment Pools:** The Water Authority may invest in local government investment pools created by a joint powers authority authorized under Government Code Section 53601(p). Pools must have the highest rating by at least one of the three largest nationally recognized statistical rating organizations. The pool must have twenty-four hour liquidity. Maximum portfolio exposure is limited to 25 percent.

**AUTHORIZED INVESTMENT INSTRUMENTS - BOND PROCEEDS AND DEBT SERVICE RESERVE FUNDS**

All investment types listed above are authorized investments for bond proceeds and debt service reserve funds with the addition of the following:

**Collateralized Guaranteed Investment Contracts (GICs)/Full Flex Repurchase Agreements:** Investment of funds in GICs is permitted, as per Section 5922 of the Government Code, when collateralized by U.S. Government guaranteed and direct obligation securities. Collateral must be held by a third party institution, and must be marked to market on a weekly basis to a minimum of the value of the outstanding balance of the contract. The maximum maturity date on a GIC is limited to the final maturity date of the bonds being issued.

**Initially Uncollateralized Guaranteed Investment Contracts (GICs):** Investment of funds in GICs which are not initially collateralized is permitted, as per Section 5922 of the Government Code, only if (a) the term of the GIC does not exceed three (3) years, (b) the counterparty to the GIC is rated in the highest long-term rating category by both Moody’s Investors Service and Standard & Poor’s (or whose payment obligations under such GIC are insured or guaranteed by an entity the unsecured obligations of which are so rated), and (c) the GIC requires that it be collateralized as described above in the event the counterparty’s rating is downgraded below the highest long-term rating category by either Moody’s Investors Service or Standard & Poor’s.

**Local Agency Investment Fund (LAIF):** The Water Authority may also invest bond proceeds in the Local Agency Investment Fund (Government Code Section 16429.1(d)). There is a $175M limit on the amount of bond proceeds that may be deposited into the fund. Liquidity for bond proceeds, per fund regulations, is thirty calendar day increments from
the date of the initial deposit. Bond proceeds deposited in LAIF should be managed to include a 90-day review by the Treasurer to insure safety, as well as probable income.

In the event that a conflict arises between the bond covenants and this Annual Statement of Investment Policy, the following will guide the (re)investment of bond proceeds: when the Annual Statement of Investment Policy is more conservative than the bond covenants, the Annual Statement of Investment Policy will prevail; if the bond covenants are more conservative than the Annual Statement of Investment Policy, the bond covenants will prevail. All future debt transaction reinvestment guidelines will incorporate the current Annual Statement of Investment Policy into the bond covenants.

The Board of Directors has granted the Treasurer the authority to invest debt service reserve funds in U.S. Treasury, federal agency, and municipal securities with maturities exceeding 5 years if it is considered to be in the best interest of the Water Authority and if the maturity of such investments does not exceed the expected use of funds.

PORTFOLIO LIMITATIONS

It is the Water Authority’s goal to maintain a minimum of 50 percent of the Water Authority portfolio in Treasury Bills or Notes; however, based on market conditions a combination of 50 percent Agencies and Treasury Bills or Notes will satisfy this requirement. At no time will less than 15 percent of the portfolio be in Treasury Bills or Notes. The balance of the portfolio may be invested in any of the other permissible investments within the guidelines previously established.

The total dollar amount of bond proceeds and debt service reserve funds invested are to be excluded from the total used to calculate percentages for investment types.

The weighted average days to maturity of the total portfolio shall not exceed 730 days (two years) to maturity.

Percentage limitations, where listed, are applicable at the date of purchase. In the event that the percentage limits attributable to a security type is exceeded due to a temporary imbalance in the portfolio, the Treasurer will make a determination as to the appropriate course of action. The appropriate course of action may be to liquidate securities to rebalance the portfolio or to hold the securities to maturity in order to avoid a market loss. Portfolio percentages are in place to ensure diversification of the investment portfolio and, as such, a small temporary imbalance would not violate this basic tenet. When a portfolio percentage is exceeded, the Treasurer will report the occurrence in the Treasurer’s Report at the next regularly scheduled Administrative and Finance Committee meeting of the Board, with detail of the strategy determined to address the imbalance, for Board ratification.

Credit requirements listed in this policy indicate the minimum credit rating (or its equivalent) required at the time of purchase without regard to modifiers (e.g., +/- or 1, 2, 3). In the event that an investment originally purchased within policy guidelines is downgraded by any one of the credit rating agencies, the Treasurer shall report it at the next regularly scheduled Administrative and Finance Committee meeting of the Board. The course of action to be followed will then be decided on a case-by-case basis, considering such factors as the reason for the downgrade, prognosis for recovery or further rating downgrades, and the market price of the security.
SECTION 9.0          Long-Range Financing Plan

INELIGIBLE INVESTMENTS

Investments not described herein, including, but not limited to common stocks, futures and the writing of options are prohibited from use in this portfolio. The use of short positions is also prohibited.

DERIVATIVES

A derivative is defined as a financial instrument that derives its cash flows, and therefore its value, by reference to an underlying instrument, index or reference rate. The purchase of yield curve notes, interest only, principal only, range notes, and inverse floaters are prohibited (this list is not intended to cover all types of securities and is presented as an example of the types of securities that should be avoided). Callable bonds, step-up bonds, and floating rate securities (with a positive spread) are permitted investments. No security will be purchased that could result in a zero interest accrual if held to maturity.

SWAPS

A swap is a shift of assets from one instrument to another and may be done for a variety of reasons, such as to increase yield, lengthen or shorten maturities, or to increase investment quality. In no instance shall a swap be used for speculative purposes. Any such swap shall be simultaneous (same day execution of sale and purchase), and requires the written approval of the Treasurer.

INTERNAL CONTROLS

A system of internal controls has been established and documented in writing in the Water Authority’s Financial Services Policies and Procedures Manual. The controls shall be designed to prevent losses of public funds arising from fraud, employee error, and misrepresentation of third parties, unanticipated changes in financial markets or imprudent action by employees and officers of the Water Authority. Controls deemed most important include: control of collusion, separation of duties and administrative controls, separating transaction authority from accounting and record keeping, custodial safekeeping, clear delegation of authority, management review and approval of investment transactions, specific limitations regarding securities losses and remedial action, written confirmation of telephone transactions, minimizing the number of authorized Investment Officials, documentation of transactions and strategies, and code of ethic standards. The Treasurer has established an annual process of independent review by an external audit firm. This review provides assurance of strong internal controls by reviewing compliance with previously established policies and procedures.

REPORTING

The Treasurer will submit a monthly investment report to the Board of Directors, the General Manager’s office, and the internal auditor (if applicable). This report will include: a list of portfolio transactions, type of investment, issuer, date of maturity, amount of deposit/par amount, current market value of all securities (with the source of the market valuation), rate of interest, statement that there are or are not sufficient funds to meet the next 6 month’s obligations and a statement indicating compliance or noncompliance with this Annual Statement of Investment Policy. Additional items listed will also include average weighted yield, average days to maturity, accrued interest earned during the period and fiscal year to date, percent distribution to each type of investment and any funds under management by contracted parties, including lending programs.
QUALIFIED BANKS AND SECURITIES DEALERS

A competitive bid process, when practical, will be used to place all investment purchases and sales transactions. For any investment transaction not conducted directly with the issuer, the Water Authority shall conduct business only with banks, savings and loans, and registered investment securities dealers. The Water Authority’s staff will investigate all institutions that wish to conduct business with the Water Authority. All institutions must sign the appropriate Information Request Form, and agree to abide by the conditions set forth in the Water Authority’s Annual Statement of Investment Policy. A list will be maintained by the cash management staff of approved institutions and securities broker/dealers. This will be done annually by having the financial institutions complete and return the Broker Dealer Information Request Form and an audited financial statement within 90 days of the institution’s fiscal year-end. Previous Board approved substitute certification language may be offered to primary dealers of the Federal Reserve at the discretion of the Treasurer. In the event the substitute language is not accepted by the primary dealer, the Treasurer may return to the Water Authority’s Board for approval of alternative language proposed by the primary dealer.

RISK TOLERANCE

The Water Authority recognizes that investment risks can result from issuer defaults, market price changes or various technical complications leading to temporary illiquidity. Portfolio diversification is employed as a way to control risk. The Treasurer is expected to display prudence in the selection of securities, as a way to minimize default risk. No individual investment transaction shall be undertaken which jeopardizes the total capital position of the overall portfolio. The Treasurer shall periodically establish guidelines and strategies to control risks of default, market price changes and illiquidity.

Risk will also be managed by subscribing to a portfolio management philosophy that helps to control market and interest rate risk by investing to a shorter term. This philosophy also prohibits trading losses (for speculative purposes) unless there is a sudden need for liquidity and the need cannot be satisfied on a more cost effective basis.

PERFORMANCE BENCHMARK

Controlling and managing risk is the foremost portfolio management objective. The Water Authority strives to maintain an efficient portfolio by providing for the lowest level of risk for a given level of return. An appropriate benchmark consistent with the Water Authority’s investment objectives and liquidity requirements has been established against which the portfolio’s performance is compared on a regular basis. The selected benchmark is the 2-Year U.S. Treasury constant maturity. Any significant deviation of the portfolio’s performance to the benchmark should be reviewed in order to ensure that such investments meet the criteria previously specified.

SAFEKEEPING AND CUSTODY

To protect against potential losses caused by the collapse of security dealer(s), all book-entry securities owned by the Water Authority, including repurchase agreement collateral, shall be kept in safekeeping with “perfected interest” by a third party bank trust department, acting as agent for the Water Authority under the terms of a custody agreement executed by the bank and by the Water Authority. All securities will be received and delivered using standard delivery-versus-payment procedures. The only exception to the foregoing shall be certificates of deposit and investments in: (i) LAIF; (ii) local government investment pools; and (iii) money market funds, since the purchased securities are not deliverable. A record of these investments shall be held by the Treasurer.
DIVERSIFICATION

The investment portfolio will be diversified by security type, institution and maturity date to avoid incurring unreasonable and avoidable risks regarding specific security types or individual financial institutions.

STATEMENT OF INVESTMENT POLICY

This Annual Statement of Investment Policy shall be reviewed and submitted annually to the Board of Directors in order to incorporate any changes necessary to ensure consistency and its relevance to current law, and financial and economic trends. This Annual Statement of Investment Policy shall be reviewed at a public meeting and voted on prior to the start of each calendar year.
9.3 Debt Management Policy

SAN DIEGO COUNTY WATER AUTHORITY

Statement of Debt Management Policy

Section I. Introduction

PURPOSE AND OVERVIEW

In its publication entitled Best Practice Debt Management Policy, the Government Finance Officers Association (GFOA) states that “Debt management policies are written guidelines, allowances, and restrictions that guide the debt issuance practices of state or local governments, including the issuance process, management of a debt portfolio, and adherence to various laws and regulations. A debt management policy should improve the quality of decisions, and articulate policy goals, provide guidelines for the structure of debt issuance, and demonstrate a commitment to long-term capital financial planning.” GFOA recommends as a best management practice that state and local governments adopt comprehensive written debt management policies. The San Diego County Water Authority Debt Management Policy as set forth here provides a set of comprehensive guidelines for the issuance and management of Water Authority’s debt portfolio. Adherence to the policy is essential to ensure the Water Authority maintains a diversified debt portfolio that supports the Water Authority’s financing needs and minimizes the Water Authority’s cost of funds.

ROLES AND RESPONSIBILITIES

Director of Finance – The primary responsibility for debt management rests with the Director of Finance. The Director of Finance shall:

• Provide for the issuance of Water Authority debt at the lowest possible cost and risk;

• Determine the available debt capacity of the Water Authority;

• Provide for the issuance of Water Authority debt at appropriate intervals and in reasonable amounts as required to fund approved capital expenditures;

• Recommend to the Water Authority’s Board of Directors (Board) the method and manner of sale of Water Authority debt;

• Monitor opportunities to refund debt and recommend such refunding as appropriate to reduce costs or to achieve other policy objectives;

• Comply with all Internal Revenue Service (IRS), Municipal Securities Rulemaking Board (MSRB), and Securities and Exchange Commission (SEC) rules and regulations governing the issuance of debt;

• Maintain a current database with all outstanding Water Authority debt;

• Provide for the timely payment of principal and interest on all Water Authority debt;
• Comply with all terms and conditions, and disclosure required by the legal documents governing the debt issued;

• Submit to the Board all recommendations to issue debt in accordance with the County Water Authority Act and Resolution No. 89-21;

• Distribute to appropriate repositories information regarding the Water Authority’s financial condition and affairs at such times and in the form required by law, regulation and general practice;

• Provide for the frequent distribution of pertinent information to the rating agencies;

• Provide for the ongoing management of an Investor Relations Program; and

• Apply and promote prudent fiscal practices.

Section II. Legal Governing Principles

In the issuance and management of debt, the Water Authority shall comply with all legal constraints and conditions imposed by federal, state and local law. The following section highlights the key governing documents and certain debt limitations.

GOVERNING LAW

*County Water Authority Act* – The Water Authority is a public agency created in 1944 under the County Water Authority Act (The Act), California Statutes 1943, Chapter 45, as amended. The Act establishes the Water Authority’s legal authority to issue debt and the limitations therein. A copy of the Act can be found in Appendix A. The Water Authority shall comply with all constraints of the Act.

*Federal Tax Law* – The Water Authority shall issue and manage debt in accordance with the limitations and constraints imposed by federal tax law, to maximize its ability to sell tax-exempt debt. Such constraints include, but are not limited to, private activity tests, review of eligible projects, spend-down tests, and arbitrage rebate limitations.

*Securities Law* – The Water Authority shall comply with the requirements of federal and state securities laws in offering Water Authority debt and the Water Authority shall comply with securities law requirements in providing ongoing disclosure to the securities markets.

GOVERNING LEGAL DOCUMENTS

*General Resolution* – The Water Authority’s debt issuance is further governed by Resolution No. 89-21, adopted May 11, 1989, Resolution No. 97-52, adopted December 11, 1997, and Resolution No. 09-23, adopted on December 17, 2009, all of which together constitute the “General Resolution.” The General Resolution establishes the basic security structure of debt issued by the Water Authority that is secured by Net Water Revenues. Key terms and conditions include, but are not limited to, the definition of pledged revenues, the rate covenant and the additional bonds test. A copy of the General Resolution can be found in Appendix B. The Water Authority shall comply with all limitations imposed under the General Resolution.
PERMITTED DEBT BY TYPE

The Water Authority may legally issue both short-term and long-term debt, using the debt instruments described below. The Director of Finance, in consultation with the Water Authority’s General Counsel and Bond Counsel, shall determine the most appropriate instrument for a proposed bond sale.

**General Obligation Bonds** – The Water Authority is empowered, under its Act, to levy taxes on all taxable property within its boundaries for the purpose of paying its voter-approved general obligation bonds and, subject to certain limitations in the Act, the California Revenue and Taxation Code and the California Constitution, for other Water Authority purposes. The Water Authority is authorized to sell general obligation bonds under Section 7 of the Act, subject to the approval of a two-thirds majority of those voting in a local election.

**Certificates of Participation** – Certificates of Participation (COP) provide debt financing through a lease, installment sale agreement or contract of indebtedness and typically do not require voter approval. Board action is sufficient to legally authorize a COP issue. The Water Authority is permitted to use the installment sale form of COPs, based upon its ability to execute installment sale agreements (Section 5 of the Act) and contracts of indebtedness (Section 8 of the Act). The Water Authority’s issuance of COPs is facilitated by the San Diego County Water Authority Financing Corporation, a California nonprofit benefit corporation that was created by the Water Authority specifically to serve as party to the installment sale agreements and contracts of indebtedness securing Water Authority COPs. The Water Authority shall pledge net revenues to the repayment of its COPs, under the terms and conditions specified in the General Resolution.

**JP A Revenue Bonds** – As an alternative to COPs, the Water Authority may obtain financing through the issuance bonds by a joint exercise of powers agency with such bonds payable from amounts paid by the Water Authority under a lease, installment sale agreement, or contract of indebtedness. The San Diego County Water Authority Financing Agency is a joint exercise of powers agency formed for the purpose of facilitating Water Authority financing through the issuance of such revenue bonds.

**Commercial Paper** – Per Section 8.2 of the Act, the Water Authority may issue short-term revenue certificates, including commercial paper and extendable commercial paper. Board action is sufficient to legally authorize a commercial paper issue. The Water Authority’s commercial paper is secured by net revenues, but on a subordinate lien basis to the Water Authority’s long–term debt (i.e. COPs). Voter approval is not required to issue commercial paper.

**Variable Rate Debt** – The Water Authority is authorized to issue variable rate debt including, but not limited to, public market indexed notes, indexed notes or loans placed directly with financial institutions and other alternative variable rate and market access products as well as traditional variable rate demand obligations backed by bank liquidity facilities. Prior to the issuance of variable rate debt, the savings and other possible advantages compared to a fixed rate borrowing will be evaluated and a comparative analysis presented to the Board of Directors as part of the approval process.

**Revenue Bonds** – The Water Authority is authorized to issue revenue bonds (Section 7.5 of the Act), as further described in the Revenue Bond law of 1941 (Chapter 6, commencing with Section 54300, or Part 1 of Division 2 of Title 5 of the Government Cost). Revenue bonds require majority voter approval to authorize the size and purpose of the bond issue. The Water Authority shall pledge net revenues to the repayment of any revenue bonds under the terms and conditions specified in the General Resolution.

**Refunding Revenue Bonds** – The Water Authority is authorized to issue refunding revenue bonds to refund outstanding Water Authority indebtedness pursuant to the State of California local agency refunding revenue bond law (Articles 10 and 11 of Chapter 3 of Part 1 of Division 2 of Title 5 of the Government Code of the State of California).
Assessment Bonds – The Water Authority is authorized to issue assessment bonds pursuant to the Improvement Bond Act of 1915, subject to requirements imposed by Proposition 218. Such bonds are typically repaid from assessments collected within an assessment district formed pursuant to the Municipal Improvement Act of 1913. Assessments are levies of charges on real property to pay for projects or services that specifically benefit that parcel of property.

LIMITATIONS ON DEBT ISSUANCE

Subordinate Lien Short-Term Debt – The Water Authority’s subordinate short-term debt shall not exceed 30 percent of its total debt at the time of issuance. The calculation of short-term debt shall include variable rate demand obligations, the authorized amount of commercial paper, any notes/bonds with a maturity equal to or less than five years, and any variable rate debt. The Water Authority’s subordinate lien debt, for which net revenues are pledged, shall be limited to that amount for which current and projected revenues generate overall debt service coverage of at least 100 percent if no subordinate bonds are outstanding, and 105 percent if subordinate bonds are outstanding.

Senior Lien Long-Term Debt – The Water Authority’s senior lien long-term debt, for which net revenues are pledged, shall be limited to that amount for which current and projected revenues generate a senior lien debt service coverage of at least 120 percent. The calculation of debt service shall not include general obligation bonds or assessment bonds, to which revenue sources other than pledged revenues, as defined in the General Resolution, are pledged. It should be noted that the Board has adopted a policy that sets the senior lien debt service coverage target of 150 percent in keeping with its prudent financial management.

PURPOSE FOR BORROWING

The Water Authority shall issue debt solely for the purpose of financing the cost of design, acquisition, and/or construction of water system improvements in furtherance of the Water Authority’s Capital Improvement Program (CIP).

ETHICAL STANDARDS GOVERNING CONDUCT

Members of the Water Authority, the Board and its consultants, service providers, and underwriters shall adhere to standards of conduct as stipulated by the San Diego County Water Authority Local Conflict of Interest Code or the California Political Reform Act, as applicable. All debt financing participants shall maintain the highest standards of professional conduct at all times, in accordance with:

- MSRB Rules, including Rule G-37, shall be followed at all times;
- Debt financing participants will assist the Water Authority staff in achieving its goals and objectives as defined in this Debt Management Policy; and
- All debt financing participants shall make cooperation with the Water Authority staff their highest priority.
Section III. Integration of Capital Planning and Debt Activities

EVALUATING CAPITAL IMPROVEMENT PROGRAM SPENDING

The Water Authority shall develop and maintain a capital finance model to evaluate the impact of capital program spending, operations and maintenance costs, and debt service on its financial condition. To that end, the Director of Finance shall oversee the ongoing maintenance of quantitative modeling that includes, but is not limited to, the following:

- Historic and projected cash flows;
- Historic and projected capital expenditures;
- Historic and projected operating costs;
- Historic and projected fund balances, including the Operating Fund, the Rate Stabilization Fund, Pay-As-You-Go Fund, Debt Proceeds Fund, Stored Water Fund and Debt Service Reserve Fund;
- Historic and projected debt service coverage;
- The most efficient mix of funding sources (long-term debt; short-term debt, and cash);
- Projected revenue requirements; and
- Projected rates and charges.

Section IV. Procurement and Evaluation of Professional Services

The Water Authority shall procure professional services as required to execute financing transactions and to advise on non-transaction related work. Professional services include Consultants (Financial Advisor, Legal Counsel-Bond, Disclosure and Tax); Service Providers (Trustee, Paying Agent, Dissemination Agent, Arbitrage Consultant, Escrow Verification Agent, Bidding Agent for escrow investments, Printer, Letter of Credit, Verification Agent); and an Underwriting Team (Senior Manager, Co-Manager, Selling Group).

Selection Process – The selection of financial and legal professionals to assist the Water Authority in carrying out financing programs shall be made through a selection process consistent with the Water Authority’s procurement policies and procedures. All consultants, service providers and underwriting team members shall provide the Water Authority with objective advice and analysis, shall maintain the confidentiality of Water Authority financial plans, and shall be free from any conflict of interest pursuant to applicable law. The Water Authority’s Local Conflict of Interest Code, and procurement policies and procedures, can be found in the Water Authority’s Administrative Code (chapters 1.04 and 4.04, respectively), and within the Water Authority’s standard Professional Service Contract.

Appointment of Financial Advisor – The Water Authority will select a financial advisor or advisors to assist in the issuance and administration of debt through the Request for Proposals (RFP) process. Assistance to be provided by a financial advisor will include, but not be limited to:
A. Ongoing Services/Long-Term Forecasting

1. Review and update as needed existing model and Long-Range Financing Plan (LRFP); provide analysis of funding methods and options including analysis of the structure of the Plan; discussion of issues or difficulties which may be encountered in implementing the Plan and the strategies to address such issues; prepare and deliver presentations regarding various financial issues to Water Authority staff and the Board as requested.

2. Assist the Water Authority in interfacing with rating agencies with the objective of developing a strategy and plan to maintain the Water Authority’s senior lien and subordinate lien ratings at “AA+/AA” and “AA/AA-“, respectively.

3. Provide timely information, judgments, and forecasts regarding general economic and capital market conditions.

4. Assist the Water Authority in updating its financial strategies and policies when requested. This includes analyzing short, intermediate and long-term financing options.

5. Advise the Water Authority on the timing, method and structure of its security sales.

6. Update, modify, evaluate, and improve as necessary the revenue program and rate model which is used to help determine the Water Authority’s ability to meet funding requirements for the CIP.

7. Be available at reasonable times for consultation to render advice regarding the financial aspects of the Water Authority’s program as may be requested by the Board, the General Manager, or the Director of Finance.

8. Be available to attend meetings related to Metropolitan Water District’s (MWD) Long-Range Financing Plan and other related rate issues.

B. Debt Issuance

1. Prepare financing schedule, monitor progress of financing team participants, facilitate and coordinate completion of tasks and responsibilities in accordance with schedule and revise schedule as necessary.

2. Assist in and coordinate the preparation of legal and disclosure documents related to debt issuance.

3. Develop a rating agency strategy, prepare rating agency presentation material, schedule meetings with rating agencies, organize and coordinate Board and staff rehearsals and presentations, and coordinate itinerary for rating agency visits as required.

4. Prepare and distribute RFP’s for underwriters, printers, and other team participants as directed by the Water Authority. Assist in evaluation of proposals, assist in conducting interviews as necessary, and provide recommendation as to firms selected.
5. Develop and take a primary responsibility for quantitative analysis of structuring alternatives for debt issues including sizing, structure, and term of issue; provide computer modeling and comparison of alternatives analysis; make recommendations and provide rationale for preferred alternatives’ and ensure that selected alternative provides the best solution as part of the long-range financing plan.

6. Assist and coordinate discussions and prepare presentation materials for identified key institutional investors. Coordinate itinerary as necessary for visits to institutional investors or meeting sites.

7. Analyze and participate in decision as to timing of sale and consult as to advisability or necessity for rescheduling sale depending on market conditions.

8. Prepare analytical discussion of market conditions and projected pricing results prior to sale. Provide independent pre-pricing analysis to Water Authority prior to sale including market activity, projected results, market supply and demand characteristics, and comparable sale analysis.

9. Coordinate and monitor marketing programs initiated by underwriter to develop pre-sale market interest. Prepare and coordinate placement of notices and advertisements in periodical publications (Bond Buyer, etc.) to stimulate market interest.

10. Assist in development of and recommendation with respect to pre-sale interest rate scale and structure for pre-marketing purposes. Provide recommendation with respect to underwriter retention and syndicate sales prior to sale.

11. Analyze market conditions with respect to underwriters’ compensation; provide comparable transaction comparisons and recommendation with respect to underwriting spread and components thereof. Negotiate with underwriters’ representatives with respect to underwriters’ compensation, including liquidity agreement terms and conditions.

12. Participate in pricing process, monitor order flow to all managers, analyze volume and type of orders, and provide recommendation as to acceptance of offer to underwrite at conclusion of pricing period.

13. Provide pricing analysis and comparisons following sale; document pricing results and provide written report to Water Authority with respect to final pricing and underwriter compensation level; and deliver quantitative schedules showing results of final pricing.


C. Miscellaneous

1. Upon request, assist in reviewing and analyzing legislation that may have a financial impact on the Water Authority.

2. Assist, when requested, by conducting surveys of the financial activities of other major operating utilities.
3. Attend Board meetings and make presentations to the Water Authority’s Board, its committees and staff when requested.

4. Prepare graphs, charts, etc. for staff presentations, as needed.

5. Upon request, assist in reviewing and analyzing MWD and State Water issues as they relate to the Water Authority and provide advice, as needed.

The criteria to be used in evaluating and selecting a financial advisor should include:

- Experience in providing formal financial advisory services to major utility issuers;
- Experience with diverse financial structuring requirements of major utility issuers;
- Experience and reputation of assigned personnel; and
- Fees and expenses.

A financial advisor under contract with the Water Authority shall not purchase or sell any Water Authority debt. The Director of Finance shall submit to the Board a recommendation for the appointment of a Financial Advisor. The recommendation shall be accompanied by an evaluation of options and a justification for the recommended course of action. The Director of Finance shall monitor the services rendered by the Financial Advisor.

Appointment of Legal Counsel — All debt issued by the Water Authority shall include a written opinion by legal counsel affirming that the Water Authority is authorized to issue the proposed debt, that the Water Authority has met all federal, state, and local legal requirements necessary for issuance and a determination of the proposed debt’s federal income tax status. This approving opinion and other documents relating to the issuance of debt shall be prepared by a nationally recognized legal firm with extensive experience in public finance and tax issues. The General Counsel of the Water Authority shall appoint the legal counsel.

For any negotiated sale of debt in which legal counsel is required to represent the underwriter, the lead underwriter shall make the appointment. Unless otherwise justified, the appointment shall be made from among nationally recognized law firms with significant ownership or operations in California.

Appointment of Trustee and Paying Agent — The Director of Finance shall appoint a fiscal agent to provide for the payment of all debt issued by the Water Authority. The selection of a fiscal agent shall be based upon a competitive evaluation of proposals submitted in response to an RFP.

The Director of Finance shall submit to the Board a recommendation for the appointment of a fiscal agent. The recommendation shall be accompanied by an evaluation of options and a justification for the recommended course of action. The Director of Finance shall monitor the services rendered by the fiscal agent to ensure prompt and efficient service to bondholders.
Appointment of Printer – The Director of Finance shall select a printer as required in conjunction with a proposed sale of bonds, for the purpose of printing and mailing Preliminary Official Statements and Final Official Statements to potential investors and members of the finance team. The selection of a printer shall be based on a competitive evaluation of proposals.

Appointment of Letter of Credit or Liquidity Facility Provider – In order to comply with the requirements of the bond documents and to ensure the liquidity and marketability of the Water Authority’s variable rate debt (including, but not limited to, variable rate bonds and a tax-exempt commercial paper program), the Director of Finance shall take such actions as necessary to procure a letter of credit or line of credit in support of such variable rate debt. The selection of a letter of credit/liquidity bank shall be based on a competitive evaluation of proposals submitted in response to an RFP.

The Director of Finance shall submit to the Board a recommendation for the appointment of a Letter of Credit/Liquidity Facility provider. The recommendation shall be accompanied by an evaluation of options and a justification for the recommended course of action. The Director of Finance shall monitor the trading value and credit ratings of the provider to ensure that the Water Authority’s variable rate debt is remarketed at the lowest possible cost, given the legal and policy considerations governing the selection of the bank.

Appointment of Remarketing Agents – The Director of Finance shall, in conjunction with selecting a letter of credit provider, solicit proposals from commercial paper remarketers/dealers.

Appointment of Verification Agent – In conjunction with the sale of refunding bonds, the Director of Finance shall procure the services of a verification agent. The purpose of the verification agent is to confirm that sufficient proceeds are invested in permitted federal securities and to ensure the timely repayment of principal and interest on the bonds being refunded. The verification agent must be a nationally recognized provider of verification services. The selection of a verification agent shall be based upon a competitive evaluation of proposals submitted in response to an RFP.

Appointment of Underwriters – To provide for the negotiated issuance of Water Authority debt, the Director of Finance shall maintain an Underwriter Pool (Pool). The appointment to the Water Authority’s Pool shall be based upon a competitive evaluation of proposals submitted in response to a Request for Qualifications. The Director of Finance shall submit to the Board a recommendation for the appointment of underwriters to the Pool to serve a three-year term. The size and composition of the Pool shall be based upon the projected financing needs of the Water Authority. Criteria used in the appointment of qualified underwriters to the Pool shall include:

- Demonstrated ability serving on complex financial transactions;
- Demonstrated ability with major water issuer financings;
- Demonstrated ability to structure a debt issue efficiently and effectively;
- Demonstrated ability to sell Water Authority debt to institutional and retail investors;
- Demonstrated ability to put capital at risk;
- Quality and applicability of financing ideas;
- Experience and reputation of assigned personnel; and
• Indicative fees and expenses.

Prior to any negotiated transactions, an RFP will be issued to the Pool and a financing team recommend to the Board for selection. The composition of the team will be dependent on the size of the sale and the need to achieve a broad distribution of Water Authority debt among both retail and institutional investors. The recommendation shall be accompanied by an evaluation of options and a justification for the recommended course of action.

Following the approval of the underwriting team, the Board shall appoint a lead underwriter. The lead underwriter shall have demonstrated ability to manage a number of firms in a complex financial transaction.

Appointment of Other Service Providers – The Director of Finance will solicit proposals for the following services as needed:

• Continuing Disclosure Agent – Service provider that ensures disclosure documents are disseminated to regulators investors in compliance with regulations continuing disclosure agreements

• Arbitrage Consultant – Service provider that calculates the arbitrage accrued to transactions for the purpose of IRS filings.

• Open Market Securities Agent – Service provider that solicits prices for escrow fund investments and executes the purchase of selected investments.

Section V. Transaction-Specific Policies

METHOD OF SALE

Competitive Bid Method - Unless otherwise justified and deemed necessary to minimize the costs and risks of the Water Authority’s bond issue, the issuance and sale of all fixed rate Water Authority debt shall be achieved by competitive bid. Such bid may take the form of hand-delivered or electronically transmitted offers to purchase the bonds. Any competitive sale of Water Authority debt will require approval of the Board. Water Authority debt issued on a competitive bid basis will be sold to the bidder proposing the lowest true interest cost to the Water Authority provided the bid conforms to the official notice of sale.

Negotiated Bid Method – When necessary to minimize the costs and risks of Water Authority borrowing, the Director of Finance will submit to the Board a request to sell bonds on a negotiated basis. A negotiated bond issue will provide for the sale of debt by negotiating the terms and conditions of the sale, including price, interest rates, credit facilities, underwriter or remarketing fees, and commissions. Examples of such sales include:

• Variable rate demand obligations;

• An issue of debt so large that the number of potential bidders would be too limited to provide the Water Authority with truly competitive bids;
• An issue requiring the ability to react quickly to sudden changes in interest rates (e.g. refunding bonds);

• An issue requiring intensive marketing efforts to establish investor acceptance;

• An issue of debt with specialized distribution requirements; and

• An issue of debt sold during a period of extreme market disruption or volatility.

If bonds are sold on a negotiated basis, the negotiations of terms and conditions shall include, but not be limited to, prices, interest rates, underwriting or remarketing fees, and commissions. The Water Authority, with the assistance of its Financial Advisor, shall evaluate the terms offered by the underwriting team. Guidelines with respect to price, interest rates, fees, and commissions shall be based on prevailing terms and conditions in the marketplace for comparable issuers.

If more than one underwriter is included in the negotiated sale of debt, the Water Authority shall establish appropriate levels of liability, participation and priority of orders. Such levels shall be based upon Water Authority policy with regards to the underwriting responsibility among the team members, the desired allocation of total fees, and the desired distribution of bonds. Guidelines for establishing liability, participation, and priority of orders shall be based on prevailing terms and conditions in the marketplace for comparable issuers.

The Water Authority shall, with the assistance of its Financial Advisor, oversee the bond allocation process. The bond allocation process shall be managed by the lead underwriter, with the following requirements:

• The bonds are allocated fairly among members of the underwriting team, consistent with the previously negotiated terms and conditions;

• The allocation process complies with all MSRB regulations governing order priorities and allocations;

• The lead underwriter shall submit to the Director of Finance a complete and timely account of all orders, allocations, and underwriting activities with the investor names identified as appropriate.

The Director of Finance shall require a post-sale analysis and reporting for each negotiated bond sale. The Financial Advisor or the lead underwriter may perform such analysis. A post-sale analysis will include, but not be limited to:

• Summary of the pricing, including copies of the actual pricing wires;

• Results of comparable bond sales in the market at the time of the Water Authority’s pricing;

• Detailed information on orders and allocation of bonds, by underwriting firm;

• Detailed information on final designations earned by each underwriter; and

• Summary of total compensation received by each underwriter.
SECTION 9.0          Long-Range Financing Plan

STRUCTURAL ELEMENTS

_Pledge of Revenues_ – The Water Authority’s pledge of revenues shall be determined for each debt issue depending upon the debt instrument:

- General Obligation Bonds of the Water Authority shall be repaid from voter-approved property taxes on property within the jurisdiction of the Water Authority.
- Certificates of Participation of the Water Authority shall be repaid from net revenues, as defined in the General Resolution.
- Revenue Bonds of the Water Authority shall be repaid from net revenues, as defined in the General Resolution.
- Assessment Bonds of the Water Authority shall be repaid levies or charges collected within an assessment district formed by the Water Authority pursuant to the Municipal Improvement Act of 1913.

_Maturity_ – The Water Authority shall issue debt with an average life less than or equal to the average life of the assets being financed. The final maturity of the debt should be no longer than 40 years. Factors to be considered when determining the final maturity of debt include: the average life of the assets being financed, relative level of interest rates, and the year-to-year differential in interest rates.

_Maturity Structure_ – The Water Authority’s long-term debt may include serial and term bonds. Other maturity structures may also be considered if they are consistent with the objectives of the Water Authority’s Debt Management Policy.

_Coupon Structure_ – Debt may include par, discount and premium. Discount and premium bonds must be demonstrated to be advantageous relative to par bond structures. For variable rate debt, the variable rate may be based on one of a number of commonly used interest rate indices and the index will be determined at the time of pricing.

_Debt Service Structure_ – Debt service will be structured primarily on an approximate level (combined annual principal and interest) basis. Certain individual bond issues, such as refunding bonds, may have debt service that is not level. However, on an aggregate basis, debt service should be structured primarily on a level basis.

_Redemption Features_ – In order to preserve flexibility and refinancing opportunities, Water Authority debt will generally be issued with call provisions. The Water Authority may consider calls that are shorter than traditional and/or non-call debt when warranted by market conditions and opportunities. For each transaction, the Water Authority will evaluate the efficiency of call provision alternatives.

_Credit Enhancement_ – The Water Authority shall competitively procure credit enhancement for a sale of bonds if the Director of Finance, in consultation with the Financial Advisor and the underwriters, determines that it is cost effective to do so.
Senior/Subordinate Lien – The Water Authority shall utilize both a senior and a subordinate lien structure. The choice of lien will be determined based on such factors as overall cost of debt, impact on debt service, impact on water rates, and marketing considerations.

Debt Service Reserve Funds – The Water Authority shall provide for debt service reserve funds to secure Water Authority debt when necessary.

Section VI. Communication and Disclosure

RATING AGENCIES

The Water Authority shall maintain its strong ratings through prudent fiscal management and consistent communications with the rating analysts. The Director of Finance shall manage relationships with the rating analysts assigned to the Water Authority’s credit, using both informal and formal methods to disseminate information. Communication with the rating agencies shall include:

• Full disclosure on an annual basis of the financial condition of the Water Authority;

• A formal presentation, at least biennially or as becomes necessary to the rating agencies, covering economic, financial, operational, and other issues that impact the Water Authority’s credit;

• Timely disclosure of major financial events that impact the Water Authority’s credit;

• Timely dissemination of the Comprehensive Annual Financial Report, following its acceptance by the Water Authority’s Board;

• Full and timely distribution of any documents pertaining to the sale of bonds; and

• Periodic tours of the water system operations, as appropriate.

BOND INSURERS

The Director of Finance shall manage relationships with the analysts and the bond insurers assigned to the Water Authority’s credit, using both informal and formal methods to disseminate information. Communication with the bond insurers shall be undertaken when the Director of Finance, with the assistance of the Water Authority’s Financial Advisor, determines that credit enhancement is cost effective for a proposed bond issue.

CONTINUING DISCLOSURE

The Water Authority shall comply with SEC 15c2-12 regulations, which require municipal debt issuers to provide specified financial and operating information for fiscal years beginning on January 1, 1996. The Director of Finance shall be the Compliance Officer for disclosure requirements.
INVESTOR RELATIONS PROGRAM

The Water Authority shall establish and maintain an Investor Relations Program. The objectives of the program will be to:

- Reduce borrowing costs by improving demand for future bond sales;
- Keep investors continually informed of the issues facing the Water Authority;
- Obtain investor feedback on debt management considerations; and
- Create access to market opportunities such as shorter call provisions or tender programs.

The Water Authority shall use disclosure as a tool for developing ongoing dialogue with investors. The Water Authority’s Investor Relations Program shall consist of the following elements:

**Investor Survey** – The Water Authority will periodically create and disseminate a survey for the purpose of assessing investors needs for specific information. Upon completing a survey, the Water Authority may then prepare a financial disclosure statement for investors.

**Disclosure Reports** – The Water Authority shall make disclosure reports readily available to institutional investors, rating agencies and credit enhancers who have specific analysts assigned to review the Water Authority’s credit.

**Web Site** – The Water Authority shall use its website as a tool for providing timely information to investors.

Section VII. Refunding Policies

The Water Authority shall strive to refinance debt to maximize savings and minimize the cost of funds as market opportunities arise. A present value analysis will be prepared that identifies the economic effects of any refunding to be proposed to the Board. Upon the advice of the Director of Finance, with the assistance of the Financial Advisor and Counsel, the Water Authority will consider undertaking refundings for other than economic purposes, such as to restructure debt, change the type of debt instruments being used, or to retire a bond issue and indenture in order to remove undesirable covenants.

**Savings Thresholds** – Minimum savings thresholds have been established to help guide the economic analysis of refunding bonds. The minimum savings guidelines are applicable on a maturity-by-maturity basis and are expressed as a percentage of refunded bond par calculated by dividing the expected net present value savings generated by the proposed refunding by the par amount of refunded bonds. Generally, the Water Authority shall only refund bonds to generate debt service savings if the specified minimum savings set forth in the following matrix can be achieved.

To determine if a potential refunding candidate meets the applicable minimum savings threshold specified in the matrix, the Water Authority shall:
SECTION 9.0

Appendix

<table>
<thead>
<tr>
<th>Years from Call to Maturity</th>
<th>Years to Call</th>
<th>0-1</th>
<th>2-7</th>
<th>8+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>3-7</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>8-15</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>16+</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

**Step 1.** Identify which specific savings threshold applies to the potential refunding candidate by determining (a) how many years there are between the expected refunding date and the first call date and (b) how many years there are from the first call date to the final maturity of the refunding candidate, as shown in the examples below:

<table>
<thead>
<tr>
<th>Expected Refunding Date</th>
<th>Refunding Candidate First Call Date</th>
<th>Refunding Candidate Final Maturity Date</th>
<th>Minimum Threshold Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-1-2013</td>
<td>12-1-2016 (3 years to call date)</td>
<td>12-1-2027 (11 years call to maturity)</td>
<td>4%</td>
</tr>
<tr>
<td>12-1-2013</td>
<td>12-1-2015 (2 years to call date)</td>
<td>12-1-2022 (7 years call to maturity)</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Step 2.** Determine the expected net present value savings for the potential refunding candidates on a maturity-specific basis. Net present value savings are the expected net present value savings resulting from the potential refunding of the specific-maturity refunded bond. Net present value debt service savings are calculated by discounting the relevant cash flows to the expected refunding bond closing date at a rate equal to the True Interest Cost of the associated, maturity-specific refunding bond, and taking into account all costs of issuance, including underwriters’ discount.

**Step 3.** Divide the net present value savings for the specified maturity calculated as described above by the par amount of the refunded bonds. If the percentage savings calculated is equal to or greater than the specified minimum savings threshold, the potential refunding candidate is deemed to meet the minimum savings threshold. If the percentage savings is less than the specified minimum savings threshold the refunding candidate does not meet the threshold.

As noted previously, the Director of Finance shall have discretion in making the final determination to include individual refunding candidates that are above or below the target in order to optimize policy and/or financial objectives. Factors that may be considered by the Director of Finance include, but are not limited to:

**Escrow Investment Yields (Negative Arbitrage)** — For advance refundings, the Director of Finance may take into consideration the available escrow yields relative to the refunding bond yields. If the available escrow yields are lower than the refunding bond yields (negative arbitrage), it will reduce the net present value savings otherwise available from the refunding. The Director of Finance may take negative arbitrage into account in assessing the appropriateness of a potential refunding, especially if the present value cost of such negative arbitrage is significant relative to the overall net present values savings expected to be achieved by the refunding.

**Coupon on Refunded Bond** — The Director of Finance may take into consideration whether the coupon on the refunded bond is significantly higher or lower than the most common outstanding bond coupons of approximately five percent.
General Interest Rate Environment – The Director of Finance may take into consideration whether the available refunding bond interest rates are generally high or generally low relative to long-term averages of historical rates.

General Interest Rate Outlook – The Director of Finance may take into consideration the general outlook for future interest rates, as derived from economic forecasts, market forecasts, implied forward rates, or other sources.

Debt Management Considerations – The Director of Finance may take into consideration debt management issues such as cost and staff efficiencies associated with combining multiple refunding bond issues or combining refunding and new money bond issues.

Section VIII. Reinvestment of Proceeds

COMPLIANCE WITH LAWS AND OTHER LEGAL DOCUMENTS

General – The Water Authority shall comply with all applicable Federal, State, and contractual restrictions regarding the use and investment of bond proceeds. This includes compliance with restrictions on the types of investment securities allowed, restrictions on the allowable yield of some invested funds, as well as restrictions on the time period during over which some bond proceeds may be invested. To the extent that a bond issue is credit enhanced, the Water Authority shall adhere to the investment guidelines of the credit enhancement provider.

Requirements of Resolution – The Water Authority will comply with all terms and conditions of the Resolution No. 89-21. Such limitations shall include, but not be limited to Section 5.06 of the resolution.

Investment Policies – The investment of bond proceeds shall be made in accordance with the Water Authority’s Annual Statement of Investment Policy.

Section IX. Creation and Maintenance of Funds

The Water Authority maintains a number of different funds integral to the long-range financial planning process. Each of these funds is held for a specific purpose and can generally be categorized as either an operating, capital or debt reserve fund. Operating funds provide the Water Authority with monies for emergencies, working capital and water rate management and consist of the Operating Fund and the Rate Stabilization Fund (RSF). Capital funds, currently the largest component of Water Authority funds, are held strictly for capital expenditures and consist of the Pay-As-You-Go (PAYGO) Fund and Debt Proceeds Fund (which includes both long-term and short-term debt proceeds). Debt reserve funds are held in trust for the benefit of investors in the Water Authority’s long-term debt.

OPERATING FUND

The Operating Fund holds the Water Authority’s working capital, emergency operating reserve and Equipment Replacement Fund. As previously indicated, the Water Authority’s Administrative Code sets the target ending balance of the Operating Fund at 45 days of average annual operating expenditures provided that $5 million of such calculated amount to be designated and held available for emergency repairs to the Water Authority’s system due to unforeseen events. Working capital ensures that even with a cash receipts and disbursements mismatch, the Water Authority will
have at least 30 days of Operating Funds on hand at all times. Given the short-term nature of this fund, liquidity of investments is critical and is ensured by investing the Operating Fund on a monthly basis to cover water purchases and ongoing cash disbursements. The Operating Fund, together with water sales revenue and other revenue sources, provide ample liquidity for working capital.

**EQUIPMENT REPLACEMENT FUND**

This fund is used to purchase minor capital equipment such as computer systems, vehicles and parts of the Supervisory Control and Data Acquisition (SCADA) system. It is funded by transfers from the Operating Fund per depreciation schedule.

**RATE STABILIZATION FUND**

The RSF was created in Fiscal Year 1989-1990 for the purpose of collecting amounts of water revenues greater than expenditures in years of strong water sales. Funds can then be used to mitigate “rate shock” in years of weak water sales, to manage debt service coverage, or to smooth out water rate increases. The RSF is a critical short-term water rate management tool that provides the necessary funds to maintain a smooth water rate pattern over a long period of time. With the new melded supply rate, and the expansion of the Water Authority’s functional areas with treatment and desalination, the RSF will have an increasingly important role in managing hydrology risk and stabilizing annual revenue needs.

Board policy sets a target funding level for the RSF equal to the financial loss resulting from 2.5 years of above average rainfall, calculated at a 95% exceedence level. Additionally, it establishes a maximum funding level equal to the financial loss resulting from 3.5 years of above average rainfall. Defining the target and maximum funding levels of the RSF in terms of the financial impact of above average rainfall matches the size of the fund to the primary risk it is designed to mitigate and provides additional capacity for rate smoothing.

As a general rule, the Water Authority will transfer portions of its net water revenues not required to meet either its debt service coverage ratio requirement or operating fund requirement into the RSF. The Board may choose to budget for RSF deposits resulting in balances in excess of the target level but not in excess of the maximum level for the purposes of rate smoothing. Balances below the target level are to be replenished within three years. As necessary, the Water Authority will transfer amounts from its RSF into net water revenues to meet its debt service coverage requirements, Operating Fund requirements or to smooth rate increases. Interest earnings accrue to the RSF unless the maximum balance is achieved, at which point they will be deposited into the Operating Fund. The RSF is managed so that any funds above the maximum balance will be transferred to the Operating Fund—Operating Fund balances above the existing 45-day policy are subject to discretionary use by the Board.

**PAY-AS-YOU-GO FUND**

The PAYGO Fund was established in fiscal year ended 1990 to serve as a mechanism to collect Capacity Charges and Standby Charges to be used to pay for the cash portion of the CIP. The PAYGO Fund is a “capital fund”, as opposed to a “reserve fund,” meaning that the monies in the fund will be spent directly on capital expenditures, not held in reserve for some other purpose. The PAYGO Fund is projected to be spent over the next eleven years in conjunction with cash generated by operations to fund the pay-as-you-go portion of the CIP. Typically, the annual expenditure of PAYGO funds corresponds to a percentage of the annual CIP expenditure for a particular year, as dictated by the optimal funding mix derived through the long-range computer modeling process.
DEBT PROCEEDS FUND

Similar to the PAYGO Fund, the Debt Proceeds Fund also holds capital funds for eventual expenditure towards the Water Authority’s CIP. Monies deposited into the Debt Proceeds Fund are produced by the Water Authority’s sale of tax-exempt securities in the form of long-term and short-term debt. Upon the sale of any single issue of tax-exempt debt, federal tax law currently dictates that the Water Authority must reasonably expect to spend the proceeds of the issue within three years. As a result, the Debt Proceeds Fund will typically fluctuate over two-to-three year periods as funds are raised through debt issuance every two-to-three years and then largely spent prior to the next issuance.

DEBT SERVICE RESERVE FUND

Debt Service Reserve Funds may be required under legal documents governing the issuance of the Water Authority’s long-term debt. They are funded as either a percentage of the par amount of long-term debt issued or as one year of debt service on the issue and are held in trust for the benefit of investors in the debt issued. The funds may be used for debt service on an issue, if for any reason the Water Authority is unable to make a scheduled payment. In lieu of holding a cash-funded reserve fund, the Water Authority may substitute a surety bond or other credit facility in its place. The decision to cash-fund a reserve fund versus using a credit facility is dependent upon the cost of the credit facility and the investment opportunities and restrictions on a cash-funded reserve fund.

Section X. Compliance

ARBITRAGE LIABILITY MANAGEMENT

The Water Authority shall minimize the cost of arbitrage rebate and yield restrictions while strictly complying with tax law. Because of the complexity of arbitrage rebate regulations and the severity of non-compliance penalties, the Water Authority shall solicit the advice of bond counsel and other qualified experts about arbitrage rebate calculations. The Water Authority shall contract with a qualified third-party for preparation of the arbitrage rebate calculation.

The Water Authority shall maintain an internal system for tracking expenditure of bond proceeds and investment earnings. The expenditure of bond proceeds shall be tracked in the financial accounting system by issue. Investment may be pooled for financial accounting purposes and for investment purposes. When investment of bond proceeds are co-mingled with other investments, the Water Authority shall adhere to IRS rules on accounting allocations.
POST-ISSUANCE TAX COMPLIANCE

The Water Authority has adopted Written Procedures to Ensure Compliance with Requirements for Tax-Exempt Bonds Found in Appendix C and Written Procedures for Issuance of Direct Pay Build America Bonds found in Appendix D. The Water Authority shall comply with such procedures to maintain the tax-exempt status of Water Authority debt obligations or to maintain eligibility for direct pay subsidy payments, as applicable.

CONTINUING DISCLOSURE

The Water Authority shall comply with the requirements of each Continuing Disclosure Certificate entered into at the time of a sale of bonds. Annual information provided by the Water Authority shall mirror the information in any Water Authority Official Statement at the time of a primary offering. Annual financial information will be sent by the Water Authority, within six months of fiscal year end, to all Nationally Recognized Municipal Information Depositories (NRMIRs) designated by the SEC and to the State Information Depository (SID), if one exists. This shall include:

- Comprehensive Annual Financial Report of the Water Authority; and
- Updated tables from the Official Statement, as detailed in the Continuing Disclosure Certificate.

In addition to annual disclosure, the Water Authority shall provide ongoing information about certain enumerated events, as defined by regulation, to the MSRB and to the SID. Such notification shall be made by certified mail, with copies to the Water Authority Board.

The Water Authority shall engage a firm to assist it in ensuring timely completion and filing of annual reports and in identifying, and making timely filings with respect to, the occurrence of reportable enumerated events.

LEGAL COVENANTS

The Water Authority shall comply with all covenants and conditions contained in governing law and any legal documents entered into at the time of a bond offering.
Section XI. Debt Database Management

The Water Authority shall maintain complete information on its outstanding debt portfolio, in a spreadsheet or database program format. The information in the database shall include, but not be limited to, the following:

- Issue Name
- Initial Issue Par Amount
- Dated Date of the Issue
- Principal Maturity Amounts
- Coupon Rate by Maturity
- Amount Outstanding
- Call Provisions
- Purpose of the Issue
- Credit Enhancer, if any
- Competitive or Negotiated Sale
- Names of Underwriting Team Members
- Other?

The Water Authority shall use the debt database for the following purposes:

- Generate reports
- Gross annual debt service
- Net annual debt service
- Refunding Analyses
- Output to Fund Accounting System
9.4 Glossary of Financial Terms

ACCRUE - Accumulate or increase.

ADJUSTABLE RATE MORTGAGE (ARM) - A type of mortgage in which the interest rate paid on the outstanding balance varies according to a specific benchmark.

AD VALOREM - In proportion to the value.

AGGREGATE - Total, sum.

AMORTIZE - To liquidate a debt (such as a mortgage) by installment or payments, or payment into a sinking fund. To write off an expenditure for by prorating over a certain period.

ARBITRAGE REBATE - The ability to obtain tax-exempt bond proceeds and invest the funds in higher yielding taxable securities resulting in a profit. Generally, tax-exempt bond issues which were issued on or after September 1, 1986 are subject to the arbitrage rebate requirements.

ASSESSED VALUE - The estimated value of real estate that is used for tax purposes. This process is used for determining the value of the residence for taxation purposes.

BOND COVENANT - A contractual provision in a bond indenture. A positive covenant requires certain actions, and a negative covenant limits certain actions.

CALLABLE BOND - A Bond that can be redeemed by the issuer prior to its maturity.

CERTIFICATE OF PARTICIPATION (COPS) - A type of financing where an investor purchases a share of some form of installment payment rather than the bond being secured by a “pledge” of those revenues. This tool is commonly used when bond statutes are archaic, or no such authorizing legislation exists.

COMMERCIAL PAPER (CP) - A short-term debt instrument maturing in 270 days used by corporations and governments as a form of borrowing. When issued by the Water Authority to fund capital investments, it serves effectively as a form of variable-rate debt.

COVENANT - A binding agreement or promise as contained in a contract. The Water Authority’s borrowing documents contain many covenants. For example, its rate covenant commits the Water Authority to set rates sufficient to generate a certain amount of revenue.

CREDIT RATING - An assessment of whether an entity will be able to meet its obligations to bond holders and other investors when debt is due.

DEBT FINANCING - When a firm raises money for working capital or capital expenditures by selling bonds, bills, notes or similar instruments to individuals and/or investors. In return for lending the money, the individual or investor becomes creditors and receive a promise to repay principal and interest on the debt.

GENERAL OBLIGATION BOND - A municipal bond backed by the credit and taxing power of the issuing jurisdiction, rather than the revenue from a given project.

HEDGE - A means of protection or defense, especially against a financial loss.
ITERATIVE - Characterized by or involving repetition, recurrence or reiteration.

LIABILITIES - An obligation that legally binds an individual or company to settle a debt.

LIQUIDITY - The degree to which an asset or security can be bought or sold in the market without affecting the assets price. Liquidity is characterized by a high-level of trading activity. The ability to convert an asset to cash quickly. In the context of variable-rate debt, liquidity often refers to a facility by which a bank guarantees to purchase the security from an investor if another investor is not available.

MATURITY - The length of time until the principal amount of a bond must be repaid. The end of the life of a security. The date the borrower has to pay back the amount borrowed through the issue of a bond.

PAR - The nominal dollar amount assigned to a security by the issuer for a debt, security. Par is the amount repaid to the investor when the bond matures.

RATINGS - SEE “CREDIT RATING”

REVENUE BOND - A municipal bond supported by the revenue from a specific project or from an enterprise system such as a utility.

SECURITIES LENDING - A loan of a security from one entity who must eventually return the same security as repayment. The loan is often collateralized. Securities lending allows a broker-dealer, or corporation or a public agency in possession of a particular security to earn enhanced return on the security through finance charges.

SEQUESTRATION - A fiscal policy process that automatically reduces the federal budget across most departments and agencies; a procedure by which “across the board” spending cuts go into effect if Congress fails to agree on a deficit-reducing budget before a specific date.

STAKEHOLDER - A person, group or organization that has interest or concern in an organization.

SURETY - When used in connection with municipal debt, a policy of a bond insurer used to meet the requirement of funding a debt service reserve fund, therefore reducing the size of a bond issue.

YIELD - The rate of return on an investment, paid in dividends or interest and expressed as a percent. Yield is usually calculated by diving the amount you receive annually in dividends or interest by the amount you spent to buy the investment.
9.5 Acronyms

AB32 - California Global Warming Solution Act of 2006

ACT - County Water Authority Act

AFO - Acoustic Fiber Optic

AGREEMENT - The Water Conservation and Transfer Agreement

AF - Acre-feet

BABs - Build America Bonds Program

BMA - Bond Market Association

CAGR - Compound Annual Growth Rate

CalPERs - California Public Employees' Retirement System

CEQA - California Environmental Quality Act

CERBT - California Employers' Retiree Benefit Trust

CIAC - Contributions in Aid of Construction

CIP - Capital Improvement Plan

COP - Certificate of Participation

CP - Commercial Paper

CPC - Climate Prediction Center

CSP - Carryover Storage Project

DSCR - Debt Service Coverage Ratio

DWR - Department of Water Resources

ECP - Extendable Commercial Paper

EIR - Environmental Impact Report

ESA - Endangered Species Act

ESP - Emergency Storage Project
FGIC - Financial Guaranty Insurance Company
FSTF - Fiscal Sustainability Task Force
GFOA - Government Finance Officers Association
GIC - Guaranteed Investment Contract
G.O. Bonds - General Obligation Bonds
IAC - Infrastructure Access Charge
IID - Imperial Irrigation District
JPA - Joint Powers Authority
LAIF - Local Agency Investment Fund
LRFP - Long-Range Financing Plan
LIBOR - London Interbank Offered Rate
MAF - Million Acre-Feet
M&I - Municipal and Industrial
MSRB - Municipal Securities Rulemaking Board
MWD - Metropolitan Water District of Southern California
NRMID - Nationally Recognized Municipal Information Depositories
OPEB - Other Post-Employment Benefits
PAYGO - Pay-as-you-go
PCCP - Prestressed Concrete Cylinder Pipe
QSA - Quantification Settlement Agreement
R&R - Renewal and Rehabilitation
RFP - Request for Proposal
RMWG - Rate Model Working Group
SECTION 9.0

RSF - Rate Stabilization Fund

RTS - Readiness-to-Serve

SANDAG - San Diego Association of Governments

SCADA - Supervisory Control and Data Acquisition

SID - State Information Depository

SIFMA - Securities Industry and Financial Markets Association

SPEIR - Supplemental Program Environmental Impact Report

SRC - Supply Reliability Charge

SWP - State Water Project

SWRCB - State Water Resources Control Board

TECP - Tax-Exempt Commercial Paper

TSAWR - Transitional Special Agricultural Water Rate

USFWS - United States Fish and Wildlife Service

UWMP - Urban Water Management Plan

WATER FIX - Bay-Delta Conservation Plan/California Water Fix

WPA - Water Purchase Agreement

WSDRP - Water Shortage and Drought Response Plan
## Long-Range Financing Plan

### San Diego County Water Authority Member Agency Information

<table>
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<th>Address</th>
<th>Phone</th>
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