

A G E N D A

SOUTHERN NEVADA WATER AUTHORITY BOARD OF DIRECTORS

REGULAR MEETING
9:00 A.M. – NOVEMBER 17, 2016

BOARD CHAMBERS, SOUTHERN NEVADA WATER AUTHORITY
100 CITY PARKWAY, SEVENTH FLOOR, LAS VEGAS, NEVADA
(702) 258-3100

Board of Directors

Mary Beth Scow, Chair
Sam Bateman, Vice Chair
Bob Coffin
Marilyn Kirkpatrick
Duncan McCoy
Steve Sisolak
Anita Wood

John J. Entsminger,
General Manager

Date Posted: November 10, 2016



SOUTHERN NEVADA
WATER AUTHORITY

The Southern Nevada Water Authority makes reasonable efforts to assist and accommodate persons with physical disabilities who desire to attend the meeting. For assistance, call the Agenda Coordinator at (702) 258-3939 at least 24 hours prior to the meeting.

THIS MEETING HAS BEEN PROPERLY NOTICED AND POSTED IN THE FOLLOWING LOCATIONS:

City of Boulder City, City Hall
401 California Street
Boulder City, Nevada

City of Henderson, City Hall
240 Water Street
Henderson, Nevada

City of North Las Vegas, City Hall
2250 Las Vegas Boulevard North
North Las Vegas, Nevada

City of Las Vegas, City Hall
495 South Main Street
Las Vegas, Nevada

Clark County Government Center
500 S. Grand Central Parkway
Las Vegas, Nevada

Clark County Water Reclamation District
5857 E. Flamingo Road
Las Vegas, Nevada

Southern Nevada Water Authority
100 City Parkway, Suite 700
Las Vegas, Nevada

Las Vegas Valley Water District
1001 S. Valley View Boulevard
Las Vegas, Nevada

All items on the agenda are for action by the Board of Directors, unless otherwise indicated. Items may be taken out of order. The board may combine two or more agenda items for consideration, and the board may remove an item from the agenda or delay discussions relating to an agenda item at any time.

Visit our website at <http://www.snwa.com> or main office at 1001 S. Valley View Boulevard, Las Vegas, Nevada for Southern Nevada Water Authority agenda postings, copies of supporting material and approved minutes. To receive meeting information, including supporting material, contact the Agenda Coordinator at (702) 258-3939 or agendas@snwa.com.

CALL TO ORDER

COMMENTS BY THE GENERAL PUBLIC

NO ACTION MAY BE TAKEN: This is a period devoted to comments by the general public pertaining to items on this agenda. If you wish to speak to the Board about items within its jurisdiction, but not appearing on this agenda, you must wait until the “Comments by the General Public” period listed at the end of this agenda. Please limit your comments to three minutes or less and refrain from making comments that are repetitious, offensive, or amounting to personal attacks. No action may be taken upon a matter not listed on the posted agenda.

ITEM NO.

1. *For Possible Action:* Approve agenda with the inclusion of tabled and/or reconsidered items, emergency items and/or deletion of items, and approve the minutes from the regular meeting of September 15, 2016.

CONSENT AGENDA Items 2 - 6 are routine and can be taken in one motion unless a Director requests that an item be taken separately.

2. *For Possible Action:* Approve and authorize the General Manager to sign an agreement, in substantially the same form, between Black & Veatch Corporation and the Authority to provide professional engineering services for Project No. 3200, AMSWTF Filter Improvements Demonstration.
3. *For Possible Action:* Adopt the 2016 Water Budget.
4. *For Possible Action:* Adopt the Annual Operating Plan for the Southern Nevada Water System.
5. *For Possible Action:* Adopt the 2015 Water Resource Plan for the 2017 calendar year.
6. *For Possible Action:* Authorize an increase in funding and approve an Amended and Restated Agreement for Professional Services between Stanka Consulting, Ltd., and the Authority to provide services including water right assessments, reviews, and mapping.

BUSINESS AGENDA

7. *For Possible Action:* Award Contract No. 810S 01 C1, Tropicana Weir, authorize a change order contingency amount, and authorize the General Manager to sign the contract agreement, or take other action as appropriate.
8. *For Possible Action:* Accept the Authority's Comprehensive Annual Financial Report and corresponding Independent Auditors' Report on Financial Statements and Supplementary Information for the period ending June 30, 2016, and authorize its submission to the Nevada Department of Taxation.
9. *For Possible Action:* Adopt a resolution requesting the Clark County Board of County Commissioners to take the necessary steps toward the issuance of bonds to refinance certain outstanding bonds for the Authority.
10. *For Possible Action:* Adopt a resolution consenting to the issuance of Las Vegas Valley Water District refunding bonds to refinance certain outstanding bonds for the Authority.
11. *For Information Only:* Receive an update from staff on water resources including, but not limited to, drought conditions in the Colorado River Basin, the results of the implementation of the Authority's Water Resource and Conservation Plan, activities on the Colorado River, the development of in-state water resources, and the status of construction activities near Lake Mead.

COMMENTS BY THE GENERAL PUBLIC

NO ACTION MAY BE TAKEN: At this time, the Board of Directors will hear general comments from the public on matters under the jurisdiction of the Southern Nevada Water Authority. Please limit your comments to three minutes or less and refrain from making comments that are repetitious, offensive, or amounting to personal attacks. No action may be taken upon a matter not listed on the posted agenda.

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
REGULAR MEETING
SEPTEMBER 15, 2016
MINUTES**

CALL TO ORDER 9:02 a.m., Colorado River Conference Rooms, Southern Nevada Water Authority, 100 City Parkway, Seventh Floor, Las Vegas, Nevada

BOARD MEMBERS PRESENT Mary Beth Scow, Chair
Sam Bateman, Vice Chair (via phone for items 1 and 11)
Bob Coffin
Marilyn Kirkpatrick
Duncan McCoy
Anita Wood

BOARD MEMBERS ABSENT Steve Sisolak

STAFF PRESENT John Entsminger, Julie Wilcox, Dave Johnson, Tabitha Fiddymet

OTHERS PRESENT None

Unless otherwise indicated, all members present voted in the affirmative.

COMMENTS BY THE GENERAL PUBLIC

For complete comments, audio is available online at snwa.com

There were no speakers.

Items were taken out of order.

ITEM NO.

1. ***For Possible Action:* Approve agenda with the inclusion of tabled and/or reconsidered items, emergency items and/or deletion of items, and approve the minutes from the regular meeting of July 21, 2016.**

FINAL ACTION: A motion was made by Director McCoy to approve the agenda for this meeting including considering item 11 first, and to approve the minutes of the regular meeting of July 21, 2016. The motion passed.

11. ***For Possible Action:* Approve and authorize the General Manager to execute an Amended and Restated Water Operation and Management Agreement with the Muddy Valley Irrigation Company; authorize the General Manager or designee to approve the lease of shares; execute ministerial documents to effectuate the transactions; and pay the associated administrative costs of the irrigation company for an amount not to exceed \$2,300,000 per year with annual escalation as applicable.**

FINAL ACTION: A motion was made by Director McCoy to follow staff's recommendations. The motion was approved.

CONSENT AGENDA

2. ***For Possible Action:* Ratify the approval of an assistance agreement between the Bureau of Reclamation and the Authority to accept a grant in an amount not to exceed \$1,000,000 to support the Authority's Water Smart Landscape Rebate Program, and authorize the General Manager to approve future modifications only if the future modifications do not fiscally impact the Authority.**
3. ***For Possible Action:* Approve a subgrant agreement between the Nevada Division of Environmental Protection and the Authority to accept grant funding in the amount of \$61,700 for regional water quality activities and related public outreach initiatives.**
4. ***For Possible Action:* Authorize an increase to Bid No. 2241-13, Annual Requirements Contract for the Repair of Electric Motors, to Koffler Electrical Mechanical Apparatus Repair, Inc., in the amount of \$400,000, for a revised estimated annual contract amount of \$1,150,000 for the current and two remaining option periods.**
5. ***For Possible Action:* Authorize the renewal of the Authority's membership in the Water Research Foundation for fiscal year 2016/2017 in the subscription amount of \$355,866.**

6. ***For Possible Action:*** Approve and authorize the General Manager to sign an agreement between the Water Research Foundation and the Authority for the Release of Intracellular Cyanotoxins during Oxidation of Naturally Occurring and Lab Cultured Cyanobacteria study, authorize the Authority to contribute \$100,000 in monetary funds and \$57,000 of in-kind services as its cost-share portion, and accept funds and in-kind services in a combined amount not to exceed \$262,000.
7. ***For Possible Action:*** Approve and authorize the General Manager to sign a joint funding agreement between the U.S. Geological Survey and the Authority for hydrologic data collection in an amount not to exceed \$224,970.
8. ***For Possible Action:*** Approve and authorize the General Manager to sign a funding contribution agreement between the Nevada Division of Water Resources and the Authority for surface and groundwater data collection services within Nevada to be performed by the U.S. Geological Survey in an amount not to exceed \$143,245.
9. ***For Possible Action:*** Authorize the utilization of the National Joint Powers Alliance Cooperative Purchasing Contract No. 021815 for Agricultural Tractors and/or Implements to purchase five John Deere model tractors with accessories and extended warranties from Deere & Company in the estimated amount of \$1,100,000.

FINAL ACTION: Director Kirkpatrick made a motion to approve staff's recommendations. The motion was approved.

BUSINESS AGENDA

10. ***For Possible Action:*** Approve and authorize the General Manager to execute, in substantially the same form as that attached hereto, a System Conservation Implementation Agreement between the Authority and the United States Bureau of Reclamation; execute ministerial documents to effectuate the transaction and to accept payment for conserved system water of up to \$199,365.20 over a three-year period with options for Reclamation to renew for seven additional years.

FINAL ACTION: Director Wood made a motion to approve staff's recommendation. The motion was approved.

12. ***For Possible Action:*** Approve and authorize the General Manager to execute, in substantially the same form as that attached hereto, a Design and Construction Agreement and Water Services Agreement between Robin Prop Holdco, LLC, and the Authority regarding interim water facilities and water service in Garnet Valley.

FINAL ACTION: Director Coffin made a motion to approve staff's recommendation. The motion was approved.

13. ***For Possible Action:*** Approve and authorize the General Manager or his designee to execute, in substantially the same form as that attached hereto, the First Amended and Restated Lease and Option Agreement and Grant of Rights of First Refusal between Parkway Center LLC and the Authority, and any ministerial documents necessary to effectuate the transaction.

FINAL ACTION: Director Wood made a motion to approve staff's recommendation. The motion was approved.

14. ***For Information Only:*** Receive an update from staff on water resources including, but not limited to, drought conditions in the Colorado River Basin, the results of the implementation of the Authority's Water Resource and Conservation Plan, activities on the Colorado River, the development of in-state water resources, and the status of construction activities near Lake Mead.

John Entsminger, General Manager, gave a brief update on Colorado River drought conditions, noting that wet basin conditions in August helped to close out the water year at 89 percent of average runoff. The Bureau of Reclamation announced that there will be no shortage conditions in 2017; there is a 48 percent probability for shortage conditions in 2018.

Director Coffin asked if there was a correlation with El Niño or La Niña weather conditions and Colorado River water conditions. Mr. Entsminger said that historically, there has not been a strong correlation between El Niño or La Niña weather conditions and snowpack in the Colorado River Basin.

NO ACTION REQUIRED.

Public Comment

There were no speakers.

Adjournment

There being no further business to come before the Board, the meeting adjourned at 9:13 a.m.

APPROVED:

Mary Beth Scow, Chair

John J. Entsminger, General Manager

Copies of all original agenda items and minutes, including all attachments, are on file in the General Manager's office at the Las Vegas Valley Water District, 1001 South Valley View Boulevard, Las Vegas, Nevada.

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS**

AGENDA ITEM

November 17, 2016

Subject: Agreement	Director's Backup
Petitioner: David L. Johnson, Deputy General Manager, Engineering/Operations	
Recommendations: That the Board of Directors approve and authorize the General Manager to sign an agreement, in substantially the same form as that attached hereto, between Black & Veatch Corporation and the Authority to provide professional engineering services for Project No. 3200, AMSWTF Filter Improvements Demonstration, for a total amount not to exceed \$578,741.	

Fiscal Impact:

The requested \$578,741 is available in the Authority's Capital Budget.

Background:

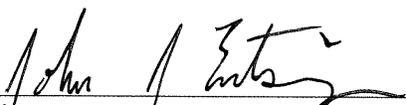
Since 2004, the Authority has conducted pilot and full-scale studies on filter media and treatment system upgrades at both the Alfred Merritt Smith Water Treatment Facility (AMSWTF) and the River Mountains Water Treatment Facility (RMWTF) to meet current and projected water quality requirements. The Authority also conducted a condition assessment of AMSWTF to identify recommended system improvements. The evaluation that was conducted led to recommended improvements for new filter materials and the replacement of valves and other components at 26 filter beds. This work will be done in multiple phases.

Phase I of Project No. 3200 provided for the replacement of the filter media, underdrains, and appurtenant work to Filter Beds No. 1 and No. 2 at AMSWTF. On May 21, 2015, the Authority approved an agreement with Black & Veatch Corporation (B&V) to complete an evaluation and selection of filter media, including the associated underdrain system, and preparation of construction documents. On November 19, 2015, the Board of Directors approved an amendment for additional design requirements. Phase I is currently in construction under Contract No. 3200 01 C1, AMSWTF Filter Improvements Demonstration. Staff recommends extending B&V's services to Phase II based on their current operational success. The Phase II scope of work provides for system improvements to four additional filter beds at AMSWTF.

If approved, the attached agreement would provide funding for the design-related engineering services required to prepare construction documents for the replacement of filter media, underdrains, valves, and appurtenant work for Phase II.

This agreement is being entered into pursuant to NRS 332.115(1)(b) and Section 6(i) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved the agreement.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:DLJ:PJJ:RCP:LSA:kjc
Attachments

AGENDA
ITEM #

2

DISCLOSURE OF OWNERSHIP/PRINCIPALS

Business Entity Type							
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Company	<input checked="" type="checkbox"/> Privately Held Corporation	<input type="checkbox"/> Publicly Traded Corporation	<input type="checkbox"/> Trust	<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Other
Business Designation Group							
<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> SBE	<input type="checkbox"/> PBE	<input type="checkbox"/> ESB	<input checked="" type="checkbox"/> NONE		
Minority Business Enterprise	Women-Owned Business Enterprise	Small Business Enterprise	Physically Challenged Business Enterprise	Emerging Small Business			
Corporate/Business Entity Name:		Black & Veatch Corporation					
(Include d.b.a., if applicable)							
Street Address:		8400 Ward Parkway			Website: www.bv.com		
City, State and Zip Code:		Kansas City, MO 64114			POC Name and Email: Jim Morley, P.E., morleyjp@bv.com		
Telephone No:		913-458-2000			Fax No: 913-458-9392		
Local Street Address:		4040 S. Eastern Ave., Suite 330			Website:		
City, State and Zip Code:		Las Vegas, NV 89119			Local Fax No: 702-732-7578		
Local Telephone No:		702-732-0448			Local POC Name Email: Jim Morley, P.E., morleyjp@bv.com		
Number of Clark County, Nevada Residents Employed: 53							

All entities, with the exception of publicly-traded and non-profit organizations, must list the names of individuals, either directly or indirectly, holding more than five percent (5%) ownership or financial interest in the business entity appearing before the SNWA Board of Directors.

Publicly-traded entities and non-profit organizations shall list all Corporate Officers and Directors in lieu of disclosing the names of individuals with ownership or financial interest. The disclosure requirement, as applied to land-use applications, extends to the applicant and the landowner(s).

Entities include all business associations organized under or governed by Title 7 of the Nevada Revised Statutes, including but not limited to private corporations, close corporations, foreign corporations, limited liability companies, partnerships, limited partnerships, and professional corporations.

Full Name	Title	% Owned <small>(Not required for Publicly Traded Corporations/Non-profit organizations)</small>
-----------	-------	--

Black & Veatch Corporation is a wholly owned subsidiary of Black & Veatch Holding Company (BVHC). The Black & Veatch Retirement Program, or Employee Stock Ownership Program (ESOP), holds 100% of the common shares of BVHC. The ESOP shares are held in trust and registered to the program's trustee, GreatBanc Trust Company. Individual beneficial holder data within the ESOP trust is confidential and not available to the Company without prior written consent from the individual; however, shareholdings are broadly dispersed among the 6,000 employee participants. Aside from the ESOP, no one individual currently holds over 1% of the common shares of BVHC. The Business Address and phone number is: 8400 Ward Parkway, Kansas City, MO 64114, (913) 458 - 2000.

This section is not required for publicly-traded corporations.

1. Are any individual members, partners, owners or principals, involved in the business entity, an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please note that SNWA employee(s), or appointed/elected official(s) may not perform any work on professional service contracts, or other contracts, which are not subject to competitive bid.)

2. Do any individual members, partners, owners or principals have a spouse, registered domestic partner, child, parent, in-law or brother/sister, half-brother/half-sister, grandchild, grandparent, related to an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please complete the Disclosure of Relationship form on Page 2. If no, please print N/A on Page 2.)

I certify under penalty of perjury, that all of the information provided herein is current, complete, and accurate. I also certify that the entity is not on the federal government's Excluded Parties List, as defined by 2 CFR § 180.945. I further understand that the SNWA will not take action on land-use approvals, contract approvals, land sales, leases or exchanges without the completed disclosure form.



 Signature

 Title

James P. Morley

 Print Name

 9 Sep 16

 Date

DISCLOSURE OF RELATIONSHIP

List any disclosures below:
(Mark N/A, if not applicable.)

NAME OF BUSINESS OWNER/PRINCIPAL	NAME OF SNWA EMPLOYEE OR OFFICIAL AND JOB TITLE	RELATIONSHIP TO SNWA EMPLOYEE OR OFFICIAL	SNWA EMPLOYEE'S/OFFICIAL'S DEPARTMENT
N/A	N/A	N/A	N/A

“Consanguinity” is a relationship by blood. “Affinity” is a relationship by marriage.

“To the second degree of consanguinity” applies to the candidate’s first and second degree of blood relatives as follows:

- Spouse – Registered Domestic Partners – Children – Parents – In-laws (first degree)
- Brothers/Sisters – Half-Brothers/Half-Sisters – Grandchildren – Grandparents – In-laws (second degree)

For SNWA Use Only:

If no Disclosure or Relationship is noted above or if the section is marked N/A, please check this box:

No Disclosure

If any Disclosure of Relationship is noted above, please complete the following:

Yes No Is the SNWA employee(s) noted above involved in the contracting/selection process for this particular agenda item?

Yes No Is the SNWA employee(s) noted above involved in any way with the business in performance of the contract?

Notes/Comments:

L. Steven Anderson

Signature

L. STEVEN ANDERSON

Print Name

Authorized Department Representative

AGREEMENT TO PROVIDE PROFESSIONAL SERVICES

This Agreement is made and entered into this ____ day of _____, 20____ (“Effective Date”), by and between BLACK & VEATCH CORPORATION, hereinafter called “CONSULTANT,” and the SOUTHERN NEVADA WATER AUTHORITY, a political subdivision of the State of Nevada, hereinafter called the “AUTHORITY.” The CONSULTANT and the AUTHORITY are sometimes hereinafter referred to individually as “Party” and collectively as the “Parties.” The term “AUTHORITY” also refers to staff of the AUTHORITY acting within their designated authority and duties.

WITNESSETH:

WHEREAS, the AUTHORITY desires to obtain professional services as more specifically described herein, and

WHEREAS, the CONSULTANT is properly qualified and desires to provide the professional services required by the AUTHORITY, and

WHEREAS, the AUTHORITY, in reliance on the CONSULTANT’s representations and proposals, agrees to retain the CONSULTANT, and the CONSULTANT agrees to furnish professional services to the AUTHORITY, on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, the Parties hereto agree as follows:

1. SCOPE OF SERVICES:

(a) The CONSULTANT shall provide any requested services, hereinafter referred to as “Services” or “Work,” as described and within the time indicated in **Exhibit A and Exhibit B**, which is attached herewith and made a part of this Agreement.

(b) All Services performed shall be subject to the cost ceiling contained in Paragraph 4 hereof and subject to the AUTHORITY's directions respecting priorities. The CONSULTANT will furnish professional Services in the amount necessary to complete promptly and effectively the Work assigned under this Agreement. All of the Services shall be performed by the CONSULTANT or an approved subcontractor or subconsultant.

(c) In performing Services under this Agreement, the CONSULTANT shall observe and abide by the terms and conditions of all applicable laws, regulations, ordinances, or rules of the United States, of the State of Nevada, of any political subdivision thereof, and of any other duly constituted public authority or agency. The CONSULTANT shall be responsible for obtaining any license, permit or other approval as required by law or otherwise, arising out of the Services to be performed hereunder.

(d) The CONSULTANT has, or will secure at its own expense, the qualified personnel required to perform the Services assigned under this Agreement. Such personnel shall not be employed by the United States, the State of Nevada, Clark County, the AUTHORITY, or any other political subdivision of the State of Nevada.

2. PERIOD OF PERFORMANCE:

This Agreement shall become effective as of the Effective Date and, unless terminated in accordance with the terms of this Agreement, shall remain in effect until all Services authorized to be performed by the AUTHORITY are completed by the CONSULTANT.

3. COMPENSATION:

(a) In consideration for completion of all duties and responsibilities under this Agreement, the AUTHORITY agrees to pay the CONSULTANT, in accordance with **Exhibit B**, for Work completed to the AUTHORITY's satisfaction.

(b) The CONSULTANT shall provide itemized monthly invoices for Services performed during the previous month. Invoices are to be submitted to the AUTHORITY in accordance with the Notice provisions of this Agreement and must reference the name and Effective Date of the Agreement. A copy of any invoice received from subcontractors or subconsultants used by the CONSULTANT shall be included.

(c) The AUTHORITY shall pay invoiced amounts from the CONSULTANT based on percent completion of tasks completed as set forth in **Exhibit B** within thirty (30) calendar days after the date the invoice is received and approved by the AUTHORITY.

4. LIMITATION ON COSTS:

The total cost of Services provided under this Agreement shall not exceed five hundred and seventy eight thousand, seven hundred and forty-one dollars (\$ 578,741.00).

5. TRUTH-IN-NEGOTIATION CERTIFICATION:

Signing of this Agreement by CONSULTANT shall constitute a truth-in-negotiation certification by CONSULTANT that wage rates and other factual unit costs supporting the compensation of this Agreement are accurate, complete, and current at the time of execution of this Agreement. The original Agreement price and any additions thereto shall be adjusted to exclude any significant sums by which the AUTHORITY determines the Agreement price was increased due to inaccurate, incomplete, or noncurrent wage rates and other factual unit costs. All such Agreement adjustments shall be made within one (1) year following the end of the term of this Agreement.

6. INDEPENDENT CONTRACTOR – NO JOINT VENTURE:

The relationship of the CONSULTANT to the AUTHORITY hereunder shall be that of an Independent Contractor as defined by NRS 616A.255 or Nevada state law. Nothing herein shall

be construed to imply an employer and employee relationship, a joint venture, or principal and agent relationship.

7. INTELLECTUAL PROPERTY ACKNOWLEDGMENT:

In consideration of the covenants, representations and warranties set forth herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, CONSULTANT hereby covenants, represents and warrants the following:

(a) All content developed on behalf of the AUTHORITY, in whole or in part, solely or jointly by CONSULTANT and all of CONSULTANT's employees, associates or subcontractors assisting in creating developments and/or other work product, whether or not copyrightable or otherwise protected, including, without limitation, advertisements and marketing material ("Work Product") arising from Services performed pursuant to, or arising out of the AUTHORITY's engagement of CONSULTANT, or previously conceived in anticipation of work to be performed in regard to the AUTHORITY's engagement of CONSULTANT, shall be deemed "work made for hire" as defined in the copyright laws of the United States of America (17 U.S.C. §101 et seq.) and the AUTHORITY shall own all right, title, and interest, including, without limitation, all copyrights and other intellectual property right, title, and interest ("Right") in and to the Work Product.

(b) To the extent that CONSULTANT is deemed to have or retain any Right or otherwise possess any Right in and to any Work Product, CONSULTANT hereby assigns, transfers, and conveys, all such Right to the AUTHORITY.

(c) CONSULTANT shall execute all documents and undertake all actions necessary to effect the clarification of ownership of all Work Product in and to the AUTHORITY and to allow the AUTHORITY to apply for registrations of the Work Product, as well as maintain any

registrations gained, including, without limitation, the Intellectual Property Assignment set forth in Paragraph 8.

(d) CONSULTANT hereby waives and releases any claim of infringement of any Right of CONSULTANT (whether based in any intellectual property Right, other proprietary interest whatsoever, or fiduciary theory) in, to or respecting any Work Product (including, without limitation, any claim based on any CONSULTANT's rights in any Work Product which may be construed as "works of visual art" as defined in the Visual Arts Rights Act of 1990, 17 U.S.C. 106A) and shall never challenge nor dispute the AUTHORITY's Right in and to the Work Product.

8. INTELLECTUAL PROPERTY ASSIGNMENT:

In consideration of the covenants, representations and warranties set forth herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, CONSULTANT hereby sells, conveys, transfers and assigns to the AUTHORITY all of the CONSULTANT's right, title, license and interest (including, without limitation, all intellectual property right, title, license and interest) in and to any and all Work Product designed, developed, or created by the CONSULTANT or otherwise arising out of the CONSULTANT's Services or Work and related content by and for the benefit of the AUTHORITY (including, without limitation, patents applications, issued patents, prototypes for the purpose of same, and other associated derivatives) including, without limitation, all marks, all goodwill associated with such patents, marks, trade secrets, and copyrights in and to, relating to, associated with and/or arising from the Work, the right to applications, issuance, continuations, and divisionals of such patents and the right to applications, registrations, renewals, reissues, and extensions of such marks and copyrights, and the right to sue and recover for any past and/or continuing infringements or contract breaches, said rights, titles, licenses and interests to be held and enjoyed by the

AUTHORITY, for the AUTHORITY's own use and benefit and for the use and benefit of the AUTHORITY's successors, assigns or other legal representatives, as fully and entirely as the same would have been held and enjoyed by the CONSULTANT if this sale, conveyance, transfer and assignment had not been made.

9. INTERPRETATION:

The Parties agree that neither Party shall be deemed the drafter of this Agreement and, in the event this Agreement is ever construed by a court of law or equity, such court shall not construe this Agreement or any provision hereof against either Party as drafter of this Agreement.

10. CONFLICT OF INTEREST:

During the course of performance of this Agreement, the CONSULTANT will not contract with any client whose interest is adverse to or would require the CONSULTANT to take a position contrary to that of the Las Vegas Valley Water District and/or the Southern Nevada Water Authority.

11. PROHIBITION AGAINST COMMISSION FOR OBTAINING AGREEMENT:

The CONSULTANT warrants that no person or company has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees; nor has the CONSULTANT paid or agreed to pay any person, company, corporation, individual or firm other than a partner or bona fide employee, any fee, commission, contribution, donation, percentage, gift, or any other consideration, contingent upon or resulting from award of this Agreement. For any breach or violation of this warranty, the AUTHORITY shall have the right to terminate this Agreement without liability, or at its discretion, to deduct from the contract price, or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration and any other damages.

12. PROHIBITION AGAINST INTEREST BY GOVERNMENT EMPLOYEES:

(a) No officer, employee or member of the governing body of the AUTHORITY shall (1) participate in any decision relating to this Agreement which affects his or her personal interest or the interest of any corporation, partnership, or association in which he or she is, directly or indirectly, interested or (2) have any interest, direct or indirect, in this Agreement or the proceeds thereof.

(b) The CONSULTANT represents that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of Services required to be performed under this Agreement. The CONSULTANT further covenants that in the performance of said Services, no person having any such interest shall be employed.

(c) No member of, delegate to or officer or employee of the legislative, executive or judicial branches of the government of the United States, of the State of Nevada or any of its political subdivisions shall be entitled to any share or part hereof or to any benefit to arise therefrom.

13. COMPLETENESS AND ACCURACY OF CONSULTANT'S WORK:

(a) The CONSULTANT shall be responsible for the completeness and accuracy of its research, supporting data, and any final reports or other deliverables prepared or compiled pursuant to this Agreement and shall correct, at its expense, all errors or omissions therein.

(b) The cost necessary to correct those errors attributable to the CONSULTANT and any damage incurred by the AUTHORITY as a result of additional costs caused by such errors shall be chargeable to the CONSULTANT. The fact that the AUTHORITY has accepted or

approved the CONSULTANT's Work shall in no way relieve the CONSULTANT of any of its responsibilities.

14. OPINIONS OF COST AND SCHEDULE:

Since CONSULTANT has no control over the cost of labor, materials, or equipment furnished by others not under contract to CONSULTANT, or over the resources provided by others not under contract to CONSULTANT to meet project schedules, CONSULTANT's opinion of probable costs and of project schedules for construction shall be made on the basis of experience and qualifications as a professional engineer. CONSULTANT does not guarantee that proposals, bids, or actual project costs will not vary from CONSULTANT's opinions of probable cost or that actual schedules will not vary from CONSULTANT's projected schedules.

15. INDEMNIFICATION:

(a) For all claims based upon or arising out of the Services or Work of the CONSULTANT, CONSULTANT shall indemnify and hold harmless, without cost to the AUTHORITY, its Board of Directors and its officers, agents, and employees (the "AUTHORITY Parties"), against any and all losses, claims, costs, damages, actions, proceedings, and liability to the extent that such losses, claims, costs, damages, actions, proceedings, and liability are caused by the negligence, errors, omissions, recklessness or intentional misconduct of the CONSULTANT or the employees of the CONSULTANT. This indemnification includes, but is not limited to, reasonable attorneys' fees and costs and claims for or by reason of any death or deaths of, or any physical injury or injuries to, any person or persons or damage to real or personal property of any kind whatsoever, whether the person(s) or property of CONSULTANT, its agents, or subconsultants, or of third parties; harassment or discrimination or any theory of joint or dual employment by the CONSULTANT's employees, agents, subcontractors or subconsultants,

arising out of the Services or Work under this Agreement; or infringement on any U.S. patent (issued as of the Effective Date) or any copyright or trademark.

If such claim(s) results in a trier of fact's adjudication of CONSULTANT as liable, CONSULTANT shall pay to AUTHORITY the reasonable attorneys' fees and costs which are determined to equate to the proportionate liability of CONSULTANT, as reimbursement for the attorneys' fees and costs incurred by the AUTHORITY in defending the claim.

(b) For all claims not based upon or arising out of the Services or Work of the CONSULTANT, CONSULTANT shall indemnify, hold harmless, and defend, without cost to the AUTHORITY Parties, against any and all losses, claims, costs, damages, actions, proceedings, and liability to the extent that such losses, claims, costs, damages, actions, proceedings, and liability are caused by the negligence, errors, omissions, recklessness or intentional misconduct of the CONSULTANT or the employees of the CONSULTANT. This indemnification includes, but is not limited to, reasonable attorneys' fees and costs and claims for or by reason of any death or deaths of, or any physical injury or injuries to, any person or persons or damage to real or personal property of any kind whatsoever, whether the person(s) or property of CONSULTANT, its agents, or subconsultants, or of third parties; harassment or discrimination or any theory of joint or dual employment by the CONSULTANT's employees, agents, subcontractors or subconsultants, arising out of the Services or Work under this Agreement; or infringement on any U.S. patent (issued as of the Effective Date) or any copyright or trademark. The AUTHORITY Parties may assume, at their sole option, control of the defense, appeal or settlement of any third-party claim for which CONSULTANT has indemnified the AUTHORITY Parties by giving written notice of the assumption to CONSULTANT. The AUTHORITY Parties may not settle or compromise any claim or consent to the entry of any judgment regarding claims for which CONSULTANT has

indemnified the AUTHORITY Parties without the prior written consent of CONSULTANT, which consent shall not be unreasonably withheld, conditioned or delayed.

16. INSURANCE:

(a) General:

1. The CONSULTANT shall not commence any Work under this Agreement until the CONSULTANT obtains, at its own expense, all insurance as required in this section; however, failure to obtain all insurance shall not relieve the CONSULTANT of the obligation to achieve the schedule milestone dates as defined herein. The types of insurance to be obtained by the CONSULTANT are Workers' Compensation, Employers' Liability, Automobile Liability, Commercial General Liability, and Professional Liability as outlined in the following portions of this section.

2. The Workers' Compensation, Employers' Liability, and Automobile Liability insurance will be maintained in force for the full period of the Agreement.

3. The Professional Liability insurance will be maintained in force for two years following the completion of the project.

4. These insurance provisions are in addition and cumulative to any other right of indemnification or contribution that the AUTHORITY may have in law, in equity, or otherwise and shall survive the completion of the project.

5. Nothing contained in these insurance requirements is to be construed as limiting the extent of the CONSULTANT's total responsibility for payment of claims arising in whole or in part from the actions of a third party when

such actions might be taken as a result of the CONSULTANT's operations under this Agreement.

6. At the time of executing this Agreement and before commencement of the Work, the CONSULTANT shall have delivered to the AUTHORITY certificates of insurance and endorsements that attest to the fact that the CONSULTANT has obtained the insurance as specified in this Agreement.

(b) Other Insurance:

1. All insurance provided by the CONSULTANT shall be considered primary with respect to the AUTHORITY's insurance, and any similar insurance maintained by the AUTHORITY shall be considered excess and non-contributory.

2. The CONSULTANT's Workers' Compensation insurance shall be written with a property and casualty insurance company admitted to do business in the State of Nevada and rated A- or better and Class V or higher of financial size category in the current issue of Best's Key Rating Guide.

3. The CONSULTANT's Automobile Liability, Commercial General Liability and Professional Liability insurance shall be written with property and casualty insurance companies admitted to do business in the State of Nevada and rated A- or better and Class VIII or higher of financial size category in the current issue of Best's Key Rating Guide.

4. In the event any of the CONSULTANT's insurance companies are not admitted to write business in the State of Nevada, then the CONSULTANT will furnish evidence of insurance with insurance companies that are rated A- or better

and Class IX or higher of financial size category in the current issue of Best's Key Rating Guide for each coverage written with a non-admitted carrier.

5. The Certificate of Insurance and related endorsements must be satisfactory to the AUTHORITY as to form and content and must comply with all insurance requirements as set forth herein, or the certificate and endorsements may be rejected and thereby, at the option of the AUTHORITY, render this Agreement cancelable.

6. All endorsements are to be dated; reflect the name of the insurance company, the type of insurance, and the policy number; be executed by a duly authorized representative of the insurance company; and be attached to the certificate.

7. The full legal operating names of the CONSULTANT and insurance carrier shall be properly shown where applicable.

8. The cancellation section of the certificate is to be amended to provide a 30-day written notice of cancellation and initialed by the Agent.

9. By endorsement (I.S.O. Forms CG 20 10 07 04 and CA 20 48 02 99, or equivalent), the AUTHORITY shall be included as an additional insured under the Commercial General Liability and Automobile Liability insurance policies as to bodily injury, sickness, disease, or death, personal injury, damage to or destruction of the property or persons which may arise out of or in connection with activities under the Agreement. The CONSULTANT's insurance shall be primary with respect to the additional insureds; any insurance coverage maintained by the

AUTHORITY shall be in excess of the CONSULTANT's insurance and non-contributing.

10. By endorsement (I.S.O. Form CG 24 04 10 93 or its equivalent), the CONSULTANT's Commercial General Liability, Automobile Liability and Workers' Compensation Insurance carriers shall waive their transfer rights of recovery (Waiver of Subrogation) against the AUTHORITY, its members and affiliated companies, successors or assignees, including their directors, officers, and employees individually and collectively.

11. The additional insured and waiver of subrogation endorsements shall read as follows:

The Southern Nevada Water Authority, its members, and affiliated companies, successors, or assigns, including their directors, officers, and employees individually and collectively, when acting within the scope of their employment.

12. If the CONSULTANT fails to procure and/or maintain insurance set forth herein, in addition to other rights or remedies, the AUTHORITY shall have the right, if the AUTHORITY so chooses, to procure and/or maintain the said insurance for and in the name of the CONSULTANT with the AUTHORITY as an Additional Insured, and the CONSULTANT shall pay the cost thereof and shall furnish all necessary information to make effective and/or maintain such insurance. In the event the CONSULTANT fails to pay the cost, the AUTHORITY hereby has the right to offset any premiums from the compensation set forth in this Agreement and directly pay for such coverage.

13. With respect to any and all insurance required under this Agreement, the deductible shall not exceed \$500,000, unless otherwise agreed to by the AUTHORITY or the AUTHORITY'S Risk Management Division.

(c) Workers' Compensation and Employers' Liability Insurance:

1. The CONSULTANT shall procure and maintain such insurance and see that its subcontractors/subconsultants purchase and maintain such insurance as is required under the Nevada Industrial Insurance Act, Nevada Revised Statutes Chapters 616 and 617, for all of its employees working on the project to protect the AUTHORITY from any industrial insurance claims.

2. In the event any class of employees engaged in any Work on the project relative to this Agreement is not protected under the Nevada Industrial Insurance Act, then the CONSULTANT shall provide to the AUTHORITY adequate insurance coverage in a form and by an insurance carrier satisfactory to the AUTHORITY for the protection of such employees.

3. In the event the CONSULTANT is permissibly self-insured for Workers' Compensation insurance in the State of Nevada, the CONSULTANT shall deliver to the AUTHORITY a copy of the Certificate of Consent to Self-Insure issued by the State of Nevada.

4. The CONSULTANT shall procure and maintain Employers' Liability Insurance with limits as set forth in Paragraph 15 (h).

(d) Commercial General Liability Insurance:

The CONSULTANT shall procure and maintain Commercial General Liability insurance coverage. The coverage under this policy shall include, but not be limited to,

commercial general liability, protective liability, blanket contractual liability, and broad-form property damage. The Commercial General Liability Insurance policy shall be written for limits as outlined under Paragraph 15 (h). The amount of coverage shall apply to bodily injury, sickness, disease or death, personal injury, damage to or destruction of the property of persons that may arise out of or in connection with the activities under this Agreement.

(e) Automobile Liability Insurance:

The CONSULTANT shall procure and maintain, at its own expense, automobile liability insurance with limits as outlined in Paragraph 15 (h), written on a combined-single-limit basis for bodily injury and property damage including all owned, leased, hired, or non-owned motorized vehicles and apparatus and shall indicate these coverages on the certificate.

(f) Professional Liability Insurance:

The CONSULTANT shall procure and maintain Professional Liability Insurance with limits as outlined in Paragraph 15 (h). If this coverage is written on a claims-made basis, the retroactive date shall be prior to or coincident with the Effective Date and the certificate shall so state.

(g) It is the CONSULTANT's sole responsibility to ascertain that the aforementioned insurance requirements are fulfilled. In the event they are not, the CONSULTANT shall not be relieved of their duty to perform, indemnify, defend, and hold harmless the AUTHORITY Parties, nor shall the AUTHORITY Parties be liable to the CONSULTANT or any others in the event the

CONSULTANT's insurance, as accepted by the AUTHORITY, fails to meet the full requirements herein.

(h) Insurance Limits:

<u>Value of Contract</u>	<u>Coverage</u>	<u>Limits of Liability</u>
\$100,000 to \$999,999	Professional Liability	\$500,000/per claim \$1,000,000 aggregate
	General Liability	\$1,000,000/per occurrence \$2,000,000/aggregate
	Automobile Liability	\$1,000,000/per occurrence
	Workers' Compensation	Statutory
	Employers' Liability	\$100,000
\$1,000,000 to \$4,999,999	Professional Liability	\$1,000,000/per claim \$2,000,000 aggregate
	General Liability	\$1,000,000/per occurrence \$2,000,000/aggregate
	Automobile Liability	\$1,000,000/per occurrence
	Workers' Compensation	Statutory
	Employers' Liability	\$500,000
\$5,000,000 to \$9,999,999	Professional Liability	\$3,000,000/per claim \$5,000,000 aggregate
	General Liability	\$1,000,000/per occurrence \$2,000,000/aggregate
	Automobile Liability	\$1,000,000/per occurrence
	Workers' Compensation	Statutory
	Employers' Liability	\$1,000,000
\$10,000,000 to \$19,999,999	Professional Liability	\$5,000,000/per claim \$10,000,000 aggregate
	General Liability	\$2,000,000/per occurrence \$4,000,000/aggregate
	Automobile Liability	\$2,000,000/per occurrence
	Workers' Compensation	Statutory
	Employers' Liability	\$1,000,000

\$20,000,000 to \$24,999,999	Professional Liability	\$10,000,000/per claim
		\$20,000,000 aggregate
	General Liability	\$2,000,000/per occurrence
		\$4,000,000/aggregate
	Automobile Liability	\$2,000,000/per occurrence
	Workers' Compensation	Statutory
	Employers' Liability	\$1,000,000
\$25,000,000 and over	Coverage and limits to be negotiated.	

17. TERMINATION:

The AUTHORITY's General Manager, his/her designee and/or the CONSULTANT may terminate this Agreement on thirty (30) days prior written notice. In the case of termination by the AUTHORITY, the AUTHORITY shall pay the CONSULTANT for all Work performed to the effective date of termination and the reasonable costs of transferring all documentation of all Work to the AUTHORITY.

18. REVIEWS:

(a) The CONSULTANT shall submit draft reports and other materials for review by the AUTHORITY prior to the submission of a final report on materials. Due dates will be negotiated, but in every instance, earlier submittal is encouraged.

(b) The AUTHORITY will review the submittals and any pertinent attachments and mark all required changes. All reviews will be completed within ten (10) working days after receipt of the submission package, and the package will be returned to the CONSULTANT. Corrections and changes to the submission will be made by the CONSULTANT and resubmitted to the AUTHORITY for approval within ten (10) working days after receipt. The final approval will be submitted to the CONSULTANT within five (5) working days after receipt of the corrected document and any attachments. Alternate review schedules may be negotiated by mutual agreement of the Parties.

19. RELEASE OF INFORMATION:

The CONSULTANT shall make public information releases only as provided for and in accordance with this Agreement. Any and all other public releases of information gathered, obtained, or produced during the performance of this Agreement must be specifically approved in writing by the AUTHORITY prior to release. Such information shall include, but is not limited to, all products, intellectual property, Work Product, ideas, data, reports, background materials, and any and all other materials belonging to the AUTHORITY. Such public releases of information shall include, but are not limited to, publication in any book, newspaper, magazine, professional or academic journal, the Internet, radio, television, and presentations to professional, academic, and/or other groups or conferences.

20. USE OF MATERIALS:

(a) The AUTHORITY shall make available to the CONSULTANT such materials from its files as may be required by the CONSULTANT in connection with its performance of Services under this Agreement. Such materials shall remain the property of the AUTHORITY while in the CONSULTANT's possession.

(b) Upon termination of this Agreement, the CONSULTANT shall turn over to the AUTHORITY any property of the AUTHORITY in its possession and any calculations, notes, reports, or other materials prepared by the CONSULTANT in the course of performing this Agreement. Any proprietary software or other tools of the CONSULTANT used to execute the Work shall remain the property of the CONSULTANT.

21. RECORDS:

The CONSULTANT shall retain financial and other records related to this Agreement for six (6) years after the completion or termination of this Agreement, and shall make available to

the AUTHORITY for inspection, all books, records, documents, and other evidence directly pertinent to performance under this Agreement upon reasonable notice.

22. ASSIGNMENT:

The CONSULTANT shall not assign or transfer its interest in this Agreement without the prior written consent of the AUTHORITY. If CONSULTANT assigns or transfers without prior written approval, the assignment or transfer shall be void, and not merely voidable.

23. MODIFICATION OF AGREEMENT:

This Agreement may not be changed or modified except by written instrument executed by both Parties or their designees.

24. SEVERABILITY:

If any term of this Agreement is to any extent illegal, invalid, or unenforceable, such term shall be excluded to the extent of such invalidity or unenforceability; all other terms of this Agreement shall remain in full force and effect; and, to the extent permitted and possible, the invalid or unenforceable term shall be deemed replaced by a term that is valid and enforceable and that comes closest to expressing the intention of such invalid or unenforceable term. If application of this Paragraph should materially and adversely affect the economic substance of the transactions contemplated in this Agreement, the Party adversely impacted shall be entitled to compensation for such adverse impact.

25. NON-DISCRIMINATORY EMPLOYEE PRACTICES:

(a) The CONSULTANT and any subcontractor or subconsultant working under the authority of the CONSULTANT, who is responsible for the selection, referral, hiring, or assignment of workers for the Services provided pursuant to this Agreement, is required to comply with all applicable provisions of Title VII of the Civil Rights Act of 1964, Age Discrimination in

Employment Act, the Civil Rights Act of 1991, the Equal Pay Act, Title I of the Americans with Disabilities Act and all associated rules and regulations..

(b) CONSULTANT recognizes that if they or their subcontractors are found guilty by an appropriate authority of refusing to hire or do business with an individual or company due to reasons of race, color, religion, sex, sexual orientation, gender identity or expression, age, disability, national origin, or any other protected status, the AUTHORITY may declare the CONSULTANT in breach of the Agreement, terminate the Agreement, and designate the CONSULTANT as non-responsible.

26. EQUAL EMPLOYMENT OPPORTUNITY:

(a) The CONSULTANT and any subcontractor or subconsultant working under the authority of the CONSULTANT, who is responsible for the selection, referral, hiring, or assignment of workers for the Services provided pursuant to this Agreement, is required to comply with all applicable provisions of Title VII of the Civil Rights Act of 1964. This requirement includes compliance with Equal Employment Opportunity Commission regulations that prohibit discrimination based upon race, color, religion, sex, or national origin. Furthermore, the CONSULTANT shall in all relevant manners comply with the Age Discrimination in Employment Act, the Civil Rights Act of 1991, the Equal Pay Act, and Title I of the Americans with Disabilities Act.

(b) The CONSULTANT shall make all necessary documentation as required to comply with the Acts referred to above and shall make such documentation immediately available to the AUTHORITY upon the AUTHORITY's request. The CONSULTANT is solely liable for failure to comply with this provision.

27. APPLICABLE LAW:

Nevada law shall govern the interpretation of this Agreement, without reference to its choice of law provisions.

28. VENUE:

The Parties agree that venue for any dispute arising from the terms of this Agreement shall be Clark County, Nevada.

29. ATTORNEY'S FEES:

Except as otherwise set forth in this Agreement, the Parties shall bear their own attorneys' fees and costs incurred in resolving the claims, as well as on preparation of this Agreement. In the event that any Party commences an action to enforce or interpret this Agreement, or for any other remedy based on or arising from this Agreement, the prevailing party therein shall be entitled to recover its reasonable and necessary attorneys' fees and costs incurred.

30. NO THIRD PARTY RIGHTS:

This Agreement is not intended by the Parties to create any right in or benefit to parties other than the AUTHORITY and the CONSULTANT. This Agreement does not create any third party beneficiary rights or causes of action.

31. WAIVER:

The failure of either Party to enforce at any time, or for any period of time, the provisions hereof shall not be construed as a waiver of such provisions or of the rights of such Party to enforce each and every such provision.

32. CAPTIONS:

The captions contained in this Agreement are for reference only and in no way to be construed as part of this Agreement.

32. COUNTERPARTS:

This Agreement may be executed in any number of counterparts and by the different Parties on separate counterparts, each of which, when so executed, shall be deemed an original, and all counterparts together shall constitute one and the same instrument.

33. INTEGRATION:

This Agreement contains the entire understanding between the Parties relating to the transactions contemplated by this Agreement, notwithstanding any previous negotiations or agreements, oral or written, between the Parties with respect to all or any part of the subject matter hereof. All prior or contemporaneous agreements, understandings, representations and statements, oral or written, regarding the subject matter of this Agreement are merged in this Agreement and shall be of no further force or effect.

34. NOTICES:

Any and all notices, demands or requests required or appropriate under this Agreement (including invoices) shall be given in writing and signed by a person with authorization to bind the CONSULTANT or AUTHORITY, either by personal delivery, via a scanned document sent via email, or by registered or certified mail, return receipt requested, addressed to the following addresses:

To CONSULTANT: Black & Veatch Corporation
4040 South Eastern Avenue, Suite 330
Las Vegas, NV 89119
Attention: Leon Siekerka, P.E., PMP
[SiekerkaLH@bv.com]
(702) 894 4502

To AUTHORITY: Southern Nevada Water Authority
Attention: L. Steven Anderson, P.E.
1001 South Valley View Boulevard
Las Vegas, Nevada 89153
[steven.anderson@lvvwd.com]
(702) 875 7063

When notice is given by mail, it shall be deemed served three (3) business days following deposit, postage prepaid in the United States mail. When notice is given by email transmission, it shall be deemed served upon receipt of confirmation of transmission if transmitted during normal business hours or, if not transmitted during normal business hours, on the next business day following the email transmission.

The Parties may designate a new contact person under this provision for notices or invoices or change the addresses or email addresses identified above by notifying the other Party in writing.

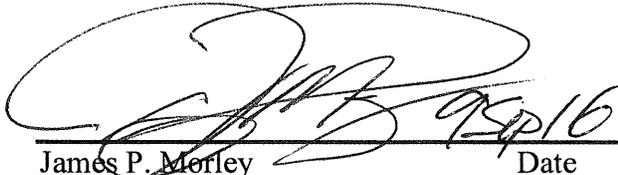
35. ELECTRONIC SIGNATURES:

Each Party agrees that the electronic signatures, whether digital or encrypted, of the Parties are intended to authenticate this writing and to have the same force and effect as manual signatures.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed the day and year first above written.

BLACK & VEATCH CORPORATION

SOUTHERN NEVADA WATER
AUTHORITY



James P. Morley
Client Director

Date

John J. Entsminger
General Manager

Date

Approved as to form:



Laura Ellen Browning, Deputy Counsel

**Exhibit A
SCOPE OF SERVICES**

**AGREEMENT FOR ENGINEERING SERVICES
AMSWTF FILTER IMPROVEMENTS Phase II
DESIGN, BID AND SERVICES DURING CONSTRUCTION
SOUTHERN NEVADA WATER AUTHORITY
SNWA CONTRACT NO. 320002D1**

INTRODUCTION

Background

The Southern Nevada Water Authority (Authority) has commenced improvements to Filter No. 1 and No. 2 under Project No. 3200, AMSWTF Filter Improvements Demonstration project, Phase I. Structural and Mechanical Assessments were performed, filter operation, performance, and water quality/process conditions were investigated. Improvements and upgrades to Filter No. 1 and No. 2 have advanced to construction. Improvements to the existing 26 filters at AMSWTF are anticipated to occur as part of six phased projects. This Phase II project will rehabilitate the four (4) filters among Filter Nos. 3 through 10 as determined from pre-design evaluation.

This Project Meets The Following SNWA Goals And Strategies:

Goal 1: Assure quality water through reliable and highly efficient systems.

Strategy 1: Provide a high-quality drinking water supply and delivery system that is sustainable and promotes the vitality and prosperity of the community.

Goal 3: Anticipate and adapt to changing climatic conditions while demonstrating stewardship of our environment.

Strategy 2: Develop and implement adaptation plans to reduce or mitigate impacts of climate change on water and environmental resources.

PROJECT DESCRIPTION

The AMSWTF Filter Improvements Demonstration Phase II will provide for the rehabilitation of the four (4) filters among Filter Nos. 3 through 10 as determined from pre-design evaluation. Phase II will apply and incorporate the findings, recommendations, and filter design modifications from Phase I.

Proposed improvements will be described in a preliminary design report. The 75 percent design, 100 percent Design and Final Bidding Document deliverables will incorporate the following Improvements to the selected Phase II Filters:

- Remove existing filter media and underdrain blocks. Provide new filter under drain block, under drain media cap, and new sand and anthracite filter media.

- Provide concrete filter box improvements to increase media depth from 45-inches to 60-inches. Remove existing concrete wash water troughs. Raise concrete gullet walls and provide new concrete pilaster supports to accommodate modified structural loads. Provide new fiberglass wash water troughs.
- Repair concrete cracks and bug holes, and apply protective coating to entire filter box.
- Replace Fiberglass Reinforced Plastic (FRP) quadrant panel (2 each filter) above the air supply plenum with 316 stainless steel.
- Remove and replace air supply harnessed expansion coupling, and locate the expansion joint above the water surface.
- Replace nine (9) existing butterfly valves (one 54-inch, one 48-inch, three 36-inch, two 30-inch, and two 18-inch valves) at each filter with new butterfly valves and new electric actuators. Two new actuators are modulating type (54-inch filter influent and 30-inch filter effluent).
- Remove existing mechanical couplings (sleeve, harnessed, and grooved-end type) in filter gallery at each filter and replace with new couplings.
- Repair pipe lining defects (pipe interior) and areas of corrosion.
- Provide surface preparation and recoating of filter gallery piping for Filter No. 3, 4, 5, and No. 6 including wash water supply and return header pipe. The limits header pipe coating beyond will be identified on the drawings.
- Remove existing venturi flow element from the filter effluent piping, and install owner refurbished venturi.
- Provide technical documents to assist Authority with sole source procurement of butterfly valves for Phase II. Coordinate owner-furnished materials in the general construction contract documents.

SCOPE OF WORK

The Scope of Work is divided into six (6) parts as listed below. The different parts parallel the stages associated with Project implementation. Each consists of a series of separate task efforts.

- Part 1 – Project Management
- Part 2 – Preliminary Design Phase
- Part 3 – Detailed Design Phase
- Part 4 – Bid Period Services
- Part 5 – Engineering Services during Construction
- Part 6 – Additional Services

PART 1 – PROJECT MANAGEMENT

The Consultant is responsible for the management of services provided by the Consultant to the Authority. This management is to extend across all phases and parts of the Project. The Consultant's Project Manager (PM) is to monitor, report and coordinate efforts with the Authority's PM. Project Management tasks include the following:

Task 1.1 – Project Administration

The Consultant shall establish internal project controls to monitor status, budget, staffing, and schedule on an on-going basis. The Consultant's PM will provide a project status update to the Authority during the Monthly Progress Meetings.

Task 1.2 – Communications and Correspondence

All correspondence to the Authority, including emails, will include the Project Name and Project Number within the subject line. During all project phase the Authority's PM will be copied on correspondence related to this Project - this includes external emails and letters to other public entities.

Task 1.3 – Meetings and Workshops

The Authority's PM with the assistance of the Consultant will facilitate meetings and workshops associated with efficient project execution. This will include establishing the meeting or workshop objectives, determining participants, creating agendas, and conducting the meeting or workshop. The Consultant shall prepare and distribute summary notes documenting decisions and assigned action items. The following meetings and workshops are planned for the Project. Should it be determined that additional meetings or workshops are necessary, the Consultant will provide support as a part of Additional Services.:

Deliverables for Task 1.3:

- Draft and Final meeting notes - one (1) electronic .pdf file to be delivered to each meeting attendee.

Task 1.3.1 – Kick-off Meeting

Within one (1) week of the issuance of the Notice-to-Proceed (NTP), the Consultant shall conduct an initial Kick-off Meeting with Authority staff. At a minimum, the objective of the Kick-off work is to discuss the following:

- Introduction of Project team.
- Primary lines of communications including distribution of Project team directory.
- Review of Project background, goals and objectives.
- Review of Project scope.
- Presentation of Project schedule and milestones, and providing of Project Baseline Schedule.
- Identification of critical issues and success factors related to Project.
- Present a "Request for Information" package to the Authority. This information will be required by the Consultant prior to the Consultant beginning the preliminary design phase.

Task 1.3.2 – Deliverable Review Meetings

The Consultant shall schedule and conduct review meetings related to deliverables provided including:

- Preliminary Design Report Review meeting (Final)
- Detailed Design – 75% submittal review meeting
- Detailed Design – 100% submittal review meeting

All review documents (reports, plans, etc.) with markups provided by the Authority to the Consultant will be returned to the Authority prior to the review meetings.

Task 1.4 – Project Execution Plan

The Consultant shall prepare a Project Execution Plan (PEP). The PEP is to be used as a tool for tracking of status as well as communicating progress to the Authority. The PEP will establish and clearly define the following:

- Project Management Approach
- Organization
- Roles and Responsibilities of Parties Involved
- Communication Plan
- Means for Controls and Monitoring
- Change Management
- Decision Log
- Schedule, Budget and Cost Baseline Information
- Quality Management Approach

Deliverables for Task 1.4:

- Project Execution Plan – five (5) hard copies and one (1) electronic .pdf file.

Task 1.5 – Invoicing

The Consultant shall prepare and submit all invoices in accordance with requirements outlined within this Agreement.

Deliverables for Task 1.6:

- Monthly invoice.

PART 2 – PRELIMINARY DESIGN PHASE

The Consultant shall prepare a Preliminary Design Report (PDR) to document the basis of design which will be applied to development of Part 3 - Detailed Design.

Task 2.1 – Data Gathering and Site Investigation

The Consultant shall gather design data both internally and from the Authority, and perform site investigations in support of the project design.

Task 2.2 – Preliminary Design Report (Draft and Final)

The Preliminary Design Report will establish the basis of design for the proposed improvements and will contain the following sections:

- I. Introduction
 - A. Purpose
 - B. Background
 - C. Goals and Objectives
- II. Filter Media, Underdrain and Backwash System
 - A. Introduction
 - B. Filter Media and Underdrain System
 - C. Replacements/Upgrades
- III. Mechanical Improvements
 - A. Valves and Actuators Replacement
 - B. Piping Evaluation
 - C. Design Criteria

- IV. Structural Improvements
 - A. Design Codes and References
 - B. Filter Box Rehabilitation
 - C. Wash Water Trough Replacement
- V. Electrical, Instrumentation and Control
 - A. Codes and Standards
 - B. Electrical Replacements/Upgrades
 - C. Instrumentation and Control Replacements/Upgrades
- VI. Construction Sequencing
- VII. Opinion of Probable Cost to Construct
- VIII. Project Schedule
- IX. Appendix
 - A. Summary of Meetings and Workshop Notes

Task 2.3 – Opinion of Probable Cost to Construct

The Consultant shall prepare opinion of probable cost to construct estimates using the appropriate standard of care and employing pertinent guidelines as established by the Association for the Advancement of Cost Estimating (AACE), Class 3.

Task 2.4 – Preliminary Design Report Review Workshop

The Consultant shall conduct this meeting per Task 1.3.2.

Task 2.5 – Preliminary Design Report - Final

The Consultant shall prepare a final Preliminary Design Report incorporating client review comments.

Deliverables for Part 2:

- Draft and Final Preliminary Design Report – ten (10) hard copies and one (1) electronic .pdf copy.

PART 3 - DETAILED DESIGN PHASE

Task 3.1 - Prepare Plans and Specifications

The Consultant shall prepare a biddable set of plans, technical specifications, and Contract Documents based on the design concepts and criteria developed in Part 2 – Preliminary Design Report. The Consultant will prepare 75 percent, 100 percent, and Final Bidding Document submittals. An interim final deliverable will be submitted to the Authority for review and confirmation that review comments have been incorporated into the final documents. The Final Bidding Document submittal will be suitable for obtaining bids from a qualified Construction General Contractor.

The detail design scope for the condition assessment tasks (valves and piping; concrete structures and pipe support systems) will be provided after the PDR Phase based on the Authority’s approval on the condition assessment recommendations. Plans and specifications will be prepared in accordance with guidelines provided by the Authority as listed below:

- A. **Codes and Standards.** Plans and specifications will be prepared in accordance with the standard of care for public works construction. The facilities will be designed in accordance with the latest editions of the pertinent codes and regulations, as adopted by

the Authority FEGs, or as agreed to by the Authority and Consultant at the beginning of the Detailed Design effort.

- B. **Drawings.** Due to the nature of this work, the drawing package may contain new or existing drawings (in .pdf format) with design information superimposed. Anticipated drawing list (57 drawings, refer to drawing list) may include the following categories:
- I. General
 - II. Civil
 - III. Structural
 - IV. Process Mechanical
 - V. Electrical
 - VI. Instrumentation
- C. **Specifications.** Specifications will be prepared in CSI format and will incorporate the Authority's standard specifications for Division 00 and Division 01. All specifications will be prepared using Microsoft Word and all specifications will be provided to the Authority in electronic format on completion of the design. Refer to list of specifications.
- D. **Submittal.** The Consultant shall submit 12 half size sets of progress plans and technical specifications to the Authority for review and comment at the 75 percent and 100 percent complete stage of design. The intent of these submittals is to obtain review comments from Authority staff. The Consultant shall respond to all written comments and incorporate comments where appropriate. The Final submittal will include original, sealed drawings and specifications.

Deliverables for Task 3.1:

- Drawings – twenty (20) hard copies of stapled edge bound 11" x 17" drawings and one (1) electronic .pdf copy and 1 copy in CAD format, Autodesk 2015.
- Specifications – five (5) hard copies of 8 ½" x 11" specifications, one (1) electronic .doc copy and one (1) electronic .pdf copy.
- Engineer's Opinion of Probable Construction Cost - five (5) hard copies of 8 ½" x 11" and one (1) electronic .pdf copy.
- Draft and Final review workshop meeting notes – one (1) electronic .pdf file to be delivered to each meeting attendee.

Task 3.2 – Opinion of Probable Cost to Construct

The Consultant shall prepare opinions of probable cost to construct estimates using the appropriate standard of care and employing pertinent guidelines as established by the Association for the Advancement of Cost Estimating (AACE).

Task 3.2 – Construction Cost Estimates

Opinions of probable construction costs (OPCC) will be prepared and submitted to the Authority at 75 percent (AACE – Class 2 estimate) and 100 percent (AACE – Class 1 estimate) levels of design completion.

Deliverables for Task 3.2:

- OPCC – one (1) hard copy (to be delivered as a part of the design submittals listed above).

PART 4 – BID PERIOD SERVICES

The intent of the Bid Period Services phase of this Project is to provide engineering services to the Authority to advertise, obtain bids, and award a contract to a single Construction Contractor. Specific services to be provided are as follows:

Task 4.1 - Distribution of Contract Documents

The Consultant shall provide one (1) complete set of contract documents on disk for the use by the Authority in distributing to prospective bidders. The Authority will use its standard bidding advertisement and bidding processes.

Deliverables for Task 4.1:

- 1 Complete set of original signed and sealed construction documents (full size plans plotted on bond paper, specifications, reference documents, etc.).

Task 4.2 - Response to Bid Period Questions

Prospective bidders will be required to formally submit questions to the Authority who will forward to the Consultant questions requiring Consultant response. The Consultant shall document and answer up to fifteen (15) questions in writing. The Consultant will prepare draft addenda incorporating responses to prospective bidders' questions for review by the Authority. The Authority will prepare the final addenda and issue to the Construction Contractor. Consultant will provide signed and sealed drawings and/or specifications as required with any issued addenda.

Deliverables for Task 4.2:

- Completed Project Information Request Forms – one (1) electronic .pdf file for all bid period questions (to be delivered via e-mail).

Task 4.3 – Pre-bid Conference

The Consultant's PM and Engineering Manager (EM) shall attend a four (4) hour pre-bid conference organized and facilitated by the Authority. The notice for the pre-bid conference will be included in the Contract Documents.

Task 4.4 - Addenda

The Consultant will prepare up to one (1) draft addenda to the Contract Documents for issue during bidding period. The Consultant shall forward complete addenda to the Authority for review and approval. The Authority will forward final approved addenda to all parties on the Plan Holders List.

Deliverables for Task 4.4:

- Addenda – one (1) electronic .pdf file per addenda (to be delivered via e-mail).

Task 4.5 - Bid Opening and Review

The Consultant may be requested to review bidders' responsiveness and provide recommendations based upon technical compliance with bid requirements. If requested, the Consultant shall attend up to two (2) Authority meetings when award or rejection of Bids/Construction Contract is considered. Should the Consultant need to support the Authority in responding to any bid protests, the Consultant will provide support as a part of Additional Services.

Deliverables for Task 4.5:

- Recommendation of Award – one (1) electronic .pdf file (to be delivered via e-mail).

PART 5 – ENGINEERING SERVICES DURING CONSTRUCTION

Task 5.1 – Pre-construction Conference

The Consultant's PM and EM shall attend a four (4) hour pre-construction conference organized and facilitated by the Authority. Following the conference, the Authority will prepare notes for the conference and distribute to all parties in attendance.

Task 5.2 – Construction Progress Meetings

The Consultant's PM and EM shall attend up to twenty-four (24), four (4) hour construction progress meetings at AMSWTF.

All construction progress meetings will be organized and facilitated by Authority staff, including the preparation of meeting agendas and notes.

Task 5.3 – Submittal Review

The Authority will process and transmit to the Consultant all of the Construction Contractor's technical submittals and shop drawings using the Authority's web-based Project Controls System. The Consultant will manage, review, provide appropriate review disposition and document / log all expected Construction Contractor technical submittals and shop drawings for compliance with the contract documents, estimated to be up to fifty (50). The Consultant will document / log the submittal responses using the Authority's web-based Project Controls System. It is expected that there will be two (2) review cycles for all submittals.

Deliverables for Task 5.3:

- Submittal response – one (1) electronic response per submittal and resubmittal.

Task 5.4 – Contract Documents Interpretation and Clarification

The Authority will process and transmit to the Consultant all of the Construction Contractor's requests for interpretation and clarification (RFI) using the Authority's web-based Project Controls System. The Consultant will interpret the technical content of drawings and specifications with respect to RFIs, estimated at up to 30 RFIs, then review, document, recommend specific action, and respond to those RFIs within the Authority's web-based Project Controls System.

Deliverables for Task 5.4:

- RFI response – one (1) electronic response per RFI.

Task 5.5 – Change Order Assistance

The Authority will process and transmit to the Consultant all of the Construction Contractor's change order (CO) requests using the Authority's web-based Project Controls System. When requested by the Authority, the Consultant shall provide engineering services, prepare drawings /sketches, specifications, and cost estimates in order to assist the Authority in CO negotiations with the Construction Contractor, estimated to be two (2) CO.

Deliverables for Task 5.5

- CO response – one (1) electronic response per CO.

Task 5.6 – Substantial and Final Completion

The Consultant's PM, EM and Operations Specialist shall attend a substantial completion walk through inspection with the Authority's Project Engineer (PE) and Construction Project Manager (CPM.) The Consultant shall assist the Authority in:

1. Confirming the Contractor's claim of substantial or final completion has been met.
2. Development of a punch list of items necessary to complete the Project.

The Consultant's PM, EM and Operations Specialist shall attend a final completion walk through inspection with and the Authority's PE and CPM. The Consultant shall assist the Authority in verification of completion of the punch list items.

Task 5.7 – Operational Review and Startup Assistance

The Consultant shall provide startup and operational assistance, data evaluation, and performance review as requested by the Authority and as required to schedule and define implementation of filter improvements for Filters No. 3 through No. 26.

Task 5.8 – Record Drawings

After final completion of the Project, the Consultant will revise the original contract drawings to conform to construction records. Revisions may include incorporation of addenda, contract clarifications, field changes, and change orders. The Authority's CPM will provide a single, full size (22" x 34") set of complete, compiled red-lines mark-ups to the Consultant.

Deliverables for Task 5.8:

- Record drawings –one (1) hard copy set of composite 22" x 34" bond, one (1) electronic .pdf set and one (1) electronic .dwg set of drawings on CD or DVD in Autodesk version 2015.

PART 6 – ADDITIONAL SERVICES

Upon written approval by the Authority, the Consultant shall provide additional services that may be required for the completion of the Project. Such services may include:

- Additional Meetings and Workshops.
- Design, Bid and ESDC for work not described in this scope of services.
- Additional Bid Support.
- Additional ESDC Support.
- Additional Services as Requested by the Authority.

**Exhibit B
RATES AND FEES**

**AGREEMENT FOR ENGINEERING SERVICES
AMSWTF FILTER IMPROVEMENTS Phase II
DESIGN, BID AND SERVICES DURING CONSTRUCTION
SOUTHERN NEVADA WATER AUTHORITY
SNWA CONTRACT NO. 320O02D1**

Project Management	\$58,468
Preliminary Design Phase	\$40,314
Detailed Design Phase	\$252,849
Bid Period Service (not to exceed)	\$12,822
Construction Phase Services	\$161,688
SUBTOTAL	\$526,141
10% Contingency	\$52,600
TOTAL	\$578,741

Project Director	\$240.00/HR
Project Manager	\$223.00/HR
Engineering Manager	\$217.00/HR
Civil Engineer	\$137.00/HR
Civil Technician	\$125.00/HR
Process Specialist	\$240.00/HR
Senior Process Engineer	\$240.00/HR
Water Filtration Specialist	\$240.00/HR
Structural Engineer	\$168.00/HR
Mechanical Engineer	\$168.00/HR
Clerical	\$82.00/HR

SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM
November 17, 2016

Subject: Water Budget	Director's Backup
Petitioner: David L. Johnson, Deputy General Manager, Engineering/Operations	
Recommendations: That the Board of Directors adopt the 2016 Water Budget.	

Fiscal Impact:

None by approval of the above recommendation.

Background:

The SNWA 1995 Amended Cooperative Agreement requires that the Authority adopt a Water Budget (Budget) presenting the water resources available to the Authority and its purveyor members. The Budget is reviewed at least annually and revised as appropriate. Staff prepared the 2016 Budget with input from the Authority's member agencies. The 2016 Budget presents actual water use by source for each member agency for 2014 and 2015, as well as annual supply and demand projections through 2019.

The Budget, which provides detailed short-term supply and demand forecasts, is intended to complement the Water Resource Plan, which focuses on longer-term, regional supply and demand projections. The 2016 Budget demonstrates that there are sufficient water resources to meet the demands of the Authority's purveyor members through the 2019 forecast horizon.

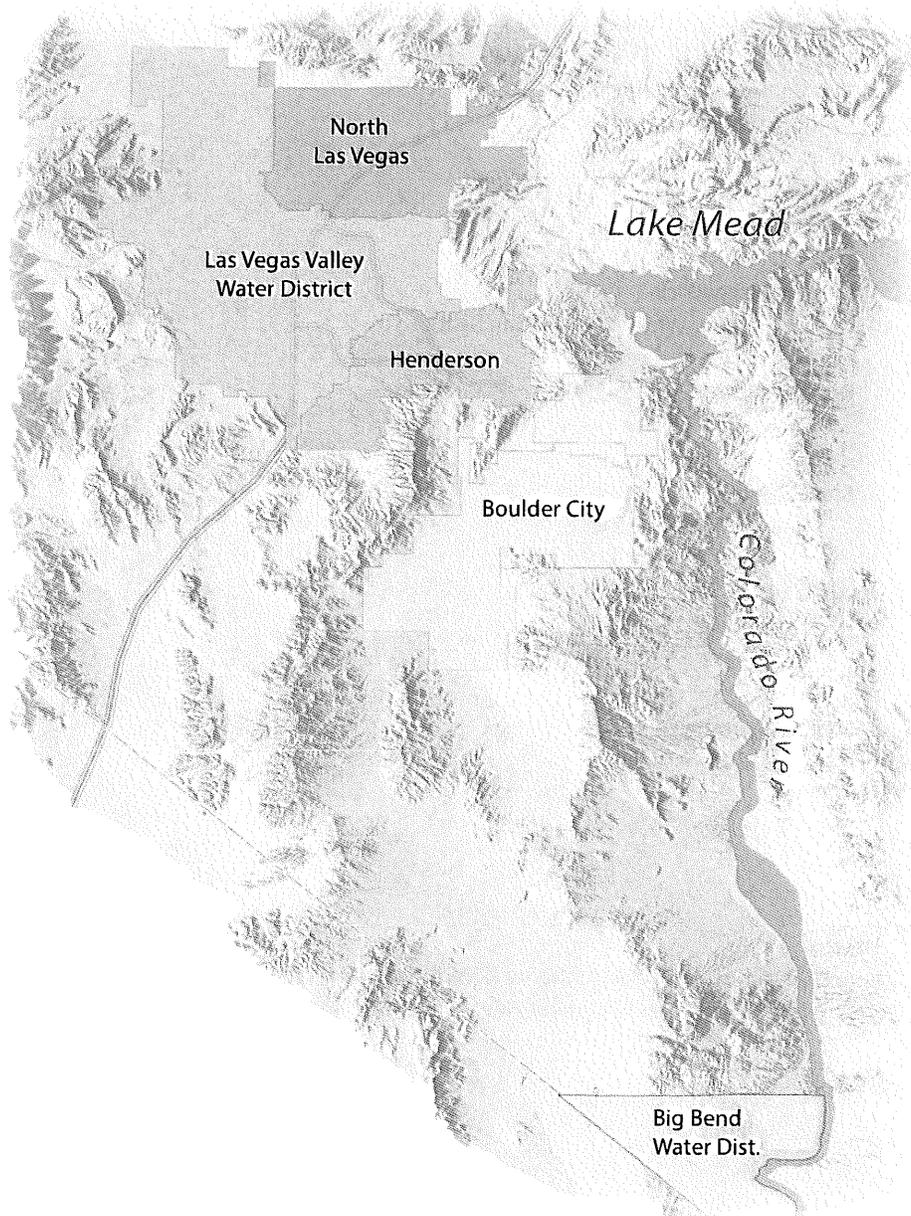
This action is authorized pursuant to Sections 5(j) and 8(h) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:DLJ:ZLM:AB:JJ:TM:lmv:nsh
Attachment

2016 WATER BUDGET



SOUTHERN NEVADA WATER AUTHORITY

BOARD OF DIRECTORS

Mary Beth Scow, CHAIRWOMAN
Las Vegas Valley Water District

Sam Bateman, VICE CHAIRMAN
City of Henderson

Bob Coffin
City of Las Vegas

Marilyn Kirkpatrick
Clark County Water Reclamation District

Duncan McCoy
City of Boulder City

Steve Sisolak
Big Bend Water District

Anita Wood
City of North Las Vegas

John J. Entsminger
General Manager

The Southern Nevada Water Authority (SNWA) is a cooperative, not-for-profit agency formed in 1991 to address Southern Nevada's unique water needs on a regional basis.

SNWA 2016 Water Budget

CONTENTS

List of Acronyms and Abbreviations	ii
Summary	iii

Tables

1. Customer Water Usage	1
2. Resources Available.....	2
3. Facility Usage by SNWA Purveyor	3
4. Usage by Facility	4
5. SNWA Purveyor Potable Usage by Resource	5
6. Wastewater and Use of Wastewater	6
7. Wastewater Reuse and Reuse Threshold	7
8. Colorado River Diversions, Return Flow Credits and Consumptive Use in Nevada	8
Appendix 1 – Return Flow Credits and Nevada Consumptive Use Calculations	9
Adjusted for ICS and Interstate Banking	
Appendix 2 – Projection of Accruals and Gauge Flows	10
Appendix 3 – Las Vegas Valley Water Usage and Wastewater Flows.....	11
Appendix 4 – Colorado River Usage by System and Estimates of SNWS	
System Loss	12

SNWA 2016 Water Budget

ACRONYMS

AR	Artificial Recharge
BC	City of Boulder City
BMI	Basic Management Inc.
CA	California
CCWRD	Clark County Water Reclamation District
CR	Colorado River
CRC	Colorado River Commission of Nevada
FMIR	Fort Mojave Indian Reservation
GW	Groundwater
ICS	Intentionally Created Surplus
LM	Lake Mead
LMNRA	Lake Mead National Recreation Area
LV	Las Vegas
LVV	Las Vegas Valley
LVVWD	Las Vegas Valley Water District
MOU	Memorandum of Understanding
M&I	Municipal and Industrial
Nellis AFB	Nellis Air Force Base
NLV	City of North Las Vegas
NV	Nevada
PABCO	Pacific Coast Building Products Company
SNWA	Southern Nevada Water Authority
SNWS	Southern Nevada Water System
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey

ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
TBD	to be determined

SNWA 2016 Water Budget

SUMMARY

The Southern Nevada Water Authority (SNWA), pursuant to its Cooperative Agreement, is required to produce a water budget presenting water resources available to SNWA and its member agencies and water demands for each purveyor member. It is reviewed annually by the SNWA Board of Directors and revised as needed.

SNWA staff prepared this 2016 Water Budget with input from technical representatives of the member agencies. The document consists of eight tables and four corresponding appendices showing annual potable and non-potable water demand projections by purveyor for the years 2016 through 2019, as well as actual demands for the years 2014 and 2015.

The Water Budget is short-term in focus, with detailed forecasts provided by each purveyor for its respective service area. The water demands in this Water Budget differ from the regional forecasts in the Water Resource Plan. The Water Resource Plan is generated for the SNWA service area as a whole to focus on the resources available to the region for the long-term. The Water Resource Plan should be consulted to understand what water resources are projected to meet long-term regional water demands. The Water Budget, on the other hand, is an appropriate source document for water demand and supply details of a specific purveyor service area for the next few years.

Major Findings of 2016 Water Budget

- Nevada's 2015 Colorado River consumptive use was approximately 223,000 acre-feet (AF). SNWA created Intentionally Created Surplus (ICS) credits during 2015 by conserving purchased and leased water rights on the Muddy and Virgin Rivers and conveying them to Lake Mead for storage. During 2015, SNWA stored approximately 23,900 AF of ICS credits in Lake Mead. SNWA also took delivery of 75,000 AF of Extraordinary Conservation ICS credits for use in 2015, enabling SNWA to direct 150,000 AF of unused Nevada Colorado River water for storage in California. Approximately 2,300 AF of remaining unused Nevada Colorado River water was directed for the benefit of the Colorado River system pursuant to Nevada's commitment under the 2014 Memorandum of Understanding for Pilot Drought Response Actions.
- The 2016 Water Budget projects Nevada Colorado River water consumptive use without Colorado River artificial recharge in the Las Vegas Valley (LVV) to be between 233,000 and 245,000 acre-feet per year (AFY) between 2016 and 2019. During this period, SNWA also plans to create between 25,000 and 32,000 AF of ICS credits annually. If Colorado River drought conditions persist, Lake Mead water levels may decline resulting in a shortage declaration and a reduction in Nevada's Colorado River apportionment by up to 20,000 AF annually, under the Secretary of Interior's 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated

SNWA 2016 Water Budget

Operations of Lake Powell and Lake Mead. The 2016 Water Budget projections of Colorado River water use through 2019 are well below this potential reduced apportionment of 280,000 AFY, demonstrating SNWA's ability to meet water resource needs even in the event of declared shortages through 2019, and beyond, as shown in the 2015 Water Resource Plan.

- Amid ongoing drought on the Colorado River, SNWA joined the United States Bureau of Reclamation (USBR) and other Lower Basin States and water users in a number of initiatives designed to maintain or improve reservoir conditions. Examples include the 2014 Memorandum of Understanding for Pilot Drought Response Actions and the 2014 Pilot System Conservation Agreement. SNWA will dedicate a total of 15,000 AF of ICS, 7,500 AF in both 2015 and 2016, to the Colorado River system under the 2014 Pilot System Conservation Agreement. By the end of 2016, SNWA will have nearly doubled the amount of voluntary contributions pursuant to the 2014 Memorandum of Understanding for Pilot Drought Response Options.
- SNWA plans to direct approximately 67,000 AF of its unused Colorado River apportionment for the benefit of the Colorado River system in 2016, for a total in excess of the 45,000 AF target under the 2014 Memorandum of Understanding for Pilot Drought Response Actions. SNWA will manage its unused Colorado River water resources during the period 2016 through 2019 as conditions develop through a combination of water banking in the LVV, interstate banking, or leaving a portion in Lake Mead.
- SNWA member agencies do not anticipate recovering stored water in the LVV during the forecast period 2016 to 2019, unless it is needed to maintain system water quality or for operational flexibility.
- Year-to-date change in Colorado River consumptive use compared to a prior year is quite variable early in the year. This variability generally declines to a range of +/- 8 percent by the end of the calendar year based on water use from 2010 to 2015. The higher variability early in the year is typically related to differences in precipitation, temperature, returns to the Colorado River, and system operations. This Water Budget projects Nevada's 2016 Colorado River consumptive use to be approximately 5 percent higher than 2015.
- Per SNWA's Cooperative Agreement and USBR Water Delivery Contract, some purveyors may utilize all of their long-term resources and purveyors' available unused Nevada Colorado River water between 2016 and 2019. In addition, other water sources detailed in the 2015 Water Resource Plan may be used to meet demands during this period. The utilization of reclaimed water (direct reuse) is projected to be between 17,000 and 19,000 AFY during the period 2016 to 2019. The SNWA Cooperative Agreement provides for up to 21,800 AFY of direct reuse.

TABLE 1: CUSTOMER WATER USAGE, AFY (a)

POTABLE	2014	2015	2016	2017	2018	2019
Groundwater customer usage (GW)						
LVVWD (b)	44,550	40,523	40,760	40,760	40,760	40,760
North Las Vegas	4,793	5,283	4,215	5,250	5,250	5,250
Total	49,343	45,806	44,975	46,010	46,010	46,010
Colorado River customer usage (CR)						
Deliveries						
Big Bend (Laughlin)	4,078	3,854	4,143	4,328	4,510	4,735
Boulder City (c)	10,818	10,339	12,053	12,053	12,053	12,053
Henderson (c)	79,916	78,386	78,244	79,887	80,377	80,846
LVVWD	282,638	286,677	287,852	293,573	300,041	306,038
North Las Vegas	46,325	47,240	49,152	48,660	49,260	50,097
Total	423,775	426,496	431,444	438,501	446,241	453,769
Recovery of artificial recharge (AR recovery)						
Big Bend (Laughlin)	0	0	0	0	0	0
Boulder City	0	0	0	0	0	0
Henderson	0	0	0	0	0	0
LVVWD	0	0	0	0	0	0
North Las Vegas	0	0	0	0	0	0
Total	0	0	0	0	0	0
Total Colorado River customer usage (CR + AR recovery)						
Big Bend (Laughlin)	4,078	3,854	4,143	4,328	4,510	4,735
Boulder City (c)	10,818	10,339	12,053	12,053	12,053	12,053
Henderson (c)	79,916	78,386	78,244	79,887	80,377	80,846
LVVWD	282,638	286,677	287,852	293,573	300,041	306,038
North Las Vegas	46,325	47,240	49,152	48,660	49,260	50,097
Total	423,775	426,496	431,444	438,501	446,241	453,769
Total customer usage (GW + CR + AR recovery)						
Big Bend (Laughlin)	4,078	3,854	4,143	4,328	4,510	4,735
Boulder City (c)	10,818	10,339	12,053	12,053	12,053	12,053
Henderson (c)	79,916	78,386	78,244	79,887	80,377	80,846
LVVWD	327,188	327,200	328,612	334,333	340,801	346,798
North Las Vegas	51,118	52,523	53,367	53,910	54,510	55,347
Total	473,118	472,302	476,419	484,511	492,251	499,779
NON-POTABLE (Wastewater Reuse)						
Customer usage						
Boulder City	384	625	1,119	1,119	1,119	1,119
CCWRD : Las Vegas Valley (d)	6,042	4,569	5,000	5,000	5,000	5,000
CCWRD : Laughlin	0	0	0	0	0	0
Henderson	6,772	6,808	6,800	6,800	6,800	6,800
Las Vegas (d)	4,964	4,433	4,400	4,400	4,400	4,400
North Las Vegas	0	0	0	0	750	1,500
Total	18,162	16,435	17,319	17,319	18,069	18,819
TOTAL POTABLE AND NON-POTABLE						
Customer usage (GW + CR + AR recovery + Wastewater Reuse)						
Big Bend (Laughlin)	4,078	3,854	4,143	4,328	4,510	4,735
Boulder City (c)	11,202	10,964	13,172	13,172	13,172	13,172
CCWRD : Las Vegas Valley (d)	6,042	4,569	5,000	5,000	5,000	5,000
CCWRD : Laughlin	0	0	0	0	0	0
Henderson (c)	86,688	85,194	85,044	86,687	87,177	87,646
Las Vegas (d)	4,964	4,433	4,400	4,400	4,400	4,400
LVVWD (c)	327,188	327,200	328,612	334,333	340,801	346,798
North Las Vegas	51,118	52,523	53,367	53,910	55,260	56,847
Total	491,280	488,737	493,738	501,830	510,320	518,598

NOTES

- (a) Source (2014-2019): SNWA members.
- (b) Groundwater pumping includes in-lieu recovery in 2014.
- (c) A portion of water usage is met with raw water.
- (d) CCWRD and LV provide sewer service to their service areas; both are in LVVWD's service area.

TABLE 2: RESOURCES AVAILABLE, AFY

	----- Potable water resource -----									
	----- Colorado River water -----									
	Federal SNWS Water Delivery Contract (a)	SNWA Delivery Contract (b)	SNWA Delivery Contract (c)	Other Delivery Contracts (d)	Total Colorado River water (e)	Ground- Water (f)	Total Potable Resource (g)	Non- Potable Resource (h)	Total Long-term Resource (i)	Total Short-term Resource (j)
Big Bend	0	5,352	0.0	10,000	15,352.0	0	15,352.0	0	15,352.0	
Boulder City	8,918	3,948	0.0	5,876	18,742.0	0	18,742.0	0	18,742.0	
CCWRD (h)(i)	0	0	0.0	0	0.0	0	0.0	11,100	11,100.0	
Henderson	27,021	19,858	2,137.5	15,878	64,894.5	0	64,894.5	7,500	72,394.5	
Las Vegas (h)	0	0	0.0	0	0.0	0	0.0	2,000	2,000.0	
LVVWD	232,426	78,799	362.5	15,407	326,994.5	40,760	367,754.5	0	367,754.5	
N. Las Vegas	26,635	15,043	0.0	0	41,678.0	6,201	47,879.0	1,200	49,079.0	
Total	295,000	123,000	2,500.0	47,161	467,661.0	46,961	514,622.0	21,800	536,422.0	(g)

NOTES

- (a) Contract 7-07-30-W0004 between SNWA and the Department of the Interior ("Federal SNWS Water Delivery Contract" or "SNWS Repayment and Delivery Contract"). Quantities for individual purveyors are outlined in Section 8(b) of the SNWA Cooperative Agreement.
- (b) In Contract 2-07-30-W0266 between SNWA and the Department of the Interior ("SNWA Water Delivery Contract"), Sections 4(a)(1) and (2) gives to SNWA the right to use any remaining, uncontracted Nevada apportionment and water available because of reduction, expiration or termination of individual entitlements within Nevada. Section 8 (c) of the SNWA Cooperative Agreement (amended January 1, 1996) apportions among the purveyors 123,000 AFY of Colorado River water made available to SNWA under Sections 4(a)(1) and (2).
- (c) Allocated a total of 2,500 AFY pursuant to Section 8(d) of the SNWA Cooperative Agreement and the Water Supply Agreement dated November 17, 1994.
- (d) Other delivery contracts as follows: 2-07-30-W0269 (Big Bend), 14-06-300-978 (Boulder City), 0-07-30-W0246 (Henderson), 14-06-300-2130 (LVVWD).
- (e) Maximum 21,800 AFY reuse per Cooperative Agreement, safeguards return flows to the Colorado River for return-flow credit. If reuse is greater than the reuse quantities outlined in the Agreement AND IF the excess reuse results in a reduction of return-flow credits which in turn reduces other purveyors' Colorado River water supplies, then the excess reuse quantity is reduced from the potable purveyor in whose service area the reuse provider resides.
- (f) Expected to be available in perpetuity.
- (g) Short-term resource includes: unused Colorado River apportionments, Intentionally Created Surplus, and banked water as described in SNWA's 2015 Water Resource Plan. It may include flood control and domestic surplus Colorado River water made available to Nevada on a year-to-year basis by the Secretary of the Interior. Short-term resources have not been allocated by member agency.
- (h) Both Clark County Water Reclamation District (CCWRD) and Las Vegas (City of) sewer service areas are within LVVWD's water service area. If reuse demands for either CCWRD or Las Vegas are greater than the reuse in the SNWA Cooperative Agreement AND IF they reduce return flow credits which in turn reduces other purveyors' Colorado River water supplies, then the excess reuse quantity is subtracted from LVVWD's potable water resource.
- (i) Maximum reuse for CCWRD includes reuse for CCWRD in Laughlin and in the Las Vegas Valley.

TABLE 3: FACILITY USAGE BY SNWA PURVEYOR, AFY (a)

	2014	2015	2016	2017	2018	2019
Colorado River facility usage (includes artificial recharge, but no recovery of artificial recharge)						
Big Bend Water District	4,078	3,854	4,143	4,328	4,510	4,735
Boulder City						
SNWS	10,818	10,339	12,053	12,053	12,053	12,053
USBR (raw water) system	0	0	0	0	0	0
Total	10,818	10,339	12,053	12,053	12,053	12,053
Henderson						
SNWS	64,979	65,242	65,756	67,387	67,543	67,846
BMI system						
Potable	12,185	11,110	9,723	9,500	9,834	10,000
Raw	2,752	2,034	2,765	3,000	3,000	3,000
Total	14,937	13,144	12,488	12,500	12,834	13,000
Total	79,916	78,386	78,244	79,887	80,377	80,846
LVVWD (SNWS)						
Customer usage (no AR recovery)	282,638	286,677	287,852	293,573	300,041	306,038
Artificial recharge						
Current year banking operations (b)	0	0	0	0	0	0
Other (c)	0	0	0	0	0	0
Total Artificial recharge	0	0	0	0	0	0
Total	282,638	286,677	287,852	293,573	300,041	306,038
North Las Vegas (SNWS)						
Customer usage (no AR recovery)	46,325	47,240	49,152	48,660	49,260	50,097
Artificial recharge	0	0	0	0	0	0
Total	46,325	47,240	49,152	48,660	49,260	50,097
Total Colorado River purveyor usage						
Customer usage (no AR recovery)	423,775	426,496	431,444	438,501	446,241	453,769
Artificial recharge	0	0	0	0	0	0
Total	423,775	426,496	431,444	438,501	446,241	453,769
SNWS system loss to LVV (d)	4,176	5,611	4,283	4,354	4,428	4,501
Total Colorado River purveyor usage (including SNWS system loss)	427,951	432,107	435,727	442,855	450,669	458,270
Groundwater facility usage (includes recovery of artificial recharge)						
LVVWD						
Pumpage of groundwater (e)	44,550	40,523	40,760	40,760	40,760	40,760
Pumpage of artificial recharge (AR recovery)						
Banking operations	0	0	0	0	0	0
Recovery for purveyor members	0	0	0	0	0	0
Total pumpage of AR	0	0	0	0	0	0
Total	44,550	40,523	40,760	40,760	40,760	40,760
North Las Vegas						
Pumpage of groundwater (e)	4,793	5,283	4,215	5,250	5,250	5,250
Total pumpage of AR	0	0	0	0	0	0
Total	4,793	5,283	4,215	5,250	5,250	5,250
Total groundwater facility usage	49,343	45,806	44,975	46,010	46,010	46,010

NOTES

(a) Source (2014-2019): SNWA members.

(b) Recharge recovered during current year for system management.

(c) Recharge for SNWA purveyors and Groundwater Management Program.

(d) Southern Nevada Water System system loss, see Appendix 4.

(e) Groundwater pumping includes in-lieu recovery by LVVWD. Neither LVVWD nor NLV plan to recover in-lieu groundwater.

TABLE 4: USAGE BY FACILITY, AFY (a)

	2014	2015	2016	2017	2018	2019
Usage by Colorado River facilities (includes artificial recharge, but no recovery of artificial recharge)						
Big Bend system	4,078	3,854	4,143	4,328	4,510	4,735
BMI system:						
Henderson	14,937	13,144	12,488	12,500	12,834	13,000
BMI Complex (b)	6,188	5,253	5,721	5,721	5,721	5,721
Total	21,125	18,397	18,209	18,221	18,555	18,721
BMI system loss (c)	177	254	251	251	256	258
Total BMI	21,302	18,651	18,460	18,472	18,811	18,979
Southern Nevada Water System (SNWS)						
Boulder City	10,818	10,339	12,053	12,053	12,053	12,053
Henderson	64,979	65,242	65,756	67,387	67,543	67,846
LVVWD	282,638	286,677	287,852	293,573	300,041	306,038
Nellis AFB (b)	1,101	895	998	998	998	998
North Las Vegas	46,325	47,240	49,152	48,660	49,260	50,097
Total	405,861	410,393	415,811	422,671	429,895	437,032
SNWS system loss (c)	4,176	5,611	4,283	4,354	4,428	4,501
Total SNWS	410,037	416,004	420,094	427,025	434,323	441,533
USBR (raw water) system						
Boulder City	0	0	0	0	0	0
Total Colorado River diversions	435,417	438,509	442,697	449,825	457,644	465,247
Usage by groundwater facilities (includes AR recovery)						
SNWA purveyors (d)						
Pumpage of groundwater						
LVVWD	44,550	40,523	40,760	40,760	40,760	40,760
North Las Vegas	4,793	5,283	4,215	5,250	5,250	5,250
Total	49,343	45,806	44,975	46,010	46,010	46,010
Pumpage of AR (AR recovery)						
LVVWD	0	0	0	0	0	0
North Las Vegas	0	0	0	0	0	0
Total	0	0	0	0	0	0
Total SNWA purveyor pumpage	49,343	45,806	44,975	46,010	46,010	46,010
Las Vegas Valley groundwater pumps						
Nellis AFB (e)	786	802	794	794	794	794
Private/permitted wells (e)	27,635	28,592	28,114	28,114	28,114	28,114
Total	28,421	29,394	28,908	28,908	28,908	28,908
Total pumpage of GW	77,764	75,200	73,883	74,918	74,918	74,918
Total pumpage of GW and pumpage of AR (AR recovery)	77,764	75,200	73,883	74,918	74,918	74,918

NOTES

- (a) Source (2014-2019): SNWA members.
(b) Source (2014-2015): Colorado River Commission. Source (2016+): average 2014-2015.
(c) Southern Nevada Water System and BMI System loss, see Appendix 4.
(d) Total pumpage includes direct customer usage and recovery of artificial and in-lieu recharge.
(e) Source (2014-2015): NV Division of Water Resources. Source (2016+): average 2014-2015.

TABLE 5: SNWA PURVEYOR POTABLE USAGE (including artificial recharge) BY RESOURCE, AFY

	2014	2015	2016	2017	2018	2019	Resources Available
Purveyor potable usage (including artificial recharge) by resource							
Big Bend Water District							
Groundwater rights	0	0	0	0	0	0	0
Federal Delivery Contract (a)	0	0	0	0	0	0	0
SNWA Delivery Contract (b)	0	0	0	0	0	0	5,352
Other contracts	4,078	3,854	4,143	4,328	4,510	4,735	10,000
Short-term resource (c)	0	0	0	0	0	0	(c)
Total	4,078	3,854	4,143	4,328	4,510	4,735	
Boulder City							
Groundwater rights	0	0	0	0	0	0	0
Federal Delivery Contract (a)	8,918	8,918	8,918	8,918	8,918	8,918	8,918
SNWA Delivery Contract (b)	1,900	1,421	3,135	3,135	3,135	3,135	3,948
Other contracts (USBR)	0	0	0	0	0	0	5,876
Short-term resource (c)	0	0	0	0	0	0	(c)
Total	10,818	10,339	12,053	12,053	12,053	12,053	
Henderson							
Groundwater rights	0	0	0	0	0	0	0
Federal Delivery Contract (a)	27,021	27,021	27,021	27,021	27,021	27,021	27,021
SNWA Delivery Contract (b)	19,858	19,858	19,858	19,858	19,858	19,858	19,858
SNWA Delivery Contract (d)	2,138	2,138	2,138	2,138	2,138	2,138	2,138
Other contracts (BMI)	15,878	15,878	15,878	15,878	15,878	15,878	15,878
Short-term resource (c)	15,022	13,492	13,350	14,993	15,483	15,952	(c)
Total	79,916	78,386	78,244	79,887	80,377	80,846	
LVVWD (includes artificial recharge)							
Groundwater rights	40,629	40,523	40,760	40,760	40,760	40,760	40,760
Federal Delivery Contract (a)	232,426	232,426	232,426	232,426	232,426	232,426	232,426
SNWA Delivery Contract (b)	34,805	38,844	40,019	45,740	52,208	58,205	78,799
SNWA Delivery Contract (d)	0	0	0	0	0	0	363
Other contracts (15,407)	15,407	15,407	15,407	15,407	15,407	15,407	15,407
Short-term resource (c)	3,921	0	0	0	0	0	(c)
Total	327,188	327,200	328,612	334,333	340,801	346,798	
North Las Vegas (includes artificial recharge)							
Groundwater rights	4,793	5,283	4,215	5,250	5,250	5,250	6,201
Federal Delivery Contract (a)	26,635	26,635	26,635	26,635	26,635	26,635	26,635
SNWA Delivery Contract (b)	15,043	15,043	15,043	15,043	15,043	15,043	15,043
Other contracts	0	0	0	0	0	0	0
Short-term resource (c)	4,647	5,562	7,474	6,982	7,582	8,419	(c)
Total	51,118	52,523	53,367	53,910	54,510	55,347	
Total purveyor usage by water resource (includes artificial recharge)							
Groundwater	45,422	45,806	44,975	46,010	46,010	46,010	46,961
Colorado River water (includes artificial recharge)							
Federal Delivery Contract(a)	295,000	295,000	295,000	295,000	295,000	295,000	295,000
SNWA Delivery Contract (b)	71,606	75,166	78,055	83,776	90,244	96,241	123,000
SNWA Delivery Contract (d)	2,138	2,138	2,138	2,138	2,138	2,138	2,500
Other contracts	35,363	35,139	35,428	35,613	35,795	36,020	47,161
Short-term resource (c)	23,590	19,054	20,824	21,975	23,065	24,371	(c)
Total	427,696	426,496	431,444	438,501	446,241	453,769	
Total	473,118	472,302	476,419	484,511	492,251	499,779	

NOTES

- (a) Section 8(b) water in the SNWA Cooperative Agreement (295,000 AFY).
- (b) Section 8(c) water in the SNWA Cooperative Agreement. This estimate corresponds with Table 2.
- (c) Includes Section 8(b) or 8(c) water that is unused by another individual SNWA purveyor and "short-term resource" described in Table 2.
- (d) Section 8(d) water in the SNWA Cooperative Agreement.

TABLE 6: WASTEWATER AND USE OF WASTEWATER, AFY (a)

Wastewater effluent	2014	2015	2016	2017	2018	2019
Las Vegas Valley						
BMI Discharge (b)	4,458	4,230	4,344	4,344	4,344	4,344
City of Las Vegas (c)	47,260	47,182	47,990	48,620	49,250	49,880
CCWRD: Las Vegas Valley	109,100	106,398	108,870	110,940	113,060	115,220
Henderson	22,408	23,701	23,371	23,681	23,832	23,977
North Las Vegas	18,454	19,148	19,284	19,421	20,309	21,198
Total	201,680	200,659	203,859	207,006	210,795	214,619
Boulder City	1,580	1,120	1,120	1,120	1,120	1,120
CCWRD: Laughlin	1,919	2,202	2,253	2,304	2,357	2,412
Total (LVV + BC + Laughlin)	205,179	203,981	207,232	210,430	214,272	218,151
Use of wastewater effluent						
Las Vegas Valley						
Direct reuse (reclaimed water)						
City of Las Vegas	4,964	4,433	4,400	4,400	4,400	4,400
CCWRD: Las Vegas Valley	6,042	4,569	5,000	5,000	5,000	5,000
Henderson	6,772	6,808	6,800	6,800	6,800	6,800
North Las Vegas	0	0	0	0	750	1,500
Total	17,778	15,810	16,200	16,200	16,950	17,700
Disposal to groundwater						
City of Las Vegas	0	0	0	0	0	0
CCWRD: Las Vegas Valley	0	0	0	0	0	0
Henderson	1,343	1,377	1,400	1,400	1,400	1,400
North Las Vegas	0	0	0	0	0	0
Total	1,343	1,377	1,400	1,400	1,400	1,400
Returns to surface water						
BMI Discharge	4,458	4,230	4,344	4,344	4,344	4,344
City of Las Vegas (c)	42,296	42,749	43,590	44,220	44,850	45,480
CCWRD: Las Vegas Valley	103,058	101,829	103,870	105,940	108,060	110,220
Henderson	14,293	15,516	15,171	15,481	15,632	15,777
North Las Vegas	18,454	19,148	19,284	19,421	19,559	19,698
Total	182,559	183,472	186,259	189,406	192,445	195,519
Boulder City (d)	384	625	1,119	1,119	1,119	1,119
Direct reuse (reclaimed water)						
Disposal to groundwater	1,196	495	1	1	1	1
Returns to surface water	0	0	0	0	0	0
CCWRD: Laughlin	0	0	0	0	0	0
Direct reuse (reclaimed water)	0	0	0	0	0	0
Disposal to groundwater	0	0	0	0	0	0
Returns to surface water	1,919	2,202	2,253	2,304	2,357	2,412
Total direct reuse (reclaimed water)	18,162	16,435	17,319	17,319	18,069	18,819
Total Disposal to groundwater	2,539	1,872	1,401	1,401	1,401	1,401
Total returns to surface water	184,478	185,674	188,512	191,710	194,802	197,931
Wastewater used in return-flow credit calculation (returns to surface water + reuse)						
Las Vegas Valley						
BMI Discharge	4,458	4,230	4,344	4,344	4,344	4,344
City of Las Vegas (c)	47,260	47,182	47,990	48,620	49,250	49,880
CCWRD: LVV	109,100	106,398	108,870	110,940	113,060	115,220
Henderson	21,065	22,324	21,971	22,281	22,432	22,577
North Las Vegas	18,454	19,148	19,284	19,421	20,309	21,198
Total	200,337	199,282	202,459	205,606	209,395	213,219

NOTES

(a) Source (2014-2019): SNWA members.

(b) Source (2014-2015): Colorado River Commission. Source (2016+): average 2014-2015.

(c) City of Las Vegas flows exclude dewatering flows to Las Vegas Wash at the Water Pollution Control Facility.

(d) Boulder City does not return to surface water.

TABLE 7: WASTEWATER REUSE AND REUSE THRESHOLD, AFY (a)

	2014	2015	2016	2017	2018	2019	Section 9 Threshold
1. Wastewater reuse by SNWA wastewater purveyor (a)							(b)
Boulder City (b)	---	---	---	---	---	---	
City of Las Vegas (c)	4,964	4,433	4,400	4,400	4,400	4,400	2,000
CCWRD:							
LVV (c)	6,042	4,569	5,000	5,000	5,000	5,000	10,550 (e)
Laughlin (d)	0	0	0	0	0	0	550 (e)
Total	6,042	4,569	5,000	5,000	5,000	5,000	11,100
Henderson	6,772	6,808	6,800	6,800	6,800	6,800	7,500
North Las Vegas	0	0	0	0	750	1,500	1,200
2. Wastewater reuse > Section 9(a) threshold (f)							(b)
Boulder City (b)	---	---	---	---	---	---	
City of Las Vegas	2,964	2,433	2,400	2,400	2,400	2,400	
CCWRD							
LVV	0	0	0	0	0	0	
Laughlin	0	0	0	0	0	0	
Total	0	0	0	0	0	0	
Henderson	0	0	0	0	0	0	
North Las Vegas	0	0	0	0	0	300	
3. If a purveyor reuses more than its 9(a) threshold, then its corresponding potable supply of 8(c) water (purveyor portion of 123,000 AFY) is reduced by an amount that will assure deliveries to other purveyors will not be less.(g) Even though the reuse of some purveyors is projected to be greater than the quantified threshold, there is also projected to be potable water available such that all projected demands will be met. Therefore, no purveyor's potable supply has been reduced in the accompanying tables.							

NOTES

- (a) Source (2014-2019): SNWA members.
- (b) Not applicable to Boulder City (Section 9c of SNWA Cooperative Agreement).
- (c) In the LVVWD service area, LVVWD is the water provider. City of Las Vegas and CCWRD are the sewer services and reuse providers. If the City of Las Vegas and CCWRD combined reuse is greater than its combined threshold AND the other purveyors' deliveries are less as a result, then LVVWD's Section 8(c) potable resource is reduced correspondingly.
- (d) In the Laughlin area, Big Bend Water District is the potable water provider and CCWRD is the sewer services and reuse provider. If CCWRD reuse is greater than its threshold AND the other purveyors' deliveries are less as a result, then Big Bend Water District's Section 8(c) potable resource is reduced correspondingly.
- (e) In the SNWA Cooperative Agreement, there are no individual thresholds for CCWRD - LVV and CCWRD - Laughlin. Thresholds in this table are agreed to for planning purposes to determine whether the amount over the threshold comes out of LVVWD or Big Bend Water District.
- (f) Source: Section 9 of the SNWA Cooperative Agreement.
- (g) Source: Section 9(b) of the SNWA Cooperative Agreement as follows: "If in any year a Member uses or authorizes the use of Reuse Water in excess of the amounts specified in sub article 9(a) [refers to the purveyor portions of 21,800 AFY], then the allocation made by or pursuant to sub article 8(c) [123,000 AFY] to the Purveyor Member that serves such Member shall be reduced by an amount that will assure that deliveries to the other Purveyor Members of water (i) allocated to such other Purveyor Members by or pursuant to this Agreement, or (ii) to which such other Purveyor Members have a right pursuant to separate contracts with the United States will not be less than they would have been in the absence of such excess use of Reuse Water." In other words, if excess reuse causes a reduction in return-flow credits, which in turn causes a reduction in other purveyor's Colorado River supplies, the excess reuse quantity is subtracted from the potable purveyor in whose service area the reuse provider resides.

Colorado River diversions	2014	2015	2016	2017	2018	2019	Available Resource
SNWA Purveyor Members customer usage (includes recharge for current year banking operations) (a)							
Big Bend	4,078	3,854	4,143	4,328	4,510	4,735	
Boulder City	10,818	10,339	12,053	12,053	12,053	12,053	
Henderson	79,916	78,386	78,244	79,887	80,377	80,846	
LVVWD	282,638	286,677	287,852	293,573	300,041	306,038	
North Las Vegas	46,325	47,240	49,152	48,660	49,260	50,097	
Total	423,775	426,496	431,444	438,501	446,241	453,769	
SNWA Net Artificial Recharge (includes recharge for carryover banking operations and other recharge) (a)							
LVVWD	0	0	0	0	0	0	
North Las Vegas	0	0	0	0	0	0	
Total	0	0	0	0	0	0	
SNWA Purveyor Members CR diversions (customer usage + artificial recharge)							
Big Bend	4,078	3,854	4,143	4,328	4,510	4,735	
Boulder City	10,818	10,339	12,053	12,053	12,053	12,053	
Henderson	79,916	78,386	78,244	79,887	80,377	80,846	
LVVWD	282,638	286,677	287,852	293,573	300,041	306,038	
North Las Vegas	46,325	47,240	49,152	48,660	49,260	50,097	
Total	423,775	426,496	431,444	438,501	446,241	453,769	
Usage (customer + AR)	423,775	426,496	431,444	438,501	446,241	453,769	
Total System Loss (b)	4,353	5,865	4,534	4,605	4,684	4,759	
TOTAL	428,128	432,361	435,978	443,106	450,925	458,528	
Other Colorado River Users (c) (d)							
BMI Complex (e)	6,188	5,253	5,721	5,721	5,721	5,721	8,208
FMIR (e)	3,873	4,683	4,278	4,278	4,278	4,278	12,534
Nellis AFB (e)	1,101	895	998	998	998	998	4,000
LMNRA at Lake Mead (e)	403	372	388	388	388	388	2,000
LMNRA at Lake Mohave (e)	152	177	165	165	165	165	
Pabco (e)	835	913	874	874	874	874	928
Secretarial Reservation (e)	39	40	40	40	40	40	300
NV Division of Wildlife (e) (f)	405	551	478	478	478	478	(f)
Small water users (e)	0	0	0	0	0	0	
TOTAL	12,996	12,884	12,942	12,942	12,942	12,942	
Total Nevada diversions	441,124	445,245	448,920	456,048	463,867	471,470	
Nevada Return flow credits							
Las Vegas Valley (c) (g)	212,899	218,209	211,352	214,884	218,290	221,720	
Laughlin (a) (c)	1,919	2,202	2,253	2,304	2,357	2,412	
Secretarial Reservation (c) (e)	16	19	18	18	18	18	
NV Division of Wildlife (c) (f)	395	540	468	468	468	468	
Unmeasured Returns (c) (h)	1,279	1,546	1,426	1,426	1,426	1,426	
TOTAL	216,508	222,516	215,517	219,100	222,559	226,044	
Nevada Consumptive use							
Consumptive use with AR (i)	224,616	222,729	233,403	236,948	241,308	245,426	
Net Artificial Recharge (j)	0	0	0	0	0	0	
Consumptive use no AR (k)	224,616	222,729	233,403	236,948	241,308	245,426	

NOTES

- (a) Source: SNWA members, see Table 3 and Table 6.
(c) Source (2014-2015): USBR.
(e) Source (2016+): average 2014 to 2015.
(g) Source (2016+): Appendix 1, line 18.
(i) Excludes interstate banking.
(k) May be subject to final USBR accounting.

- (b) From Appendix 4.
(d) Available resource assumed as consumptive use.
(f) Available resource is a consumptive use amount of 25 AFY.
(h) Source (2016+): one-third of FMIR use above.
(j) Total recharge less recovery, excludes in-lieu recharge.

2016 SNWA Water Budget, November 17, 2016

APPENDIX 1: RETURN FLOW CREDITS (U.S. BUREAU OF RECLAMATION METHOD) AND NEVADA CONSUMPTIVE USE CALCULATIONS ADJUSTED FOR ICS AND INTERSTATE BANKING, AFY
CALCULATION OF DIVERSIONS AND RETURN FLOW CREDITS

	2014	2015	2016	2017	2018	2019
ABOVE HOOVER DAM						
1. Total Colorado River Water Diverted Above Hoover Dam	433,021	436,531	440,334	447,277	454,914	462,292
2. Gauged Flow of Las Vegas Wash below Lake Las Vegas (USGS Station No. 09419800)	217,987	223,913	216,654	220,186	223,592	227,022
3. Precipitation Runoff (Estimated)	3,808	6,704	6,302	6,302	6,302	6,302
4. Imported Groundwater and Surface Water	0	0	0	0	0	0
5. 2% of Imported Groundwater and Surface Water	0	0	0	0	0	0
6. Effluent Reaching LM From the LV Valley M&I Groundwater Pumping (a)	2,363	0	0	0	0	0
7. Total Las Vegas Wash Adjusted Gauge Flow (2-3-5-6)	211,825	217,209	210,352	213,884	217,290	220,720
8. Total Other Nevada Flow to Lake Mead Above Hoover Dam	411	559	486	486	486	486
9. Colorado River Bypassing Gauge, less Phreatophyte Use below Gauge (a)	1,074	1,000	1,000	1,000	1,000	1,000
10. Total Flow to Colorado River Above Hoover Dam (7+8+9)	213,310	218,768	211,838	215,370	218,776	222,206
11. Consumptive Use Above Hoover Dam (1-10)	219,711	217,763	228,496	231,907	236,138	240,086
BELOW HOOVER DAM						
12. Total Colorado River Water Diverted Below Hoover Dam	8,103	8,714	8,586	8,771	8,953	9,178
13. Total Flow to Colorado River Below Hoover Dam	3,198	3,748	3,679	3,730	3,783	3,838
14. Consumptive Use Below Hoover Dam (12-13)	4,905	4,966	4,907	5,041	5,170	5,340
SUMMARY						
15. Total Nevada Diversions from Colorado River (1+12)	441,124	445,245	448,920	456,048	463,867	471,470
16. Total Nevada Return Flow Credit (10+13)	216,508	222,516	215,517	219,100	222,559	226,044
17. Total Nevada Consumptive Use Before Interstate Banking (15-16)/(b)	224,616	222,729	233,403	236,948	241,308	245,426
18. Total Las Vegas Valley Return Flow Credit (7+9)	212,899	218,209	211,352	214,884	218,290	221,720

NEVADA CONSUMPTIVE USE CALCULATIONS ADJUSTED FOR ICS AND INTERSTATE BANKING

19. Nevada Basic Apportionment	300,000	300,000	300,000	300,000	300,000	300,000
20. ICS Creation (b)	27,803	23,890	25,000	32,000	32,000	32,000
21. Overrun Payback	0	0	0	0	0	0
22. ICS Delivery	0	75,000	0	0	0	0
23. Yearly ICS volume banked in Lake Mead	(27,803)	(23,890)	(25,000)	(32,000)	(32,000)	(32,000)
24. Total Available Nevada Colorado River Water (19+20-21+22+23)	300,000	375,000	300,000	300,000	300,000	300,000
25. Total Nevada Colorado River Consumptive Use (c)	224,616	222,729	233,403	236,948	241,308	245,426
26. Nevada Unused Apportionment	75,384	152,271	66,597	63,052	58,692	54,574
27. Nevada Unused Apportionment directed to banking and/ or in satisfaction of Memorandum of Understanding (d) (e)	(75,384)	(152,271)	(66,597)	TBD	TBD	TBD
28. Nevada Underrun((Overrun)(26+27) (c)	0	0	0	TBD	TBD	TBD

NOTES

- (a) If Las Vegas Valley M&I Groundwater rights exceed 47,340 AFY, then lines 6 and 9 above will be recalculated based on the method approved by the USBR as referenced in a letter dated December 5, 2007.
- (b) Total Tributary Conservation ICS and Imported ICS, after 5 percent deduction for system benefit. Excludes planned Pilot System Conservation Agreement volumes of 7,500 AF in 2015 and 2016.
- (c) May be subject to final USBR accounting. Some differences may be due to revisions, differences among various data sources and rounding.
- (d) May include banking in Las Vegas Valley and interstate banking in California and Arizona.
- (e) Under the 2014 Memorandum of Understanding for Pilot Drought Response, SNWA will use best efforts to store 45,000 AF between 2014 and 2017.

2016 SNWA Water Budget, November 17, 2016

APPENDIX 2: PROJECTION OF ACCRUALS AND GAUGE FLOWS (USED IN CALCULATION OF RETURN FLOW CREDITS), AFY

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ASSUME GAUGE FLOWS = EFFLUENT TO WASH + STORMWATER + ACCRUALS																
1. Estimate accruals																
(Accruals = Gauge Flows - Effluent to Wash - Stormwater)																
a. Measured Wash flow at gauges (e)	166,379	175,006	173,302	193,412	200,952	218,115	219,972	213,163	206,609	206,377	215,501	213,778	212,478	215,007	217,997	223,913
b. Effluent to Wash (b)	(155,174)	(159,337)	(160,811)	(169,754)	(177,912)	(186,468)	(187,816)	(188,569)	(187,791)	(185,709)	(184,871)	(182,216)	(179,251)	(180,582)	(182,559)	(183,472)
c. Stormwater (a)	(4,967)	(2,939)	(1,410)	(7,049)	(12,693)	(13,969)	(1,761)	(2,829)	(1,678)	(1,910)	(9,953)	(3,085)	(15,173)	(6,106)	(3,808)	(6,704)
d. Total (accruals) (c)	6,238	12,710	11,081	16,609	10,947	16,278	30,395	21,765	17,140	18,758	20,637	28,477	18,048	26,319	31,630	33,737
2. Calculate ratio of accruals/LVV customer usage																
a. Accruals	6,238	12,710	11,081	16,609	10,947	16,278	30,395	21,765	17,140	18,758	20,637	28,477	18,048	26,319	31,630	33,737
b. Total LVV customer usage (b)	480,652	503,977	519,685	497,726	490,346	499,109	532,335	540,446	515,624	502,337	484,813	478,569	485,782	481,620	493,932	493,651
1. LVV customer usage (d)	6,550	2,194	11,746	2,721	9,144	13,067	7,087	5,831	6,166	3,972	3,817	3,744	2,999	4,529	4,353	5,865
2. LVV Total system loss	487,202	506,171	531,431	500,447	498,490	512,176	539,402	546,277	521,790	506,309	488,630	482,313	488,781	486,149	498,285	499,516
3. Total	1.28%	2.51%	2.09%	3.32%	2.19%	3.18%	5.63%	3.98%	3.28%	3.70%	4.22%	5.90%	3.69%	5.41%	6.35%	6.75%
c. Accruals/Total LVV usage (%)																
3. Calculate median accruals/Total LVV usage (e)																
a. Project future accruals	4.82%															
a. Total LVV usage (b)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1. LVV usage (d)	495,850	503,757	511,315	518,618	523,377	528,201	533,737	539,402	545,116	550,884	556,799	562,845	568,924	575,038	581,192	587,386
2. LVV Total system loss	4,534	4,605	4,684	4,759	4,834	4,909	4,984	5,059	5,134	5,209	5,284	5,359	5,434	5,509	5,584	5,659
3. Total	500,384	508,362	515,999	523,377	530,841	538,313	545,791	553,261	560,734	568,203	575,673	583,149	590,623	598,097	605,570	613,041
4.82% * Total LVV usage	24,093	24,478	24,845	25,201	25,557	25,913	26,269	26,625	26,981	27,337	27,693	28,049	28,405	28,761	29,117	29,473
4. Project future gauge flows																
(Gauge flows = Effluent to Wash + Stormwater + Accruals)																
a. Effluent to Wash (b)	186,259	189,406	192,445	195,519	198,630	201,781	204,972	208,203	211,474	214,785	218,136	221,527	224,958	228,429	231,900	235,411
b. Stormwater (average of 2001 - 2015)	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302	6,302
c. Accruals	24,093	24,478	24,845	25,201	25,557	25,913	26,269	26,625	26,981	27,337	27,693	28,049	28,405	28,761	29,117	29,473
d. Estimated Wash flows at gauge	216,654	220,186	223,592	227,022	230,472	233,922	237,372	240,822	244,272	247,722	251,172	254,622	258,072	261,522	264,972	268,422
6. Measured and estimated gauge flows	166,379	175,006	173,302	193,412	200,952	218,115	219,972	213,163	206,609	206,377	215,501	213,778	212,478	215,007	217,997	223,913

NOTES (a) Source (2000-2015): data reflected in the Year End Return Flow Credit Data (Colorado River Commission).

(b) From Appendix 3.

(c) Accruals calculations and projections correspond with Las Vegas Valley Return Flow Methodology adopted December 5, 2007.

(d) Includes recovery of artificial recharge (AR recovery).

(e) Median corresponds with the period 2006 to 2015 and is intended to represent the gauge at Las Vegas Wash below Lake Las Vegas, established on June 28, 2002.

2016 SNWA Water Budget, November 17, 2016

APPENDIX 3: LAS VEGAS VALLEY WATER USAGE AND WASTEWATER FLOWS (USED IN CALCULATION OF RETURN FLOW CREDITS), AFY

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Resources Available
Las Vegas Valley customer usage																					
Colorado River customer diversion (no AR; no AR recovery)(a)																					
SNWA Purveyor Members																					
Henderson	67,248	73,832	79,187	73,833	73,986	76,039	83,401	85,576	79,641	80,748	77,835	77,258	77,669	75,864	79,916	78,386	78,244	79,887	80,377	80,846	
LVVWD	294,109	304,368	313,091	297,111	288,216	305,349	320,495	319,644	304,945	292,645	283,514	278,423	285,007	279,917	282,638	286,677	287,652	293,573	300,041	306,038	
North Las Vegas	38,198	39,430	41,264	43,984	45,473	47,389	52,606	55,812	52,438	51,203	50,270	48,260	45,793	45,292	46,325	47,240	49,152	48,660	49,260	50,097	
Total	389,555	417,630	433,542	414,928	407,675	428,777	456,502	461,032	437,024	424,596	411,619	403,941	408,489	401,073	408,879	412,303	415,248	422,120	429,678	436,981	
Other Las Vegas Valley Users																					
BMI Complex (b)	5,286	5,210	5,372	5,332	5,861	5,820	6,184	5,696	5,948	5,355	5,079	5,585	5,288	5,366	6,188	5,253	5,721	5,721	5,721	5,721	
Nellis AFB (b)	2,206	1,760	2,410	1,993	1,787	2,271	2,118	2,873	2,107	1,672	1,371	1,129	1,075	1,084	1,101	895	998	998	998	998	
Total	7,492	6,970	7,782	7,325	7,648	8,091	8,302	8,569	8,055	7,027	6,450	6,714	6,363	6,450	7,289	6,148	6,719	6,719	6,719	6,719	
Total System Loss	6,550	2,194	11,746	2,721	9,144	13,067	7,067	5,831	6,166	3,972	3,817	3,744	2,999	4,529	4,353	5,865	4,534	4,605	4,684	4,759	
Total	413,597	426,794	453,070	424,974	424,467	449,935	471,871	475,432	451,245	435,595	421,886	414,399	417,851	412,052	420,521	424,316	426,501	433,444	441,081	448,459	
Pumpage of Artificial and In-Lieu Recharge Recovery (c)																					
SNWA Purveyor Members																					
LVVWD	0	494	1,092	1	265	0	0	303	42	11	0	156	0	0	0	0	0	0	0	0	
North Las Vegas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	494	1,092	1	265	0	0	303	42	11	0	156	0	0	0	0	0	0	0	0	
Groundwater Usage																					
SNWA Purveyor Members (a)																					
LVVWD	38,255	40,126	40,126	40,612	40,612	31,661	35,845	40,629	40,629	40,629	39,208	40,629	40,404	44,189	44,550	40,523	40,760	40,760	40,760	40,760	
North Las Vegas	5,226	5,449	5,686	4,878	2,398	1,694	1,355	749	1,725	1,511	633	1,236	4,876	4,459	4,793	3,283	4,215	5,250	5,250	5,250	
Total	43,481	45,575	45,812	45,004	43,010	33,355	37,200	41,378	42,354	42,140	39,841	41,865	45,280	48,648	49,343	43,806	44,975	46,010	46,010	46,010	
Other Las Vegas Valley Users																					
Nellis AFB (b)	2,083	2,367	2,206	1,955	1,816	1,242	1,151	1,399	657	907	927	838	900	793	786	802	794	794	794	794	
Private/Permitted Wells (d)	28,041	30,941	29,351	28,513	29,932	27,644	29,180	27,765	27,492	27,656	25,976	25,059	24,790	24,846	27,635	28,592	28,114	28,114	28,114	28,114	
Total	30,124	33,308	31,557	30,468	31,748	28,886	30,331	29,164	28,149	28,563	26,903	25,893	25,680	25,439	28,421	29,394	28,908	28,908	28,908	28,908	
Total	73,605	78,883	77,269	75,472	74,758	62,241	67,531	70,542	70,503	70,703	66,744	67,758	70,930	74,097	77,764	75,200	73,883	74,918	74,918	74,918	
Las Vegas Valley Total Usage (includes recovery)	487,202	506,171	531,431	500,447	499,490	512,176	539,402	546,277	521,790	506,309	488,630	482,313	488,781	486,149	498,285	499,516	500,384	508,362	515,999	523,377	
(Including system loss)																					
Las Vegas Valley Total Usage (includes recovery)	480,652	503,977	519,685	497,726	490,346	499,109	532,335	540,446	515,624	502,337	484,813	478,569	485,782	481,620	493,932	493,651	495,850	503,757	511,315	518,618	
(Excluding system loss)																					
LVV wastewater flow to Wash																					
Influent (e)	173,371	177,543	182,902	191,165	200,460	210,945	213,164	215,138	211,547	203,899	201,843	198,792	196,478	196,437	200,337	199,282	202,459	205,606	209,395	213,219	
Reuse (f)	18,197	18,206	22,091	21,411	23,148	24,477	25,348	26,569	23,756	18,190	16,972	16,576	17,227	15,855	17,778	15,810	16,200	16,200	16,999	17,700	
Effluent to Wash (influent - effluent)	155,174	159,337	160,811	169,754	177,312	186,468	187,816	188,569	187,791	185,709	184,871	182,216	179,251	180,582	182,559	183,472	186,259	189,406	192,445	195,519	

NOTES
(a) Source (1994 - 2015): actual; Source (2016+): SNWA Members.
(b) Source (1994 - 2015): actual; Source (2016+): Table 8.
(c) Includes recovery for banking operations and for purveyor members.
(d) Source (1994 - 2015): Nevada Division of Water Resources; Source (2016+): Table 4.

2016 SNWA Water Budget, November 17, 2016

APPENDIX 4: COLORADO RIVER USAGE (CUSTOMER + AR) BY SYSTEM AND ESTIMATES OF SNWS SYSTEM LOSS, AFY

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Colorado River deliveries by system (includes AR, but no AR recovery)(a)	5,232	5,268	5,325	5,315	4,922	4,639	4,914	4,653	4,433	4,423	4,345	4,339	4,646	4,134	4,078	3,854	4,143	4,328	4,510	4,735	
Big Bend Water District	10,616	10,168	13,346	12,254	11,013	10,130	11,406	11,302	11,369	10,960	10,663	10,079	10,473	10,354	10,818	10,339	12,053	12,053	12,053	12,053	
Boulder City	223	434	950	23																	
SNWS	10,833	10,602	14,296	12,277	11,013	10,130	11,406	11,302	11,369	10,960	10,663	10,079	10,473	10,354	10,818	10,339	12,053	12,053	12,053	12,053	
USBR system																					
Total	53,494	61,493	66,158	64,100	61,017	63,469	68,618	71,326	63,279	65,309	64,554	62,152	63,482	60,234	64,979	65,242	65,756	67,387	67,543	67,846	
Henderson	13,754	12,339	13,029	9,733	12,969	12,570	14,783	14,250	16,362	15,439	13,281	15,106	14,207	15,630	14,937	13,144	12,468	12,500	12,834	13,000	
SNWS	5,286	5,210	3,372	5,332	3,851	3,820	6,184	5,696	5,948	5,365	5,079	5,585	5,288	5,366	6,188	5,253	5,721	5,721	5,721	5,721	
BMI system	19,040	17,549	18,401	15,065	18,830	18,350	20,967	19,946	22,310	20,794	18,360	20,691	19,495	20,996	21,125	18,397	18,209	18,221	18,555	18,721	
Total	10,616	10,168	13,346	12,254	11,013	10,130	11,406	11,302	11,369	10,960	10,663	10,079	10,473	10,354	10,818	10,339	12,053	12,053	12,053	12,053	
Southern Nevada Water System (at turnouts)	53,494	61,493	66,158	64,100	61,017	63,469	68,618	71,326	63,279	65,309	64,554	62,152	63,482	60,234	64,979	65,242	65,756	67,387	67,543	67,846	
Boulder City	323,830	325,637	315,345	325,651	305,332	321,217	340,471	337,659	309,990	292,736	292,306	281,715	285,007	279,917	282,638	286,677	287,852	293,573	300,041	306,038	
Henderson	2,206	1,760	2,410	1,993	1,787	2,271	2,118	2,873	2,107	1,672	1,371	1,129	1,075	1,084	1,101	895.0	998	998	998	998	
LVVWD	38,262	39,537	41,264	44,151	45,473	47,389	52,606	55,812	52,438	51,203	50,270	48,260	45,793	45,292	46,325	47,240.0	49,152	48,660	49,260	50,097	
Nellis AFB	428,408	438,595	438,523	448,149	424,622	444,476	475,219	478,972	439,183	421,900	419,164	403,335	405,830	396,881	405,861	410,393.0	415,811	422,671	429,895	437,032	
North Las Vegas																					
Total	18,353	17,999	18,499	15,193	19,024	18,393	21,065	22,475	20,447	21,282	18,923	21,379	20,470	21,146	21,302	18,651	12,488	12,500	12,834	13,000	
BMI System:	19,040	17,549	18,401	15,065	18,830	18,350	20,967	19,946	22,310	20,794	18,360	20,691	19,495	20,996	21,125	18,397	18,209	18,221	18,555	18,721	
Henderson	-687	450	98	128	194	3	98	501	165	488	563	688	975	150	177	254	251	251	256	258	
BMI Complex	(c)	2.56%	0.53%	0.85%	1.03%	(c)	0.47%	2.51%	0.74%	2.35%	3.07%	3.33%	5.00%	0.71%	0.84%	1.38%	1.38%				
Total																					
System loss (intake-turnout)(c)																					
System loss percentage (%)																					
System loss/diversion at turnout																					
Median of reasonable system loss %(c)(d)																					
Replace unreasonable system loss figures and project																					
(* BMI diversions at turnout)	283	450	98	128	194	254	98	501	165	488	563	688	975	150	177	254	251	251	256	258	
(* BMI div.at turnout)(d)																					
Estimate of SNWS system loss	434,695	440,339	450,171	450,742	433,572	457,289	482,188	484,302	445,184	425,384	422,418	406,391	407,854	401,260	410,037	416,004	416,004	416,004	416,004	416,004	
1. SNWS diversions at intake (e)	428,408	438,595	438,523	448,149	424,622	444,476	475,219	478,972	439,183	421,900	419,164	403,335	405,830	396,881	405,861	410,393	410,393	410,393	410,393	410,393	
2. SNWS deliveries at turnout	6,287	1,744	11,648	2,593	8,950	12,813	6,969	5,330	6,001	3,484	3,254	3,056	2,024	4,379	4,176	5,611	5,611	5,611	5,611	5,611	
3. System loss (intake-turnout)(c)	1.47%	0.40%	2.66%	0.58%	2.11%	2.88%	1.47%	1.11%	1.37%	0.83%	0.78%	0.76%	0.50%	1.10%	1.03%	1.37%	1.37%	1.37%	1.37%	1.37%	
4. System loss percentage (%)																					
System loss/diversion at turnout																					
Median of reasonable system loss %(c)(d)																					
Replace unreasonable system loss figures and project																					
(* SNWS diversions at turnout)	6,287	1,744	11,648	2,593	8,950	12,813	6,969	5,330	6,001	3,484	3,254	3,056	2,024	4,379	4,176	5,611	5,611	5,611	5,611	5,611	
(* 1.03% * SNWS div.at turnout)	6,550	2,194	11,746	2,721	9,144	13,067	7,067	5,831	6,166	3,972	3,817	3,744	2,999	4,529	4,353	5,865	5,865	5,865	5,865	5,865	
Estimate of Total system loss																					

NOTES
 (a) Includes artificial recharge (AR) which is part of the Colorado River diversion; does not include recovery of artificial recharge (AR recovery) which is not a diversion.
 (b) Source: "Colorado River Accounting and Water Use Report: Arizona, California, and Nevada", USBR.
 (c) System loss is estimated by subtracting turnout meter reading from intake meter reading. Because of meter imprecision, system loss figures are sometimes unreasonable, i.e., negative numbers or very small numbers.
 (d) Median corresponds with the period 2011-2015.
 (e) Source: "Colorado River Water Diverted for Use in Southern Nevada", CRC internal spreadsheet.

SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM

November 17, 2016

Subject: SNWS Annual Operating Plan	Director's Backup
Petitioner: David L. Johnson, Deputy General Manager, Engineering/Operations	
Recommendations: That the Board of Directors adopt the Annual Operating Plan for the Southern Nevada Water System.	

Fiscal Impact:

None by approval of the above recommendation.

Background:

The Authority's 2012 Amended Facilities and Operations Agreement (F&O Agreement) among the Authority and its purveyor members receiving water through the Southern Nevada Water System (SNWS) requires the Authority to maintain in effect and revise at least annually an operating plan for the SNWS. The attached Annual Operating Plan (Plan) for the period of January 1, 2017, through December 31, 2019, represents the joint effort of SNWS purveyor members (SNWS Purveyors) and Authority staff.

The Plan is designed to establish key operational parameters to meet each SNWS Purveyor's water needs. The Plan includes the maximum and average daily flows requested by SNWS Purveyors to be delivered monthly at their respective turnouts, target levels of chlorine, and target hydraulic grade lines.

As required by the F&O Agreement, the Plan has been reviewed and approved by the SNWS Work Group, which consists of one representative each from the Authority, SNWS Purveyors, and non-Purveyor contract user receiving delivery of water through SNWS, currently Nellis Air Force Base.

This action is authorized pursuant to Section 3.1 of the Authority's 2012 Amended Facilities and Operations Agreement. The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:


John J. Entsminger, General Manager
JJE:DLJ:PJJ:GV:VK:djt
Attachment

AGENDA
ITEM #

4

ANNUAL OPERATING PLAN FOR THE SOUTHERN NEVADA WATER SYSTEM

The Annual Operating Plan for the Southern Nevada Water System (SNWS) covers the period of **January 1, 2017** through **December 31, 2019**. This Plan represents the purveyors' best estimate of projected water demands for the duration of the Plan under normal operating conditions. The Southern Nevada Water Authority (SNWA) expects to supply water to meet these purveyor demands at the desired chlorine concentrations and hydraulic grade lines.

MAXIMUM AND AVERAGE FLOWS

The enclosed tabulations present the maximum and average daily flows requested by the purveyors by month for each turnout for the calendar years **2017, 2018, and 2019**. The maximum and average daily flows requested are within the capacity of the system.

CHLORINE CONCENTRATIONS

Also included in the tabulations are the purveyors' requested chlorine concentrations for each turnout. SNWA expects to meet these requested chlorine residuals at each turnout.

HYDRAULIC GRADE LINES

The tabulations also include the purveyors' requested hydraulic grade lines for each turnout. SNWA expects to meet these requested hydraulic grade lines at each turnout.

CURRENT SYSTEM CAPACITY

The current maximum treatment capacity of the Alfred Merritt Smith Water Treatment Facility (AMSWTF) is 600 million gallons per day (MGD). The River Mountains Water Treatment Facility (RMWTF) capacity is 300 MGD, creating a combined treatment capacity for the SNWS of 900 MGD. The high lift pumping system that delivers potable water from AMSWTF has a nominal capacity of 580 MGD. The River Mountains Pumping Station that delivers potable water from RMWTF has a nominal capacity of 300 MGD, creating a combined potable water delivery to the Las Vegas Valley of 880 MGD. Pumping Station 1A that delivers potable water from AMSWTF to Boulder City has a nominal capacity of 20 MGD.

2017 - 2019 Annual Water Flow Projections

SUMMARY

2017	LVVWD		COH		NLV		BC		Nellis		Total	
	Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Jan	203	221	36.5	53.0	28	34	5.3	9.7	0.9	1.7	273.6	319.8
Feb	212	234	38.5	55.0	32	46	5.3	9.1	1.1	2.3	289.0	346.8
Mar	249	284	49.0	68.0	36	47	8.4	13.3	1.7	2.3	344.0	414.3
Apr	270	307	53.0	72.0	42	49	10.7	17.2	1.8	2.4	377.5	447.3
May	335	374	67.0	85.5	50	60	13.0	20.2	2.0	2.8	467.0	542.0
Jun	300	338	83.0	100.5	54	62	14.2	20.7	2.3	3.0	453.5	523.7
Jul	309	341	90.5	106.5	60	66	16.2	22.2	3.0	3.9	478.7	539.6
Aug	297	329	90.5	106.5	56	63	15.2	21.6	2.6	3.9	461.3	523.8
Sep	248	297	75.5	95.5	51	58	15.0	23.7	2.2	3.5	391.7	477.8
Oct	291	337	63.5	80.5	45	53	12.3	18.0	1.4	2.0	413.2	490.1
Nov	242	287	48.5	67.0	36	43	8.2	15.5	0.9	2.0	335.6	414.4
Dec	207	233	37.0	53.5	31	36	5.0	9.4	0.9	1.9	280.9	334.1

2018	LVVWD		COH		NLV		BC		Nellis		Total	
	Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Jan	207	225	38.5	55.0	28	34	5.3	9.7	0.9	1.7	279.6	325.8
Feb	216	238	40.5	57.0	32	46	5.3	9.1	1.1	2.3	295.0	352.8
Mar	254	290	51.0	70.0	36	47	8.4	13.3	1.7	2.3	351.0	422.3
Apr	291	328	55.5	74.5	42	49	10.7	17.2	1.8	2.4	401.0	470.8
May	342	381	70.0	87.5	50	60	13.0	20.2	2.0	2.8	477.0	551.0
Jun	305	343	84.0	101.5	54	62	14.2	20.7	2.3	3.0	459.5	529.7
Jul	313	345	92.5	108.5	62	68	16.2	22.2	3.0	3.9	486.7	547.8
Aug	301	333	92.5	108.5	57	64	15.2	21.6	2.6	3.9	468.3	530.9
Sep	252	302	77.0	96.5	51	58	15.0	23.7	2.2	3.5	397.2	483.8
Oct	297	344	64.0	80.5	45	53	12.3	18.0	1.4	2.0	419.7	497.1
Nov	246	292	50.0	68.0	37	44	8.2	15.5	0.9	2.0	342.1	421.6
Dec	211	237	39.0	55.0	33	39	5.0	9.4	0.9	1.9	288.9	341.9

2019	LVVWD		COH		NLV		BC		Nellis		Total	
	Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)		Flow (MGD)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Jan	211	229	39.5	56.0	28	34	5.3	9.7	0.9	1.7	284.6	330.8
Feb	220	243	42.5	59.0	32	46	5.3	9.1	1.1	2.3	301.0	359.8
Mar	259	295	53.0	71.0	36	47	8.4	13.3	1.7	2.3	358.0	428.3
Apr	296	334	58.5	76.5	42	49	10.7	17.2	1.8	2.4	409.0	478.8
May	348	388	72.5	90.0	50	60	13.0	20.2	2.0	2.8	485.5	560.5
Jun	312	351	85.5	103.0	56	64	14.2	20.7	2.3	3.0	470.0	541.5
Jul	320	353	94.0	110.0	64	70	16.2	22.2	3.0	3.9	497.2	559.5
Aug	308	340	94.0	110.0	57	64	15.2	21.6	2.6	3.9	476.8	539.4
Sep	258	309	79.5	99.0	52	59	15.0	23.7	2.2	3.5	406.7	494.4
Oct	302	350	66.0	82.5	47	55	12.3	18.0	1.4	2.0	428.7	507.4
Nov	251	297	51.0	68.5	37	44	8.2	15.5	0.9	2.0	348.1	427.1
Dec	214	241	40.5	56.5	33	39	5.0	9.4	0.9	1.9	293.4	347.4

2017 - Annual Water Flow Projections

LAS VEGAS VALLEY WATER DISTRICT

2017	CAMPBELL					STEWART					FAYLE					LINDEN	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	19	22	1835.9	1846	1	10	12	1973.5	1987.5	1	36	37	2175.3	2187.3	1	0	0
Feb	19	22	1835.9	1846	1	10	12	1973.5	1987.5	1	38	39	2175.3	2187.3	1	0	0
Mar	28	31	1835.9	1846	1	13	17	1973.5	1987.5	1	43	48	2175.3	2187.3	1	0	0
Apr	44	51	1835.9	1846	1	17	22	1973.5	1987.5	1	50	53	2175.3	2187.3	1	0	0
May	36	40	1835.9	1846	1	18	22	1973.5	1987.5	1	48	50	2175.3	2187.3	1	0	0
Jun	39	45	1835.9	1846	1	20	22	1973.5	1987.5	1	51	58	2175.3	2187.3	1	0	0
Jul	44	48	1835.9	1846	1	20	21	1973.5	1987.5	1	53	56	2175.3	2187.3	1	0	0
Aug	42	48	1835.9	1846	1	20	21	1973.5	1987.5	1	47	51	2175.3	2187.3	1	0	0
Sep	38	47	1835.9	1846	1	18	21	1973.5	1987.5	1	33	41	2175.3	2187.3	1	0	0
Oct	31	39	1835.9	1846	1	16	20	1973.5	1987.5	1	42	52	2175.3	2187.3	1	0	0
Nov	26	28	1835.9	1846	1	14	17	1973.5	1987.5	1	36	47	2175.3	2187.3	1	0	0
Dec	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	36	38	2175.3	2187.3	1	0	0

2017	BROADBENT					CHARLESTON HEIGHTS					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	21	23	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1
Feb	22	23	2182.6	2190.8	1	9	11	2154.7	2161.7	1	13	14	2207.7	2220	1
Mar	22	23	2182.6	2190.8	1	17	18	2154.7	2161.7	1	15	17	2207.7	2220	1
Apr	10	12	2182.6	2190.8	1	9	9	2154.7	2161.7	1	16	19	2207.7	2220	1
May	27	30	2182.6	2190.8	1	14	14	2154.7	2161.7	1	20	22	2207.7	2220	1
Jun	24	28	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Jul	30	34	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Aug	29	32	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Sep	22	26	2182.6	2190.8	1	0	0	2154.7	2161.7	1	12	15	2207.7	2220	1
Oct	37	42	2182.6	2190.8	1	10	12	2154.7	2161.7	1	19	23	2207.7	2220	1
Nov	27	30	2182.6	2190.8	1	9	11	2154.7	2161.7	1	15	18	2207.7	2220	1
Dec	21	24	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1

2017	DECATUR / TROPICAL					WARM SPRINGS					BERMUDA					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	20	21	2527.1	2540.5	1	55	57	2412.6	2427.6	1	22	26	2415	2427.4	1	203	221
Feb	21	24	2527.1	2540.5	1	57	62	2412.6	2427.6	1	23	27	2415	2427.4	1	212	234
Mar	23	27	2527.1	2540.5	1	63	75	2412.6	2427.6	1	25	28	2415	2427.4	1	249	284
Apr	24	27	2527.1	2540.5	1	71	81	2412.6	2427.6	1	29	33	2415	2427.4	1	270	307
May	27	35	2527.1	2540.5	1	114	126	2412.6	2427.6	1	31	35	2415	2427.4	1	335	374
Jun	14	18	2527.1	2540.5	1	109	116	2412.6	2427.6	1	32	36	2415	2427.4	1	300	338
Jul	14	18	2527.1	2540.5	1	104	112	2412.6	2427.6	1	33	37	2415	2427.4	1	309	341
Aug	11	13	2527.1	2540.5	1	105	115	2412.6	2427.6	1	32	34	2415	2427.4	1	297	329
Sep	10	13	2527.1	2540.5	1	88	104	2412.6	2427.6	1	27	30	2415	2427.4	1	248	297
Oct	29	32	2527.1	2540.5	1	80	87	2412.6	2427.6	1	27	30	2415	2427.4	1	291	337
Nov	23	28	2527.1	2540.5	1	68	80	2412.6	2427.6	1	24	28	2415	2427.4	1	242	287
Dec	21	22	2527.1	2540.5	1	57	64	2412.6	2427.6	1	22	27	2415	2427.4	1	207	233

2017 - Annual Water Flow Projections

CITY OF HENDERSON

2017	PARKWAY					BLACK MOUNTAIN					EQUESTRIAN					COLLEGE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	13	17	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Feb	14	18	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Mar	17	22	2493	2500	1	3.5	6	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Apr	19	24	2493	2500	1	4	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3.5	4.5	2494	2501	1
May	24	27	2493	2500	1	6	8	2230	2238	1	3	4	2232	2239	1	4.5	6	2494	2501	1
Jun	28	32	2493	2500	1	6.5	9	2230	2238	1	4	5	2232	2239	1	5.5	6.5	2494	2501	1
Jul	30	33	2493	2500	1	7.5	10	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Aug	30	33	2493	2500	1	7.5	10	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Sep	25	29	2493	2500	1	7	9.5	2230	2238	1	3.5	4.5	2232	2239	1	5	6	2494	2501	1
Oct	22	26	2493	2500	1	5.5	7.5	2230	2238	1	3	4	2232	2239	1	4	5	2494	2501	1
Nov	17	22	2493	2500	1	4	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Dec	13	17	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1

2017	HORIZON RIDGE					GIBSON / GALLERIA					PUMPING STATION NO. 3					NORTH				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	8	12	2362	2369	1	3	4.5	1865	1873	1	1.5	2.5	2093	2101	1	0.8	1.3	1831	1839	1
Feb	9	13	2362	2369	1	3	4.5	1865	1873	1	1.5	2.5	2093	2101	1	0.8	1.3	1831	1839	1
Mar	13	18	2362	2369	1	3.5	5	1865	1873	1	2	3	2093	2101	1	1.0	1.5	1831	1839	1
Apr	13	18	2362	2369	1	4	5	1865	1873	1	2.5	3.5	2093	2101	1	1.0	1.8	1831	1839	1
May	14	20	2362	2369	1	7	9	1865	1873	1	3	4	2093	2101	1	1.3	1.8	1831	1839	1
Jun	19	24	2362	2369	1	9	10.5	1865	1873	1	4	5	2093	2101	1	1.8	2.0	1831	1839	1
Jul	21	25	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.0	2.5	1831	1839	1
Aug	21	25	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.0	2.5	1831	1839	1
Sep	17	23	2362	2369	1	8	10.5	1865	1873	1	3.5	4.5	2093	2101	1	1.8	2.0	1831	1839	1
Oct	16	20	2362	2369	1	5	7	1865	1873	1	3	3.5	2093	2101	1	1.3	1.8	1831	1839	1
Nov	12	16	2362	2369	1	4	5.5	1865	1873	1	2	3	2093	2101	1	1.0	1.5	1831	1839	1
Dec	9	13	2362	2369	1	3	4.5	1865	1873	1	1.5	2.5	2093	2101	1	0.8	1.3	1831	1839	1

2017	MAGIC					FOOTHILLS					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	0.7	1.2	1831	1839	1	2	3	1906	1907	1	36.5	53.0
Feb	0.7	1.2	1831	1839	1	2	3	1906	1907	1	38.5	55.0
Mar	1.0	1.5	1831	1839	1	2.5	3.5	1906	1907	1	49.0	68.0
Apr	1.0	1.7	1831	1839	1	2.5	3.5	1906	1907	1	53.0	72.0
May	1.2	1.7	1831	1839	1	3	4	1906	1907	1	67.0	85.5
Jun	1.7	2.0	1831	1839	1	3.5	4.5	1906	1907	1	83.0	100.5
Jul	2.0	2.5	1831	1839	1	4	5	1906	1907	1	90.5	106.5
Aug	2.0	2.5	1831	1839	1	4	5	1906	1907	1	90.5	106.5
Sep	1.7	2.0	1831	1839	1	3	4.5	1906	1907	1	75.5	95.5
Oct	1.2	1.7	1831	1839	1	2.5	4	1906	1907	1	63.5	80.5
Nov	1.0	1.5	1831	1839	1	2	3.5	1906	1907	1	48.5	67.0
Dec	0.7	1.2	1831	1839	1	1.5	2.5	1906	1907	1	37.0	53.5

2017 - Annual Water Flow Projections

NORTH LAS VEGAS

2017	6C					TWIN LAKES PUMPING STATION					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	3	4	2016	2027.5	1	1	1	2199.5	2207.5	1	12	15	2215.5	2224.5	1
Feb	4	6	2016	2027.5	1	1	1	2199.5	2207.5	1	12	17	2215.5	2224.5	1
Mar	5	7	2016	2027.5	1	1	1	2199.5	2207.5	1	12	16	2215.5	2224.5	1
Apr	5	6	2016	2027.5	1	1	1	2199.5	2207.5	1	14	16	2215.5	2224.5	1
May	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	20	2215.5	2224.5	1
Jun	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Jul	7	8	2019	2027.5	1	2	2	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Aug	6	7	2019	2027.5	1	1	1	2199.5	2207.5	1	16	18	2215.5	2224.5	1
Sep	5	6	2019	2027.5	1	1	1	2199.5	2207.5	1	15	17	2215.5	2224.5	1
Oct	4	5	2016	2027.5	1	1	1	2199.5	2207.5	1	13	15	2215.5	2224.5	1
Nov	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	11	13	2215.5	2224.5	1
Dec	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	10	12	2215.5	2224.5	1

2017	GRAND TETON					DEER SPRINGS					DECATUR / MOCCASIN					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	4	5	2323.5	2329	1	2	2	2317	2329	1	6	7	2420	2430	1	28	34
Feb	5	7	2323.5	2329	1	3	4	2317	2329	1	7	10	2420	2430	1	32	46
Mar	6	8	2323.5	2329	1	3	4	2317	2329	1	9	12	2420	2430	1	36	47
Apr	8	9	2323.5	2329	1	4	5	2317	2329	1	10	12	2420	2430	1	42	49
May	9	11	2323.5	2329	1	5	6	2322	2329	1	11	13	2422	2430	1	50	60
Jun	10	11	2323.5	2329	1	7	8	2322	2329	1	12	14	2422	2430	1	54	62
Jul	14	15	2323.5	2329	1	7	8	2322	2329	1	13	14	2422	2430	1	60	66
Aug	13	15	2323.5	2329	1	7	8	2322	2329	1	13	15	2422	2430	1	56	63
Sep	12	14	2323.5	2329	1	6	7	2322	2329	1	12	14	2422	2430	1	51	58
Oct	11	13	2323.5	2329	1	5	6	2317	2329	1	11	13	2420	2430	1	45	53
Nov	8	10	2323.5	2329	1	5	6	2317	2329	1	9	11	2420	2430	1	36	43
Dec	7	8	2323.5	2329	1	4	5	2317	2329	1	7	8	2420	2430	1	31	36

2017 - Annual Water Flow Projections

BOULDER CITY

2017	HEMENWAY					PUMPING STATION NO. 7				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	0.1	0.3	2305	2310	1	1.8	3.0	2560	2569	1
Feb	0.1	0.5	2305	2310	1	2.1	3.9	2560	2569	1
Mar	0.2	0.6	2305	2310	1	2.8	4.5	2562	2569	1
Apr	0.3	1.2	2305	2310	1	3.7	6.8	2562	2569	1
May	0.3	0.9	2310	2311.2	1	4.9	7.1	2565	2569	1
Jun	0.4	1.1	2310	2311.2	1	5.3	6.6	2565	2569	1
Jul	0.4	1.4	2310	2311.2	1	5.9	8.3	2565	2569	1
Aug	0.4	0.6	2310	2311.2	1	6.0	9.9	2565	2569	1
Sep	0.6	0.7	2310	2311.2	1	4.8	7.7	2565	2569	1
Oct	0.4	0.6	2305	2310	1	4.4	7.2	2562	2569	1
Nov	0.1	0.6	2305	2310	1	2.8	5.3	2560	2569	1
Dec	0.1	0.7	2305	2310	1	1.6	3.3	2560	2569	1

2017	PUMPING STATION NO. 7B					BC RAW WATER PUMPING SYSTEM				Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max	Avg	Max
Jan	2.7	4.2	2655	2660	1	0.7	2.1	2655	2660	5.3	9.7
Feb	2.5	3.3	2655	2660	1	0.6	1.3	2655	2660	5.3	9.1
Mar	3.0	4.2	2655	2660	1	2.3	4.0	2655	2663	8.4	13.3
Apr	3.2	4.1	2655	2660	1	3.4	5.1	2655	2663	10.7	17.2
May	3.7	5.0	2660	2667	1	4.0	7.3	2660	2668	13.0	20.2
Jun	3.8	4.2	2660	2667	1	4.7	8.8	2660	2668	14.2	20.7
Jul	4.9	5.2	2660	2667	1	5.1	7.3	2660	2668	16.2	22.2
Aug	4.7	5.3	2660	2667	1	4.1	5.8	2660	2668	15.2	21.6
Sep	4.5	5.6	2660	2667	1	5.2	9.6	2660	2668	15.0	23.7
Oct	3.7	4.9	2655	2660	1	3.8	5.4	2655	2663	12.3	18.0
Nov	3.3	5.4	2655	2660	1	2.0	4.2	2655	2660	8.2	15.5
Dec	3.0	4.2	2655	2660	1	0.3	1.3	2655	2660	5.0	9.4

NELLIS

2017	NELLIS	
	Flow (MGD)	
	Avg	Max
Jan	0.9	1.7
Feb	1.1	2.3
Mar	1.7	2.3
Apr	1.8	2.4
May	2.0	2.8
Jun	2.3	3.0
Jul	3.0	3.9
Aug	2.6	3.9
Sep	2.2	3.5
Oct	1.4	2.0
Nov	0.9	2.0
Dec	0.9	1.9

2018 - Annual Water Flow Projections

LAS VEGAS VALLEY WATER DISTRICT

2018	CAMPBELL					STEWART					FAYLE					LINDEN	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	37	38	2175.3	2187.3	1	0	0
Feb	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	39	40	2175.3	2187.3	1	0	0
Mar	29	32	1835.9	1846	1	13	17	1973.5	1987.5	1	44	49	2175.3	2187.3	1	0	0
Apr	33	40	1835.9	1846	1	17	22	1973.5	1987.5	1	46	49	2175.3	2187.3	1	0	0
May	36	40	1835.9	1846	1	18	22	1973.5	1987.5	1	49	51	2175.3	2187.3	1	0	0
Jun	40	46	1835.9	1846	1	20	22	1973.5	1987.5	1	52	59	2175.3	2187.3	1	0	0
Jul	44	48	1835.9	1846	1	20	21	1973.5	1987.5	1	53	56	2175.3	2187.3	1	0	0
Aug	42	48	1835.9	1846	1	20	21	1973.5	1987.5	1	47	51	2175.3	2187.3	1	0	0
Sep	38	47	1835.9	1846	1	18	21	1973.5	1987.5	1	33	41	2175.3	2187.3	1	0	0
Oct	31	40	1835.9	1846	1	16	20	1973.5	1987.5	1	42	52	2175.3	2187.3	1	0	0
Nov	26	29	1835.9	1846	1	14	17	1973.5	1987.5	1	36	47	2175.3	2187.3	1	0	0
Dec	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	37	39	2175.3	2187.3	1	0	0

2018	BROADBENT					CHARLESTON HEIGHTS					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	21	23	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1
Feb	22	23	2182.6	2190.8	1	9	11	2154.7	2161.7	1	13	14	2207.7	2220	1
Mar	22	24	2182.6	2190.8	1	17	18	2154.7	2161.7	1	15	17	2207.7	2220	1
Apr	24	27	2182.6	2190.8	1	19	19	2154.7	2161.7	1	17	20	2207.7	2220	1
May	28	31	2182.6	2190.8	1	14	14	2154.7	2161.7	1	21	23	2207.7	2220	1
Jun	25	29	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Jul	30	34	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Aug	29	32	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Sep	22	26	2182.6	2190.8	1	0	0	2154.7	2161.7	1	12	15	2207.7	2220	1
Oct	38	43	2182.6	2190.8	1	10	12	2154.7	2161.7	1	20	24	2207.7	2220	1
Nov	28	31	2182.6	2190.8	1	9	11	2154.7	2161.7	1	16	19	2207.7	2220	1
Dec	22	25	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1

2018	DECATUR / TROPICAL					WARM SPRINGS					BERMUDA					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	20	21	2527.1	2540.5	1	56	58	2412.6	2427.6	1	23	27	2415	2427.4	1	207	225
Feb	21	24	2527.1	2540.5	1	58	63	2412.6	2427.6	1	24	28	2415	2427.4	1	216	238
Mar	24	28	2527.1	2540.5	1	64	76	2412.6	2427.6	1	26	29	2415	2427.4	1	254	290
Apr	28	31	2527.1	2540.5	1	77	86	2412.6	2427.6	1	30	34	2415	2427.4	1	291	328
May	28	36	2527.1	2540.5	1	116	128	2412.6	2427.6	1	32	36	2415	2427.4	1	342	381
Jun	14	18	2527.1	2540.5	1	110	117	2412.6	2427.6	1	33	37	2415	2427.4	1	305	343
Jul	14	18	2527.1	2540.5	1	108	116	2412.6	2427.6	1	33	37	2415	2427.4	1	313	345
Aug	14	18	2527.1	2540.5	1	106	114	2412.6	2427.6	1	32	34	2415	2427.4	1	301	333
Sep	14	18	2527.1	2540.5	1	88	104	2412.6	2427.6	1	27	30	2415	2427.4	1	252	302
Oct	30	33	2527.1	2540.5	1	83	90	2412.6	2427.6	1	27	30	2415	2427.4	1	297	344
Nov	24	29	2527.1	2540.5	1	69	81	2412.6	2427.6	1	24	28	2415	2427.4	1	246	292
Dec	21	22	2527.1	2540.5	1	58	65	2412.6	2427.6	1	23	28	2415	2427.4	1	211	237

2018 - Annual Water Flow Projections

CITY OF HENDERSON

2018	PARKWAY					BLACK MOUNTAIN					EQUESTRIAN					COLLEGE				
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	mg/L
Jan	14	18	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Feb	15	19	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Mar	18	23	2493	2500	1	3.5	6	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Apr	20	25	2493	2500	1	4	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3.5	4.5	2494	2501	1
May	25	28	2493	2500	1	6	8	2230	2238	1	3	4	2232	2239	1	4.5	6	2494	2501	1
Jun	29	33	2493	2500	1	6.5	9	2230	2238	1	4	5	2232	2239	1	5.5	6.5	2494	2501	1
Jul	31	34	2493	2500	1	7.5	10	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Aug	31	34	2493	2500	1	7.5	10	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Sep	26	30	2493	2500	1	7	9.5	2230	2238	1	3.5	4.5	2232	2239	1	5	6	2494	2501	1
Oct	22	26	2493	2500	1	5.5	7.5	2230	2238	1	3	4	2232	2239	1	4	5	2494	2501	1
Nov	18	23	2493	2500	1	4	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Dec	14	18	2493	2500	1	3	5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1

2018	HORIZON RIDGE					GIBSON / GALLERIA					PUMPING STATION NO. 3					NORTH				
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	mg/L
Jan	8	12	2362	2369	1	3	4.5	1865	1873	1	2	3	2093	2101	1	0.8	1.3	1831	1839	1
Feb	9	13	2362	2369	1	3	4.5	1865	1873	1	2	3	2093	2101	1	0.8	1.3	1831	1839	1
Mar	13	18	2362	2369	1	3.5	5	1865	1873	1	2.5	3.5	2093	2101	1	1.0	1.5	1831	1839	1
Apr	13	18	2362	2369	1	4	5	1865	1873	1	3	4	2093	2101	1	1.5	2.0	1831	1839	1
May	15	20	2362	2369	1	7	9	1865	1873	1	3.5	4.5	2093	2101	1	1.5	2.0	1831	1839	1
Jun	19	24	2362	2369	1	9	10.5	1865	1873	1	4	5	2093	2101	1	1.8	2.0	1831	1839	1
Jul	22	26	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.0	2.5	1831	1839	1
Aug	22	26	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.0	2.5	1831	1839	1
Sep	17	23	2362	2369	1	8	10.5	1865	1873	1	3.5	4.5	2093	2101	1	1.8	2.0	1831	1839	1
Oct	16	20	2362	2369	1	5	7	1865	1873	1	3	3.5	2093	2101	1	1.3	1.8	1831	1839	1
Nov	12	16	2362	2369	1	4	5.5	1865	1873	1	2	3	2093	2101	1	1.0	1.5	1831	1839	1
Dec	9	13	2362	2369	1	3	4.5	1865	1873	1	2	2.5	2093	2101	1	0.8	1.3	1831	1839	1

2018	MAGIC					FOOTHILLS					Total	
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)	
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max
Jan	0.7	1.2	1831	1839	1	2.5	3.5	1906	1907	1	38.5	55.0
Feb	0.7	1.2	1831	1839	1	2.5	3.5	1906	1907	1	40.5	57.0
Mar	1.0	1.5	1831	1839	1	3	4	1906	1907	1	51.0	70.0
Apr	1.0	2.0	1831	1839	1	3	4	1906	1907	1	55.5	74.5
May	1.5	2.0	1831	1839	1	3	4	1906	1907	1	70.0	87.5
Jun	1.7	2.0	1831	1839	1	3.5	4.5	1906	1907	1	84.0	101.5
Jul	2.0	2.5	1831	1839	1	4	5	1906	1907	1	92.5	108.5
Aug	2.0	2.5	1831	1839	1	4	5	1906	1907	1	92.5	108.5
Sep	1.7	2.0	1831	1839	1	3.5	4.5	1906	1907	1	77.0	96.5
Oct	1.2	1.7	1831	1839	1	3	4	1906	1907	1	64.0	80.5
Nov	1.0	1.5	1831	1839	1	2.5	3.5	1906	1907	1	50.0	68.0
Dec	0.7	1.2	1831	1839	1	2	3	1906	1907	1	39.0	55.0

2018 - Annual Water Flow Projections

NORTH LAS VEGAS

2018	6C					TWIN LAKES PUMPING STATION					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	3	4	2016	2027.5	1	1	1	2199.5	2207.5	1	12	15	2215.5	2224.5	1
Feb	4	6	2016	2027.5	1	1	1	2199.5	2207.5	1	12	17	2215.5	2224.5	1
Mar	5	7	2016	2027.5	1	1	1	2199.5	2207.5	1	12	16	2215.5	2224.5	1
Apr	5	6	2016	2027.5	1	1	1	2199.5	2207.5	1	14	16	2215.5	2224.5	1
May	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	20	2215.5	2224.5	1
Jun	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Jul	7	8	2019	2027.5	1	2	2	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Aug	6	7	2019	2027.5	1	1	1	2199.5	2207.5	1	16	18	2215.5	2224.5	1
Sep	5	6	2019	2027.5	1	1	1	2199.5	2207.5	1	15	17	2215.5	2224.5	1
Oct	4	5	2016	2027.5	1	1	1	2199.5	2207.5	1	13	15	2215.5	2224.5	1
Nov	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	11	13	2215.5	2224.5	1
Dec	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	10	12	2215.5	2224.5	1

2018	GRAND TETON					DEER SPRINGS					DECATUR / MOCCASIN					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	4	5	2323.5	2329	1	2	2	2317	2329	1	6	7	2420	2430	1	28	34
Feb	5	7	2323.5	2329	1	3	4	2317	2329	1	7	10	2420	2430	1	32	46
Mar	6	8	2323.5	2329	1	3	4	2317	2329	1	9	12	2420	2430	1	36	47
Apr	8	9	2323.5	2329	1	4	5	2317	2329	1	10	12	2420	2430	1	42	49
May	9	11	2323.5	2329	1	5	6	2322	2329	1	11	13	2422	2430	1	50	60
Jun	10	11	2323.5	2329	1	7	8	2322	2329	1	12	14	2422	2430	1	54	62
Jul	14	15	2323.5	2329	1	7	8	2322	2329	1	15	17	2422	2430	1	62	68
Aug	14	16	2323.5	2329	1	7	8	2322	2329	1	13	15	2422	2430	1	57	64
Sep	12	14	2323.5	2329	1	6	7	2322	2329	1	12	14	2422	2430	1	51	58
Oct	11	13	2323.5	2329	1	5	6	2317	2329	1	11	13	2420	2430	1	45	53
Nov	8	10	2323.5	2329	1	5	6	2317	2329	1	10	12	2420	2430	1	37	44
Dec	8	9	2323.5	2329	1	5	6	2317	2329	1	7	8	2420	2430	1	33	39

2018 - Annual Water Flow Projections

BOULDER CITY

2018	HEMENWAY					PUMPING STATION NO. 7				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	0.1	0.3	2305	2310	1	1.8	3.0	2560	2569	1
Feb	0.1	0.5	2305	2310	1	2.1	3.9	2560	2569	1
Mar	0.2	0.6	2305	2310	1	2.8	4.5	2562	2569	1
Apr	0.3	1.2	2305	2310	1	3.7	6.8	2562	2569	1
May	0.3	0.9	2310	2311.2	1	4.9	7.1	2565	2569	1
Jun	0.4	1.1	2310	2311.2	1	5.3	6.6	2565	2569	1
Jul	0.4	1.4	2310	2311.2	1	5.9	8.3	2565	2569	1
Aug	0.4	0.6	2310	2311.2	1	6.0	9.9	2565	2569	1
Sep	0.6	0.7	2310	2311.2	1	4.8	7.7	2565	2569	1
Oct	0.4	0.6	2305	2310	1	4.4	7.2	2562	2569	1
Nov	0.1	0.6	2305	2310	1	2.8	5.3	2560	2569	1
Dec	0.1	0.7	2305	2310	1	1.6	3.3	2560	2569	1

2018	PUMPING STATION NO. 7B					BC RAW WATER PUMPING SYSTEM				Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max	Avg	Max
Jan	2.7	4.2	2655	2660	1	0.7	2.1	2655	2660	5.3	9.7
Feb	2.5	3.3	2655	2660	1	0.6	1.3	2655	2660	5.3	9.1
Mar	3.0	4.2	2655	2660	1	2.3	4.0	2655	2663	8.4	13.3
Apr	3.2	4.1	2655	2660	1	3.4	5.1	2655	2663	10.7	17.2
May	3.7	5.0	2660	2667	1	4.0	7.3	2660	2668	13.0	20.2
Jun	3.8	4.2	2660	2667	1	4.7	8.8	2660	2668	14.2	20.7
Jul	4.9	5.2	2660	2667	1	5.1	7.3	2660	2668	16.2	22.2
Aug	4.7	5.3	2660	2667	1	4.1	5.8	2660	2668	15.2	21.6
Sep	4.5	5.6	2660	2667	1	5.2	9.6	2660	2668	15.0	23.7
Oct	3.7	4.9	2655	2660	1	3.8	5.4	2655	2663	12.3	18.0
Nov	3.3	5.4	2655	2660	1	2.0	4.2	2655	2660	8.2	15.5
Dec	3.0	4.2	2655	2660	1	0.3	1.3	2655	2660	5.0	9.4

NELLIS

2018	NELLIS	
	Flow (MGD)	
	Avg	Max
Jan	0.9	1.7
Feb	1.1	2.3
Mar	1.7	2.3
Apr	1.8	2.4
May	2.0	2.8
Jun	2.3	3.0
Jul	3.0	3.9
Aug	2.6	3.9
Sep	2.2	3.5
Oct	1.4	2.0
Nov	0.9	2.0
Dec	0.9	1.9

2019 - Annual Water Flow Projections
LAS VEGAS VALLEY WATER DISTRICT

2019	CAMPBELL					STEWART					FAYLE					LINDEN	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	38	39	2175.3	2187.3	1	0	0
Feb	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	40	41	2175.3	2187.3	1	0	0
Mar	29	32	1835.9	1846	1	13	17	1973.5	1987.5	1	45	50	2175.3	2187.3	1	0	0
Apr	33	41	1835.9	1846	1	17	22	1973.5	1987.5	1	47	50	2175.3	2187.3	1	0	0
May	36	41	1835.9	1846	1	18	22	1973.5	1987.5	1	50	52	2175.3	2187.3	1	0	0
Jun	40	47	1835.9	1846	1	20	22	1973.5	1987.5	1	53	60	2175.3	2187.3	1	0	0
Jul	44	49	1835.9	1846	1	20	21	1973.5	1987.5	1	54	57	2175.3	2187.3	1	0	0
Aug	42	49	1835.9	1846	1	20	21	1973.5	1987.5	1	48	52	2175.3	2187.3	1	0	0
Sep	38	47	1835.9	1846	1	18	21	1973.5	1987.5	1	34	42	2175.3	2187.3	1	0	0
Oct	31	40	1835.9	1846	1	16	20	1973.5	1987.5	1	43	53	2175.3	2187.3	1	0	0
Nov	26	29	1835.9	1846	1	14	17	1973.5	1987.5	1	37	48	2175.3	2187.3	1	0	0
Dec	20	23	1835.9	1846	1	10	12	1973.5	1987.5	1	38	40	2175.3	2187.3	1	0	0

2019	BROADBENT					CHARLESTON HEIGHTS					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	21	23	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1
Feb	22	24	2182.6	2190.8	1	9	11	2154.7	2161.7	1	13	14	2207.7	2220	1
Mar	23	25	2182.6	2190.8	1	17	18	2154.7	2161.7	1	15	17	2207.7	2220	1
Apr	25	28	2182.6	2190.8	1	19	19	2154.7	2161.7	1	17	20	2207.7	2220	1
May	29	32	2182.6	2190.8	1	14	14	2154.7	2161.7	1	21	23	2207.7	2220	1
Jun	26	30	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Jul	31	35	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Aug	30	33	2182.6	2190.8	1	0	0	2154.7	2161.7	1	11	15	2207.7	2220	1
Sep	23	27	2182.6	2190.8	1	0	0	2154.7	2161.7	1	12	15	2207.7	2220	1
Oct	39	44	2182.6	2190.8	1	10	12	2154.7	2161.7	1	20	24	2207.7	2220	1
Nov	29	32	2182.6	2190.8	1	9	11	2154.7	2161.7	1	16	19	2207.7	2220	1
Dec	22	25	2182.6	2190.8	1	9	11	2154.7	2161.7	1	11	12	2207.7	2220	1

2019	DECATUR / TROPICAL					WARM SPRINGS					BERMUDA					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	21	22	2527.1	2540.5	1	57	59	2412.6	2427.6	1	24	28	2415	2427.4	1	211	229
Feb	22	25	2527.1	2540.5	1	59	64	2412.6	2427.6	1	25	29	2415	2427.4	1	220	243
Mar	25	29	2527.1	2540.5	1	65	77	2412.6	2427.6	1	27	30	2415	2427.4	1	259	295
Apr	29	32	2527.1	2540.5	1	78	87	2412.6	2427.6	1	31	35	2415	2427.4	1	296	334
May	29	37	2527.1	2540.5	1	118	130	2412.6	2427.6	1	33	37	2415	2427.4	1	348	388
Jun	15	19	2527.1	2540.5	1	113	120	2412.6	2427.6	1	34	38	2415	2427.4	1	312	351
Jul	15	19	2527.1	2540.5	1	111	119	2412.6	2427.6	1	34	38	2415	2427.4	1	320	353
Aug	15	19	2527.1	2540.5	1	109	116	2412.6	2427.6	1	33	35	2415	2427.4	1	308	340
Sep	15	19	2527.1	2540.5	1	90	107	2412.6	2427.6	1	28	31	2415	2427.4	1	258	309
Oct	31	34	2527.1	2540.5	1	84	92	2412.6	2427.6	1	28	31	2415	2427.4	1	302	350
Nov	25	30	2527.1	2540.5	1	70	82	2412.6	2427.6	1	25	29	2415	2427.4	1	251	297
Dec	22	23	2527.1	2540.5	1	58	66	2412.6	2427.6	1	24	29	2415	2427.4	1	214	241

2019 - Annual Water Flow Projections

CITY OF HENDERSON

2019	PARKWAY					BLACK MOUNTAIN					EQUESTRIAN					COLLEGE				
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	mg/L
Jan	14	18	2493	2500	1	3.5	5.5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Feb	15	19	2493	2500	1	3.5	5.5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1
Mar	18	23	2493	2500	1	4	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Apr	21	26	2493	2500	1	4.5	7	2230	2238	1	2.5	3.5	2232	2239	1	3.5	4.5	2494	2501	1
May	26	29	2493	2500	1	6.5	8.5	2230	2238	1	3	4	2232	2239	1	4.5	6	2494	2501	1
Jun	29	33	2493	2500	1	7	9.5	2230	2238	1	4	5	2232	2239	1	5.5	6.5	2494	2501	1
Jul	31	34	2493	2500	1	8	10.5	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Aug	31	34	2493	2500	1	8	10.5	2230	2238	1	4.5	5.5	2232	2239	1	6	7	2494	2501	1
Sep	27	31	2493	2500	1	7.5	10	2230	2238	1	3.5	4.5	2232	2239	1	5	6	2494	2501	1
Oct	23	27	2493	2500	1	6	8	2230	2238	1	3	4	2232	2239	1	4	5	2494	2501	1
Nov	18	23	2493	2500	1	4.5	6.5	2230	2238	1	2.5	3.5	2232	2239	1	3	4	2494	2501	1
Dec	14	18	2493	2500	1	3.5	5.5	2230	2238	1	2	3	2232	2239	1	2.5	3.5	2494	2501	1

2019	HORIZON RIDGE					GIBSON / GALLERIA					PUMPING STATION NO. 3					NORTH				
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	mg/L
Jan	8	12	2362	2369	1	3	4.5	1865	1873	1	2	3	2093	2101	1	1.0	1.5	1831	1839	1
Feb	10	14	2362	2369	1	3	4.5	1865	1873	1	2	3	2093	2101	1	1.0	1.5	1831	1839	1
Mar	14	18	2362	2369	1	3.5	5	1865	1873	1	2.5	3.5	2093	2101	1	1.3	1.8	1831	1839	1
Apr	14	18	2362	2369	1	4	5	1865	1873	1	3	4	2093	2101	1	1.5	2.3	1831	1839	1
May	15	20	2362	2369	1	7	9	1865	1873	1	3.5	4.5	2093	2101	1	1.8	2.3	1831	1839	1
Jun	19	24	2362	2369	1	9	10.5	1865	1873	1	4	5	2093	2101	1	2.0	2.3	1831	1839	1
Jul	22	26	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.3	2.8	1831	1839	1
Aug	22	26	2362	2369	1	9	11	1865	1873	1	4.5	5	2093	2101	1	2.3	2.8	1831	1839	1
Sep	17	23	2362	2369	1	8	10.5	1865	1873	1	4	5	2093	2101	1	2.0	2.3	1831	1839	1
Oct	16	20	2362	2369	1	5	7	1865	1873	1	3	3.5	2093	2101	1	1.5	2.0	1831	1839	1
Nov	12	16	2362	2369	1	4	5.5	1865	1873	1	2	3	2093	2101	1	1.3	1.8	1831	1839	1
Dec	9	13	2362	2369	1	3	4.5	1865	1873	1	2	2.5	2093	2101	1	1.0	1.5	1831	1839	1

2019	MAGIC					FOOTHILLS					Total	
	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)		HGL (ft)		Cl ₂	Flow (MGD)	
	Avg	Max	Min	Max	(mg/L)	Avg	Max	Min	Max	(mg/L)	Avg	Max
Jan	1.0	1.5	1831	1839	1	2.5	3.5	1906	1907	1	39.5	56.0
Feb	1.0	1.5	1831	1839	1	2.5	3.5	1906	1907	1	42.5	59.0
Mar	1.2	1.7	1831	1839	1	3	4	1906	1907	1	53.0	71.0
Apr	1.5	2.2	1831	1839	1	3	4	1906	1907	1	58.5	76.5
May	1.7	2.2	1831	1839	1	3.5	4.5	1906	1907	1	72.5	90.0
Jun	2.0	2.2	1831	1839	1	4	5	1906	1907	1	85.5	103.0
Jul	2.2	2.7	1831	1839	1	4.5	5.5	1906	1907	1	94.0	110.0
Aug	2.2	2.7	1831	1839	1	4.5	5.5	1906	1907	1	94.0	110.0
Sep	2.0	2.2	1831	1839	1	3.5	4.5	1906	1907	1	79.5	99.0
Oct	1.5	2.0	1831	1839	1	3	4	1906	1907	1	66.0	82.5
Nov	1.2	1.7	1831	1839	1	2.5	3.5	1906	1907	1	51.0	68.5
Dec	1.0	1.5	1831	1839	1	2.5	3.5	1906	1907	1	40.5	56.5

2019 - Annual Water Flow Projections

NORTH LAS VEGAS

2019	6C					TWIN LAKES PUMPING STATION					CARLTON SQUARE				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	3	4	2016	2027.5	1	1	1	2199.5	2207.5	1	12	15	2215.5	2224.5	1
Feb	4	6	2016	2027.5	1	1	1	2199.5	2207.5	1	12	17	2215.5	2224.5	1
Mar	5	7	2016	2027.5	1	1	1	2199.5	2207.5	1	12	16	2215.5	2224.5	1
Apr	5	6	2016	2027.5	1	1	1	2199.5	2207.5	1	14	16	2215.5	2224.5	1
May	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	20	2215.5	2224.5	1
Jun	7	8	2019	2027.5	1	1	1	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Jul	7	8	2019	2027.5	1	2	2	2199.5	2207.5	1	17	19	2215.5	2224.5	1
Aug	6	7	2019	2027.5	1	1	1	2199.5	2207.5	1	16	18	2215.5	2224.5	1
Sep	5	6	2019	2027.5	1	1	1	2199.5	2207.5	1	15	17	2215.5	2224.5	1
Oct	4	5	2016	2027.5	1	1	1	2199.5	2207.5	1	14	16	2215.5	2224.5	1
Nov	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	11	13	2215.5	2224.5	1
Dec	2	2	2016	2027.5	1	1	1	2199.5	2207.5	1	10	12	2215.5	2224.5	1

2019	GRAND TETON					DEER SPRINGS					DECATUR / MOCCASIN					Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max	Min	Max		Avg	Max
Jan	4	5	2323.5	2329	1	2	2	2317	2329	1	6	7	2420	2430	1	28	34
Feb	5	7	2323.5	2329	1	3	4	2317	2329	1	7	10	2420	2430	1	32	46
Mar	6	8	2323.5	2329	1	3	4	2317	2329	1	9	12	2420	2430	1	36	47
Apr	8	9	2323.5	2329	1	4	5	2317	2329	1	10	12	2420	2430	1	42	49
May	9	11	2323.5	2329	1	5	6	2322	2329	1	11	13	2422	2430	1	50	60
Jun	11	13	2323.5	2329	1	7	8	2322	2329	1	13	15	2422	2430	1	56	64
Jul	15	17	2323.5	2329	1	8	9	2322	2329	1	15	17	2422	2430	1	64	70
Aug	14	16	2323.5	2329	1	7	8	2322	2329	1	13	15	2422	2430	1	57	64
Sep	12	14	2323.5	2329	1	6	7	2322	2329	1	13	15	2422	2430	1	52	59
Oct	11	13	2323.5	2329	1	5	6	2317	2329	1	12	14	2420	2430	1	47	55
Nov	8	10	2323.5	2329	1	5	6	2317	2329	1	10	12	2420	2430	1	37	44
Dec	8	9	2323.5	2329	1	5	6	2317	2329	1	7	8	2420	2430	1	33	39

2019 - Annual Water Flow Projections

BOULDER CITY

2019	HEMENWAY					PUMPING STATION NO. 7				
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)
	Avg	Max	Min	Max		Avg	Max	Min	Max	
Jan	0.1	0.3	2305	2310	1	1.8	3.0	2560	2569	1
Feb	0.1	0.5	2305	2310	1	2.1	3.9	2560	2569	1
Mar	0.2	0.6	2305	2310	1	2.8	4.5	2562	2569	1
Apr	0.3	1.2	2305	2310	1	3.7	6.8	2562	2569	1
May	0.3	0.9	2310	2311.2	1	4.9	7.1	2565	2569	1
Jun	0.4	1.1	2310	2311.2	1	5.3	6.6	2565	2569	1
Jul	0.4	1.4	2310	2311.2	1	5.9	8.3	2565	2569	1
Aug	0.4	0.6	2310	2311.2	1	6.0	9.9	2565	2569	1
Sep	0.6	0.7	2310	2311.2	1	4.8	7.7	2565	2569	1
Oct	0.4	0.6	2305	2310	1	4.4	7.2	2562	2569	1
Nov	0.1	0.6	2305	2310	1	2.8	5.3	2560	2569	1
Dec	0.1	0.7	2305	2310	1	1.6	3.3	2560	2569	1

2019	PUMPING STATION NO.7B					BC RAW WATER PUMPING SYSTEM				Total	
	Flow (MGD)		HGL (ft)		Cl ₂ (mg/L)	Flow (MGD)		HGL (ft)		Flow (MGD)	
	Avg	Max	Min	Max		Avg	Max	Min	Max	Avg	Max
Jan	2.7	4.2	2655	2660	1	0.7	2.1	2655	2660	5.3	9.7
Feb	2.5	3.3	2655	2660	1	0.6	1.3	2655	2660	5.3	9.1
Mar	3.0	4.2	2655	2660	1	2.3	4.0	2655	2663	8.4	13.3
Apr	3.2	4.1	2655	2660	1	3.4	5.1	2655	2663	10.7	17.2
May	3.7	5.0	2660	2667	1	4.0	7.3	2660	2668	13.0	20.2
Jun	3.8	4.2	2660	2667	1	4.7	8.8	2660	2668	14.2	20.7
Jul	4.9	5.2	2660	2667	1	5.1	7.3	2660	2668	16.2	22.2
Aug	4.7	5.3	2660	2667	1	4.1	5.8	2660	2668	15.2	21.6
Sep	4.5	5.6	2660	2667	1	5.2	9.6	2660	2668	15.0	23.7
Oct	3.7	4.9	2655	2660	1	3.8	5.4	2655	2663	12.3	18.0
Nov	3.3	5.4	2655	2660	1	2.0	4.2	2655	2660	8.2	15.5
Dec	3.0	4.2	2655	2660	1	0.3	1.3	2655	2660	5.0	9.4

NELLIS

2019	NELLIS	
	Flow (MGD)	
	Avg	Max
Jan	0.9	1.7
Feb	1.1	2.3
Mar	1.7	2.3
Apr	1.8	2.4
May	2.0	2.8
Jun	2.3	3.0
Jul	3.0	3.9
Aug	2.6	3.9
Sep	2.2	3.5
Oct	1.4	2.0
Nov	0.9	2.0
Dec	0.9	1.9

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM**

November 17, 2016

Subject: Water Resource Plan	Director's Backup
Petitioner: David L. Johnson, Deputy General Manager, Engineering/Operations	
Recommendations: That the Board of Directors adopt the 2015 Water Resource Plan for the 2017 calendar year.	

Fiscal Impact:

None by approval of the above recommendation.

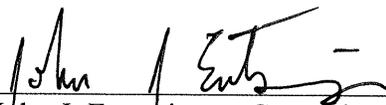
Background:

The SNWA 1995 Amended Cooperative Agreement requires that the Authority adopt a Water Resource Plan (Plan), and thereafter review the Plan at least annually, revising it when necessary. The Board of Directors adopted the 2015 Plan on September 17, 2015.

The Plan encompasses current economic conditions and addresses uncertainties, both in current and future economic situations and for normal Colorado River operations and shortage scenarios. The 2015 Plan continues to demonstrate the flexibility needed to respond to conditions as they develop and to meet future demands in a timely manner, and staff recommends that the Board review and re-adopt the 2015 Plan for the 2017 calendar year.

This action is authorized pursuant to Sections 5(j) and 8(h) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:DLJ:ZLM:AB:JJ:TM:lmv:nsh
Attachment

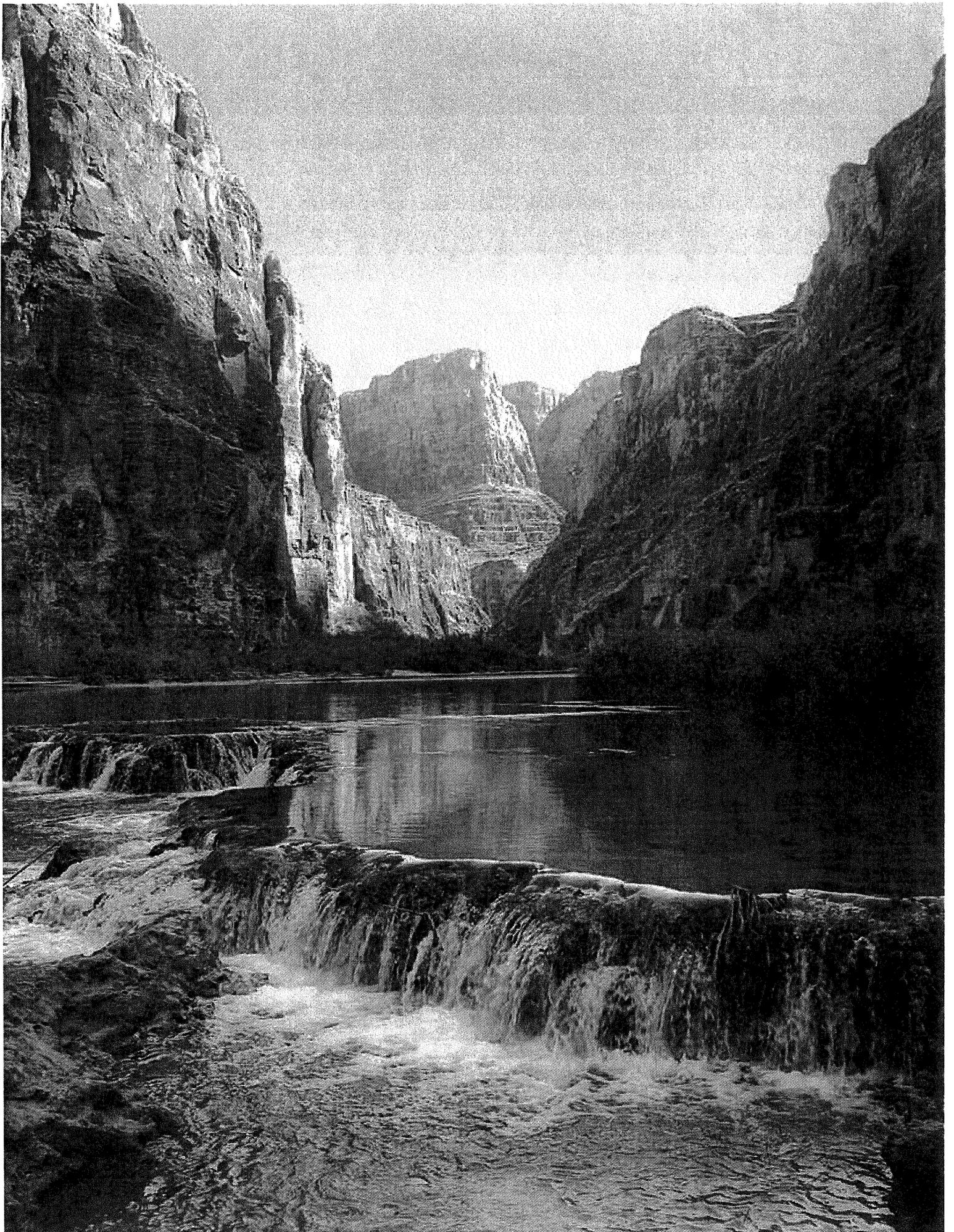
AGENDA ITEM #

5

DRAFT / Tue, Aug 11, 2015 / 12:34 PM / CVC TEAM / -CoverFront

WATER RESOURCE PLAN 2015

 SOUTHERN NEVADA WATER AUTHORITY®



SOUTHERN NEVADA WATER AUTHORITY

BOARD OF DIRECTORS

Mary Beth Scow, CHAIRWOMAN
Las Vegas Valley Water District

Sam Bateman, VICE CHAIRMAN
City of Henderson

Susan Brager
Clark County Water Reclamation District

Bob Coffin
City of Las Vegas

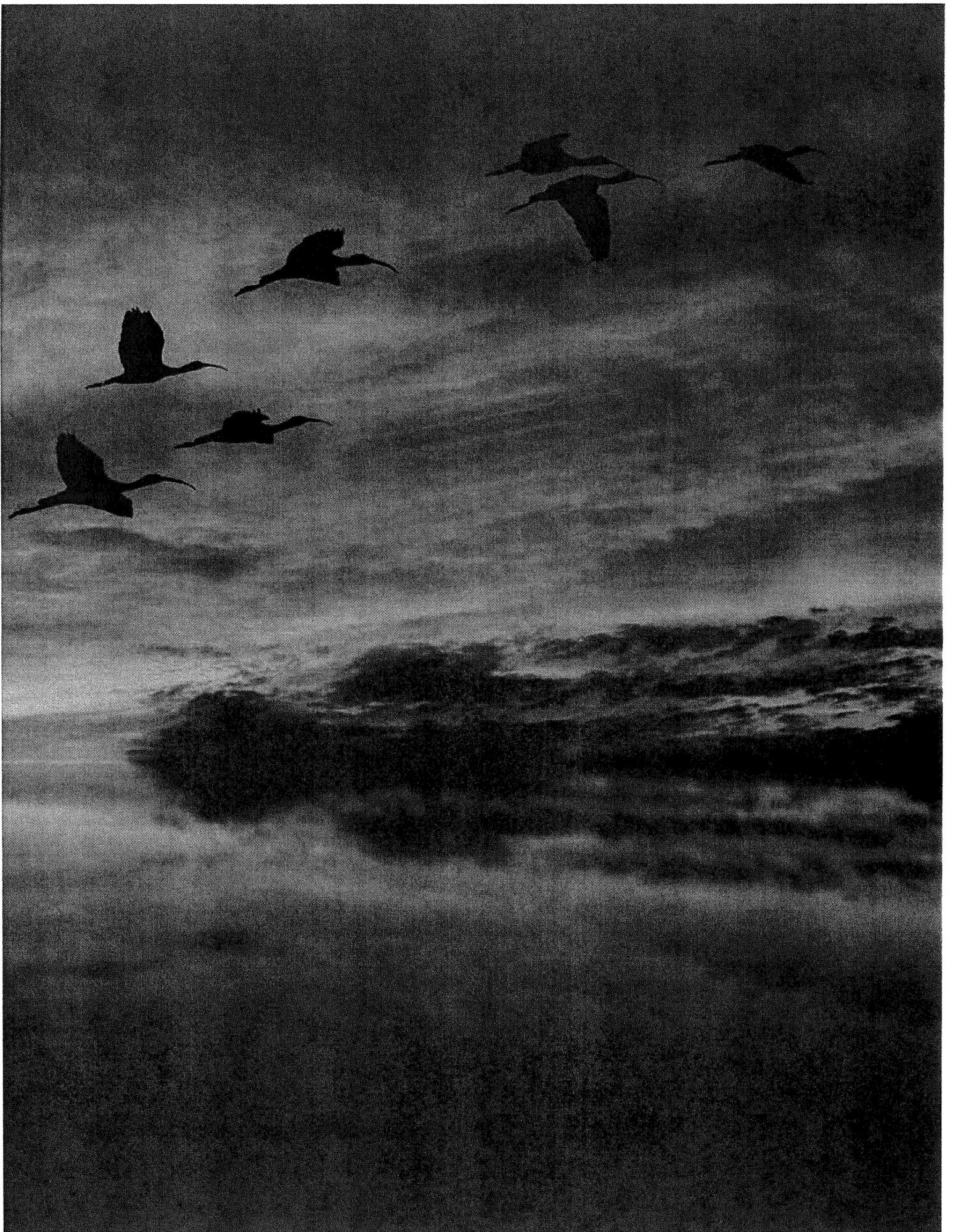
Duncan McCoy
City of Boulder City

Steve Sisolak
Big Bend Water District

Anita Wood
City of North Las Vegas

John J. Entsminger
General Manager

The Southern Nevada Water Authority (SNWA) is a cooperative, not-for-profit agency formed in 1991 to address Southern Nevada's unique water needs on a regional basis.



SOUTHERN NEVADA WATER AUTHORITY

MISSION

Our mission is to provide world class water service in a sustainable, adaptive and responsible manner to our customers through reliable, cost effective systems.

GOALS

Assure quality water through reliable and highly efficient systems.

Deliver an outstanding customer service experience.

Anticipate and adapt to changing climatic conditions while demonstrating stewardship of our environment.

Develop innovative and sustainable solutions through research and technology.

Ensure organizational efficiency and manage financial resources to provide maximum customer value.

Strengthen and uphold a culture of service, excellence and accountability.

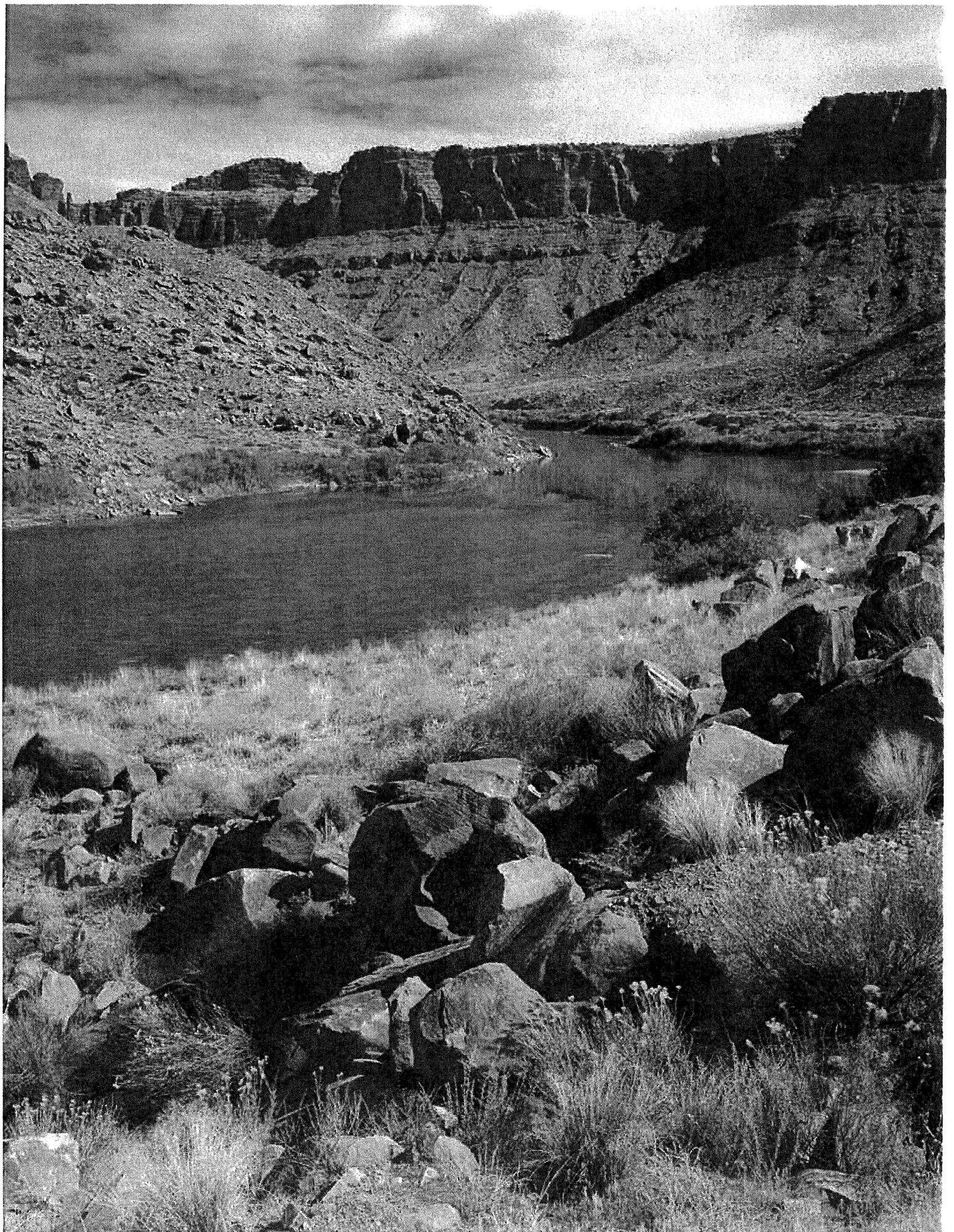
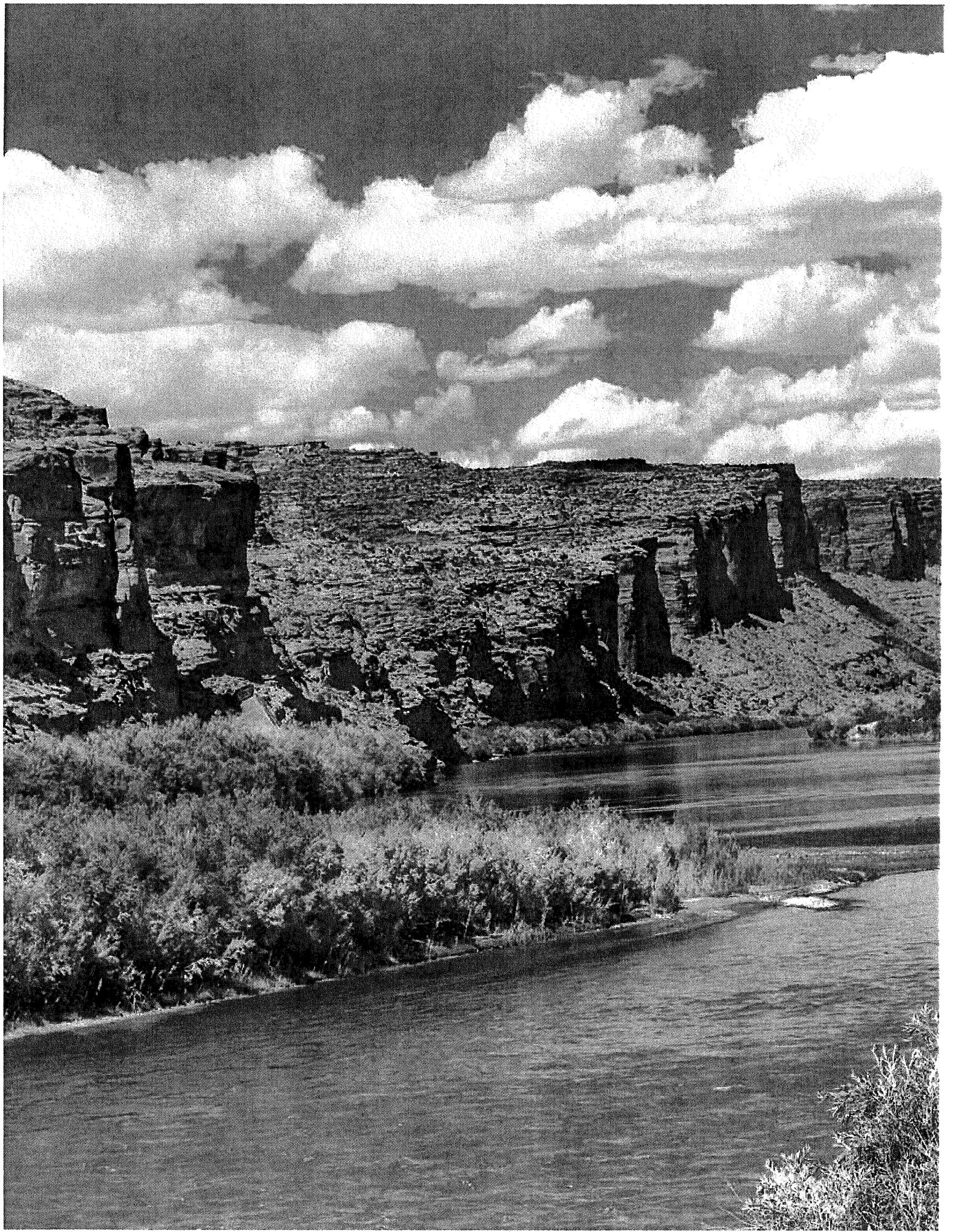


TABLE OF CONTENTS

E	EXECUTIVE SUMMARY	1
1	PLAN INTRODUCTION	5
2	CURRENT PLANNING ENVIRONMENT	11
3	SNWA WATER RESOURCE PORTFOLIO	21
4	MEETING FUTURE DEMANDS	35
5	ENVIRONMENTAL COMMITMENT	43
A	APPENDICES	53



EXECUTIVE SUMMARY

SINCE ITS INCEPTION IN 1991, THE SNWA HAS WORKED TO SEEK NEW WATER RESOURCES FOR SOUTHERN NEVADA, MANAGE EXISTING AND FUTURE WATER SUPPLIES, CONSTRUCT AND MANAGE REGIONAL WATER FACILITIES, AND PROMOTE CONSERVATION.

The Southern Nevada Water Authority (SNWA) was formed in 1991 by a cooperative agreement among seven water and wastewater agencies. Collectively, the SNWA member agencies serve more than 2 million residents in the cities of Boulder City, Henderson, Las Vegas, North Las Vegas, and areas of unincorporated Clark County. As their wholesale water provider, the SNWA is responsible for water treatment and delivery, as well as acquiring and managing long-term water resources for Southern Nevada.

SNWA member agencies:

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

The SNWA Cooperative Agreement calls for the development of a water resource plan to be reviewed and adopted annually by the Board of Directors annually. The 2015 SNWA Water Resource Plan fulfills this requirement, providing a comprehensive overview of projected water demands in Southern Nevada, as well as the resources available to SNWA to meet those demands over time.

THE CURRENT PLANNING ENVIRONMENT

Beginning in 2000 and continuing today, a number of water supply and demand changes have occurred—both locally and regionally—that create uncertainty for water planning agencies across much of the western United States. By far, one of the most significant changes affecting Southern Nevada has been the onset and persistence of drought conditions in the Colorado River Basin.

Between 2000 and 2015, snowfall and runoff into the basin were well below normal, representing the lowest 15-year average on record. As a result, the combined water storage in the Colorado River's two primary reservoirs (Lake Mead and Lake Powell) decreased to just 50 percent at the end of 2014.

Beyond the current impacts presented by drought, climate change is another unpredictable variable associated with the long-term availability of water supplies. According to the U.S. Bureau of Reclamation's 2012 Colorado River Basin Water Supply and Demand Study, the Colorado River is projected to experience a median imbalance of 3.2 million AFY in supply and demand by the year 2060, the result of climate change and increased demands within the basin. This is a situation that is likely to complicate the management of water resources in the region.

In the near term, hydrologic modeling indicates a high probability that Lake Mead water levels will continue to decline. This creates two distinct challenges for Southern Nevada, which depends on the Colorado River for approximately 90 percent of its overall resource supply. Lowering Lake Mead water levels has the potential to: 1) reduce the availability of community water supplies during declared shortages and 2) put SNWA's current Lake Mead intake pumping facilities at risk.

The current planning environment also includes uncertainty associated with long-term water demand forecasts. In 2007, the United States began to experience a severe economic disruption that lasted for several years. Southern Nevada was among the hardest hit. While these conditions temporarily suppressed near-term growth in Southern Nevada's water demands, long-term projections indicate the community will continue to grow in the future.



As experienced in Southern Nevada's recent past, growth can occur much faster than predicted, or it can be drastically affected by economic disruptions such as those experienced in the years following the downturn. As the community continues its recovery from these events, it is difficult to predict how long this recovery will take, and what impact this will have on long-term water demands.

These supply and demand considerations, as well as how they are addressed in the 2015 Water Resource Plan, are discussed further below.

SUPPLY & DEMAND

Water resource planning is based on two key factors: supply and demand. Supply refers to the amount of water that is available or that is expected to be available for use. Water demand refers to the amount of water expected to be needed in a given year. Water demand projections are typically based on population forecasts and include assumptions about future water use, such as expected achievements toward water conservation goals.

Precise accuracy from year to year rarely occurs in projecting future demands, particularly during periods of significant social and economic change. While making assumptions is a necessary part of the planning process, assumptions are unlikely to materialize exactly as projected.

To meet current and future water demands, SNWA has worked for nearly 25 years to develop and manage a flexible portfolio of water resource options that include permanent, temporary, and future resources. This approach allows SNWA to assess its overall water resource options and to make appropriate decisions regarding what resources to bring online when necessary.

Some of these resources are available for immediate use, such as Nevada's Colorado River allocation, Las Vegas Valley groundwater and banked resources, while others may require the construction of additional infrastructure or are pending state and/or federal review processes.

As discussed in later parts of this plan, SNWA takes a number of factors into account when prioritizing resources for use including availability, accessibility, cost and need.

PLANNING FOR UNCERTAINTY

While preparing the 2015 Water Resource Plan, SNWA considered a number of factors related to water supply and demand conditions, including:

- The potential impact of continued drought and climate change on water resource availability, particularly for Colorado River supplies; and
- The potential impact of economic conditions, climate change and water use patterns on long-term water demands.

To help address these factors, the SNWA has used a scenario-based planning approach for its 2015 Water Resource Plan. Scenarios considered as part of this plan address the relative highs and lows of future water demands, as well as supply restrictions that could occur over the long-term planning horizon. The scenarios represent Southern Nevada's future water resource needs under variable supply and demand conditions. The SNWA expects water demands to fall somewhere within this range. As discussed in the chapters that follow, SNWA has sufficient permanent, temporary and future resources to meet all future planning scenarios.

The SNWA has also undertaken a number of important initiatives to help mitigate the impacts of drought and climate change in Southern Nevada. Collectively, these efforts have proved increasingly valuable as SNWA continues to work to address unprecedented drought conditions in the Colorado River Basin, as well as evolving demand forecasting uncertainties.

Among the organization's top priorities are to preserve access to Colorado River supplies through the development of new intake and pumping facilities, and to continue to identify and acquire permanent and temporary supplies that can be used to offset potential supply reductions. Other efforts include progress on water rights and environmental permitting for the development of future resources.

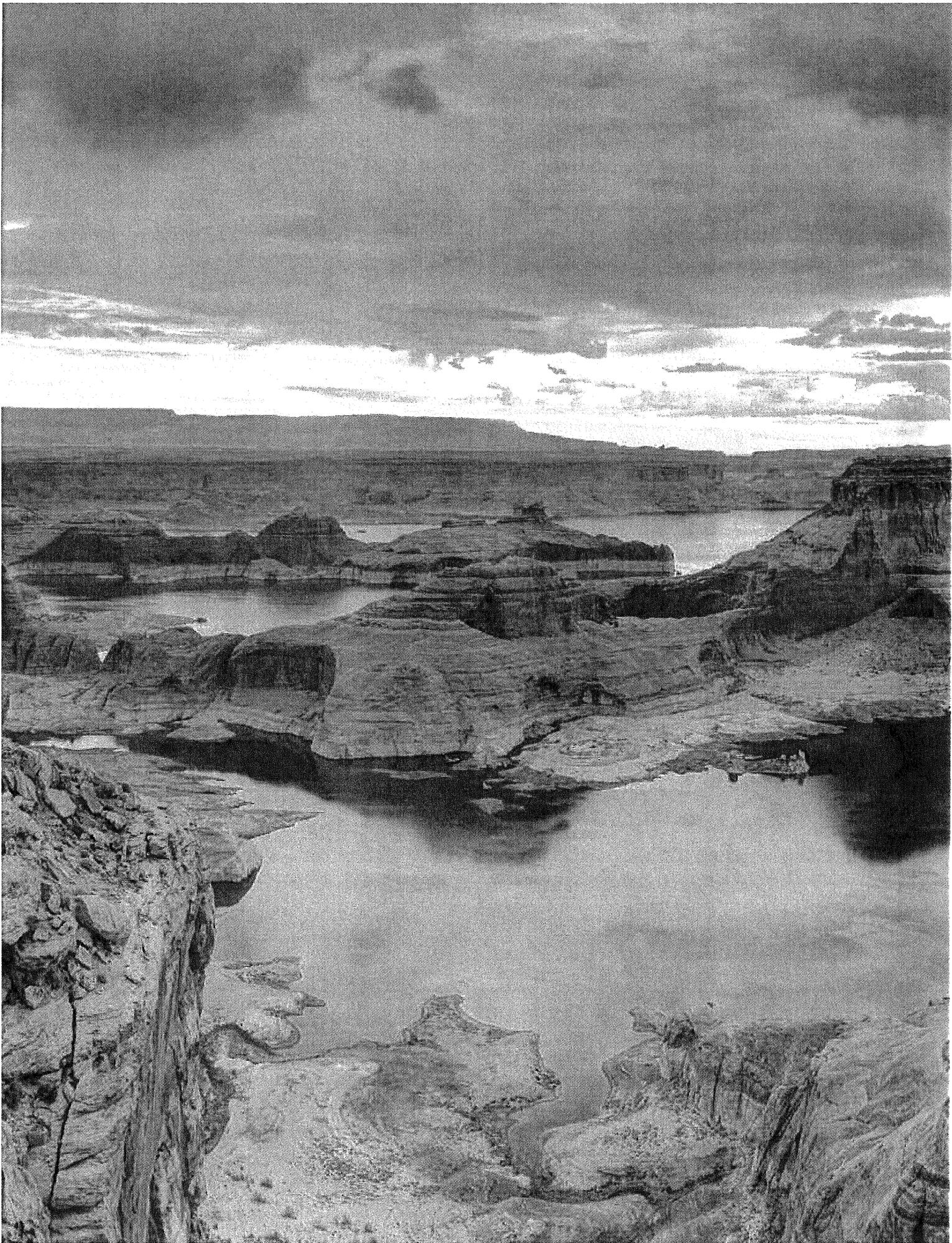
As of 2015, SNWA has completed the tunneling portion of its new Intake No. 3 and has started work on a new Low Lake Level Pumping Station. Together, these facilities will allow for continued access to Colorado River supplies if Lake Mead reaches levels where Intakes 1 and 2, and their associated pumping stations, become inoperable.

Likewise, SNWA remains focused on continued success towards achieving its water conservation goals. Over the last decade (2002 – 2014), the region has reduced its consumptive use of Colorado River supplies by nearly 100,000 AFY, despite the addition of 500,000 new residents during the same timeframe.

Meanwhile, SNWA continues to collaborate with other Colorado River Basin states to maximize the use and availability of Colorado River supplies. These collaborations have led to new temporary water supplies for Southern Nevada that can be stored in Lake Mead for future use, helping maintain Lake Mead water levels and delay shortage declarations.

The 2015 Water Resouce Plan discusses these efforts in detail, and provides a comprehensive summary of SNWA's demand and supply outlook through the year 2065. As with previous plans, the SNWA will review its plan annually and make adjustments as needed.





PLAN INTRODUCTION

THIS CHAPTER PROVIDES AN OVERVIEW OF SNWA RESOURCE PLANNING EFFORTS. IT INCLUDES AN ABBREVIATED HISTORY OF WATER IN SOUTHERN NEVADA, FOCUSING ON MAJOR ISSUES AND INITIATIVES THAT OCCURRED DURING THE LAST CENTURY.

INTRODUCTION

For much of its past, the area now known as Clark County was little more than a collection of scarce watering holes for various trails through the Mojave Desert. With the coming of the railroad in 1905, the privately operated Las Vegas Land and Water Company was formed to build and operate the area's first system for conveying local spring water. In these early years, the community viewed its supply of artesian water as virtually inexhaustible and more than adequate to meet the needs of any growth that might occur.¹

In 1922, the Colorado River Compact defined the geographic areas of the upper and lower basins of the Colorado River, apportioning 7.5 million acre-feet-per-year (AFY) to each. Of the lower basin's 7.5 million AFY, the 1928 Boulder Canyon Project Act authorized the apportionment of 300,000 AFY to Nevada, 2.8 million AFY to Arizona and 4.4 million AFY to California. At the time, Nevada's negotiators viewed 300,000 AFY as more than a reasonable amount; Southern Nevada had no significant agricultural or industrial users, and groundwater seemed plentiful.²

These conditions changed significantly over time. By 1940, local resource managers began expressing concerns about limited groundwater supplies, water waste and declining groundwater levels. While the Colorado River Compact and subsequent construction of Hoover Dam in 1936 made Colorado River water a viable future resource, the lack of infrastructure and sufficient funding for capital improvements precluded any immediate use to support development in the growing region.

In 1947, the Nevada Legislature created the Las Vegas Valley Water District (LVVWD) to help manage local water supplies. The LVVWD acquired the assets of the Las Vegas Land and Water Company and began operations in 1954 as the municipal water purveyor for Las Vegas and unincorporated Clark County.

Shortly thereafter, LVVWD entered into agreements with what is now known as Basic Management Inc. (BMI) for expansion of BMI's small industrial water line to deliver Colorado River water to the LVVWD service area.

Given the astonishing pace of growth that occurred over the next several years and the limits of the existing BMI pipeline, LVVWD initiated formal engineering studies for new facilities to import additional Colorado River water into the Las Vegas Valley from Lake Mead. This effort ultimately resulted in the construction of the Alfred Merritt Smith Water Treatment Facility and associated intake, pumping and transmission facilities (collectively referred to as the Southern Nevada Water System or SNWS), which became operational in 1971. The SNWS was first expanded in 1982 (and again in the years to follow) in response to increasing demands.

By the latter part of the 20th century, water planners estimated that the region would soon reach the limits of its Colorado River apportionment.³ As a result of profound uncertainty created by population growth and future resource availability, the LVVWD filed applications for unappropriated groundwater in 1989, and began storing its remaining unused Colorado River water for future use (see Chapter 2). During this time, the community also implemented its first significant conservation effort — Operation Desert Lawn. The program resulted in ordinances by the local municipalities restricting landscape irrigation during the hottest times of the day.

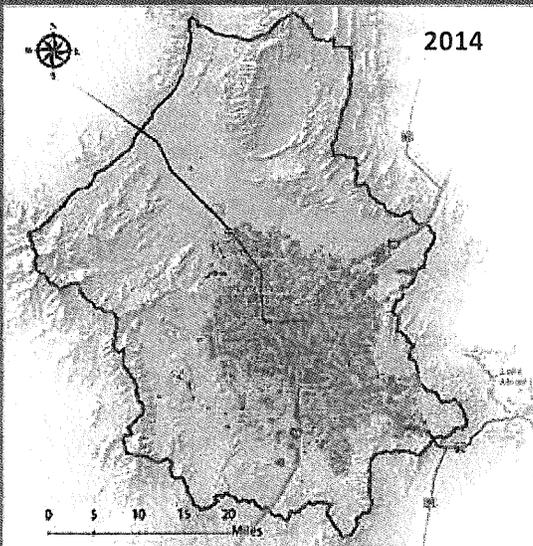
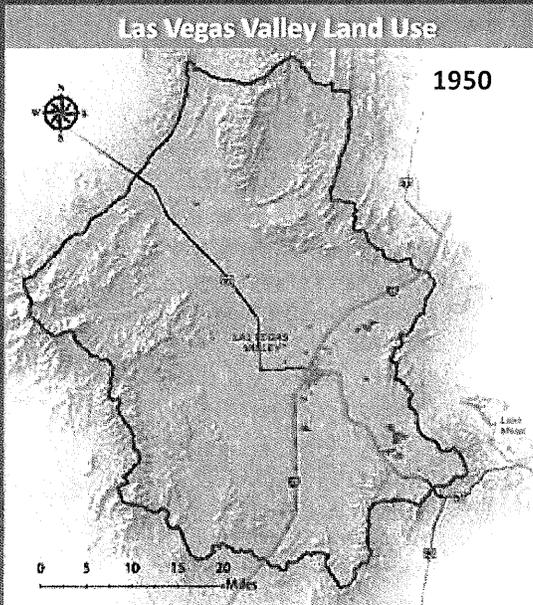
CREATION OF SNWA

By the end of the 1980s, resource challenges had reached a crisis point; with the new decade, local leaders began to aggressively explore different options for extending and managing water resources, while meeting the ongoing demands of the community.

A Century of Change

With the birth of Las Vegas in 1905 as a way station for the San Pedro, Los Angeles and Salt Lake Railroad, Southern Nevada began to attract a large number of residents and businesses. Over the next century, a series of social and economic developments—including legalized gaming, the construction of Hoover Dam, industrial production for the Second World War, development of a military air base, atomic testing, tourism and trade shows, and ongoing evolution of mega-resorts with world class retail and entertainment—steadily increased local population and associated demands for water.

From an estimated population of more than 40,000 in 1950 to more than 2 million by 2014, the Southern Nevada region has experienced change faster than almost any other region in the nation during this time period. Population density in Southern Nevada is the highest in the interior western U.S.⁴



One of the most significant events to occur during this time was the formation of the Southern Nevada Water Authority (SNWA) in 1991 through a cooperative agreement among seven water and wastewater agencies:

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

Today, these seven agencies provide water and wastewater service to more than 2 million residents in the cities of Boulder City, Henderson, Las Vegas and North Las Vegas, and portions of unincorporated Clark County (Figure 1). Since its inception, SNWA has worked to acquire and manage water supplies for current and future use; construct and manage regional water facilities; and promote conservation.

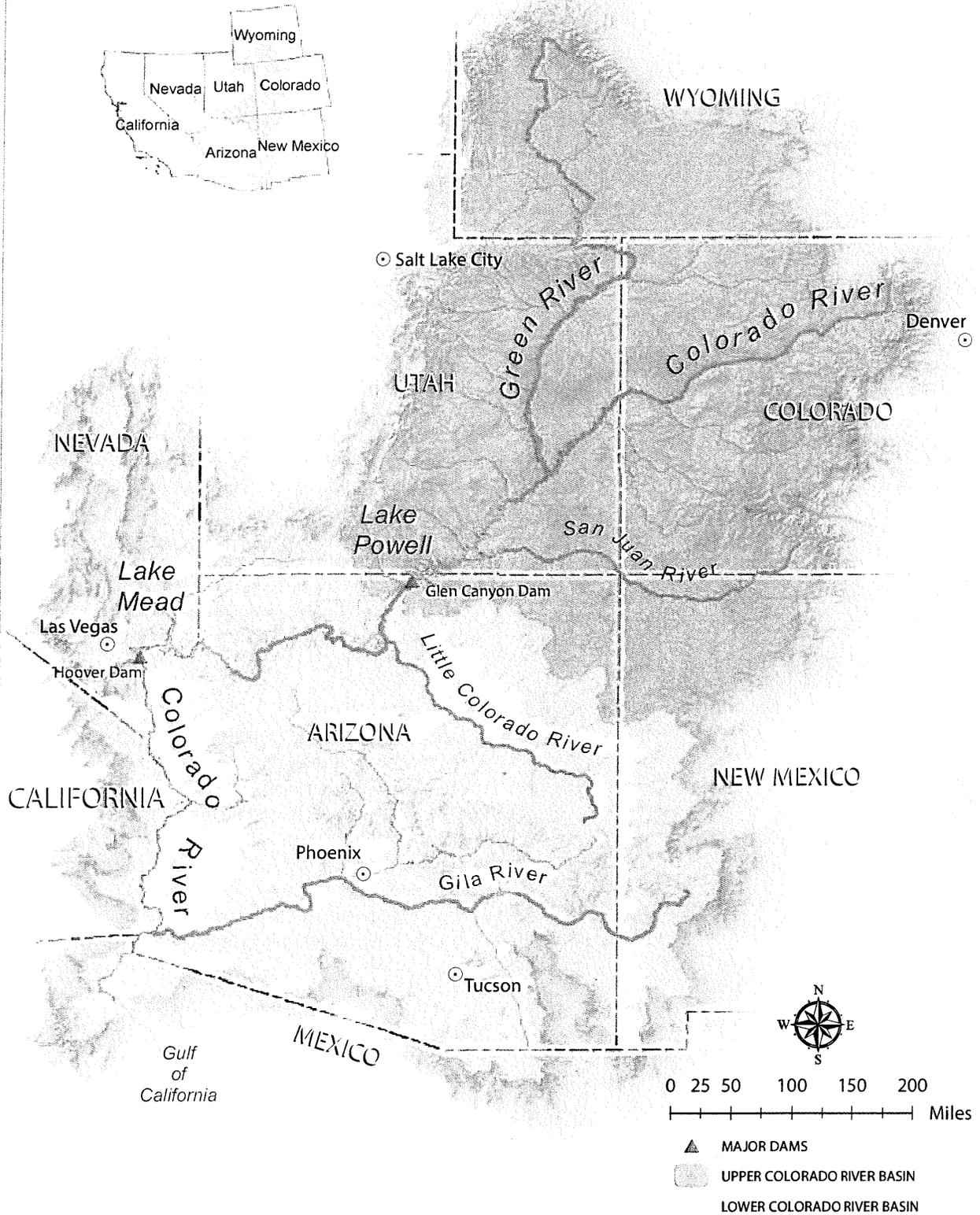
Water Supply Acquisition and Management

Since 1991, SNWA has worked diligently to develop and manage a flexible portfolio of diverse water resource options resulting from years of in-state, interstate and international collaborations. These resources include groundwater and surface water rights in the state of Nevada, Colorado River water, as well as temporary resources that are stored in the form of storage credits. A detailed summary of the SNWA Water Resource Portfolio is provided in Chapter 3.

Construction and Management of Regional Water Facilities

To meet the community's current and long-term water resource needs, SNWA is responsible for constructing and operating regional water facilities, including the SNWS, which was expanded in 2002 to include the River Mountains Water Treatment Facility. The SNWA has completed a number of improvements and expansions to these facilities over the years to increase capacity to 900 Million Gallons per Day (MGD). Pumping facilities and state-of-the-art treatment and laboratory facilities were also constructed and updated to ensure the availability of high-quality reliable water supplies. These efforts were phased, coming online just in time to meet demands.

FIGURE 1 SNWA Purveyor Service Areas



The SNWA is responsible for managing Southern Nevada's long-term water resources, constructing and operating facilities, and encouraging water conservation.

Planning for the Future



The SNWA's 2015 Water Resource Plan is based on an Integrated Resource Planning Process that involved public stakeholders.

In 1996, the SNWA Cooperative Agreement was amended to require adoption of a Water Resource Plan. The SNWA's first Water Resource Plan was adopted in 1996;⁵ the SNWA has reviewed its plan annually since then, adopting revisions as needed.

The plan reflects changing developments in Southern Nevada's overall water resource picture. Since the plan's inception, those developments have come principally from water demand changes as well as from landmark changes in rules, agreements or other factors affecting the region's water supplies.

In 2014, SNWA's 21-member Integrated Resource Planning Advisory Committee was asked to address issues related to the Colorado River drought, the effects of climate change, and the effects of declining water reservoir levels on the reliability of Southern Nevada's municipal water system. The committee was formed in 2012 to assist SNWA with its long-term planning efforts and was comprised of citizens representing diverse areas of the community. Phase 1 and 2 committee recommendations were presented to the SNWA Board of Directors in September 2013 and December 2014, respectively.

As discussed in Chapter 2, SNWA recently completed construction of a new raw water intake (Intake No. 3) and is working to construct associated pumping facilities at Lake Mead to preserve access to existing supplies in response to low Lake Mead water levels due to extraordinary drought conditions in the Colorado River Basin.

Water Conservation

The SNWA and its member agencies have worked diligently over the years to maximize the availability of existing water supplies and reduce overall water demands. The community's first water conservation plan was adopted in 1995;⁵ since then, the community has consistently set and achieved aggressive water conservation goals. As of 2015, the community remains on target to achieve its current goal.

To promote conservation efforts, SNWA developed and implements a comprehensive water conservation program consisting of regulation, pricing, education and incentives designed to work together to improve water efficiency and reduce demands. The SNWA member agencies also implemented a number of water use and development ordinances, which have since become a permanent part of the community's overall conservation effort. Information on Southern Nevada's conservation efforts is provided in Chapter 3.

2015 Water Resource Plan

The SNWA's 2015 Water Resource Plan provides a comprehensive overview of water resources and demands in Southern Nevada, and discusses factors that will influence resource availability and use over a 50-year planning horizon. The plan does not intend to specifically address all aspects of water resource management and development; rather, it serves as a companion to other detailed planning documents, including:

- SNWA Water Budget
- SNWA Major Construction and Capital Plan
- SNWA Water Conservation Plan
- Regional Water Quality Plan for the Las Vegas Valley Watershed
- Annual Operating Plan for the Las Vegas Valley Watershed
- SNWA Financial Budget and Comprehensive Annual Financial Report

Integrated Resource Planning

As part of its overall water resource planning efforts, the SNWA has completed a number of integrated water resource planning processes. Integrated resource planning applies important concepts to traditional resource and facility planning, including involvement of the public early in the planning process as well as frequent reassessment, particularly as conditions change. These efforts have helped identify the appropriate combination of resources, facilities, conservation programs and funding formulas needed to meet current and future water demands in Southern Nevada.

Recommendations resulting from these integrated resource planning processes are presented to the SNWA Board of Directors for consideration and incorporated into overall water resource planning efforts as approved. The 2015 SNWA Water Resource Plan incorporates the recommendations from SNWA's most recent Integrated Resource Planning Advisory Committee, which were approved by the SNWA Board of Directors in December 2014 (see Appendix 1 and 2).

CHAPTER SUMMARY

The SNWA Water Resource Plan is an important tool designed to help SNWA anticipate and plan for future water supply and related facility needs, which have changed significantly over the years.

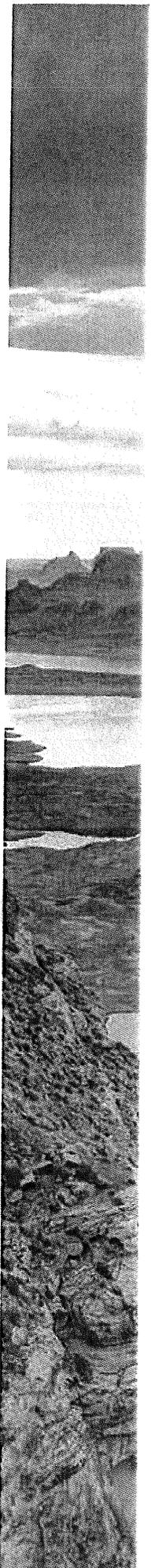
Since its formation in 1991, the SNWA has worked closely with its member agencies to meet the region's long-term water demands by acquiring and managing current and future water supplies; constructing and operating necessary facilities; and promoting conservation. In addition, SNWA has developed partnerships with other Colorado River Basin States (Basin States), working collaboratively to maximize opportunities for the flexible use of Colorado River resources.

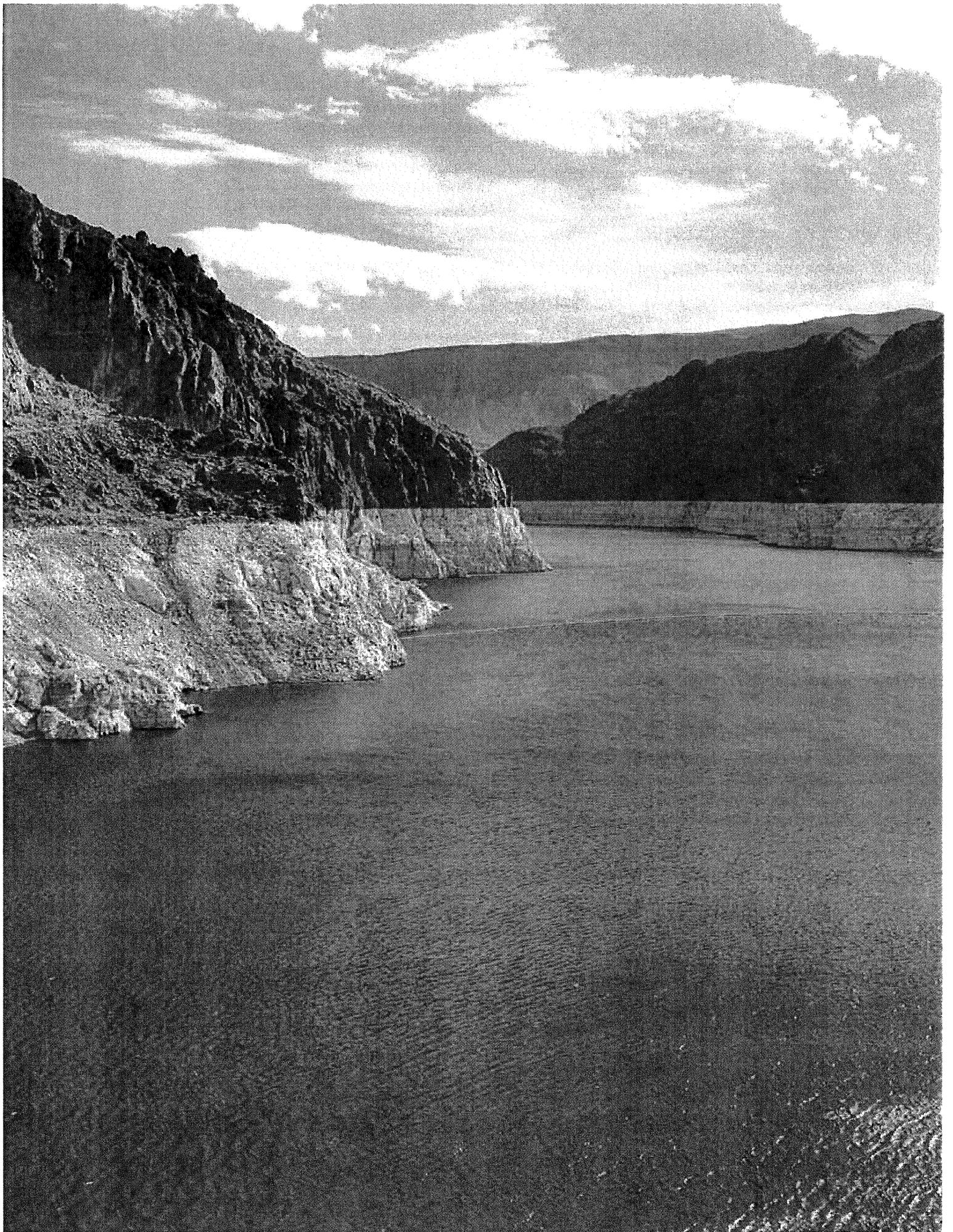
These efforts will continue to be of paramount importance in the years to come, particularly as climate change and drought are anticipated to reduce the availability of supplies, and as the Southern Nevada region rebounds from the effects of economic downturn. These challenges, as well as SNWA's associated response efforts, are discussed in Chapter 2. The balance of this document

provides a comprehensive overview of the SNWA Water Resource Portfolio (Chapter 3); a detailed discussion of how SNWA plans to meet current and future demands (Chapter 4); and a discussion on SNWA environmental initiatives underway to support water resource development and management efforts (Chapter 5).

ENDNOTES

- 1 "Water: A History of Las Vegas, Volume 1," 1975, Florence Lee Jones and John F. Cahlan, p.53.
- 2 "The Hoover Dam Documents," 1948, Ray Lyman Wilbur and Northcutt Ely.
- 3 "WRMI Process—Water Supply Planning for the Las Vegas Region," January 1991, published May 1992, prepared for Las Vegas Region Water Utilities by Water Resources Management, Inc.
- 4 Metropolitan Statistical Area Distance Profiles 2010, U.S. Census Bureau.
- 5 "Memorandum of Understanding Regarding Southern Nevada Water Authority's Water Conservation/Efficiency Programs," January 26, 1995, SNWA.
- 6 "Southern Nevada Water Authority 1991 Cooperative Agreement," between Big Bend Water District, City of Boulder City, City of Henderson, City of Las Vegas, City of North Las Vegas, Clark County Water Reclamation District (previously Clark County Sanitation District), and Las Vegas Valley Water District. Amended 1994 and 1996.





CURRENT PLANNING ENVIRONMENT

THIS CHAPTER PROVIDES AN OVERVIEW OF CURRENT AND EMERGING ISSUES THAT ARE LIKELY TO INFLUENCE WATER SUPPLY AND DEMAND CONDITIONS IN SOUTHERN NEVADA OVER THE 50-YEAR PLANNING HORIZON.

INTRODUCTION

As discussed in Chapter 1, water supply availability and demand conditions have evolved significantly in Southern Nevada over the past century. As a result, new resource strategies have needed to adapt to changing conditions. Time and again, the community rose to these challenges, developing new water resources and facilities, and significantly reducing water demands through aggressive water conservation efforts.

At the beginning of the 21st century, new issues began to emerge that have required a similar approach: close monitoring and adaptive response. Drought, climate change and changing economic conditions have become the persistent challenges of this century. Individually or combined, these factors significantly influence local water demands, as well as the resources needed to support those demands over time.

This chapter describes the challenges that exist within the current planning environment, as well as potential impacts to SNWA water supplies and facilities. This chapter also details the planning and response efforts taken by the SNWA, with community support, to

minimize those impacts and ensure reliable water supplies. As detailed in Chapter 3 (SNWA Resource Portfolio) and Chapter 4 (Meeting Future Demands), the plan demonstrates sufficient resources to meet the needs of the community over the 50-year planning horizon.

The SNWA is well prepared to respond to new or evolving conditions as they arise through close monitoring, proactive planning and adaptive management. As discussed in the latter portion of this chapter, shortages and declining lake levels associated with drought in the Colorado River Basin are being addressed to avoid impacts to current customers.

DROUGHT

Colorado River water supplies are derived primarily from snowmelt and runoff from the Rocky Mountains, as well as the Wind River, Uintah and Wasatch mountains (collectively referred to as the Upper Colorado River Basin). Beginning in 2000 and continuing today, the Colorado River Basin has experienced drought conditions that quickly developed into the worst drought in the basin's recorded history.

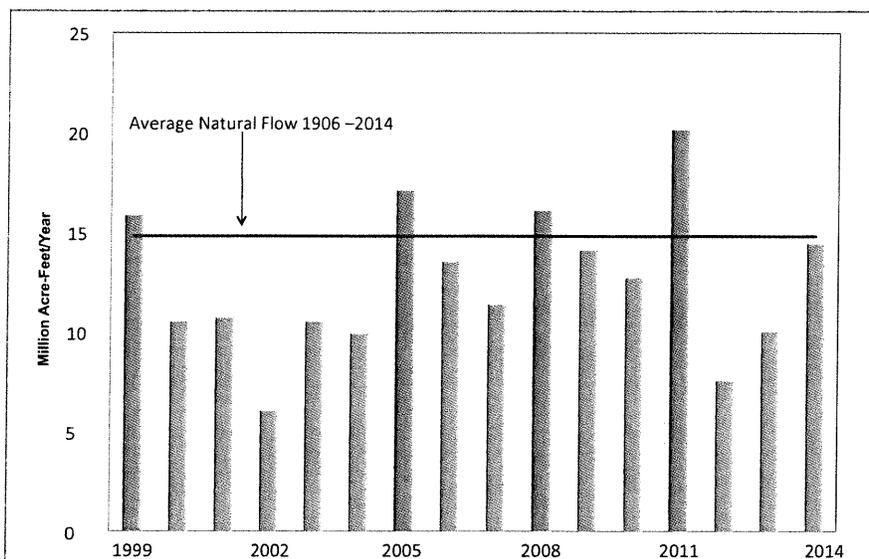


FIGURE 2.1 Annual Colorado River Natural Flow 1999-2014

Between 2000 and 2014, snowfall and runoff into the basin were well below normal, representing the lowest 15-year average on record (Figure 2.1).¹ As a result, combined water storage in the Colorado River's two primary reservoirs (Lake Mead and Lake Powell) decreased to just 50 percent at the end of 2014.²

There are two primary consequences for Southern Nevada associated with continued Lake Mead water level declines: possible reduction of Colorado River resources, and operating challenges associated with SNWA's water intake facilities at Lake Mead.

Potential Supply Impacts

In 2007, the Secretary of the Interior issued a Record of Decision entitled Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, also referred to as "Interim Guidelines."³ Among other things, the Interim Guidelines established how shortages in the lower basin will be implemented, based on Lake Mead's elevation.

According to the Interim Guidelines, the Secretary of the Interior will make a shortage declaration based on a projection of Lake Mead water levels as determined by the U.S. Bureau of Reclamation's Colorado River modeling efforts. The forecast is reviewed annually in August; if Lake Mead is

forecasted to be at or below 1,075 on January 1 of the following year, a shortage declaration will be made.

Under a shortage declaration, the amount of Colorado River water available for use to the states of Nevada and Arizona will be reduced as shown in Figure 2.2. A shortage declaration will also restrict the use of other temporary supplies as identified in SNWA's Water Resource Portfolio (Chapter 3).

LAKE MEAD WATER LEVEL	NEVADA SHORTAGE	ARIZONA SHORTAGE
1,075 - 1,050 FT.	13,000 AFY	320,000 AFY
1,050 - 1,025 FT.	17,000 AFY	400,000 AFY
BELOW 1,025 FT.	20,000 AFY	480,000 AFY
	RECONSULTATION	

FIGURE 2.2 Interim Guidelines Shortage

Modeling efforts conducted by the U.S. Bureau of Reclamation indicate an approximate 40-70 percent probability of shortage in years 2017-2020. There is a high probability (ranging from 60 to 70 percent) in the years thereafter.⁴ The model applies historical flows to simulate future conditions, representing both wet and dry years on the Colorado River.

Potential Facility Impacts

Lake Mead's surface elevation declined by more than 130 feet by the end of 2014,⁵ reaching its lowest level to date since the lake began filling in the 1930s (Figure 2.3). Based on current and forecasted conditions, there is a high probability that Lake Mead water levels will continue to decline, potentially reaching an elevation of 1,000 feet or lower within the next decade.

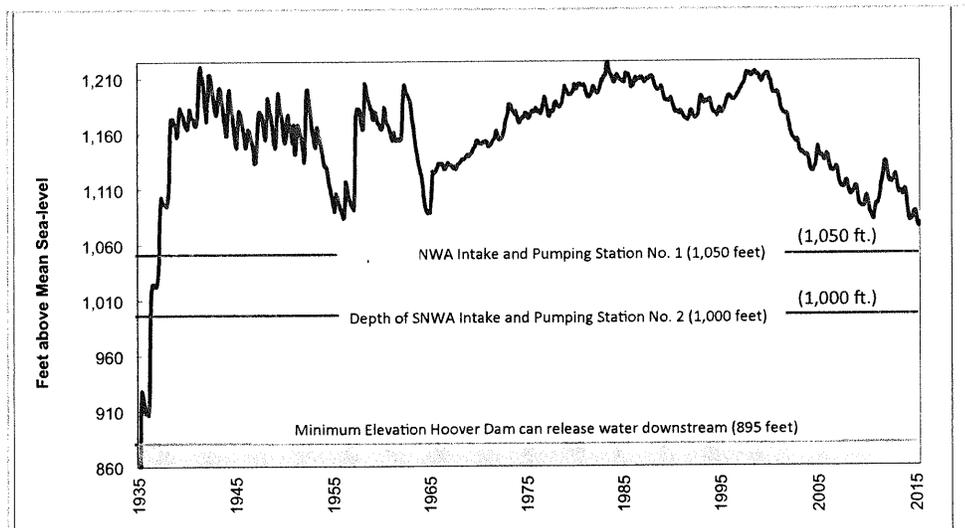


FIGURE 2.3 Historical Lake Mead Elevations

Currently, SNWA's intake and pumping facilities have a combined water supply and treatment capacity of 900 MGD, consisting of two water treatment facilities, three raw water intakes and associated pumping facilities. These facilities are limited in their operating range relative to Lake Mead elevation. As Lake Mead approaches an elevation of 1,050 feet, Intake and Pumping Station No. 1 will become inoperable. If this happens, Intake and Pumping Station No. 2 will be used to meet Southern Nevada's water needs down to a Lake Mead elevation of 1,000 feet.

Work is underway to develop additional facilities to preserve Southern Nevada's access to Colorado River resources below 1,000 feet (Intake No. 3 is complete and a new Low Lake Level Pumping Station is being constructed).

CLIMATE CHANGE

In addition to droughts, which are temporary and cyclical events, climate change is expected to have lasting effects on the availability of future water supplies. Mounting scientific evidence indicates that climate conditions are changing due to global warming, primarily a result of increased concentrations of greenhouse gases (GHGs) in the Earth's atmosphere. Since the late 19th century, observations indicate that global mean annual air temperatures have warmed 1.5 degrees Fahrenheit.⁶

Consistent with global trends, warming has also occurred in the southwestern United States. While climate change models predict that warming trends will continue, the magnitude of change at a given location will depend in part on global mitigation efforts to reduce GHG emissions (Figure 2.4).

Compared to relatively uniform projected temperature increases in the southwest, precipitation patterns are highly variable and show substantial shifts in where and how the precipitation falls. In addition, rising temperatures will cause a greater percentage of precipitation to occur in the form of rain rather than snow, and snowpack will melt earlier and more rapidly due to increasing temperatures. In some areas, this may result in significant reductions in supply, while other areas experience greater frequency and severity of flood events.⁷

From a resource planning perspective, the most direct climate change impact will revolve around water quantity, particularly the form and distribution of precipitation. Rising air temperatures can also have an effect on soil moisture, and ultimately reduce the volume and timing of snowmelt runoff. In addition, changes to water quality

Climate Change Assessments

In 2014, two important climate change studies were released: The U.S. Global Change Research Program's National Climate Assessment and the Intergovernmental Panel on Climate Change's (IPCC) Climate Change 2014 Impacts, Adaptation, and Vulnerability report.⁸ Each of these studies concludes that climate change is occurring and is expected to significantly affect water resources.

According to the National Climate Change Assessment, "future droughts in the Colorado River basin are projected to be substantially hotter, more frequent and longer lasting than in the instrumental record."

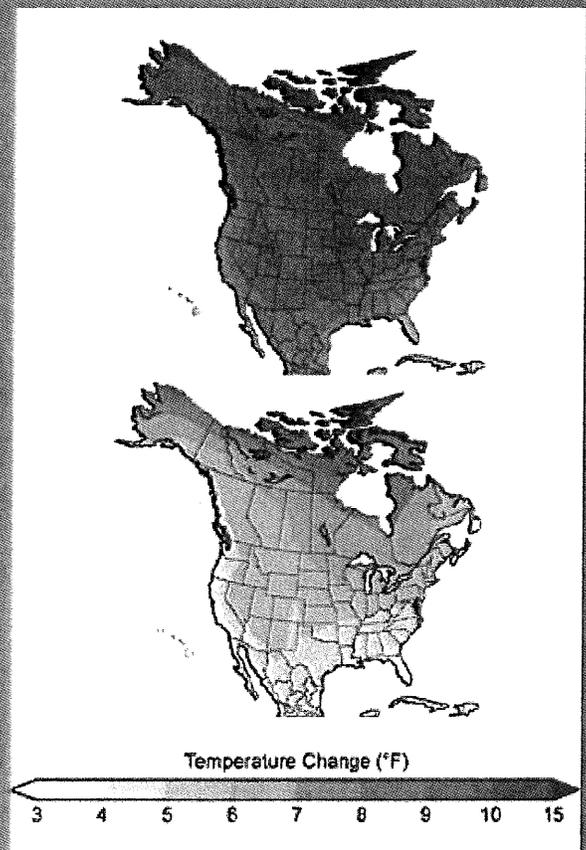


FIGURE 2.4 CLIMATE CHANGE
Range of possible future warming in North America 1999 – 2100 under high and low GHG emission scenarios.⁹
(2014) National Climate Assessment.

from rising stream flow temperatures and changes in reservoir volumes are also important considerations.

To help inform future decision-making efforts in the Colorado River Basin, the Bureau of Reclamation, in partnership with the seven states and numerous other stakeholders, initiated a comprehensive water supply and demand analysis. The process represented a concerted effort by Colorado River stakeholders to better understand possible future water supply and demand imbalances.

This effort resulted in the the Colorado River Basin Water Supply & Demand Study (Colorado River Basin Study),¹⁰ released in 2012 which considered a range of supply and demand projections using the best available climate change science and global models to evaluate projected increases in temperature by 2060, and changes in precipitation over the same period. The combined impact of projected changes in air temperature and precipitation translated into diminished stream flows in the Colorado River watershed over the mid- to long-term, worsening over time. The study recognizes that climate change will not only affect the amount of water available for use, but is also likely to affect overall water demands. As temperatures warm, water evaporation and evapotranspiration rates will increase, resulting in higher water demands for agricultural irrigation and landscaping uses.

Potential Supply and Demand Impacts

The Colorado River Basin Study projects a median imbalance of 3.2 million AFY in Colorado River supply and demand by the year 2060 through a combination of climate change and increased demand.¹¹ In Southern Nevada, the impacts of climate change are expected to be similar to that of drought. This includes extended durations of low Lake Mead elevations, water quality changes, possible reductions of Colorado River resources, and potential increases in water use to compensate for warmer and drier conditions.¹²

ECONOMIC DECLINE AND RECOVERY

Southern Nevada's economic situation changed drastically in 2007, when the national economy began to experience its most significant declines since the 1930s. Southern Nevada was hit harder than almost any other region in the nation. This period of recession marked the first time in decades that the Las Vegas area experienced a sustained period of little or no growth (Figure 2.5).¹³ For years following the downturn, gaming and tourism revenues sank followed by a record spike in unemployment. Most new residential and commercial development projects came to a halt and home foreclosures flooded the real estate market.

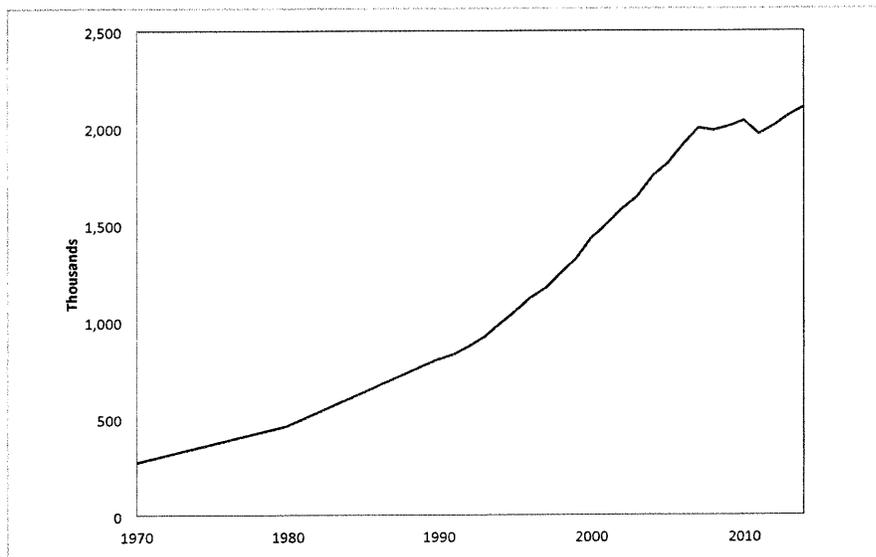


FIGURE 2.5 Historical Clark County Population

Between 2002 and 2014, per capita water use dropped significantly, mostly due to the community's early drought response efforts. In contrast to voluntary drought response efforts, drying pools and landscapes at foreclosed properties provided strong visual cues that water use patterns had also changed as a result of economic pressures.

However, economic conditions have improved steadily in the region over the past three years. According to the U.S. Bureau of Economic Analysis, the Las Vegas metropolitan area's economic output rose 2 percent per year between 2011 through 2013.¹⁴ As of 2014, building permits were also on the rise. According to the Clark County Development Services Department, the number of permits issued that are likely to generate new water demands increased by 22.2% year-over-year between 2012 and 2013.¹⁵

Potential Supply and Demand Impacts

The University of Nevada Las Vegas Center for Business and Economic Research (CBER) forecasts that Southern Nevada population growth will continue, although actual growth rates will occur faster or slower than forecasted as demonstrated by Southern Nevada's unpredictable past.¹⁶ While the region's economy appears to be rebounding, it is difficult to predict future population changes and how these changes will translate into water demands over the long-term planning horizon.

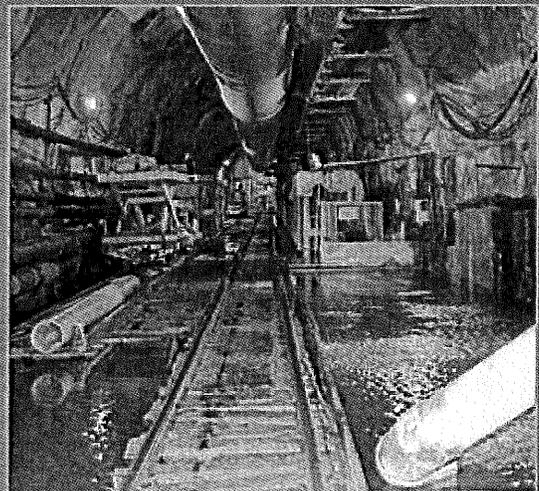
ADAPTIVE MANAGEMENT

Adaptive management relies on continuous assessment, flexible planning and action. As the region's wholesale water provider, SNWA is responsible for anticipating future demands and taking the steps necessary to meet those demands over time. As discussed earlier in this chapter, the current planning environment contains significant uncertainties—drought and climate change have the potential to impact water facilities, water supply availability, water quality and—to some extent—long-term water demands. In addition, factors associated with Southern Nevada's local economy and its rate of recovery make predicting future water demands challenging, particularly in light of the region's previous growth history.

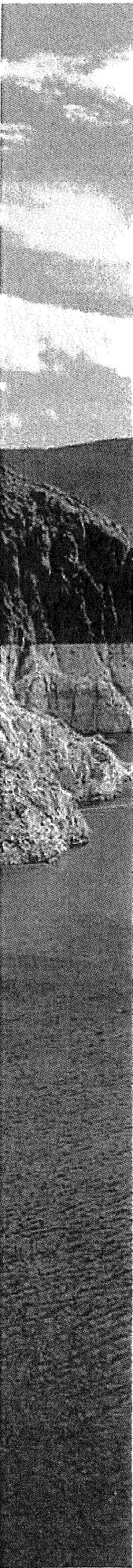
Adaptive Management in Action

The SNWA took a number of adaptive management steps to reduce impacts to water supplies and facilities in response to persistent drought conditions. These include:

- Reduced consumptive use of Colorado River supplies between 2002 and 2014 by nearly 100,000 AFY (32 billion gallons), despite the addition of 500,000 new residents.
- Significantly increased water banking, storage and recharge efforts, resulting in the near 6-year storage equivalent of Nevada's Colorado River allocation.
- Retrofitted existing and added new intake and pumping facilities in response to declining Lake Mead water levels and constructed new facilities.
- Initiated legal and environmental permitting associated with the development of in-state groundwater resources.
- Acquired and developed approximately 40,000 AFY of permanent and temporary water resources in Clark County through resource lease and purchases on the Virgin River, Muddy River and in Coyote Spring Valley.



Intake No. 3 Construction



The following sections detail how SNWA plans to address these challenges—while some steps are being taken now to protect current water supplies from the effects of drought, others steps are considered long-term continuous efforts that will remain a priority for many years to come.

Lake Mead Facility Improvements

To mitigate impacts associated with a potential Lake Mead water level decline below 1,000 feet and potential water quality concerns during low reservoir conditions, the SNWA constructed a new intake and initiated construction of pumping facilities that will ensure continued access to Colorado River resources. These facilities are being developed to address current and future projected drought conditions, as well as the potential effects of long-term climate change.

In 2005, the SNWA authorized construction of a new Intake No. 3. The new intake is at an elevation of 860 feet, approximately 35 feet below the minimum elevation that Hoover Dam can release water downstream. In May 2015, the SNWA awarded a pre-construction services contract to a construction contractor for the Low Lake Level Pumping Station, which will work in tandem with Intake No. 3. These efforts are based in part on the recommendation of SNWA's Integrated Resource Planning Advisory Committee (IRPAC), which determined that the risk of Lake Mead's elevation falling below 1,000 feet is not acceptable for Southern Nevada due to the potential impacts on water delivery and resource availability.

New intake and pumping facilities will preserve existing capacity and will allow SNWA to pump from a Lake Mead elevation of 875 feet. Work on Intake No. 3 will be complete in 2015; the new pumping station is expected to be complete and operational by 2020.

Water Conservation

The SNWA continues to implement one of the most aggressive water conservation programs in the nation and will continue to evaluate higher levels of conservation as goals are achieved. As detailed in Chapter 3, the SNWA and its member agencies utilize regulation, pricing, education and incentives to affect necessary water conservation savings.

While there is a high potential for shortages to be declared over the next several years, SNWA does not anticipate any near-term customer impacts. This is due in large part to the success of local conservation efforts. The Southern Nevada community took both serious and sustained action as the drought took hold in the early 2000s. These efforts have provided a significant buffer against water supply impacts over the near-term planning horizon. As of 2015, Southern Nevada use of Colorado River resources is well below any restrictions that could be imposed under the current Interim Guidelines.

Interstate Collaboration

The Colorado River Basin states are also working collaboratively with federal partners to protect water supply and facility access for lower basin users. These efforts range in nature from contributing funds for cloud seeding designed to increase the potential yield of snowfall in the Colorado River Basin, to system conservation efforts that benefit the system as a whole.

In 2014, the SNWA entered into two agreements (discussed below) to help bolster reservoir elevations. These efforts are intended to forestall the declaration of and reduce the severity of shortage, and will help stabilize Lake Mead water levels. This will provide the SNWA with a buffer of time as the organization works to complete development of its Low Lake Level Pumping Station.

Pilot System Conservation Agreement. The SNWA, Department of the Interior and other Colorado River water users have initially committed to fund up to \$14 million in 2015 and 2016 for conservation projects that benefit the Colorado River system.¹⁷ In accordance with a 2014 agreement, project partners evaluate and select projects, compensating users for voluntary water use reductions. Projects being considered include land fallowing, water efficiency, desalination, reuse and other conservation projects.

Unlike other water resources in the SNWA Water Resource Portfolio, water conserved as a part of this agreement will benefit the entire Colorado River System by increasing reservoir elevations; these resources cannot be recovered by any individual water user.

Drought Response Actions. The SNWA, Department of the Interior and other lower basin water users and states set a goal of developing 1.5 to 3 million acre-feet of water in Lake Mead before 2020 to serve as a “protection volume.” This water is intended to help stabilize water levels.

As part of a 2014 memorandum of understanding the parties will use their best efforts to create a total of 750,000 acre-feet between 2014 and 2017.¹⁸ The SNWA’s commitment to the program is 45,000 acre-feet. Southern Nevada’s current water use is well below the state’s 300,000 AFY Colorado River allocation and SNWA plans to meet its commitment by foregoing offstream banking of its unused apportionment. During this period, SNWA does not anticipate water demands to exceed SNWA’s remaining Colorado River allocation.

Moving Forward Process. To support continued work associated with the 2012 Colorado River Basin Study, the Bureau of Reclamation initiated the “Moving Forward” effort. This is a process designed to inform future Colorado River management efforts. As part of the process, three workgroups were formed to investigate various aspects of: municipal and industrial conservation and water reuse; agricultural conservation, productivity and water transfers; and environmental and recreational flows. A Phase I report was released in May 2015.¹⁹ Phase II will further expand upon these efforts by implementing pilot projects.

Other Conservation/Augmentation Efforts.

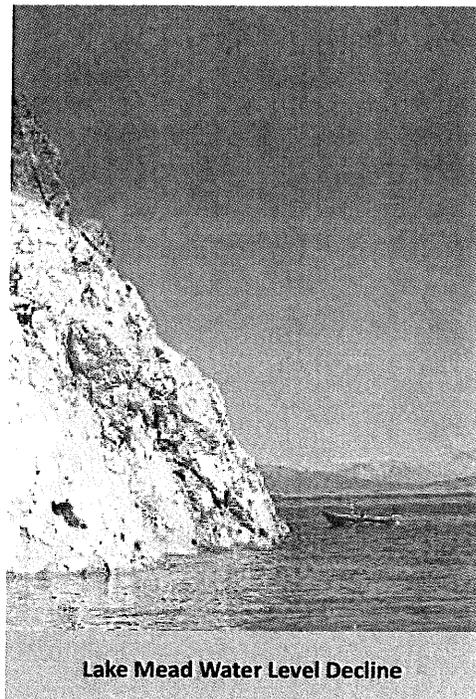
Over the last several years, the Seven States have worked collaboratively to store or “bank” available Colorado River water and other unused supplies through various storage efforts. As of 2015, SNWA has banked resources in the Southern Nevada Water Bank, in the Arizona and California water banks, and in Lake Mead (in the form of Intentionally Created Surplus). As discussed in Chapter 3 and to the extent possible, SNWA will continue water banking efforts to help offset potential supply shortages associated with drought and climate change, to help meet future demands and to help stabilize Lake Mead water levels.

Applying Best Available Climate Science

To better understand and adapt to climate change effects on water-related infrastructure and water resources, SNWA initiated collaborative efforts with both climate scientists and other water agencies. The SNWA was recently awarded a WaterSMART grant from the Bureau of Reclamation to evaluate potential changes in Lake Mead water quality using SNWA’s advanced Lake Mead model. The Lake Mead study considers potential impacts of low lake elevations and increasing air temperatures due to climate change.²⁰

The SNWA is also a founding member of the Water Utility Climate Alliance (WUCA), which is comprised of ten of the largest water agencies in the United States. WUCA is dedicated to enhancing climate change research and improving water management decision-making to ensure that water utilities will be positioned to respond to climate change and protect water supplies.

The SNWA is collaborating with other WUCA members to: advocate for climate change research that better meets the needs of the water sector; evaluate methods used to understand the influence of climate change on water providers; and identify decision and adaptation strategies employed to address long-term climate change.²¹



Lake Mead Water Level Decline

Supply and Demand Forecasting

The SNWA has taken a scenario-based planning approach with its 2015 Water Resource Plan to address possible changes to water supply availability and demands. As detailed in Chapter 4, SNWA has developed a range of demands that brackets what is likely to be experienced during the planning horizon.

The plan includes a series of future planning scenarios that consider various water demand and supply conditions, including impacts of declared shortage. This is a conservative approach that recognizes that planning assumptions are generally more accurate in the near term, but that the potential for change is likely to increase over time.

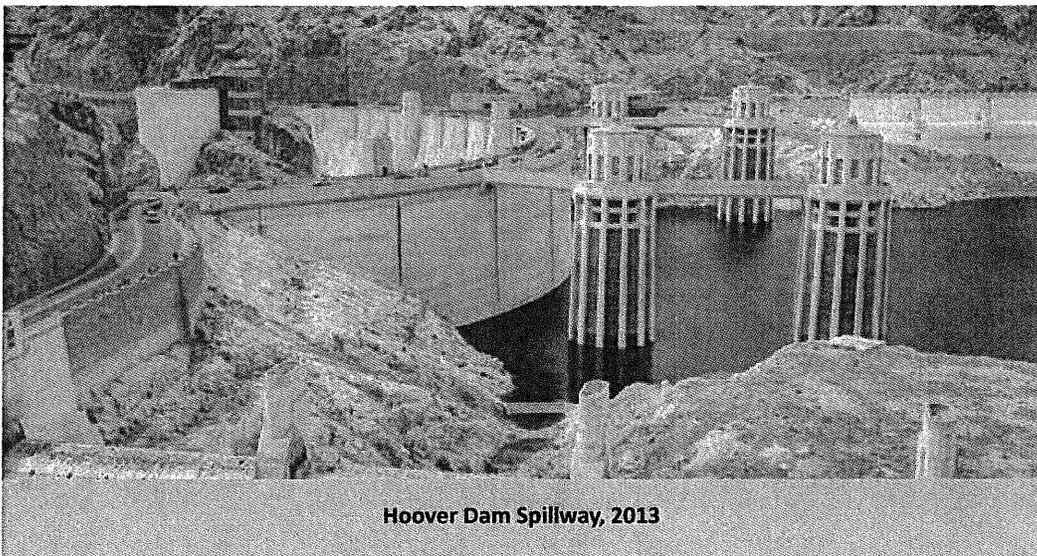
CHAPTER CONCLUSION

The concept of uncertainty is not unique to Southern Nevada. It is a condition increasingly faced by water managers across the United States. This is particularly true in the Colorado River Basin where climate variability (the result of drought and/or climate change) and economic conditions are influencing both water resource availability and the demand for those resources over time.

While the water supply challenges presented in this chapter provide a daunting outlook, SNWA has taken actions needed to ensure both resources and facilities are available to meet the community's short- and long-term water resource needs.

By applying adaptive management—evaluating, planning and action—SNWA is well prepared to meet whatever challenges lie ahead, including efforts to:

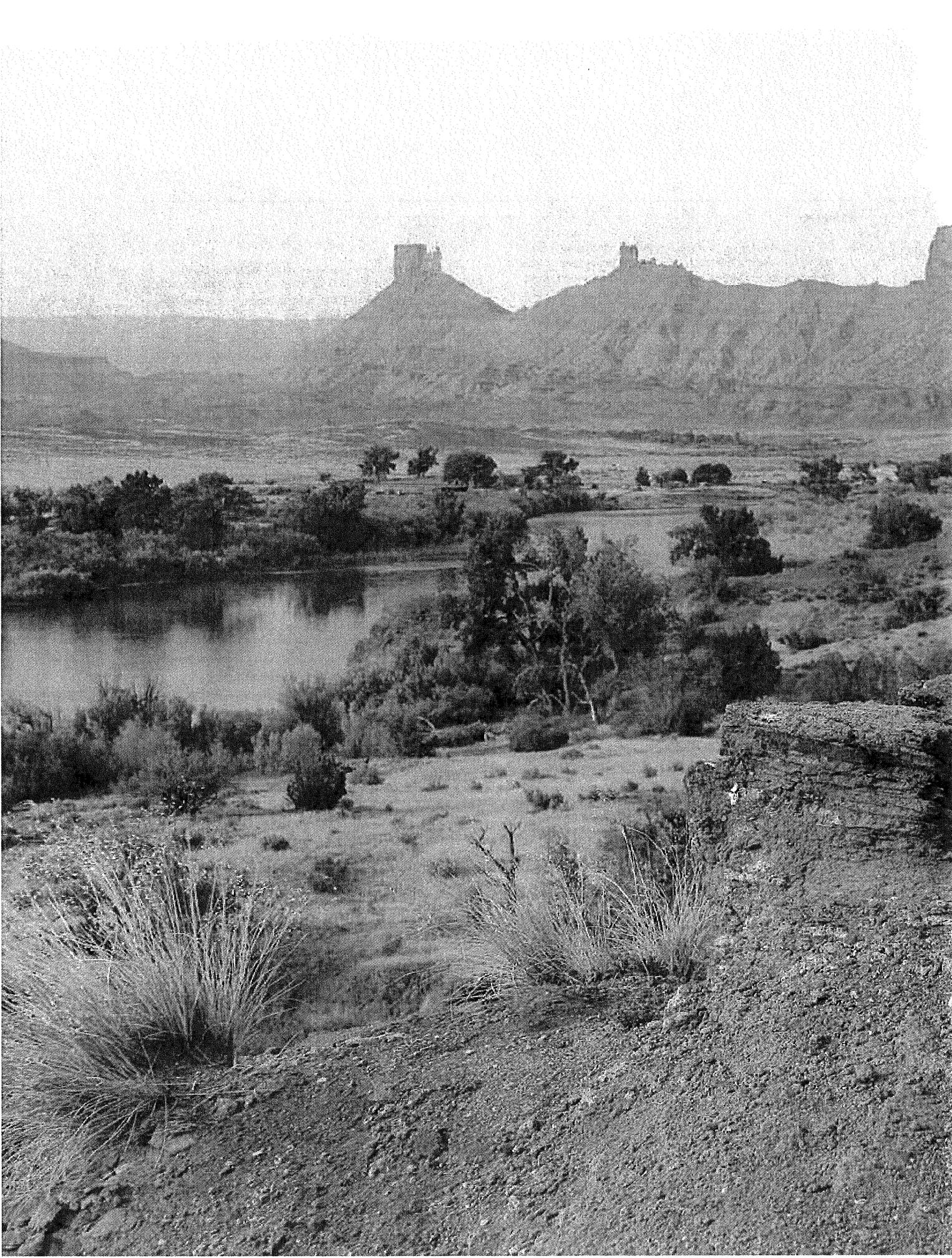
- Continue setting and achieving water conservation goals through aggressive water conservation efforts;
- Develop new intake and pumping facilities at Lake Mead to preserve Colorado River supply access in the event that existing facilities become inoperable;
- Collaborate with Colorado River stakeholders for conservation and flexible use of Colorado River supplies (for example, water banking), as well as protect Lake Mead's elevation against future water level declines;
- Continue to secure temporary resources to offset long-term impacts associated with shortage while working to bring other permanent resources on-line when needed;
- Address uncertainty by planning to a range of future supply and demand possibilities; and
- Collaborate with climate scientists and other agencies to understand and evaluate climate change, and its potential impacts to water supplies and facilities.



Hoover Dam Spillway, 2013

ENDNOTES

- 1 The U.S. Bureau of Reclamation and the U.S. Geological Survey estimate the yearly "natural flow" of the Colorado River at Lees Ferry, defined as the flow of the river without reservoirs, dams or diversions. Natural flow estimates for the period 1906 to 2012 are official, while estimates for the period 2013 and 2014 are provisional, March 2015, U.S. Bureau of Reclamation.
- 2 "Lower Colorado Water Supply Report," December 29, 2014, U.S. Bureau of Reclamation.
- 3 "Record of Decision Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, December 2007," signed December 13, 2007 by Dirk Kempthorne, Secretary of the Department of Interior.
- 4 The U.S. Bureau of Reclamation developed the Colorado River Simulation System (CRSS), a long-term planning and operations model. The probabilities of shortage correspond with April 2015 CRSS results, applying historical Colorado River flows, provided by U.S. Bureau of Reclamation to Southern Nevada Water Authority June 2, 2015.
- 5 "Historical Reservoir Levels, Lake Mead at Hoover Dam," U.S. Bureau of Reclamation.
- 6 IPCC, 2013: Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Quin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- 7 Garfin, G., G. Franki, H. Blanco, A. Comrie, P. Gonzalez, T. Piechota, R. Smyth, and R. Waskom, 2014: Ch. 20: Southwest. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J.M. Melillo, Terese (T.C.) Richmond, and G.W. Yohe, Eds., U.S. Global Change Research Program, 462-486. doi:10.7930/J08G8HMN.
- 8 "Climate Change Impacts in the United States: The Third National Climate Assessment." U.S. Global Change Research Program, 2014, Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds. IPCC 2014: Summary for Policymakers. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mantrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White, (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.
- 9 "Climate Change Impacts in the United States: The Third National Climate Assessment." U.S. Global Change Research Program, 2014, Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds. *Climate Science Supplement, Supplemental Message 5, Figure 33.20: Projected Annually-Averaged Temperature Change*, <http://nca2014.globalchange.gov/report/appendices/climate-science-supplement#tab2-images>.
- 10 "Colorado River Basin Water Supply and Demand Study," December 2012, U.S. Bureau of Reclamation.
- 11 Ibid.
- 12 "Changes in Water Use Under Regional Climate Change Scenarios," 2013, Water Research Foundation (Project #4263) prepared by Jack C. Kiefer, John M. Clayton, Benedykt Dziegielewski, and James Henderson.
- 13 Clark County Population data 1970 – 1980 are decadal counts from the U.S. Census Bureau. Clark County Population data 1990-2014 are annual estimates prepared by the Clark County Comprehensive Planning Department.
- 14 Real Gross Domestic Product by Metropolitan Area, 2015, U.S. Bureau of Economic Analysis.
- 15 Clark County Nevada Building Department, permits issued. Data retrieved June 2014 for calendar year 2012-2013. http://www.clarkcountynv.gov/Depts/development_services/Pages/MonthlyValuationReports.aspx.
- 16 "Clark County Nevada Population Forecast 2014-2050," June 2014, Center for Business and Economic Research at the University of Nevada, Las Vegas.
- 17 "Memorandum of Understanding among the United States of America, through the Department of the Interior, Bureau of Reclamation, the Central Arizona Water Conservation District, the Metropolitan Water District of Southern California, the Southern Nevada Water Authority, the Arizona Department of Water Resources, the Colorado River Board of California and the Colorado River Commission of Nevada for Pilot Drought Response Actions," entered into December 10, 2014.
- 18 "Agreement among the United States of America, through the Department of the Interior, Bureau of Reclamation, the Central Arizona Water Conservation District, the Metropolitan Water District of Southern California, Denver Water, and the Southern Nevada Water Authority, for a Pilot Program for Funding the Creation of Colorado River System Water through Voluntary Water Conservation and Reductions in Use," entered into July 30, 2014.
- 19 "Colorado River Basin Stakeholders Moving Forward to Address Challenges Identified in the Colorado River Basin Water Supply and Demand Study Phase 1 Report," 2015, U.S. Bureau of Reclamation.
- 20 The SNWA's Lake Mead Model was developed with Flow Science Inc., with funding from SNWA member agencies and the National Park Service. Funding for climate change model simulations was provided through a WaterSMART Grant from the Bureau of Reclamation, with matching contributions from the City of San Diego, Metropolitan Water District of Southern California, and the SNWA.
- 21 The Water Utility Climate Alliance (WUCA) has funded and published several reports and whitepapers on climate change. The publications are accessible at: www.wucaonline.org/html/actions_publications.html.



SNWA WATER RESOURCE PORTFOLIO

THIS CHAPTER DISCUSSES THE DIVERSE SET OF WATER RESOURCE OPTIONS ACQUIRED BY THE SNWA TO RELIABLY MEET THE COMMUNITY'S CURRENT AND FUTURE WATER RESOURCE NEEDS.

INTRODUCTION

Since 1991, SNWA has worked to establish and manage a flexible portfolio of water resources, an approach commonly used in resource planning. Having a portfolio of resources allows SNWA to assess its overall water resource options and to make appropriate decisions regarding which resources to develop and use when necessary. Key factors considered in determining acquisition, priority of development, and use include the availability, accessibility, cost and need of the resource. Water supply diversification is also an important consideration. Having a portfolio of resource options helps to offset risks typically associated with dependence on any single resource.

The SNWA's water resource portfolio, along with associated facility planning and permitting efforts, provides SNWA flexibility in adapting to changing supply and demand conditions, and helps ensure that community water demands can be met. Resources in the portfolio are described in consumptive use volumes and are organized into three categories:

- Permanent Resources
- Temporary Resources
- Future Resources

PERMANENT RESOURCES

For the purpose of this plan, "Permanent Resources" are resources available for use over the 50-year planning horizon. These resources make up a base of supplies and can be used during any Colorado River operating condition, including shortage (subject to certain restrictions).

Permanent resources include Colorado River supplies (including return-flow credits); Tributary Conservation and Imported Intentionally Created Surplus (ICS); permitted groundwater rights in the Las Vegas Valley; and reclaimed water. Descriptions of these resources and details regarding their availability are discussed in the following section.

Colorado River—Nevada Basic Apportionment

Nevada's 300,000 AFY Colorado River apportionment continues to be Southern Nevada's largest and most critical permanent resource. Nevada's right to this water was established under the 1922 Colorado River Compact and the 1928 Boulder Canyon Project Act, which together set forth where and how Colorado River water is used.

SNWA Contract. Colorado River law requires entities wishing to divert Colorado River water within a state to have a contract with the Secretary of the Interior for that water. Early on, the agencies that would form the SNWA contracted for most of Nevada's Colorado River allocation.

With the creation of the SNWA in 1991, these agencies agreed to collaboratively manage Southern Nevada's current and future water resources, representing a significant shift in the overall management of the region's water supply. In the years that followed, SNWA determined that additional Colorado River water was available and contracted with the Secretary of the Interior in 1992 and 1994 to acquire these resources.¹ SNWA's total estimated Colorado River entitlement is 272,205 AFY of Nevada's 300,000 AFY allocation. Nevada's remaining apportionment is contracted to other users.²

Unused Apportionment. As part of its 1992 Colorado River contract, the SNWA has a right to the unused apportionment of other Nevada Colorado River contract holders. The SNWA anticipates some of this water will be available for use in the planning horizon, and plans to utilize this water if and when it is available.

SNWA may also choose to leave a portion of Nevada's unused allocation in Lake Mead to help alleviate the impacts of drought conditions and avoid critical Lake Mead elevations.



Return-Flow Credits. The 1928 Boulder Canyon Project act defines all Colorado River apportionments in terms of “consumptive use.” Consumptive use is defined as water diversions minus any water that is returned to the Colorado River. These returns are also referred to as “return-flow credits.” With return-flow credits, Nevada can divert more than its 300,000 AFY apportionment, as long as there are sufficient flows returned to the Colorado River to ensure the consumptive or “net use” is no greater than 300,000 AFY.³

Return-flow credits constitute a significant portion of Southern Nevada’s permanent Colorado River resource, expanding SNWA’s Colorado River supply allocation by approximately 75 percent. Nevada’s Colorado River return-flows consist mostly of highly-treated wastewater that is returned to the Colorado River via the Las Vegas Wash and Lake Mead.

Flood Control Surplus. If Lake Mead is full or nearly full, the Secretary of the Interior can declare a flood control surplus, which allows the Lower Basin States to use Colorado River water in excess of their apportionment that would have been released to control potential flooding along the Colorado River system.⁴

Based on current Lake Mead water levels and climate variability in the Colorado River Basin, SNWA does not assume that flood control surplus water will be available during the planning horizon. However, SNWA will utilize this resource as a priority, when it is available.

Domestic Surplus. As discussed in Chapter 2, the Interim Guidelines defined both surpluses and shortages, and detailed provisions for water use during each condition. Under a “Domestic Surplus,” SNWA is allowed to consumptively use up to 400,000 AFY of Colorado River water when Lake Mead is above 1,145 feet. The 2015 Water Resource Plan does not assume availability or use of domestic surplus water during the planning horizon. However, SNWA will utilize this resource as a priority, when it is available.

Intentionally Created Surplus

In 2007, as part of the Interim Guidelines, SNWA entered into a series of agreements that ensure the availability and delivery of water resources developed under provisions for Intentionally Created Surplus (ICS).⁵ As discussed below, Tributary Conservation ICS and Imported ICS enable SNWA to develop some of its surface and groundwater rights that are located in Nevada, near the Colorado River. The SNWA will develop these rights by allowing them to flow into Lake Mead in exchange for Tributary Conservation ICS and Imported ICS credits.

Tributary Conservation and Imported ICS credits can be used during the year created and under any operating condition, including shortage.⁶ As required by the Interim Guidelines, these resources are subject to a one-time deduction of five percent for the benefit of Lake Mead system storage. As discussed in the “Temporary Resources” section on the following pages, water that is not used in the year it is created is converted to Extraordinary Conservation ICS. When needed, the credits will be withdrawn as Colorado River water through SNWA facilities at Lake Mead. Resources that are diverted can be returned to the system for return-flow credits.

Tributary Conservation ICS. The SNWA is allowed to develop a portion of its Muddy and Virgin River surface water rights that have a priority date that precedes the June 25, 1929 effective date of the 1928 Boulder Canyon Project Act (pre-1929 rights) as Tributary Conservation ICS. The SNWA can develop up to 50,000 AFY of Tributary Conservation ICS credits. To date, approximately 14,200 AFY of permanent rights have been acquired. In addition to its permanent rights, SNWA has acquired approximately 13,000 AFY of leased rights, with terms of use ranging from two to 20 years. The SNWA anticipates 30,000 AFY of Tributary Conservation ICS will be developed for use over the planning horizon.

Imported ICS. The SNWA can develop its Coyote Spring Valley groundwater rights as Imported ICS. These resources will be pumped from the aquifer and conveyed to Moapa Valley Water District and Muddy Valley Irrigation Company facilities via SNWA’s 15-mile pipeline. Under various agreements, these entities will convey the water to the Muddy River, which flows into Lake Mead, for ICS credit.

Up to 15,000 AFY of water can be developed as Imported ICS. The SNWA has acquired 9,000 AFY of permitted groundwater rights in Coyote Spring Valley. The SNWA anticipates 9,000 AFY of Imported ICS will be developed over the planning horizon.

Las Vegas Valley Groundwater Rights

All surface water and groundwater rights in the state of Nevada are administered by the Nevada State Engineer and fall under the purview of Nevada Water Law.⁷

Of the seven SNWA member agencies, the LVVWD and North Las Vegas have permanent groundwater rights totaling 40,629 and 6,201 AFY, respectively. These two entities operate about 100 permitted municipal wells in the Las Vegas Valley.

The municipal groundwater rights of the SNWA member agencies are among the most senior groundwater rights in the Las Vegas Valley. As such, these rights are protected even as new rights were granted to other users. Groundwater resources remain a critical component of the SNWA Resource Plan.

Water Reuse

The term water reuse generally means to recycle wastewater to support a secondary use. In Southern Nevada, nearly all water used indoors is recycled for either direct or indirect reuse. Direct reuse involves capturing, treating and reusing wastewater flows for non-potable uses such as golf course or park irrigation. Indirect reuse consists of recycling water by way of treatment and release to the Colorado River for return-flow credits.

The City of Boulder City, City of Las Vegas, Clark County Water Reclamation District, City of Henderson and City of North Las Vegas each operate wastewater treatment facilities that contribute to the region's direct and indirect reuse.

Approximately 22,000 AFY of water is directly reused in Southern Nevada for golf course irrigation, power plant cooling, sand and gravel operations, and municipally operated common area landscape irrigation. Indirect reuse accounts for return-flow credits associated with all SNWA Colorado River water resources.



The Colorado River Basin

Colorado River operations and water use are governed by a series of contracts, regulatory guidelines, federal laws, compacts, a treaty with Mexico, court decisions and decrees—collectively known as the “Law of the River.” The 1922 Colorado River Compact divided the Colorado River Basin into two divisions—the Upper Division and the Lower Division, allocating 7.5 million acre-feet per year to each. As part of the 1928 Boulder Canyon Project Act and the 1948 Upper Colorado River Basin Compact, the Upper and Lower Divisions divided their respective share amongst individual states within each division. In addition, 1.5 MAFY was allocated to Mexico as part of a 1944 treaty.⁸

The Compact was forged in a time of abundance, during one of the wettest periods in recorded history. More recent reviews, modeling, and studies of Colorado River flows have determined an imbalance in long-term Colorado River resources and future demands. State and federal partners agree that there is a strong potential for significant supply and demand challenges in coming decades, and are working together to offset potential water supply reductions.

Intentionally Created Surplus

The Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines) were adopted in 2007 by the Secretary of the Interior. Among other things, the Interim Guidelines established requirements for the creation, delivery, and accounting for a new form of surplus called Intentionally Created Surplus (ICS).

ICS was instituted to encourage the efficient use and management of Colorado River water, and to increase the water supply in Colorado River system reservoirs. The creation of ICS helps to reduce the likelihood, magnitude and duration of shortages in the Lower Basin.

Efforts to help stabilize Lake Mead water levels is of key importance to the SNWA—a new intake has been constructed and new pumping facilities are planned to allow for deeper water access in the event that SNWA’s upper intakes become inoperable.

While direct reuse of Colorado River water may have advantages over indirect reuse in terms of lower pumping cost, additional direct reuse does not extend Southern Nevada’s Colorado River supply. This is because an increase in direct reuse will reduce the amount of water available for indirect reuse through return-flow credits by a similar amount.

As shown in Figure 3.1, approximately 40 percent of water used in the SNWA service area results in highly-treated wastewater. Of that, approximately 99 percent is recycled.

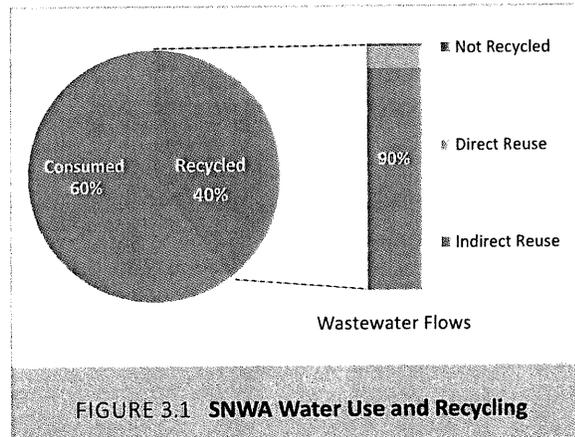


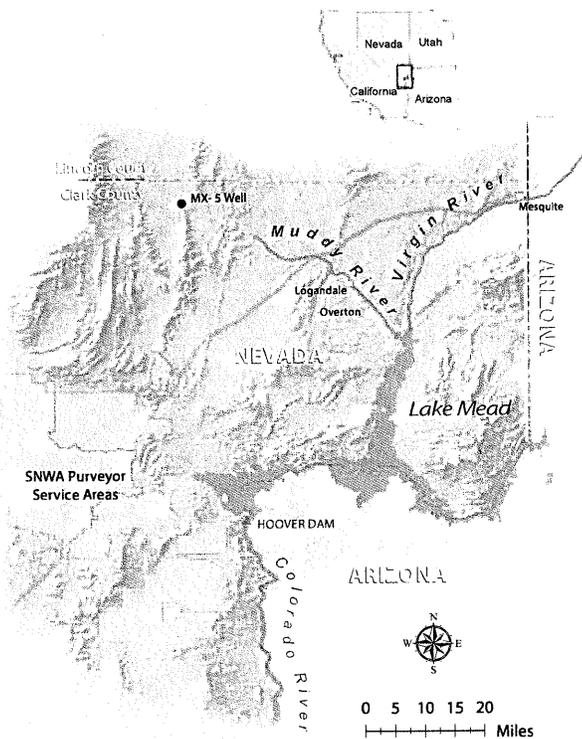
FIGURE 3.1 SNWA Water Use and Recycling

Reuse of In-State Groundwater Resources

The water resources described in this chapter have generally been quantified and discussed based on consumptive use volumes. Water accounting for return-flow credits, which extends SNWA’s diversions of Colorado River water, includes provisions for the reuse of imported in-state groundwater resources. Under these provisions, in-state groundwater resource are similarly extended by approximately 75 percent.

TEMPORARY RESOURCES

Beginning in the early 1990’s and continuing today, SNWA has worked closely with other basin states to maximize opportunities for flexible use of Colorado River water. Through local and interstate arrangements, SNWA has acquired a number of temporary resources that serve as an important management tool—these resources can be used to meet potential short-term gaps between supply and demand, serving as a bridge to meet demands while other future resources are being developed. In some cases, temporary resources can be used to offset reductions in permanent supplies due to shortages.



Map of Virgin/Muddy Rivers & Coyote Spring

For the purpose of this plan, “Temporary Resources” are defined as banked resources. As part of its overall water resource strategy, SNWA reserves water in years when Nevada’s Colorado River allocation exceeds the valley’s demands. These resources are “banked” for future use in the form of storage credits. The volume of storage credits can change over time based on continued storage and use of supplies. As discussed below, SNWA stores banked resources locally, as well as through banking agreements with other states.

Southern Nevada Water Bank

As of 2014, SNWA has accumulated approximately 337,000 acre-feet of water stored in the Las Vegas Valley aquifer for future use through an agreement with LVVWD. SNWA may recover water banked under this agreement in any water supply condition, including shortage. This plan assumes a maximum recovery rate of 20,000 AFY.⁹

California Water Bank

Between 2004 and 2012, SNWA entered into various agreements that allow it to store Nevada’s unused Colorado River water in California. As of 2014, Nevada has banked more than 205,000 acre-feet of water in California. This plan assumes a recovery up to 30,000 AFY during normal and shortage conditions, subject to agreement terms.¹⁰

Arizona Water Bank

In 2013, SNWA and the Colorado River Commission of Nevada approved an amendment to the 2001 water banking agreement with the Arizona Water Banking Authority.¹¹ Based on the amended agreement, SNWA stored approximately 601,000 acre-feet of Colorado River water underground in Arizona’s aquifers for SNWA’s future use. Additional water can be banked on a pay-as-you-go basis up to 1.25 million acre-feet.

For SNWA to recover this stored water, Arizona will utilize the banked water and forego use of a like amount of Colorado River water. The SNWA will then divert the water from facilities at Lake Mead. SNWA can recover up to 40,000 AFY during any water supply condition and may recover up to 60,000 AFY during a declared shortage.

Intentionally Created Surplus

The SNWA has participated in a number of efforts to expand its portfolio of temporary resources under provisions specified in the Interim Guidelines for Intentionally Created Surplus.

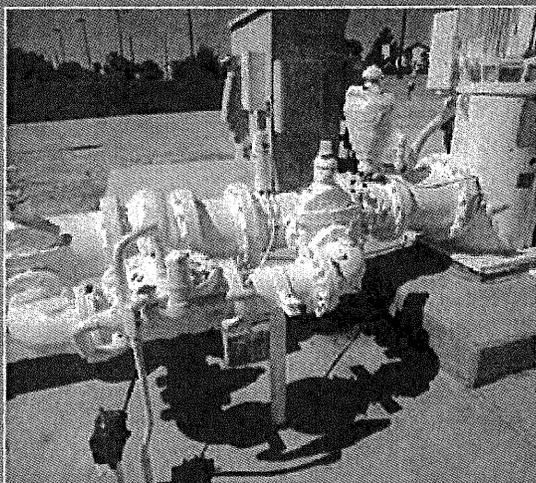
As discussed earlier in this chapter, the Interim Guidelines created several forms of Intentionally Created Surplus: Tributary Conservation ICS and Imported ICS (discussed under “Permanent Resources”), as well as System Efficiency ICS and Extraordinary Conservation ICS. In 2013, an additional form of ICS was created as part of an international pilot program, referenced here as Bi-National ICS.

System Efficiency ICS. In 2007, SNWA collaborated with the Department of the Interior and other project partners to fund construction of the Warren H. Brock Reservoir. This System Efficiency ICS project provides Southern Nevada with 400,000 acre-feet of ICS credits; no more than 40,000 acre-feet are available for consumptive use each year through 2036. These credits are stored in Lake Mead, helping to bolster Lake Mead water levels. System Efficiency ICS can not be used under a Colorado River shortage condition.

In 2009, Nevada also collaborated with municipal water agencies in California, Arizona and the U.S. Bureau of Reclamation in a pilot operation of the Yuma Desalting Plant. The plant was constructed in 1992 to treat brackish agricultural drainage water in the United States for delivery to Mexico as part of its treaty obligation. Flood damage in 1993 caused the facility to cease operations. As part of the 2009 collaborations, the facility was operated at one-third capacity to collect data on operational viability for long-term use. In exchange for funding the pilot test, the states received System Efficiency ICS. SNWA’s share was 3,050 acre-feet. These resources are temporarily stored in Lake Mead as System Efficiency ICS and can be used during normal operating conditions.



Recharge & Banking



Artificial Recharge Well

LVVWD began storing or “banking” water in the Las Vegas Valley in the late 1980’s. In Southern Nevada, banking is accomplished through artificial recharge or in-lieu recharge.¹² Artificial recharge involves the direct injection of treated unused Colorado River water into the local groundwater aquifer; in-lieu recharge is accomplished by not pumping non-revocable groundwater rights to acquire storage credits that are available for future use.

The LVVWD recharge/recovery wells have a total injection capacity of over 100 million gallons per day making it the largest recharge program of its kind in the world. The SNWA administers the Las Vegas Valley Groundwater Management Program, which includes a program to purchase artificial recharge credits and ensure the associated volume remains in the aquifer to protect against unreasonable water level declines.¹³

Extraordinary Conservation ICS. Tributary Conservation and Imported ICS credits are converted to Extraordinary Conservation ICS credits if they are not used in the year they are created. Under the Interim Guidelines, the SNWA can accumulate up to 300,000 acre-feet of credits. These ICS credits are banked in Lake Mead and are reduced by 3 percent each year to account for evaporation losses.

Unlike Tributary Conservation and Imported ICS, Extraordinary Conservation ICS is not available during declared shortages. As of 2014, SNWA has stored approximately 162,000 acre-feet of Extraordinary Conservation ICS credits. Due to restrictions during shortage, SNWA does not assume use of this resource during the planning horizon. However, the SNWA will utilize this resource as needed if and when it is available.

Bi-National ICS. In 2013, the United States and Mexico established Minute 319 to the 1944 U.S./Mexico water treaty. The historic Minute 319 and related agreements define Colorado River deliveries to Mexico under both high- and low-reservoir conditions. It also allows Mexico to defer its Colorado River water deliveries and to store water in Lake Mead. The agreement helps to maintain Lake Mead water levels, delay potential shortages, and creates additional certainty for all water users particularly during shortages.

Minute 319 also allows the SNWA to invest in Mexico’s infrastructure improvements in exchange for ICS credits. This accord is part of a pilot program that also created a “pulse flow” to the Colorado River Delta in 2014. Before the expiration of the Minute, SNWA will obtain 23,750 acre-feet of Bi-National ICS; these credits cannot be used during shortage conditions.

FUTURE RESOURCES

For the purpose of this plan, “Future Resources” are defined as those resources expected to be available to SNWA at some point during the planning horizon. In some instances, water resources are quantified subject to water right permitting, while the availability and development of others requires further research and analysis.

Water resource conditions have changed significantly over the years for many of the western states, including Nevada. During that time, SNWA has worked to implement water resource strategies that maximize use of permanent and temporary resources, delaying the development of costly facilities that may not be needed in the future.

Development of the Future Resources discussed below will require additional environmental permitting as well as project design and construction of water delivery infrastructure. In some cases, litigation will be necessary. For planning purposes, SNWA estimates a 10-year lead time is needed from project authorization by its Board of Directors to first water delivery.

In-State Groundwater

The SNWA has a number of groundwater permits and applications in southern and eastern Nevada based on applications filed by the LVVWD in 1989. Many of these applications have been permitted by the Nevada State Engineer in accordance with Nevada Water Law, while others require further review and analysis. Figure 3.2. depicts the hydrographic areas associated with these permits/applications. Below is a summary of each resource and its current standing.

Garnet and Hidden Valleys. The SNWA has permitted rights to 2,200 AFY of groundwater in Garnet and Hidden valleys. The majority of these rights have been leased to dry-cooled power plants located in Garnet Valley. The remaining resources are anticipated to be developed as needed within these valleys.¹⁴

Three Lakes Valley (North and South) and Tikaboo Valley (North and South). Between 2003 and 2006, the Nevada State Engineer issued a series of rulings granting SNWA rights to 10,605 AFY of groundwater in these basins. The SNWA is working to develop options for delivery of 8,018 AFY of the groundwater rights from Three Lakes Valley North and South and Tikaboo Valley South into the northwest portion of the Las Vegas Valley.

Indian Springs. The SNWA holds applications filed in 2004 for 16,000 AFY of groundwater in Indian Springs. The SNWA intends to pursue the development of these resources when needed to help meet long-term demands.

Delamar, Dry Lake, Cave and Spring Valleys

In 2012, the Nevada State Engineer issued a ruling on SNWA’s 1989 groundwater applications in Spring, Delamar, Dry Lake and Cave valleys. The ruling granted SNWA 61,127 AFY from Spring Valley and 22,861 AFY from Delamar, Dry Lake and Cave valleys.

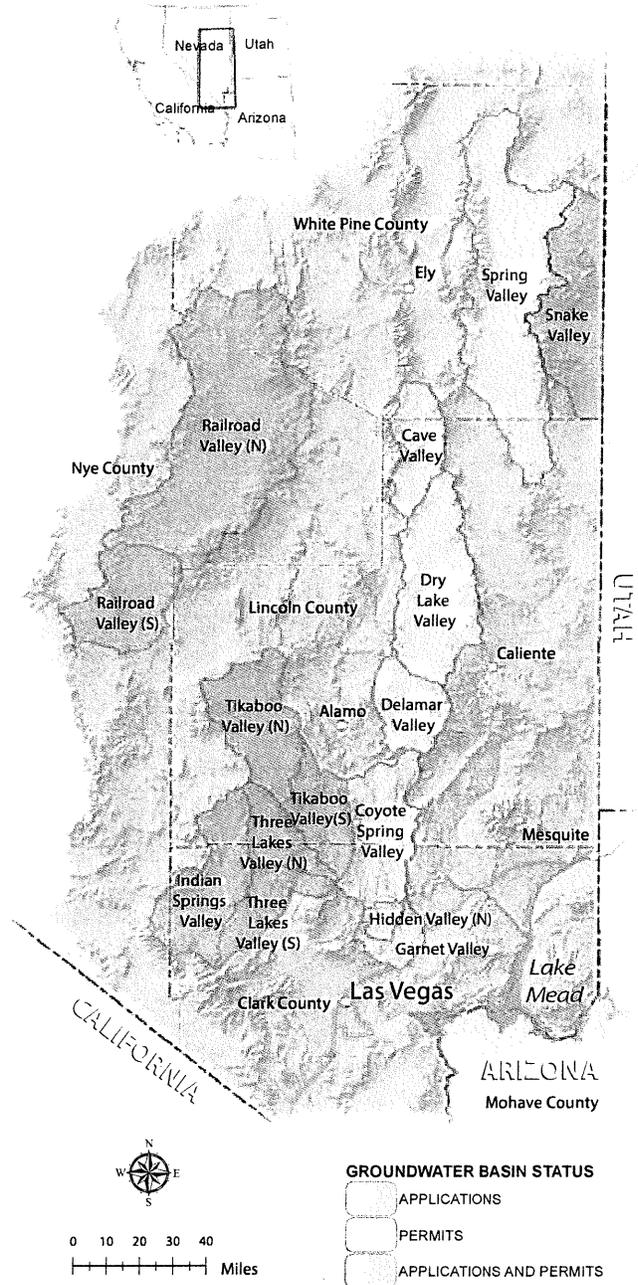
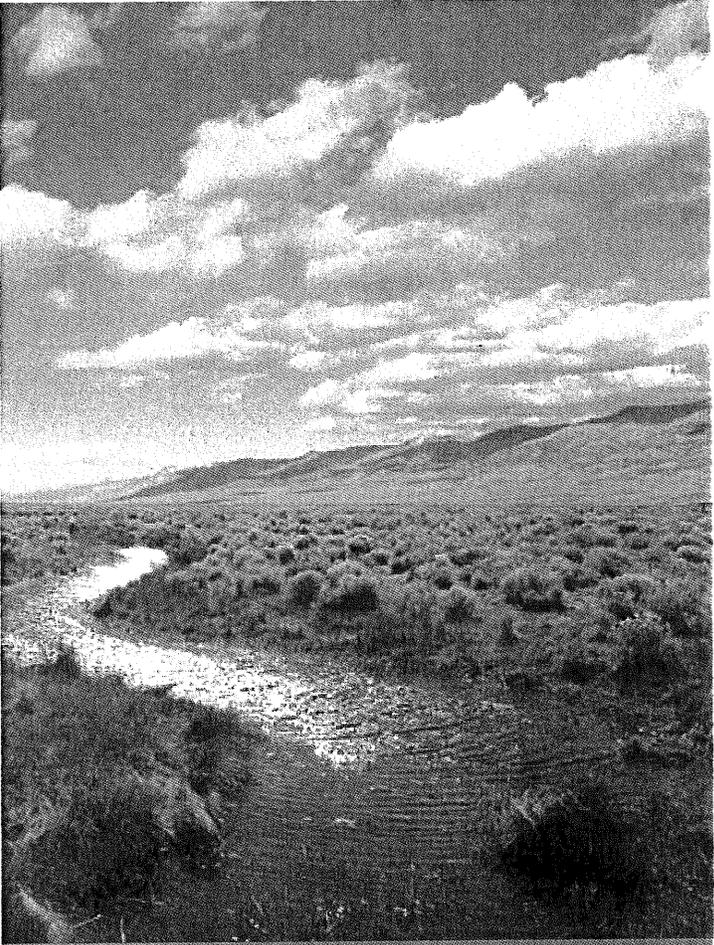


FIGURE 3.2 In-State Groundwater Resources



Nevada Water Law

Nevada Water law is considered one of the most comprehensive water laws in the west.¹⁵

Unlike Colorado River water, which is managed by the U.S. Bureau of Reclamation, groundwater and surface water in Nevada (excluding the Colorado River) is administered and managed by the state. Nevada’s first water law was passed in 1866 and has been amended many times since then.

The Nevada Division of Water Resources, also known as the Office of the State Engineer, regulates these supplies. The Office was created in 1903 to protect existing water rights and to bring about a better method for utilizing the state’s water resources.

Today, Nevada Water Law serves the people of the state by providing the rules for acquiring and maintaining a water right, as well as guidelines for the State Engineer in managing the state’s valuable water resources. Nevada water law follows the doctrine of prior appropriation, or “first in time, first in right”—meaning the first person to file on a water resource for beneficial use is typically considered first for a permanent right to water, subject to the Nevada State Engineer’s determination of available appropriated water.

The 2012 ruling requires the 1989 groundwater permits in Spring Valley to be developed in three stages, limited to 38,000 AFY for the first eight years, 50,000 AFY for the next eight years, and 61,127 AFY in the years thereafter. In addition, SNWA committed to the U.S. Bureau of Land Management that groundwater development in Cave Valley would occur in three stages, limited to 2,600 AFY for the first five years, 3,900 AFY for the next five years, and 5,235 AFY in the years thereafter. Although the permits are subject to ongoing litigation, the SNWA continues to maintain its permitted rights and performs hydrologic and biologic monitoring to satisfy reporting requirements as set forth in State Engineer approved monitoring plans.

Additionally, SNWA also holds groundwater rights to more than 8,000 AFY in Spring Valley that were acquired through the acquisition of its Great Basin Ranch holdings (see Chapter 5).The SNWA intends to pursue development of these resources when needed to supply future demands.

Snake Valley

The SNWA currently holds applications for approximately 50,678 AFY in Snake Valley. The Lincoln County Conservation, Recreation, and Development Act of 2004 require the states of Nevada and Utah to reach an agreement regarding the division of water resources in Snake Valley, which is located in portions of both states. To date, an agreement has not been signed by Utah and SNWA’s applications remain pending before the Nevada State Engineer. The SNWA intends to pursue development of these resources when needed to supply future demands.

Railroad Valley Groundwater

The SNWA holds applications filed in 1989 for 111,496 AFY of groundwater in Railroad Valley North and South. The SNWA intends to pursue development of these resources when needed to supply future demands.

Virgin River/Colorado River Augmentation

The SNWA was permitted 113,000 AFY of Virgin River water rights in 1994. Under an agreement, SNWA transferred 5,000 AFY to the Virgin Valley Water District. In accordance with the 2007 Seven States’ Agreement, the SNWA has agreed to suspend development of these Virgin River surface water rights in exchange for agreement with the other

Colorado River Basin states to cooperatively pursue the development of 75,000 AFY of permanent water supplies to augment the Colorado River for Nevada.¹⁶

Colorado River Transfers/Exchanges

In concept, water transfers involve moving water resources from willing sellers to willing buyers. There are a variety of ways in which this can occur: interbasin, intrastate and interstate transfers.

Full-scale transfers and exchanges among Colorado River users could involve transfers/exchanges associated with participation in desalination or agricultural fallowing projects. While Colorado River transfers and exchanges are an important future resource for Southern Nevada, they will require considerable discussion, agreements and potential regulations to implement.

The SNWA continues to collaborate with other Colorado River users to evaluate the potential for future transfer and exchange projects. Recent activities include SNWA's participation in the pilot operation of the Yuma Desalting Plant and ongoing opportunities for seawater desalination in Mexico.

WATER CONSERVATION

Water conservation is a resource. However, unlike typical "wet" resources, which are acquired and conveyed to meet demands, conservation reduces existing and future demands and extends available supplies.

The SNWA's comprehensive five-year water conservation plan details the community's water conservation goals and progress towards those goals over time.¹⁷ It also includes a complete description of water conservation programs and projected water savings. The following provides a brief overview of how conservation is measured and implemented in Southern Nevada.

Measuring Water Conservation and Use

Gallons Per Capita Per Day or GPCD is a metric used by many communities to measure water uses. It is also an effective tool to measure efficiency over time. GPCD varies across communities due to a number of factors, including differences in climate, demographics, water-use accounting practices and economic conditions. For planning purposes and to monitor conservation progress, GPCD is weather-normalized to account for weather variations that differ from the region's 30-year average. As shown in figure 3.4, SNWA calculates two variants of GPCD: Total System GPCD and Net GPCD.

Consumptive vs. Non-Consumptive Uses

Approximately 60 percent of all water delivered by SNWA is consumed, primarily for landscape irrigation and cooling. Unlike water used indoors, water used outdoors and for cooling is lost to the system as it cannot be treated and reused. As a result, outdoor uses continue to be a primary focus area for future conservation gains. Since 66 percent of all metered uses are by residential and common area use (Figure 3.3), this is the principal water use sector that is targeted for conservation actions.

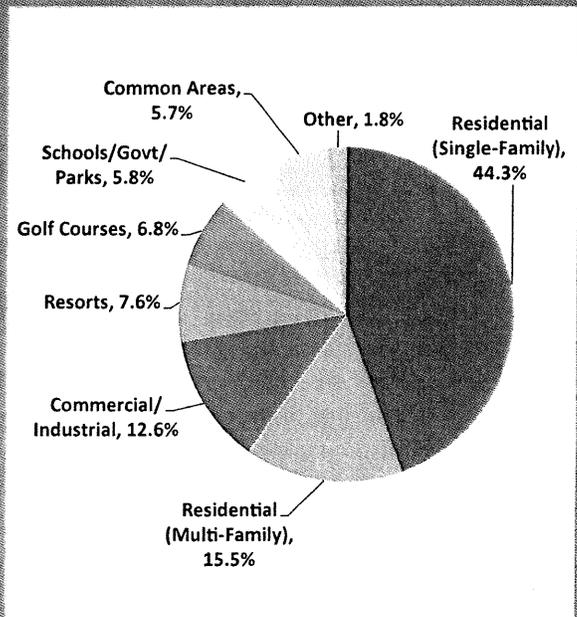
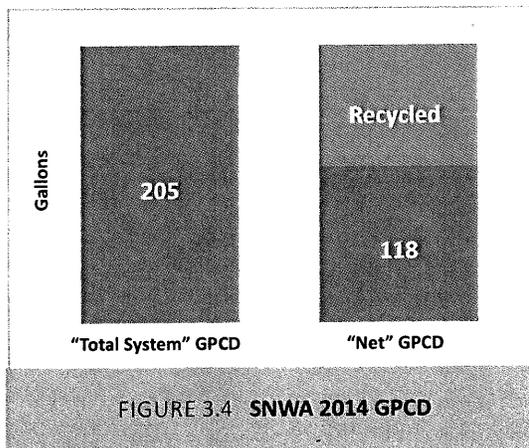


FIGURE 3.3 Municipal Metered Use (2014)

Total System GPCD: is calculated by dividing total water “delivered” (all sources) by total resident population served per day (water delivered/ resident population/365 days = Total System GPCD). The SNWA uses Total System GPCD as a benchmark for setting conservation goals and measuring achievements.

Net GPCD: is calculated by dividing total water “consumed” (all sources) by total residential population served per day (water consumed/ resident population/365 = Net GPCD). Net GPCD recognizes that not all delivered water is consumed; this is because SNWA recycles nearly all indoor water use, either through return-flow credits or direct reuse. Net GPCD more accurately reflects the community’s use of water resources and provides a more comparable comparison to other communities.



Conservation Goals

Since its inception in 1991, SNWA and its member agencies have worked collaboratively to set and achieve aggressive water conservation goals. These efforts produced significant decreases in per person water use as shown in Figure 3.4. The community is currently ahead of schedule to achieve its water conservation goal of 199 Total System GPCD by 2035. As recommended by SNWA’s 2014 Integrated Resource Planning Advisory Committee, a new conservation target will be evaluated after the current goal has been achieved.

While future conservation gains are expected to occur over the planning horizon, these gains are likely to be realized more slowly than in previous years as higher levels of efficiency—over and above what has already occurred—become more difficult to achieve. In the long-term there is also anticipated to be upward pressure on water use as a result of warming due to climate change.

Conservation Tools

The SNWA operates one of the largest and most aggressive water conservation programs in the nation. This program includes a combination of education, incentives, regulation and water pricing. Because the biggest potential for water savings comes from reductions in consumptive water demands, primarily in the form of outdoor water uses such as landscape irrigation, the majority of conservation tools are designed to achieve results in these areas.

- **Education:** Education is an integral element of SNWA’s water conservation strategy. It includes both formal and informal education, from tips and tutorials to improve efficiency, to class offerings on water-smart landscaping practices for both resident and landscape professionals
- **Incentives:** The SNWA operates one of the largest incentive programs in the nation. Since 2000, SNWA has invested more than \$200 million in incentive programs, reducing demand by more than 10 billion gallons annually.
- **Regulation:** Through collaboration, SNWA member agencies and Clark County have adopted a suite of land use codes, ordinances and water use policies to ensure more efficient use of water in Southern Nevada. These include time-of-day and day-of-week watering restrictions, water waste restrictions and limitations on the installation of new turf in residential and commercial development.
- **Water Pricing:** SNWA member agencies implement conservation rate structures that charge higher rates for water as use increases. These rate structures encourage efficiency, without jeopardizing water affordability for essential uses.

CHAPTER SUMMARY

A number of factors can influence the timing, use and availability of water resources. Having a diverse portfolio of resources allows SNWA to assess its overall water resource options and to make appropriate decisions regarding which resources to bring on-line when necessary. This approach provides flexibility in adapting to changing supply and demand conditions, and helps ensure that community water demands can be met reliably.

The SNWA Water Resource Portfolio includes a mix of Permanent, Temporary and Future resources that will be used in tandem with continued conservation efforts to meet demands over the 50-year planning horizon. Some of these resources can be used under any Colorado River operating condition, while others are subject to limitations (such as staged pumping or restrictions during shortage).

To maximize the use and availability of existing supplies, SNWA continues to make water conservation a priority. The community is currently ahead of schedule to achieve its 199 Total System GPCD conservation goal by 2035 and will evaluate additional targets once the current goal is realized. In the meantime, SNWA continues to work with other Colorado River water users to pursue flexible use of Colorado River supplies, including augmentation and storage projects that are designed to increase supplies and bolster Lake Mead water levels. Together, these efforts will provide flexibility in meeting demands as described in Chapter 4.

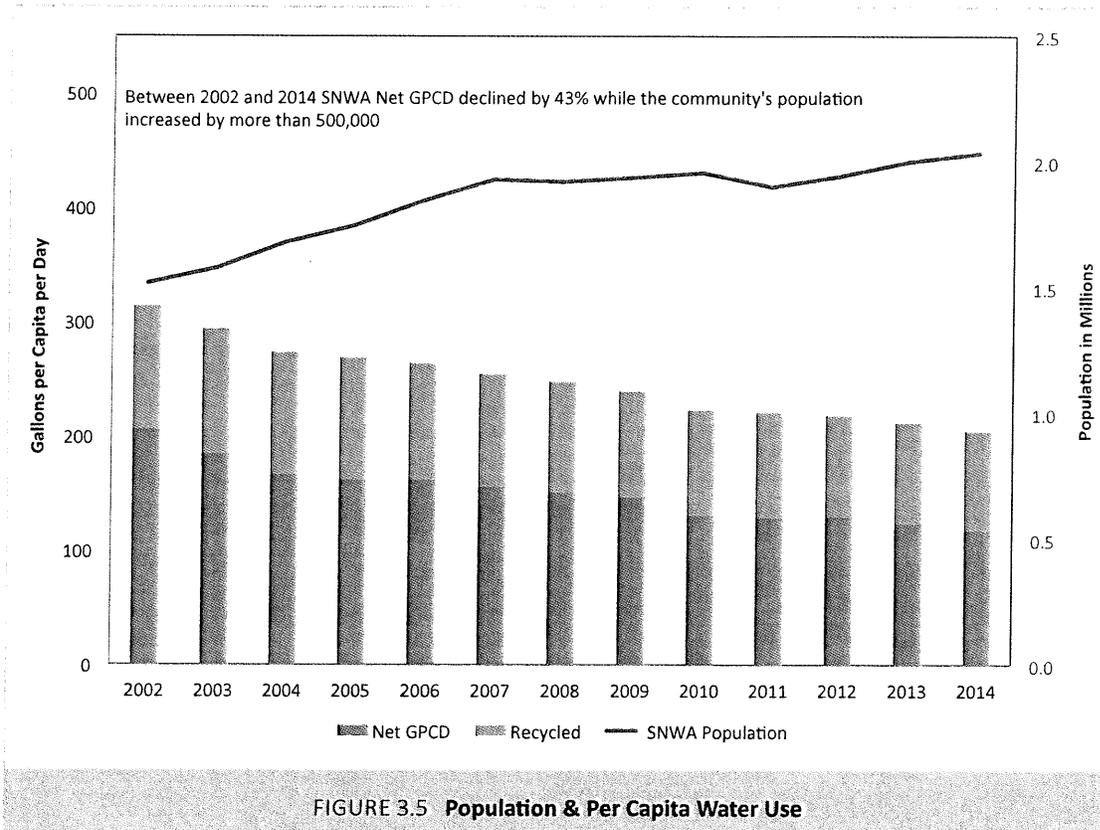
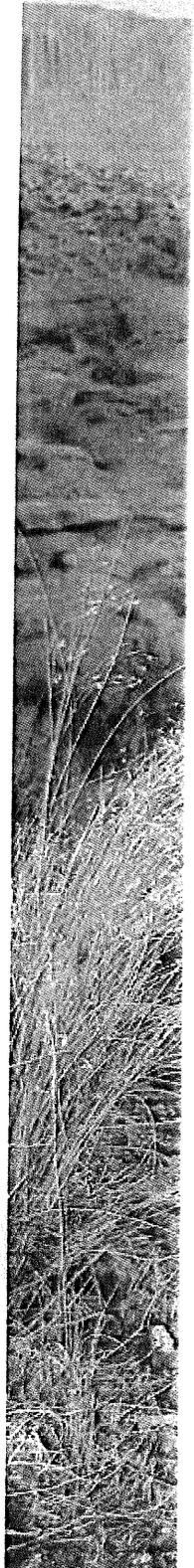


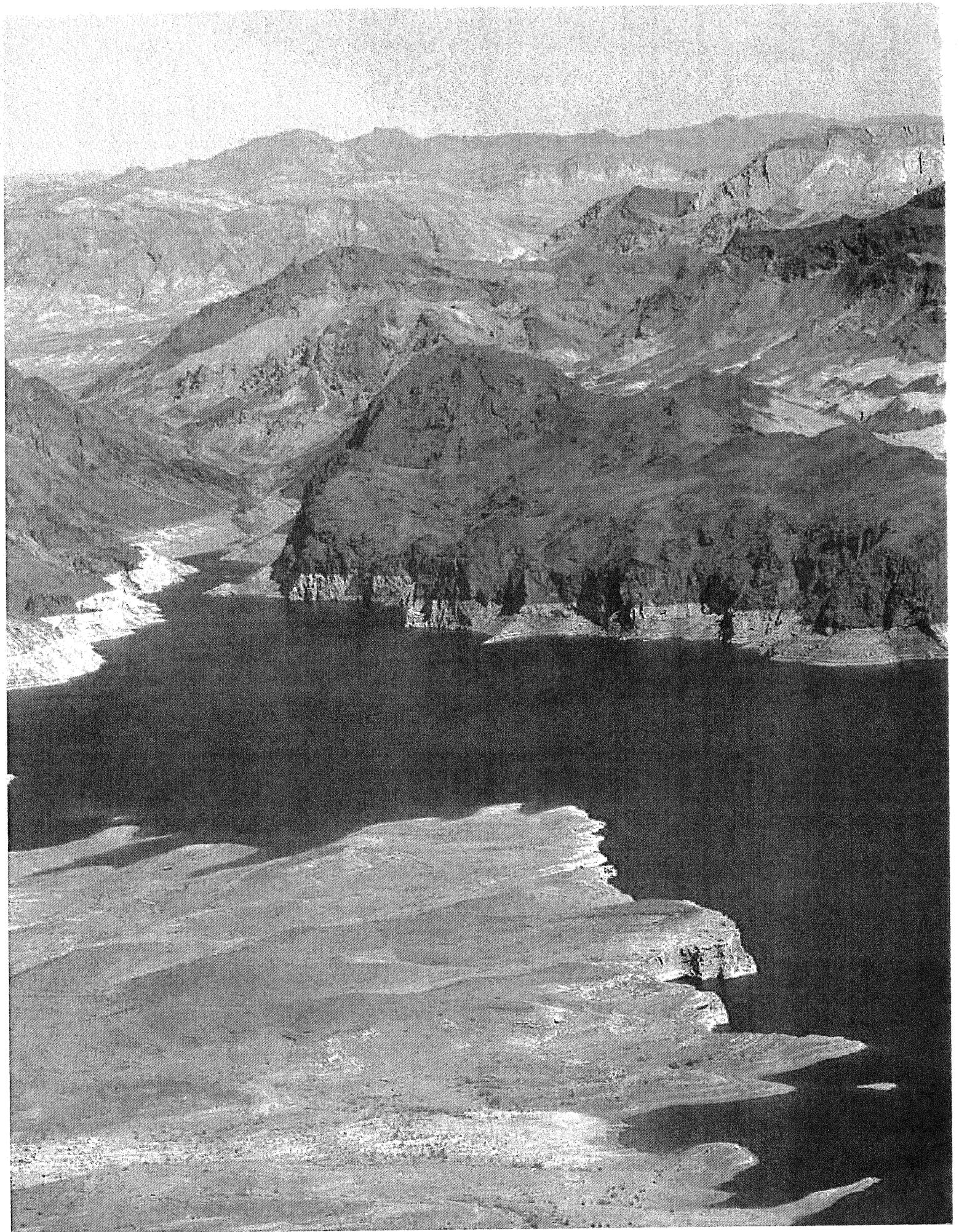
FIGURE 3.5 Population & Per Capita Water Use



ENDNOTES

- 1 "Contract with the Southern Nevada Water Authority, Nevada for the Delivery of Colorado River Water," effective March 2, 1992; between Secretary of Interior, Colorado River Commission and Southern Nevada Water Authority." The contract was amended in 1994: "Amended and Restated Contract with the Southern Nevada Water Authority, Nevada for the Delivery of Colorado River Water," effective November 17, 1994.
- 2 Nevada Colorado River consumptive use entitlement available for SNWA and the SNWA purveyor members is estimated to be 272,205 acre-feet/year with 27,795 acre-feet/year estimated to be allocated to Nevada non-SNWA contractors. "Listing of Individual Water Entitlements in the State of Nevada," listing as of January 2015, U.S. Bureau of Reclamation, <http://www.usbr.gov/lc/region/g4000/contracts/entitlements/Nevada.pdf>.
- 3 Nevada receives credits for Colorado River return flows from the Las Vegas Wash based upon a procedure originally agreed to by U.S. Bureau of Reclamation (BOR) and the Colorado River Commission of Nevada in 1984. This procedure has been updated periodically through consultation with the BOR, SNWA and Colorado River Commission of Nevada; the most recent update in 2007 allows full consumptive use of groundwater imported to the Las Vegas Valley.
- 4 The 1964 Supreme Court Decree in *Arizona v. California* defines "surplus" as follows: "If sufficient mainstream water is available for release as determined by the Secretary, to satisfy annual consumptive use [in the lower Division states of Arizona, California and Nevada] in excess of 7,500,000 acre-feet, such excess consumptive use is surplus."
- 5 According to Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead (Interim Guidelines), Lower Basin States of Arizona, California and Nevada can create credits for Colorado River or non-Colorado River water that has been conserved by users in the Lower Basin (known as intentionally created surplus or ICS). ICS credits can be used in the year they are created or be stored in Lake Mead and made available for release from Lake Mead at a later time, subject to Operating (Shortage) conditions at the time of release.
- 6 "Developed Shortage Supply ("DSS")" shall mean water available for use by a contractor under the terms and conditions of a Delivery Agreement and Section 4 of Interim Guidelines in a Shortage Condition, under Article III(B)(3) of the Consolidated Decree. During a year when the Secretary has determined a shortage condition, the Secretary shall deliver Developed Shortage Supply (DDS) available in a contractor's DSS Account at the request of the contractor, subject to the provisions of Interim Guidelines' Section 4.C.
- 7 Nevada Revised Statutes, Chapters 532, 533, and 534.
- 8 The 1944 United States-Mexico Treaty for Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande. The treaty guarantees Mexico the delivery of 1.5 million AFY of Colorado River water plus 200,000 AFY of any surplus Colorado River water. In 1974, an international agreement interpreting the 1944 Treaty guaranteed Mexico water of the same quality as that being used in the United States.
- 9 "Cooperative Agreement for the Banking of Water in the Las Vegas Valley Groundwater Basin between the Southern Nevada Water Authority and the Las Vegas Valley Water District," effective February 21, 2006. The artificial recharge program in the Las Vegas Valley was initiated in 1987 by the Las Vegas Valley Water District.
- 10 "Second Amended Operational Agreement among the Metropolitan Water District of Southern California (Metropolitan), Colorado River Commission of Nevada and the Southern Nevada Water Authority (SNWA)," effective October 24, 2012 and "Storage and Interstate Release Agreement among the United States of America, the Metropolitan Water District of Southern California, the Southern Nevada Water Authority, and the Colorado River Commission of Nevada," effective October 27, 2004. The amount of developed and released water stored in Metropolitan's SNWA Interstate Account to SNWA depends on timing of SNWA's request and Colorado River operating conditions at the time of such request.
- 11 "Third Amended and Restated Agreement for Interstate Water Banking among the Arizona Water Banking Authority and the Southern Nevada Water Authority and the Colorado River Commission of Nevada," effective May 20, 2013 and "Storage and Interstate Release Agreement among the United States of America, the Arizona Water Banking Authority, the Southern Nevada Water Authority, and the Colorado River Commission of Nevada," effective December 18, 2002.
- 12 "In-Lieu Recharge Order," Order No. 1176, December 10, 2004, State of Nevada, Office of the Nevada State Engineer.
- 13 Las Vegas Valley Groundwater Management Program information is available at <http://www.lasvegasmmp.com/html/>.
- 14 SNWA has 2,200 AFY of groundwater permits in Garnet and Hidden valleys as a combined duty. SNWA is currently leasing a maximum of 1,450 AFY, not to exceed 13,000 acre-feet over any ten year rolling period, for power generation in Garnet Valley. The leases therefore commit 1,300 AFY over a ten year rolling period. The remaining 900 AFY has been made available to the City of North Las Vegas for use in Garnet Valley.
- 15 Nevada Revised Statutes, Chapters 532, 533 and 534.
- 16 "Agreement Concerning Colorado River Management and Operations," effective April 23, 2007; between Arizona Department of Water Resources, Colorado River Board of California, Colorado Water Conservation Board, Governor's Representative for the State of Colorado, Colorado River Commission of Nevada, Southern Nevada Water Authority, New Mexico Interstate Stream Commission, Utah Division of Water Resources, Utah Interstate Streams Commissioner, and Wyoming State Engineer.
- 17 "Southern Nevada Water Authority Water Conservation Plan, 2014-2018," 2014, SNWA.

This page intentionally left blank



MEETING FUTURE DEMANDS

THIS CHAPTER ADDRESSES HOW SNWA PLANS TO RELIABLY MEET PROJECTED WATER DEMANDS UNDER A RANGE OF SUPPLY AND DEMAND CONDITIONS.

INTRODUCTION

As described in the preceding chapters, water supply conditions and demands can be influenced by a number of factors that can change in unpredictable ways, including changes associated with economic conditions, water conservation progress and climate variability. As SNWA prepared its 2015 Water Resource Plan, the organization considered two overriding issues related to water supply and demands:

- The potential impact of continued drought and climate change on water resource availability, particularly for Colorado River supplies; and
- The potential impact of economic conditions, climate change and water use patterns on long-term water demands.

To address these uncertainties, SNWA developed a series of planning scenarios that represent Southern Nevada's future water resource needs under variable supply and demand conditions. This approach helps to inform water resource planning and water resource development efforts, and demonstrates how the SNWA plans to meet future needs, even if conditions change significantly over time.

As described in the sections below, all of the planning scenarios presented in this chapter demonstrate SNWA's ability to meet the community's long-term projected water needs through adaptive use of its Water Resource Portfolio.

SUPPLY AND DEMAND

Water resource planning is based on two key factors: supply and demand. Supply refers to the amount of water that is available or that is expected to be available for use. Demand refers to the amount of water expected to be needed in a given year.

Water demand projections are typically based on population forecasts and include assumptions about future water use, such as expected achievements toward water conservation goals. Precise accuracy from year to year rarely occurs in projecting demands, particularly during periods of significant social and

economic changes. While making assumptions is a necessary part of the planning process, assumptions are unlikely to materialize exactly as projected. Likewise, climate variations, policy changes and/or the implementation of new regulations can also influence water resource availability over time.

The scenarios presented in this chapter address these uncertainties by considering a wide-range of supply and demand possibilities. Rather than considering a single forecast, the scenarios bracket the range of reasonable conditions that may be experienced over the 50-year planning horizon. Key factors evaluated include possible shortages of Colorado River supplies, as well as variation in future demands. This is a conservative approach that reflects the uncertainties presented in the current planning environment.

The following describes the water demand projections and water supply conditions that were considered as part of scenario development.

Water Demand Projections

The planning scenarios developed as part of this plan include two water demand projections: an upper water demand projection or a lower water demand projection. The lower water demand projection (Figures 4.1 and 4.3) was derived from a population forecast and expected conservation achievements. The Clark County population forecast was obtained from the University of Nevada Las Vegas Center for Business and Economic Research (CBER). This forecast is also used in local transportation planning by the Regional Transportation Commission and is accepted by the Southern Nevada Regional Planning Coalition for use in regional planning. The forecast is based upon CBER's working knowledge of the economy and the nationally recognized Regional Economic Model Incorporated (REMI).

The lower water demand projection was derived using the 2014 CBER population forecast through 2050 and trending through the year 2065. The historical share of Clark County population attributable to the SNWA service area was multiplied by 2013 water-

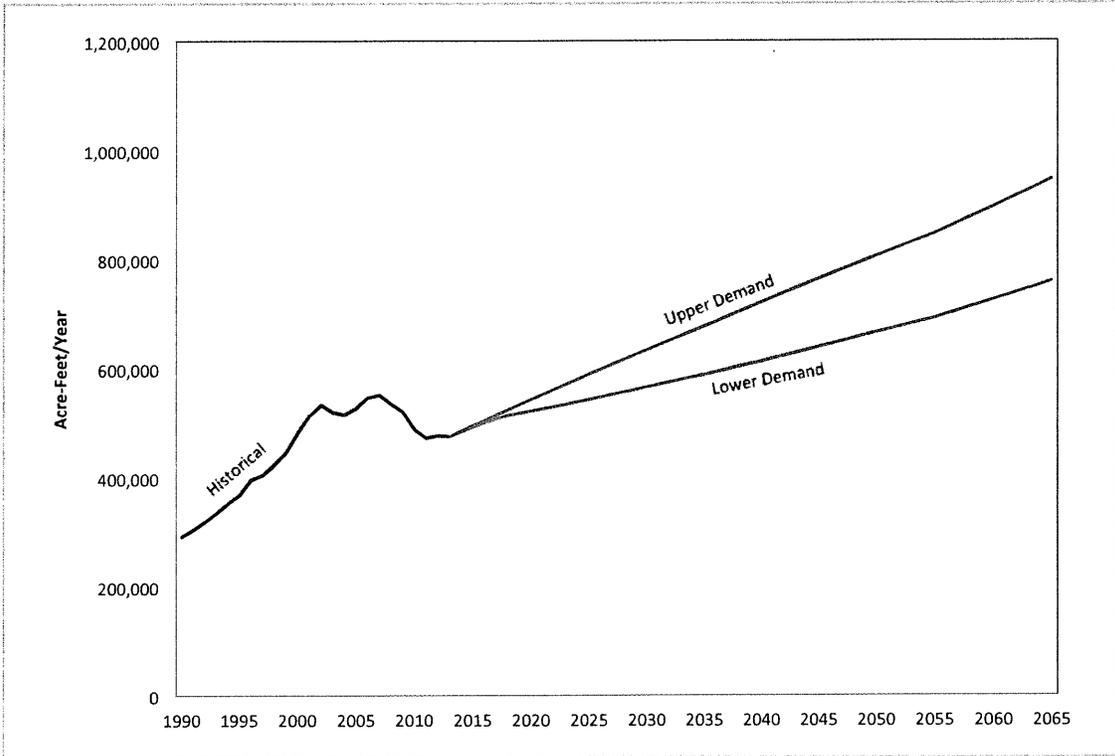


FIGURE 4.1 Historical and Projected SNWA Water Demand

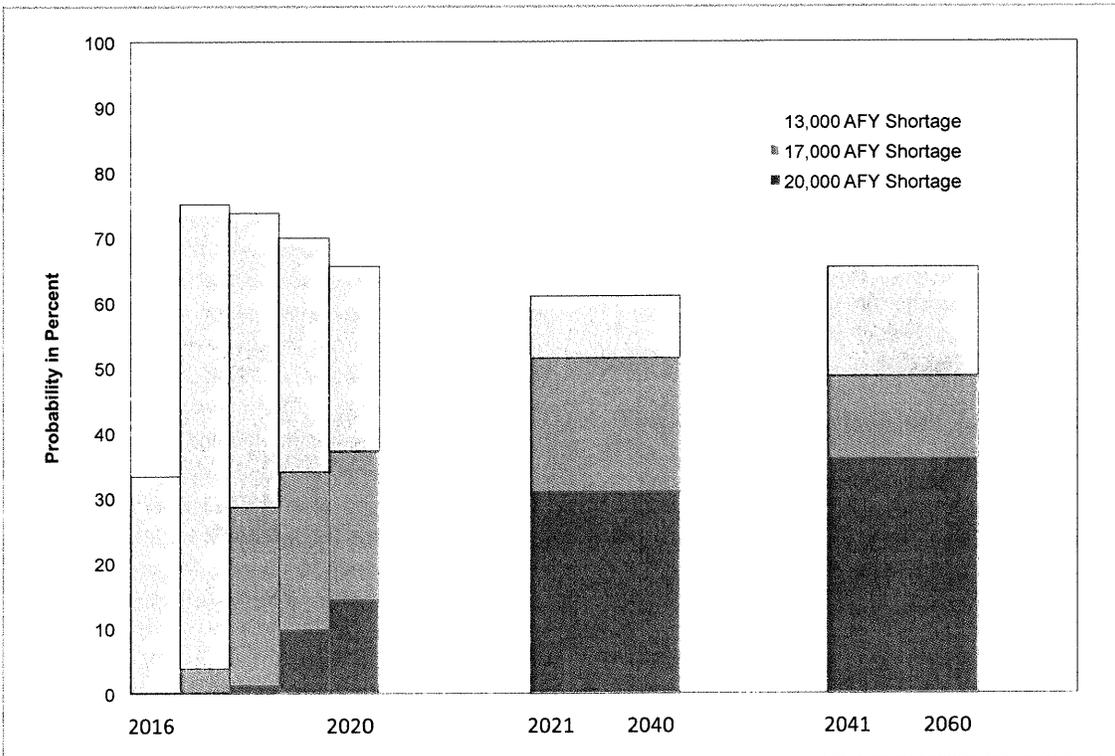


FIGURE 4.2 Probability of Colorado River Shortage Declarations³

use levels (Total System GPCD) and reduced over time to represent expected achievement of the community's water conservation goal of 199 Total System GPCD by 2035. The projection assumes a further reduction in total demand (190 Total System GPCD) by 2055 to reflect the potential for additional conservation once the current goal has been met.

The upper demand projection was developed for planning purposes to reflect increased uncertainties related to possible changes in demands that are associated with climate variability, economic recovery, increased population and water use patterns. The upper demand projection represents an approximate 15 percent increase over the lower projection at the midpoint of the planning horizon (2035), increasing to 25 percent in the latter part of the planning horizon (2065).

YEAR	2015	2035	2065
LOWER DEMAND	493	588	759
UPPER DEMAND	495	677	946

FIGURE 4.3
SNWA Demand Projection, in thousands (AFY)

The SNWA will continue to assess the outlook for future demands as part of its ongoing annual resource planning process.

Water Supply Conditions

The water supply conditions considered in the planning scenarios, represent three Colorado River water-supply conditions: Normal Supply, Shortage and Increased Shortage (Figure 4.4). These supply conditions were developed to reflect current and likely conditions in the Colorado River Basin, as well as the potential for more significant water resource shortages than are currently prescribed by the Interim Guidelines.

NORMAL SUPPLY	Nevada receives its full apportionment of 300,000 AFY
SHORTAGE	Nevada apportionment is incrementally reduced to a maximum shortage of 20,000 AFY according to the Interim Guidelines
INCREASED SHORTAGE	Nevada apportionment is reduced by 40,000 AFY, double the maximum shortage level established in the Interim Guidelines

FIGURE 4.4
Water Supply Conditions

Under the Interim Guidelines, shortage volumes are defined for Lake Mead elevations between 1,075 and 1,025 feet. The Secretary of the Interior will consult with Colorado River Basin States to determine what additional measures are needed if Lake Mead drops below elevation 1,025 feet. If this were to occur, future negotiations and consultation with the Secretary of the Interior may establish additional shortage volumes. As a result, Nevada may be required to bear shortages greater than 20,000 AFY (currently Nevada's maximum shortage volume under the Interim Guidelines).

Colorado River modeling performed by the Bureau of Reclamation in 2015 projects an approximate 70 percent probability of a Colorado River shortage in the years 2017 to 2020. The probability of shortage ranges between 60-70 percent in the years following. (Figure 4.2)³

SUPPLY AND DEMAND SCENARIOS

Figure 4.5 summarizes the water resources planned for development and use as part of the SNWA's water resource portfolio. These resources were combined with the Supply and Demand Scenarios (Figures 4.6 – 4.9) to depict the volume and type of resources planned for use to meet the range of possible future demand projections under the three supply conditions. All planning scenarios use combinations of permanent, temporary and future resources as described in Chapter 3. Having a portfolio of resource options provides flexibility to adjust the use of some resources if development of other resources is delayed or revised, or if changes to demands occur. Likewise, if other options become a reality sooner rather than later, priority and use of resources may change.

As previously described, some Permanent and Temporary resources are subject to restrictions for use during declared shortage, while other resources will require the development of facilities for use. Ultimately, the timing and need for resources will depend significantly on how supply and demand conditions materialize over the long-term planning horizon. For planning purposes, it is important to note that an estimated 10-year lead time is needed to secure remaining state and federal permits, and to design and construct facilities associated with in-state groundwater resources. Other future resources are likely to require lead time as well for the development of facilities and/or agreements for use.



FIGURE 4.5 SNWA Water Resource Portfolio

	SUPPLY	CONSUMPTIVE USE	DIVERSION EQUIVALENT	AVAILABLE IN SHORTAGE?
PERMANENT	Colorado River (SNWA)	272,205 AFY	476,359 AFY	Yes. Subject to shortage reductions
	Nevada Unused Colorado River (Non-SNWA)	20,040 (2013) to 0 AFY in 2031	35,070 (2013) to 0 AFY in 2031	Yes. Subject to availability
	Tributary Conservation/Imported ICS	39,000 AFY	68,250 AFY	Yes
	Las Vegas Valley Groundwater Rights	46,830 AFY	Not applicable	Yes
	Direct Reuse	21,800 AFY	Not applicable	Yes
TEMPORARY	Southern Nevada Groundwater Bank	336,787 AF	Up to 589,377 AF	Yes
	Interstate Banks (Arizona and California)	806,266 AF	1,410,966 AF	Yes
	Intentionally Created Surplus (storage in Lake Mead)	564,765 AF	988,339 AF	No
FUTURE	Garnet and Hidden Valleys Permitted	2,200 AFY	Not applicable	Yes
	Delamar, Dry Lake, Cave and Spring Valleys Permitted	91,988 AFY	160,979 AFY	Yes
	Tikaboo and Three Lakes Valley North and South Permitted	10,605 AFY	18,559 AFY	Yes
	Snake Valley Applications	50,678 AFY	88,687 AFY	Yes
	Virgin River/Colorado River Augmentation	Up to 108,000 AFY	Up to 189,000 AFY	To be determined
	Indian Springs Valley Applications	16,000 AFY	28,000 AFY	Yes
	Railroad Valley Applications	111,496 AFY	195,118 AFY	Yes
	Transfers and Exchanges	To be determined	To be determined	To be determined

Water Supplies are described in Chapter 3. ²

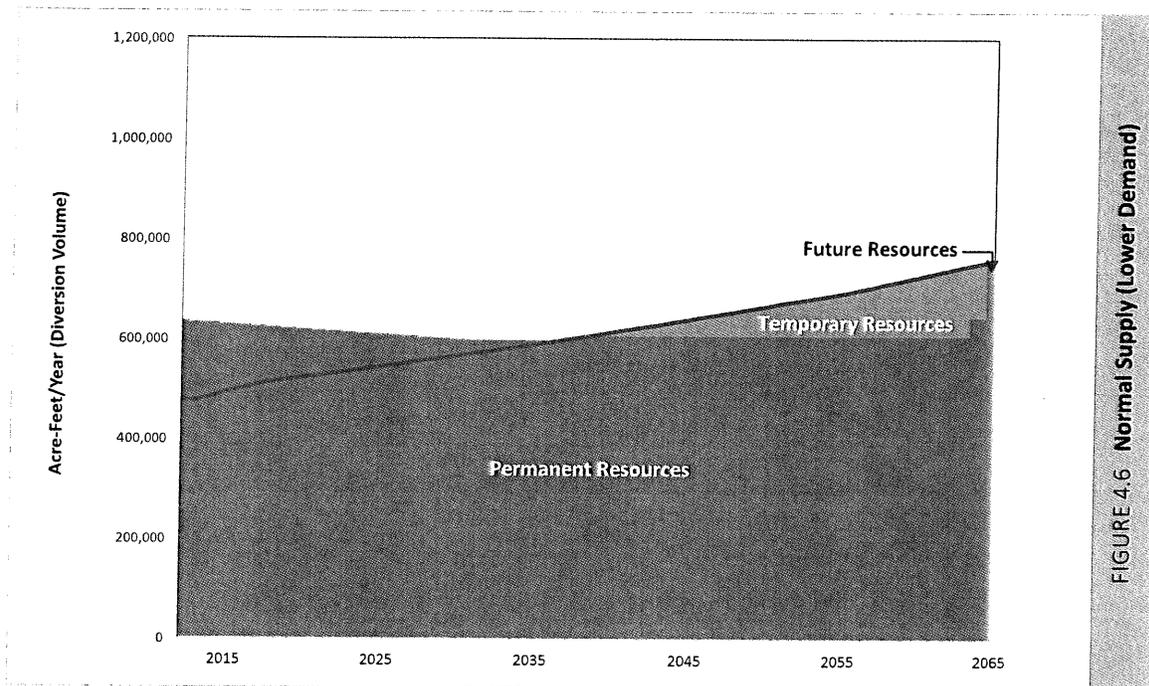


FIGURE 4.6 Normal Supply (Lower Demand)

Normal Supply Scenario (Lower Demand)

Figure 4.6 assumes full availability of Southern Nevada's 300,000 AFY Colorado River allocation. Under this scenario, permanent and temporary water resources are sufficient to meet water demands through 2063 before future resources are needed.

This scenario also assumes continued banking of unused Colorado River supplies to the extent these resources are available. Given the high probability of Colorado River shortages, this scenario is unlikely to represent actual future supply conditions.

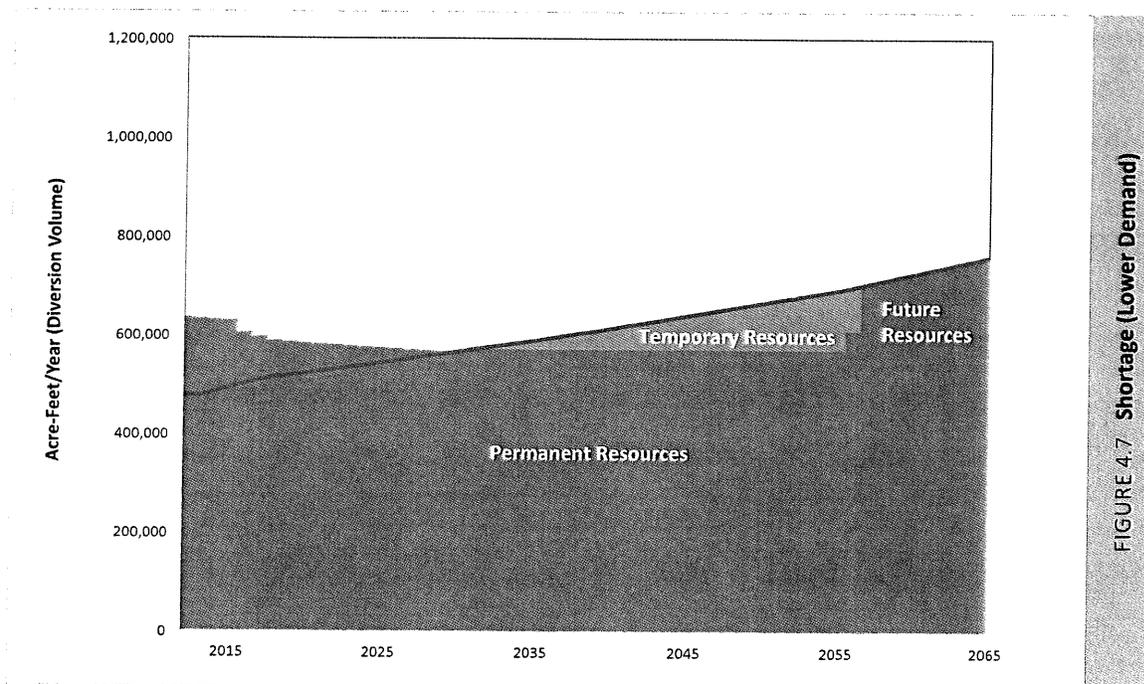


FIGURE 4.7 Shortage (Lower Demand)

Shortage Scenarios (Lower Demand)

Figure 4.7 assumes a staged reduction of Colorado River water up to 20,000 AFY based on a shortage declaration (reduction of 13,000 AFY in 2016, 17,000 AFY in 2017 and 20,000 AFY thereafter). Under this

scenario, permanent and temporary water resources are sufficient to meet water demands through 2055 before future resources are needed. In 2065, the need for future resources is estimated at 103,216 AFY (consumptive use volume).

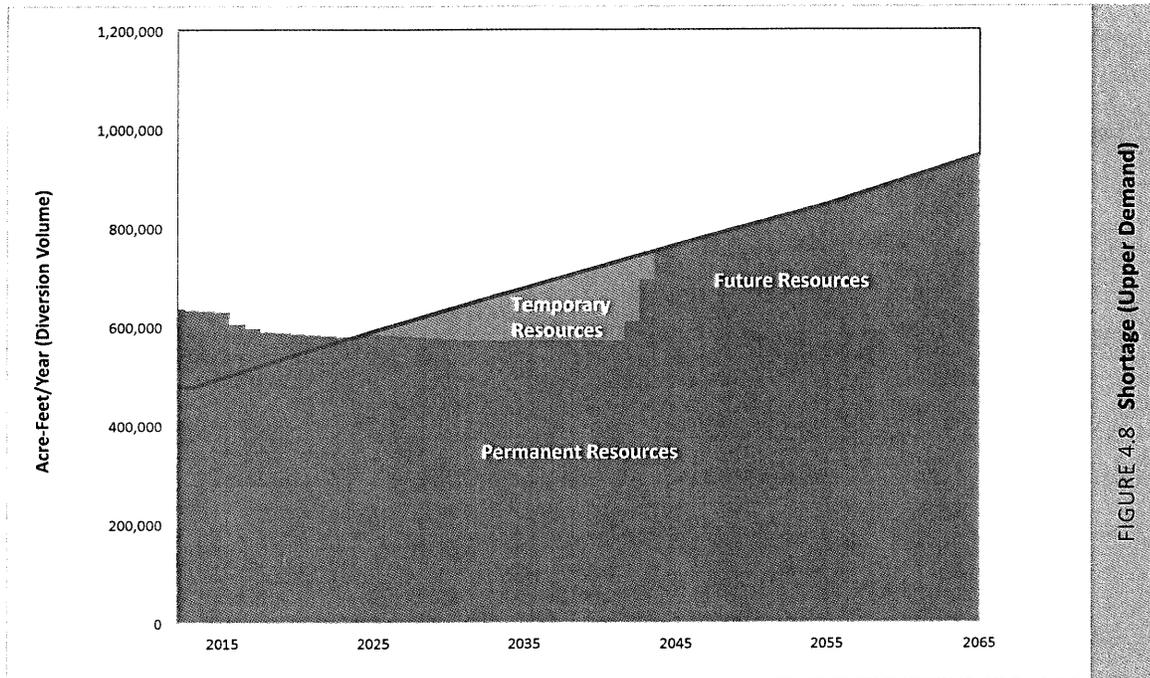


FIGURE 4.8 Shortage (Upper Demand)

Shortage Scenario (Upper Demand)

Figure 4.8 assumes a staged reduction of Colorado River water up to 20,000 AFY based on a shortage declaration (reduction of 13,000 AFY in 2016, 17,000 in 2017 and 20,000 AFY thereafter). Under this scenario, permanent

and temporary water resources are sufficient to meet water demands through 2041 before future resources are needed. In 2065, the need for future resources is estimated at 210,139 AFY (consumptive use volume).

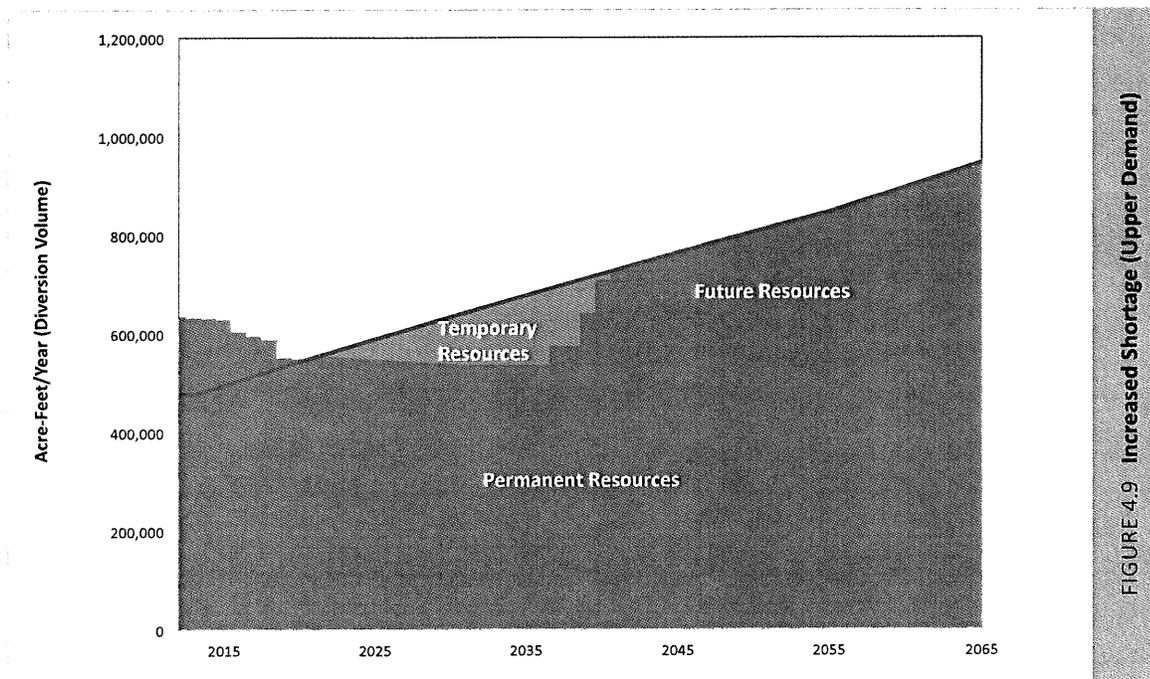


FIGURE 4.9 Increased Shortage (Upper Demand)

Increased Shortage Scenario (Upper Demand)

Figure 4.9 assumes a staged Colorado River shortage in years 2016-2018 and an increased shortage of 40,000 AFY thereafter. Under this scenario, SNWA's permanent and temporary water resources are sufficient to meet

water demands through 2036 before future resources are needed. In 2065, the need for future resources is estimated at 230,139 AFY (consumptive use volume), demonstrating the need for a combination of future resources to meet projected demands.

CONCLUSION

Water supply and demand conditions are influenced by a number of factors, including economic conditions, water use patterns, conservation progress and climate variability. To account for these variables, SNWA's 2015 Water Resource Plan considers a number of water supply and demand scenarios that bracket the range of plausible conditions to be experienced over the 50-year planning horizon.

The scenarios assume that Southern Nevada will continue to make progress towards its current water conservation goal, as well as achieve increased levels of efficiency over the long-term planning horizon. Likewise, the scenarios assume that unused Nevada Colorado River water will continue to be stored for future use and that this and other temporary resources will be used to meet demands until future resources are needed and developed.

Modeling efforts performed by the U.S. Bureau of Reclamation indicate a high probability of future shortage associated with Colorado River supplies (approximately 60-70 percent, beginning in 2017). The current maximum level of shortage prescribed to Nevada is 20,000 AFY; however, this level could potentially increase if Lake Mead water levels fall below an elevation of 1,025 ft.

The SNWA is not currently using its full Colorado River allocation and near-term shortage declarations are not anticipated to impact current customer use. Additionally, and as illustrated in the planning scenarios, SNWA is prepared to meet long-term demands and future shortages by adaptively managing its resource portfolio and by bringing future resources on-line when needed.

The amount of resources available for use as described in the SNWA Water Resource Portfolio is more than sufficient to meet the range of projected demands through the planning horizon. Maintaining this portfolio provides flexibility and enables SNWA to use an appropriate mix of resources as needed to meet demands. Through this and other adaptive management strategies, SNWA is better prepared to address factors that can influence resource availability over time such as permitting, policy changes, climate variability, and/or new regulations.

As part of its long-term water planning efforts, the SNWA will:

- Continue to assess factors influencing water demands and the outlook for future demands;
- Continue to assess its overall water resource options and make informed decisions on which resources to use when needed;
- Consider the factors of availability, accessibility, cost, need and supply diversification when determining priority of resources for use; and
- Maintain a diverse water resource portfolio to ensure future resources are available to meet projected long-term demands and to replace temporary supplies such as banked resources.
- Work proactively with other Colorado River water users on efforts that increase Lake Mead's elevation in order to reduce the likelihood and severity of shortages.

ENDNOTES

- 1 The U.S. Bureau of Reclamation developed the Colorado River Simulation System (CRSS), a long-term planning and operations model. The probabilities of shortage correspond with April 2015 CRSS results, applying historical Colorado River flows, provided by U.S. Bureau of Reclamation to Southern Nevada Water Authority June 2, 2015.
- 2 Water supplies are described in Chapter 3. For this plan, SNWA estimates diversion volumes by multiplying the corresponding consumptive use volume by a factor of 1.75, which incorporates the estimated return-flow credit ratio, where applicable. This factor is also applied in this plan to estimate full consumptive use of future in-state water resources.
- 3 The U.S. Bureau of Reclamation (BOR) developed the Colorado River Simulation System (CRSS), a long-term planning and operations model. The probabilities of shortage correspond with April 2015 CRSS results, applying historical Colorado River flows, provided to Southern Nevada Water Authority on June 2, 2015 by BOR.
- 4 Based on 2015 modeling efforts conducted by the BOR, there is currently a zero percent probability of a Colorado River shortage declaration for 2016. This is due to significant system inflow that occurred in May 2015. The planning scenarios presented in this plan were developed prior to the release of the revised forecast. Probabilities in future years remain the same.





PROTECTING THE ENVIRONMENT

THE SNWA'S ENVIRONMENTAL STEWARDSHIP EFFORTS HELP CONSERVE AND PRESERVE NATURAL RESOURCES FOR FUTURE GENERATIONS WHILE MINIMIZING CONFLICTS WITH WATER RESOURCE MANAGEMENT.

The SNWA works cooperatively with federal, state and local agencies as part of its long-term water resource management and planning efforts. This work helps to ensure avoidance, mitigation or minimization of impacts during development and delivery of water resources, including the construction, operation and maintenance of regional water facilities. In addition to the organization's proactive efforts, SNWA adheres to strict environmental laws and regulations that govern its use and development of resources and facilities. These include the Endangered Species Act (ESA), National Environmental Policy Act (NEPA) and Clean Water Act.

By complying with environmental laws and regulations, working cooperatively with others, and by implementing the latest best management practices, SNWA minimizes its footprint and protects valuable environmental resources for generations to come.

The SNWA participates in several environmental programs that contribute to species recovery and habitat conservation and protection in areas where its facilities or resources are located. The following section details specific activities that are currently planned or underway:

COLORADO RIVER

Human alterations on the Colorado River, including changes to riparian wetland and aquatic habitats, have affected the river's ecosystem, both in the United States and in Mexico. Today, there are several native fish, birds, and other wildlife species listed as threatened or endangered under the ESA.

These environmental issues are being addressed cooperatively by Colorado River water users, primarily through the Colorado River Multi-Species Conservation Program. The SNWA has a key interest in the success of this program, and other similar initiatives, because it provides regulatory certainty for flexible and adaptive resource management solutions like the Arizona and California water banks.

Lower Colorado River Multi-Species Conservation Program

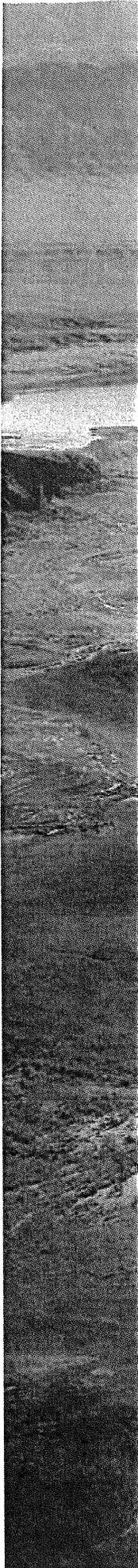
The Lower Colorado River Multi-Species Conservation Program (LCRMSCP) is a coordinated, multi-agency effort to protect the species and habitat of the Lower Colorado River region. The LCRMSCP, finalized in 2005, provides ESA coverage for federal and non-federal operations in the Lower Colorado River under a Biological Opinion and a Habitat Conservation Plan (HCP).¹

The SNWA is a non-federal partner in the LCRMSCP, which is being implemented by the Bureau of Reclamation over a 50-year period. The program area extends more than 400 miles along the lower Colorado River, from Lake Mead to the southernmost point of the U.S./Mexico border. Lakes Mead, Mohave, and Havasu, as well as the historical 100-year floodplain along the main stem of the lower Colorado River, are all included. The program area also supports implementation of conservation activities in the lower Muddy, Virgin, Bill Williams, and Gila rivers.

The HCP and Biological Opinion call for the creation of 8,132 acres of habitat for fish and wildlife species, and the production of 1.28 million native fish to augment existing populations. The plan will benefit at least 26 species, most of which are state or federally listed endangered, threatened, or sensitive species.

The overall goal of the LCRMSCP is to develop and implement a plan that will:

- Conserve habitat and work toward the recovery of threatened and endangered species, as well as reducing the likelihood of additional species being listed;
- Accommodate present water diversions and power production, and optimize opportunities for future water and power development, to the extent consistent with the law; and
- Provide the basis for incidental take authorization.



Some of the LCRMSCP projects being conducted in Nevada include razorback sucker studies on Lake Mead, southwestern willow flycatcher surveys and habitat protection at the Big Bend Conservation Area.

In 2005, SNWA purchased the 15-acre Big Bend Conservation Area site along the Colorado River to support backwater habitat for native fish. In 2008, the LCRMSCP and the USFWS funded wildlife habitat improvements on the property, which provides mitigation credit under the program. The SNWA continues to maintain the property and habitat, and conducts annual vegetation monitoring.

By taking a proactive role in the health of the river and its native species, SNWA and other Colorado River users are working to help ensure the long-term sustainability of this critical resource.

Colorado River Basin Water Supply and Demand Study

An Environmental and Recreational Flows Workgroup was one of three workgroups established following completion of the Colorado River Basin Water Supply and Demand Study.² The study recognized that additional efforts were needed to better understand and quantify the needs of flow-dependent ecological systems and recreation on the river. The SNWA is a member of this workgroup, which was tasked with identifying opportunities that would provide multiple benefits to improve flow and water-dependent ecological systems, power generation and recreation. In their Phase I report, the workgroup identified future opportunities and potential actions to advance those opportunities.

Colorado River Delta

Through interpretive minutes to the 1944 Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, the United States and Mexico have established a framework for cooperation on environmental issues in Mexico. This includes studies related to the riparian and estuarine ecology of the Colorado River limitrophe and delta.

The SNWA is a member of the Environmental Work Group that was established by Minute 317 in 2010. The work group provides a forum where the two countries can explore and evaluate potential areas of cooperation. Subsequently, and as part of the later Minute 319, the Environmental Work Group began gathering scientific information on the effectiveness of environmental flows delivered to the Delta as part of the 2014 pulse flow.

MUDDY RIVER

The Muddy River and its tributaries and springs provide habitat for a unique array of rare species, including the federally endangered Moapa dace (*Moapa coriacea*), southwestern willow flycatcher (*Empidonax trailii extimus*), and Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) (formerly Yuma clapper rail), and the federally threatened western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). It is also habitat for the Virgin River chub (*Gila seminuda*), which although not listed on the Muddy River is listed as endangered on the Virgin River. The SNWA has conducted and supported environmental studies on the Muddy River since 2004, including population and habitat surveys for these and other native sensitive species. The SNWA is also working with federal and state agencies, environmental organizations and local stakeholders to implement conservation and recovery actions.

As noted in Chapter 3, SNWA has surface water rights on the Muddy River and groundwater rights in adjacent Coyote Spring Valley. In accordance with the Interim Guidelines, SNWA can convey these rights through the natural channel of the Muddy River to Lake Mead and receive ICS credit. To support its water planning efforts, SNWA participates in the Muddy River Recovery Implementation Program. The program is a coordinated, multi-agency effort to protect the species and habitat of the Muddy River, while ensuring the responsible management of water resources. In accordance with a 2006 Memorandum of Agreement with the U.S. Fish and Wildlife Service (USFWS), the SNWA provided \$300,000 in funding for preparation of the program, which is currently in draft form.³ The SNWA continues to coordinate with other agencies, as part of a Biological Advisory Committee, to implement monitoring and conservation actions on the Muddy River.

In addition to activities conducted on the Warm Springs Natural Area, described below, ongoing environmental activities on the Muddy River include:

- Native fish surveys
- Non-native fish surveys and invasive fish removal
- Non-native fish barrier installation
- Habitat creation and restoration

Warm Springs Natural Area

Located approximately 7 miles northwest of the town of Moapa, the Warm Springs Natural Area contains more than two dozen warm water springs that form the headwaters of the Muddy River. The springs and river provide habitat for the federally endangered Moapa dace, a small fish that is endemic to the area. The river and surrounding riparian areas also provide habitat for 27 other listed and sensitive species, including fish, birds, bats, invertebrates and amphibians. The upper Muddy River area, also home to the Moapa Valley National Wildlife Refuge, has long been recognized for its environmental value and as an important site for conservation and protection.

In 2007, SNWA purchased the former 1,220-acre "Warm Springs Ranch," using funding secured under the Southern Nevada Public Lands Management Act. As part of the acquisition, SNWA committed to protecting and preserving the property as a natural area and to use this resource to:

- Support management of SNWA's water resources in the Muddy River and Coyote Spring Valley
- Protect the habitat of the endangered Moapa dace
- Protect the headwaters of the Muddy River where SNWA owns and leases water rights
- Advance SNWA's goal of fostering responsible environmental stewardship

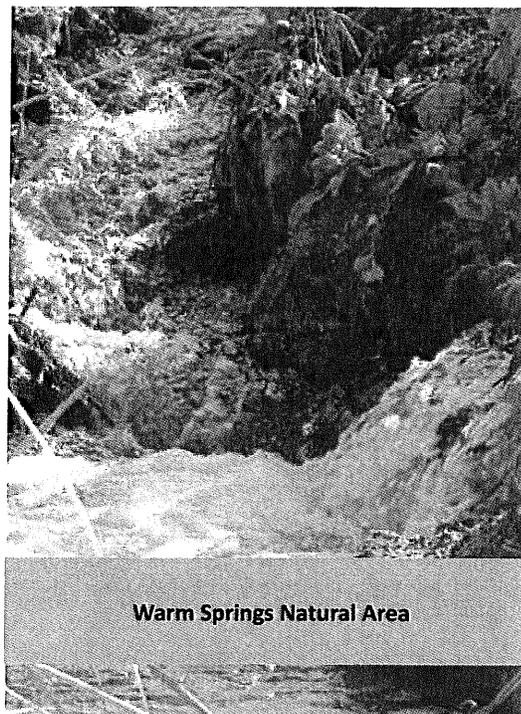
Working with federal, state, and local stakeholders, SNWA completed a Stewardship Plan for the Warm Springs Natural Area in 2011.⁴ The Stewardship Plan provides a framework for use and management of the property that preserves the integrity of natural resources and allows for management of water resources.

Since acquisition of the property, SNWA has focused on restoration of aquatic fish habitat, control and eradication of invasive species, fire prevention, and general property maintenance. A public use trail system is also being constructed, to enable low-impact public use of the property. These conservation actions help to provide mitigation benefits for water development.

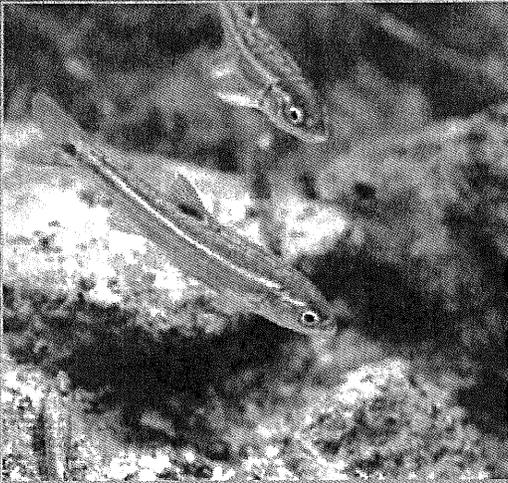
VIRGIN RIVER

The Virgin River is one of the largest riparian corridors in the desert southwest; within Nevada, the lower Virgin River is home to the federally endangered woundfin (*Plagopterus argetissimus*), Virgin River chub, southwestern willow flycatcher, and Ridgway's rail, and the federally threatened western yellow-billed cuckoo. Since 1993, SNWA has conducted and supported environmental studies on the Virgin River, including population and habitat surveys for these species.

To support its water planning efforts associated with Virgin River rights and leases, SNWA also participates in environmental stakeholder forums on the lower Virgin River, including the Virgin River Habitat Conservation Plan, which is being prepared by the City of Mesquite. In addition, the SNWA participates on the Lower Virgin River Recovery Implementation Team, which is working to develop a conservation action plan for the woundfin and Virgin River chub.



Dace on the Rise



The Moapa Dace is endemic to the Muddy River.

The Moapa dace only occurs in the warm springs, tributaries, and upper main stem of the Muddy River, and was listed as an endangered species in 1967. The USFWS recovery plan for the Moapa dace set a goal to delist the fish when the adult population reaches 6,000 in five spring systems for five consecutive years.⁵

The SNWA has worked with its partners to implement a number of activities to benefit the Moapa dace, including installation of non-native fish barriers, eradication of invasive fish species, restoring natural stream flow dynamics and riparian vegetation, and improving connectivity between springs and streams. These actions have helped the overall Moapa dace population to increase substantially, going from a low of 459 individuals in 2008 to over 1,900 in 2015.

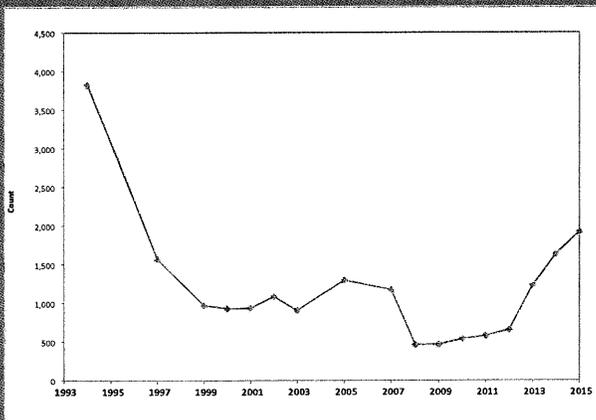


FIGURE 5.1 Moapa Dace count through 2015

CLARK COUNTY

The SNWA participates in a number of environmental initiatives in Clark County to help protect and restore the environment, including the Clark County Multiple Species Habitat Conservation Plan and Las Vegas Wash Comprehensive Adaptive Management Plan. These efforts directly affect the SNWA's ability to operate facilities in Clark County and deliver high quality water to the community.

Clark County Multiple Species Habitat Conservation Plan

After the ESA listing of the desert tortoise (*Gopherus agassizii*) in 1989, local agencies in Clark County recognized the need to address concerns about listed or sensitive species that could affect development in the county. While projects on federal lands continue to receive project-specific ESA coverage from the USFWS, projects on private lands within the County receive ESA coverage under habitat conservation plans. Initially, the Clark County Desert Conservation Plan was approved in 1995. However, this plan only covered the desert tortoise. The county and local governments began discussing preparation of another habitat conservation plan that would also proactively conserve other sensitive species through an ecosystem approach.

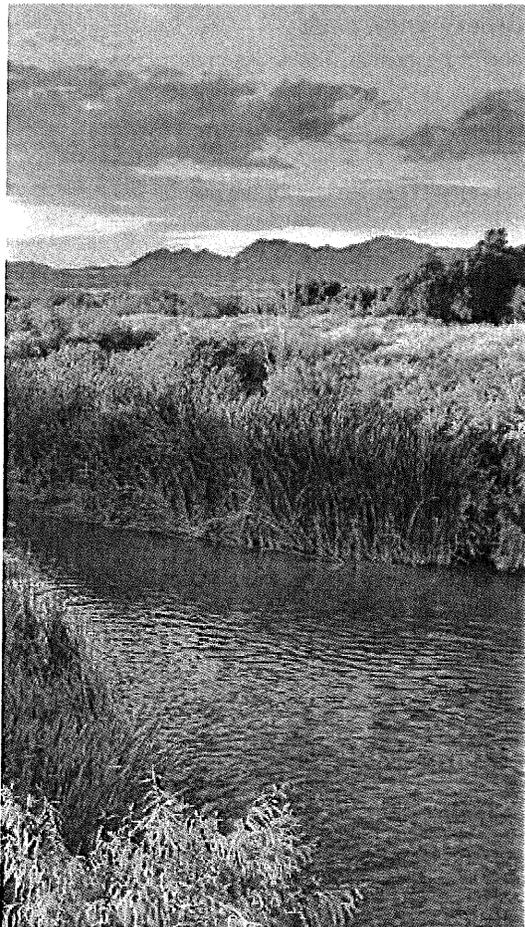
The Clark County Multiple Species Habitat Conservation Plan (MSHCP)⁶ was approved in 2001, and provides ESA coverage for 78 species, including the desert tortoise. The MSHCP serves as an insurance policy to cover future federal listings of species in areas where urban development is taking place. The key purpose of the MSHCP is to achieve a balance between the conservation and recovery of listed and sensitive species in Clark County and the orderly beneficial use of land to meet the needs of the growing population in Clark County. The SNWA actively participates in the MSHCP, which provides ESA coverage for its projects and facilities located on non-federal lands within the county.

Las Vegas Wash

The Las Vegas Wash is the primary channel through which the SNWA member agencies return water to Lake Mead for return-flow credits. These flows account for less than two percent of the water in Lake Mead and consist of urban runoff, shallow groundwater, stormwater and highly treated wastewater from the valley's four water reclamation facilities. Decades ago, the flows of the Wash created more than 2,000 acres of wetlands, but by the 1990s,

only about 200 acres of wetlands remained. The dramatic loss of vegetation reduced both the Wash's ability to support wildlife and serve as a natural water filter.

In 1998 at the request of its citizen's advisory committee, SNWA reached out to the community in an effort to develop solutions to the problems affecting the Wash. This led to the formation of the Las Vegas Wash Coordination Committee (LVWCC), a panel representing more than two dozen local, state and federal agencies, businesses, an environmental group, the University of Nevada Las Vegas, and private citizens. The committee quickly developed a Comprehensive Adaptive Management Plan for the Wash,⁷ which identified 44 action items to help meet the goals of stabilization and enhancement of the Wash.



Mature Vegetation Along the Wash

Over more than 15 years of working together, the LVWCC and its member agencies have taken significant strides toward improving the Las Vegas Wash. Early efforts focused on reducing the channelization of the Wash, reducing erosion and increasing the number of wetlands. Accomplishments to date include:

- Constructed 18 of 21 identified erosion control structures or weirs
- Stabilized more than 12 miles of the Wash's banks
- Removed more than 500 acres of non-native tamarisk
- Revegetated more than 400 acres with native plants
- Removed more than 500,000 pounds of trash from adjacent areas
- Organized more than 10,000 volunteers
- Completed extensive wildlife and water quality monitoring programs
- Built or improved more than two miles of trails
- Implemented an invasive species management program

Today, the Wash carries about 200 million gallons of water a day to Lake Mead. The efforts to stabilize the Wash have resulted in a greater than 60 percent reduction in the amount of total suspended solids in the water, and the removal of the Wash from Nevada Division of Environmental Protection's list of impaired waters.

NORTHERN NEVADA GROUNDWATER RESOURCES

As described in Chapter 3, SNWA holds groundwater rights in Spring, Delamar, Dry Lake and Cave valleys, in central Nevada. The SNWA is working to complete the environmental compliance and permitting that will allow these rights to be developed and conveyed to southern Nevada when they are needed.



In 2006 and 2008, SNWA and U.S. Department of the Interior agencies, including the Bureau of Indian Affairs, Bureau of Land Management (BLM), USFWS and the National Park Service, entered into stipulations for withdrawal of protests for water right applications in Spring, Delamar, Dry Lake and Cave valleys.

Technical teams representing the agencies developed biological and hydrological monitoring plans pursuant to the obligations of the stipulated agreements. These monitoring plans were approved by the Nevada State Engineer under the 2012 water rights rulings and include the requirement for monitoring baseline conditions prior to groundwater withdrawals. Hydrologic monitoring is ongoing, in accordance with the Hydrologic Monitoring and Mitigation Plan for Spring Valley⁸ and the Hydrologic Monitoring and Mitigation Plan for Delamar, Dry Lake and Cave valleys.⁹ These efforts meet permit conditions of the water right rulings and conditions of the stipulated agreements.

In accordance with the Biological Monitoring Plan for Spring Valley, SNWA conducted two years of baseline biologic monitoring in 2009 and 2010.¹⁰ The biological technical team has been evaluating those monitoring efforts and is preparing recommendations for revision to the Spring Valley plan, which would be implemented during the remaining baseline monitoring. These recommendations may also be implemented in the Biological Monitoring Plan for Delamar, Dry Lake, and Cave valleys.¹¹ In the interim, biological activities are focused on specific species monitoring efforts and small studies to further understand the ecosystems and biota.

Groundwater Development Project

In 2012 after more than 8 years of research, analysis, review and public comment, the BLM completed an Environmental Impact Statement¹² and Record of Decision¹³ in accordance with NEPA for the primary water and power conveyance facilities associated with SNWA's Clark, Lincoln and White Pine Counties Groundwater Development Project. The BLM also consulted with the USFWS, as required under ESA, to assess potential effects on federally listed species. The right-of-way across federal land was issued to SNWA in 2013, and contains over 600 measures for environmental protection and mitigation.

The right-of-way and associated environmental compliance measures are for the first phase of the Groundwater Development Project; additional tiered compliance will be necessary when specific well sites and collector pipeline routes are identified. The SNWA continues working on some of the over 40 individual environmental plans that will be required for the project, so that it will be ready for design and construction when the water resource is needed.

The SNWA also holds groundwater applications in Snake Valley that would ultimately be part of the Groundwater Development Project. As discussed in Chapter 3, Utah has not yet signed an agreement regarding the division of groundwater supplies in Snake Valley. When an agreement is signed and the water is incorporated into the Groundwater Development Project, additional environmental compliance will be needed prior to receiving a right-of-way from federal land managing agencies.

Great Basin Ranch

Beginning in 2006, SNWA began acquiring ranch properties in Spring Valley from landowners who approached SNWA desiring to sell their properties. Since then, the SNWA has continued to operate the properties, collectively named the Great Basin Ranch, to ensure water rights associated with the properties are maintained in good standing through beneficial use and to ensure land resources remain productive. The land and water rights associated with Great Basin Ranch provide SNWA with an opportunity to integrate adaptive management with environmental mitigation during future development activities.

The seven properties acquired by the SNWA include the El Tejon, Robison, Huntsman, Harbecke, Wahoo, Phillips and Bransford ranches. As part of its ranch purchases, the SNWA has:

- More than 23,500 acres of private land
- More than 34,000 acre-feet of surface water rights
- More than 8,000 acre-feet of groundwater rights
- More than 23,000 acre-feet of supplemental water rights
- On average, 3,700 head of livestock (depending upon time of year and season)

The SNWA also holds roughly 933,500 acres in grazing allotment permits from the BLM and the U.S. Forest Service. There are a total of 15 grazing allotments that span Spring, Dry Lake, Cave, Lake, Tippet, Hamlin, Pahroc, Steptoe, and Patterson valleys. SNWA-owned cattle and sheep graze these allotments under a program designed to maintain rangeland health standards.

The Great Basin Ranch provides opportunities for SNWA to better understand and manage hydrologic and biological resources of Spring Valley while continuing the historic agricultural and livestock operations. The SNWA accomplishes this by employing best management practices, such as adaptive grazing, water- and energy-efficient agricultural technologies, GPS tracking of livestock, and invasive weed-control treatments. Technical staff and contractors perform range monitoring and rangeland-condition analyses, among a variety of monitoring and reporting programs. The SNWA is also investigating use of surface-water rights acquired with the land holdings to support aquifer recharge. Through these management efforts, the SNWA is making significant progress toward creating a sustainable ranch operation.

SUSTAINABILITY

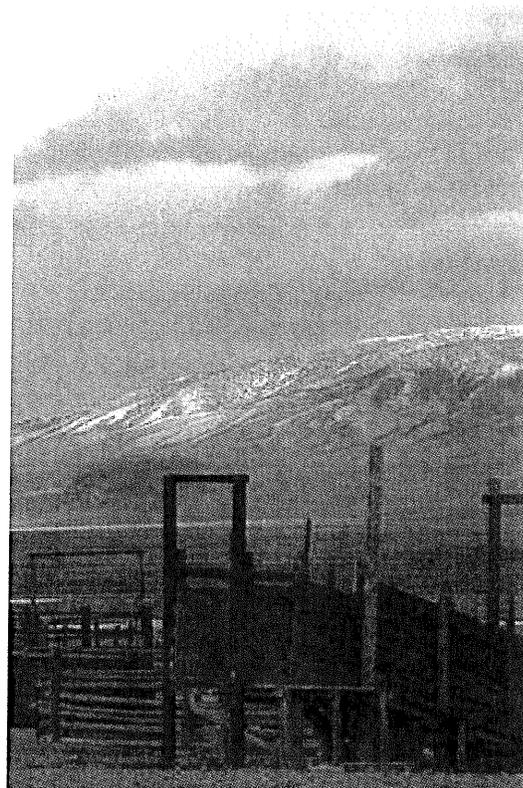
Sustainability transcends resource boundaries, but it is inseparably linked to the conservation of vital resources such as water and energy. This concept forms the framework for SNWA's sustainability initiatives, which focus on four main areas:

- Water
- Energy
- Environment
- Personal responsibility

As a water provider and educator in one of the region's driest communities, living a conservation ethic is an essential part the organization's work practices. The SNWA strives to provide sufficient water to the community while promoting conservation, utilizing reliable, renewable water resources, and maintaining water quality with minimal impact on the environment.

The SNWA has undertaken a broad range of initiatives to help ensure conservation and preservation of water resources. For example, SNWA's chemical reduction program has increased non-chemical water treatment methods and reduced our carbon footprint by 309 metric tons of carbon equivalent.

As the state's largest energy user, the SNWA strives to reduce energy consumption and reduce environmental pollution through efficient energy use and incorporating use of renewable resources such as solar, wind, hydro, biomass, and geothermal energy. The SNWA has voluntarily committed to meeting 25 percent of its energy needs through renewable resources by 2025, which parallels Nevada's Renewable Energy Portfolio Standards. The SNWA's current energy portfolio consists of approximately 13 percent derived from renewable resources, with that amount increasing to approximately 18 percent by 2016.



Great Basin Ranch



The SNWA's solar facilities generate more than 920,000 kilowatt hours of clean energy, enough to power nearly 60 average southern Nevada homes annually. The SNWA's fleet is nearing its goal of becoming 100 percent alternative fueled, replacing standard-fueled vehicles with alternative-fueled models when appropriate.

The SNWA continues to identify ways to minimize the environmental impacts of operations and create a greener way of working. Reducing, reusing, and recycling are key components of waste reduction efforts. SNWA facilities are designed to be environmentally conscious, including certification under Leadership in Energy and Environmental Design green building program.

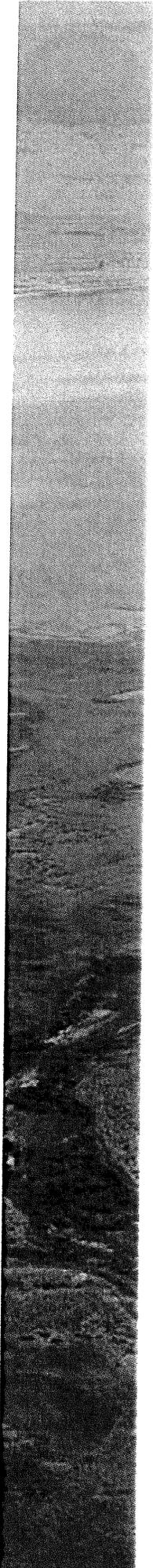
CONCLUSION:

The SNWA adheres to strict environmental laws and regulations that govern its use and development of resources and facilities. In addition, the SNWA proactively integrates environmental stewardship into facility operations and resource management. To support its long-term water resource planning and development efforts, the SNWA will:

- Continue its environmental planning, monitoring and mitigation efforts to minimize its footprint and protect community water supplies;
- Participate in environmental programs to enhance regulatory certainty for the flexible and adaptive use of resources;
- Work with partners to conserve habitat and work towards the recovery of threatened and endangered species, as well as reducing the likelihood of additional species listings; and
- Meet the community's current and long-term water resource needs while promoting conservation, utilizing reliable, renewable water resources, and maintaining water quality with minimal impact on the environment.

ENDNOTES

- 1 Lower Colorado River Multi-Species Conservation Program, 2004. Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan. December 17, 2004.
- 2 "Colorado River Basin Water Supply and Demand Study," December 2012, U.S. Bureau of Reclamation.
- 3 "Memorandum of Agreement," April 20, 2006, SNWA.
- 4 SNWA, 2011. "Warm Springs Natural Area Stewardship Plan," June 2011, SNWA.
- 5 "Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem," May 16, 1996, U.S. Fish and Wildlife Service Region 1, Portland, Oregon.
- 6 Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada, September, 2000, Clark County Department of Comprehensive Planning and U.S. Fish and Wildlife Service.
- 7 "Las Vegas Wash Comprehensive Adaptive Management Plan," December 1999, Las Vegas Wash Coordination Committee.
- 8 "Hydrologic Monitoring and Mitigation Plan for Spring Valley (Hydrographic Area 184)," 2011 SNWA (Doc. No. WRD-ED-0012).
- 9 "Hydrologic Monitoring and Mitigation Plan for Delamar, Dry Lake, and Cave Valleys," 2011, SNWA (Doc. No. WRD-ED-0011).
- 10 Biological Monitoring Plan for the Spring Valley Stipulation, 2011 Biological Working Group.
- 11 Biological Monitoring Plan for Delamar, Dry Lake, and Cave Valley Stipulation, January, 2011, Biological Resource Team.
- 12 "Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement," August 2012, U.S. Bureau of Land Management.
- 13 "Clark, Lincoln, and White Pine Counties Groundwater Development Project Record of Decision," 2012, U.S. Bureau of Land Management.



This page intentionally left blank

APPENDIX 1

SOUTHERN NEVADA WATER AUTHORITY

SEPTEMBER 2013—INTEGRATED RESOURCE PLANNING ADVISORY COMMITTEE

FUNDING RECOMMENDATIONS

1. Develop rates through a transparent and inclusive community process.
2. Retain the existing rates and charges previously adopted by the SNWA Board and its purveyor members, formalizing the fire line meter charge at 17.5 percent of the current Infrastructure Charge.
3. Cap the Infrastructure Charge on fire line meters at the 2013 dollar amounts.
4. Increase the Commodity Charge \$.18 per 1,000 gallons (from \$.30 to \$.48) to meet 50 percent of annual revenue requirements in the target year 2017 and increase the Infrastructure Charge to meet the other half of annual revenue requirements.
5. Temporarily reduce the maximum rate in 2014, 2015 and 2016 to provide the community time to adjust to the new rates.
6. Separate money added to the New Expansion Debt Service fund and related interest attributed to the 2014 and 2015 phased-in rates from the remainder of the fund balance and use it to only offset forecasted operating deficits in 2016 to 2021 and not for any other purposes.
7. Allocate Connection Charge revenues in excess of the 2014 base year (\$16.1 million) exclusively to pay the following, in order of priority:
 - Early payment or pre-refunding of existing debt or one-time capital expenditures, whichever is most financially efficient, and
 - Water rate reductions.
8. If funds in excess of the target fund balance remain in the New Expansion Debt Service fund (not including phased-in rate revenue), use the excess fund balance only for any of the following purposes:
 - To redeem outstanding bonds (thereby reducing outstanding debt and future debt service requirements) or to acquire capital assets that would otherwise need to be funded with borrowed money (thus avoiding additional debt and debt service), whichever is most financially efficient;
 - To moderate further the impact of future rate increase; or
 - To reduce water rates.
9. Encourage the Las Vegas Valley Water District and the cities of Henderson and North Las Vegas to assess the rates and charges approved by the SNWA Board.

APPENDIX 2

SOUTHERN NEVADA WATER AUTHORITY

DECEMBER 2014—INTEGRATED RESOURCE PLANNING ADVISORY COMMITTEE

RESOURCE AND FACILITY RECOMMENDATIONS

1. Evaluate an increased water conservation target upon achieving the currently established goal of reducing gross water usage to 199 Gallons Per Capita Per Day (GPCD) by 2035.
2. Present water usage information to the Board of Directors and the community in both “gross” and “net” terms for the purpose of 1) more accurately communicating the water resource implications associated with various conservation measures, and 2) improving comparability of our community’s water consumption with that of others.
3. Continue to partner with other Colorado River Basin States to undertake system conservation projects designed to protect critical elevations in Lake Powell and Lake Mead, conditional upon the identification of mutually agreeable projects and shared funding responsibilities.
4. Classify expenditures associated with Colorado River system conservation projects as one-time capital expenditures, thereby making funds available for these costs from Connection Charge revenues as identified in Recommendation Nos 7 and 8 from the September 2013 Integrated Resource Planning Advisory Committee Recommendations Report.
5. Begin design and construction of a new low lake level pumping station within the swiftest feasible timeframe.
6. Generate needed revenue for the construction of a new low lake level water pumping station exclusively through fixed charges based upon meter size.
7. Phase in the increase to fixed monthly charges over a three-year period.
8. Continue to include the Groundwater Development Project within the SNWA’s Water Resource Portfolio with future resource options.

APPENDIX 3

CLARK COUNTY POPULATION FORECAST AND PROJECTION USED BY SNWA IN PREPARATION OF WATER RESOURCE DEMAND PROJECTIONS IN SNWA 2015 WATER RESOURCE PLAN

Year	Lower Demand Population	Upper Demand Population
2014	2,103,000	2,110,598
2015	2,148,000	2,158,942
2016	2,188,000	2,207,287
2017	2,226,000	2,255,631
2018	2,259,000	2,303,976
2019	2,283,000	2,352,320
2020	2,307,000	2,400,665
2021	2,332,000	2,449,009
2022	2,357,000	2,497,354
2023	2,383,000	2,545,698
2024	2,410,000	2,594,043
2025	2,436,000	2,642,387
2026	2,463,000	2,690,732
2027	2,491,000	2,739,076
2028	2,518,000	2,787,421
2029	2,546,000	2,835,765
2030	2,574,000	2,884,110
2031	2,603,000	2,932,454
2032	2,631,000	2,980,799
2033	2,659,000	3,029,143
2034	2,688,000	3,077,488
2035	2,716,000	3,125,832
2036	2,745,000	3,174,177
2037	2,774,000	3,222,521
2038	2,804,000	3,270,866
2039	2,833,000	3,319,210
2040	2,863,000	3,367,555
2041	2,894,000	3,415,899
2042	2,924,000	3,464,244
2043	2,955,000	3,512,588
2044	2,987,000	3,560,933
2045	3,019,000	3,609,277
2046	3,051,000	3,657,622
2047	3,083,000	3,705,966
2048	3,116,000	3,754,311
2049	3,149,000	3,802,655
2050	3,182,000	3,851,000

Sources: Clark County Nevada Population Forecast 2014-2050," June 2014, Center for Business and Economic Research (CBER) at the University of Nevada, Las Vegas • 1) Lower Demand Population: "Clark County Nevada Population Forecast 2014-2050," June 2014, Center for Business and Economic Research (CBER) at the University of Nevada, Las Vegas • 2) Upper Demand Population: Clark County Nevada Population Projection 2014-2050, developed by SNWA staff to reflect increased uncertainties related to projecting long-term planning horizon.

APPENDIX 4

SNWA WATER DEMAND SCENARIOS, DIVERSION VOLUME ACRE-FEET/YEAR

Year	Lower Demand	Upper Demand
2015	493,000	495,000
2020	522,000	543,000
2025	543,000	589,000
2030	566,000	634,000
2035	588,000	677,000
2040	613,000	721,000
2045	639,000	764,000
2050	666,000	806,000
2055	691,000	846,000
2060	725,000	896,000
2065	759,000	946,000



SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM
November 17, 2016

Subject: Amended and Restated Agreement	Director's Backup
Petitioner: Gregory J. Walch, General Counsel	
Recommendations: That the Board of Directors authorize an increase in funding of \$60,000 per year and approve an Amended and Restated Agreement for Professional Services between Stanka Consulting, Ltd., and the Authority to provide services including water right assessments, reviews, and mapping.	

Fiscal Impact:

The requested increase of \$60,000 for the current term ending June 30, 2017, is available in the Authority's Operating Budget. Funds for future year expenditures in the amount of \$210,000 per year will be budgeted accordingly.

Background:

Stanka Consulting, Ltd. (Stanka), is a professional engineering corporation that performs civil and environmental engineering work for a variety of Nevada clients. The professional engineers at Stanka are also licensed water right surveyors in the State of Nevada.

By approval of this Amended and Restated Agreement, Stanka will continue to work with the Authority to provide professional services including evaluation of status and ownership of water rights, quantification of existing committed water rights, field investigations and mapping, and preparation of documents for submittal to the Nevada State Engineer.

This agreement is authorized pursuant to NRS 332.115(1)(b) and Section 6(j) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this agreement.

Respectfully submitted:


John J. Entsminger, General Manager
JJE:GJW:TDF:DRW:ke
Attachment

AGENDA ITEM #	6
------------------	---

DISCLOSURE OF OWNERSHIP/PRINCIPALS

Business Entity Type							
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Company	<input checked="" type="checkbox"/> Privately Held Corporation	<input type="checkbox"/> Publicly Traded Corporation	<input type="checkbox"/> Trust	<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Other
Business Designation Group							
<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input checked="" type="checkbox"/> SBE	<input type="checkbox"/> PBE	<input type="checkbox"/> ESB	<input type="checkbox"/>		
Minority Business Enterprise	Women-Owned Business Enterprise	Small Business Enterprise	Physically Challenged Business Enterprise	Emerging Small Business			
Corporate/Business Entity Name:		Stanka Consulting, LTD					
(Include d.b.a., if applicable)							
Street Address:		3032 Silver Sage Drive, Suite 101			Website:		
City, State and Zip Code:		Carson City Nevada 89701			POC Name and Email: Michael Stanka michael@stankaconsulting.com		
Telephone No:		775 885 9283			Fax No: 775 546 4271		
Local Street Address:		3032 Silver Sage Drive, Suite 101			Website: www.stankaconsulting.com		
City, State and Zip Code:		Carson City Nevada 89701			Local Fax No: 775 546 4271		
Local Telephone No:		775 885 9283			Local POC Name Email: Michael Stanka michael@stankaconsulting.com		
Number of Clark County, Nevada Residents Employed: 3 to 6 Nevada Residents [Outside of Clark County]							

All entities, with the exception of publicly-traded and non-profit organizations, must list the names of individuals, either directly or indirectly, holding more than five percent (5%) ownership or financial interest in the business entity appearing before the SNWA Board of Directors.

Publicly-traded entities and non-profit organizations shall list all Corporate Officers and Directors in lieu of disclosing the names of individuals with ownership or financial interest. The disclosure requirement, as applied to land-use applications, extends to the applicant and the landowner(s).

Entities include all business associations organized under or governed by Title 7 of the Nevada Revised Statutes, including but not limited to private corporations, close corporations, foreign corporations, limited liability companies, partnerships, limited partnerships, and professional corporations.

Full Name	Title	% Owned <small>(Not required for Publicly Traded Corporations/Non-profit organizations)</small>
Michael Stanka	President	100%

This section is not required for publicly-traded corporations.

1. Are any individual members, partners, owners or principals, involved in the business entity, an SNWA full-time employee(s), or appointed/elected official(s)?
 Yes No (If yes, please note that SNWA employee(s), or appointed/elected official(s) may not perform any work on professional service contracts, or other contracts, which are not subject to competitive bid.)

2. Do any individual members, partners, owners or principals have a spouse, registered domestic partner, child, parent, in-law or brother/sister, half-brother/half-sister, grandchild, grandparent, related to an SNWA full-time employee(s), or appointed/elected official(s)?
 Yes No (If yes, please complete the Disclosure of Relationship form on Page 2. If no, please print N/A on Page 2.)

I certify under penalty of perjury, that all of the information provided herein is current, complete, and accurate. I also certify that the entity is not on the federal government's Excluded Parties List, as defined by 2 CFR § 180.945. I further understand that the SNWA will not take action on land-use approvals, contract approvals, land sales, leases or exchanges without the completed disclosure form.



 Signature
 President, Stanka Consulting, LTD

 Title

Michael Stanka

 Print Name
 11/03/2016

 Date

DISCLOSURE OF RELATIONSHIP

List any disclosures below: **N/A**
(Mark N/A, if not applicable.)

NAME OF BUSINESS OWNER/PRINCIPAL	NAME OF SNWA EMPLOYEE OR OFFICIAL AND JOB TITLE	RELATIONSHIP TO SNWA EMPLOYEE OR OFFICIAL	SNWA EMPLOYEE'S/OFFICIAL'S DEPARTMENT

"Consanguinity" is a relationship by blood. "Affinity" is a relationship by marriage.

"To the second degree of consanguinity" applies to the candidate's first and second degree of blood relatives as follows:

- Spouse – Registered Domestic Partners – Children – Parents – In-laws (first degree)
- Brothers/Sisters – Half-Brothers/Half-Sisters – Grandchildren – Grandparents – In-laws (second degree)

For SNWA Use Only:

If no Disclosure or Relationship is noted above or if the section is marked N/A, please check this box:

No Disclosure

If any Disclosure of Relationship is noted above, please complete the following:

Yes No Is the SNWA employee(s) noted above involved in the contracting/selection process for this particular agenda item?

Yes No Is the SNWA employee(s) noted above involved in any way with the business in performance of the contract?

Notes/Comments:

Signature

Print Name
Authorized Department Representative

AMENDED AND RESTATED AGREEMENT FOR PROFESSIONAL SERVICES

This Amended and Restated Agreement for Professional Services is made and entered into this ____ day of November, 2016 (“Effective Date”), by and between STANKA CONSULTING, LTD., a Nevada professional corporation, hereinafter called “CONSULTANT,” and the SOUTHERN NEVADA WATER AUTHORITY, a political subdivision of the State of Nevada, hereinafter called the “AUTHORITY.” The CONSULTANT and the AUTHORITY are sometimes hereinafter referred to individually as “Party” and collectively as the “Parties.” The term “AUTHORITY” also refers to staff of the AUTHORITY acting within their designated authority and duties.

WITNESSETH:

WHEREAS, the CONSULTANT and AUTHORITY are currently subject to an existing Professional Services Agreement;

WHEREAS, the Parties desire to make certain changes to their existing agreement and desire to restate the agreement, as amended, in its entirety;

WHEREAS, the AUTHORITY desires to continue to receive professional services as more specifically described herein;

WHEREAS, the CONSULTANT is properly qualified and desires to provide the professional services required by the AUTHORITY, and

WHEREAS, the AUTHORITY, in reliance on the CONSULTANT’s representations and proposals, agrees to retain the CONSULTANT, and the CONSULTANT agrees to furnish professional services to the AUTHORITY, on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, the Parties hereto agree as follows:

1. SCOPE OF SERVICES:

(a) The CONSULTANT shall provide any requested services, hereinafter referred to as "Services" or "Work," as described and within the time indicated in **Exhibit A**, which is attached herewith and made a part of this Agreement.

(b) All Services performed shall be subject to the cost ceiling contained in Paragraph 4 hereof and subject to the AUTHORITY's directions respecting priorities. The CONSULTANT will furnish professional Services in the amount necessary to complete promptly and effectively the Work assigned under this Agreement. All of the Services shall be performed by the CONSULTANT or an approved subcontractor or subconsultant.

(c) In performing Services under this Agreement, the CONSULTANT shall observe and abide by the terms and conditions of all applicable laws, regulations, ordinances, or rules of the United States, of the State of Nevada, of any political subdivision thereof, and of any other duly constituted public authority or agency. The CONSULTANT shall be responsible for obtaining any license, permit or other approval as required by law or otherwise, arising out of the Services to be performed hereunder.

(d) The CONSULTANT has, or will secure at its own expense, the qualified personnel required to perform the Services assigned under this Agreement. Such personnel shall not be employed by the United States, the State of Nevada, Clark County, the AUTHORITY, or any other political subdivision of the State of Nevada.

2. PERIOD OF PERFORMANCE:

This Agreement shall become effective as of the Effective Date and, unless terminated in accordance with the terms of this Agreement, shall remain in effect until all Services authorized to be performed by the AUTHORITY are completed by the CONSULTANT.

3. COMPENSATION:

(a) In consideration for completion of all duties and responsibilities under this Agreement, the AUTHORITY agrees to pay the CONSULTANT, in accordance with Exhibit A, for Work completed to the AUTHORITY's satisfaction. Any increase to the hourly rates charged by CONSULTANT must be approved by the AUTHORITY's General Counsel before being billed to the AUTHORITY.

(b) The CONSULTANT shall provide itemized monthly invoices for Services performed during the previous month. Invoices are to be submitted to the AUTHORITY in accordance with the Notice provisions of this Agreement and must reference the name and Effective Date of the Agreement. A copy of any invoice received from subcontractors or subconsultants used by the CONSULTANT shall be included.

(c) The AUTHORITY shall pay invoiced amounts from the CONSULTANT based on the fees set forth in Exhibit A within thirty 30 calendar days after the date the invoice is received and approved by the AUTHORITY.

4. LIMITATION ON COSTS:

The total cost of Services provided under this Agreement shall not exceed two-hundred ten thousand dollars (\$210,000) per fiscal year.

5. TRUTH-IN-NEGOTIATION CERTIFICATION:

Signing of this Agreement by CONSULTANT shall constitute a truth-in-negotiation certification by CONSULTANT that wage rates and other factual unit costs supporting the compensation of this Agreement are accurate, complete, and current at the time of execution of this Agreement. The original Agreement price and any additions thereto shall be adjusted to exclude any significant sums by which the AUTHORITY determines the Agreement price was increased due to inaccurate, incomplete, or noncurrent wage rates and other factual unit costs. All such Agreement adjustments shall be made within one (1) year following the end of the term of this Agreement.

6. INDEPENDENT CONTRACTOR – NO JOINT VENTURE:

The relationship of the CONSULTANT to the AUTHORITY hereunder shall be that of an Independent Contractor as defined by NRS 616A.255 or Nevada state law. Nothing herein shall be construed to imply an employer and employee relationship, a joint venture, or principal and agent relationship.

7. INTELLECTUAL PROPERTY ACKNOWLEDGMENT:

In consideration of the covenants, representations and warranties set forth herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, CONSULTANT hereby covenants, represents and warrants the following:

(a) All content developed on behalf of the AUTHORITY, in whole or in part, solely or jointly by CONSULTANT and all of CONSULTANT's employees, associates or subcontractors assisting in creating developments and/or other work product, whether or not copyrightable or otherwise protected, including, without limitation, advertisements and marketing material ("Work Product") arising from Services performed pursuant to, or arising out of the AUTHORITY's engagement of CONSULTANT, or previously conceived in anticipation of work to be performed in

regard to the AUTHORITY's engagement of CONSULTANT, shall be deemed "work made for hire" as defined in the copyright laws of the United States of America (17 U.S.C. §101 et seq.) and the AUTHORITY shall own all right, title, and interest, including, without limitation, all copyrights and other intellectual property right, title, and interest ("Right") in and to the Work Product.

(b) To the extent that CONSULTANT is deemed to have or retain any Right or otherwise possess any Right in and to any Work Product, CONSULTANT hereby assigns, transfers, and conveys, all such Right to the AUTHORITY.

(c) CONSULTANT shall execute all documents and undertake all actions necessary to effect the clarification of ownership of all Work Product in and to the AUTHORITY and to allow the AUTHORITY to apply for registrations of the Work Product, as well as maintain any registrations gained, including, without limitation, the Intellectual Property Assignment set forth in Paragraph 8.

(d) CONSULTANT hereby waives and releases any claim of infringement of any Right of CONSULTANT (whether based in any intellectual property Right, other proprietary interest whatsoever, or fiduciary theory) in, to or respecting any Work Product (including, without limitation, any claim based on any CONSULTANT's rights in any Work Product which may be construed as "works of visual art" as defined in the Visual Arts Rights Act of 1990, 17 U.S.C. 106A) and shall never challenge nor dispute the AUTHORITY's Right in and to the Work Product.

8. INTELLECTUAL PROPERTY ASSIGNMENT

In consideration of the covenants, representations and warranties set forth herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, CONSULTANT hereby sells, conveys, transfers and assigns to the AUTHORITY all of the CONSULTANT's right, title, license and interest (including, without limitation, all intellectual

property right, title, license and interest) in and to any and all Work Product designed, developed, or created by the CONSULTANT or otherwise arising out of the CONSULTANT's Services or Work and related content by and for the benefit of the AUTHORITY (including, without limitation, patents applications, issued patents, prototypes for the purpose of same, and other associated derivatives) including, without limitation, all marks, all goodwill associated with such patents, marks, trade secrets, and copyrights in and to, relating to, associated with and/or arising from the Work, the right to applications, issuance, continuations, and divisionals of such patents and the right to applications, registrations, renewals, reissues, and extensions of such marks and copyrights, and the right to sue and recover for any past and/or continuing infringements or contract breaches, said rights, titles, licenses and interests to be held and enjoyed by the AUTHORITY, for the AUTHORITY's own use and benefit and for the use and benefit of the AUTHORITY's successors, assigns or other legal representatives, as fully and entirely as the same would have been held and enjoyed by the CONSULTANT if this sale, conveyance, transfer and assignment had not been made.

9. INTERPRETATION:

The Parties agree that neither Party shall be deemed the drafter of this Agreement and, in the event this Agreement is ever construed by a court of law or equity, such court shall not construe this Agreement or any provision hereof against either Party as drafter of this Agreement.

10. CONFLICT OF INTEREST:

During the course of performance of this Agreement, the CONSULTANT will not contract with any client whose interest is adverse to or would require the CONSULTANT to take a position contrary to that of the Las Vegas Valley Water District and/or the Southern Nevada Water Authority.

11. PROHIBITION AGAINST COMMISSION FOR OBTAINING AGREEMENT:

The CONSULTANT warrants that no person or company has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees; nor has the CONSULTANT paid or agreed to pay any person, company, corporation, individual or firm other than a partner or bona fide employee, any fee, commission, contribution, donation, percentage, gift, or any other consideration, contingent upon or resulting from award of this Agreement. For any breach or violation of this warranty, the AUTHORITY shall have the right to terminate this Agreement without liability, or at its discretion, to deduct from the contract price, or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration and any other damages.

12. PROHIBITION AGAINST INTEREST BY GOVERNMENT EMPLOYEES:

(a) No officer, employee or member of the governing body of the AUTHORITY shall (1) participate in any decision relating to this Agreement which affects his or her personal interest or the interest of any corporation, partnership, or association in which he or she is, directly or indirectly, interested or (2) have any interest, direct or indirect, in this Agreement or the proceeds thereof.

(b) The CONSULTANT represents that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of Services required to be performed under this Agreement. The CONSULTANT further covenants that in the performance of said Services, no person having any such interest shall be employed.

(c) No member of, delegate to or officer or employee of the legislative, executive or judicial branches of the government of the United States, of the State of Nevada or any of its political subdivisions shall be entitled to any share or part hereof or to any benefit to arise therefrom.

13. COMPLETENESS AND ACCURACY OF CONSULTANT'S WORK:

(a) The CONSULTANT shall be responsible for the completeness and accuracy of its research, supporting data, and any final reports or other deliverables prepared or compiled pursuant to this Agreement and shall correct, at its expense, all errors or omissions therein.

(b) The cost necessary to correct those errors attributable to the CONSULTANT and any damage incurred by the AUTHORITY as a result of additional costs caused by such errors shall be chargeable to the CONSULTANT. The fact that the AUTHORITY has accepted or approved the CONSULTANT's Work shall in no way relieve the CONSULTANT of any of its responsibilities.

(c) CONSULTANT's aggregate liability arising out of or related to this Agreement shall not exceed the limits of CONSULTANT's commercial general liability insurance policy, combined with any excess or umbrella coverage.

14. INDEMNIFICATION:

CONSULTANT shall indemnify, hold harmless, and defend without cost to the AUTHORITY, its Board of Directors and its officers, agents, and employees ("AUTHORITY Parties"), against any and all losses, claims, costs, damages, actions, proceedings, and liability arising out of, resulting from, or in any way incidental to CONSULTANT's provision of Services or Work under this Agreement. This indemnification includes, but is not limited to, claims for or by reason of any death or deaths of, or any physical injury or injuries to, any person or persons or damage to real or personal property of any kind whatsoever, whether the person(s) or property of CONSULTANT, its agents, or subconsultants, or of third parties; harassment or discrimination or any theory of joint or dual employment by the CONSULTANT's employees, agents, subcontractors or subconsultants, arising out of the Services or Work under this Agreement; negligence, whether active, passive or contributory, of the AUTHORITY Parties; or infringement on any U.S. patent

(issued as of the Effective Date) or any copyright or trademark. The AUTHORITY Parties may assume, at their sole option, control of the defense, appeal or settlement of any third-party claim for which CONSULTANT has indemnified the AUTHORITY Parties by giving written notice of the assumption to CONSULTANT. The AUTHORITY Parties may not settle or compromise any claim or consent to the entry of any judgment regarding claims for which CONSULTANT has indemnified the AUTHORITY Parties without the prior written consent of CONSULTANT, which consent shall not be unreasonably withheld, conditioned or delayed. The indemnification provided by CONSULTANT to the AUTHORITY Parties applies to all insurance policies of the CONSULTANT, whether primary, excess or umbrella coverage is provided to the CONSULTANT.

15. INSURANCE:

(a) General:

1. The CONSULTANT shall not commence Work under this Agreement until it has obtained all insurance required under this Agreement with insurance companies reasonably acceptable to the AUTHORITY, nor shall the CONSULTANT allow any subcontractor or subconsultant to commence Work until all similar insurance required of the subcontractor or subconsultant has been so obtained. CONSULTANT shall continue to pay all premiums due for the insurance required under this Agreement during the applicable policy periods and shall notify the AUTHORITY of any changes to its insurance coverage.

2. AUTHORITY shall be named as an additional insured, under CONSULTANT's commercial general liability, automobile liability, excess and/or umbrella liability policies. In the event of a loss arising out of or related to the

performance of Work by CONSULTANT or its subcontractor(s) or subconsultant(s) hereunder, all insurance required under this Agreement shall be primary (pay first) with respect to any other insurance which may be available to the AUTHORITY, regardless of how the "other insurance" provisions may read. The CONSULTANT agrees to waive its rights of subrogation against the AUTHORITY, and CONSULTANT's insurers shall also waive their rights to recover, as evidenced by an endorsement. The additional insured and waiver of subrogation language for blanket coverage of additional insured endorsement, underwritten contracts, or agreements shall read as follows:

The Southern Nevada Water Authority, its members and affiliated companies, successors or assigns, including their directors, officers and employees individually and collectively when acting in the scope of the employment. Also, all owners of the property where the Work will be performed.

3. The AUTHORITY shall also be named as an additional insured under the subcontractor's or subconsultant's insurance policies. Any deviation from the required insurance requirements will need to be approved by the AUTHORITY in writing. Nothing contained in this Paragraph is to be construed as limiting the extent of the CONSULTANT's or subcontractor's or subconsultant's liability for claims arising out of this Agreement. CONSULTANT and subcontractor or subconsultant shall be responsible for insuring all of its own personal property, tools and equipment.

4. If the CONSULTANT fails to procure and maintain the insurance as required herein, in addition to other rights or remedies, the AUTHORITY shall have the right, if the AUTHORITY so chooses, to procure and maintain the required

insurance in the name of the CONSULTANT with the AUTHORITY as an additional named insured. The CONSULTANT shall pay the cost thereof and shall furnish all necessary information to maintain the procured insurance. In the event the CONSULTANT fails to pay the cost, the AUTHORITY has the right to set off any sums from the compensation due to CONSULTANT set forth in this Agreement and directly pay for such coverage.

5. With respect to all insurance required under this Agreement, the deductible shall not exceed \$50,000 without the prior written approval of the Risk Manager of the AUTHORITY.

(b) Evidence of Insurance:

1. CONSULTANT's insurance shall be written with a property and casualty insurance company with an AM Best Financial Strength Rating of A- or higher and an AM Best Financial Size Category of Class VII or higher.

2. Within 10 working days after the Effective Date, the CONSULTANT shall deliver to the AUTHORITY a certificate of insurance documenting the required insurance coverage. Upon request of the AUTHORITY, CONSULTANT agrees to provide a copy of all insurance policies required under this Agreement.

3. Renewal certificates shall be provided to the AUTHORITY not later than 15 days prior to the expiration of policy coverage.

4. All insurance policies shall require the insurer to provide a minimum of sixty (60) calendar days' prior notice to the AUTHORITY for any material change in coverage, cancellation, or non-renewal, except for non-payment of premium, for which the insurer shall provide thirty (30) days' prior notice.

(c) Insurance Coverages:

1. Commercial General Liability Insurance:

CONSULATANT shall maintain commercial general liability insurance, contractual liability, protective liability from independent contractors, property damage liability, bodily injury liability, and personal injury liability with limits of \$1,000,000 per occurrence, and \$2,000,000 annual aggregate. The limit may be satisfied by a combination of primary and excess/umbrella insurance.

2. Business Automobile Insurance:

CONSULTANT shall maintain business auto insurance for any owned, non-owned, hired, or rented vehicle with a limit of \$1,000,000 combined single limit for bodily injury and property damage liability. The limit may be satisfied by a combination of primary and excess/umbrella insurance.

3. Workers Compensation Insurance:

CONSULTANT shall maintain statutory workers compensation insurance in accordance with the laws of the state where such compensation is payable. In addition, the insurance the CONSULTANT maintains shall comply with Nevada Industrial Insurance Act, NRS Chapters 616 and 617, for all of its employees performing Services or Work pursuant to this Agreement.

In the event the CONSULTANT is permissibly self-insured for workers' compensation insurance in the State of Nevada, the CONSULTANT shall deliver to the AUTHORITY a copy of the Certificate of Consent to self-insure issued by the State of Nevada.

4. Professional Liability Insurance:

CONSULTANT shall maintain professional liability insurance applicable to the CONSULTANT's Services or Work as set forth in this Agreement, with limits of not less than \$1,000,000 for each occurrence and \$1,000,000 policy aggregate. This coverage should be maintained for a period of not less than two (2) years after completion of the CONSULTANT's Work as set forth in this Agreement.

16. TERMINATION:

The AUTHORITY's General Manager, his/her designee and/or the CONSULTANT may terminate this Agreement on thirty (30) days' prior written notice. In the case of termination by the AUTHORITY, the AUTHORITY shall pay the CONSULTANT for all Work performed to the effective date of termination and the reasonable costs of transferring all documentation of all Work to the AUTHORITY.

17. RELEASE OF INFORMATION:

The CONSULTANT shall make public information releases only as provided for and in accordance with this Agreement. Any and all other public releases of information gathered, obtained, or produced during the performance of this Agreement must be specifically approved in writing by the AUTHORITY prior to release. Such information shall include, but is not limited to, all products, intellectual property, Work Product, ideas, data, reports, background materials, and any and all other materials belonging to the AUTHORITY. Such public releases of information shall include, but are not limited to, publication in any book, newspaper, magazine, professional or academic journal, the Internet, radio, television, and presentations to professional, academic, and/or other groups or conferences.

18. USE OF MATERIALS:

(a) The AUTHORITY shall make available to the CONSULTANT such materials from its files as may be required by the CONSULTANT in connection with its performance of Services under this Agreement. Such materials shall remain the property of the AUTHORITY while in the CONSULTANT's possession.

(b) Upon termination of this Agreement, the CONSULTANT shall turn over to the AUTHORITY any property of the AUTHORITY in its possession and any calculations, notes, reports, or other materials prepared by the CONSULTANT in the course of performing this Agreement. Any proprietary software or other tools of the CONSULTANT used to execute the Work shall remain the property of the CONSULTANT.

19. DATA PRIVACY AND SECURITY:

(a) Nevada's data security laws (NRS Chapter 603A) require businesses to implement and maintain reasonable security measures and to encrypt Personal Information before electronically transmitting it outside of an internal secured network. "Personal Information" is a natural person's first name or first initial and last name in combination with any one or more of the following data elements: 1) social security number; 2) driver's license number or identification card number; or 3) account number, credit card number or debit card number, in combination with any required security code, access code or password that would permit access to the person's financial account; 4) medical or health insurance identification number; and 5) a user name, unique identifier or email address in combination with a password or other information that would permit access to an account. Civil penalties, including money damages, may be awarded to an aggrieved party for violation of this law.

(b) CONSULTANT shall comply with Nevada's data security laws and with the terms and conditions set forth in this Agreement in its collection, receipt, transmission, storage, disposal, use and disclosure of Personal Information transmitted to it by the AUTHORITY.

(c) CONSULTANT shall implement and maintain a written information security program including appropriate policies and procedures that are reviewed for new risk assessments at least annually.

(d) CONSULTANT shall implement administrative, physical and technical safeguards to protect Personal Information from unauthorized access, acquisition or disclosure, destruction, alteration, accidental loss, misuse or damage that are no less rigorous than accepted industry practices, and shall ensure that all such safeguards, including the manner in which Personal Information is collected, accessed, used, stored, processed, disposed of and disclosed, comply with applicable data protection and privacy laws, as well as the terms and conditions of this Agreement.

(e) CONSULTANT agrees to notify the AUTHORITY without unreasonable delay and in the most expedient time possible of a security breach where unencrypted Personal Information transferred to CONSULTANT by the AUTHORITY was or is reasonably believed to have been acquired by an unauthorized person.

20. RECORDS:

The CONSULTANT shall retain financial and other records related to this Agreement for six (6) years after the completion or termination of this Agreement, and shall make available to the AUTHORITY for inspection, all books, records, documents, and other evidence directly pertinent to performance under this Agreement upon reasonable notice.

21. ASSIGNMENT:

The CONSULTANT shall not assign or transfer its interest in this Agreement without the prior written consent of the AUTHORITY. If CONSULTANT assigns or transfers without prior written approval, the assignment or transfer shall be void, and not merely voidable.

22. MODIFICATION OF AGREEMENT:

This Agreement may not be changed or modified except by written instrument executed by each Party or their designees.

23. SEVERABILITY:

If any term of this Agreement is to any extent illegal, invalid, or unenforceable, such term shall be excluded to the extent of such invalidity or unenforceability; all other terms of this Agreement shall remain in full force and effect; and, to the extent permitted and possible, the invalid or unenforceable term shall be deemed replaced by a term that is valid and enforceable and that comes closest to expressing the intention of such invalid or unenforceable term. If application of this Paragraph should materially and adversely affect the economic substance of the transactions contemplated in this Agreement, the Party adversely impacted shall be entitled to compensation for such adverse impact.

24. NON-DISCRIMINATORY EMPLOYEE PRACTICES:

(a) The CONSULTANT and any subcontractor or subconsultant working under the authority of the CONSULTANT, who is responsible for the selection, referral, hiring, or assignment of workers for the Services provided pursuant to this Agreement, is required to comply with all applicable provisions of Title VII of the Civil Rights Act of 1964, Age Discrimination in Employment Act, the Civil Rights Act of 1991, the Equal Pay Act, Title I of the Americans with Disabilities Act and all associated rules and regulations..

(b) CONSULTANT recognizes that if they or their subcontractors are found guilty by an appropriate authority of refusing to hire or do business with an individual or company due to reasons of race, color, religion, sex, sexual orientation, gender identity or expression, age, disability, national origin, or any other protected status, the AUTHORITY may declare the CONSULTANT in breach of the Agreement, terminate the Agreement, and designate the CONSULTANT as non-responsible.

25. EQUAL EMPLOYMENT OPPORTUNITY:

(a) The CONSULTANT and any subcontractor or subconsultant working under the authority of the CONSULTANT, who is responsible for the selection, referral, hiring, or assignment of workers for the Services provided pursuant to this Agreement, is required to comply with all applicable provisions of Title VII of the Civil Rights Act of 1964. This requirement includes compliance with Equal Employment Opportunity Commission regulations that prohibit discrimination based upon race, color, religion, sex, or national origin. Furthermore, the CONSULTANT shall in all relevant manners comply with the Age Discrimination in Employment Act, the Civil Rights Act of 1991, the Equal Pay Act, and Title I of the Americans with Disabilities Act.

(b) The CONSULTANT shall make all necessary documentation as required to comply with the Acts referred to above and shall make such documentation immediately available to the AUTHORITY upon the AUTHORITY's request. The CONSULTANT is solely liable for failure to comply with this provision.

26. APPLICABLE LAW:

Nevada law shall govern the interpretation of this Agreement, without reference to its choice of law provisions.

27. VENUE:

The Parties agree that venue for any dispute arising from the terms of this Agreement shall be Clark County, Nevada.

28. ATTORNEY'S FEES:

In the event that any Party commences an action to enforce or interpret this Agreement, or for any other remedy based on or arising from this Agreement, the prevailing party therein shall be entitled to recover its reasonable and necessary attorneys' fees and costs incurred.

29. NO THIRD PARTY RIGHTS:

This Agreement is not intended by the Parties to create any right in or benefit to parties other than the AUTHORITY and the CONSULTANT. This Agreement does not create any third party beneficiary rights or causes of action.

30. WAIVER:

The failure of either Party to enforce at any time, or for any period of time, the provisions hereof shall not be construed as a waiver of such provisions or of the rights of such Party to enforce each and every such provision.

31. CAPTIONS:

The captions contained in this Agreement are for reference only and in no way to be construed as part of this Agreement.

32. COUNTERPARTS:

This Agreement may be executed in any number of counterparts and by the different Parties on separate counterparts, each of which, when so executed, shall be deemed an original, and all counterparts together shall constitute one and the same instrument.

33. INTEGRATION:

This Agreement contains the entire understanding between the Parties relating to the transactions contemplated by this Agreement, notwithstanding any previous negotiations or agreements, oral or written, between the Parties with respect to all or any part of the subject matter hereof. All prior or contemporaneous agreements, understandings, representations and statements, oral or written, regarding the subject matter of this Agreement are merged in this Agreement and shall be of no further force or effect.

34. NOTICES:

Any and all notices, demands or requests required or appropriate under this Agreement (including invoices) shall be given in writing and signed by a person with authorization to bind the CONSULTANT or AUTHORITY, either by personal delivery, via a scanned document sent via email, or by registered or certified mail, return receipt requested, addressed to the following addresses:

To CONSULTANT: Stanka Consulting, Ltd.
3032 Silver Sage Dr., Ste. 101
Carson City, NV 89701
Attention: Michael Stanka
michael@stankaconsulting.com

To AUTHORITY: Southern Nevada Water Authority
Attention: General Counsel
1001 South Valley View Blvd.
Las Vegas, NV 89153
dana.walsh@snwa.com

When notice is given by mail, it shall be deemed served three (3) business days following deposit, postage prepaid in the United States mail. When notice is given by email transmission, it shall be deemed served upon receipt of confirmation of transmission if transmitted during normal

business hours or, if not transmitted during normal business hours, on the next business day following the email transmission.

The Parties may designate a new contact person under this provision for notices or invoices or change the addresses or email addresses identified above by notifying the other Party in writing.

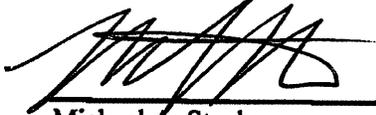
35. ELECTRONIC SIGNATURES:

Each Party agrees that the electronic signatures, whether digital or encrypted, of the Parties are intended to authenticate this writing and to have the same force and effect as manual signatures.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed the day and year first above written.

STANKA CONSULTING, LTD.

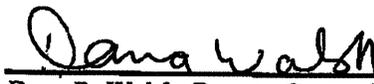
SOUTHERN NEVADA WATER AUTHORITY



Michael A. Stanka
President

John J. Entsminger
General Manager

Approved as to form:



Dana R. Walsh, Deputy Counsel

Exhibit A

Scope of Services

The Stanka Consulting, LTD will assist the Southern Nevada Water Authority with water right assessments, reviews, coordination and mapping that is necessary to complete investigations of water-related issues, as necessary. Stanka Consulting, LTD is prepared to provide the following types of services on an as-needed, per-project basis.

1. Investigate surface and ground water rights to determine their current status with respect to potential purchase.

- Determine location of where water rights are located
- Obtain copies of State Engineer files through search of the DNR website and review of hard copy files located at the State Engineer's office [Carson City] and remote sites.
- Analyze documentation to determine quantity of water rights and status of water rights
- Determine if water rights are Prime or Supplemental
- Map water rights locations
- Generate summary report of findings for SNWA and SNWA consultants.

2. Mapping of water rights of selected basins using GIS/Autodesk mapping efforts.

- Obtain all existing maps and documents pertaining to water rights of selected areas.
- Place all Water rights GIS Parcel Base Map ("real world" survey-grade datum)
- Place all map overlays onto GIS Parcel Base Map using photo interpretation of boundary lines.
- Produce electronic and hardcopy version of the new mapping system.
- Assist the SNWA in obtaining Nevada State Engineer recognition of mapping system through meetings and presentations with State Engineer office or other applicable entities.

3. Review of on-going SNWA GIS mapping efforts of selected basins.

- Primary goal of the review would be to ensure the end result is reproducible and defensible for possible future State Engineer hearings.
- Review all source data used (GIS base mapping system and State Engineer permits) to ensure they are complete and applied correctly.
- Ensure all source material is documented.
- Review and evaluate all steps used in the process from start to finish.
- Document all steps used in process, identify assumptions used and rational for process.
- Develop or review (if available) report which could be used as an exhibit in support of hearing which outlines source data, methodology, and end results.

- Coordinate with State Engineers office to obtain acceptance of the GIS maps and then the ground water mapping upon the GIS maps.
 - Coordinate all efforts closely with SNWA and SNWA consultants to ensure product is consistent with SNWA requirements.
- 4. Review and comment on Environmental reports or data as it pertains to SNWA potential water rights purchases.**
- Obtain available reports, maps, photographs, aerial photography, and sampling results.
 - Review and analyze available information.
 - Generate summary report of findings and recommendations for SNWA and SNWA consultants.
- 5. Conduct field investigations to support review of water rights or environmental issues in support due diligence in water right purchases.**
- Obtain available information as outlined in item #1 and #4 [listed above].
 - Complete site visit to include photo documentation, GPS positioning, and interviews with applicable personnel.
 - Generate summary report of findings and recommendations for SNWA and SNWA consultants.
- 6. Prepare or Review Exhibits in preparation of State Engineer Hearing.**
- Prepare hearing exhibits and reports as assigned for State Engineer hearing
 - Obtain copies of draft / final exhibits.
 - Review exhibits material to ensure accuracy and conclusions are supportable.
 - Brief SNWA and SNWA consultants regarding results of review.
- 7. Review ownership documentation [Change of Titles] and as part of due diligence in water rights purchases.**
- Research ownership title documentation using State Engineers Website, files located at the State Engineers office [Carson City], files located at State Engineer field offices, County Recorders offices, and other applicable locations.
 - Review and analyze ownership title documentation.
 - Generate summary report on status of ownership documentation.
- 8. Assist SNWA and SNWA Consultants in preparation of Water Rights Opinion Letters.**
- Research and analyze all available and applicable documentation regarding water rights of selected locations [see #1, #2, and #7 listed above].

- Draft Water Rights Opinion Letter [except conclusions and recommendations] for SNWA and SNWA Legal consultants review.
 - Incorporated SNWA and SNWA consultants comments, conclusions, and recommendations into Water Opinion Letter.
 - Finalize for SNWA or SNWA Legal consultants signature and distribute as required.
- 9. Complete State Engineer water rights requirements for SNWA water rights.**
- Prepare and submit Record of Conveyances for water right transfers.
 - Prepare and submit extensions [beneficial use] for SNWA water rights.
 - Prepare and submit change application and related maps for Change of Manner of Use, Change of Place of Use, and Change of Point of Diversion for SNWA water rights.
 - Coordinate with State Engineer's office relating to SNWA water rights.
 - Prepare and submit any other documentation as required by the State Engineers office as it applies to SNWA water rights.

Stanka Consulting, LTD

A Professional Engineering Company

3032 Silver Sage Drive Suite 101

Carson City, Nevada 89701

(775) 885-9283

Standard Rate Sheet

Title	Rate	Unit
Senior Engineer	\$ 150.00	Hr.
Associate Engineer	\$ 110.00	Hr.
Engineer Intern /Engineering Aide	\$ 43.00	Hr.
AutoCAD / GIS Technician	\$ 76.00	Hr.
Administrative	\$ 43.00	Hr.

Direct Expense Rates

Per Diam	Current US Government Rate
-----------------	---------------------------------------

Milliage	Current US Government Rate
-----------------	---------------------------------------

Reproduction B & W (Letter)	\$ 0.15 Sheet
--	----------------------

Reproduction Color (Letter)	\$ 0.89 Sheet
------------------------------------	----------------------

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS**

AGENDA ITEM

November 17, 2016

Subject: Award of Construction Contract	Director's Backup
Petitioner: David L. Johnson, Deputy General Manager, Engineering/Operations	
Recommendations: That the Board of Directors award Contract No. 810S 01 C1, Tropicana Weir, to Aggregate Industries – SWR, Inc., for an amount of \$8,953,750, authorize a change order contingency amount not to exceed \$895,000, and authorize the General Manager to sign the contract agreement.	

Fiscal Impact:

Funds requested for current year expenditures are available in the Authority’s Capital Budget. Funds for future year expenditures will be budgeted accordingly.

Background:

Contract No. 810S 01 C1, Tropicana Weir (Contract) provides for construction of a steel sheet pile rip rap erosion control weir on the Las Vegas Wash, located as generally shown on Attachment A.

Sealed bids were received, publicly opened, and read aloud on October 4, 2016. A tabulation of the bids received is listed below:

Aggregate Industries – SWR, Inc.	\$ 8,953,750
Tab Contractors, Inc.	\$ 9,757,275
Las Vegas Paving Corporation	\$ 9,897,750
Rummel Construction of Nevada, Inc.	\$10,402,500
Sukut Construction, Inc.	\$10,970,000
Granite Construction Company	\$11,398,000

The Aggregate Industries – SWR, Inc. (AIS), proposal is considered to be the best bid received as defined by NRS 338.1389. The attached agreement provides for AIS to accept and agree to all Contract terms. AIS is a Nevada corporation located in Las Vegas, Nevada.

The Tropicana Weir project, included in the 2016 Las Vegas Wash Capital Improvements Plan adopted by the Board of Directors on May 19, 2016, will be funded through sales tax revenue.

This action is authorized pursuant to NRS 338.1389 and Sections 6(e) and 6(j) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:


 John J. Entsminger, General Manager
 JJE:DLJ:PJJ:DCB:evw
 Attachments

Aggregate Industries

DISCLOSURE OF OWNERSHIP/PRINCIPALS

Business Entity Type							
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Company	<input type="checkbox"/> Privately Held Corporation	<input checked="" type="checkbox"/> Publicly Traded Corporation	<input type="checkbox"/> Trust	<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Other
Business Designation Group							
<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> SBE	<input type="checkbox"/> PBE	<input type="checkbox"/> ESB	<input type="checkbox"/>		
Minority Business Enterprise	Women-Owned Business Enterprise	Small Business Enterprise	Physically Challenged Business Enterprise	Emerging Small Business			
Corporate/Business Entity Name:		Aggregate Industries - SWR, Inc.					
(Include d.b.a., if applicable)							
Street Address:		3101 E. Craig Road			Website: aggregate-us.com		
City, State and Zip Code:		North Las Vegas, NV 89030			POC Name and Email: Kevin Stoehr kevin.stoehr@aggregate-us.com		
Telephone No:		702-649-6250			Fax No: 702-649-8813		
Local Street Address:					Website:		
City, State and Zip Code:					Local Fax No:		
Local Telephone No:					Local POC Name Email:		
Number of Clark County, Nevada Residents Employed:		335					

All entities, with the exception of publicly-traded and non-profit organizations, must list the names of individuals, either directly or indirectly, holding more than five percent (5%) ownership or financial interest in the business entity appearing before the SNWA Board of Directors.

Publicly-traded entities and non-profit organizations shall list all Corporate Officers and Directors in lieu of disclosing the names of individuals with ownership or financial interest. The disclosure requirement, as applied to land-use applications, extends to the applicant and the landowner(s).

Entities include all business associations organized under or governed by Title 7 of the Nevada Revised Statutes, including but not limited to private corporations, close corporations, foreign corporations, limited liability companies, partnerships, limited partnerships, and professional corporations.

Full Name	Title	% Owned <small>(Not required for Publicly Traded Corporations/Non-profit organizations)</small>
Elizabeth McClain	Treasurer	
Kevin Stoehr	Vice President	
Jodie Earle	Secretary	
Aggregate Industries Management	Parent Company	100%

This section is not required for publicly-traded corporations.

- Are any individual members, partners, owners or principals, involved in the business entity, an SNWA full-time employee(s), or appointed/elected official(s)?
 Yes No (If yes, please note that SNWA employee(s), or appointed/elected official(s) may not perform any work on professional service contracts, or other contracts, which are not subject to competitive bid.)
- Do any individual members, partners, owners or principals have a spouse, registered domestic partner, child, parent, in-law or brother/sister, half-brother/half-sister, grandchild, grandparent, related to an SNWA full-time employee(s), or appointed/elected official(s)?
 Yes No (If yes, please complete the Disclosure of Relationship form on Page 2. If no, please print N/A on Page 2.)

I certify under penalty of perjury, that all of the information provided herein is current, complete, and accurate. I also certify that the entity is not on the federal government's Excluded Parties List, as defined by 2 CFR § 180.945. I further understand that the SNWA will not take action on land-use approvals, contract approvals, land sales, leases or exchanges without the completed disclosure form.

Shelley Miller
 Signature
 Contract Administrator
 Title

Shelley Miller
 Print Name
10/17/16
 Date

DISCLOSURE OF RELATIONSHIP

List any disclosures below:
(Mark N/A, if not applicable.)

NAME OF BUSINESS OWNER/PRINCIPAL	NAME OF SNWA EMPLOYEE OR OFFICIAL AND JOB TITLE	RELATIONSHIP TO SNWA EMPLOYEE OR OFFICIAL	SNWA EMPLOYEE'S/OFFICIAL'S DEPARTMENT
N/A			

“Consanguinity” is a relationship by blood. “Affinity” is a relationship by marriage.

“To the second degree of consanguinity” applies to the candidate’s first and second degree of blood relatives as follows:

- Spouse – Registered Domestic Partners – Children – Parents – In-laws (first degree)
- Brothers/Sisters – Half-Brothers/Half-Sisters – Grandchildren – Grandparents – In-laws (second degree)

For SNWA Use Only:

If no Disclosure or Relationship is noted above or if the section is marked N/A, please check this box:

No Disclosure

If any Disclosure of Relationship is noted above, please complete the following:

Yes No Is the SNWA employee(s) noted above involved in the contracting/selection process for this particular agenda item?

Yes No Is the SNWA employee(s) noted above involved in any way with the business in performance of the contract?

Notes/Comments:



 Signature
 DONALD BITTLER

 Print Name
 Authorized Department Representative

Parent
Company

DISCLOSURE OF OWNERSHIP/PRINCIPALS

Business Entity Type							
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Company	<input type="checkbox"/> Privately Held Corporation	<input checked="" type="checkbox"/> Publicly Traded Corporation	<input type="checkbox"/> Trust	<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Other
Business Designation Group							
<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> SBE	<input type="checkbox"/> PBE	<input type="checkbox"/> ESB	<input type="checkbox"/>		
Minority Business Enterprise	Women-Owned Business Enterprise	Small Business Enterprise	Physically Challenged Business Enterprise	Emerging Small Business			
Corporate/Business Entity Name:		Aggregate Industries Management					
(Include d.b.a., if applicable)							
Street Address:		24 Crosby Drive		Website: aggregate-us.com			
City, State and Zip Code:		Bedford, MA 01730		POC Name and Email: Jodie Earle jodie.earle@holcim.com			
Telephone No:		781-647-2530		Fax No: 617-549-4225			
Local Street Address:		3101 E. Craig Road		Website: aggregate-us.com			
City, State and Zip Code:		North Las Vegas, NV 89030		Local Fax No: 702-649-8813			
Local Telephone No:		702-649-6250		Local POC Name Email: Kevin Stoehr kevin.stoehr@aggregate-us.com			
Number of Clark County, Nevada Residents Employed: 335							

All entities, with the exception of publicly-traded and non-profit organizations, must list the names of individuals, either directly or indirectly, holding more than five percent (5%) ownership or financial interest in the business entity appearing before the SNWA Board of Directors.

Publicly-traded entities and non-profit organizations shall list all Corporate Officers and Directors in lieu of disclosing the names of individuals with ownership or financial interest. The disclosure requirement, as applied to land-use applications, extends to the applicant and the landowner(s).

Entities include all business associations organized under or governed by Title 7 of the Nevada Revised Statutes, including but not limited to private corporations, close corporations, foreign corporations, limited liability companies, partnerships, limited partnerships, and professional corporations.

Full Name	Title	% Owned <small>(Not required for Publicly Traded Corporations/Non-profit organizations)</small>
See attached list for directors and corporate officers		

This section is not required for publicly-traded corporations.

- Are any individual members, partners, owners or principals, involved in the business entity, an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please note that SNWA employee(s), or appointed/elected official(s) may not perform any work on professional service contracts, or other contracts, which are not subject to competitive bid.)
- Do any individual members, partners, owners or principals have a spouse, registered domestic partner, child, parent, in-law or brother/sister, half-brother/half-sister, grandchild, grandparent, related to an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please complete the Disclosure of Relationship form on Page 2. If no, please print N/A on Page 2.)

I certify under penalty of perjury, that all of the information provided herein is current, complete, and accurate. I also certify that the entity is not on the federal government's Excluded Parties List, as defined by 2 CFR § 180.945. I further understand that the SNWA will not take action on land-use approvals, contract approvals, land sales, leases or exchanges without the completed disclosure form.

Shelley Miller
Signature
Contract Administration
Title

Shelley Miller
Print Name
10/17/16
Date

DISCLOSURE OF OWNERSHIP/PRINCIPALS FORM

ENTITY: AGGREGATE INDUSTRIES MANAGEMENT

10/17/2016

FULL NAME	TITLE	% OWNED
Alain Bourguignon	Director	
Guy Edwards	Director / President and CEO/Chief Operating Officer	
Jay Tangney	Director/Senior Vice President, Chief Legal Officer, and Corporate Secretary	
Rick Reinhart	Senior Vice President and CFO	
Anthony Bond	Vice President, Tax	
Elizabeth McClain	Treasurer	
Jodie Earle	Secretary	
Holicm Participations (US) Inc	Parent Company	100%

Holding Company

DISCLOSURE OF OWNERSHIP/PRINCIPALS

Business Entity Type							
<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Company	<input type="checkbox"/> Privately Held Corporation	<input checked="" type="checkbox"/> Publicly Traded Corporation	<input type="checkbox"/> Trust	<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Other
Business Designation Group							
<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> SBE	<input type="checkbox"/> PBE	<input type="checkbox"/> ESB	<input type="checkbox"/>		
Minority Business Enterprise	Women-Owned Business Enterprise	Small Business Enterprise	Physically Challenged Business Enterprise	Emerging Small Business			
Corporate/Business Entity Name:		Holcim Participations (US) Inc.					
(Include d.b.a., if applicable)							
Street Address:		24 Crosby Drive		Website: aggregate-us.com			
City, State and Zip Code:		Bedford, MA 01730		POC Name and Email:		Jodie Earle jodie.earle@holcim.com	
Telephone No:		781-647-2530		Fax No: 617-549-4225			
Local Street Address:		3101 E. Craig Road		Website: aggregate-us.com			
City, State and Zip Code:		North Las Vegas, NV 89030		Local Fax No: 702-649-8813			
Local Telephone No:		702-649-6250		Local POC Name Email: Kevin Stoehr kevin.stoehr@aggregate-us.com			
Number of Clark County, Nevada Residents Employed: 335							

All entities, with the exception of publicly-traded and non-profit organizations, must list the names of individuals, either directly or indirectly, holding more than five percent (5%) ownership or financial interest in the business entity appearing before the SNWA Board of Directors.

Publicly-traded entities and non-profit organizations shall list all Corporate Officers and Directors in lieu of disclosing the names of individuals with ownership or financial interest. The disclosure requirement, as applied to land-use applications, extends to the applicant and the landowner(s).

Entities include all business associations organized under or governed by Title 7 of the Nevada Revised Statutes, including but not limited to private corporations, close corporations, foreign corporations, limited liability companies, partnerships, limited partnerships, and professional corporations.

Full Name	Title	% Owned <small>(Not required for Publicly Traded Corporations/Non-profit organizations)</small>
See attached list for directors and corporate officers		

This section is not required for publicly-traded corporations.

- Are any individual members, partners, owners or principals, involved in the business entity, an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please note that SNWA employee(s), or appointed/elected official(s) may not perform any work on professional service contracts, or other contracts, which are not subject to competitive bid.)
- Do any individual members, partners, owners or principals have a spouse, registered domestic partner, child, parent, in-law or brother/sister, half-brother/half-sister, grandchild, grandparent, related to an SNWA full-time employee(s), or appointed/elected official(s)?
 - Yes No (If yes, please complete the Disclosure of Relationship form on Page 2. If no, please print N/A on Page 2.)

I certify under penalty of perjury, that all of the information provided herein is current, complete, and accurate. I also certify that the entity is not on the federal government's Excluded Parties List, as defined by 2 CFR § 180.945. I further understand that the SNWA will not take action on land-use approvals, contract approvals, land sales, leases or exchanges without the completed disclosure form.

Shelley Miller

 Signature
 Contract Administration

 Title

Shelley Miller

 Print Name
 10/17/16

 Date

DISCLOSURE OF OWNERSHIP/PRINCIPALS FORM

ENTITY: HOLCIM PARTICIPATIONS (US) INC

10/17/2016

FULL NAME	TITLE	% OWNED
Markus Unternahrer	Director	
Andrew Klevorn	Director	
Andreas Kranz	Director	
Rick Reinhart	President	
Alain Scherrer	Vice President	
Anthony Bond	VP, Treasury	
Mark Unternahrer	VP, Financial Holdings	
Jay Tangney	General Counsel & Corporate Secretary	
Jodie Earle	Assistant Secretary	

**ATTACH ADDITIONAL DISCLOSURE OF OWNERSHIP/DISCLOSURE
OF RELATIONSHIP FORMS HERE, IF NECESSARY.
PHOTO COPIES ARE ACCEPTABLE.**

TARGETED BUSINESS AFFIDAVIT

We ask that this form be completed by the successful bidder and returned to the Owner within ten working days after the award of contract is made by the Owner's Board of Directors.

Please photocopy these forms should additional space be required.

CONTRACTOR: Aggregate Industries - SWR, Inc.

I AM AN S/M/W/DBE/ESB PRIME CONTRACTOR

ANY SMALL, MINORITY, DISADVANTAGED, WOMEN-OWNED, OR EMERGING SMALL BUSINESS UTILIZED FOR THE PERFORMANCE OF ANY PORTION OF THE WORK SHALL BE SPECIFIED REGARDLESS OF THE AMOUNT/PERCENTAGE OF THIS CONTRACT.

SUBCONTRACTORS

I AM NOT USING ANY S/M/W/DBE/ESB SUBCONTRACTORS

I AM USING THE FOLLOWING S/M/W/DBE/ESB SUBCONTRACTORS

<u>DESCRIPTION OF WORK</u>	<u>SUBCONTRACTOR</u>	
<u>Concrete cap</u>	Name of Firm: <u>Stewart & Sundell Concrete</u>	<u>4.5%</u>
	Address: <u>1760 Brooks Avenue</u>	<u>APPROXIMATE</u>
	<u>North Las Vegas, Nevada 89030</u>	<u>PERCENTAGE OF TOTAL</u>
	Telephone Number: <u>702-649-6250</u>	
	Nevada State Contractor's License Number <u>26259A</u>	
	Business License Number Clark County _____	
	City of Las Vegas _____	
	City of Henderson _____	
	City of North Las Vegas _____	
	Boulder City _____	
	Multi-Jurisdictional <u>4055976000</u>	
	Other _____	

Business Enterprise Type:

- Minority Business Enterprise
- Physically Challenged Business Enterprise
- Majority Business Enterprise
- Nevada Business Enterprise
- Women Business Enterprise
- Disadvantaged Business Enterprise
- Small Business Enterprise
- Emerging Small Business

Ethnicity:

- Asian
- Black
- Caucasian
- Hispanic
- Native American
- Other _____

<u>DESCRIPTION OF WORK</u>	<u>SUBCONTRACTOR</u>	
Survey	Name of Firm: <u>J. S. & S. Inc.</u>	0.2%
	Address: <u>2690 Crimson Canyon</u> <u>Las Vegas, Nevada 89128</u>	APPROXIMATE PERCENTAGE OF TOTAL
	Telephone Number: <u>702-360-4838</u>	
	Nevada State Contractor's License Number <u>N/A</u>	
	Business License Number Clark County _____	
	City of Las Vegas _____	
	City of Henderson _____	
	City of North Las Vegas _____	
	Boulder City _____	
	Multi-Jurisdictional _____	
	Other _____	
	Business Enterprise Type:	
	<input checked="" type="checkbox"/> Minority Business Enterprise	<input type="checkbox"/> Women Business Enterprise
	<input type="checkbox"/> Physically Challenged Business Enterprise	<input type="checkbox"/> Disadvantaged Business Enterprise
	<input type="checkbox"/> Majority Business Enterprise	<input checked="" type="checkbox"/> Small Business Enterprise
	<input type="checkbox"/> Nevada Business Enterprise	<input type="checkbox"/> Emerging Small Business
	Ethnicity:	
	<input type="checkbox"/> Asian	<input checked="" type="checkbox"/> Hispanic
	<input type="checkbox"/> Black	<input type="checkbox"/> Native American
	<input type="checkbox"/> Caucasian	<input type="checkbox"/> Other _____

<u>DESCRIPTION OF WORK</u>	<u>SUBCONTRACTOR</u>	
	Name of Firm: _____	APPROXIMATE PERCENTAGE OF TOTAL
	Address: _____ _____	
	Telephone Number: _____	
	Nevada State Contractor's License Number _____	
	Business License Number Clark County _____	
	City of Las Vegas _____	
	City of Henderson _____	
	City of North Las Vegas _____	
	Boulder City _____	
	Multi-Jurisdictional _____	
	Other _____	
	Business Enterprise Type:	
	<input type="checkbox"/> Minority Business Enterprise	<input type="checkbox"/> Women Business Enterprise
	<input type="checkbox"/> Physically Challenged Business Enterprise	<input type="checkbox"/> Disadvantaged Business Enterprise
	<input type="checkbox"/> Majority Business Enterprise	<input type="checkbox"/> Small Business Enterprise
	<input type="checkbox"/> Nevada Business Enterprise	<input type="checkbox"/> Emerging Small Business
	Ethnicity:	
	<input type="checkbox"/> Asian	<input type="checkbox"/> Hispanic
	<input type="checkbox"/> Black	<input type="checkbox"/> Native American
	<input type="checkbox"/> Caucasian	<input type="checkbox"/> Other _____

SUPPLIERS

- I AM NOT USING ANY S/M/W/DBE/ESB SUPPLIERS
 I AM USING THE FOLLOWING S/M/W/DBE/ESB SUPPLIERS

<u>DESCRIPTION OF WORK</u>	<u>SUPPLIERS</u>	
	Name of Firm: _____	
	Address: _____	APPROXIMATE
	_____	PERCENTAGE OF TOTAL
	Telephone Number: _____	
	Nevada State Contractor's License Number _____	
	Business License Number Clark County _____	
	City of Las Vegas _____	
	City of Henderson _____	
	City of North Las Vegas _____	
	Boulder City _____	
	Multi-Jurisdictional _____	
	Other _____	
Business Enterprise Type:		
<input type="checkbox"/> Minority Business Enterprise	<input type="checkbox"/> Women Business Enterprise	
<input type="checkbox"/> Physically Challenged Business Enterprise	<input type="checkbox"/> Disadvantaged Business Enterprise	
<input type="checkbox"/> Majority Business Enterprise	<input type="checkbox"/> Small Business Enterprise	
<input type="checkbox"/> Nevada Business Enterprise	<input type="checkbox"/> Emerging Small Business	
Ethnicity:		
<input type="checkbox"/> Asian	<input type="checkbox"/> Hispanic	
<input type="checkbox"/> Black	<input type="checkbox"/> Native American	
<input type="checkbox"/> Caucasian	<input type="checkbox"/> Other _____	

<u>DESCRIPTION OF WORK</u>	<u>SUPPLIERS</u>	
	Name of Firm: _____	
	Address: _____	APPROXIMATE
	_____	PERCENTAGE OF TOTAL
	Telephone Number: _____	
	Nevada State Contractor's License Number _____	
	Business License Number Clark County _____	
	City of Las Vegas _____	
	City of Henderson _____	
	City of North Las Vegas _____	
	Boulder City _____	
	Multi-Jurisdictional _____	
	Other _____	
Business Enterprise Type:		
<input type="checkbox"/> Minority Business Enterprise	<input type="checkbox"/> Women Business Enterprise	
<input type="checkbox"/> Physically Challenged Business Enterprise	<input type="checkbox"/> Disadvantaged Business Enterprise	
<input type="checkbox"/> Majority Business Enterprise	<input type="checkbox"/> Small Business Enterprise	
<input type="checkbox"/> Nevada Business Enterprise	<input type="checkbox"/> Emerging Small Business	
Ethnicity:		
<input type="checkbox"/> Asian	<input type="checkbox"/> Hispanic	
<input type="checkbox"/> Black	<input type="checkbox"/> Native American	
<input type="checkbox"/> Caucasian	<input type="checkbox"/> Other _____	

AGREEMENT

THIS AGREEMENT, made and entered into, by and between Southern Nevada Water Authority, hereinafter referred to as Owner, and Aggregate Industries - SWR, Inc.

hereinafter referred to as Contractor, with both Owner and Contractor collectively referred to as the Parties,

WITNESSETH: That the Parties do mutually agree as follows:

1. Owner has awarded to Contractor the Contract for:

Contract Title: TROPICANA WEIR

Contract No: 810S 01 C1

Public Works Project Identifying Number: CL-2017-02

2. For and in consideration of the payments and agreements hereinafter mentioned to be made and performed by said Owner, Contractor agrees to perform and complete in a good and workmanlike manner Work as defined in the Contract Documents and to furnish materials and tools and labor necessary to properly perform and complete the Work ready for use in strict accordance with the Contract Documents and under the penalty expressed in the attached bonds, which are hereby declared and accepted as essential parts of this Agreement and to accept as full compensation therefor the Contract Price as defined in the Contract Documents.
3. The Contractor hereby certifies that the Contractor has read and understands every provision contained in the Contract Documents. Contractor shall be bound and shall comply with each and every term, condition, and covenant set forth in the Contract Documents.
4. For performing all Work and furnishing materials and labor necessary thereto, Owner will pay and Contractor shall receive in full compensation the Contract Price, in the manner and upon the conditions set forth in the Contract Documents.
5. Contract Documents which comprise the entire agreement between the Owner and Contractor for the performance of Work consist of the following:
 - a. Addenda
 - b. General Requirements
 - c. Supplementary Conditions
 - d. General Conditions
 - e. Agreement
 - f. Drawings
 - g. Technical Specifications
 - h. Permits
 - i. Bid Form and Accompanying Documents, including without limitation, Affidavit Pertaining to Preference Eligibility
 - j. Bonds

- k. Instructions to Bidders
- l. Invitation to Bid and Legal Notice
- m. Notice of Award
- n. Final Notice to Proceed

6. Affirmative Agreement to Arbitrate. By the signing of this Agreement, Contractor expressly authorizes Article 16 of the General Conditions and affirmatively agrees to settle all disputes, claims, or questions by binding arbitration.

IN WITNESS WHEREOF: The Contractor has caused this agreement to be executed this 17 day of October, 2016.

WITNESS/ATTEST:

[CONTRACTOR'S NAME]

Aggregate Industries - SWR, Inc.

Michelle S. Miller

By:

Kevin M. Stoehr

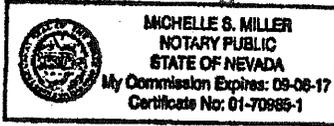
Signatory Empowered to Bind Contractor

Kevin M. Stoehr

Type or Print Name

General Manager / Vice President

Official Title



THIS AGREEMENT shall be in full force and effect as of the _____ day of _____, 20____, when it was duly signed by the proper officer of the Southern Nevada Water Authority.

SOUTHERN NEVADA WATER AUTHORITY

By _____

John J. Entsminger
General Manager

Approved as to Form:

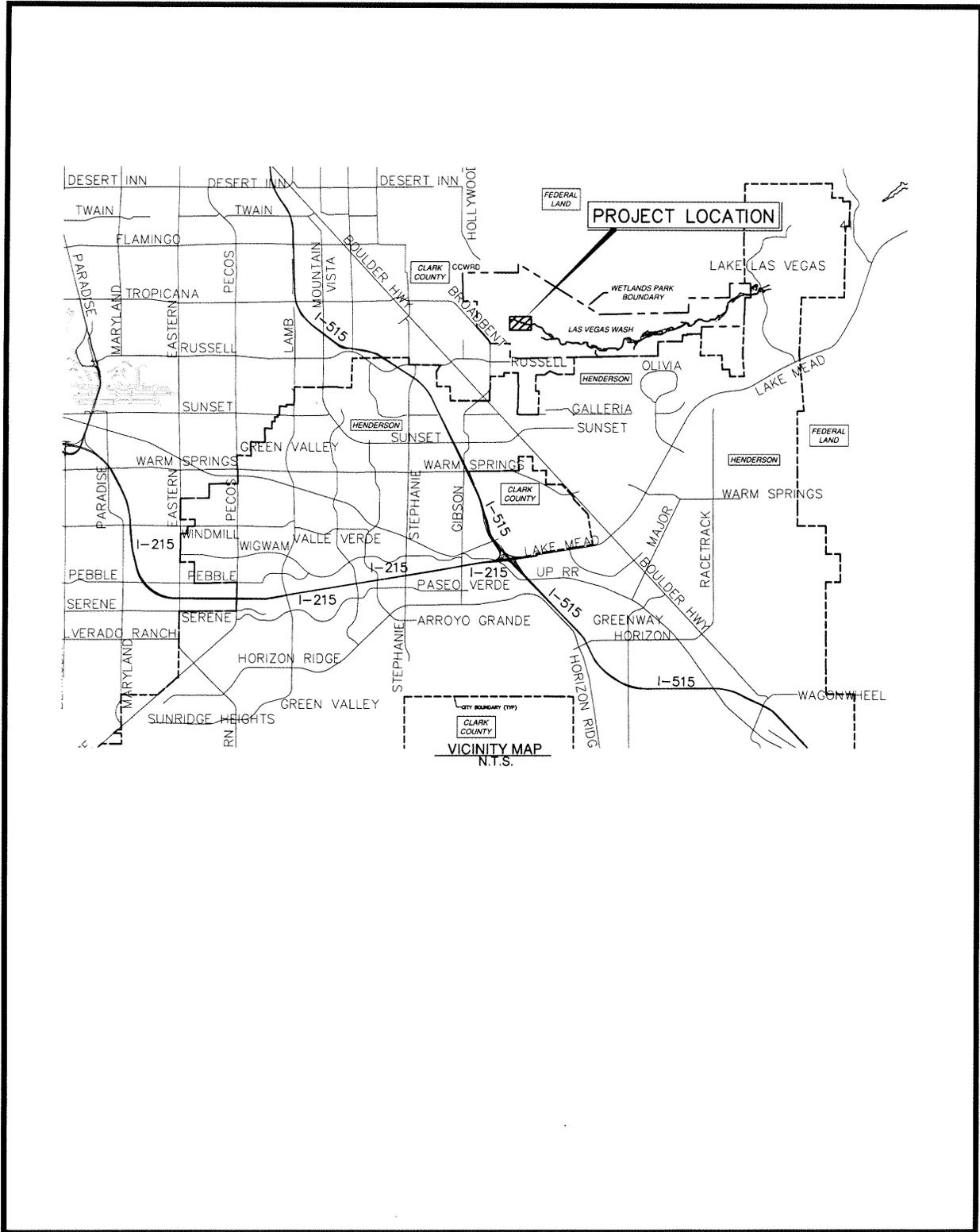
Kevin M. Stoehr

Attorney for Southern Nevada Water Authority

END OF DOCUMENT

SNWA BOARD OF DIRECTORS
AGENDA ITEM

CONTRACT NO. 810S 01 C1
TROPICANA WEIR



SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM
November 17, 2016

Subject: Comprehensive Annual Financial Report	Director's Backup
Petitioner: Julie A. Wilcox, Deputy General Manager Administration	
Recommendations: That the Board of Directors accept the Authority's Comprehensive Annual Financial Report and corresponding Independent Auditors' Report on Financial Statements and Supplementary Information for the period ending June 30, 2016, and authorize its submission to the Nevada Department of Taxation.	

Fiscal Impact:

None by approval of the above recommendation.

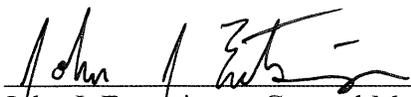
Background:

The Authority prepared a Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2016. The CAFR was audited by the Authority's independent auditor, Piercy Bowler Taylor & Kern. The CAFR and corresponding audit report will be presented to the Board of Directors, as required by State statutes.

At this time, the Board is being asked to accept the financial report. This report will be submitted to the Nevada Department of Taxation as outlined by Nevada Revised Statute (NRS) 354.624 and State regulations.

This action is required pursuant to NRS 354.624(6) and Section 6(p) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:JAW:RRS:ej

AGENDA
ITEM #

8



SOUTHERN NEVADA WATER AUTHORITY®
**COMPREHENSIVE ANNUAL
FINANCIAL REPORT**

For Fiscal Years Ended June 30, 2016 and 2015



The Colorado River system is facing the worst drought on record. The water level of Lake Mead, which serves as one of the primary water storage reservoirs, has dropped more than 130 feet since January 2000. In response to the drought, the SNWA has worked extensively with Colorado River Basin partners to develop, implement and continue programs to mitigate drought impacts on a regional level. Visit snwa.com for more information.



SOUTHERN NEVADA WATER AUTHORITY®

Comprehensive Annual Financial Report

**For the Fiscal Years Ended
June 30, 2016 and 2015**

John J. Entsminger
General Manager

Gina L. Neilson
Chief Financial Officer

Prepared by the SNWA Accounting Division of the Finance Department
Richard Snelding, SNWA Controller
1001 South Valley View Boulevard, Las Vegas, Nevada 89153
(702) 258-3124 www.snwa.com

Introductory Section

- Table of Contents
- Letter of Transmittal
- Map of Service Area
- Organizational Chart
- List of Principal Officials
- Certificate of Excellence in Financial Reporting



SOUTHERN NEVADA WATER AUTHORITY

Table of Contents

For the Fiscal Years Ended June 30, 2015 and 2014

Introductory Section

Table of Contents	1-1
Letter of Transmittal	
Formal Transmittal	1-3
Organizational Chart	1-9
List of Principal Officials	1-10
Certificate of Excellence in Financial Reporting	1-11

Financial Section

Independent Auditors' Report on Financial Statements & Supplementary Information	2-1
Management's Discussion and Analysis	2-3
Basic Financial Statements	
Statements of Net Position	2-10
Statements of Revenues, Expenses and Changes in Net Position	2-12
Statements of Cash Flows	2-13
Notes to Basic Financial Statements	
Note 1. Summary of Significant Accounting Policies	2-14
Note 2. Cash and Cash Equivalents	2-18
Note 3. Investments	2-19
Note 4. Due from Member Agencies	2-21
Note 5. Receivables	2-22
Note 6. Other Current Assets	2-22
Note 7. Capital Assets	2-23
Note 8. Natural Resource Rights	2-24
Note 9. Construction Work In Progress	2-28
Note 10. Water Recharge Inventory	2-30
Note 11. Deferred Amount on Refundings	2-30
Note 12. Accounts Payable	2-31
Note 13. Commitments, Reserves and Contingencies	2-31
Note 14. Short-Term Debt	2-35
Note 15. Due to Related Party	2-36
Note 16. Long-Term Debt	2-36
Note 17. Capital Contributions	2-46
Note 18. Risk Management	2-48
Note 19. Joint Venture	2-48
Note 20. Subsequent Events	2-49

SOUTHERN NEVADA WATER AUTHORITY

Table of Contents

For the Fiscal Years Ended June 30, 2015 and 2014

Statistical Section

Information on Financial Trends	
Net Position	3-2
Changes in Net Position	3-3
Information on Revenue Capacity	
Regional Connection Charge By Purveyor Members	3-6
Pending Regional Connection Charges Refund Contingency	3-8
Regional Connection Charges Revenue Rates.....	3-10
Wholesale Delivery Charge By Purveyor Member	3-13
Wholesale Delivery Charge for Potable Water Revenue Rates	3-14
Regional Infrastructure Charge By Purveyor Members	3-15
Regional Infrastructure Charges Revenue Rates by Service Size	3-16
Information on Debt Capacity	
Ratios of Outstanding Debt	3-17
Ratios of General Bonded Debt	3-18
Information About Debt Limitations and Pledged Revenue Coverage	3-19
Pledged Revenue Coverage.....	3-20
Demographic and Economic Information	
Demographic Statistics.....	3-23
Ten Largest Property-Owning Taxpayers	3-24
Clark County Top Ten Employers.....	3-25
Building Permits Issued in Clark County.....	3-26
Operating Information	
Full-Time Equivalent Employees (FTE) by Department / Function	3-27
Operating Indicators by Department / Function.....	3-28
Capital Asset Statistics by Department / Function.....	3-29
Lake Elevations by Quarter	3-30
Other Information	
Debt History	3-31
Individual Schedules of Existing Debt Service	3-36

SEC Disclosure Compliance Schedules (unaudited)

Outstanding Debt Obligations.....	4-1
Debt Service Requirements.....	4-3
Statement of Operating Revenues, Expenses and Changes in Net Position.....	4-4
Budget Summaries and Comparisons – Budgetary Basis.....	4-5
Annual Water Delivered by the Southern Nevada Water System	4-6
Historic SNWA Pledged Revenues.....	4-6
History of Water Revenues	4-7

Independent Auditors' Report on Internal Control and Compliance

Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with <i>Government Auditing Standards</i>	5-1
---	-----



SOUTHERN NEVADA WATER AUTHORITY

1001 South Valley View Boulevard • Las Vegas, NV 89153
(702) 258-3939 • snwa.com

October 27, 2016

To the Board of Directors,
Member Agencies,
and Citizens of southern Nevada

FORMAL TRANSMITTAL OF THE COMPREHENSIVE ANNUAL FINANCIAL REPORT (CAFR)

We are pleased to present the Southern Nevada Water Authority's (SNWA) CAFR for the fiscal year ended June 30, 2016. This letter of transmittal is designed to complement the Management's Discussion and Analysis (MD&A), and should be read in conjunction with it. The SNWA's MD&A can be found immediately following the report of the independent auditors.

This report was prepared by SNWA staff in accordance with current accounting and financial reporting principles promulgated by the Governmental Accounting Standards Board (GASB). The presentation of data is designed to conform to guidelines recommended by the Government Finance Officers Association of the United States and Canada (GFOA). SNWA management is solely responsible for the accuracy of the data presented and the completeness and fairness of presentation, including all disclosures. We believe the data to be accurate in all material respects and reported in a manner designed to fairly set forth the financial position and results of the SNWA's financial activities and operations.

We believe the SNWA's internal controls over financial reporting adequately safeguard the SNWA's assets and provide reasonable assurance of proper recording of financial transactions and the preparation of financial statements and accompanying information. In developing and evaluating the SNWA's accounting and financial reporting system, consideration is given to the adequacy of such internal controls. These controls are designed to provide reasonable assurance regarding safeguarding assets against loss from unauthorized use or disposition and also to prevent fraudulent financial reporting. The controls enhance the reliability of financial records for preparing financial statements and maintaining accountability of the SNWA assets. Reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived from that control, and the evaluation of costs and benefits requires estimates and judgments by management. The SNWA is committed to continually improve and strengthen its internal control procedures.

Nevada Revised Statute 354.624 and bond covenants require an annual audit of the SNWA's basic financial statements. This year the audit was performed by the independent public accounting firm of Piercy Bowler Taylor & Kern, Certified Public Accountants and Business Advisors. Their report on the basic financial statements, which contains an unmodified opinion, is included in the financial section.

The independent audit of the basic financial statements of the SNWA is part of a broader, federally-mandated "Single Audit" designed to meet the special needs of federal grantor agencies. The regulatory provisions governing Single Audit engagements require the independent auditor to report not only on the fair presentation of the basic financial statements, but also on the governmental entity's internal controls and compliance with legal requirements involving administration of federal awards. This report is available in a separate Single Audit Compliance Report.

PROFILE OF THE SNWA

Basic Information – The SNWA is a political subdivision of the State of Nevada (State), created in 1991 by a cooperative agreement among SNWA’s member agencies. The SNWA was created to address southern Nevada’s unique water needs on a regional basis, and is charged with acquiring and managing current and future resources for southern Nevada, constructing and managing regional water facilities, and promoting water conservation. The SNWA is governed by a seven-member Board of Directors (Board) comprised of one director from each of its seven member agencies. Because its operations are autonomous from its member agencies and the State, the SNWA’s financial statements are not included in the financial statements of any other entity. The Las Vegas Valley Water District (LVVWD) serves under contract as the operating agent for the SNWA.

Accounting System – The SNWA’s accounting system is structured on the basis of fund accounting. In governmental accounting, a fund is a self-contained accounting entity with its own set of assets, liabilities, revenues, expenditures or expenses, and fund balance. The SNWA uses a single enterprise fund to present its financial operations. The enterprise fund is used to account for the SNWA’s operations using full accrual accounting in a manner similar to a private business enterprise. It is the intent of the SNWA to establish water rates and other charges at levels sufficient to provide for payment of general operations and maintenance expenses, as well as capital improvements and debt service. Under full accrual accounting, revenues are recognized when earned and expenses (including depreciation) as incurred.

Budgetary Controls – As required by Nevada statutes, the Board approves the SNWA’s budget annually following a public hearing. A copy of the approved budget is then submitted to the Nevada Department of Taxation. Budgetary controls are established at the levels of total estimated operating and non-operating expenses. The budget effectively controls expenditures at various levels. Department directors and division managers are accountable for their budget variances.

FACTORS AFFECTING FINANCIAL CONDITION

Local Economy – The economic environment for Las Vegas and Clark County has improved steadily over the past several years. According to the U.S. Bureau of Economic Analysis, the Las Vegas metropolitan area’s gross domestic product rose over 6.5% per year since 2013. According to the State, unemployment in Clark County was 6.4% at the end of June 2016, which is a significant improvement over the 13.4% at the end of June 2011, and 13.8% at the end of June 2010. Although higher than the June 2016 national U.S. unemployment rate of 4.9%, Clark County’s unemployment rate continues to move in the right direction.

According to the U.S. Bureau of Census, Clark County’s population increased from 1,428,689 in 2000 to 1,951,269 in 2010, which is an increase of 36.6%. In 2015, Clark County’s population was 2,118,353, according to the Nevada State Demographer.

The Las Vegas Convention and Visitors’ Authority reported that from calendar year 2014 to 2015 visitor count in Clark County rose by 2.9% to 42.3 million, citywide hotel/motel occupancy rose 1.0% to 87.7%, convention attendance rose by 13.4% to 5.9 million, and gaming revenue in Clark County rose by 0.7% to \$9.6 billion.

According to the Nevada Department of Taxation, taxable sales in Clark County in June 2016 were \$3.6 billion, which is a year-over-year increase of 10.1%.

The housing market in Clark County continues to improve. In June 2016, the home inventory was 13,149, which is a decrease of 4.3% year-over-year. The median price for a new home was \$327,622, which is an 8.5% increase year-over-year. The existing median home price was \$205,000, which is a 5.1% increase year-over-year. New and existing home sales were up year-over-year 24.6% and 12.5%, respectively.

Long-Term Financial Planning – The SNWA’s mission is to manage the region’s water resources and develop solutions that will ensure adequate future water supplies for its members. To accomplish this, comprehensive capital plans are developed in conjunction with financial plans that show practical methods of paying future capital expenditures and debt service obligations.

Capital projects for the SNWA are proposed in response to identified needs for improvements to the facilities that provide for treatment and delivery of community water supplies to the members of the SNWA. These improvements include 1) new facilities to expand or enhance capabilities; 2) new water resources to expand or extend available water supplies; and 3) the repair, upgrade or replacement of existing facilities that no longer function as required.

The Engineering Department issues capital plans as needed, which the Board reviews and approves. The capital plans identify projects and initiatives for new facilities, acquisition of water and energy resources, and all other capital related activities. They also identify estimated costs and schedules for all approved projects and initiatives. The Finance Department models these costs to project the size and timing of future bond issuances as well as probable revenue enhancements that might be needed to pay for the future costs.

As of June 30, 2016, the SNWA has \$3.9 billion in outstanding debt (see Notes 14 and 16 for a discussion of outstanding SNWA debt). The SNWA is required to set rates and charges at levels sufficient to cover all operating costs and debt service when combined with accumulated funds. All applicable bond covenants have been met or exceeded.

The SNWA has four options to sell debt:

- LVVWD issues debt on behalf of the SNWA;
- Borrow through the State Bond Bank, in which the SNWA issues a bond to the State and the State in turn issues State General Obligation bonds (pursuant to 1997 Nevada legislation);
- Borrow through the Clark County Bond Bank, in which the SNWA issues a bond to the County and the County in turn issues County General Obligation bonds (pursuant to 1999 Nevada legislation); or
- Issue debt in its own name, recognizing that the SNWA does not have the power to levy property taxes and issue general obligation bonds, which would likely result in higher interest rates.

The credit ratings as of June 30, 2016, are listed below.

	Moody's	Standard & Poor's
LVVWD	Aa1	AA
State of Nevada Bond Bank	Aa2	AA
Clark County Bond Bank	Aa1	AA
LVVWD Commercial Paper	P-1	A-1+

Relevant Financial Policies – Budgets are developed to maintain balance between revenues and expenditures. Budgets are the financial road maps that assist engineering, operational and administrative departments in performing their daily duties in a financially prudent manner and support the Finance Department in providing finance plans that can generate sufficient revenues to pay for projected expenditures.

The SNWA regards its cash reserves as a critical component of its fiscal health and one of the most important metrics supporting an above average bond rating. Cash reserves are monitored regularly and revenue shortfalls are managed through a combination of methods. Departments are required to practice careful management of financial resources. User fees and charges are adjusted to maintain required revenue bond coverage and sufficient working capital. Financial reserves are used sparingly. When used, the reserves are compared to long range projections of reserve levels, and modifications to revenue and expense streams are made as needed.

Cash reserves and unspent bond proceeds are invested whenever practical in obligations of the U.S. government, obligations of government-sponsored agencies, certificates of deposit, money market accounts, and commercial paper in accordance with the investment policy. Investments are purchased through recognized and regulated brokers dealing in government securities. All investments are held by a third party custodian in the SNWA's name or are insured or collateralized with securities held by a third party in the SNWA's name.

In January 2016, the Board approved a reserve policy to provide guidance for maintaining adequate cash and investment reserves. Maintaining adequate reserves is an important tool in mitigating the risks of significant and unexpected decreases in sources of funds and/or increases in the uses of funds. Maintaining adequate reserves helps to ensure stable services and fees and allows the SNWA to better respond to unforeseen negative changes in the local economy while providing a continuous and reliable water supply to purveyor members. In addition, prudent reserves along with a formal reserve policy are a key factor rating agencies consider in their evaluation of creditworthiness.

Major Initiatives – The Colorado River system has experienced below average runoff for much of the last decade. As a result, the total volume of water stored in Lake Mead has been reduced to approximately 36% of capacity as of June 2016.

Existing pumping stations associated with Intake No. 1 and Intake No. 2 are currently drawing water from Intake No. 3 for customer delivery; however, Intake No. 1 becomes inoperable at elevation 1,050 feet and Intake No. 2 does the same at elevation 1,000 feet.

Because current and forecasted conditions project a high probability of lake levels continuing to decline potentially to 1,000 feet or lower within the next decade a new Low Lake Level Pumping Station (L3PS) is currently being constructed. Once complete and connected to Intake No. 3, the L3PS will have a capability of drawing water from as low as 875 feet above sea level.

The L3PS remains an important priority for protecting southern Nevada's primary water supply and represents the majority of the SNWA's capital commitments for the next fiscal year.

The SNWA remains focused on its responsibility to ensure the acquisition, treatment, and delivery of a reliable and quality water supply to the region. To this end, major activities in the next fiscal year will include:

- Operation and maintenance of facilities to treat and deliver water.
- Continuation of conservation education and incentive programs to maximize available water supplies.
- Continuation of work with federal, state, and local agencies to develop and operate joint facilities that provide regional solutions to water quality, supply, and environmental issues on the Colorado River.
- Design and construction of the L3PS to ensure access to Lake Mead water at the lowest elevations accessible by Intake No. 3.
- Securing all necessary permitting for the Groundwater Development Project in northeast Nevada.
- Maintenance efforts on the existing water infrastructure system.

SEC REQUIREMENT

On November 10, 1994, the Securities and Exchange Commission (SEC) amended the Securities Exchange Act of 1934, Rule 15c2-12, regarding continuing disclosure by issuers of municipal securities for the benefit of holders of such securities. The amendments require, among other things, that certain annual financial information be provided to various information repositories for bond issues sold on or after July 3, 1995. The annual financial information must include an update of the same financial statements, except for forecasts, that were included in the final official statement issued at the time of the bond sale. The required annual financial information for the SNWA is presented in the Continuing Disclosures Section of this report. The SNWA sends copies of its CAFR to appropriate information repositories, including the Electronic Municipal Market Access (EMMA) website, the Municipal Securities Rulemaking Board's central repository.

AWARDS AND ACKNOWLEDGMENTS

CAFR – The GFOA awarded a Certificate of Achievement for Excellence in Financial Reporting to the SNWA for its CAFR for the fiscal year ended June 30, 2015. This was the twentieth consecutive year that the SNWA has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized CAFR. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current CAFR continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

Budget – In addition, the SNWA also received the GFOA's Distinguished Budget Presentation Award for its annual budget document for the fiscal year beginning July 1, 2015. In order to qualify for this award, a government must publish a budget document that meets program criteria as a policy document, operations guide, financial plan, and communications device.

Construction – The SNWA's Intake No. 3 shaft and tunnel project was named the 2015 Global Tunneling Project of the Year (over \$500M) by the British magazine *New Civil Engineer*. Judges selected the project over six other international finalists, recognizing its unique design, execution, innovation, cost-effectiveness, teamwork, and collaboration. In addition, that same project was among six finalists for the 2016 Outstanding Civil Engineering Achievement (OCEA) Award. This prestigious award from the American Society of Civil Engineers honors the project that best illustrates superior civil engineering skills and represents a significant contribution to civil engineering progress and society.

Conservation – The SNWA's "Nothing Sexier than Saving Water" and "Head in the Grass" advertising campaigns earned seven ADDY Awards from the local club of the American Advertising Federation.

Fleet – The SNWA's fleet was ranked the second best green fleet in North America in 2015 by the Government Green Fleet Awards for best green initiatives, alternative-fuel and recycling programs, and fuel-reduction strategies.

Other Acknowledgements - We express our appreciation to all members of the SNWA's administrative staff and the independent certified public accounting firm of Piercy Bowler Taylor & Kern. Additionally, we recognize the SNWA's accounting staff for their efforts in preparing this report, especially Richard Snelding, SNWA Controller; Cheryl Styck, Senior Accountant; Osvaldo Hernandez, Senior Accountant; and Shera Miyashiro, Accountant. We also thank the members of the Board for their continued support in the planning and implementation of the financial affairs of the SNWA.

Sincerely,



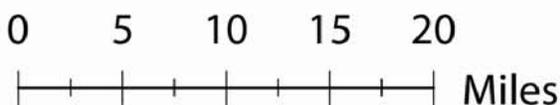
John J. Entsminger

General Manager

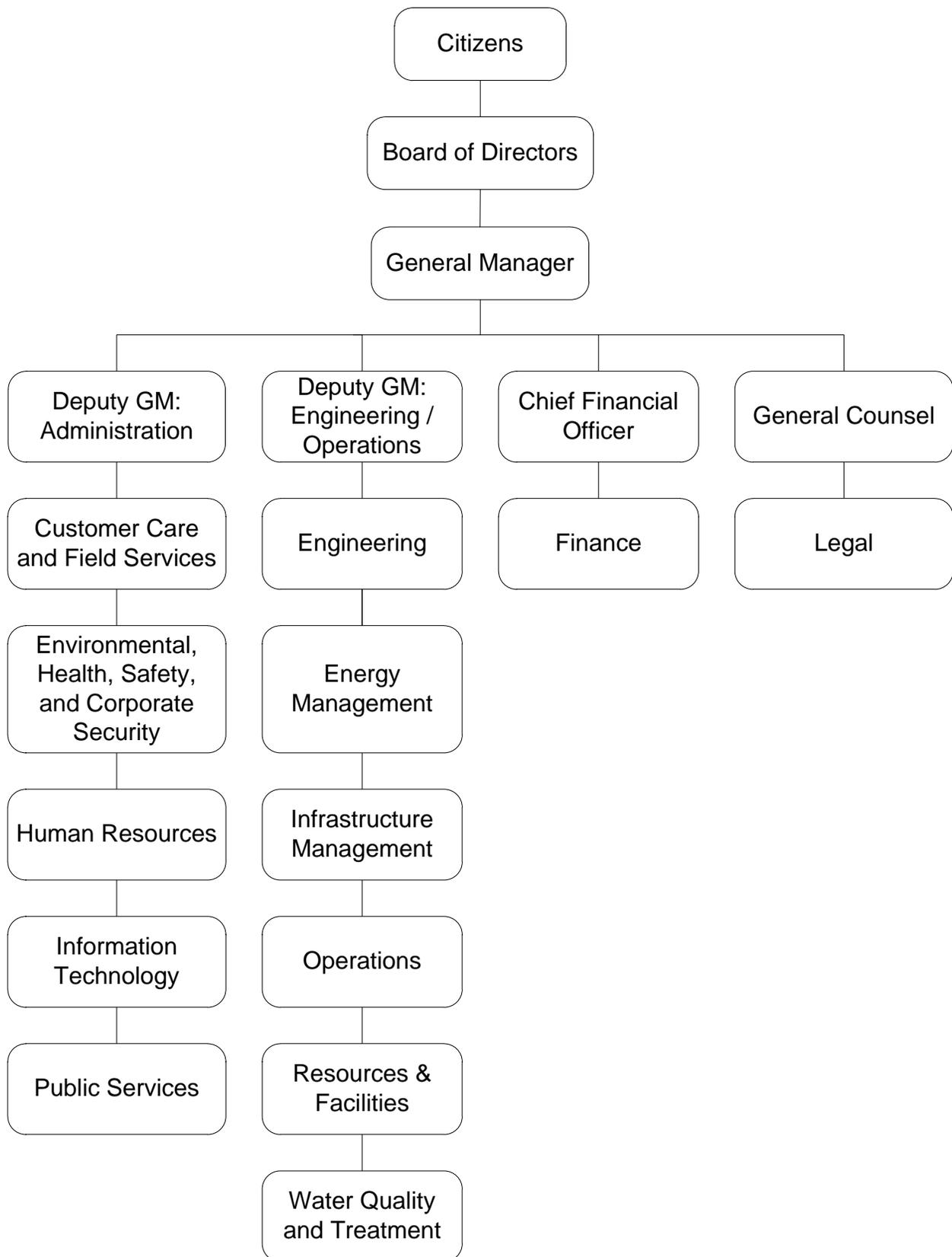


Gina L. Neilson

Chief Financial Officer



Southern Nevada Water Authority
Organizational Chart
As of June 30, 2016





Board of Directors



Mary Beth Scow, Chair
Las Vegas Valley Water District



Sam Bateman, Vice Chair
City of Henderson



Bob Coffin
City of Las Vegas



Marilyn Kirkpatrick
Clark County
Water Reclamation
District



Duncan McCoy
City of Boulder City



Steve Sisolak
Big Bend Water District



Anita Wood
City of North Las Vegas

Executive Management



John J. Entsminger
General Manager



Julie A. Wilcox
Deputy General Manager
Administration



David L. Johnson
Deputy General Manager
Engineering/Operations



Gina L. Neilson
Chief Financial
Officer



Gregory J. Walch
General Counsel



Government Finance Officers Association

**Certificate of
Achievement
for Excellence
in Financial
Reporting**

Presented to

Southern Nevada Water Authority

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2015

Executive Director/CEO

Financial Section

- Independent Auditors' Report
- Management's Discussion and Analysis
- Basic Financial Statements
- Notes to Basic Financial Statements



**INDEPENDENT AUDITORS' REPORT ON FINANCIAL
STATEMENTS AND SUPPLEMENTARY INFORMATION**

Board of Directors
Southern Nevada Water Authority
Las Vegas, NV

We have audited the accompanying financial statements of the Southern Nevada Water Authority (SNWA) as of and for the years ended June 30, 2016 and 2015, and the related notes to the financial statements, which collectively comprise SNWA's basic financial statements as listed in the table of contents.

An audit performed in accordance with applicable professional standards is a process designed to obtain reasonable assurance about whether SNWA's basic financial statements are free from material misstatement. This process involves performing procedures to obtain audit evidence about the amounts and disclosures in the basic financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the basic financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to SNWA's preparation and fair presentation of the basic financial statements to enable the design of audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of SNWA's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of significant accounting estimates made by management, as well as the overall presentation of the basic financial statements.

Management's Responsibility for the Financial Statements. Management is responsible for the preparation and fair presentation of the basic financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of basic financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility. Our responsibility is to express an opinion on the basic financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the basic financial statements are free from material misstatement.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion. In our opinion, the basic financial statements referred to above present fairly, in all material respects, the financial position of SNWA as of June 30, 2016 and 2015, and the changes in financial position and cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters. Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 2 - 3 through 2 - 9 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for

placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information. Our audit was conducted for the purpose of forming our opinion on the financial statements that collectively comprise SNWA's basic financial statements. The introductory section, other supplementary information, as listed in the table of contents, and statistical section are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The introductory section and statistical section have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*. In accordance with *Government Auditing Standards*, we have also issued our report dated October 27, 2016, on our consideration of SNWA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering SNWA's internal control over financial reporting and compliance.

Piercy Boden Taylor : Ken

Las Vegas, Nevada
October 27, 2016

SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

As management of the Southern Nevada Water Authority (SNWA), we offer readers of the SNWA's financial statements this narrative overview and analysis of the financial activities of the SNWA for the fiscal year ended June 30, 2016. We encourage readers to consider the information presented here in conjunction with the basic financial statements and accompanying notes, which follow this section.

Financial Highlights for 2016

- Total Assets increased \$558.5 million over the prior year totaling approximately \$5.7 billion.
- Total Liabilities increased \$446.7 million over the prior year totaling approximately \$4.0 billion.
- Total Deferred Outflows of Resources increased \$8.8 million over the prior year totaling approximately \$86.1 million. Total Deferred Inflows of Resources decreased \$1.2 million over the prior year totaling approximately \$18.0 million.
- Total Assets and Deferred Outflows of Resources exceeded Total Liabilities and Deferred Inflows of Resources at the close of the fiscal year by approximately \$1.7 billion (net position). Net Position increased during the fiscal year by approximately \$121.8 million.
- Major balance sheet resources were placed into service during fiscal year 2016 reducing Construction Work in Progress by approximately \$1.2 billion.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the SNWA's basic financial statements, which are comprised of two components: (1) enterprise fund financial statements and (2) notes to the basic financial statements. This Comprehensive Annual Financial Report (CAFR) also contains other supplementary and statistical information in addition to the basic financial statements.

Enterprise fund financial statements. The SNWA's operations are accounted for as a single enterprise fund using the full accrual basis of accounting. In this regard, the SNWA's operations are accounted for in a manner similar to a private business enterprise. Within this fund, the SNWA segregates revenues and expenses in its financial statements for various purposes such as operations, debt service, and capital improvements. This segregation is an internal discipline and does not create physically separate funds.

Notes to the financial statements. The notes provide additional information that is essential for a full understanding of the data provided in the basic financial statements. While the information included in the Management's Discussion and Analysis is at a summary level, the notes to the basic financial statements are necessary to achieve a full understanding of the SNWA's financial position.

Other information. In addition to the basic financial statements and accompanying notes, this report also presents statistical information and continuing disclosure information.

Financial analysis. One indication of the financial health of the SNWA is net position, which is the difference between assets and liabilities.

SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

The following table summarizes the Statements of Net Position as of June 30, 2016, 2015, and 2014.

Condensed Statements of Net Position As of June 30, 2016, 2015, and 2014 (In Millions)

	<u>2016</u>	<u>Change</u>	<u>2015</u>	<u>Change</u>	<u>2014</u>
Assets and Deferred Outflows					
Current and Other Noncurrent Assets	\$ 1,152.7	\$ 443.2	\$ 709.4	\$ 1.6	\$ 707.8
Capital Assets	4,567.7	115.3	4,452.3	106.9	4,345.4
Total Assets	<u>5,720.3</u>	<u>558.5</u>	<u>5,161.8</u>	<u>108.6</u>	<u>5,053.2</u>
Deferred Outflows of Resources	86.1	8.8	77.3	21.7	55.5
Total Assets and Deferred Outflows of Resources	<u>\$ 5,806.4</u>	<u>\$ 567.4</u>	<u>\$ 5,239.0</u>	<u>\$ 130.3</u>	<u>\$ 5,108.7</u>
Liabilities and Deferred Inflows					
Current Liabilities	\$ 547.0	\$ 23.5	\$ 523.4	\$ 41.1	\$ 482.3
Noncurrent Liabilities	3,502.9	423.2	3,079.7	3.0	3,076.7
Total Liabilities	<u>4,049.9</u>	<u>446.7</u>	<u>3,603.1</u>	<u>44.1</u>	<u>3,559.1</u>
Deferred Inflows of Resources	18.0	(1.2)	19.1	(1.1)	20.3
Net Position					
Net Investments in Capital Assets	1,198.5	96.9	1,101.5	48.0	1,053.5
Restricted for Debt Service / Capital Assets	15.8	(5.7)	21.5	0.8	20.7
Unrestricted	524.3	30.6	493.7	38.6	455.2
Total Net Position	<u>1,738.6</u>	<u>121.8</u>	<u>1,616.8</u>	<u>87.4</u>	<u>1,529.4</u>
Total Liabilities, Deferred Inflows of Resources and Net Position	<u>\$ 5,806.4</u>	<u>\$ 567.4</u>	<u>\$ 5,239.0</u>	<u>\$ 130.3</u>	<u>\$ 5,108.7</u>

(Totals may not add due to rounding.)

Total Assets increased by approximately \$558.5 million (10.8%) in fiscal year 2016 and increased approximately \$108.6 million (2.1%) in fiscal year 2015. The fiscal year 2016 increase is primarily attributed to a bond issuance which included \$520.0 million to fund the construction of the low lake level pumping station. The fiscal year 2015 increase can be mainly attributed to the increase in Construction Work in Progress and a stronger collection of capital contributions. For fiscal year 2016, Current and Other Noncurrent Assets increased \$443.2 million (62.5%), as did Capital Assets by \$115.3 million (2.6%). For fiscal year 2015, Current and Other Noncurrent Assets increased \$1.6 million (0.2%), as did Capital Assets by \$106.9 million (2.5%). The fluctuations in fiscal years 2016 and 2015 within Total Assets are largely due to expenditures on capital assets.

SOUTHERN NEVADA WATER AUTHORITY

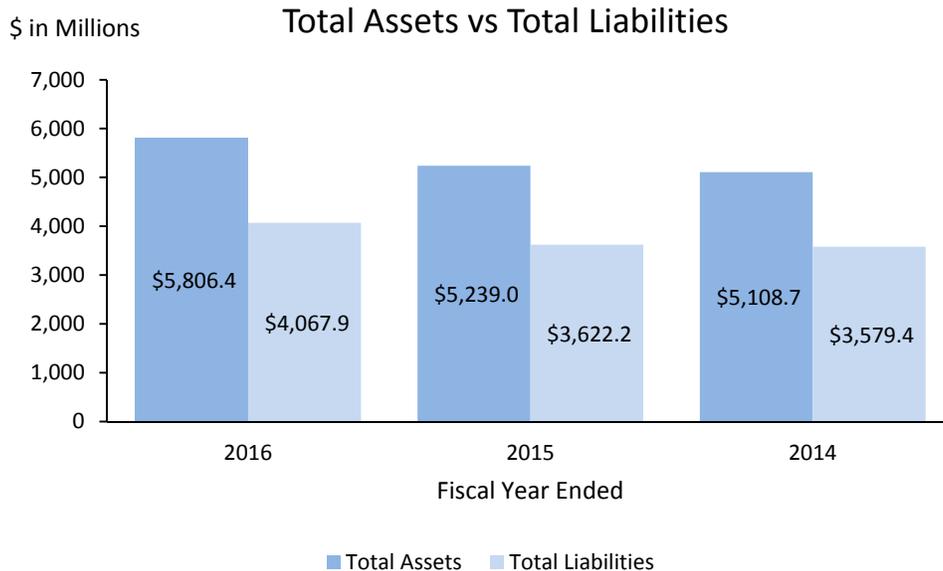
Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

Total Deferred Outflows of Resources increased approximately \$8.8 million (11.4%) in fiscal year 2016, which is mainly caused by the addition of the deferred amount related to the pension due to the Las Vegas Valley Water District (LVVWD) and is offset by the results of bond refunding activities. Total Deferred Outflows of Resources increased \$21.7 million (39.1%) in fiscal year 2015, which resulted from bond refunding activities.

Total Liabilities increased approximately \$446.7 million (12.4%) in fiscal year 2016 and increased approximately \$44.1 million (1.2%) in fiscal year 2015. In fiscal year 2016, Current Liabilities increased \$23.5 million (4.5%) as did Noncurrent Liabilities by \$423.2 million (13.7%). In fiscal year 2015, Current Liabilities increased \$41.1 million (8.5%) as did Noncurrent Liabilities by \$3.0 million (0.1%). The changes in fiscal years 2016 and 2015 were primarily attributable to bond refunding activities and increases in Due to Related Party as a result of the LVVWD implementing GASB 68.

Total Deferred Inflows of Resources decreased approximately \$1.2 million (6.3%) in fiscal year 2016 and \$1.1 million (5.6%) in fiscal year 2015. The decrease in both fiscal years resulted from normal amortization of Deferred Amount - Bond Refundings.

Net Position increased \$121.8 million (7.5%) in fiscal year 2016 mainly due to increased capital contributions and a one-time sale of water. Net Position increased \$87.4 million (5.7%) in fiscal year 2015 as a result of increased capital contributions.



SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

The following table summarizes the Statements of Revenues, Expenses and Changes in Net Position for the fiscal years ended June 30, 2016, 2015 and 2014.

Condensed Statements of Revenues, Expenses, and Change in Net Position For the Fiscal Years Ended June 30, 2016, 2015, and 2014 (In Millions)

	<u>2016</u>	<u>Change</u>	<u>2015</u>	<u>Change</u>	<u>2014</u>
Operating Revenues					
Wholesale Delivery Charges	\$ 125.1	\$ 4.0	\$ 121.1	\$ 0.1	\$ 121.0
Other Revenues	51.1	45.8	5.3	(0.2)	5.5
Total Operating Revenues	<u>176.1</u>	<u>49.7</u>	<u>126.4</u>	<u>(0.2)</u>	<u>126.6</u>
Operating Expenses					
Personnel and Related	56.3	6.3	50.0	(0.3)	50.2
Energy	39.3	4.3	35.1	(18.3)	53.4
Depreciation	90.8	15.0	75.8	(0.1)	75.9
Operating and Maintenance	39.3	(3.1)	42.5	8.0	34.5
Total Operating Expenses	<u>225.8</u>	<u>22.5</u>	<u>203.3</u>	<u>(10.7)</u>	<u>214.0</u>
Total Operating Loss	<u>(49.6)</u>	<u>27.3</u>	<u>(76.9)</u>	<u>10.5</u>	<u>(87.4)</u>
Nonoperating Revenues (Expenses)					
Investment Income and Other	4.1	2.4	1.7	(0.7)	2.4
Nonoperating expenses	(133.3)	(76.4)	(56.9)	(9.2)	(47.7)
Total Nonoperating Revenues (Expenses)	<u>(129.3)</u>	<u>(74.1)</u>	<u>(55.2)</u>	<u>(9.8)</u>	<u>(45.4)</u>
Loss Before Capital Contributions	(178.9)	(46.8)	(132.0)	0.7	(132.8)
Capital Contributions	300.7	18.8	281.9	44.1	237.8
Change in Net Position	<u>121.8</u>	<u>\$ (28.1)</u>	<u>149.9</u>	<u>\$ 44.8</u>	<u>105.1</u>
Net Position, beginning of the year, as previously reported	1,616.8		1,529.4		1,424.3
Prior Period Adjustment - Due to Related Party	-		(62.5)		-
Net Position - beginning of the year, as adjusted	<u>1,616.8</u>		<u>1,466.9</u>		<u>-</u>
Net Position End of Year	<u>\$ 1,738.6</u>		<u>\$ 1,616.8</u>		<u>\$ 1,529.4</u>

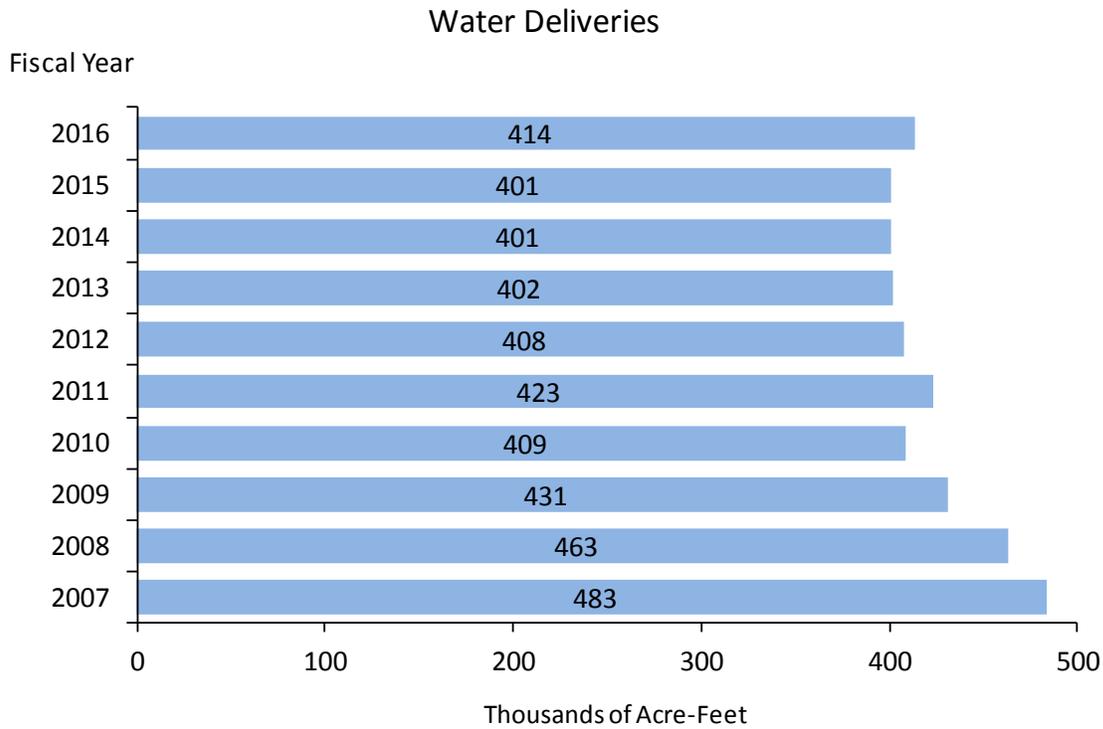
(Totals may not add due to rounding.)

In fiscal year 2016 the Operating Revenues increased by approximately \$49.7 million (39.4%). In fiscal year 2015 the Operating Revenues decreased by approximately \$0.2 million (0.1%). While Wholesale Delivery Charge revenues have remained consistent over the years, Other Revenues increased in fiscal year 2016 approximately \$45.8 million (864.3%) from a one-time sale of water to the Metropolitan Water District of Southern California.

SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

The chart below shows water delivery volume over the past ten fiscal years.



The Personnel and Related expenses for fiscal year 2016 increased \$6.3 million (12.6%), which is due to a greater allocation of salaries and wages from the LVVWD. The Personnel and Related expenses for fiscal year 2015 remained consistent with the previous fiscal year 2014.

Energy costs increased \$4.3 million (12.2%) in fiscal year 2016 when compared to fiscal year 2015, which is mainly attributable to higher energy demands. Energy costs decreased \$18.3 million (34.3%) in fiscal year 2015 when compared to fiscal year 2014, which was primarily due to one-time payments related to the Silverhawk Power Plant for transmission costs and a termination payment.

Depreciation expenses for fiscal year 2016 increased approximately \$15.0 million (19.9%) as a result of a large amount of capital assets that were put into service. Depreciation expenses for fiscal year 2015 remained consistent with the previous year.

Operating and Maintenance expenses decreased \$3.1 million (7.3%) in fiscal year 2016 and increased \$8.0 million (23.2%) in fiscal year 2015. The fluctuations over fiscal years 2016, 2015, and 2014 is primarily explained by the cancellation of a geothermal resource development project in Construction Work in Progress in fiscal year 2015.

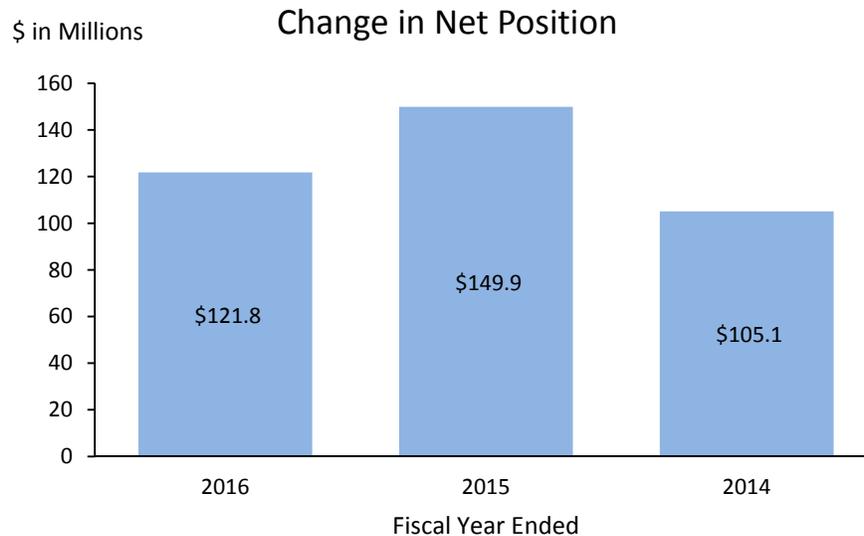
Nonoperating revenue increased \$2.4 million (140.1%) in fiscal year 2016, primarily due to an increase in funds available for investment related to the \$520.0 million raised from a bond issuance. Nonoperating revenue decreased \$0.7 million (28.3%) in fiscal year 2015, mainly related to less funds available for investment.

SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

Nonoperating expenses increased \$76.4 million (134.4%) in fiscal year 2016, mainly because the portion of interest to be capitalized significantly decreased as large projects in Construction Work in Progress were put into service. Nonoperating expenses increased \$9.2 million (19.2%) in fiscal year 2015, mainly due to the interest expense of the 2012B bonds, which was capitalized in the prior two fiscal years, and the fiscal year 2015 refunding activities.

Capital Contributions increased \$18.8 million (6.7%) in fiscal year 2016 and increased \$44.1 million (18.5%) in fiscal year 2015. These increases are explained by further implementation of rate increases and improved Regional Connection Charges due to an improved local economy.



Capital Asset and Debt Administration

Capital Assets. The SNWA's investment in capital assets as of June 30, 2016, amounted to approximately \$4.6 billion, net of accumulated depreciation. The investment in capital assets includes land, transmission and distribution lines, pumping stations and equipment, water rights, and other natural resources rights. Major construction expenditures in fiscal year 2016 totaled approximately \$154.3 million. Contract commitments total approximately \$214.7 million. See Note 7 to the basic financial statements for additional information on the types and values of the SNWA's capital assets.

Debt Administration. At the end of fiscal year 2016, the SNWA had general obligation debt totaling approximately \$3.9 billion. Details concerning all debt issues can be found in Note 14 and 16 to the basic financial statements.

Economic Factors and Next Year's Goals

The SNWA's financial outlook continues to remain favorable. The economic environment of Las Vegas and Clark County has improved steadily over the past several years. The 2008 recession was the first time in decades that the Las Vegas area has experienced a sustained period of little or no growth. As a result, there was very limited demand for new service connections within the SNWA service area. Growth has returned to the area, but at a more reasonable pace than Las Vegas experienced in the 1990s and early 2000s. Management continues to review the financial conditions of the area and actively takes steps to ensure the SNWA's financial stability.

SOUTHERN NEVADA WATER AUTHORITY

Management's Discussion and Analysis
For the fiscal years ended June 30, 2016 and 2015

One of the greatest challenges currently facing southern Nevada continues to be the multi-year drought affecting the Colorado River basin. The amount of water in Lake Mead has declined substantially since the year 2000. As of June 30 2016, the lake level was 1,072 feet, which is 36% of capacity. While this level is above the SNWA's two intakes, drawing water closer to the surface creates water quality challenges. In response, the SNWA is working within Nevada and with other Colorado River Basin states to develop solutions to weather the drought. The SNWA completed the third intake into Lake Mead and is currently constructing a low lake level pumping station to help ensure continued access to its Colorado River allocation should lake levels decline.

In 2014, the SNWA engaged a citizens' advisory committee to review drought conditions on the Colorado River and their impact on southern Nevada's water supply. That committee made formal recommendations to the Board in November 2014. On December 10, 2014, the Board adopted those recommendations. Among those recommendations were (1) to construct a new low lake level pumping station and (2) increase the Regional Infrastructure Charge rates to fund the new low lake level pumping station, projected to cost \$650.0 million. Although this project will take several years to complete, it will constitute a significant portion of next year's goals.

Requests for Information

This financial report is designed to provide a general overview of the SNWA's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Chief Financial Officer, Southern Nevada Water Authority, 1001 South Valley View Boulevard, Mail Stop 320, Las Vegas, Nevada, 89107.

The CAFR can also be viewed at www.snwa.com. The website contains other financial and operational information pertaining to the SNWA as well as helpful information concerning conservation and water issues.

SOUTHERN NEVADA WATER AUTHORITY
ENTERPRISE FUND
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2016 AND 2015

ASSETS	2016	2015
CURRENT ASSETS		
Current Assets - Restricted		
Investments	\$ 535,735,063	\$ 127,231,969
Sales Tax Receivable	16,450,645	15,857,194
Total Current Assets - Restricted	552,185,708	143,089,163
Current Assets - Unrestricted		
Cash and Cash Equivalents	29,380,229	35,830,190
Investments	393,331,388	340,674,457
Due From Member Agencies	41,078,027	41,004,519
Other Receivables	2,981,344	8,603,384
Other Current Assets	47,552,122	54,001,548
Total Current Assets - Unrestricted	514,323,110	480,114,098
Total Current Assets	1,066,508,818	623,203,261
NONCURRENT ASSETS		
Capital Assets		
Capital Assets Subject to Depreciation		
Property, Plant and Equipment	4,370,802,831	3,057,699,286
Accumulated Depreciation	(1,181,350,555)	(1,091,391,818)
Net Capital Assets Subject to Depreciation	3,189,452,276	1,966,307,468
Capital Assets Not Subject to Depreciation		
Land	142,164,137	118,709,095
Natural Resource Rights	499,715,379	394,798,979
Construction Work in Progress	736,327,596	1,972,520,947
Net Capital Assets Not Subject to Depreciation	1,378,207,112	2,486,029,021
Total Net Capital Assets	4,567,659,388	4,452,336,489
Other Noncurrent Assets		
Water Recharge Inventory	86,153,987	86,232,896
Total Noncurrent Assets	4,653,813,375	4,538,569,385
TOTAL ASSETS	5,720,322,193	5,161,772,646
DEFERRED OUTFLOWS OF RESOURCES		
Deferred Amount - Bond Refundings	75,248,489	77,263,332
Deferred Amount - Related Party	10,815,978	-
Total Deferred Outflows of Resources	86,064,467	77,263,332
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	\$ 5,806,386,660	\$ 5,239,035,978

The accompanying notes are an integral part of these financial statements.

SOUTHERN NEVADA WATER AUTHORITY
ENTERPRISE FUND
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2016 AND 2015

LIABILITIES AND NET POSITION	2016	2015
CURRENT LIABILITIES		
Accounts Payable	\$ 20,674,652	\$ 24,391,578
Accrued Interest Payable	20,112,588	13,569,344
Pending Regional Connection Charge Refunds	-	1,420,210
Current Portion of Notes Payable	1,339,977	1,293,711
Current Portion of Bonds Payable	104,841,540	82,751,540
Short Term Debt Payable	400,000,000	400,000,000
Total Current Liabilities	546,968,757	523,426,383
NONCURRENT LIABILITIES		
Due to Related Party	80,611,281	67,664,712
Notes Payable, Net of Current Portion	5,324,635	6,664,612
Bonds Payable, Net of Current Portion, and Unamortized Premiums and Discounts	3,416,952,828	3,005,373,539
Total Noncurrent Liabilities	3,502,888,744	3,079,702,863
TOTAL LIABILITIES	4,049,857,501	3,603,129,246
DEFERRED INFLOWS OF RESOURCES		
Deferred Amount - Bond Refundings	17,951,166	19,147,911
NET POSITION		
Net Investments in Capital Assets	1,198,480,405	1,101,533,047
Restricted for Debt Service / Capital Assets	15,769,806	21,491,395
Unrestricted	524,327,782	493,734,379
Total Net Position	1,738,577,993	1,616,758,821
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION	\$ 5,806,386,660	\$ 5,239,035,978

The accompanying notes are an integral part of these financial statements.

SOUTHERN NEVADA WATER AUTHORITY
ENTERPRISE FUND
STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
FOR THE FISCAL YEARS ENDED JUNE 30, 2016 AND 2015

	<u>2016</u>	<u>2015</u>
OPERATING REVENUES		
Wholesale Delivery Charges	\$ 125,054,059	\$ 121,100,263
Groundwater Management Fees	928,893	882,331
Administration Costs Recoveries	551,852	472,786
Las Vegas Wash Revenues	411,893	404,578
Other Revenues	49,201,788	3,538,758
Total Operating Revenues	<u>176,148,485</u>	<u>126,398,716</u>
OPERATING EXPENSES		
Personnel and Related	56,252,596	49,951,688
Energy	39,333,766	35,071,725
Depreciation	90,824,289	75,774,807
Operating and Maintenance	39,349,790	42,471,373
Total Operating Expenses	<u>225,760,441</u>	<u>203,269,593</u>
OPERATING LOSS	<u>(49,611,956)</u>	<u>(76,870,877)</u>
NONOPERATING REVENUES (EXPENSES)		
Investment Income	3,852,256	1,592,657
Interest Expense (Net of BAB Subsidy of \$2,071,952 and \$6,363,580)	(134,359,904)	(54,939,795)
Amortization of Refunding Costs	(4,581,254)	(3,492,409)
Bond Issue and Commercial Paper Costs	(4,378,509)	(3,299,596)
Amortization of Bond Premiums and Discounts	10,008,610	4,868,091
Other	198,903	94,294
Total Nonoperating Revenues (Expenses)	<u>(129,259,898)</u>	<u>(55,176,758)</u>
LOSS BEFORE CAPITAL CONTRIBUTIONS	(178,871,854)	(132,047,635)
Capital Contributions	300,691,026	281,927,406
CHANGE IN NET POSITION	<u>121,819,172</u>	<u>149,879,771</u>
NET POSITION - BEGINNING OF THE YEAR, AS PREVIOUSLY REPORTED	1,616,758,821	1,529,385,937
PRIOR PERIOD ADJUSTMENT - DUE TO RELATED PARTY	-	(62,506,887)
NET POSITION - BEGINNING OF THE YEAR, AS ADJUSTED	1,616,758,821	1,466,879,050
NET POSITION - END OF THE YEAR	<u>\$ 1,738,577,993</u>	<u>\$ 1,616,758,821</u>

The accompanying notes are an integral part of these financial statements.

SOUTHERN NEVADA WATER AUTHORITY
ENTERPRISE FUND
STATEMENTS OF CASH FLOWS
FOR THE FISCAL YEARS ENDED JUNE 30, 2016 AND 2015

	2016	2015
CASH FLOWS FROM OPERATING ACTIVITIES:		
General and Administrative / Resources Charges	\$ 46,883,737	\$ 1,347,895
Groundwater Management Fees	928,893	882,331
Las Vegas Wash Revenues	411,893	404,578
Wholesale Delivery Charges	124,618,354	121,868,607
Other Revenues	2,897,024	2,719,445
Cash Payments to Suppliers of Goods and Services	<u>(109,221,242)</u>	<u>(127,219,253)</u>
Net Cash Provided by Operating Activities	<u>66,518,659</u>	<u>3,603</u>
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:		
Purchase or Construction of Capital Assets	(127,721,382)	(112,283,126)
Proceeds from Disposal of Property and Equipment	198,903	100,287
Proceeds of Debt Issuance	444,545,000	-
Principal Paid on Debt	(84,045,251)	(24,290,584)
Interest Paid on Debt (Net of BAB Subsidy of \$2,084,418 and \$6,180,260)	(138,772,162)	(143,343,132)
Capital Contributions	<u>289,597,177</u>	<u>261,381,108</u>
Net Cash Provided by (Used In) Capital and Related Financing Activities	<u>383,802,285</u>	<u>(18,435,447)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of Investment Securities	(1,697,230,549)	(276,844,584)
Proceeds from Sales or Maturities of Investment Securities	1,235,417,656	263,629,000
Investment Earnings	<u>5,041,988</u>	<u>9,492,141</u>
Net Cash Used In Investing Activities	<u>(456,770,905)</u>	<u>(3,723,443)</u>
NET DECREASE IN CASH AND CASH EQUIVALENTS	(6,449,961)	(22,155,287)
Cash and Cash Equivalents, Beginning of Year	<u>35,830,190</u>	<u>57,985,477</u>
Cash and Cash Equivalents, End of Year	<u>\$ 29,380,229</u>	<u>\$ 35,830,190</u>
RECONCILIATION OF OPERATING LOSS		
TO NET CASH PROVIDED BY OPERATING ACTIVITIES:		
Operating Loss	\$ (49,611,956)	\$ (76,870,877)
Depreciation	90,824,289	75,774,807
Expenses Related to Expansion Programs	12,858,154	11,390,851
Changes in Assets and Liabilities		
Decrease in Due from Member Agencies	869,699	1,991,134
Decrease in Other Receivables	2,843,746	1,216,612
(Increase) / Decrease in Other Current Assets	6,449,426	(12,539,307)
Decrease in Water Recharge Inventory	78,909	111,749
Increase / (Decrease) in Accounts Payable	75,801	(2,110,325)
Increase in Deferred Amount - Related Party	(10,815,978)	-
Increase in Due to Related Party	<u>12,946,569</u>	<u>1,038,959</u>
Net Cash Provided by Operating Activities	<u>\$ 66,518,659</u>	<u>\$ 3,603</u>
NONCASH INVESTING, AND CAPITAL AND RELATED FINANCING ACTIVITIES:		
Changes in Fair Value of Investments	\$ 1,356,451	\$ 3,188,426
Deferred (Gain)/Loss on Refunded Bonds	14,933,132	33,799,124
Refunding Bonds Issued	(317,195,000)	(552,165,000)
Bonds Refunded	369,430,000	601,010,000
Contributed Capital	1,764,305	(9,155,447)

The accompanying notes are an integral part of these financial statements.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity

The Southern Nevada Water Authority (SNWA) is a political subdivision of the State of Nevada (State) and is therefore the reporting entity. The SNWA was created on July 25, 1991, pursuant to Nevada Revised Statutes (NRS) Chapter 277.080 to 277.180, inclusive, by a cooperative agreement and a facilities and operations agreement among its member agencies. These agencies include the Big Bend Water District, City of Boulder City, City of Henderson, City of Las Vegas, City of North Las Vegas, Clark County Water Reclamation District, and the Las Vegas Valley Water District (LVVWD). The cooperative agreement was last amended in 2005. The facilities and operations agreement was last amended in 2012.

The SNWA was created to secure additional supplies of water for southern Nevada and to effectively manage existing supplies of water through the cooperative action of its member agencies. A seven-member Board of Directors (Board) comprised of one Director from each member agency governs the SNWA equally. The SNWA operations are autonomous from its member agencies and the State, and its financial statements are not included in the financial statements of any other entity.

The Board has the power to periodically assess its member agencies directly for operating expenses and capital expenditures and for the satisfaction of any liabilities imposed against the SNWA. In 1991, each member agency made an initial contribution to the SNWA for operating and administrative expenses in the amount of \$15,000. Assessments for additional funds needed by the SNWA, in accordance with approved operating and capital budgets, have been apportioned to its member agencies on the basis of water deliveries to those agencies. Funding received by the SNWA from its member agencies for operations is recorded as operating revenue, while funding received for capital improvement programs and other expansion related programs are recorded as capital contributions. Member agencies that are not potable water purveyors (the City of Las Vegas and the Clark County Water Reclamation District) each contributed \$35,000 to the SNWA operations during the fiscal years ended June 30, 2016 and 2015.

Operating Agent (LVVWD) (Related Party Disclosure)

The Board has the responsibility to appoint a General Manager. The Board designated the LVVWD's General Manager as the General Manager of the SNWA in 1993. Simultaneously, the LVVWD was named the operating agent for the SNWA.

The LVVWD allocates a portion of its payroll costs to the SNWA for the LVVWD employees who are utilized on SNWA-related matters and also pays certain costs and operating expenses on behalf of the SNWA. The SNWA has no employees of its own.

During the mid-1990s, the LVVWD paid substantially all operating and capital expenses on behalf of the SNWA, and the SNWA reimbursed the LVVWD monthly. In the late 1990s, to mitigate potential cash flow demands on the LVVWD under this arrangement, the SNWA began paying construction contracts directly, assumed responsibility for paying construction contract retention and paid most of the cost of power required to operate the Southern Nevada Water System. In 2008, the SNWA advanced a total of \$19.0 million to the LVVWD to fund future SNWA-related operating expenses made on its behalf. The advance is replenished monthly and will be applicable throughout the SNWA's and LVVWD's operating agent relationship. The SNWA also pays large recurring expenses that it deems would be detrimental to the LVVWD's cash flow.

The LVVWD hires all employees utilized by the SNWA. Consequently, any financial reporting requirements regarding employees utilized by the SNWA, including but not limited to reporting on pension and other postemployment benefits, can be found in the LVVWD's Comprehensive Annual Financial Report (CAFR).

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

The LVVWD has no control over the SNWA's operation or finances. The SNWA is autonomous from the LVVWD, does not include the LVVWD's information within its own financial statements, nor is the SNWA's information included in the LVVWD's financial statements.

The LVVWD is a quasi-municipal corporation created under a special act of the Nevada State legislature in 1947 for the purpose of obtaining and distributing water primarily in the Las Vegas Valley, which includes the metropolitan area of Clark County and the City of Las Vegas. A complete copy of the LVVWD's CAFR can be found at www.lvvwd.com or can be obtained by mailing a request to the SNWA.

Southern Nevada Water System

Effective January 1996, pursuant to Assembly Bill No. 542, approved by the Nevada Legislature in 1995 (the Transfer Act), the assets of the Southern Nevada Water System (SNWS), as well as certain liabilities and responsibility for operation of the SNWS, were transferred from the Colorado River Commission (CRC) to the SNWA. Along with the transfer of these assets, the CRC transferred all books and records in its possession relating to the SNWS and its facilities.

Fund Accounting

The accompanying basic financial statements are reported on the basis of fund accounting. A fund is a fiscal and accounting entity with a set of self-balancing accounts that comprise its assets, liabilities, net position, revenues, and expenses.

Enterprise Fund

The SNWA operations have been accounted for as a single enterprise fund. Enterprise fund operations are presented using the full accrual basis of accounting wherein revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred, regardless of when revenues are received or expenses are paid. In this regard, the SNWA operations are accounted for in a manner similar to a private business enterprise, where the intent of the governing body is that the costs of providing goods and services to customers on a continuing basis are financed or recovered primarily through user charges, and its financial measurement focus is on determination of net income, financial position, and cash flows. The SNWA is guided by the pronouncements of the Governmental Accounting Standards Board (GASB). As an enterprise fund, and as permitted under GASB Statement No. 20, *Accounting and Financial Reporting for Proprietary Funds and Other Governmental Entities that Use Proprietary Fund Accounting*, the SNWA applies the requirements of the Financial Accounting Standard Board Statements, Interpretations, Accounting Principles Board Opinions, and Accounting Research Bulletins issued on or before November 30, 1989, that do not conflict with or contradict GASB pronouncements.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires the use of estimates by management. Such estimates primarily relate to unsettled transactions and events as of the date of the basic financial statements. Actual results could differ significantly from those estimates.

Cash, Cash Equivalents and Investments

Cash and cash equivalents include cash on hand and cash on deposit with financial institutions, including time deposits (Note 2). Authorized investments are described in Note 3. Investments with maturity dates of less than one year when purchased are stated at par. Premiums and discounts are amortized over the remaining life of the investment instrument. Investments with a maturity date in excess of one year when purchased are reported at estimated fair value as required by GASB Statement No. 31, *Accounting and Financial Reporting for Certain Investments and for External Investment Pools* (Note 3).

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Restricted Assets

Restricted assets include unused bond proceeds and sales tax proceeds which are externally restricted by bond covenants and Nevada Revised Statutes, respectively.

Inventories

Inventories of supplies are recorded at cost, whereas inventories held for resale are recorded at lower of cost or market based on periodic reviews. Reduction of inventory is recorded using the first-in, first-out accounting method. Inventories are included in other current assets (Note 6).

Capital Assets

Property, plant, equipment, and land (Note 7) are carried at historical cost if purchased, or at engineering estimates of fair value at the time received if donated. Expenditures for improvements and betterments (including labor, overhead and net interest costs) are capitalized. Generally, the SNWA capitalizes assets with a cost greater than \$10,000 and a useful life greater than three years.

Depreciation of property, plant and equipment is computed using the straight-line method over the estimated service lives of the respective assets. Major utility plant categories and their estimated service lives are as follows:

Structures and Improvements	10 to 20	Years
Pumping Stations and Wells	40	Years
Transmission / Distribution / Mains	50 to 75	Years
Office Furniture and Equipment	5 to 15	Years
Transportation / Equipment	5 to 10	Years
Power Plant	30	Years
Northern Resource Assets	5 to 27.5	Years

Revenues

Operating revenues include wholesale delivery charges, groundwater management fees, administration cost recoveries, Las Vegas Wash fees and other ancillary revenues. During the fiscal year ended June 30n 2016, the Wholesale Delivery Charge, was \$303 per acre-foot (AF) of treated Colorado River water delivered to the purveyor members of the SNWA. The wholesale delivery charge is designed to fund operation and maintenance of the SNWS, as well as the SNWA administration. The SNWA also charged \$232 per AF for raw Colorado River water delivered to the City of Boulder City for use on golf courses. For the fiscal year ended 2016, groundwater management fees consist of an annual fee of \$13 per AF of permitted groundwater rights or \$13 per domestic well. Administration cost recoveries are amounts charged to member agencies of the SNWA that do not physically take potable water from the SNWS. These costs vary by purveyor and are designed to help compensate the SNWA for administration costs associated with their membership. Las Vegas Wash fees consist of contributions from other local governments towards operating costs of the Las Vegas Wash Coordination Committee. Other revenues consist primarily of sales made from the SNWA's northern resource properties' activities.

Nonoperating revenues consist of investment income (net of amounts capitalized) and a minimal amount of other miscellaneous items.

Expenses

Operating expenses include the costs of personnel allocations from the LVVWD, energy costs, and other costs associated with the operation and maintenance of the SNWS, as well as the SNWA administration and depreciation.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Nonoperating expenses include interest expense (net of amounts capitalized) as well as amortization of deferred amount on debt refundings and discounts.

Capital Contributions

Capital contributions include various monies that the SNWA receives which are restricted for use in the capital improvement programs and other expansion related programs (Note 17).

Litigation Defense Costs

The SNWA does not accrue for estimated future legal and defense costs, if any, to be incurred in connection with outstanding or threatened litigation and other disputed matters, but rather records such as period costs when services are rendered. See Note 13 for further information.

Water Rights Holding Company

In 1999, the Board established Muddy River Water Holdings, Inc., a non-profit corporation authorized to facilitate the acquisition and holding of water rights stock and stock options. This corporation holds any stock purchased by the SNWA that represents water rights.

New Accounting Pronouncements

In August 2015, the GASB issued Statement No. 77, *Tax Abatement Disclosures*, which is effective for fiscal years beginning after December 15, 2015. Earlier application is encouraged. This Statement requires disclosure of tax abatement information about (1) a reporting government's own tax abatement agreements and (2) those that are entered into by other governments and that reduce the reporting government's tax revenues. The SNWA does not expect the adoption of Statement No. 77 to affect the SNWA's financial position, results of operations, or cash flow.

In December 2015, the GASB issued Statement No. 79, *Certain External Investment Pools and Pool Participants*, which is effective for fiscal years beginning after June 15, 2016, except for the provisions on portfolio quality, custodial credit risk, and shadow pricing, which are effective for fiscal years beginning after December 15, 2015. Early application is encouraged. The primary objective of this Statement is to establish criteria for an external investment pool to qualify for making the election to measure all of its investments at amortized cost for financial reporting purposes. An external investment pool qualifies for that reporting if it meets all of the applicable criteria established in this Statement. The Statement also establishes note disclosure requirements for qualifying pools and for participants in those pools. The SNWA is currently evaluating how the adoption of Statement No. 79 will affect the SNWA's financial position, results of operations, or cash flow.

Other recent accounting standards issued by the GASB, are not believed to have an effect on the SNWA's present or future financial position, results of operations, or cash flows.

NOTE 2. CASH AND CASH EQUIVALENTS

Cash and cash equivalents consist of demand deposit accounts containing restricted and unrestricted cash. Cash balances as of June 30, 2016 and 2015, were \$29.4 million and \$35.8 million respectively. The SNWA bank balances as of June 30, 2016, and 2015, were \$30.5 million and \$36.4 million respectively.

On July 22, 2003, the Nevada State Assembly approved an amendment to NRS 356.020 establishing a Nevada State Treasurer's Pooled Collateral Program for local governments. The primary objective of the collateral pool is to reduce the risk for government agencies, while at the same time decrease the overall collateral requirement for depositories. By centralizing the administration and reporting functions through the State Treasurer's Office, both

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

government agencies and depositories realize cost savings in terms of operational support and collateral efficiency. The bank utilized by the SNWA participates in the pool by pledging securities for the SNWA monies on deposit. The collateral pool for public fund deposits administered and monitored by the Nevada State Treasurer's Pooled Collateral Office requires depository banks to place acceptable securities of no less than 102% of the market value of the aggregate total deposits of public entities in Nevada with a third party custodian.

NOTE 3. INVESTMENTS

The SNWA's investment policy limits investments and risks to those permitted under the laws of the State of Nevada. The investments and risks authorized by NRS 355.170 relevant to SNWA investments are as follows:

- Bonds, debentures, bills, and notes of United States (U.S.), the maturity dates of which are not more than ten years after the date of purchase.
- Farm loan bonds, consolidated farm loan bonds, debentures, consolidated debentures and other obligations issued by federal land banks and federal intermediate credit banks under the authority of the Federal Farm Loan Act and bonds debentures, consolidated debentures and other obligations issued by banks for cooperatives under the authority of the Farm Credit Act of 1933.
- Obligations of an agency or instrumentalities of the U.S. or a corporation sponsored by the government, the maturity dates of which are not to exceed ten years after the date of purchase.
- Negotiable certificates of deposit (CDs) issued by commercial banks, insured credit unions, or savings and loan associations. Credit quality ratings and percentage allowed of total investments are not specified.
- Nonnegotiable CDs issued by insured commercial banks, insured credit unions, or insured savings and loan associations, except certificates that are not within the limit of insurance provided by an instrumentality of the U.S. unless those certificates are appropriately collateralized.
- Negotiable notes medium-term obligations issued by local governments of the State of Nevada.
- Obligations of state and local governments if (1) the interest on the obligation is exempt from gross income for federal income tax purposes and (2) the obligation has been rated "A" or higher by one or more nationally recognized bond credit rating agencies.
- Commercial paper issued by a corporation organized and operating in the U.S. or by a depository institution licensed by the U.S. or any state and operating in the U.S. that (1) is purchased from a registered broker-dealer; (2) has a remaining term to maturity at the time of purchase of no more than 270 days; and (3) is rated by a nationally recognized rating service as "A-I," "P-I" or its equivalent, or better, except that investments in commercial paper may not, in aggregate value, exceed 20% of the total portfolio as determined on the date of purchase. If the rating of the obligation is reduced to a level that does not meet the requirements, it must be sold as soon as possible.
- Obligations of the Federal Agricultural Mortgage Corporation.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

The SNWA's investments were as follows:

<u>Investment Type</u>	<u>Estimated Fair Value</u>	
	<u>June 30, 2016</u>	<u>June 30, 2015</u>
U.S. Agency Non-Callable Bonds	\$ 435,368,213	\$ 147,016,420
Negotiable Certificates of Deposit	140,055,961	720,580
U.S. Treasury Notes	138,660,560	243,976,120
Commercial Paper	114,775,308	49,985,914
U.S. Agency Discount Notes	79,064,780	24,097,460
U.S. Agency Callable Bonds	20,072,500	-
Municipal Bonds	1,069,129	2,109,932
Total	<u>\$ 929,066,451</u>	<u>\$ 467,906,426</u>

Credit Risk

As of June 30, 2016, the SNWA's investment ratings and estimated fair values were as follows:

<u>Investment Type</u>	<u>S&P</u>	<u>Moody's</u>	<u>Fair Value</u>
U.S. Agency Non-Callable Bonds	AA+	Aaa	\$ 435,368,213
Negotiable Certificates of Deposit	A-1+	P-1	85,036,403
U.S. Agency Discount Notes	A-1+	P-1	64,887,400
Commercial Paper	A-1+	P-1	74,834,731
Negotiable Certificates of Deposit	A-1	P-1	55,019,558
Commercial Paper	A-1	P-1	39,940,577
U.S. Agency Callable Bonds	AA+	Aaa	20,072,500
U.S. Agency Discount Notes	Unrated	Unrated	14,177,380
Municipal Bonds	AA-	A1	1,069,129

As of June 30, 2015, the SNWA's investment ratings and estimated fair values were as follows:

<u>Investment Type</u>	<u>S&P</u>	<u>Moody's</u>	<u>Fair Value</u>
U.S. Agency Non-Callable Bonds	AA+	Aaa	\$ 147,016,420
Commercial Paper	A-1+	P-1	29,987,081
Commercial Paper	A-1	P-1	19,998,833
U.S. Agency Discount Notes	Unrated	Unrated	14,098,560
U.S. Agency Discount Notes	A-1+	P-1	9,998,900
Municipal Bonds	AA-	A1	1,097,892
Municipal Bonds	AA	Aa2	1,012,040
Negotiable Certificates of Deposit	Unrated	Unrated	720,580

Concentration of Credit Risk

As of June 30, 2016, the following investments individually comprise 5% or more of the SNWA's total investment portfolio.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

<u>Issuer</u>	<u>Investment Type</u>	<u>Percentage of Investments</u>
Federal Home Loan Bank	U.S. Agency Bonds	23%
Federal Home Loan Mortgage Corporation	U.S. Agency Bonds	15%
Federal Farm Credit Bank	U.S. Agency Bonds	11%
Federal National Mortgage Association	U.S. Agency Bonds	7%

As of June 30, 2015, the following investments individually comprise 5% or more of the SNWA's total investment portfolio.

<u>Issuer</u>	<u>Investment Type</u>	<u>Percentage of Investments</u>
Federal Home Loan Bank	U.S. Agency Bonds	18%
Federal Home Loan Mortgage Corporation	U.S. Agency Bonds	13%

Interest Rate Risk

As of June 30, 2016, the SNWA's investments were as follows:

<u>Investment Type</u>	<u>Fair Value</u>	<u>Weighted Average Maturity (Days)</u>
U.S. Agency Non-Callable Bonds	\$ 435,368,213	445
Negotiable Certificates of Deposit	140,055,961	134
U.S. Treasury Notes	138,660,560	416
Commercial Paper	114,775,308	97
U.S. Agency Discount Notes	79,064,780	125
U.S. Agency Callable Bonds	20,072,500	907
Municipal Bonds	1,069,129	714
Total Fair Value	<u>\$929,066,451</u>	
Portfolio Weighted Average Maturity		334

As of June 30, 2015, the SNWA's investments were as follows:

<u>Investment Type</u>	<u>Fair Value</u>	<u>Weighted Average Maturity (Days)</u>
U.S. Treasury Notes	\$ 243,976,120	360
U.S. Agency Non-Callable Bonds	147,016,420	529
Commercial Paper	49,985,914	51
U.S. Agency Discount Notes	24,097,460	269
Municipal Bonds	2,109,932	762
Negotiable Certificates of Deposit	720,580	112
Total Fair Value	<u>\$467,906,426</u>	
Portfolio Weighted Average Maturity		377

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Fair Value Measurement

GASB Statement No. 72, *Fair Value Measurement and Application*, defines fair value, establishes a framework for measuring fair value and provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The three levels of the fair value hierarchy are as follows:

- Level 1. Inputs are unadjusted quoted prices for identical assets or liabilities in active markets.
- Level 2. Inputs are other observable inputs.
- Level 3. Inputs are unobservable.

The fair value measurement level within the hierarchy is based on the lowest level of any input that is deemed significant to the fair value measurement. Valuation techniques used maximize the use of observable inputs and minimize the use of unobservable inputs.

At June 30, 2016, the SNWA's Level 1 investments were valued based on quoted market prices provided by recognized broker dealers and its Level 2 investments were valued by recognized broker dealers based on a matrix pricing model that maximizes the uses of observable inputs for similar securities.

At June 30, 2016, the SNWA had the following fair value classifications by investment level:

	<u>June 30, 2016</u>	<u>Fair Value Measurements Using</u>		
		<u>Quoted Prices in Active Markets for Identical Assets (Level 1)</u>	<u>Significant Other Observable Inputs (Level 2)</u>	<u>Significant Other Unobservable Inputs (Level 3)</u>
Investments by Fair Value Level				
U.S. Agency Non-Callable Bonds	\$ 435,368,213	\$ -	\$ 435,368,213	\$ -
Negotiable Certificates of Deposit	140,055,961	-	140,055,961	-
U.S. Treasury Notes	138,660,560	138,660,560	-	-
Commercial Paper	114,775,308	-	114,775,308	-
U.S. Agency Discount Notes	64,887,400	64,887,400	-	-
U.S. Agency Callable Bonds	20,072,500	-	20,072,500	-
U.S. Agency Discount Notes	14,177,380	-	14,177,380	-
Municipal Bonds	<u>1,069,129</u>	<u>-</u>	<u>1,069,129</u>	<u>-</u>
Total Investments	<u>\$ 929,066,451</u>	<u>\$ 203,547,960</u>	<u>\$ 725,518,491</u>	<u>\$ -</u>

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

At June 30, 2015, the SNWA had the following fair value classifications by investment level:

	Fair Value Measurements Using			
	June 30, 2015	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Investments by Fair Value Level				
U.S. Treasury Notes	\$ 243,976,120	\$ 243,976,120	\$ -	\$ -
U.S. Agency Non-Callable Bonds	147,016,420	-	147,016,420	-
Commercial Paper	49,985,914	-	49,985,914	-
U.S. Agency Discount Notes	14,098,560	-	14,098,560	-
U.S. Agency Discount Notes	9,998,900	9,998,900	-	-
Municipal Bonds	2,109,932	-	2,109,932	-
Negotiable Certificates of Deposit	720,580	-	720,580	-
Total Investments	<u>\$ 467,906,426</u>	<u>\$ 253,975,020</u>	<u>\$ 213,931,406</u>	<u>\$ -</u>

NOTE 4. DUE FROM MEMBER AGENCIES

The SNWA bills its member agencies for wholesale delivery charges for water delivered to purveyor members, and/or reimbursement of general, administrative and other charges. In addition to these billings, purveyors collect regional connection charges, regional commodity charges and a regional reliability surcharge (the latter two known collectively as regional water charges). Revenue from billings and collections are remitted to the SNWA monthly.

Also, the SNWA has advanced funds to the LVVWD that are used to fund daily operating costs paid by the LVVWD. The LVVWD sends the SNWA monthly detailed bills for expenses the LVVWD incurred on the SNWA's behalf and the SNWA pays these billings as they occur. At year end, the SNWA nets any outstanding amounts owed to the LVVWD against the advance and shows the unused balance of advanced funds in the due from member agencies account. As of June 30, 2016 and 2015, those net amounts shown in the sums below were \$6.0 million and \$7.3 million, respectively.

Based on historical collection experience, management believes all accounts are collectible, and therefore no allowance has been provided for bad debts. At June 30, 2016 and 2015, the following amounts were due from the SNWA's member agencies:

Member Agency	June 30, 2016	June 30, 2015
Las Vegas Valley Water District	\$ 28,670,507	\$ 28,919,931
City of Henderson	6,110,938	6,442,075
City of North Las Vegas	5,709,151	5,169,204
City of Boulder City	483,705	355,354
Nellis Air Force Base	59,661	71,035
Big Bend Water District	44,065	37,813
Clark County Water Reclamation District	-	9,107
Total due from Member Agencies	<u>\$ 41,078,027</u>	<u>\$ 41,004,519</u>

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

NOTE 5. RECEIVABLES

Receivables include amounts due from the State of Nevada, grantors and businesses as well as accrued investment earnings on the SNWA's investments. Based on historical collection experience, management believes all amounts are collectible, and therefore no allowance has been provided for bad debts.

The following amounts were due as of June 30, 2016 and 2015:

<u>Type</u>	<u>June 30, 2016</u>	<u>June 30, 2015</u>
Current Receivables - Restricted		
State of Nevada - Department of Taxation	<u>\$ 16,450,645</u>	<u>\$ 15,857,194</u>
Current Receivables - Unrestricted		
Southern Nevada Public Lands Management Act	1,550,382	4,730,944
Accrued Investment Earnings	1,030,056	615,321
Grants Receivable	230,052	3,048,565
BAB Subsidy Receivable	170,854	183,320
Ranch Revenue	-	19,043
Aerial Imagery Project-RTC	-	6,191
Total Current Receivables - Unrestricted	<u>2,981,344</u>	<u>8,603,384</u>
Total Current Receivables	<u>\$ 19,431,989</u>	<u>\$ 24,460,578</u>

(Totals may not add due to rounding.)

NOTE 6. OTHER CURRENT ASSETS

Other current assets consist of prepaid expenses and miscellaneous current assets located at the SNWA's northern resource property locations. The \$6.4 million (11.9%) decrease in other current assets is due primarily to prepaid power. During the year, the SNWA used funds to secure future power (electricity and natural gas) contracts.

The following items are included in Other Current Assets as of June 30, 2016 and 2015:

<u>Type</u>	<u>June 30, 2016</u>	<u>June 30, 2015</u>
Prepaid Power	\$ 45,235,968	\$ 52,109,017
Prepaid Leases	1,028,292	666,722
Ranch Inventory	766,291	735,756
Prepaid Insurance	521,571	490,052
Total Other Current Assets	<u>\$ 47,552,122</u>	<u>\$ 54,001,548</u>

(Totals may not add due to rounding.)

NOTE 7. CAPITAL ASSETS

The following capital assets schedules summarize changes in major categories of capital assets for fiscal years ended June 30, 2016 and 2015. Natural resource rights are described in more detail in Note 8, and Construction Work In Progress is described in more detail in Note 9.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

Capital Assets June 30, 2016

Capital Assets Category	Balance at June 30, 2015	Additions	Cost Adjustments	Retirements/ Transfers	Balance at June 30, 2016
Capital Assets Subject to Depreciation					
Structures and Improvements	\$ 742,179,790	\$ 37,270,164	\$ 1,321,955	\$ -	\$ 780,771,910
Pumping Stations and Wells	638,660,971	433,553	-	(11,298)	639,083,226
Transmission/Distribution/Mains	1,428,332,042	1,268,833,863	23,576	-	2,697,189,482
Office Furniture and Equipment	118,295,221	1,931,674	2,054,305	(56,371)	122,224,829
Transportation/Work/Equipment	6,339,416	782,244	11,295	(686,955)	6,446,000
Power Plant	101,854,657	-	-	-	101,854,657
Northern Resources Assets	22,037,189	733,226	573,242	(110,928)	23,232,729
Total Capital Assets Subject to Depreciation	3,057,699,286	1,309,984,724	3,984,374	(865,552)	4,370,802,831
Accumulated Depreciation					
Structures and Improvements	369,767,330	34,348,818	-	-	404,116,148
Pumping Stations and Wells	187,852,194	15,507,779	-	(11,298)	203,348,674
Transmission/Distribution/Mains	378,982,691	32,315,105	-	-	411,297,796
Office Furniture and Equipment	97,372,867	3,391,837	-	(56,371)	100,708,333
Transportation/Work/Equipment	5,621,127	345,328	-	(686,955)	5,279,500
Power Plant	37,912,565	3,395,155	-	-	41,307,720
Northern Resources Assets	13,883,044	1,520,268	-	(110,928)	15,292,384
Total Accumulated Depreciation	1,091,391,818	90,824,289	-	(865,552)	1,181,350,555
Net Capital Assets Subject to Depreciation	1,966,307,468	1,219,160,435	3,984,374	-	3,189,452,276
Capital Assets Not Subject to Depreciation					
Land and Land Rights	118,709,095	4,789,968	-	18,665,073	142,164,137
Natural Resource Rights	394,798,979	1,068,014	-	103,848,387	499,715,379
Construction Work In Progress	1,972,520,947	220,589,683	-	(1,456,783,034)	736,327,596
Net Capital Assets Not Subject to Depreciation	2,486,029,021	226,447,664	-	(1,334,269,574)	1,378,207,112
Total Net Capital Assets	\$ 4,452,336,489	\$ 1,445,608,099	\$ 3,984,374	\$ (1,334,269,574)	\$ 4,567,659,388

Capital Assets June 30, 2015

Capital Assets Category	Balance at June 30, 2014	Additions	Cost Adjustments	Retirements/ Transfers	Balance at June 30, 2015
Capital Assets Subject to Depreciation					
Structures and Improvements	\$ 718,333,783	\$ 23,925,157	\$ (79,150)	\$ -	\$ 742,179,790
Pumping Stations and Wells	638,600,721	-	60,250	-	638,660,971
Transmission/Distribution/Mains	1,427,259,668	-	1,072,374	-	1,428,332,042
Office Furniture and Equipment	114,654,176	1,297,287	2,406,738	(62,980)	118,295,221
Transportation/Work/Equipment	6,283,862	366,023	-	(310,469)	6,339,416
Power Plant	101,854,657	-	-	-	101,854,657
Northern Resources Assets	20,916,052	818,160	367,455	(64,478)	22,037,189
Total Capital Assets Subject to Depreciation	3,027,902,919	26,406,627	3,827,667	(437,927)	3,057,699,286
Accumulated Depreciation					
Structures and Improvements	337,460,410	32,306,920	-	-	369,767,330
Pumping Stations and Wells	172,344,712	15,507,482	-	-	187,852,194
Transmission/Distribution/Mains	359,326,372	19,656,319	-	-	378,982,691
Office Furniture and Equipment	94,188,905	3,240,948	-	(56,986)	97,372,867
Transportation/Work/Equipment	5,672,135	259,461	-	(310,469)	5,621,127
Power Plant	34,517,410	3,395,155	-	-	37,912,565
Northern Resources Assets	12,539,000	1,408,522	-	(64,478)	13,883,044
Total Accumulated Depreciation	1,016,048,944	75,774,807	-	(431,933)	1,091,391,818
Net Capital Assets Subject to Depreciation	2,011,853,975	(49,368,180)	3,827,667	(5,994)	1,966,307,468
Capital Assets Not Subject to Depreciation					
Land and Land Rights	92,323,192	-	-	26,385,903	118,709,095
Natural Resource Rights	393,537,487	1,261,492	-	-	394,798,979
Construction Work In Progress	1,847,684,063	179,443,212	-	(54,606,328)	1,972,520,947
Net Capital Assets Not Subject to Depreciation	2,333,544,742	180,704,704	-	(28,220,425)	2,486,029,021
Total Net Capital Assets	\$ 4,345,398,717	\$ 131,336,524	\$ 3,827,667	\$ (28,226,419)	\$ 4,452,336,489

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

NOTE 8. NATURAL RESOURCE RIGHTS

Arizona Water Bank

In 1993, the Board approved a cooperative agreement among its member agencies for funding and participation in the Arizona Underground Storage Demonstration Project (Project). The Project was originally an agreement between the Central Arizona Water Conservation District (CAWCD) and the Metropolitan Water District of Southern California to store water from the Colorado River in underground aquifers in Arizona. The SNWA agreed to participate in the Project and pay CAWCD to store Colorado River water in Arizona. In the event of either a flood release or an anticipatory release of Colorado River water, water stored in Arizona would then become the property of the States of California and Nevada. In 1996 and 1997, the United States Secretary of Interior declared a surplus, and 50,000 AF of water stored in Arizona were assigned to the SNWA. Under the Project, the SNWA purchased the 50,000 AF of water available for future use and funded the expenditure through capital contributions from the SNWA's member agencies.

In 2001, the SNWA and CRC approved an Agreement for Interstate Water Banking (Banking Agreement) with the Arizona Water Banking Authority (AWBA). The AWBA agreed to use its best efforts to store 1.2 million AF of Colorado River water underground in Arizona for the SNWA under the Banking Agreement, and two related agreements that were executed in 2002. Also in 2002, the SNWA and the CRC entered into an agreement with the AWBA to allow the SNWA to store water in Arizona during that year while the remaining agreements were being negotiated. Under the 2002 agreement, the SNWA stored 66,595 AF of Colorado River water in Arizona. In 2004, as part of a subsequent agreement, the AWBA agreed to store an extra 10,000 AF of Nevada's unused Colorado River water for the SNWA.

In 2004, the Board approved an amendment to the 2001 Banking Agreement that guarantees Nevada 1.25 million AF of water storage in aggregate (approximately 1.13 million AF of additional storage plus utilization of the roughly 120,000 AF of water previously stored) in Arizona. In exchange for the water stored, the SNWA agreed to make an initial payment of \$100.0 million and payments of \$23.0 million per year for a ten year period beginning in 2009. Additionally, the SNWA agreed to pay the AWBA's actual cost to recover the stored water.

After several mutually agreed upon deferrals of payment, the AWBA and SNWA approved an amendment to the 2001 Banking Agreement in May 2013 that relieved the SNWA from its obligation to pay the AWBA \$217.3 million in remaining annual payments. In exchange, the AWBA will complete any additional storage of Colorado River water on a pay-as-you-go basis. Also, the SNWA will pay a \$20,000 annual administrative fee for maintenance of the SNWA's storage credits.

As of June 30, 2016, the SNWA has capitalized a total of \$134.9 million related to the AWBA.

Drop 2 / Brock Storage Reservoir Water Rights

In 2005, the Bureau of Reclamation completed a study of potential alternatives for replacing lost storage capacity, reducing excess deliveries to Mexico, and improving lower river operational control. It was determined that building a small reservoir near the All American Canal was the best alternative.

In return for funding \$99.8 million to design and construct the Drop 2 Reservoir, the SNWA would receive the right to 400,000 AF of System Efficiency Intentionally Created Surplus. This water would be able to be utilized by the SNWA through 2036 at a maximum rate of 40,000 acre-feet per year (AFY).

Northern Resource Properties and Related Rights

In 2006 and 2007, the Board approved the purchase of seven properties in Spring Valley, Nevada. In addition to its substantial land holdings (over 23,000 acres), the SNWA also acquired surface and groundwater rights associated

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

with the properties. Through June 30, 2012, the SNWA acquired more than 33,000 AFY of surface water rights, more than 6,000 AFY of groundwater rights, and more than 23,000 AFY of supplemental water rights. Additional negligible water rights were acquired in 2010. The SNWA intends to use the surface water rights to help manage the groundwater basin and support other environmental management activities associated with its Clark, Lincoln, and White Pine Counties Groundwater Development Project.

The Bureau of Land Management (BLM) and United States Forest Service (USFS) issue permits allowing livestock to graze on lands in districts formed primarily under the Taylor Grazing Act. These grazing permits specify grazing preference and the terms and conditions under which permittees may graze these lands during the term of the permit. They are issued by land units called allotments with units known as Animal Unit Months (AUM). An AUM is defined as the amount of forage needed by an animal unit grazing for one month (approximately 1,000 pounds of dry forage). Permits issued by the BLM and USFS are effective for ten years and are subject to renewal. As of June 30, 2016, the SNWA owned permits equivalent to 46,180 AUMs and lease another 2,050 AUMs for a total of 48,230 AUMs. The SNWA has verified through a third party that the AUMs have not been impeded or decreased in value by any legal actions.

As of June 30, 2016, the SNWA has capitalized \$62.2 million of costs to acquire the northern resource properties and related rights.

Muddy River Water Rights

In 1996 the Board authorized the General Manager to request proposals for acquisition of up to 5,600 AF of Muddy River water rights from shareholders of the Muddy Valley Irrigation Company (MVIC). In 1999, the SNWA purchased 3,662 AF of water rights from several shareholders. In 2000, the SNWA exercised all options possible and obtained the permanent water rights associated with those options totaling 1,764 AF. The Board authorized and executed an additional purchase of shares in 2001, representing a total of 188 AF of water. In 2002 and 2004, the Board authorized the acquisition of an additional 3,300 AF and 600 AF, respectively, of Muddy River Water Rights bringing the total authorized for purchase to 9,500 AF. Finally, in 2008 (amended 2011) the Board authorized the acquisition of additional shares of the MVIC, along with additional shares of other northeastern Clark County rural irrigation companies. The authorization does not give a specific limit for the MVIC acquisition but instead establishes a \$57.1 million limit for post 2007 acquisitions or leases of the MVIC and two other rural irrigation companies. The SNWA has not exceeded this authorization.

As of June 30, 2016, the SNWA has capitalized \$62.1 million of costs related to the acquisition of Muddy River Water Rights.

Hydropower Rights

The CRC was created in 1935 for the purpose of securing and distributing Nevada's right to Colorado River water and hydroelectric power. The CRC delivers Nevada's allocation of Colorado River hydroelectric power to various municipal and non-municipal customers in southern Nevada. One of those customers located in Henderson, Nevada is Pioneer Americas, LLC (Pioneer), a manufacturer of chlorine and caustic soda used in various chemical processes.

In addition to hydropower, the CRC also purchased supplemental energy for Pioneer in the wholesale energy market. As a result of regional market volatility in 2000 and 2001, the price of Pioneer's portfolio of supplemental energy was higher than market, and higher than Pioneer could pay. The CRC purchased Pioneer's entire portfolio of energy contracts including hydropower. In January 2003, the SNWA purchased Pioneer's hydropower contract from the CRC for \$53.0 million, allowing the CRC to retain the Pioneer supplemental energy portfolio and use the \$53.0 million to settle those contracts.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

There are five contracts associated with the Pioneer hydropower. Two are associated with power generated at the Hoover Dam, two at the Parker-Davis Dam, and one is related to the transmission of the hydropower. The current Hoover Dam contracts expire in 2017, but new contracts have been executed which renew this resource for the SNWA for an additional 50 year with 95% of the original volumes. The Parker-Davis Dam contracts expire in 2028, but the SNWA expects that these contracts will also be renewed. Accordingly, the hydropower is considered a perpetual resource.

Virgin River Water Rights Development

In 1994, the Board agreed to accept assignment of Nevada's Virgin River water rights from the LVVWD, subject to the SNWA reimbursing the LVVWD for all costs incurred related to the acquisition of those water rights. Additionally, the SNWA acquired 350 shares of the Bunkerville Irrigation Company (BIC) in September 2005. The shares represent 3,710 AF of Virgin River surface water rights. Under the terms of an agreement between the SNWA and the Virgin Valley Water District (VVWD) in 2000, the SNWA transferred 3,710 AF of its water rights to the VVWD to assist in the development of additional groundwater resources in the Virgin River Basin. Finally, in 2008 (amended 2011) the Board authorized the acquisition of additional shares of the BIC and the Mesquite Irrigation Company (MIC). The authorization, which includes the MVIC as described above, does not give a specific limit for acquisition. Instead, it establishes a \$57.1 million limit for post-2007 acquisitions or leases of the MVIC, BIC, and MIC. The SNWA has not exceeded this authorization.

As of June 30, 2016, the SNWA has capitalized \$39.4 million of costs associated with the acquisition of Virgin River water rights which includes all initial payments and any subsequent research and development costs.

Coyote Springs Water Rights

In 1997, the Board authorized the General Manager to initiate negotiations for the purchase of ground water rights and a well in the Coyote Springs Valley located about 60 miles northeast of Las Vegas. The well is one of the highest producing wells ever drilled in southern Nevada. In 1998, the Board approved the purchase of 7,500 AF of groundwater rights and the well with associated real property including easements. In 2002, the SNWA purchased another 1,500 AF of water rights from Coyote Springs Investment, LLC.

As of June 30, 2016, the SNWA has capitalized \$30.9 million of costs associated with the acquisition and subsequent maintenance of Coyote Springs water rights.

In-State Water Projects

In 1989, the LVVWD filed applications to appropriate water from multiple hydrographic basins located in eastern Nevada. In 2003, the Board agreed to accept assignment of those applications from the LVVWD for a payment of \$9.9 million, which represented the LVVWD's costs to date of developing and perfecting those water rights.

As of June 30, 2016, the SNWA has capitalized \$10.1 million related to the acquisition of these water rights which includes the initial payment to the LVVWD plus additional costs that have been incurred.

Cave Valley Hydrologic Basin Water Rights

In 2008, the State Engineer (SE) issued a ruling that granted the SNWA 18,755 AFY from Delamar, Dry Lake, and Cave Valley hydrologic basins. Cave Valley Ranch, LLC (CVR) filed protests to the applications which ultimately concluded with a settlement between CVR, the SE, and the SNWA.

In 2009, a settlement agreement between the SNWA and CVR in the amount of \$4,050,000 grants the SNWA 4,678 AFY in the Cave Valley Hydrologic Basin.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Other Water Rights

In 2010, the SNWA acquired the contractual rights to 400 AF of Colorado River water held by an outside corporation. The \$2.0 million purchase does not increase Nevada's 300,000 AF basic apportionment of Colorado River water, but will ensure that the SNWA is the sole entity authorized to receive this water.

Groundwater Management Program

In 1999, the Nevada Legislature directed the SNWA to establish a Groundwater Management Program (GMP) for the Las Vegas Valley. The GMP provided for the recharging of treated Colorado River water into the Las Vegas Valley Groundwater Basin (LVVGB) for the permanent benefit of the aquifer. Funds collected as part of the GMP are used for this recharge and other programs to benefit well owners.

As of June 30, 2016, the SNWA has capitalized \$1.2 million associated with the GMP.

The following table summarizes the amounts capitalized related to natural resource rights as of June 30, 2016 and 2015:

Type	June 30, 2016	June 30, 2015
Arizona Water Bank	\$ 134,939,572	\$ 133,915,572
Drop 2 / Brock Storage Reservoir Water Rights	99,797,437	-
Northern Resource Property and Rights	62,165,559	62,165,559
Muddy River Water Rights	62,134,195	62,134,195
Hydropower Rights	53,000,000	53,000,000
Virgin River Water Rights Development	39,449,696	39,405,682
Coyote Springs Water Rights	30,884,687	30,884,687
In-State Water Projects	10,134,854	10,134,854
Cave Valley Hydrographic Basin Water Rights	4,050,950	-
Other Water Rights	2,000,000	2,000,000
Groundwater Management Program	1,158,430	1,158,430
Total Natural Resource Rights	<u>\$ 499,715,379</u>	<u>\$ 394,798,979</u>

(Totals may not add due to rounding.)

NOTE 9. CONSTRUCTION WORK IN PROGRESS

The SNWA maintains two capital construction programs: (1) the Major Construction and Capital Plan (MCCP) which includes capital projects that expanded capacity of the SNWS from 400 million gallons per day (MGD) in 1996 to 1,015 MGD currently, building two additional intakes into Lake Mead, the acquisition of water and water rights, and other miscellaneous capital projects, and (2) the Las Vegas Wash Capital Improvements Plan (LVWCIP), which includes capital projects associated with improving water quality in the Las Vegas Wash, the natural channel that drains the Las Vegas Valley into Lake Mead. Each of these capital projects are discussed in more detail later in this note.

Land costs, which include the costs of easements and other rights-of-way, are allocated to Property, Plant and Equipment (PP&E) when purchased. Land costs are not depreciated. Direct and indirect costs of constructing a capital project, including ancillary costs directly related to construction projects, are recorded as Construction Work in Progress (CWIP). When a project is finished, an agenda item is brought before the Board to accept the project as complete. With the Board's acceptance, associated CWIP costs are closed out and allocated to depreciable asset categories within PP&E.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Major Construction and Capital Plan (MCCP)

In 1994, the SNWA began a capital improvements program (CIP) estimated to cost \$2.1 billion. The purpose of the CIP was to expand the capacity of the SNWS from 400 MGD to 900 MGD giving Nevada the capacity and reliability to access its entire 300,000 AF consumptive use allocation of the Colorado River, plus any banked, transferred, or purchased water that may be delivered to Nevada via the Colorado River. In 2008, the CIP was amended to add funds to construct Lake Mead Intake No. 3 bringing the gross authorized amount of the CIP to \$2.9 billion.

The express intent of the CIP was to build improvements on a phased or as-needed basis. All costs associated with the CIP were capitalized. Direct costs included land costs, costs of construction, and engineering contracts. Indirect costs included items such as administration, planning and design, public information, program management, construction management, environmental mitigation, and interest.

In 2002, the SNWA created the MCCP to address the need for capital projects not directly related to the expansion of the SNWS. The original MCCP defined and authorized projects that were necessary to maintain facilities in a sound and functional condition, maintain or improve water quality, develop water resources, reduce operating costs, address environmental and safety issues, provide support facilities (including power), and meet other objectives defined by the Board. The original MCCP authorized \$328 million of capital projects. By the tenth amendment in December 2008, the MCCP's total authorization had risen over fivefold. In 2010, the CIP and MCCP were merged into one document.

The most recent amended MCCP to be approved by the Board was on May 21, 2015, primarily to authorize design and construction of a new Low Lake Level Pumping Station at an estimated cost of \$650 million. This amended MCCP also updates costs and schedules for numerous other projects and includes details for \$2.6 billion of completed projects, \$2.4 billion of active projects, and \$0.1 billion of deferred projects.

It is the express intent of the MCCP to build improvements on a phased or as-needed basis. All costs associated with the MCCP are capitalized. Direct costs include land costs, costs of construction, and engineering contracts and interest. Indirect costs include items such as capitalized interest, administration, planning and design, public information, program management, construction management, and environmental mitigation.

Las Vegas Wash Capital Improvements Plan (LVWCIP)

The Las Vegas Wash (Wash) is the primary urban runoff, wastewater, and floodwater outlet from the Las Vegas Valley into Lake Mead and the Colorado River. The Wash is considered a critical component of the many environmental and water resource issues facing southern Nevada. The LVWCIP presents a summary of planned capital requirements necessary to support long-term enhancement and management of the Wash.

The LVWCIP was most recently revised and approved by the Board on May 19, 2016, includes future projects totaling approximately \$24.3 million. Of that amount, about \$22.9 million (94.4%) is for construction of facilities. The remaining \$1.4 million (5.6%) is for revegetation activities and miscellaneous programs. These projects will be funded by 4.0% of the gross sales tax the SNWA receives which has been designated for the Wash, as well as grants and contracts provided by various state and federal agencies.

Indirect Costs

Indirect costs are defined as capital costs that have not been specifically identified as being generated by a single capital project. Indirect costs are composed of three major categories – (1) capitalized interest, (2) capitalized labor, and (3) other costs.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

The SNWA calculates capitalized interest based on total CWIP, not by project (see below). Indirect capitalized labor results from departments that work with multiple projects and find it cumbersome and ineffective to try and post their time to specific projects. Other indirect costs come primarily from outside consultants that the SNWA hires to do planning, oversight, and other capital related tasks. Since these consultants invoice the SNWA by total time spent on SNWA projects and not specific tasks, the costs cannot be traced to specific items in the capital plan.

Capitalization of Interest Income / Expense

The SNWA capitalizes the interest cost of restricted tax-exempt borrowings, less interest earned on temporary investment of the proceeds of those borrowings, from the date of borrowing until the assets acquired with those borrowings are ready for their intended use. These amounts are added to the indirect costs of total CWIP. The SNWA capitalized \$9.3 million and \$86.2 million of interest expense, which was partially offset by \$1.0 million and \$0.5 million of interest income, in the fiscal years ended June 30, 2016 and 2015, respectively.

The following shows the Construction Work in Progress balance as of June 30, 2016 and 2015:

<u>Type</u>	<u>June 30, 2016</u>	<u>June 30, 2015</u>
Major Construction and Capital Plan	\$ 429,491,910	\$ 1,369,643,518
Las Vegas Wash Capital Improvement Plan	16,990,449	16,006,150
Indirect Costs	289,845,237	586,871,279
Total Construction Work In Progress	<u>\$ 736,327,596</u>	<u>\$ 1,972,520,947</u>

(Totals may not add due to rounding.)

NOTE 10. WATER RECHARGE INVENTORY

In 1993, member agencies of the SNWA entered into a cooperative agreement for the banking of water (recharge) in the LVVGB. The purpose of this agreement was to allow the LVVWD to store water on behalf of the member agencies for future use. The SNWA was not a party to the 1993 agreement.

In 2006, the Board approved an agreement between the SNWA and the parties involved in the 1993 cooperative agreement for the sale and transfer of water banked in the LVVGB. The agreement centrally locates this water source with the SNWA for future use by all member agencies. In addition, the SNWA entered into a cooperative agreement with the LVVWD to allow the SNWA to store water in the LVVGB for the future use of the SNWA. As part of this agreement, the LVVWD agreed to continue its recharge of the LVVGB, with the SNWA reimbursing all related costs on a monthly basis. The agreement also allows the SNWA to manage the water stored in the LVVGB for supplemental use of the valley's water supply in future years, to operate a GMP as directed by NRS 572, and other uses as deemed necessary. As of June 30, 2016, the SNWA has paid \$86.2 million net of sales for 345,351 AF of storage.

NOTE 11. DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES

As required by GASB Statement No. 23, *Accounting and Financial Reporting for Refundings of Debt Reported by Proprietary Activities*, the difference between the reacquisition price and the net carrying amount of old debt that is current or advance refunded is capitalized, shown as a deferred outflows of resources or deferred inflows of resources, and amortized to interest expense over the shorter of the remaining life of the old debt or the life of the new debt. The decision to refund bonds can be made because there is an economic gain to be realized from refunding, even though there may be an increase in the amount of debt outstanding. Economic gain is determined by comparing the present value of cash flow of the existing bond issue with that of the refunding bond issue. Typically, the economic gain comes from lower interest rates of the refunding bonds. Refundings can also occur as needed to provide cash flow relief. The balances on the deferred amount - bond refundings are being amortized

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

over the life of the associated debt. As of June 30, 2016, deferred outflows of resources related to bond refundings was \$75.2 million.

In fiscal year 2016, the SNWA set up the deferred amount - related party to account for the net difference between projected and actual earnings in the pension trust fund held by the LVVWD. As of June 30, 2016, deferred amount - related party is \$10.8 million.

The total deferred outflows of resources as of June 30, 2016 and 2015 are \$86.1 million and \$77.3 million, respectively. The net increase in fiscal year 2016 resulted from the addition of \$10.8 million related to deferred amount - related party, which includes deferred amount related to pension due to LVVWD. This amount was offset by the normal amortization of the deferred amount - bond refundings after taking into account the issuance of two new refunding bonds. Deferred inflows of resources as of June 30, 2016 and 2015 are \$18.0 million and \$19.1 million, respectively. The decrease in fiscal year 2016 resulted from normal amortization.

NOTE 12. ACCOUNTS PAYABLE

Accounts payable balances by category as of June 30, 2016 and 2015 are as follows:

Type	June 30, 2016	June 30, 2015
Construction Contracts and Administration	\$ 16,674,581	\$ 11,874,499
Construction Contracts Retention	3,633,648	12,226,457
Administration Expenses	366,423	290,621
Total Accounts Payable	<u>\$ 20,674,652</u>	<u>\$ 24,391,578</u>

(Totals may not add due to rounding.)

As discussed in Note 1, the SNWA advanced \$19.0 million to the LVVWD in fiscal year 2009 to be applied against future daily operating costs paid by the LVVWD on behalf of the SNWA. The advance payment is first applied against (and eliminates) amounts currently due from the SNWA to the LVVWD. As of June 30, 2016, \$6.0 million of the advance has yet to be applied against SNWA-related expenses. The unused amount is reported as a component of amounts due from member agencies (Note 4).

NOTE 13. COMMITMENTS, RESERVES AND CONTINGENCIES

Construction Contracts

In connection with its two capital improvement plans, the SNWA makes commitments to pay contractors working on those projects. However, the SNWA only pays those contractors for the work they have completed. As of June 30, 2016, the SNWA had construction contract commitments totaling approximately \$214.7 million. This is the amount the SNWA will be obligated to pay if all contractors perform per their contracts. The SNWA could substantially reduce the amount of this commitment by notifying contractors to suspend further work and by paying for work completed to that point.

Operating Leases

Lease Obligations

In 2004, the Board approved a non-cancelable operating lease agreement between Parkway Center, LLC (Molasky) and the SNWA for office space at the Molasky Corporate Center located at 100 City Parkway in downtown Las Vegas. The original agreement allowed the SNWA to lease 129,375 square feet of office space beginning August 1, 2007, for a period of twenty years with renewal options. Two additional amendments approved in 2006 added an

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

additional 52,994 square feet of office space for the same twenty year period. On December 21, 2007, the SNWA exercised its purchase option on the office space described in the original 2004 lease, thereby reducing the amount of office space subject to the lease agreement with Molasky to 52,994 square feet. On November 19, 2015, the purchase option on the remaining 52,994 was exercised. The SNWA continues to lease billboard space from the Molasky Corporate Center. The SNWA leases 34,898 square feet to the LVVWD and 3,000 square feet to Faiss Foley Warren (see Lease Receivables below). For the fiscal years ended June 30, 2016 and 2015, the SNWA paid \$3.4 million and \$4.8 million on the lease and associated fees.

In March 2006, the Board approved an agreement between the Corporation of the Presiding Bishop of the Church of Jesus Christ of Latter-day Saints (CPB) and the SNWA. The agreement allows the SNWA to lease up to 2,001 AF of water annually from the CPB. The initial lease is for a twenty year period with the option to renew for two additional ten year periods. The rate per AF is \$130 with an additional \$100 per AF surcharge if the water is used outside the Moapa Valley Water District (MVWD) service territory. The lease contains an escalation clause based on the Consumer Price Index for All Urban Customers All Items Unadjusted.

In April 2008, the Board approved agreements allowing the SNWA to lease rights from shareholders of the MVIC, the BIC and the MIC (Mesquite leases). The approval allows the Mesquite leases to be offered for any period of time that is agreeable to the SNWA and the water rights holder. Initial Mesquite leases began on October 1, 2008, were from one to ten years in duration and had an annual escalation factor of 3%. In May 2014, the Board approved agreements extending expired leases through September 30, 2016. The rates for the extensions were 54.1% to 62.5% lower per acre foot than the original leases and contain no escalation clause.

In March 2009, the Board approved an agreement with the MVIC allowing the SNWA to lease winter irrigation water rights from the MVIC. The nineteen year lease agreement allows the SNWA to lease 3,000 AF of water per winter season at \$442,801 per year for the first nine years and 1,000 AF of water per winter season at \$259,488 per year for the next ten years. Each of these amounts has an attached escalation factor of 3% annually after the first year of activation. The SNWA would also pay \$25 per AF (escalated annually) to the MVIC for conveying any of this water through the MVIC water distribution system to Lake Mead.

In July 2013, SNWA approved an agreement with the Nevada Department of Wildlife (NDOW) to lease 700 Animal Unit Months (AUMs) for grazing privileges or pasture rights for cattle within the boundaries of the Steptoe Valley Wildlife Management Area, which is administered by NDOW. The agreement will be utilized between July 15 and October 31 for five one-year periods, for an amount not to exceed \$61,257 per year.

None of the leases listed above contain contingent rentals, which are rentals in which amounts are dependent upon some factor other than the passage of time.

The following table shows the remaining minimal rental payments due under the terms of the lease contracts described above.

Fiscal Year Ending June 30	Molasky	CPB	Mesquite Leases	MVIC Lease	NDOW	Total
2017	\$ 108,271	\$ 260,130	\$ 57,533	\$ 544,590	\$ 61,257	\$ 1,031,780
2018	45,667	260,130	59,259	560,928	61,257	987,240
2019	-	260,130	15,259	259,488	-	534,877
2020	-	260,130	-	267,273	-	527,403
2021	-	260,130	-	275,291	-	535,421
2022-2026	-	1,300,650	-	1,505,405	-	2,806,055
2027-2028	-	130,065	-	667,285	-	797,350
	<u>\$ 153,938</u>	<u>\$ 2,731,365</u>	<u>\$ 132,051</u>	<u>\$ 4,080,260</u>	<u>\$ 122,514</u>	<u>\$ 7,220,127</u>

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Lease Receivables

In 2006, the SNWA entered into an interlocal sublease agreement with the LVVWD regarding office space that is either purchased or leased from Molasky. The twenty-year agreement allows the LVVWD to lease 34,898 square feet of space from Molasky. The space that is being leased has an approximate carrying value of \$23.7 million, with \$6.9 million in accumulated depreciation having been taken through June 30, 2016. In addition, the LVVWD pays a share of leasehold improvements. The sublease assumes a ten-year useful life on leasehold improvements and the LVVWD pays a pro-rated share of the amortized value of such improvements. The sublease contains no escalation clauses. The LVVWD is also responsible for any utilities and services assessed to the SNWA for the space occupied by the LVVWD. For the remaining period of the lease, the SNWA anticipates receiving a minimum \$17.5 million of aggregate sublease payments from the LVVWD.

In March 2009, the Board approved three agreements with NV Energy Company (NVE). One agreement allows NVE to lease 1,050 AF of the SNWA water over a ten year period for an annual price of \$83,721. This annual payment is required to be paid regardless of whether or not the water is utilized. The lease expires in 2052. The second agreement allows NVE to lease a maximum of 2,200 AF of Muddy River water per winter season for the first nine years and a maximum of 1,000 AF of Muddy River water per winter season for years 10 through 19. Payments will be made only on an as-used basis with a maximum pre-escalation payment of \$274,804 per year during the first nine years and a maximum pre-escalation payment of \$259,490 per year during the remaining term of the lease. The final lease allows NVE to option an additional 800 AF of water per year during the first nine-year winter season described above for a cost of \$291.83 per AF. All amounts described in this paragraph are subject to a 3% annual escalation. For the remaining period of the leases the SNWA anticipates receiving a minimum \$6.4 million of aggregate payments.

In 2012, the SNWA entered into a sublease agreement with Faiss Foley Warren (Faiss) regarding office space at Molasky. The two year agreement allowed Faiss to lease 3,000 square feet of space and provided the option for a two year renewal, which was exercised. In February 2016, the SNWA executed an amendment to renew the lease agreement for an additional two year period ending in May 2018. The space owned by the SNWA that is being leased has an approximate carrying value of \$2.0 million, with \$0.6 million in accumulated depreciation having been taken through June 30, 2016. The sublease contains no escalation clauses. For the remaining period of the lease, the SNWA anticipates to receive a minimum \$0.1 million of aggregate sublease payments from Faiss.

Except as noted, none of the subleases listed above contain contingent rentals.

The following table shows the future minimum rental incomes for the next five years due under the terms of the lease contracts described above.

<u>Fiscal Year Ending June 30</u>	<u>LVVWD</u>	<u>NVE</u>	<u>Faiss</u>	<u>TOTAL</u>
2017	\$ 1,564,869	\$ 106,055	\$ 72,000	\$ 1,742,924
2018	1,564,869	109,237	66,000	1,740,106
2019	1,564,869	112,514	-	1,677,383
2020	1,564,869	115,889	-	1,680,759
2021	1,564,869	119,366	-	1,684,235
	<u>\$ 7,824,346</u>	<u>\$ 563,062</u>	<u>\$ 138,000</u>	<u>\$ 8,525,407</u>

(Totals may not add due to rounding.)

Forward Energy Contracts

Because Las Vegas is uphill from its major water supply, reliable electrical service is essential to the SNWA's ability to deliver water. To gain more control over energy reliability and costs, the SNWA manages the majority of its power

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

supply rather than purchasing energy from the local regulated investor-owned utility under tariff rates approved by the Nevada Public Utilities Commission. This provides greater control of future prices and projected savings over the same commodity purchased from the investor owned utility.

The SNWA began purchasing over 95% of its power requirements from the Silver State Energy Association (SSEA) beginning April 1, 2013 under Project Services Agreement #3: Power Supply Management Services Agreement, Load Requirements Service (LRS). The SSEA is a joint powers association of public agencies (see Note 19) which was formed in 2007. Its members include the City of Boulder City, Overton Power District #5, Lincoln Power District #1, CRC, and the SNWA. The SNWA and CRC staff run the SSEA which is governed by a Board of Directors with one representative of each member sitting on the Board.

The SSEA buys and sells fixed price power with the SNWA for the upcoming five calendar years to balance the SNWA's total supplies with its total load and other obligations. The SSEA then purchases and sells physical power and other financial products from the market to best hedge its portfolio of forward energy contracts. All SSEA energy activity is in compliance with established energy risk management procedures which were developed to fulfill the Energy Risk Management Policy adopted by the SSEA Board. Under LRS, the SNWA is responsible for a portion of gains and losses and prepaid energy expenses that may be realized in SSEA's energy portfolio each month.

Prior to taking service from the SSEA, the SNWA managed its own portfolio of energy resources consisting solely of forward electricity generation and transmission contracts as well as financial power and natural gas swaps. Among the forward electricity contracts are long-term contracts for the purchase of hydropower from federal dams along the Colorado River. Because this portfolio, as well as its energy contracts with the SSEA, exist solely for purposes of serving the SNWA's projected energy requirements over the next five years, the forward energy contracts are considered to be "normal purchases and sales contracts" and are considered to be outside the scope of GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*.

Although the SNWA is taking LRS Service from the SSEA it will continue to own existing energy assets and contracts and may add other energy assets or contracts in the future as part of its supply portfolio.

The primary risks associated with the SNWA's energy portfolio, as well as the SSEA's energy portfolio, are counterparty credit and termination risks, which are managed by policies and procedures that require careful financial evaluation of trading partners, trading limits and in some cases as specified by policy, the posting of collateral.

As of June 30, 2016, the SNWA had net energy contract commitments for the next ten fiscal years totaling approximately \$186.2 million, which includes its projected allocation of the SSEA net energy contract commitments.

Generating Assets

The SNWA owns 25.0% of the Silverhawk electric power generating plant located in the Apex Industrial Park approximately 20 miles northeast of Las Vegas. NVE is the majority owner of the 580 megawatt (MW), natural gas-fired plant. The SNWA has paid 25.0% of the Silverhawk construction costs, is obligated to pay 25.0% of the operating costs and is entitled to 25.0% of the generated electricity. For the period June 1, 2013 through December 31, 2018, the SNWA entered into an energy exchange agreement with NVE whereby NVE has the right to dispatch the plant using their professional judgment, and the SNWA receives 125 MW on peak and 25 MW off peak of firm delivered power.

SNWA has executed agreements to sell its 25.0% share of Silverhawk to NV Energy for a \$77.0 million cash payment with an anticipated closing date of May 1, 2017. All obligations and rights related to SNWA's ownership interest in Silverhawk, including its 25.0% of operating costs, transmission costs, and the energy exchange referenced above, will terminate upon the closing of the sales transaction.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

In addition to Silverhawk, the SNWA also owns approximately 0.5 MW of solar generation and 2.1 MW of small hydro generation.

Litigation

The SNWA is a defendant in various litigation matters. Although the outcome of these matters is not presently determinable based on information currently available, it is management's opinion based upon advice from legal counsel that the risk of financial losses to the SNWA from such litigation will not have a material adverse effect on its future financial position, results of operations or cash flows. Accordingly, no provision has been made for any such losses.

NOTE 14. SHORT-TERM DEBT

On March 10, 2004, the LVVWD began a Tax-Exempt Commercial Paper (TECP) program for the SNWA, authorizing up to \$400.0 million in TECP notes. Proceeds from the sale of the notes were used to fund capital expenditures of the SNWA including the purchase of water resources and a 25.0% interest in the Silverhawk power plant. The TECP program was most recently renegotiated on March 5, 2014 and is currently facilitated by a letter of credit between the LVVWD; J.P. Morgan Chase, National Association; and Wells Fargo Bank, National Association. The termination date for each agreement is April 14, 2017 and has options for renewal. The TECP notes are subject to market fluctuations as they are traded on the open market. The entire balance is currently issued and outstanding.

The following chart summarizes key components of the SNWA's short-term debt activity.

	June 30, 2016	June 30, 2015
Balance Beginning of Period	\$ 400,000,000	\$ 400,000,000
Additions	2,624,180,000	2,002,960,000
Retirements	(2,624,180,000)	(2,002,960,000)
Balance End of Period	\$ 400,000,000	\$ 400,000,000
End of Period		
Accrued Interest	\$ 193,184	\$ 64,320
Average Interest Rate	0.46%	0.10%
Number of Tranches	12	11
Smallest	\$ 6,600,000	\$ 11,000,000
Largest	\$ 150,000,000	\$ 134,000,000
Shortest Maturity, in days	34	47
Longest Maturity, in days	91	156

NOTE 15. DUE TO RELATED PARTY

Effective July 1, 2007, the LVVWD implemented the provisions of GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. As a result of this implementation, the LVVWD allocated a portion of the liability related to postemployment benefits other than pensions (OPEB) to the SNWA. For the fiscal years ended June 30, 2016 and 2015, allocated OPEB liabilities were \$5.2 million and \$4.6 million, respectively. Additionally, effective July 1, 2014, the LVVWD implemented the provisions of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions – An Amendment of GASB Statement No. 27*. As a result of this implementation, the LVVWD allocated a portion of the net pension liability to the SNWA. For the fiscal years ended 30, 2016 and 2015, the allocated net pension liabilities were \$75.4 million and \$63.1 million, respectively.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

As of June 30, 2016 and 2015, due to related party balances are \$80.6 million and \$67.7 million, respectively. Although implementation of GASB Statements No. 45 and 68 is not applicable to the SNWA, the SNWA is liable to the LVVWD for a proportionate share of the OPEB and pension liabilities.

NOTE 16. LONG-TERM DEBT

Pursuant to the Transfer Act discussed in Note 1, the SNWA assumed responsibility for all CRC debt associated with the SNWS as of January 1, 1996. In 1997, the SNWA received authorization to sell its bonds directly to the Nevada State Bond Bank. In 1999, the SNWA received authorization to sell its bonds through a newly authorized Clark County Bond Bank. The SNWA also has bonds payable, which were issued by the LVVWD on the SNWA's behalf. The SNWA plans to use the LVVWD to sell long-term fixed-rate bonds whenever feasible in the near future.

Debt Creation and Reporting

To avoid the carrying costs of bond proceeds that will not be used for some time to fund capital projects, the SNWA generally issues bonds sufficient to fund about two years of estimated capital project expenditures. The SNWA also can use capital contributions as needed to fund capital project construction payments on a pay-as-you-go basis.

In compliance with NRS 350.013, the SNWA submits a Debt Management Policy to the Nevada Department of Taxation annually. That required filing includes a discussion of the affordability of debt, debt capacity, and how debt will be repaid. The Debt Management Policy is also provided to Clark County and is available for review by bonding agencies and the general public. In addition, the Debt Management Policy is included in the SNWA's annual Operating and Capital Budget document.

Debt Covenants

Management believes that the SNWA has complied with all legal requirements, limitations, and restrictions imposed by debt covenants. The SNWA is required to set charges for its purveyor members that when combined with unrestricted assets available for debt service create levels sufficient to cover all operating and maintenance expenses (excluding depreciation), all debt service requirements and amounts required to be deposited in reserve accounts, if any. Other requirements of long-term debt covenants include adequate insurance coverage for liability, property, and the LVVWD employees and an annual audit of the SNWA's basic financial statements by independent certified public accountants. Covenants are reviewed periodically by outside bond counsel to ensure adherence.

Defeasance of Debt

Some debt issued on behalf of the SNWA has been advance refunded. In those instances, proceeds from advance refunding bond issuances have been placed in escrow accounts to fund debt service requirements as they come due. As of June 30, 2016, one bond issue with \$60.2 million in prior year in-substance defeased debt remains outstanding. The assets in these escrow accounts, as well as the liabilities for those in-substance defeased debt issues, have been removed from the SNWA's financial statements. Furthermore, in accordance with GASB Statement No. 23, *Accounting and Financial Reporting for Refundings of Debt Reported by Proprietary Activities*, any accounting gain or loss resulting from these transactions has been deferred and is being amortized over the life of the related debt (Note 11).

Current Year Debt Issuance Activity

On March 3, 2016, Clark County on behalf of SNWA issued Clark County 2016A refunding bonds in the original amount of \$264.0 million. Proceeds from the bonds along with the \$52.3 million of premiums were deposited into escrow to partially refund the Clark County 2006 refunding bonds and the Clark County 1106 refunding bonds. The Clark County 2016A refunding bonds pay semi-annual interest beginning May 1, 2016 continuing to November 1,

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

2029. At that time, the entire principal of \$264.0 million is scheduled to be paid in full. Interest on the new issue is paid semiannually on May 1 and November 1. The blended interest rate is 1.65%. Over the life of the bond, the issue will reduce debt payment requirements by \$63.4 million. In present value terms, this equates to a \$55.9 million savings in debt requirements.

On April 6, 2016, LVVWD on behalf of SNWA issued LVVWD 2016A refunding bonds in the original amount of \$497.8 million. Proceeds from the bonds along with the \$84.4 million of premiums were deposited into escrow to partially refund the State of Nevada 2006D refunding bonds. The issue also generated \$520.0 million of new money which was reserved for capital expenditures. The LVVWD 2016A refunding bonds pay semi-annual interest beginning December 1, 2016 continuing to June 1, 2046. At that time the entire principal of \$497.8 million is scheduled to be paid in full. Interest on the new issue is paid semiannually on December 1 and June 1. The blended interest rate is 3.63%. Over the life of the bond, the issue will reduce debt payment requirements by \$9.6 million. In present value terms, this equates to an \$8.4 million in savings in debt requirements.

The following is a comprehensive summary of each of the outstanding long-term debt issues as of June 30, 2016.

Nevada Drinking Water State Revolving Fund Loan 1

Nevada law has created an account for the Nevada Drinking Water State Revolving Fund. This account finances the construction of public water system projects authorized by the federal Safe Drinking Water Act. This federally financed program requires that funds made available to each state must be committed and used each year; otherwise, future financing opportunities under the program are lost to the state. In 1999, the SNWA's CIP project to build ozone facilities to disinfect water at the Alfred Merritt Smith Water Treatment Facility qualified under the statutory and regulatory requirements. The SNWA applied for and received a loan from Nevada for the \$12.3 million in available funding to keep the money within Nevada. The interest rate on the loan is fixed at 3.61% and the term is 20 years. Constant semiannual payments of principal and interest are due on August 1 and February 1.

Nevada Drinking Water State Revolving Fund Loan 2

On June 29, 2001, the SNWA received a second loan from the Nevada Drinking Water State Revolving Fund in the amount of \$10.0 million. The SNWA applied for this loan to help preserve Nevada's access to federal Safe Drinking Water Act funds that would otherwise be lost to the public water systems in Nevada. The funds were reserved to pay for CIP construction expenditures. The interest rate on the loan is fixed at 3.46%, and the term is 20 years. Constant semiannual payments of principal and interest are due on August 1 and February 1.

Clark County 1106 Refunding Bonds

These general obligation bonds in the original amount of \$604.1 million were sold on November 2, 2006. The proceeds of the bond sale were used to partially refund \$103.1 million of the Clark County 2001 series bonds, and \$97.5 million of the Clark County 2002 series bonds. The issue also generated \$392.8 million of new money which was reserved for capital expenditures. Interest on these bonds is payable semiannually on May 1 and November 1. The Clark County 1106 bonds mature annually on November 1 through 2036. \$61.3 million of the proceeds from the Clark County 2009 refunding issue, the LVVWD 2011B issue and the LVVWD 2011C issue were used to partially refund selected payments of the Clark County 1106 bonds. The interest rate is 2.50% to 5.00%.

LVVWD 2008B Bonds

These general obligation bonds in the original amount of \$171.7 million were sold on February 19, 2008. The proceeds of the bond sale were used to refund \$183.4 million of the LVVWD 1998 series bonds. The LVVWD 2008B bonds mature annually on June 1 through 2026. \$51.9 million of the LVVWD 2011A issue was used to defease five

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

years' principal on this issue. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 3.50% to 5.00%.

Clark County 2008 Bonds

These general obligation bonds in the original amount of \$400.0 million were sold on July 2, 2008. The proceeds of the bond sale were reserved to fund capital expenditures. The Clark County 2008 bonds mature annually on June 1 through 2038. Interest on these bonds is payable semiannually on December 1 and June 1. \$37.8 million of the proceeds from the Clark County 2009 refunding issue and the LVVWD 2011C issue were used to partially refund selected payment of the Clark County 2008 bonds. The interest rate is 5.00%.

SNWA Clean Renewable Energy 2008 Bonds

These Clean Renewable Energy (CRE) bonds in the original amount of \$6.9 million were sold on July 30, 2008. The proceeds of the bond sale reimbursed the SNWA for investments in clean energy capital projects. The SNWA Clean Renewable Energy 2008 bonds mature annually on December 15 through 2022. Interest on these bonds is payable quarterly on March 15, June 15, September 15, and December 15. The interest rate is 1.17%.

LVVWD 2009A Bonds

These taxable general obligation bonds in the original amount of \$90.0 million were issued on August 5, 2009. The proceeds of the bond sale were reserved to fund capital expenditures. The LVVWD 2009A bonds mature annually on June 1 through 2039. Interest on these bonds is payable semiannually on December 1 and June 1. Since the bonds were issued as Build America Bonds (BABs) as defined under the American Recovery and Reinvestment Act of 2009 (ARRA) the United States Treasury Department refunds 35.0% of all interest expense to the SNWA. On October 1, 2015, the Treasury Department lowered the refund to 32.62%. The interest rate is 7.10% before this Federal participation, and 4.78% after.

LVVWD 2009B Bonds

These general obligation bonds in the original amount of \$10.0 million were issued on August 5, 2009. The proceeds of the bond sale were reserved to fund capital expenditures. The LVVWD 2009B bonds mature annually on June 1 through 2032. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 4.00% to 5.25%.

Clark County 2009 Refunding Bonds

These general obligation bonds in the original amount of \$50.0 million were issued on October 22, 2009. The proceeds of the bond sale were used to partially refund the coupons from the following five bond series – Clark County 2000, Clark County 2001, Clark County 2002, Clark County 1106, and Clark County 2008. The Clark County 2009 refunding bonds mature annually on June 1 through 2030. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 5.00%.

State of Nevada 2009 Bonds

These general obligation bonds were issued by the State of Nevada on behalf of the SNWA on October 22, 2009. The obligation as represented by the bond is \$2.2 million. Semi-annual payments will be due on January 1 and July 1 with the final payment occurring on July 1, 2029. The bonds are interest free.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

LVVWD 2009D Bonds

These general obligation bonds in the original amount of \$72.0 million were sold on December 23, 2009. The proceeds of the bond sale were used to partially refund the LVVWD 2003B bonds with the remaining proceeds reserved for capital expenditures. The LVVWD 2009D bonds mature annually on June 1 through 2030. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 4.25% to 5.25%.

State of Nevada 2010B Bonds

These general obligation bonds in the original amount of \$7.4 million were sold on June 24, 2010. The proceeds of the bond sale were used to fully refund the State of Nevada 1997B bonds and partially refund the State of Nevada 2003C and State of Nevada 2006D bonds. These bonds mature annually on June 1 through 2020. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 3.70%.

LVVWD 2011A Refunding Bonds

These taxable general obligation bonds in the original amount of \$58.1 million were issued on May 24, 2011. Proceeds from the bonds were deposited into escrow to refund \$51.9 million of the LVVWD 2008B bonds. The LVVWD 2011A refunding bonds mature annually on June 1 beginning in 2015 and continuing through 2026. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 3.05% to 5.43%.

LVVWD 2011B Refunding Bonds

These taxable general obligation bonds in the original amount of \$129.7 million were issued on October 19, 2011. The proceeds of the bond sale were used to partially refund coupons from the following five bond series – State of Nevada 2005I, State of Nevada 2005F, State of Nevada 2006D, Clark County 2006 Refunding and Clark County 1106. The LVVWD 2011B refunding bonds mature annually on June 1 through 2027. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 2.79% to 4.96%.

LVVWD 2011C Refunding Bonds

These general obligation bonds in the original amount of \$267.8 million were issued on October 19, 2011. The proceeds of the bond sale were used to partially refund coupons from the following five bond series – State of Nevada 2005F, State of Nevada 2001, Clark County 2002, Clark County 1106, and Clark County 2008—as well as fully refunding LVVWD 2003B. The LVVWD 2011C refunding bonds mature annually on June 1 through 2038. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 2.00% to 5.00%.

Clark County 2012 Refunding Bonds

These general obligation bonds in the original amount of \$85.0 million were issued on June 20, 2012. The proceeds of the bond sale were used to completely refund the Clark County 2001 and the Clark County 2002 bonds. The SNWA 2012 bonds mature annually beginning June 1, 2013 and continue through June 1, 2032. Interest on these bonds is paid semiannually on June 1 and December 1. The interest rate is 4.00% to 5.00%.

LVVWD 2012B Bonds

These general obligation bonds in the original amount of \$360.0 million were issued on July 31, 2012. The proceeds of the bond sale were reserved for capital expenditures. The LVVWD 2012B bonds will mature annually beginning June 1, 2015 through 2042. Interest on these bonds is payable semiannually on December 1 and June 1. The interest rate is 3.00% to 5.00%.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

State of Nevada 2013 Refunding Bonds

These general obligation bonds in the original amount of \$21.7 million were issued on February 20, 2013. The proceeds of the bond sale were used to fully refund the State of Nevada 1998 bond. The State of Nevada 2013 refunding bonds have one principal payment scheduled for August 1, 2027. Interest on the bonds is payable semiannually on August 1 and February 1. The interest rate is 3.00%.

LVVWD 2015 Refunding Bonds

These general obligation bonds in the original amount of \$332.4 million were issued on January 13, 2015. The proceeds of the bond sale were used to completely refund the LVVWD 2009C Bonds. The LVVWD 2015 refunding bonds mature annually beginning June 1, 2031 and continue through June 1, 2039. Interest on these bonds is paid semiannually on December 1 and June 1. The interest rate is 4.00% to 5.00%.

LVVWD 2015B Refunding Bonds

These general obligation bonds in the original amount of \$177.6 million were issued on June 1, 2015. The proceeds of the bond sale were used to completely refund the State of Nevada 2005F and State of Nevada 2005H bonds. The LVVWD 2015B refunding bonds mature annually beginning December 1, 2016 and continue through December 1, 2027. Interest on these bonds is paid semiannually on December 1 and June 1. The interest rate is 4.00% to 5.00%.

LVVWD 2015C Refunding Bonds

These general obligation bonds in the original amount of \$42.1 million were issued on June 18, 2015. The proceeds of the bond sale were used to completely refund the State of Nevada 2005I bonds. The LVVWD 2015C refunding bonds mature annually beginning September 15, 2016 and continue through September 15, 2029. Interest on these bonds is paid semiannually on September 15 and March 15. The interest rate is 3.00% to 5.00%.

Clark County 2016A Refunding Bonds

These general obligation bonds in the original amount of \$264.0 million were issued on March 3, 2016. The proceeds of the bond sale were used to partially refund the Clark County 2006 and Clark County 1106 refunding bonds. The Clark County 2016A refunding bonds mature annually beginning November 1, 2016 and continue through November 1, 2029. Interest on these bonds is paid semiannually on May 1 and November 1. The interest rate is 4.50% to 5.00%.

LVVWD 2016A Refunding Bonds

These general obligation bonds in the original amount of \$497.8 million were issued on April 6, 2016. The proceeds of the bond sale were used to partially refund the State of Nevada 2006D refunding bonds. This issue also generated \$520.0 million of new money which was reserved for capital expenditures. The LVVWD 2016A refunding bonds mature annually beginning June 1, 2017 and continue through June 1, 2046. Interest on these bonds is paid semiannually on December 1 and June 1. The interest rate is 3.00% to 5.00%.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

The following schedules present changes in long-term debt issues and composition of outstanding debt for the fiscal years ended June 30, 2016 and June 30, 2015.

Outstanding Debt Activity, June 30, 2016

Debt Issue	Beginning Balance	Additions	Retirements	Ending Balance
Long-Term Debt				
State Revolving Fund Loan 1	\$ 3,932,448	\$ -	\$ (731,241)	\$ 3,201,207
State Revolving Fund Loan 2	4,025,874	-	(562,470)	3,463,404
Subtotal Notes Payable	7,958,322	-	(1,293,711)	6,664,611
Clark County 2006	210,210,000	-	(210,210,000)	-
State of Nevada 2006D	66,200,000	-	(66,200,000)	-
Clark County 1106	533,020,000	-	(113,885,000)	419,135,000
LVVWD 2008B	116,335,000	-	(10,445,000)	105,890,000
Clark County 2008	362,155,000	-	(8,740,000)	353,415,000
SNWA CREB 2008	3,680,000	-	(460,000)	3,220,000
LVVWD 2009A	90,000,000	-	-	90,000,000
LVVWD 2009B	9,285,000	-	(380,000)	8,905,000
Clark County 2009	44,395,000	-	(2,060,000)	42,335,000
State of Nevada 2009	1,834,836	-	(126,541)	1,708,295
LVVWD 2009D	63,195,000	-	(3,220,000)	59,975,000
State of Nevada 2010B	5,480,000	-	(1,020,000)	4,460,000
LVVWD 2011A	58,010,000	-	(4,255,000)	53,755,000
LVVWD 2011B	129,650,000	-	(9,220,000)	120,430,000
LVVWD 2011C	240,610,000	-	(9,670,000)	230,940,000
Clark County 2012	85,015,000	-	(5,500,000)	79,515,000
LVVWD 2012B	353,405,000	-	(6,790,000)	346,615,000
State of Nevada 2013	21,720,000	-	-	21,720,000
LVVWD 2015	332,405,000	-	-	332,405,000
LVVWD 2015B	177,635,000	-	-	177,635,000
LVVWD 2015C	42,125,000	-	-	42,125,000
Clark County 2016A	-	263,955,000	-	263,955,000
LVVWD 2016A	-	497,785,000	-	497,785,000
Subtotal Bonds Payable	2,946,364,836	761,740,000	(452,181,541)	3,255,923,295
Total Long-Term Debt				
Before Unamortized Discounts				
and Premiums				
	\$ 2,954,323,158	\$ 761,740,000	\$ (453,475,252)	3,262,587,906
Unamortized Discounts and Premiums				265,871,073
Net Debt				\$ 3,528,458,979

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Composition of Outstanding Debt, June 30, 2016

Debt Issue	Ending Balance	Current Portion	Long-Term Portion	Accrued Interest
Long-Term Debt				
State Revolving Fund Loan 1	\$ 3,201,207	\$ 757,878	\$ 2,443,329	\$ 47,940
State Revolving Fund Loan 2	3,463,404	582,099	2,881,306	49,711
Subtotal Notes Payable	6,664,611	1,339,977	5,324,635	97,651
Clark County 1106	419,135,000	16,010,000	403,125,000	2,985,007
LVVWD 2008B	105,890,000	8,420,000	97,470,000	418,171
Clark County 2008	353,415,000	9,180,000	344,235,000	1,448,422
SNWA CREB 2008	3,220,000	460,000	2,760,000	1,638
LVVWD 2009A	90,000,000	-	90,000,000	523,770
LVVWD 2009B	8,905,000	395,000	8,510,000	35,206
Clark County 2009	42,335,000	2,160,000	40,175,000	173,504
State of Nevada 2009	1,708,295	126,540	1,581,755	-
LVVWD 2009D	59,975,000	3,385,000	56,590,000	245,347
State of Nevada 2010B	4,460,000	1,055,000	3,405,000	13,508
LVVWD 2011A	53,755,000	4,400,000	49,355,000	209,846
LVVWD 2011B	120,430,000	9,475,000	110,955,000	411,470
LVVWD 2011C	230,940,000	10,115,000	220,825,000	947,763
Clark County 2012	79,515,000	-	79,515,000	260,705
LVVWD 2012B	346,615,000	7,060,000	339,555,000	1,356,197
State of Nevada 2013	21,720,000	-	21,720,000	270,307
LVVWD 2015	332,405,000	-	332,405,000	1,341,824
LVVWD 2015B	177,635,000	10,675,000	166,960,000	709,689
LVVWD 2015C	42,125,000	2,640,000	39,485,000	578,350
Clark County 2016A	263,955,000	13,755,000	250,200,000	2,187,671
LVVWD 2016A	497,785,000	5,530,000	492,255,000	5,703,359
Subtotal Bonds Payable	3,255,923,295	104,841,540	3,151,081,755	19,821,753
Total Long-Term Debt				
Before Unamortized Discounts and Premiums	\$ 3,262,587,906	\$ 106,181,517	3,156,406,390	\$ 19,919,404
Unamortized Discounts and Premiums			265,871,073	
Net Long-Term Portion			\$ 3,422,277,463	

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Outstanding Debt Activity, June 30, 2015

Debt Issue	Beginning Balance	Additions	Retirements	Ending Balance
Long-Term Debt				
State Revolving Fund Loan 1	\$ 4,637,991	\$ -	\$ (705,543)	\$ 3,932,448
State Revolving Fund Loan 2	4,569,375	-	(543,501)	4,025,874
Subtotal Notes Payable	9,207,366	-	(1,249,044)	7,958,322
State of Nevada 2005F	173,520,000	-	(173,520,000)	-
State of Nevada 2005H	31,620,000	-	(31,620,000)	-
State of Nevada 2005I	47,755,000	-	(47,755,000)	-
Clark County 2006	210,210,000	-	-	210,210,000
State of Nevada 2006D	66,200,000	-	-	66,200,000
Clark County 1106	533,020,000	-	-	533,020,000
LVVWD 2008B	116,335,000	-	-	116,335,000
Clark County 2008	362,155,000	-	-	362,155,000
SNWA CREB 2008	4,140,000	-	(460,000)	3,680,000
LVVWD 2009A	90,000,000	-	-	90,000,000
LVVWD 2009B	9,650,000	-	(365,000)	9,285,000
Clark County 2009	46,355,000	-	(1,960,000)	44,395,000
State of Nevada 2009	1,961,376	-	(126,540)	1,834,836
LVVWD 2009C	348,115,000	-	(348,115,000)	-
LVVWD 2009D	66,265,000	-	(3,070,000)	63,195,000
State of Nevada 2010B	6,460,000	-	(980,000)	5,480,000
LVVWD 2011A	58,110,000	-	(100,000)	58,010,000
LVVWD 2011B	129,650,000	-	-	129,650,000
LVVWD 2011C	249,995,000	-	(9,385,000)	240,610,000
Clark County 2012	85,015,000	-	-	85,015,000
LVVWD 2012B	360,000,000	-	(6,595,000)	353,405,000
State of Nevada 2013	21,720,000	-	-	21,720,000
LVVWD 2015	-	332,405,000	-	332,405,000
LVVWD 2015B	-	177,635,000	-	177,635,000
LVVWD 2015C	-	42,125,000	-	42,125,000
Subtotal Bonds Payable	3,018,251,376	552,165,000	(624,051,540)	2,946,364,836
Total Long-Term Debt				
Before Unamortized Discounts and Premiums	<u>\$ 3,027,458,742</u>	<u>\$ 552,165,000</u>	<u>\$ (625,300,584)</u>	2,954,323,158
Unamortized Discounts and Premiums				<u>141,760,244</u>
Net Debt				<u><u>\$ 3,096,083,402</u></u>

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Composition of Outstanding Debt, June 30, 2015

Debt Issue	Ending Balance	Current Portion	Long-Term Portion	Accrued Interest
Long-Term Debt				
State Revolving Fund Loan 1	\$ 3,932,448	\$ 731,242	\$ 3,201,206	\$ 58,824
State Revolving Fund Loan 2	4,025,874	562,470	3,463,405	57,719
Subtotal Notes Payable	7,958,322	1,293,711	6,664,612	116,543
Clark County 2006	210,210,000	14,845,000	195,365,000	803,809
State of Nevada 2006D	66,200,000	6,020,000	60,180,000	-
Clark County 1106	533,020,000	-	533,020,000	3,928,891
LVVWD 2008B	116,335,000	10,445,000	105,890,000	460,978
Clark County 2008	362,155,000	8,740,000	353,415,000	1,484,242
SNWA CREB 2008	3,680,000	460,000	3,220,000	1,872
LVVWD 2009A	90,000,000	-	90,000,000	523,770
LVVWD 2009B	9,285,000	380,000	8,905,000	36,452
Clark County 2009	44,395,000	2,060,000	42,335,000	181,947
State of Nevada 2009	1,834,836	126,540	1,708,296	-
LVVWD 2009D	63,195,000	3,220,000	59,975,000	258,544
State of Nevada 2010B	5,480,000	1,020,000	4,460,000	16,597
LVVWD 2011A	58,010,000	4,255,000	53,755,000	221,533
LVVWD 2011B	129,650,000	9,220,000	120,430,000	432,547
LVVWD 2011C	240,610,000	9,670,000	230,940,000	984,517
Clark County 2012	85,015,000	5,500,000	79,515,000	283,246
LVVWD 2012B	353,405,000	6,790,000	346,615,000	1,378,459
State of Nevada 2013	21,720,000	-	21,720,000	270,000
LVVWD 2015	332,405,000	-	332,405,000	1,341,824
LVVWD 2015B	177,635,000	-	177,635,000	709,689
LVVWD 2015C	42,125,000	-	42,125,000	69,564
Subtotal Bonds Payable	2,946,364,836	82,751,540	2,863,613,296	13,388,481
Total Long-Term Debt				
Before Unamortized Discounts and Premiums	<u>\$ 2,954,323,158</u>	<u>\$ 84,045,251</u>	2,870,277,907	<u>\$ 13,505,024</u>
Unamortized Discounts and Premiums			<u>141,760,244</u>	
Net Long-Term Portion			<u>\$ 3,012,038,151</u>	

(Totals may not add due to rounding.)

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

The SNWA total debt service requirements to maturity (excluding CP) are as follows:

Long-Term Debt Service Requirements			
Fiscal Year Ending June 30	Principal	Interest ⁽¹⁾	Total
2017	\$ 106,181,516	\$ 159,843,946	\$ 266,025,462
2018	114,844,439	151,375,659	266,220,098
2019	120,669,074	146,165,082	266,834,156
2020	126,290,486	140,512,177	266,802,663
2021	132,329,253	134,492,157	266,821,410
2022-2026	744,850,247	569,008,779	1,313,859,025
2027-2031	653,192,891	393,051,740	1,046,244,631
2032-2036	598,970,000	255,344,253	854,314,253
2037-2041	511,150,000	103,019,263	614,169,263
2042-2046	154,110,000	21,437,900	175,547,900
	<u>3,262,587,906</u>	<u>\$ 2,074,250,954</u>	<u>\$ 5,336,838,860</u>
Unamortized Discounts and Premiums ⁽²⁾	265,871,073		
Total Debt Service	<u><u>\$ 3,528,458,979</u></u>		

(Totals may not add due to rounding.)

⁽¹⁾ Gross interest, not reduced by anticipated BAB Subsidy.

⁽²⁾ Total debt service on the Statement of Net Position includes unamortized discounts and premiums. The balance in that account is shown here for consistency purposes.

NOTE 17. CAPITAL CONTRIBUTIONS

Income restricted for capital improvement plans and other expansion programs are reported on the Statements of Revenues, Expenses and Changes in Net Position as capital contributions. Capital contributions received for the fiscal years ended June 30, 2016 and 2015 are as follows:

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

Type	June 30, 2016	June 30, 2015
Regional Infrastructure Charge	\$ 106,459,684	\$ 87,046,856
Regional Connection Charge ⁽¹⁾	63,781,176	66,015,927
Sales Tax	58,152,408	55,933,316
Regional Commodity Charge	56,621,516	48,885,982
Southern Nevada Public Lands Management Act	6,028,449	8,781,769
Regional Reliability Surcharge	5,082,720	4,875,676
Purveyor Member Debt Service Billings	3,665,177	2,443,025
Contributed Capital - Cash and Equivalents	899,896	7,944,857
Total Capital Contributions	\$ 300,691,026	\$ 281,927,406

(Totals may not add due to rounding.)

⁽¹⁾ Adjusted by Pending Regional Connection Charge Refund Contingency.

Capital contributions presented in the Statements of Cash Flows differ somewhat from the amounts above because of accruals and use of some capital contributions for expenses related to expansion programs. The differences in capital contributions for the fiscal years ended June 30, 2016 and 2015 were as follows:

Reconciliation Of Capital Contributions		
Type	June 30, 2016	June 30, 2015
Capital Contributions per Statements of Revenues, Expenses and Changes in Net Position	\$ 300,691,026	\$ 281,927,406
Expenses Related to Expansion Programs	(12,858,154)	(11,390,851)
Net Prior and Current Year Sales Tax Receivables	(593,452)	(720,516)
Net Prior and Current Year Sales Tax Payable To	120,400	277,766
Net Prior and Current Year Connection, Commodity, and Reliability Receivables	(943,205)	(3,981,752)
Net Prior and Current Year Southern NV Public Lands Management Act Receivable	3,180,562	(4,730,945)
Capital Contributions Per Statements of Cash Flows	\$ 289,597,177	\$ 261,381,108

(Totals may not add due to rounding.)

Boulder City and Nellis Air Force Base Interlocal Agreements

In addition to the revenues shown above, the SNWA currently holds interlocal agreements with the City of Boulder City and Nellis Air Force Base. Neither of these SNWA members collect regional infrastructure charges, regional connection charges, regional commodity charges, or regional reliability surcharges, which help pay for many SNWA capital projects including the completed Lake Mead Intake No. 3 project. Both the City of Boulder City and Nellis Air Force Base realize that the intake provides additional reliability of water resources for their areas and have therefore agreed to pay for a portion of the construction cost through annual payments to the SNWA. As of June 30, 2016, the City of Boulder City has paid their entire portion. Payments from the interlocal agreements are in lieu of the regional charges mentioned above and will be classified as capital contributions when received in compliance with paragraph 6.79 of the American Institute of Certified Public Accountants' Audit and Accounting Guide, *State and Local Governments*.

NOTE 18. RISK MANAGEMENT

The SNWA is exposed to a variety of risks that may result in losses. These risks include possible losses related to torts; theft of, damage to, or destruction of assets; extra expense; errors and omissions; job-related illnesses or injuries to employees; product liability claims; and natural disasters. The SNWA manages these risks through a multifaceted approach, which includes transfer, elimination, avoidance, reduction, and/or assumption of risk of loss.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements

For the fiscal years ended June 30, 2016 and 2015

The SNWA purchases insurance from the commercial insurance market on real and personal property, including earthquake and flood, with common policy restrictions covering direct physical loss of, or damage to, buildings, fixtures, equipment, boilers, machinery, and supplies. The blanket limit of liability under the property insurance program is \$500.0 million with a deductible of \$1.0 million for all locations, except earthquake and flood which has a limit of \$100.0 million and \$50.0 million respectively and a deductible of \$0.1 million. This program also provides terrorism insurance for all locations with a blanket limit of \$500.0 million for all terrorist acts. The SNWA self-insures the first \$1.0 million for automobile and general liability exposure and purchases excess liability insurance in the amount of \$30.0 million. Employee fidelity insurance in the amount of \$3.0 million and other miscellaneous coverages are also purchased. For the fiscal year ended June 30, 2016, the SNWA had no significant reductions in insurance coverage from the prior fiscal year.

In contracts, the SNWA obtains indemnification and hold harmless agreements. These agreements require that contractors name the SNWA as an additional insured under the indemnitor's insurance coverage, usually in the amount of \$1.0 million to \$10.0 million for commercial general and automobile liability insurance. The SNWA provides builders risk insurance for all construction projects with a blanket limit of \$500.0 million per contract, with a \$50,000 deductible per occurrence, except earthquake and flood where the deductible is \$0.5 million per occurrence. This coverage is included under the property insurance policy. The SNWA purchased a separate Builders Risk policy to insure the Lake Mead Intake No. 3 project during construction. The limit on this policy is \$580.0 million with deductibles of \$1.0 million for all underground works losses and earthquakes, \$0.3 million for testing and \$0.1 million for any other loss. Insurance for terrorist acts was also purchased for this project with a limit of \$580.0 million and a deductible of \$0.1 million.

GASB Statement No. 10, *Accounting and Financial Reporting for Risk Financing and Related Insurance Issues*, requires that for retained risks, a liability for claims be reported if information available prior to issuance of the financial statements indicates it is probable that a liability has been incurred at the date of the financial statements and the amount of the loss can be reasonably estimated. As of June 30, 2016, the SNWA has no significant retained risks and therefore has no accrued liability for retained risks. In addition, there are also situations in which incidents occur before the balance sheet date, but claims are not reported or asserted when the financial statements are prepared. As of June 30, 2016, the SNWA has no significant retained risks and therefore has no accrued liability for retained risks.

NOTE 19. JOINT VENTURE

The SNWA is a member of the Silver State Energy Association (SSEA). The SSEA was established as a joint venture through an interlocal agreement among its members, which in addition to the SNWA, include the City of Boulder City, Lincoln Power District No. 1, Overton Power District No. 5, and the CRC (Members).

The SSEA is an association of public agencies with the common goal of jointly planning, developing, owning and operating power resources to meet their own needs and those of their customers. The economies of scale produced by the SSEA offer improved project development opportunities and power purchasing capabilities, the sharing of resources and expertise, and the opportunity for jointly managed energy needs.

As appropriate projects are selected for development, the Members involved in each project enter into a project service agreement indicating each participating Member's allocation of project costs and benefits.

SOUTHERN NEVADA WATER AUTHORITY

Notes to Basic Financial Statements
For the fiscal years ended June 30, 2016 and 2015

The business and other affairs of the SSEA are conducted by a Board of Directors consisting of one director appointed by each Member. The appointed director may, but need not be, a member of the governing body of the Member.

Financial information regarding SSEA can be obtained by writing to:

Finance Director

P.O. Box 99956, MS 115

Las Vegas, NV 89193-9956

NOTE 20. SUBSEQUENT EVENTS

On August 3, 2016, Clark County issued \$271.7 million in general obligation bonds on behalf of the SNWA (Clark County 2016B). This issue partially refunded coupons from the Clark County 1106 Refunding Bonds. The issue was sold at a premium of \$66.9 million and it has a true interest cost of 2.20%.

Statistical Section (Unaudited)

- Information on Financial Trends
- Information on Revenue Capacity
- Information on Debt Capacity
- Demographic and Economic Information
- Operating Information
- Other Information



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Introduction and Table of Contents
For the fiscal years ended June 30, 2016 and 2015

This part of the Comprehensive Annual Financial Report of the Southern Nevada Water Authority (SNWA) presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the government's overall financial health.

<u>Contents</u>	<u>Page</u>
Information on Financial Trends	3-2 to 3-5
<i>These schedules contain information to help the reader understand how the SNWA's financial performance and well-being have changed over time.</i>	
Information on Revenue Capacity	3-6 to 3-15
<i>These schedules contain information to help the reader assess the SNWA's most significant local revenue sources.</i>	
Information on Debt Capacity	3-16 to 3-21
<i>These schedules present information to help the reader assess the affordability of the SNWA's current outstanding debt and its ability to issue additional debt in the future.</i>	
<i>Because the SNWA has only seven customers (the seven purveyor members as shown in the introductory section) ratios reflecting debt to the SNWA's customer base were deemed meaningless. Alternative comparisons have been made to give the reader a better sense of the SNWA's debt levels.</i>	
Demographic and Economic Information	3-22 to 3-25
<i>These schedules offer demographic and economic indicators to aid the reader in understanding the environment in which the SNWA's financial activities take place.</i>	
Operating Information	3-26 to 3-28
<i>These schedules contain service and infrastructure data to help the reader understand how the information in the SNWA's financial report relates to the services SNWA provides and the activities it performs.</i>	
Other Information	3-29 to 3-47
<i>These schedules include hydrologic data, debt history, and individual amortization schedules to help the reader understand the SNWA's debt position both historically and in the future.</i>	

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

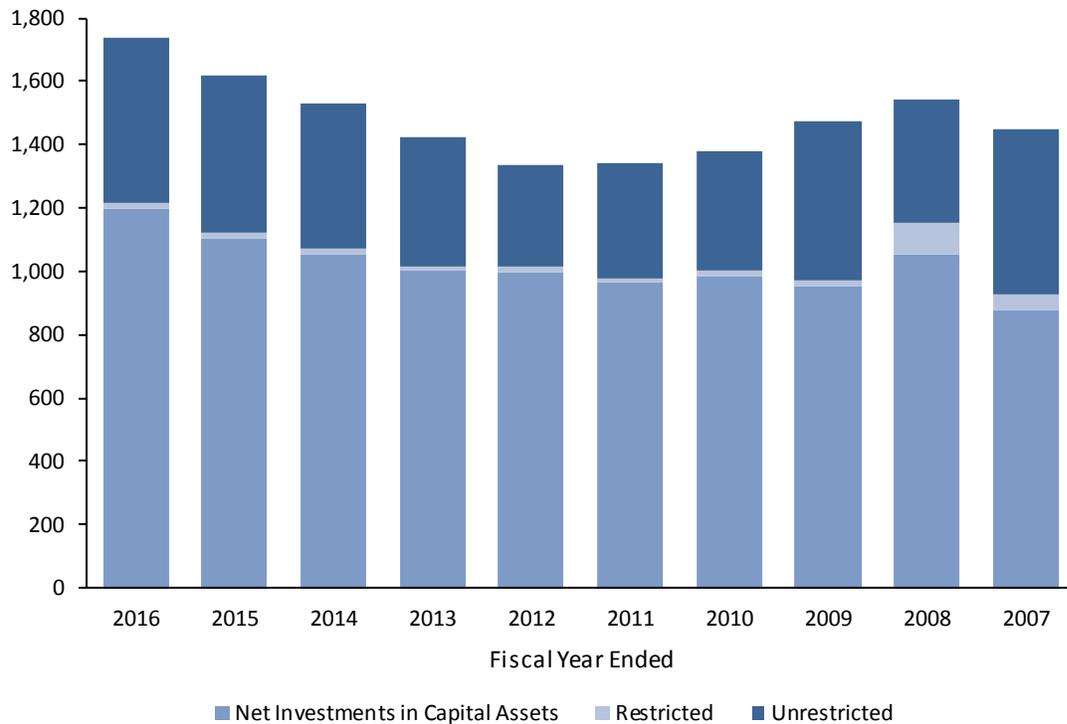
Net Position

Last Ten Fiscal Years

Fiscal Year Ended June 30	Net Investments in Capital Assets	Restricted for Debt Service / Capital Assets	Unrestricted	Total Net Position
2016	\$ 1,198,480,405	\$ 15,769,806	\$ 524,327,782	\$ 1,738,577,993
2015	1,101,533,047	21,491,395	493,734,379	1,616,758,821
2014	1,053,490,593	20,731,026	455,164,318	1,529,385,937
2013	1,002,302,170	15,122,934	406,887,453	1,424,312,557
2012	995,159,156	22,736,730	319,037,966	1,336,933,852
2011	962,800,479	13,049,575	364,557,366	1,340,407,420
2010	984,695,999	16,866,340	379,701,414	1,381,263,753
2009	953,273,244	15,178,151	506,480,038	1,474,931,433
2008	1,050,436,099	102,040,416	390,234,075	1,542,710,590
2007	879,151,397	50,122,513	521,884,671	1,451,158,581

\$ in Millions

Net Position



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Changes in Net Position

Last Ten Fiscal Years

Page 1 of 3

	Fiscal Year Ended June 30,		
	2016	2015	2014
Operating Revenues			
Wholesale Delivery Charges	\$ 125,054,059	\$ 121,100,263	\$ 121,045,154
Groundwater Management Fees	928,893	882,331	842,191
Administration Costs Recoveries	551,852	472,786	425,765
Las Vegas Wash Revenues	411,893	404,578	397,408
Other Revenues	49,201,788	3,538,758	3,843,389
Total Operating Revenues	176,148,485	126,398,716	126,553,907
Operating Expenses			
Personnel and Related	56,252,596	49,951,688	50,216,887
Energy	39,333,766	35,071,725	53,409,820
Operation and Maintenance	39,349,790	42,471,373	34,483,860
Depreciation	90,824,289	75,774,807	75,853,379
Total Operating Expenses	225,760,441	203,269,593	213,963,946
Operating Loss	(49,611,956)	(76,870,877)	(87,410,039)
Nonoperating Revenues (Expenses)			
Investment Income	3,852,256	1,592,657	2,309,538
Interest Expense (Net of BAB Subsidy)	(134,359,904)	(54,939,795)	(45,253,209)
Amortization of Refunding Costs	(4,581,254)	(3,492,409)	(2,921,604)
Bond Issue and Commercial			
Paper Costs ⁽¹⁾	(4,378,509)	(3,299,596)	(3,314,554)
Amortization of Bond Issue Costs,			
Premiums and Discounts ⁽²⁾	10,008,610	4,868,091	3,780,080
Other	198,903	94,294	44,132
Total Nonoperating Revenues (Expenses)	(129,259,898)	(55,176,758)	(45,355,617)
Loss Before Capital Contributions	(178,871,854)	(132,047,635)	(132,765,656)
Capital Contributions	300,691,026	281,927,406	237,839,036
Change in Net Position	121,819,172	149,879,771	105,073,380
Net Position - Beginning of the Year	1,616,758,821	1,529,385,937	1,424,312,557
Adjustment ⁽³⁾⁽⁴⁾	-	(62,506,887)	-
Net Position - End of the Year	\$ 1,738,577,993	\$ 1,616,758,821	\$ 1,529,385,937

continued on next page

⁽¹⁾ Per GASB 65, bond issue costs must be expensed in the year they occur. SNWA adopted GASB 65 with the fiscal 2010 financial information.

⁽²⁾ Fiscal years 2009 and earlier contain the amortization of bond issue costs.

⁽³⁾ GASB 65 was adopted April 2010. This entry eliminated the unamortized bond issue cost asset from SNWA's books.

⁽⁴⁾ Prior period adjustment for the LVVWD's implementation of GASB 68 *Accounting and Financial Reporting for Pensions* in fiscal year 2015.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Changes in Net Position

Last Ten Fiscal Years

Page 2 of 3

	Fiscal Year Ended June 30,		
	2013	2012	2011
Operating Revenues			
Wholesale Delivery Charges	\$ 117,534,578	\$ 119,239,660	\$ 119,457,411
Groundwater Management Fees	863,417	867,716	894,502
Administration Costs Recoveries	383,443	318,886	362,263
Las Vegas Wash Revenues	397,708	397,407	397,408
Other Revenues	3,525,867	2,705,745	2,950,612
Total Operating Revenues	122,705,013	123,529,414	124,062,196
Operating Expenses			
Personnel and Related	43,880,414	43,450,464	42,491,203
Energy	36,347,165	44,527,798	36,013,713
Operation and Maintenance	27,943,415	37,685,150	34,357,566
Depreciation	74,943,316	74,918,789	74,381,219
Total Operating Expenses	183,114,310	200,582,201	187,243,701
Operating Loss	(60,409,297)	(77,052,788)	(63,181,505)
Nonoperating Revenues (Expenses)			
Investment Income	740,407	869,505	1,024,158
Interest Expense (Net of BAB Subsidy)	(53,694,055)	(56,700,015)	(69,064,101)
Amortization of Refunding Costs	(2,926,272)	(2,254,389)	(1,079,554)
Bond Issue and Commercial			
Paper Costs ⁽¹⁾	(5,606,185)	(7,264,123)	(5,153,406)
Amortization of Bond Issue Costs,			
Premiums and Discounts ⁽²⁾	3,291,755	3,211,357	3,452,152
Other	63,295	37,112	53,733
Total Nonoperating Revenues (Expenses)	(58,131,055)	(62,100,553)	(70,767,019)
Loss Before Capital Contributions	(118,540,352)	(139,153,341)	(133,948,523)
Capital Contributions	205,919,057	135,679,772	93,092,191
Change in Net Position	87,378,705	(3,473,569)	(40,856,332)
Net Position - Beginning of the Year	1,336,933,852	1,340,407,420	1,381,263,753
Adjustment ⁽³⁾⁽⁴⁾	-	-	-
Net Position - End of the Year	\$ 1,424,312,557	\$ 1,336,933,852	\$ 1,340,407,420

continued on next page

⁽¹⁾ Per GASB 65, bond issue costs must be expensed in the year they occur. SNWA adopted GASB 65 with the fiscal 2010 financial information.

⁽²⁾ Fiscal years 2009 and earlier contain the amortization of bond issue costs.

⁽³⁾ GASB 65 was adopted April 2010. This entry eliminated the unamortized bond issue cost asset from SNWA's books.

⁽⁴⁾ Prior period adjustment for the LVVWD's implementation of GASB 68 *Accounting and Financial Reporting for Pensions* in fiscal year 2015.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Changes in Net Position

Last Ten Fiscal Years

Page 3 of 3

	Fiscal Year Ended June 30,			
	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
Operating Revenues				
Wholesale Delivery Charges	\$ 110,097,368	\$ 112,551,974	\$ 118,782,982	\$ 121,449,812
Groundwater Management Fees	872,104	2,047,626	1,976,911	1,953,768
Administration Costs Recoveries	342,820	379,306	367,710	359,042
Las Vegas Wash Revenues	698,274	690,000	1,196,028	842,700
Other Revenues	<u>2,563,872</u>	<u>2,648,858</u>	<u>2,010,404</u>	<u>1,586,346</u>
Total Operating Revenues	<u>114,574,438</u>	<u>118,317,764</u>	<u>124,334,035</u>	<u>126,191,668</u>
Operating Expenses				
Personnel and Related	37,948,022	39,671,513	37,430,481	33,754,022
Energy	39,656,635	40,184,442	35,233,331	47,268,452
Operation and Maintenance	45,801,462	73,740,385	63,839,825	43,170,486
Depreciation	<u>76,350,465</u>	<u>66,726,519</u>	<u>59,173,267</u>	<u>53,622,679</u>
Total Operating Expenses	<u>199,756,584</u>	<u>220,322,860</u>	<u>195,676,904</u>	<u>177,815,639</u>
Operating Loss	<u>(85,182,146)</u>	<u>(102,005,096)</u>	<u>(71,342,869)</u>	<u>(51,623,971)</u>
Nonoperating Revenues (Expenses)				
Investment Income	1,374,146	10,709,321	24,494,593	29,484,713
Interest Expense (Net of BAB Subsidy)	(68,926,378)	(69,887,704)	(67,939,173)	(71,907,034)
Amortization of Refunding Costs	(969,032)	(1,118,050)	(1,286,877)	(1,467,458)
Bond Issue and Commercial				
Paper Costs ⁽¹⁾	(5,473,902)	(2,249,341)	(866,470)	(903,956)
Amortization of Bond Issue Costs,				
Premiums and Discounts ⁽²⁾	3,537,813	2,877,933	1,810,746	1,443,992
Other	<u>(5,051)</u>	<u>(753,735)</u>	<u>5,200</u>	<u>835,062</u>
Total Nonoperating Revenues (Expenses)	<u>(70,462,404)</u>	<u>(60,421,576)</u>	<u>(43,781,981)</u>	<u>(42,514,681)</u>
Loss Before Capital Contributions	(155,644,550)	(162,426,672)	(115,124,850)	(94,138,652)
Capital Contributions	<u>75,876,870</u>	<u>94,647,515</u>	<u>206,676,859</u>	<u>237,409,722</u>
Change in Net Position	(79,767,680)	(67,779,157)	91,552,009	143,271,070
Net Position - Beginning of the Year	1,474,931,433	1,542,710,590	1,451,158,581	1,307,887,511
Adjustment ⁽³⁾⁽⁴⁾	<u>(13,900,000)</u>	-	-	-
Net Position - End of the Year	<u>\$ 1,381,263,753</u>	<u>\$ 1,474,931,433</u>	<u>\$ 1,542,710,590</u>	<u>\$ 1,451,158,581</u>

⁽¹⁾ Per GASB 65, bond issue costs must be expensed in the year they occur. SNWA adopted GASB 65 with the fiscal 2010 financial information.

⁽²⁾ Fiscal years 2009 and earlier contain the amortization of bond issue costs.

⁽³⁾ GASB 65 was adopted April 2010. This entry eliminated the unamortized bond issue cost asset from SNWA's books.

⁽⁴⁾ Prior period adjustment for the LVVWD's implementation of GASB 68 *Accounting and Financial Reporting for Pensions* in fiscal year 2015.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

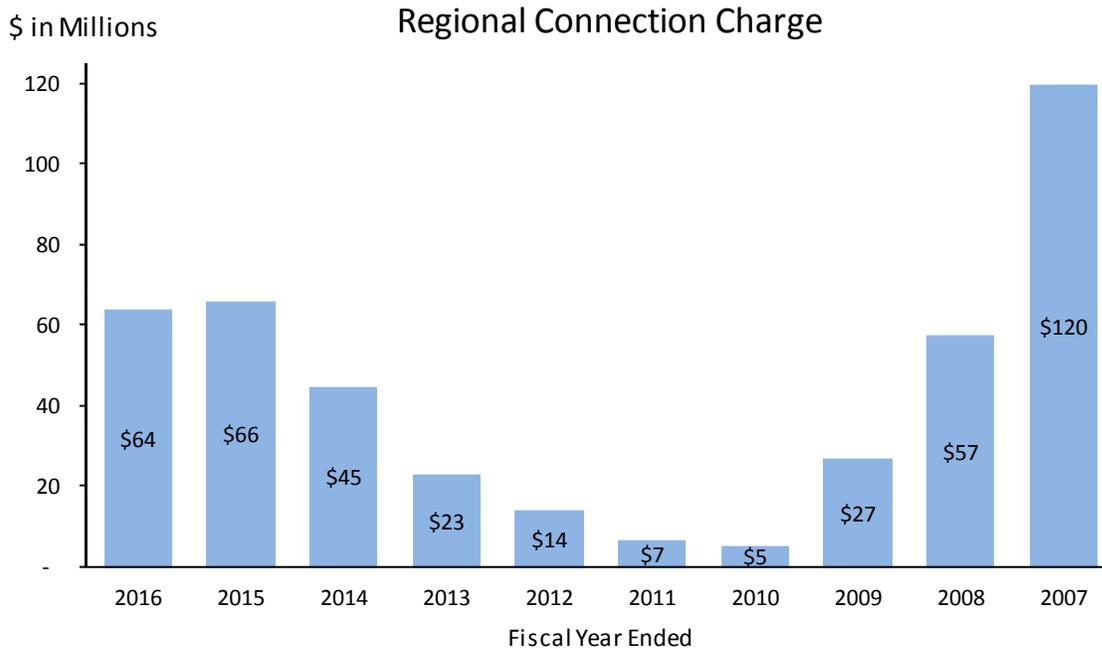
Regional Connection Charge By Purveyor Member ⁽¹⁾

Last Ten Fiscal Years

Fiscal Year Ended June 30,	Las Vegas Valley Water District	City of Henderson	City of North Las Vegas	Adjustment to Pending Refund Contingency ⁽²⁾	Total
2016	\$ 42,742,896	\$16,687,440	\$ 2,930,630	\$ 1,420,210	\$ 63,781,176
2015	47,125,630	16,954,760	1,649,490	286,047	66,015,927
2014	26,284,180	13,185,770	2,012,861	3,336,858	44,819,669
2013	16,232,230	1,581,160	1,228,630	3,873,396	22,915,416
2012	10,265,102	3,195,930	330,050	101,774	13,892,856
2011	7,504,785	3,529,771	(258,942)	(4,172,886)	6,602,728
2010	(581,358)	2,008,270	2,117,669	1,764,966	5,309,547
2009	17,943,571	4,855,790	4,607,510	(617,716)	26,789,155
2008	40,672,561	11,184,662	9,655,650	(4,194,769)	57,318,104
2007	83,294,414	22,396,474	15,668,200	(1,797,880)	119,561,208

⁽¹⁾ Regional Connection Charges are a component of Capital Contributions as displayed on the Statements of Revenues, Expenses, and Changes in Net Position. See Notes 1 and 17 to the Basic Financial Statements.

⁽²⁾ Beginning in fiscal year 2007, annual net cash collections of connection charges were modified by a pending refund contingency. The adjusted amount corresponds with the Capital Contributions section of the financial statements (Note 17). The pending refund contingency was discontinued in fiscal year 2016.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Regional Connection Charge Rates
Last Ten Fiscal Years

		Fiscal Year Ended June 30,					
		2016-2010	2009		2008		
		Jul 09 to <u>Jun 16</u>	Nov 08 to <u>Jun 09</u>	Jul 08 to <u>Oct 08</u>	May 08 to <u>Jun 08</u>	Nov 07 to <u>Apr 08</u>	Jul 07 to <u>Oct 07</u>
Residential - 8 or fewer units per acre							
	5/8"	\$ 4,870	\$ 4,870	\$ 4,710	\$ 4,710	\$ 4,560	\$ 4,410
	3/4"	4,870	4,870	4,710	4,710	4,560	4,410
	1"	9,610	9,610	9,300	9,300	9,000	8,710
	1 1/2"	19,170	19,170	18,560	18,560	17,970	17,400
	2"	30,680	30,680	29,700	29,700	28,750	27,830
Residential - more than 8 units per acre Per Dwelling Unit							
	Individually Metered	\$ 3,400	\$ 3,400	\$ 3,210	\$ 3,210	\$ 3,030	\$ 2,860
	Master Metered	3,400	3,400	3,210	3,210	3,030	2,860
Non Residential excluding hotels, motels, golf courses and laundries							
	5/8"	\$ 4,870	\$ 4,870	\$ 4,710	\$ 4,710	\$ 4,560	\$ 4,410
	3/4"	4,870	4,870	4,710	4,710	4,560	4,410
	1"	9,610	9,610	9,300	9,300	9,000	8,710
	1 1/2"	19,170	19,170	18,560	18,560	17,970	17,400
	2"	64,260	64,260	60,060	60,060	56,130	52,460
	3"	237,900	237,900	216,610	216,610	197,220	179,570
	4"	353,100	353,100	326,310	326,310	301,550	278,670
	6" and larger, per thousand gallons estimated annual use	\$ 29.20	\$ 29.20	\$ 26.50	\$ 26.50	\$ 24.00	\$ 21.80
Hotels / Motels							
	Per Room	\$ 2,780	\$ 2,780	\$ 2,690	\$ 2,690	\$ 2,600	\$ 2,520
Golf Courses							
	Per Irrigated Acre	\$ 45,640	\$ 45,640	\$ 43,870	\$ 43,870	\$ 42,170	\$ 40,530
RV Parks							
	Per Space	\$ 1,380	\$ 1,380	\$ 1,340	\$ 1,340	\$ 1,300	\$ 1,260
Industrial Laundries							
	5/8"	\$ 76,800	\$ 76,800	\$ 74,350	\$ 74,350	\$ 71,970	\$ 69,670
	3/4"	76,800	76,800	74,350	74,350	71,970	69,670
	1"	151,460	151,460	146,620	146,620	141,940	137,410
	1 1/2"	302,950	302,950	293,270	293,270	283,900	274,830
	2"	484,700	484,700	469,220	469,220	454,230	439,720
	3"	969,400	969,400	938,430	938,430	908,450	879,430
	4"	1,514,690	1,514,690	1,466,300	1,466,300	1,419,460	1,374,110
	6"	3,029,360	3,029,360	2,932,580	2,932,580	2,838,900	2,748,210
	8"	4,846,980	4,846,980	4,692,140	4,692,140	4,542,250	4,397,140
	10"	6,967,540	6,967,540	6,744,960	6,744,960	6,529,490	6,320,900

Continued on next page

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Regional Connection Charge Rates
Last Ten Fiscal Years

		Fiscal Year Ended June 30,		
		2007		
		May 07 to	Nov 06 to	Jul 06 to
		<u>Jun 07</u>	<u>Apr 07</u>	<u>Oct 06</u>
Residential - 8 or fewer units per acre				
	5/8" \$	4,410	\$ 4,270	\$ 4,130
	3/4"	4,410	4,270	4,130
	1"	8,710	8,430	8,160
	1 1/2"	17,400	16,840	16,300
	2"	27,830	26,940	26,080
Residential - more than 8 units per acre				
Per Dwelling Unit				
	Individually Metered \$	2,860	\$ 2,700	\$ 2,550
	Master Metered	2,860	2,700	2,550
Non Residential excluding hotels, motels, golf courses and laundries				
	5/8" \$	4,410	\$ 4,270	\$ 4,130
	3/4"	4,410	4,270	4,130
	1"	8,710	8,430	8,160
	1 1/2"	17,400	16,840	16,300
	2"	52,460	49,030	45,820
	3"	179,570	163,500	148,780
	4"	278,670	257,530	237,990
	6" and larger, per thousand gallons estimated annual use \$	21.80	\$ 19.80	\$ 18.00
Hotels / Motels				
	Per Room \$	2,520	\$ 2,440	\$ 2,360
Golf Courses				
	Per Irrigated Acre \$	40,530	\$ 38,960	\$ 37,450
RV Parks				
	Per Space \$	1,260	\$ 1,220	\$ 1,180
Industrial Laundries				
	5/8" \$	69,670	\$ 67,440	\$ 65,290
	3/4"	69,670	67,440	65,290
	1"	137,410	133,020	128,770
	1 1/2"	274,830	266,050	257,550
	2"	439,720	425,670	412,070
	3"	879,430	851,340	824,140
	4"	1,374,110	1,330,210	1,287,720
	6"	2,748,210	2,660,420	2,575,430
	8"	4,397,140	4,256,670	4,120,690
	10"	6,320,900	6,118,970	5,923,490

SOUTHERN NEVADA WATER AUTHORITY

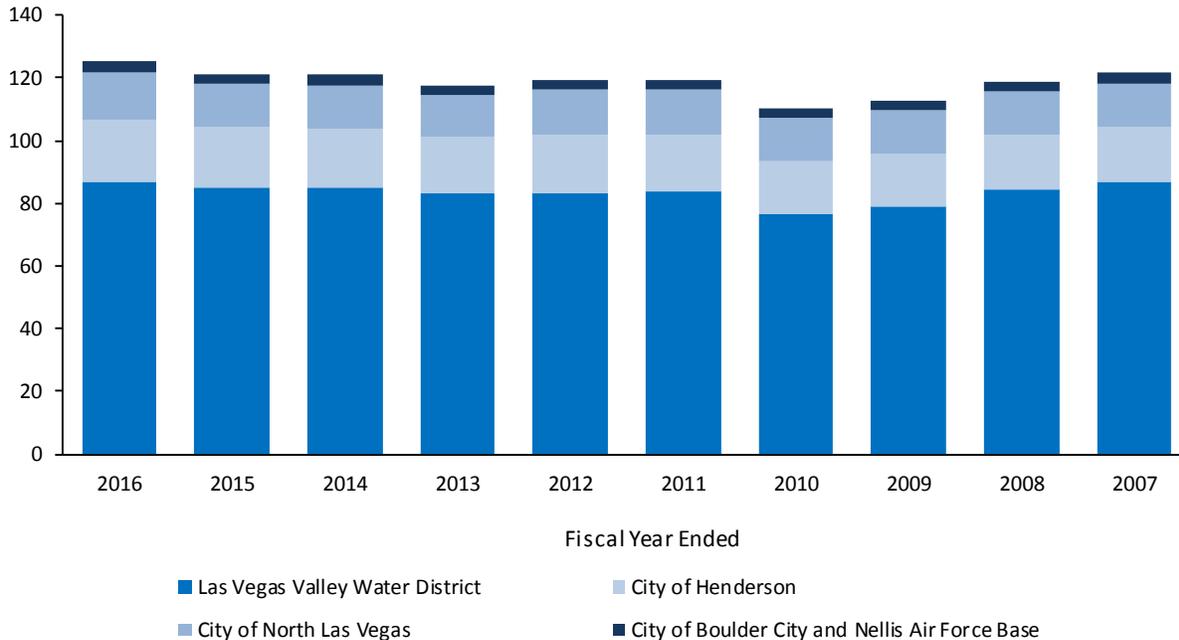
Statistical Section (Unaudited)

Wholesale Delivery Charge By Purveyor Member
Last Ten Fiscal Years

Fiscal Year Ended June 30,	Las Vegas Valley Water District	City of Henderson	City of North Las Vegas	City of Boulder City	Nellis Air Force Base	Total
2016	\$ 87,074,255	\$19,780,955	\$ 15,019,401	\$ 2,934,716	\$ 244,732	\$ 125,054,059
2015	84,899,076	19,442,746	13,615,054	2,906,510	236,877	121,100,263
2014	84,966,339	18,752,543	14,077,113	2,992,594	256,564	121,045,154
2013	83,269,369	18,203,343	13,013,158	2,795,461	253,247	117,534,578
2012	83,406,085	18,590,766	14,099,100	2,876,584	267,125	119,239,660
2011	83,958,256	18,186,274	14,222,462	2,779,302	311,117	119,457,411
2010	76,424,085	17,034,887	13,581,423	2,706,123	350,850	110,097,368
2009	79,085,752	16,928,183	13,442,152	2,675,997	419,890	112,551,974
2008	84,407,754	17,192,550	13,874,638	2,727,909	580,131	118,782,982
2007	86,738,398	17,574,018	13,969,835	2,621,610	545,951	121,449,812

\$ in Millions

Wholesale Delivery Charge by Purveyor Member

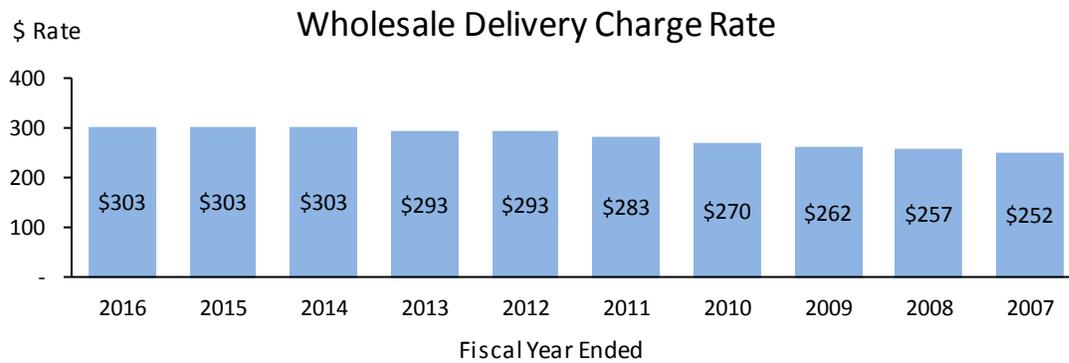


SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Wholesale Delivery Charge Rate
Last Ten Fiscal Years

<u>Fiscal Year Ended June 30,</u>	<u>Rate per Acre-Foot⁽¹⁾</u>
2016	\$ 303
2015	303
2014	303
2013	293
2012	293
2011	283
2010	270
2009	262
2008	257
2007	252

⁽¹⁾ The City of Boulder City pays a slightly lower Wholesale Delivery Charge for non-potable water. Nellis Air Force Base pays a modified Wholesale Delivery Charge plus a portion of debt service. Revenues from both these charges account for less than 1% of total Wholesale Delivery Charge.



SOUTHERN NEVADA WATER AUTHORITY
 Statistical Section (Unaudited)
 Regional Infrastructure Charge by Purveyor Member ⁽¹⁾
 Inception to June 30, 2016

Fiscal Year Ended June 30,	Las Vegas Valley Water District	City of Henderson	City of North Las Vegas	City of Boulder City ⁽³⁾	Big Bend Water District ⁽³⁾	Total
2016	\$ 75,898,495	\$14,390,670	\$ 14,959,443	\$ 1,072,250	\$ 138,826	\$ 106,459,684
2015	62,202,122	11,596,876	12,613,144	484,286	150,428	87,046,856
2014	57,375,876	10,450,969	11,656,022	576,858	185,156	80,244,881
2013	56,810,256	9,916,987	11,643,459	546,637	196,939	79,114,278
2012 ⁽²⁾	12,659,145	1,248,412	2,285,573	-	-	16,193,130

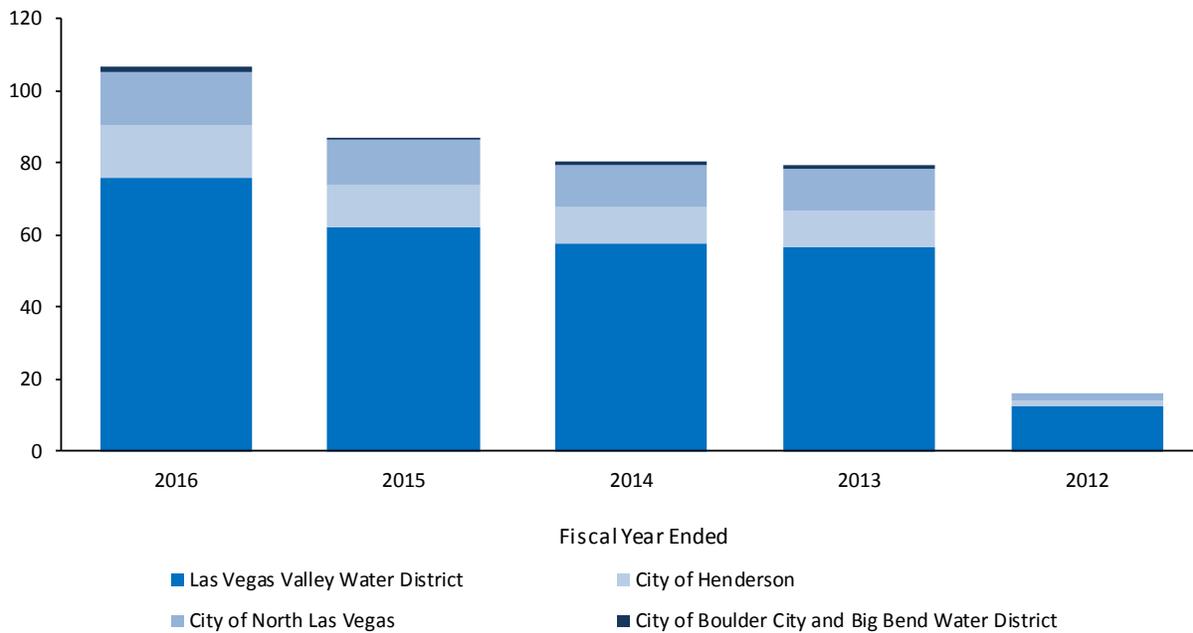
⁽¹⁾ Regional Infrastructure Charges are a component of Capital Contributions as displayed on the Statements of Revenues, Expenses, and Changes in Net Position. See Notes 1 and 17 to the Basic Financial Statements.

⁽²⁾ Regional Infrastructure Charge Revenue was implemented in Fiscal Year 2012.

⁽³⁾ These purveyor members pay fees in lieu of collecting the Regional Infrastructure Charges from their customers.

\$ in Millions

Regional Infrastructure Charge by Purveyor Member



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Regional Infrastructure Charge Rates
Inception to June 30, 2016

	Monthly Charge			
	Fiscal year ended June 30,			
	2016		2015	
	Jan 16 to <u>June 16</u>	Jul 15 to <u>Dec 15</u>	Jan 15 to <u>June 15</u>	Jul 14 to <u>Dec 14</u>
Residential - 5/8" & 3/4" meter sizes	\$ 9.59	\$ 6.36	\$ 6.36	\$ 5.64
Residential - 1" meter size	27.90	21.79	21.79	20.42
Residential - 1.5" meter size	55.80	43.56	43.56	40.83
Residential - 2" meter size	89.28	69.70	69.70	65.34
Residential - 3" meter size	178.53	139.38	139.38	130.66
Residential - 4" meter size	278.96	217.79	217.79	204.15
Residential - 6" meter size	557.92	435.57	435.57	408.29
Residential - 8" meter size	892.65	696.89	696.89	653.26
Residential - 10" and larger meter sizes	956.55	696.89	696.89	653.26
Non-Residential - 5/8" & 3/4" meter sizes	23.64	20.41	20.41	19.69
Non-Residential - 1" meter size	44.77	38.66	38.66	37.29
Non-Residential - 1.5" meter size	89.55	77.31	77.31	74.58
Non-Residential - 2" meter size	143.27	123.69	123.69	119.33
Non-Residential - 3" meter size	286.53	247.38	247.38	238.66
Non-Residential - 4" meter size	447.72	386.55	386.55	372.91
Non-Residential - 6" meter size	895.44	773.09	773.09	745.81
Non-Residential - 8" meter size	1,432.68	1,236.92	1,236.92	1,193.29
Non-Residential - 10" and larger meter sizes	2,059.47	1,778.07	1,778.07	1,715.35
Non-Residential - 5/8" & 3/4" meter sizes Fire Meter	3.34	3.34	3.34	3.34
Non-Residential - 1" meter size Fire Meter	6.32	6.32	6.32	6.32
Non-Residential - 1.5" meter size Fire Meter	12.63	12.63	12.63	12.63
Non-Residential - 2" meter size Fire Meter	20.21	20.21	20.21	20.21
Non-Residential - 3" meter size Fire Meter	40.41	40.41	40.41	40.41
Non-Residential - 4" meter size Fire Meter	63.14	63.14	63.14	63.14
Non-Residential - 6" meter size Fire Meter	126.28	126.28	126.28	126.28
Non-Residential - 8" meter size Fire Meter	202.04	202.04	202.04	202.04
Non-Residential - 10" and larger meter sizes Fire Meter	290.43	290.43	290.43	290.43

Continued on next page

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Regional Infrastructure Charge Rates
Inception to June 30, 2016

Page 2 of 2

	Monthly Charge				
	Fiscal year ended June 30,				
	2014		2013		2012
	Jan 14 to <u>June 14</u>	Jul 13 to <u>Dec 13</u>	Sept 12 to <u>June 13</u>	Jul 12 to <u>Aug 12</u>	Feb 12 to <u>June 12</u>
Residential - 5/8" & 3/4" meter sizes	\$ 5.64	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00
Residential - 1" meter size	20.42	19.21	19.21	19.21	19.21
Residential - 1.5" meter size	40.83	38.41	38.41	38.41	38.41
Residential - 2" meter size	65.34	61.46	61.46	61.46	61.46
Residential - 3" meter size	130.66	122.90	122.90	122.90	122.90
Residential - 4" meter size	204.15	192.03	192.03	192.03	192.03
Residential - 6" meter size	408.29	384.05	384.05	384.05	384.05
Residential - 8" meter size	653.26	614.47	614.47	614.47	614.47
Residential - 10" and larger meter sizes	653.26	614.47	614.47	614.47	614.47
Non-Residential - 5/8" & 3/4" meter sizes	19.69	19.05	19.05	19.05	19.05
Non-Residential - 1" meter size	37.29	36.08	36.08	36.08	36.08
Non-Residential - 1.5" meter size	74.58	72.16	72.16	72.16	72.16
Non-Residential - 2" meter size	119.33	115.45	115.45	115.45	115.45
Non-Residential - 3" meter size	238.66	230.90	230.90	230.90	230.90
Non-Residential - 4" meter size	372.91	360.79	360.79	360.79	360.79
Non-Residential - 6" meter size	745.81	721.57	721.57	721.57	721.57
Non-Residential - 8" meter size	1,193.29	1,154.50	1,154.50	1,154.50	1,154.50
Non-Residential - 10" and larger meter sizes	1,715.35	1,659.59	1,659.59	1,659.59	1,659.59
Non-Residential - 5/8" & 3/4" meter sizes Fire Meter	3.34	3.34	3.19	6.67	6.67
Non-Residential - 1" meter size Fire Meter	6.32	6.32	6.05	12.63	12.63
Non-Residential - 1.5" meter size Fire Meter	12.63	12.63	12.09	25.26	25.26
Non-Residential - 2" meter size Fire Meter	20.21	20.21	19.34	40.41	40.41
Non-Residential - 3" meter size Fire Meter	40.41	40.41	38.67	80.82	80.82
Non-Residential - 4" meter size Fire Meter	63.14	63.14	60.42	126.28	126.28
Non-Residential - 6" meter size Fire Meter	126.28	126.28	120.83	252.55	252.55
Non-Residential - 8" meter size Fire Meter	202.04	202.04	193.33	404.08	404.08
Non-Residential - 10" and larger meter sizes Fire Meter	290.43	290.43	277.91	580.86	580.86

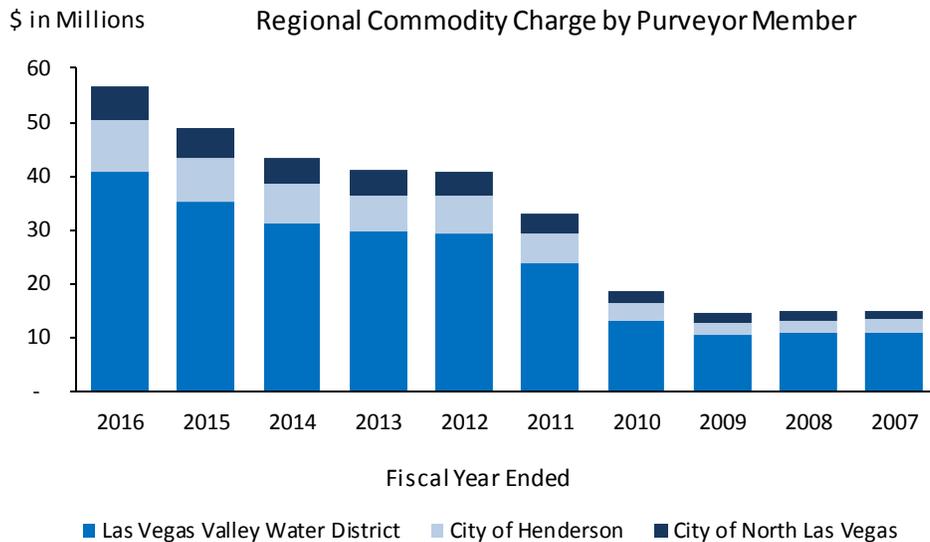
SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Regional Commodity Charge by Purveyor Member ⁽¹⁾
Last Ten Fiscal Years

Fiscal Year Ended June 30,	Las Vegas Valley Water District	City of Henderson	City of North Las Vegas	Total
2016	\$ 40,842,592	\$ 9,415,053	\$ 6,363,871	\$ 56,621,516
2015	35,116,225	8,264,405	5,505,351	48,885,982
2014	31,340,927	7,329,885	4,755,148	43,425,961
2013	29,550,946	6,821,823	4,618,727	40,991,496
2012	29,327,883	6,825,773	4,512,536	40,666,192
2011	23,768,274	5,453,396	3,632,107	32,853,776
2010	13,205,610	3,110,815	2,118,237	18,434,662
2009	10,561,664	2,238,651	1,682,955	14,483,269
2008	10,731,206	2,381,067	1,687,558	14,799,831
2007	10,915,988	2,427,460	1,705,795	15,049,243

⁽¹⁾ Regional Commodity Charges are a component of Capital Contributions as displayed on the Statements of Revenues, Expenses, and Changes in Net Position. See Notes 1 and 17 to the Basic Financial Statements.

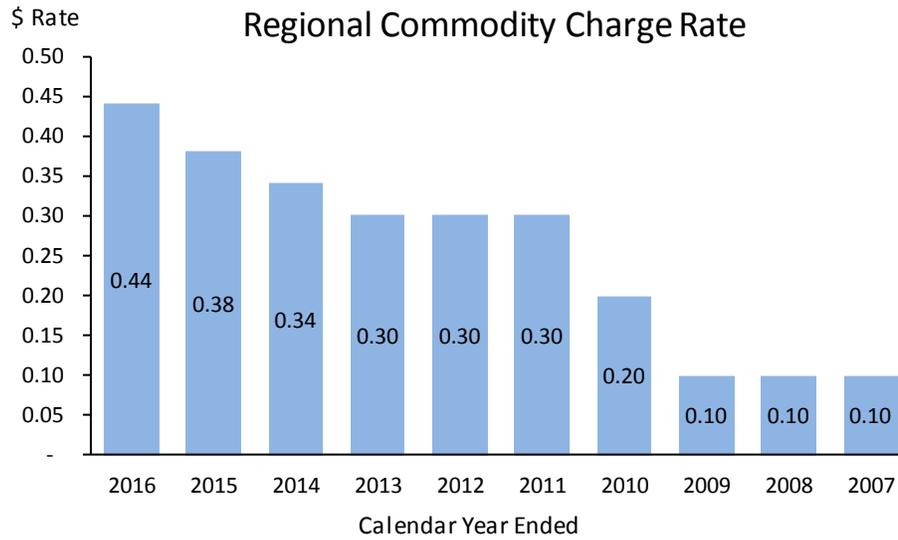


SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Regional Commodity Charge Rate
 Last Ten Calendar Years

<u>Calendar Year</u>	<u>Rate⁽¹⁾</u>
2016	\$ 0.44
2015	0.38
2014	0.34
2013	0.30
2012	0.30
2011	0.30
2010	0.20
2009	0.10
2008	0.10
2007	0.10

⁽¹⁾ Rate is per 1,000 gallons



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Ratios of Outstanding Debt ⁽¹⁾
Last Ten Fiscal Years

Fiscal Year <u>Ended June 30</u>	In Million Dollars			Debt as a Percent of <u>Personal Income</u> ⁽⁴⁾	Debt per Capita <u>In Dollars</u> ⁽⁵⁾
	General Obligation	Notes Payable/ Repayment	Total		
	<u>Bonds</u> ⁽²⁾	<u>Contracts</u>	<u>Debt</u> ⁽³⁾		
2016	\$3,521.8	\$6.7	\$3,528.5	4.2%	\$1,666
2015	3,088.1	8.0	3,096.1	3.8%	1,496
2014	3,087.7	9.2	3,096.9	4.0%	1,524
2013	3,107.1	10.4	3,117.5	4.1%	1,568
2012	2,755.2	11.6	2,766.8	3.9%	1,406
2011	2,737.5	12.7	2,750.2	3.9%	1,409
2010	2,756.7	13.8	2,770.5	3.9%	1,419
2009	2,285.5	21.3	2,306.7	3.0%	1,172
2008	1,918.9	15.8	1,934.7	2.5%	990
2007	1,962.4	16.8	1,979.2	2.7%	1,056

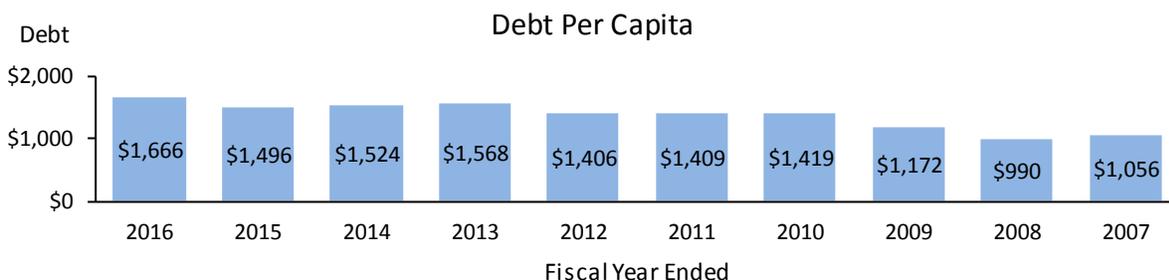
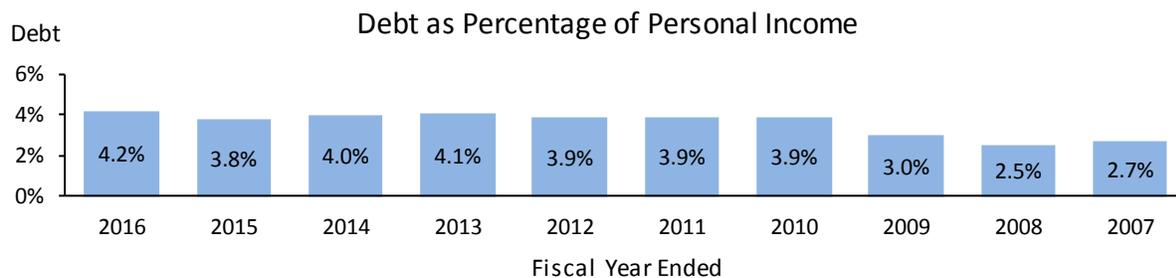
⁽¹⁾ Details of the Southern Nevada Water Authority's (SNWA) outstanding long-term and short-term debt can be found in the Notes to the Basic Financial Statements and in this Statistical Section.

⁽²⁾ Net of related premiums and discounts as required per GASB Comprehensive Implementation Guide 9.24.6.

⁽³⁾ All SNWA bond and note debt is general obligation debt, additionally secured by pledged revenues. For more information, see Pledged Revenue Coverage information in this Statistical Section.

⁽⁴⁾ Total debt divided by personal income in Clark County, which is indicated in the demographic and economic information table in this Statistical Section.

⁽⁵⁾ Total debt divided by per capita income in Clark County, which is indicated in the demographic and economic information table in this Statistical Section.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited) Ratios of General Bonded Debt ⁽¹⁾ Last Ten Fiscal Years

In Million Dollars							
Fiscal Year Ended	G.O. Debt Additionally Secured with SNWA Pledged Revenues ⁽²⁾	Debt Secured with Sales Tax Pledge ⁽²⁾⁽³⁾	Total General Bonded Debt	Following Fiscal Year's Principal Payments ⁽⁴⁾	Net General Bonded Debt	Total Debt as Percent of Annual Applied Revenues ⁽⁵⁾⁽⁶⁾	Annual Debt Service as Percent of Annual Applied Revenues ⁽⁵⁾⁽⁷⁾
2016	\$3,525.3	\$3.2	\$3,528.5	-\$106.2	\$3,422.3	824.4%	52.1%
2015	3,092.4	3.7	3,096.1	-84.0	3,012.1	784.7%	43.7%
2014	3,092.8	4.1	3,096.9	-24.3	3,072.6	886.4%	42.2%
2013	3,112.9	4.6	3,117.5	-16.9	3,100.6	987.3%	46.7%
2012	2,761.7	5.1	2,766.8	-15.1	2,751.7	1142.7%	60.9%
2011	2,744.7	5.5	2,750.2	-31.9	2,718.4	1313.4%	75.0%
2010	2,764.6	6.0	2,770.5	-31.2	2,739.3	1523.7%	90.6%
2009	2,300.3	6.4	2,306.7	-55.8	2,250.9	1100.9%	83.0%
2008	1,927.8	6.9	1,934.7	-48.9	1,885.8	759.8%	62.0%
2007	1,979.2		1,979.2	-47.2	1,932.0	613.5%	45.9%

⁽¹⁾ Details of the Southern Nevada Water Authority's (SNWA) outstanding debt can be found in the Notes 14 and 16 to the Basic Financial Statements and in the Other Information section of the Statistical Section. As described in Note 1, SNWA has only seven customers, making per-customer ratios meaningless. Therefore, alternate ratios have been provided.

⁽²⁾ All SNWA bond and note debt is general obligation debt, additionally secured by pledged revenues. Please see "Pledged Revenue Coverage" immediately following this schedule.

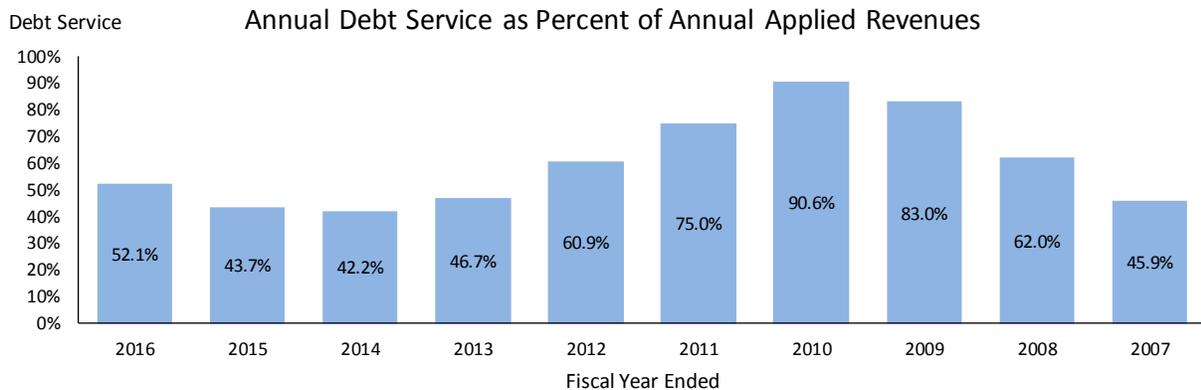
⁽³⁾ Only one debt issue (SNWA CREB 2008) has sales tax specifically pledged to it. All other issues are general obligation bonds with additional security of SNWA pledged revenues.

⁽⁴⁾ Principal portion of debt service payments for the following fiscal year, excluding commercial paper.

⁽⁵⁾ The SNWA cannot levy property taxes. Although the entities issuing debt of its behalf can, the SNWA does not expect that to occur. Therefore, alternate ratios have been provided.

⁽⁶⁾ Total debt divided by total applied revenues. Applied revenues are revenues which are used to pay debt service. These revenues consist of wholesale delivery charge, regional connection charge, regional commodity charge, regional reliability surcharge, and regional infrastructure surcharge. Regional connection charges are adjusted by a refund contingency for fiscal year 2008 to 2015. Additionally, sales tax is included beginning in November 2006. Prior to this date, sales tax was used exclusively for pay-as-you-go construction.

⁽⁷⁾ Total annual debt service (principal and interest) divided into total applied revenues as defined in ⁽⁶⁾ above.



SOUTHERN NEVADA WATER AUTHORITY
 Statistical Section (Unaudited)
 Information About Debt Limitations and Pledged Revenue Coverage

DEBT LIMITATIONS

The SNWA does not have a dollar amount of debt limit. The SNWA's ability to issue and pay its debt is a function of its capital needs and revenues generated from its facilities.

PLEGGED REVENUE COVERAGE

Fiscal Year <u>Ended June 30</u>	Pledged Revenues <u>Sales Tax</u> ⁽¹⁾	Bonds with Sales Tax <u>Pledge</u> ⁽²⁾	Coverage <u>Ratio</u>
2016	\$58,152,408	\$3,220,000	18.1
2015	55,933,316	3,680,000	15.2
2014	52,308,926	4,140,000	12.6
2013	48,847,306	4,600,000	10.6
2012	46,222,883	5,060,000	9.1
2011	43,577,390	5,520,000	7.9
2010	41,833,183	5,980,000	7.0
2009	46,333,942	6,440,000	7.2

⁽¹⁾ Sales tax collections are restricted by law to be used only for capital acquisition and retirement of debt.

⁽²⁾ Only one debt issue (SNWA CREB 2008) has sales tax specifically pledged to it. All other issues are general obligation bonds with additional security of SNWA pledged revenues.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited) Pledged Revenue Coverage Last Ten Fiscal Years

Page 1 of 3

	Fiscal Year Ended June 30,		
	2016	2015	2014
Sources of Funds			
Wholesale Delivery Charge	\$ 125,054,059	\$ 121,100,263	\$ 121,045,154
Regional Connection Charge ⁽¹⁾	63,781,176	66,015,927	44,819,669
Regional Water Charge ⁽⁶⁾	61,704,236	53,761,657	48,209,644
Regional Infrastructure Charge	106,459,684	87,046,856	80,244,881
Sales Tax	58,152,408	55,933,316	52,308,926
Groundwater Management Fees	928,893	882,331	842,191
Las Vegas Wash Revenues	411,893	404,578	397,408
Investment Income (Including Capitalized Portion)	4,803,855	2,058,437	3,016,366
Other Revenues ⁽²⁾	59,447,266	15,236,337	9,174,959
Total Sources of Funds	480,743,470	402,439,702	360,059,198
Uses of Funds			
Energy	39,333,766	35,071,725	53,409,820
Personnel and Related	56,252,596	49,951,688	50,216,887
Operating and Maintenance	39,349,790	42,471,373	34,483,860
PAYG Capital Expenses ⁽³⁾	-	-	-
Total Uses of Funds	134,936,152	127,494,786	138,110,567
Add Beginning Unrestricted Funds ⁽⁴⁾	382,138,848	322,928,812	308,634,591
Net Available for Debt Service	727,946,166	597,873,728	530,583,222
Total Existing Obligations			
Annual Debt Service ⁽⁵⁾	216,455,955	167,810,691	146,324,785
Debt Service Coverage Ratio	3.36	3.56	3.63

Continued on next page

⁽¹⁾ Net of Pending Refund Contingency, which was discontinued in fiscal year 2016.

⁽²⁾ Includes receipts from the Southern Nevada Public Lands Management Act (SNPLMA), raw water facilities charge and minor billings to purveyor members (Big Bend Water District, City of Las Vegas, and Clark County Water Reclamation District).

⁽³⁾ In 2008, SNWA ceased pay-as-you-go for the foreseeable future.

⁽⁴⁾ Unrestricted funds include unrestricted cash and investments as shown on the Comprehensive Annual Financial Report and sales tax proceeds on hand regardless of classification.

⁽⁵⁾ Includes the interest amounts paid on the 2004 Commercial Paper Notes. Gross of the BAB Subsidy received with respect to the 2009A Bonds and 2009C Bonds.

⁽⁶⁾ The Regional Water Charge is a combination of Commodity and Reliability Charges.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited) Pledged Revenue Coverage Last Ten Fiscal Years

Page 2 of 3

	Fiscal Year Ended June 30,		
	2013	2012	2011
Sources of Funds			
Wholesale Delivery Charge	\$ 117,534,578	\$ 119,239,660	\$ 119,457,411
Regional Connection Charge ⁽¹⁾	22,915,416	13,892,856	6,602,728
Regional Water Charge ⁽⁶⁾	45,641,138	45,263,892	37,335,440
Regional Infrastructure Charge	79,114,278	16,193,130	-
Sales Tax	48,847,306	46,222,883	43,577,390
Groundwater Management Fees	863,417	867,716	894,502
Las Vegas Wash Revenues	397,708	397,407	397,408
Investment Income (Including Capitalized Portion)	1,559,027	913,420	1,375,083
Other Revenues ⁽²⁾	6,432,008	8,274,245	3,590,639
Total Sources of Funds	323,304,876	251,265,209	213,230,601
Uses of Funds			
Energy	36,347,165	44,527,798	36,013,713
Personnel and Related	43,880,414	43,450,464	42,491,203
Operating and Maintenance	27,943,415	37,685,150	34,357,566
PAYG Capital Expenses ⁽³⁾	-	-	-
Total Uses of Funds	108,170,994	125,663,412	112,862,482
Add Beginning Unrestricted Funds ⁽⁴⁾	236,252,384	305,553,937	366,951,904
Net Available for Debt Service	451,386,266	431,155,734	467,320,023
Total Existing Obligations			
Annual Debt Service ⁽⁵⁾	146,773,353	146,624,017	155,206,052
Debt Service Coverage Ratio	3.08	2.94	3.01

Continued on next page

⁽¹⁾ Net of Pending Refund Contingency, which was discontinued in fiscal year 2016.

⁽²⁾ Includes receipts from the Southern Nevada Public Lands Management Act (SNPLMA), raw water facilities charge and minor billings to purveyor members (Big Bend Water District, City of Las Vegas, and Clark County Water Reclamation District).

⁽³⁾ In 2008, SNWA ceased pay-as-you-go for the foreseeable future.

⁽⁴⁾ Unrestricted funds include unrestricted cash and investments as shown on the Comprehensive Annual Financial Report and sales tax proceeds on hand regardless of classification.

⁽⁵⁾ Includes the interest amounts paid on the 2004 Commercial Paper Notes. Gross of the BAB Subsidy received with respect to the 2009A Bonds and 2009C Bonds.

⁽⁶⁾ The Regional Water Charge is a combination of Commodity and Reliability Charges.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Pledged Revenue Coverage

Last Ten Fiscal Years

Page 3 of 3

	Fiscal Year Ended June 30,			
	2010	2009	2008	2007
Sources of Funds				
Wholesale Delivery Charge	\$ 110,097,368	\$ 112,551,974	\$ 118,782,982	\$ 121,449,812
Regional Connection Charge ⁽¹⁾	5,309,547	26,789,155	57,318,104	119,561,208
Regional Water Charge ⁽⁶⁾	22,538,155	18,791,878	18,777,117	18,829,058
Regional Infrastructure Charge	-	-	-	-
Sales Tax	41,833,183	46,333,942	53,315,770	55,060,027
Groundwater Management Fees	872,104	2,047,626	1,976,911	1,953,768
Las Vegas Wash Revenues	698,274	690,000	1,196,028	842,700
Investment Income (Including Capitalized Portion)	1,789,048	13,607,423	30,676,718	41,088,297
Other Revenues ⁽²⁾	4,652,559	3,104,737	5,843,187	41,594,501
Total Sources of Funds	187,790,238	223,916,735	287,886,817	400,379,371
Uses of Funds				
Energy	39,656,635	40,184,442	35,233,331	47,268,452
Personnel and Related	37,948,022	39,671,513	37,430,481	33,754,022
Operating and Maintenance	42,787,223	73,498,943	63,839,825	43,170,486
PAYG Capital Expenses ⁽³⁾	-	-	-	144,242,303
Total Uses of Funds	120,391,880	153,354,898	136,503,637	268,435,263
Add Beginning Unrestricted Funds ⁽⁴⁾	438,885,842	335,975,548	470,805,706	490,946,146
Net Available for Debt Service	506,284,200	406,537,385	622,188,886	622,890,254
Total Existing Obligations				
Annual Debt Service ⁽⁵⁾	162,911,866	169,717,981	153,769,711	144,484,915
Debt Service Coverage Ratio	3.11	2.40	4.05	4.31

(1) Net of Pending Refund Contingency, which was discontinued in fiscal year 2016.

(2) Includes receipts from the Southern Nevada Public Lands Management Act (SNPLMA), raw water facilities charge and minor billings to purveyor members (Big Bend Water District, City of Las Vegas, and Clark County Water Reclamation District).

(3) In 2008, SNWA ceased pay-as-you-go for the foreseeable future.

(4) Unrestricted funds include unrestricted cash and investments as shown on the Comprehensive Annual Financial Report and sales tax proceeds on hand regardless of classification.

(5) Includes the interest amounts paid on the 2004 Commercial Paper Notes. Gross of the BAB Subsidy received with respect to the 2009A Bonds and 2009C Bonds.

(6) The Regional Water Charge is a combination of Commodity and Reliability Charges.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Demographic and Economic Information in Clark County, Nevada ⁽¹⁾
Last Ten Calendar Years

Calendar Year	Population ⁽²⁾	Per Capita Income ⁽³⁾	Median Household Income ⁽⁴⁾	School Enrollment ⁽⁵⁾	Total Labor Force Thousands ⁽⁶⁾	U.S. Unemployment Rate ⁽⁷⁾
2015	2,118,353	\$ 39,533	N/A	317,759	1,047.5	5.3%
2014	2,069,450	39,533	\$ 51,214	314,598	1,024.6	6.2%
2013	2,031,723	38,091	51,057	311,218	1,007.3	7.4%
2012	1,988,195	38,713	49,546	308,377	1,000.7	8.1%
2011	1,967,722	36,488	48,215	309,899	995.1	8.9%
2010	1,951,269	36,057	51,437	309,442	984.0	9.6%
2009	1,952,040	36,160	53,505	311,221	967.7	9.3%
2008	1,967,716	39,478	56,696	308,745	980.2	5.8%
2007	1,954,319	39,956	55,996	302,547	951.1	4.6%
2006	1,874,837	39,253	53,536	291,329	917.9	4.6%

(1) All figures are subject to revision.

(2) Population as of July 1. Source: 2010 figure from the U.S. Bureau of the Census; all other figures from the Nevada State Demographer.

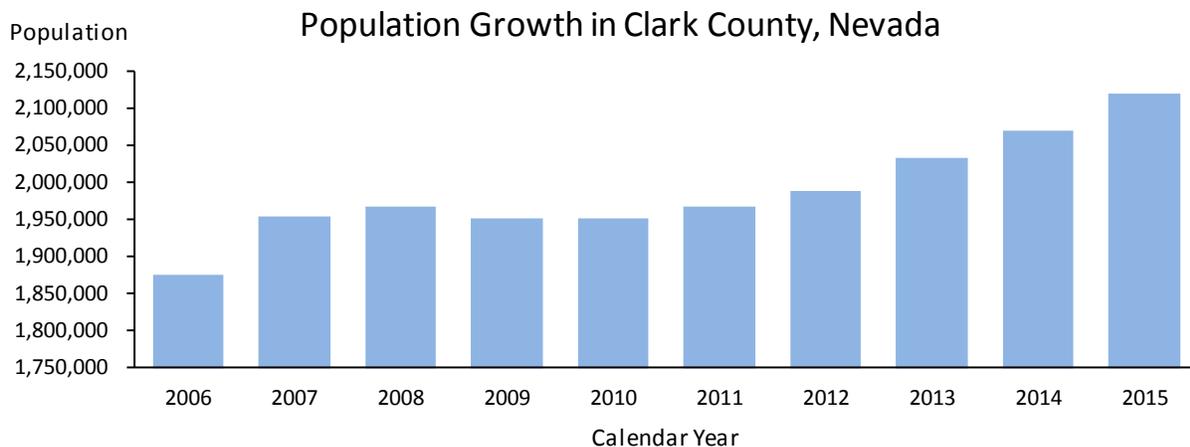
(3) Source: U.S. Bureau of Economic Analysis as reported for the Las Vegas-Paradise MSA (which is comprised of Clark County). Year 2015 per capita income is not available; therefore, per capita income for 2014 is used as an estimate.

(4) The abbreviation "N/A" means not available. Source: U.S. Census Bureau, American Community Survey.

(5) School enrollment in fall. Source: Clark County School District.

(6) Source: State of Nevada - Department of Employment, Training & Rehabilitation.

(7) Source: Bureau of Labor Statistics (annual averages).



SOUTHERN NEVADA WATER AUTHORITY

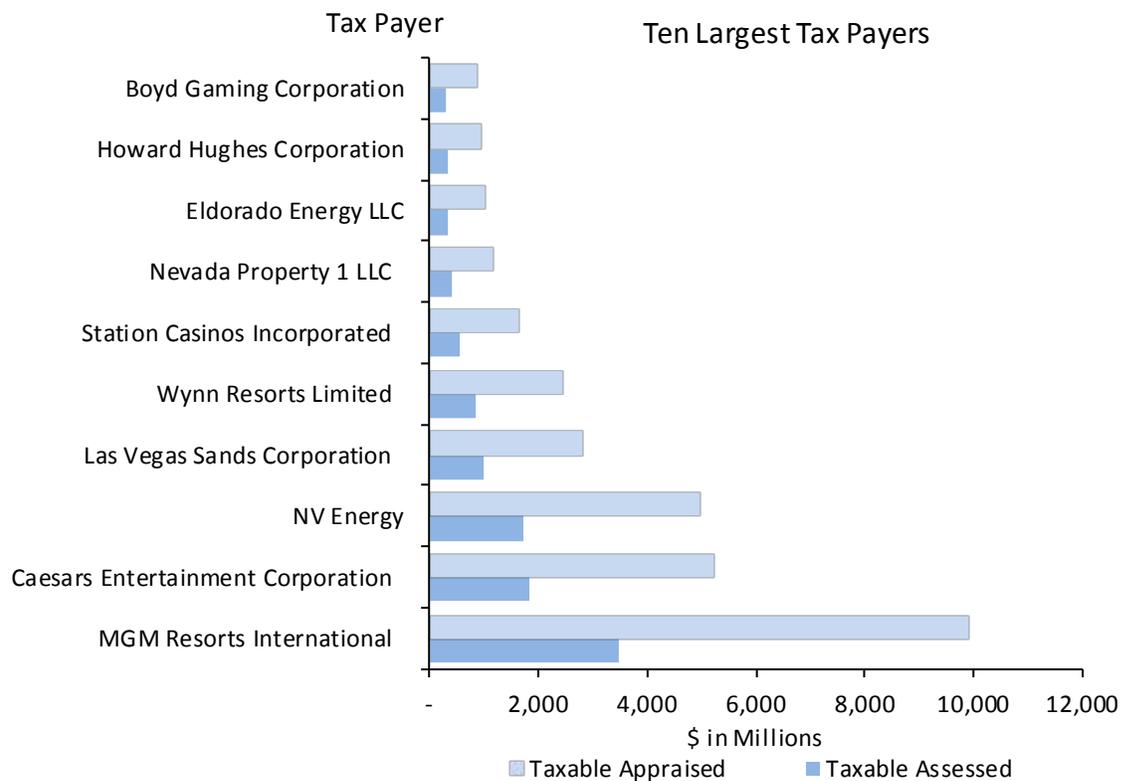
Statistical Section (Unaudited)

Ten Largest Property-Ownning Taxpayers in Clark County, Nevada

Fiscal year ended June 30, 2016

Taxpayer ⁽¹⁾	Taxable Assessed	Taxable Appraised
1. MGM Resorts International	\$ 3,463,940,674	\$ 9,896,973,354
2. Caesars Entertainment Corporation	1,829,517,435	5,227,192,671
3. NV Energy	1,745,262,140	4,986,463,257
4. Las Vegas Sands Corporation	988,434,935	2,824,099,814
5. Wynn Resorts Limited	863,528,905	2,467,225,443
6. Station Casinos Incorporated	577,441,319	1,649,832,340
7. Nevada Property 1 LLC	417,970,291	1,194,200,831
8. Eldorado Energy LLC	357,230,311	1,020,658,031
9. Howard Hughes Corporation	331,120,927	946,059,791
10. Boyd Gaming Corporation	306,871,653	876,776,151

⁽¹⁾ Includes the five incorporated cities. Some taxpayers are hotel/casinos that may have multiple properties. Source: Clark County Assessors's Report dated October 15, 2015.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Top Ten Employers in Clark County, Nevada

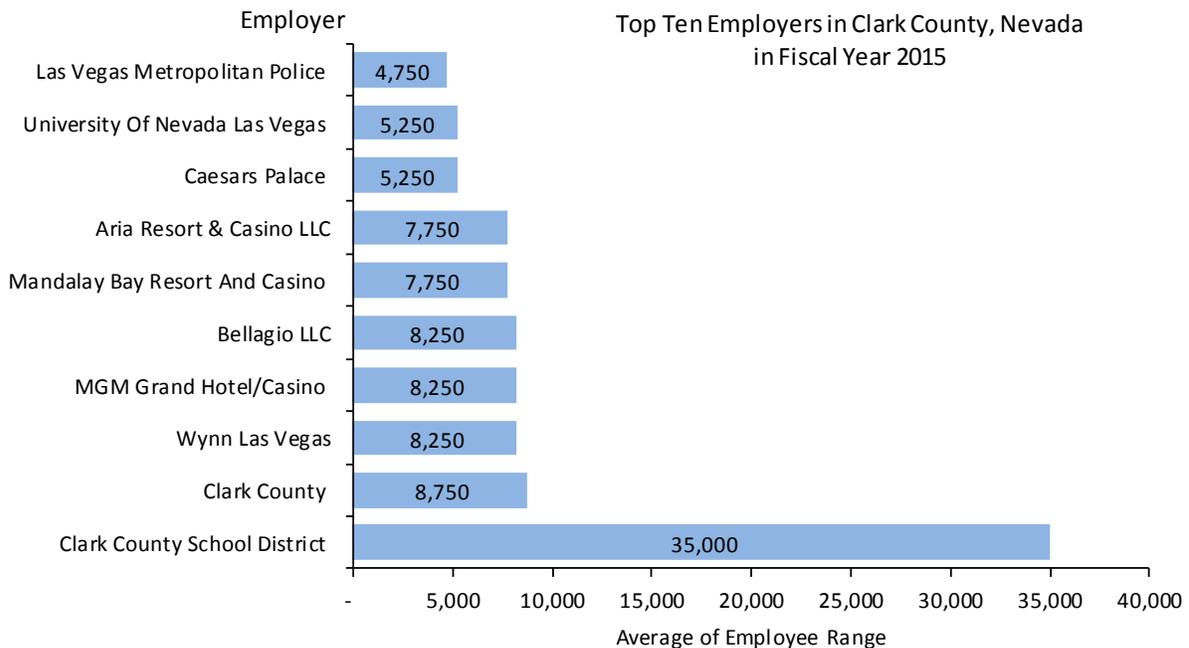
Fiscal years ended June 30, 2015 and 2006

Employer ⁽¹⁾	Fiscal Year Ended June 30, 2015			Fiscal Year Ended June 30, 2006		
	Employee Range ⁽²⁾	Rank	Percentage of Total Labor Force ⁽³⁾	Employee Range ⁽²⁾	Rank	Percentage of Total Labor Force ⁽³⁾
Clark County School District	30,000 to 39,999	1	3.3%	30000 to 39,999	1	3.9%
Clark County	8,500 to 8,999	2	0.8%	9500 to 9,999	2	1.1%
Wynn Las Vegas	8,000 to 8,499	3	0.8%	8500 to 8,999	4	1.0%
MGM Grand Hotel/Casino	8,000 to 8,499	4	0.8%	8500 to 8,999	5	1.0%
Bellagio LLC	8,000 to 8,499	5	0.8%	8500 to 8,999	3	1.0%
Mandalay Bay Resort And Casino	7,500 to 7,999	6	0.7%	7500 to 7,999	6	0.9%
Aria Resort & Casino LLC	7,500 to 7,999	7	0.7%	-	-	-
Caesars Palace	5,000 to 5,499	8	0.5%	5500 to 5,999	9	0.6%
University Of Nevada Las Vegas	5,000 to 5,499	9	0.5%	4500 to 4,999	10	0.5%
Las Vegas Metropolitan Police	4,500 to 4,999	10	0.5%	-	-	-
Venetian Casino Resorts LLC	-	-	-	5500 to 5,999	7	0.6%
Mirage	-	-	-	5500 to 5,999	8	0.6%
Total Labor Force	1,046,691			905,788		

⁽¹⁾ Source: State of Nevada - Department of Employment, Training & Rehabilitation.

⁽²⁾ Nevada law prohibits the disclosure of exact employee counts.

⁽³⁾ Average employee range divided by total labor force.



SOUTHERN NEVADA WATER AUTHORITY

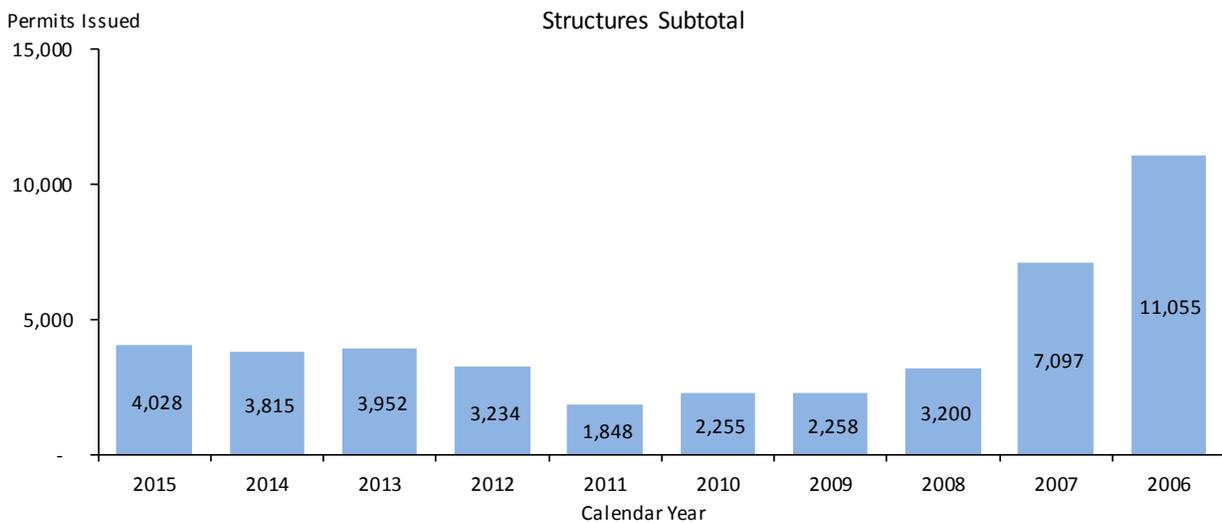
Statistical Section (Unaudited) Building Permits Issued in Clark County, Nevada Last Ten Calendar Years

	Calendar Year Ended ⁽¹⁾									
	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Single Family Residential	3,550	3,375	3,515	2,966	1,599	2,023	1,930	2,451	5,859	9,765
Townhouses	26	39	50	-	-	6	-	11	-	-
Condominiums	17	14	28	18	13	54	89	115	203	257
Duplex/Apartment Buildings	162	122	104	20	40	8	19	99	40	35
Hotels & Motels	2	4	-	3	-	-	3	38	61	33
Mobile Home Parks	-	-	-	-	-	-	3	1	-	-
Guest Houses	64	57	36	52	23	29	28	46	105	76
Buildings	207	204	219	175	173	135	186	439	829	889
Structures Subtotal ⁽²⁾	4,028	3,815	3,952	3,234	1,848	2,255	2,258	3,200	7,097	11,055
Other New Projects ⁽³⁾	4,029	4,184	3,744	3,205	3,274	3,130	3,838	4,894	6,838	8,026
Total Permits Issued for New Projects	8,057	7,999	7,696	6,439	5,122	5,385	6,096	8,094	13,935	19,081
Permits for Add, Alter & Repair	5,198	5,133	4,908	4,402	4,420	4,665	5,122	5,731	6,247	7,159
Total Permits Issued	13,255	13,132	12,604	10,841	9,542	10,050	11,218	13,825	20,182	26,240

⁽¹⁾ Source: Clark County Development Services, Building Department.

⁽²⁾ Structures permits are important to SNWA as they are most likely to generate Regional Connection Charge revenues.

⁽³⁾ Examples include signs, pools, spas, garages, walls, fences, and grading permits.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited) Full-Time Equivalent Employees (FTE) by Department / Function ⁽¹⁾ Last Ten Fiscal Years

Department ⁽²⁾	Function	Fiscal Year Ended June 30,									
		2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Water Quality & Treatment	Water Treatment	89.3	84.8	93.9	-	-	-	-	-	-	-
Operations	Water Transmission	57.4	56.7	89.0	-	-	-	-	-	-	
Southern Nevada Water Systems	Water Treatment and Transmission	-	-	-	195.9	192.7	199.7	188.5	190.0	181.0	173.0
Infrastructure Management	Developing and Maintaining an Asset Management Program	19.2	14.7	-	-	-	-	-	-	-	-
Water and Environmental Resources	Water Resources, Conservation, and Environmental Resources	-	-	98.4	48.8	55.2	46.0	35.0	31.0	-	-
Resources & Facilities	Water Resources, Conservation, Environmental Resources, and Facilities	97.0	101.8	-	-	-	-	-	-	-	-
SNWA Groundwater Resources	Acquiring and Managing Groundwater Resources	-	-	-	48.1	51.0	63.0	64.5	59.0	91.0	85.0
SNWA Surface Water Resources	Acquiring and Managing River Water Resources	-	-	-	14.0	25.0	24.0	20.0	35.0	16.0	-
Engineering	Planning and Constructing Infrastructure	30.3	38.7	51.5	70.8	77.8	78.9	66.0	64.0	59.0	46.0
Energy Management	Acquiring and Managing Energy Resources	6.0	5.0	5.0	5.0	5.0	5.0	5.0	7.0	8.0	6.4
Las Vegas Valley Water District (LVVWD) Departments	Various General and Administrative Services	139.2	128.5	137.6	113.6	108.8	124.7	152.7	119.2	103.4	94.0
TOTAL		438.4	430.2	475.4	496.2	515.4	541.3	531.7	505.2	458.4	404.4

⁽¹⁾ SNWA has no employees of its own. FTEs in this chart are employed by LVVWD. SNWA reimburses LVVWD for those expenses. FTE numbers are budgeted numbers.

⁽²⁾ Departments are in a constant state of rearrangement and realignment to better support projects of the SNWA. Therefore, fluctuations in FTE levels by department are seen from year to year.

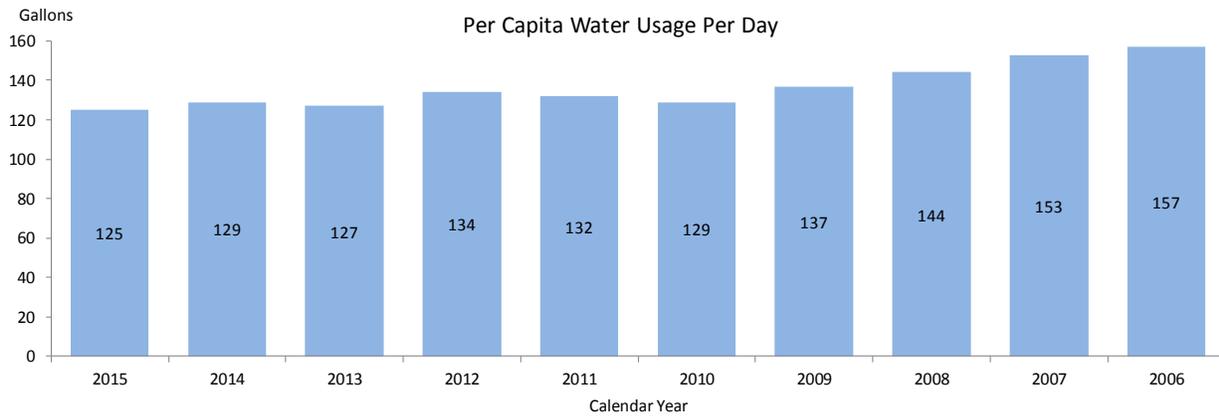


SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited) Operating Indicators by Department / Function Last Ten Years

		Calendar Year Ended December 31,									
		<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
SNWS Operations											
System Capacity in Million Gallons Per Day		1,015.0	1,015.0	1,015.0	1,015.0	1,015.0	1,015.0	1,015.0	900.0	900.0	900.0
Water Billed in Million Gallons Per Day											
Average Day		366.4	358.0	373.0	361.0	360.1	374.2	354.7	368.2	402.7	399.6
Maximum Day		526.2	492.7	502.3	504.0	479.2	540.1	544.9	531.0	582.0	596.0
SNWA Water & Environmental Resources											
Conservation -- Per Capita Water Usage in Gallons Per Day		125	129	127	134	132	129	137	144	153	157
Per Capita Water Usage in Gallons Per Day--Total System ⁽¹⁾		210	216	214	223	224	221	231	241	252	259
		Fiscal Year Ended June 30									
		<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
SNWA Engineering Construction Contract Payments (Million Dollars)		\$154	\$86	\$108	\$109	\$113	\$151	\$226	\$232	\$371	\$148

⁽¹⁾ Represents SNWA member agency water use including recycling through direct and indirect reuse of highly treated wastewater.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Capital Asset Statistics by Department / Function

Last Ten Fiscal Years

	Fiscal Year Ended June 30				
	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>
Miles of Pipeline	175	175	175	175	175
Ozone Treatment Capacity in Million Gallons Per Day	1,000	1,000	1,000	1,000	1,000
Ozone Treatment Facilities	2	2	2	2	2
Pumping Plants	28	27	27	27	27
Reservoirs & Forebays	38	38	38	38	38
Metering Stations	35	35	35	35	35
Rechlorination Facilities	8	8	8	8	8
Plant Facilities	3	3	3	3	3

	Fiscal Year Ended June 30				
	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>
Miles of Pipeline	175	175	175	175	175
Ozone Treatment Capacity in Million Gallons Per Day	1,000	1,000	1,000	1,000	1,000
Ozone Treatment Facilities	2	2	2	2	2
Pumping Plants	27	27	27	27	27
Reservoirs & Forebays	38	38	38	38	38
Metering Stations	35	35	35	35	35
Rechlorination Facilities	8	8	8	8	8
Plant Facilities	3	3	2	2	2

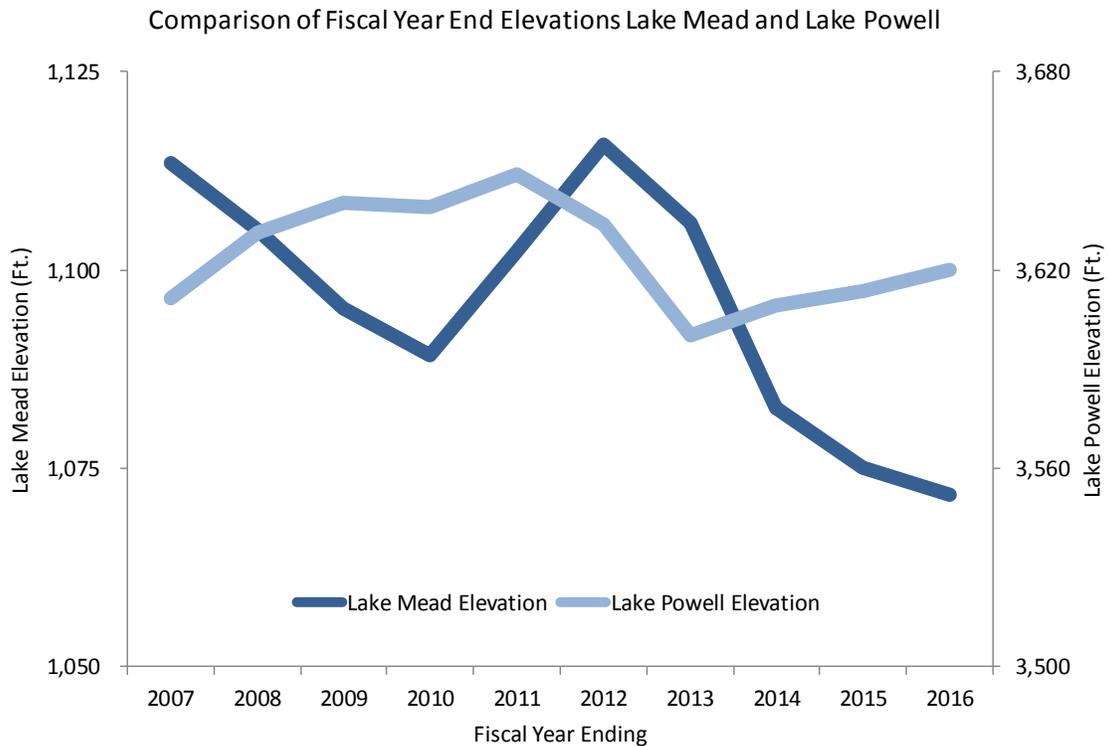
SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Lake Elevations by Quarter Measured in Feet at Dam
Last Ten Fiscal Years

	Lake Mead ⁽¹⁾	Lake Powell ⁽¹⁾		Lake Mead ⁽¹⁾	Lake Powell ⁽¹⁾
09/30/06	1,125.4	3,601.7	09/30/11	1,116.0	3,653.0
12/31/06	1,128.1	3,603.4	12/31/11	1,132.8	3,639.8
03/31/07	1,125.8	3,598.8	03/31/12	1,129.4	3,635.3
06/30/07	1,113.5	3,611.5	06/30/12	1,115.8	3,633.9
09/30/07	1,111.1	3,601.9	09/30/12	1,115.2	3,621.6
12/31/07	1,114.8	3,594.6	12/31/12	1,120.4	3,609.8
03/31/08	1,115.7	3,598.8	03/31/13	1,118.6	3,599.0
06/30/08	1,105.0	3,631.1	06/30/13	1,106.0	3,600.1
09/30/08	1,105.8	3,626.9	09/30/13	1,106.9	3,591.3
12/31/08	1,111.0	3,617.9	12/31/13	1,106.7	3,584.4
03/31/09	1,107.4	3,610.4	03/31/14	1,101.7	3,574.8
06/30/09	1,095.3	3,640.5	06/30/14	1,082.7	3,609.2
09/30/09	1,093.7	3,635.4	09/30/14	1,081.3	3,605.5
12/31/09	1,096.3	3,626.2	12/31/14	1,087.8	3,597.8
03/31/10	1,100.7	3,619.4	03/31/15	1,084.9	3,591.0
06/30/10	1,089.3	3,638.8	06/30/15	1,075.1	3,613.5
09/30/10	1,083.8	3,633.7	09/30/15	1,078.1	3,606.0
12/31/10	1,086.3	3,626.5	12/31/15	1,080.9	3,600.8
03/31/11	1,096.4	3,610.7	03/31/16	1,080.5	3,592.2
06/30/11	1,102.4	3,649.0	06/30/16	1,071.6	3,620.0

⁽¹⁾ Source: US Department of Interior, Bureau of Reclamation.



SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Debt History

As of June 30, 2016

Page 1 of 5

Issued By	Debt Name	Issue Date	Funds Used For	Original Amount \$	Refunded Amount \$	Refund Source	Principal Paid \$	Balance at 6/30/2016(\$)
State of Nevada	State of Nevada 1967 Debenture #1	Sep 1967	Interim Water Acquisition Planning & Design	10,000	10,000	State of Nevada 1968 Bonds	-	-
State of Nevada	State of Nevada 1967 Debenture #2	Oct 1967	Interim Water Acquisition Planning & Design	25,000	25,000	State of Nevada 1968 Bonds	-	-
State of Nevada	State of Nevada 1967 Debenture #3	Nov 1967	Interim Water Acquisition Planning & Design	365,000	365,000	State of Nevada 1968 Bonds	-	-
State of Nevada	State of Nevada 1968 Bonds	Jun 1968	First Stage of the State Facilities AMS Treatment Plant	8,900,000	5,580,000	State of Nevada 1994 Bonds	3,320,000	-
State of Nevada	State of Nevada Federal Replacement Contract #1	Mar 1973	First Stage of the Federal Facilities Transmission	51,558,293	39,636,913	Clark County 0601 Bonds	11,921,380	-
State of Nevada	State of Nevada 1978A Bonds	Jan 1979	Second Stage of the State Facilities Design & Equipment Purchase	13,000,000	9,125,000	State of Nevada 1994 Bonds	3,875,000	-
State of Nevada	State of Nevada 1978B Bonds	Feb 1979	Second Stage of the State Facilities Construction	47,000,000	36,220,000	State of Nevada 1993 Bonds	10,780,000	-
State of Nevada	State of Nevada 1982 Debenture	Jul 1982	New Computer System for the Second Stage State Facilities	3,000,000	3,000,000	State of Nevada 1978C Bonds	-	-
State of Nevada	State of Nevada Federal Repayment Contract #2	Mar 1983	Second Stage of the Federal Facilities Transmission	131,480,402	122,617,366	Clark County 0601 Bonds	8,863,036	-
State of Nevada	State of Nevada 1978C Bonds	Jul 1984	Refund the 1982 Debenture	3,000,000	2,595,000	State of Nevada 1990 Bonds	405,000	-
State of Nevada	State of Nevada 1978D Bonds	Aug 1986	Relocate the Las Vegas Lateral Under the Las Vegas Wash	11,000,000	8,550,000	State of Nevada 1993 Bonds	2,450,000	-
State of Nevada	State of Nevada 1990 Bonds	Aug 1990	Refund the 1978C Bond & Begin the Communications Project	6,550,000	3,340,000	State of Nevada 1993 Bonds	3,210,000	-
State of Nevada	State of Nevada 1992 Bonds	Nov 1992	Lab Equipment Improvements Maintenance & Operations Facility	9,815,000	5,125,000	State of Nevada 1997B Bonds	4,690,000	-

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Debt History

As of June 30, 2016

Page 2 of 5

Issued By	Debt Name	Issue Date	Funds Used For	Original Amount \$	Refunded Amount \$	Refund Source	Principal Paid \$	Balance at 6/30/2016(\$)
State of Nevada	State of Nevada 1993 Bonds	Nov 1993	Refund the 1978B, 1978D and 1990 Bonds	46,805,000	23,125,000	State of Nevada 2003C Bonds	23,680,000	-
State of Nevada	State of Nevada 1994 Bonds	Nov 1994	Refund the 1968 & 1978A Bonds & Begin Construction on the SNWA CIP	170,380,000	141,610,000	State of Nevada 1995, 2005H Bonds	28,770,000	-
LVVWD	LVVWD Mar 1995 Bonds	Mar 1995	SNWA CIP Construction	20,000,000	12,775,000	LVVWD Apr 1998, 2005B Bonds	7,225,000	-
LVVWD	LVVWD Jul 1995 Bonds	Jul 1995	SNWA CIP Construction	30,000,000	18,675,000	LVVWD Apr 1998, 2005B Bonds	11,325,000	-
State of Nevada	State of Nevada 1995 Bonds	Dec 1995	Partially Refund the State of Nevada 1994 Bonds	118,590,000	118,590,000	State of Nevada 2006D Refunding Bonds	-	-
LVVWD	LVVWD Jul 1996 Bonds	Jul 1996	SNWA CIP Construction	180,000,000	168,300,000	LVVWD Apr 1998, 2005B Bonds	11,700,000	-
State of Nevada	State of Nevada 1997A Bonds	Sep 1997	Phase I of the Power Delivery Project	49,270,000	41,550,000	State of Nevada 2005I Bonds	7,720,000	-
State of Nevada	State of Nevada 1997B Bonds	Sep 1997	Partially Refund the State of Nevada 1992 Bonds	5,545,000	2,210,000	State of Nevada 2010B Bonds	3,335,000	-
LVVWD	LVVWD Commercial Paper	Jan 1998	SNWA CIP Construction	250,000,000	250,000,000	LVVWD Commercial Paper Payoff (2003)	-	-
LVVWD	LVVWD Apr 1998 Bonds	Apr 1998	Partially Refund the LVVWD 0395, 0795, & 0796 Bonds	190,255,000	183,420,000	LVVWD 2008B Bonds	6,835,000	-
State of Nevada	State of Nevada 0798 Bonds	Jul 1998	SNWA CIP Construction	300,000,000	275,750,000	State of Nevada 2005F, 2013 Bonds	24,250,000	-
State of Nevada	State of Nevada 1999A Bonds	Sep 1999	Phase II of the Power Delivery Project	25,730,000	22,295,000	State of Nevada 2005I Bonds	3,435,000	-
State of Nevada	Nevada Drinking Water State Revolving Fund Loan 1	Dec 1999	SNWA CIP Construction	12,269,695	-		9,068,488	3,201,207

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Debt History

As of June 30, 2016

Page 3 of 5

Issued By	Debt Name	Issue Date	Funds Used For	Original Amount \$	Refunded Amount \$	Refund Source	Principal Paid \$	Balance at 6/30/2016(\$)
Clark County	Clark County 0700 Bonds	Jul 2000	SNWA CIP Construction	200,000,000	175,105,000	Clark County 2006, 2009 Refunding Bonds	24,895,000	-
Clark County	Clark County 0601 Bonds	Jun 2001	SNWA CIP Construction & Repay Federal Contracts	250,000,000	222,095,000	Clark County 2006, 1106, 2009 LVVWD 2011C, 2012A Refunding Bonds	27,905,000	-
State of Nevada	Nevada Drinking Water State Revolving Fund Loan 2	Jun 2001	SNWA CIP Construction	10,000,000	-		6,536,596	3,463,404
Clark County	Clark County 1102 Bonds	Nov 2002	SNWA CIP Construction	200,000,000	180,790,000	Clark County 1106, 2009 LVVWD 2011C, 2012A Refunding Bonds	19,210,000	-
LVVWD	LVVWD Commercial Paper Payoff	Jan 2003	Refund Jan 1998 LVVWD Commercial Paper Program	250,000,000	212,265,000	LVVWD 2009D, 2011C Refunding Bonds	37,735,000	-
State of Nevada	State of Nevada 2003C Bonds	Sep 2003	Partially Refund State of Nevada 1993 Bonds	21,515,000	455,000	State of Nevada 2010B Bonds	21,060,000	-
LVVWD	LVVWD Commercial Paper	Mar 2004	SNWA CIP Construction & Silverhawk Purchase	400,000,000	-		-	400,000,000
LVVWD	LVVWD 2005B Refunding Bonds	May 2005	Partially Refund LVVWD 0395, 0795, and 0796 Bonds	27,925,000	-		27,925,000	-
State of Nevada	State of Nevada 2005F Refunding Bonds	May 2005	Partially Refund State of Nevada 0798 Bonds	249,365,000	225,855,000	LVVWD 2011B, 2011C, 2015B Refunding Bonds	23,510,000	-
State of Nevada	State of Nevada 2005H Refunding Bonds	Apr 2005	Partially Refund State of Nevada 1994 Bonds	36,130,000	31,620,000	LVVWD 2015C Refunding Bonds	4,510,000	-
State of Nevada	State of Nevada 2005I Refunding Bonds	Apr 2005	Partially Refund State of Nevada 1997A, 1999A Bonds	65,300,000	58,060,000	LVVWD 2011B, 2015C Refunding Bonds	7,240,000	-
Clark County	Clark County 2006 Refunding Bonds	May 2006	Partially Refund of Clark County 0700, 0601 Bonds	242,880,000	220,920,000	LVVWD 2011B Clark County 2016A Refunding Bonds	21,960,000	-
State of Nevada	State of Nevada 2006D Refunding Bonds	Jul 2006	Refund State of Nevada 1995 Bonds	111,840,000	86,045,000	State of Nevada 2010B LVVWD 2011B, 2016A Refunding Bonds	25,795,000	-

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Debt History

As of June 30, 2016

Page 4 of 5

Issued By	Debt Name	Issue Date	Funds Used For	Original Amount \$	Refunded Amount \$	Refund Source	Principal Paid \$	Balance at 6/30/2016(\$)
Clark County	Clark County 1106 Refunding Bonds	Nov 2006	SNWA CIP Construction & Partial Refund of Clark County 0601, 1102 Bonds	604,140,000	168,249,167	Clark County 2009, LVVWD 2011B, LVVWD 2011C, & Clark County 2016A Refunding Bonds	16,755,833	419,135,000
LVVWD	LVVWD 2008B Refunding Bonds	Feb 2008	Refund LVVWD April 1998 Bond	171,720,000	51,930,000	LVVWD 2011A Refunding Bonds	13,900,000	105,890,000
Clark County	Clark County 2008 Bonds	Jul 2008	SNWA CIP Construction	400,000,000	37,845,000	Clark County 2009 & LVVWD 2011C Refunding Bonds	8,740,000	353,415,000
SNWA	SNWA Clean Renewable Energy 2008 Bonds	Jul 2008	SNWA CIP Construction	6,900,000	-		3,680,000	3,220,000
LVVWD	LVVWD 2009A Bonds	Aug 2009	SNWA CIP Construction	90,000,000	-		-	90,000,000
LVVWD	LVVWD 2009B Bonds	Aug 2009	SNWA CIP Construction	10,000,000	-		1,095,000	8,905,000
Clark County	Clark County 2009 Refunding Bonds	Nov 2009	Partial Refund of Clark County 0700, 0601, 1102, 1106, 2008 Bonds	50,000,000	-		7,665,000	42,335,000
State of Nevada	State of Nevada 2009 Bonds	Dec 2009	SNWA CIP Construction	2,214,457	-		506,162	1,708,295
LVVWD	LVVWD 2009C Bonds	Dec 2009	SNWA CIP Construction	348,115,000	348,115,000	LVVWD 2015 Refunding Bonds	-	-
LVVWD	LVVWD 2009D Bonds	Dec 2009	Partial Refund of LVVWD Commercial Paper Payoff (Jan 03)	71,965,000	-		11,990,000	59,975,000
State of Nevada	State of Nevada 2010B Refunding Bonds	Jun 2010	Refund of State of Nevada 1997B & Partial Refund of State of Nevada 2003C & 2006D Bonds	7,405,000	-		2,945,000	4,460,000
LVVWD	LVVWD 2011A Refunding Bonds	May 2011	Partial Refund of LVVWD 2008B Bonds	58,110,000	-		4,355,000	53,755,000
LVVWD	LVVWD 2011B Refunding Bonds	Oct 2011	Partial Refund of the State of Nevada 2005I, 2006D, 2005F & Clark County 1106 Bonds	129,650,000	-		9,220,000	120,430,000

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)

Debt History

As of June 30, 2016

Page 5 of 5

Issued By	Debt Name	Issue Date	Funds Used For	Original Amount \$	Refunded Amount \$	Refund Source	Principal Paid \$	Balance at 6/30/2016(\$)
LVVWD	LVVWD 2011C Refunding Bonds	Oct 2011	Partial Refund of Clark County 0601, 1102, 1106, 2008, State of Nevada 2005F Bonds & LVVWD Commercial Paper Payoff	267,815,000	-		36,875,000	230,940,000
Clark County	Clark County 2012 Refunding Bonds	Jun 2012	Refund of Clark County 0601, 1102 Bonds	85,015,000	-		5,500,000	79,515,000
LVVWD	LVVWD 2012B Bonds	Jul 2012	SNWA CIP Construction	360,000,000	-		13,385,000	346,615,000
State of Nevada	State of Nevada 2013 Refunding Bonds	Feb 2013	Refunding of State of Nevada 0798 Bonds	21,720,000	-		-	21,720,000
LVVWD	LVVWD 2015 Refunding Bonds	Jan 2015	Refunding of LVVWD 2009C Bonds	332,405,000	-		-	332,405,000
LVVWD	LVVWD 2015B Refunding Bonds	Jun 2015	Refunding of State of Nevada 2005F Bonds	177,635,000	-		-	177,635,000
LVVWD	LVVWD 2015C Refunding Bonds	Jun 2015	Refunding State of Nevada 2005H, 2005I Bonds	42,125,000	-		-	42,125,000
Clark County	Clark County 2016A Refunding Bonds	Mar 2016	Partial Refunding of Clark County 2006 & Clark County 1106 Bonds	263,955,000	-		-	263,955,000
LVVWD	LVVWD 2016A Refunding Bonds	Apr 2016	Partial Refunding of State of Nevada 2006D Bonds & New Money	497,785,000	-		-	497,785,000
				7,748,177,847	3,513,838,446		571,751,495	3,662,587,906

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Individual Schedules of Existing Debt Service
 As of June 30, 2016

Fiscal Year	Nevada Drinking Water State Revolving Fund Loan 1			Nevada Drinking Water State Revolving Fund Loan 2		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 757,878	\$ 108,785	\$ 866,663	\$ 582,099	\$ 114,842	\$ 696,941
2018	785,484	81,179	866,663	602,414	94,527	696,941
2019	814,096	52,567	866,663	623,438	73,503	696,941
2020	843,750	22,913	866,663	645,195	51,746	696,941
2021	-	-	-	667,712	29,229	696,941
2022	-	-	-	342,545	5,926	348,471
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	-	-	-	-	-	-
2030	-	-	-	-	-	-
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	-	-	-
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 3,201,207	\$ 265,443	\$ 3,466,650	\$ 3,463,403	\$ 369,772	\$ 3,833,177

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	LVVWD Commercial Paper			Clark County 1106 Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 400,000,000	\$ 5,000,000	\$ 405,000,000	\$ 16,010,000	\$ 17,607,663	\$ 33,617,663
2018	-	-	-	6,540,000	17,043,913	23,583,913
2019	-	-	-	6,860,000	16,708,913	23,568,913
2020	-	-	-	7,200,000	16,357,413	23,557,413
2021	-	-	-	7,570,000	15,988,163	23,558,163
2022	-	-	-	7,950,000	15,600,163	23,550,163
2023	-	-	-	19,675,000	14,909,538	34,584,538
2024	-	-	-	20,650,000	13,901,413	34,551,413
2025	-	-	-	21,670,000	12,843,413	34,513,413
2026	-	-	-	22,740,000	11,733,163	34,473,163
2027	-	-	-	39,670,000	10,470,438	50,140,438
2028	-	-	-	41,030,000	9,058,188	50,088,188
2029	-	-	-	31,335,000	7,556,788	38,891,788
2030	-	-	-	18,110,000	6,377,256	24,487,256
2031	-	-	-	18,980,000	5,506,600	24,486,600
2032	-	-	-	19,955,000	4,533,225	24,488,225
2033	-	-	-	20,980,000	3,509,850	24,489,850
2034	-	-	-	21,830,000	2,657,900	24,487,900
2035	-	-	-	22,665,000	1,820,488	24,485,488
2036	-	-	-	23,530,000	957,575	24,487,575
2037	-	-	-	24,185,000	302,313	24,487,313
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 400,000,000	\$ 5,000,000	\$ 405,000,000	\$ 419,135,000	\$ 205,444,369	\$ 624,579,369

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Individual Schedules of Existing Debt Service
 As of June 30, 2016

Fiscal Year	LVVWD 2008B Bonds			Clark County 2008 Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 8,420,000	\$ 5,101,681	\$ 13,521,681	\$ 9,180,000	\$ 17,670,750	\$ 26,850,750
2018	8,835,000	4,680,681	13,515,681	9,635,000	17,211,750	26,846,750
2019	9,285,000	4,238,931	13,523,931	10,120,000	16,730,000	26,850,000
2020	9,760,000	3,774,681	13,534,681	10,625,000	16,224,000	26,849,000
2021	10,255,000	3,286,681	13,541,681	11,155,000	15,692,750	26,847,750
2022	10,780,000	2,773,931	13,553,931	11,715,000	15,135,000	26,850,000
2023	11,330,000	2,234,931	13,564,931	12,300,000	14,549,250	26,849,250
2024	11,825,000	1,753,406	13,578,406	12,915,000	13,934,250	26,849,250
2025	12,385,000	1,206,500	13,591,500	13,560,000	13,288,500	26,848,500
2026	13,015,000	618,213	13,633,213	14,240,000	12,610,500	26,850,500
2027	-	-	-	14,950,000	11,898,500	26,848,500
2028	-	-	-	15,700,000	11,151,000	26,851,000
2029	-	-	-	16,485,000	10,366,000	26,851,000
2030	-	-	-	17,305,000	9,541,750	26,846,750
2031	-	-	-	18,170,000	8,676,500	26,846,500
2032	-	-	-	19,080,000	7,768,000	26,848,000
2033	-	-	-	20,035,000	6,814,000	26,849,000
2034	-	-	-	21,035,000	5,812,250	26,847,250
2035	-	-	-	22,090,000	4,760,500	26,850,500
2036	-	-	-	23,195,000	3,656,000	26,851,000
2037	-	-	-	24,355,000	2,496,250	26,851,250
2038	-	-	-	25,570,000	1,278,500	26,848,500
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 105,890,000	\$ 29,669,638	\$ 135,559,638	\$ 353,415,000	\$ 237,266,000	\$ 590,681,000

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	SNWA Clean Renewable Energy 2008 Bonds			LVVWD 2009A Bonds		
	Principal	Interest	Total	Principal	Interest*	Total
2017	\$ 460,000	\$ 34,983	\$ 494,983	\$ -	\$ 6,390,000	\$ 6,390,000
2018	460,000	29,601	489,601	-	6,390,000	6,390,000
2019	460,000	24,219	484,219	-	6,390,000	6,390,000
2020	460,000	18,837	478,837	-	6,390,000	6,390,000
2021	460,000	13,455	473,455	-	6,390,000	6,390,000
2022	460,000	8,073	468,073	-	6,390,000	6,390,000
2023	460,000	2,691	462,691	-	6,390,000	6,390,000
2024	-	-	-	-	6,390,000	6,390,000
2025	-	-	-	-	6,390,000	6,390,000
2026	-	-	-	-	6,390,000	6,390,000
2027	-	-	-	-	6,390,000	6,390,000
2028	-	-	-	-	6,390,000	6,390,000
2029	-	-	-	-	6,390,000	6,390,000
2030	-	-	-	-	6,390,000	6,390,000
2031	-	-	-	-	6,390,000	6,390,000
2032	-	-	-	-	6,390,000	6,390,000
2033	-	-	-	1,620,000	6,390,000	8,010,000
2034	-	-	-	1,700,000	6,274,980	7,974,980
2035	-	-	-	1,775,000	6,154,280	7,929,280
2036	-	-	-	1,855,000	6,028,255	7,883,255
2037	-	-	-	1,940,000	5,896,550	7,836,550
2038	-	-	-	26,520,000	5,758,810	32,278,810
2039	-	-	-	54,590,000	3,875,890	58,465,890
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 3,220,000	\$ 131,859	\$ 3,351,859	\$ 90,000,000	\$ 142,618,765	\$ 232,618,765

(Totals may not add due to rounding)

* Interest shown is gross of Build America Bond Subsidy.

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	LVVWD 2009B Bonds			Clark County 2009 Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 395,000	\$ 429,513	\$ 824,513	\$ 2,160,000	\$ 2,116,750	\$ 4,276,750
2018	410,000	413,713	823,713	2,270,000	2,008,750	4,278,750
2019	425,000	397,313	822,313	2,380,000	1,895,250	4,275,250
2020	440,000	380,313	820,313	2,500,000	1,776,250	4,276,250
2021	460,000	362,713	822,713	2,625,000	1,651,250	4,276,250
2022	475,000	344,313	819,313	2,755,000	1,520,000	4,275,000
2023	500,000	320,563	820,563	2,895,000	1,382,250	4,277,250
2024	525,000	295,563	820,563	3,040,000	1,237,500	4,277,500
2025	550,000	269,313	819,313	3,190,000	1,085,500	4,275,500
2026	580,000	241,813	821,813	3,350,000	926,000	4,276,000
2027	610,000	212,813	822,813	3,520,000	758,500	4,278,500
2028	640,000	182,313	822,313	3,695,000	582,500	4,277,500
2029	670,000	150,313	820,313	3,880,000	397,750	4,277,750
2030	705,000	116,813	821,813	4,075,000	203,750	4,278,750
2031	740,000	79,800	819,800	-	-	-
2032	780,000	40,950	820,950	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	-	-	-
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 8,905,000	\$ 4,238,125	\$ 13,143,125	\$ 42,335,000	\$ 17,542,000	\$ 59,877,000

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	State of Nevada 2009 Bonds			LVVWD 2009D Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 126,540	\$ -	\$ 126,540	\$ 3,385,000	\$ 2,993,238	\$ 6,378,238
2018	126,540	-	126,540	3,550,000	2,823,988	6,373,988
2019	126,540	-	126,540	3,730,000	2,646,488	6,376,488
2020	126,540	-	126,540	3,910,000	2,459,988	6,369,988
2021	126,540	-	126,540	4,110,000	2,264,488	6,374,488
2022	126,540	-	126,540	4,315,000	2,058,988	6,373,988
2023	126,540	-	126,540	4,530,000	1,843,238	6,373,238
2024	126,540	-	126,540	4,755,000	1,616,738	6,371,738
2025	126,540	-	126,540	4,955,000	1,414,650	6,369,650
2026	126,540	-	126,540	5,205,000	1,166,900	6,371,900
2027	126,540	-	126,540	5,470,000	906,650	6,376,650
2028	126,540	-	126,540	3,815,000	633,150	4,448,150
2029	126,540	-	126,540	4,015,000	432,863	4,447,863
2030	63,270	-	63,270	4,230,000	222,075	4,452,075
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	-	-	-
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 1,708,295	\$ -	\$ 1,708,295	\$ 59,975,000	\$ 23,483,438	\$ 83,458,438

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Individual Schedules of Existing Debt Service
 As of June 30, 2016

Fiscal Year	State of Nevada 2010B Refunding Bonds			LVVWD 2011A Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 1,055,000	\$ 164,797	\$ 1,219,797	\$ 4,400,000	\$ 2,560,119	\$ 6,960,119
2018	1,095,000	125,815	1,220,815	4,560,000	2,398,551	6,958,551
2019	1,135,000	85,355	1,220,355	4,745,000	2,212,867	6,957,867
2020	1,175,000	43,416	1,218,416	4,950,000	2,007,219	6,957,219
2021	-	-	-	5,175,000	1,783,776	6,958,776
2022	-	-	-	5,415,000	1,542,414	6,957,414
2023	-	-	-	5,680,000	1,279,028	6,959,028
2024	-	-	-	5,960,000	995,937	6,955,937
2025	-	-	-	6,270,000	689,951	6,959,951
2026	-	-	-	6,600,000	358,644	6,958,644
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	-	-	-	-	-	-
2030	-	-	-	-	-	-
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	-	-	-
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 4,460,000	\$ 419,383	\$ 4,879,383	\$ 53,755,000	\$ 15,828,506	\$ 69,583,506

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Individual Schedules of Existing Debt Service
 As of June 30, 2016

Fiscal Year	LVVWD 2011B Refunding Bonds			LVVWD 2011C Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 9,475,000	\$ 5,019,932	\$ 14,494,932	\$ 10,115,000	\$ 11,562,713	\$ 21,677,713
2018	9,775,000	4,719,006	14,494,006	10,620,000	11,056,963	21,676,963
2019	10,000,000	4,384,115	14,384,115	11,260,000	10,525,963	21,785,963
2020	10,490,000	4,013,315	14,503,315	11,710,000	9,962,963	21,672,963
2021	10,900,000	3,603,366	14,503,366	12,295,000	9,377,463	21,672,463
2022	11,335,000	3,168,674	14,503,674	12,910,000	8,762,713	21,672,713
2023	11,805,000	2,699,631	14,504,631	13,555,000	8,117,213	21,672,213
2024	12,320,000	2,185,170	14,505,170	14,240,000	7,439,463	21,679,463
2025	12,870,000	1,629,784	14,499,784	14,950,000	6,727,463	21,677,463
2026	13,475,000	1,030,299	14,505,299	15,695,000	5,979,963	21,674,963
2027	7,985,000	395,896	8,380,896	22,625,000	5,168,475	27,793,475
2028	-	-	-	14,370,000	4,037,225	18,407,225
2029	-	-	-	15,090,000	3,318,725	18,408,725
2030	-	-	-	15,845,000	2,564,225	18,409,225
2031	-	-	-	3,745,000	1,771,975	5,516,975
2032	-	-	-	3,920,000	1,595,750	5,515,750
2033	-	-	-	4,115,000	1,399,750	5,514,750
2034	-	-	-	4,320,000	1,194,000	5,514,000
2035	-	-	-	4,540,000	978,000	5,518,000
2036	-	-	-	4,765,000	751,000	5,516,000
2037	-	-	-	5,000,000	512,750	5,512,750
2038	-	-	-	5,255,000	262,750	5,517,750
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 120,430,000	\$ 32,849,188	\$ 153,279,188	\$ 230,940,000	\$ 113,067,500	\$ 344,007,500

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	Clark County 2012 Refunding Bonds			LVVWD 2012B Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ -	\$ 3,180,600	\$ 3,180,600	\$ 7,060,000	\$ 16,545,600	\$ 23,605,600
2018	-	3,180,600	3,180,600	7,345,000	16,263,200	23,608,200
2019	-	3,180,600	3,180,600	7,690,000	15,915,950	23,605,950
2020	-	3,180,600	3,180,600	8,055,000	15,551,450	23,606,450
2021	-	3,180,600	3,180,600	8,440,000	15,168,700	23,608,700
2022	-	3,180,600	3,180,600	8,690,000	14,915,500	23,605,500
2023	-	3,180,600	3,180,600	9,120,000	14,486,750	23,606,750
2024	-	3,180,600	3,180,600	9,565,000	14,044,750	23,609,750
2025	-	3,180,600	3,180,600	10,040,000	13,566,500	23,606,500
2026	-	3,180,600	3,180,600	10,545,000	13,064,500	23,609,500
2027	-	3,180,600	3,180,600	11,070,000	12,537,250	23,607,250
2028	-	3,180,600	3,180,600	11,625,000	11,983,750	23,608,750
2029	11,000,000	3,180,600	14,180,600	12,205,000	11,402,500	23,607,500
2030	27,370,000	2,740,600	30,110,600	12,815,000	10,792,250	23,607,250
2031	28,395,000	1,645,800	30,040,800	13,455,000	10,151,500	23,606,500
2032	12,750,000	510,000	13,260,000	14,130,000	9,478,750	23,608,750
2033	-	-	-	14,835,000	8,772,250	23,607,250
2034	-	-	-	15,580,000	8,030,500	23,610,500
2035	-	-	-	16,315,000	7,290,450	23,605,450
2036	-	-	-	17,095,000	6,515,450	23,610,450
2037	-	-	-	17,905,000	5,703,450	23,608,450
2038	-	-	-	18,755,000	4,853,000	23,608,000
2039	-	-	-	19,640,000	3,969,600	23,609,600
2040	-	-	-	20,565,000	3,044,600	23,609,600
2041	-	-	-	21,530,000	2,076,000	23,606,000
2042	-	-	-	22,545,000	1,061,900	23,606,900
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 79,515,000	\$ 46,244,200	\$ 125,759,200	\$ 346,615,000	\$ 267,186,100	\$ 613,801,100

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	State of Nevada 2013 Refunding Bonds			LVVWD 2015 Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ -	\$ 651,600	\$ 651,600	\$ -	\$ 16,370,250	\$ 16,370,250
2018	-	651,600	651,600	-	16,370,250	16,370,250
2019	-	651,600	651,600	-	16,370,250	16,370,250
2020	-	651,600	651,600	-	16,370,250	16,370,250
2021	-	651,600	651,600	-	16,370,250	16,370,250
2022	-	651,600	651,600	-	16,370,250	16,370,250
2023	-	651,600	651,600	-	16,370,250	16,370,250
2024	-	651,600	651,600	-	16,370,250	16,370,250
2025	-	651,600	651,600	-	16,370,250	16,370,250
2026	-	651,600	651,600	-	16,370,250	16,370,250
2027	-	651,600	651,600	-	16,370,250	16,370,250
2028	21,720,000	325,800	22,045,800	-	16,370,250	16,370,250
2029	-	-	-	-	16,370,250	16,370,250
2030	-	-	-	-	16,370,250	16,370,250
2031	-	-	-	6,440,000	16,370,250	22,810,250
2032	-	-	-	23,245,000	16,048,250	39,293,250
2033	-	-	-	37,245,000	14,886,000	52,131,000
2034	-	-	-	39,100,000	13,023,750	52,123,750
2035	-	-	-	41,055,000	11,068,750	52,123,750
2036	-	-	-	43,065,000	9,061,350	52,126,350
2037	-	-	-	45,175,000	6,955,650	52,130,650
2038	-	-	-	47,380,000	4,746,800	52,126,800
2039	-	-	-	49,700,000	2,430,100	52,130,100
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 21,720,000	\$ 7,493,400	\$ 29,213,400	\$ 332,405,000	\$ 323,774,400	\$ 656,179,400

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
 Individual Schedules of Existing Debt Service
 As of June 30, 2016

Fiscal Year	LVVWD 2015B Refunding Bonds			LVVWD 2015C Refunding Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 10,675,000	\$ 8,444,700	\$ 19,119,700	\$ 2,640,000	\$ 1,931,075	\$ 4,571,075
2018	11,165,000	7,952,075	19,117,075	2,730,000	1,836,875	4,566,875
2019	11,680,000	7,439,350	19,119,350	2,835,000	1,725,575	4,560,575
2020	12,215,000	6,900,375	19,115,375	2,960,000	1,594,875	4,554,875
2021	12,840,000	6,274,000	19,114,000	3,105,000	1,443,250	4,548,250
2022	13,500,000	5,615,500	19,115,500	3,260,000	1,284,125	4,544,125
2023	14,195,000	4,923,125	19,118,125	3,420,000	1,117,125	4,537,125
2024	14,920,000	4,195,250	19,115,250	3,590,000	941,875	4,531,875
2025	15,680,000	3,430,250	19,110,250	3,765,000	758,000	4,523,000
2026	25,040,000	2,412,250	27,452,250	3,950,000	565,125	4,515,125
2027	26,310,000	1,128,500	27,438,500	4,145,000	362,750	4,507,750
2028	9,415,000	235,375	9,650,375	4,355,000	150,250	4,505,250
2029	-	-	-	1,150,000	24,125	1,174,125
2030	-	-	-	220,000	3,438	223,438
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	-	-	-
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
2041	-	-	-	-	-	-
2042	-	-	-	-	-	-
2043	-	-	-	-	-	-
2044	-	-	-	-	-	-
2045	-	-	-	-	-	-
2046	-	-	-	-	-	-
Totals	\$ 177,635,000	\$ 58,950,750	\$ 236,585,750	\$ 42,125,000	\$ 13,738,463	\$ 55,863,463

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	Clark County 2016A Refunding Bonds			LVVWD 2016A Bonds		
	Principal	Interest	Total	Principal	Interest	Total
2017	\$ 13,755,000	\$ 12,853,875	\$ 26,608,875	\$ 5,530,000	\$ 27,990,482	\$ 33,520,482
2018	23,295,000	11,927,625	35,222,625	11,045,000	24,115,000	35,160,000
2019	24,505,000	10,732,625	35,237,625	11,995,000	23,783,650	35,778,650
2020	25,755,000	9,476,125	35,231,125	12,470,000	23,303,850	35,773,850
2021	27,075,000	8,155,375	35,230,375	15,070,000	22,805,050	37,875,050
2022	28,460,000	6,767,000	35,227,000	16,250,000	22,051,550	38,301,550
2023	18,625,000	5,589,875	24,214,875	17,325,000	21,239,050	38,564,050
2024	19,635,000	4,633,375	24,268,375	18,185,000	20,372,800	38,557,800
2025	20,700,000	3,625,000	24,325,000	9,600,000	19,463,550	29,063,550
2026	21,835,000	2,561,625	24,396,625	1,610,000	18,983,550	20,593,550
2027	9,215,000	1,785,375	11,000,375	11,455,000	18,935,250	30,390,250
2028	9,770,000	1,310,750	11,080,750	12,025,000	18,362,500	30,387,500
2029	10,350,000	807,750	11,157,750	12,625,000	17,761,250	30,386,250
2030	10,980,000	274,500	11,254,500	13,260,000	17,130,000	30,390,000
2031	-	-	-	13,920,000	16,467,000	30,387,000
2032	-	-	-	14,615,000	15,771,000	30,386,000
2033	-	-	-	15,350,000	15,040,250	30,390,250
2034	-	-	-	16,115,000	14,272,750	30,387,750
2035	-	-	-	16,920,000	13,467,000	30,387,000
2036	-	-	-	17,770,000	12,621,000	30,391,000
2037	-	-	-	18,655,000	11,732,500	30,387,500
2038	-	-	-	19,590,000	10,799,750	30,389,750
2039	-	-	-	20,570,000	9,820,250	30,390,250
2040	-	-	-	21,595,000	8,791,750	30,386,750
2041	-	-	-	22,675,000	7,712,000	30,387,000
2042	-	-	-	23,810,000	6,578,250	30,388,250
2043	-	-	-	25,000,000	5,387,750	30,387,750
2044	-	-	-	26,250,000	4,137,750	30,387,750
2045	-	-	-	27,565,000	2,825,250	30,390,250
2046	-	-	-	28,940,000	1,447,000	30,387,000
Totals	\$ 263,955,000	\$ 80,500,875	\$ 344,455,875	\$ 497,785,000	\$ 453,168,782	\$ 950,953,782

(Totals may not add due to rounding)

SOUTHERN NEVADA WATER AUTHORITY

Statistical Section (Unaudited)
Individual Schedules of Existing Debt Service
As of June 30, 2016

Fiscal Year	GRAND TOTAL		
	Principal	Interest	Total
2017	\$ 506,181,516	\$ 164,843,946	\$ 671,025,462
2018	114,844,439	151,375,659	266,220,098
2019	120,669,074	146,165,082	266,834,156
2020	126,290,486	140,512,177	266,802,663
2021	132,329,253	134,492,157	266,821,410
2022	138,739,085	128,146,318	266,885,403
2023	145,541,540	121,286,707	266,828,247
2024	152,251,540	114,139,938	266,391,478
2025	150,311,540	106,590,822	256,902,363
2026	158,006,540	98,844,993	256,851,534
2027	157,151,540	91,152,846	248,304,387
2028	148,286,540	83,953,650	232,240,190
2029	118,931,540	78,158,913	197,090,453
2030	124,978,270	72,726,906	197,705,176
2031	103,845,000	67,059,425	170,904,425
2032	108,475,000	62,135,925	170,610,925
2033	114,180,000	56,812,100	170,992,100
2034	119,680,000	51,266,130	170,946,130
2035	125,360,000	45,539,468	170,899,468
2036	131,275,000	39,590,630	170,865,630
2037	137,215,000	33,599,463	170,814,463
2038	143,070,000	27,699,610	170,769,610
2039	144,500,000	20,095,840	164,595,840
2040	42,160,000	11,836,350	53,996,350
2041	44,205,000	9,788,000	53,993,000
2042	46,355,000	7,640,150	53,995,150
2043	25,000,000	5,387,750	30,387,750
2044	26,250,000	4,137,750	30,387,750
2045	27,565,000	2,825,250	30,390,250
2046	28,940,000	1,447,000	30,387,000
Totals	\$ 3,662,587,906	\$ 2,079,250,954	\$ 5,741,838,860

(Totals may not add due to rounding)

This page intentionally left blank.

Continuing Disclosures Section (Unaudited)



SOUTHERN NEVADA WATER AUTHORITY®

SOUTHERN NEVADA WATER AUTHORITY

Continuing Disclosures Section (Unaudited)

Outstanding Debt Obligations

As of June 30, 2016

	Issue Date	Original Amount	Principal Outstanding
<u>SUPERIOR OBLIGATIONS</u> ⁽¹⁾			
State of Nevada 2010B	06/24/10	\$ 7,405,000	\$ 4,460,000
TOTAL SUPERIOR OBLIGATIONS			4,460,000
<u>PARITY OBLIGATIONS</u>			
<i>MBRA Parity Obligations</i> ⁽²⁾			
LVVWD 2008B	02/19/08	171,720,000	105,890,000
LVVWD 2009A	08/05/09	90,000,000	90,000,000
LVVWD 2009B	08/05/09	10,000,000	8,905,000
LVVWD 2009D	12/23/09	71,965,000	59,975,000
LVVWD 2011A	05/26/11	58,110,000	53,755,000
LVVWD 2011B	10/19/11	129,650,000	120,430,000
LVVWD 2011C	10/19/11	267,815,000	230,940,000
LVVWD 2012B	07/31/12	360,000,000	346,615,000
LVVWD 2015	01/13/15	332,405,000	332,405,000
LVVWD 2015B	06/01/15	177,635,000	177,635,000
LVVWD 2015C	06/18/15	42,125,000	42,125,000
LVVWD 2016A	04/06/16	497,785,000	497,785,000
Total MBRA Parity Obligations			2,066,460,000
LVVWD Commercial Paper Notes ⁽³⁾	various	400,000,000	400,000,000
Total MBRA Obligations			2,466,460,000
<i>SNWA Parity Obligations</i> ⁽⁴⁾			
Clark County 1106	11/02/06	604,140,000	419,135,000
Clark County 2008	07/02/08	400,000,000	353,415,000
Clark County 2009	11/10/09	50,000,000	42,335,000
Clark County 2012	06/20/12	85,015,000	79,515,000
Clark County 2016A	03/03/16	263,955,000	263,955,000
Total MBRA Parity Obligations			1,158,355,000
TOTAL PARITY OBLIGATIONS			3,624,815,000
<u>SUBORDINATE OBLIGATIONS</u> ⁽⁵⁾			
Nevada Drinking Water State Revolving Fund Loan 1	09/01/99	12,269,695	3,201,207
Nevada Drinking Water State Revolving Fund Loan 2	06/29/01	10,000,000	3,463,404
State of Nevada 2009	12/11/09	2,214,457	1,708,295
State of Nevada 2013	02/20/13	21,720,000	21,720,000
TOTAL SUBORDINATE OBLIGATIONS			30,092,906
<u>OTHER SUBORDINATE OBLIGATIONS</u>			
SNWA Clean Renewable Energy 2008 ⁽⁶⁾	07/30/08	6,900,000	3,220,000
TOTAL OTHER SUBORDINATE OBLIGATIONS			3,220,000
TOTAL OUTSTANDING OBLIGATIONS			\$ 3,662,587,906

(Footnotes on the following page)

SOUTHERN NEVADA WATER AUTHORITY

Continuing Disclosures Section (Unaudited)

Outstanding Debt Obligations

As of June 30, 2016

FOOTNOTES

(1) Payable from the SNWA Water Revenues prior to any payments under the Master Bond Repayment Agreement (MBRA). No SNWA Water Revenues become subject to the MBRA until all SNWA operation and maintenance expenses and all obligations with respect to the SNWA Superior Obligations are satisfied.

(2) SNWA Water Revenues are available to fund the MBRA after the SNWA Superior obligations are paid.

(3) Payable from the SNWA Pledged Revenues after payment of the MBRA Parity Obligations. The LVVWD is authorized to have a maximum of \$400 million in Notes outstanding at any time; all of which are outstanding.

(4) The SNWA Parity Obligations are not payable from the MBRA, but do have a lien on the SNWA Water Revenues that is on a parity with the lien thereon of the MBRA.

(5) Payable from SNWA Water Revenues after payment of the SNWA Parity Obligations.

(6) The SNWA Clean Renewable Energy Bonds (CREBs) have a lien on the SNWA Water Revenues that is subordinate to the lien thereon of the MBRA and the SNWA Parity Obligations. The CREBs also are secured with a lien on the quarter-cent Sales Tax.

SOUTHERN NEVADA WATER AUTHORITY

Continuing Disclosures Section (Unaudited)

Annual Debt Service Requirements

As of June 30, 2016

Fiscal Year Ending June 30	Outstanding Superior Obligations	Outstanding Parity Obligations ⁽¹⁾	Outstanding Subordinate Obligations	Grand Total
2017	\$ 1,219,797	\$ 666,968,938	\$ 2,836,727	\$ 671,025,462
2018	1,220,815	262,167,938	2,831,345	266,220,098
2019	1,220,355	262,787,838	2,825,963	266,834,156
2020	1,218,416	262,763,665	2,820,581	266,802,663
2021	-	264,872,873	1,948,537	266,821,410
2022	-	265,290,719	1,594,684	266,885,403
2023	-	265,587,416	1,240,831	266,828,247
2024	-	265,613,338	778,140	266,391,478
2025	-	256,124,222	778,140	256,902,363
2026	-	256,073,393	778,140	256,851,534
2027	-	247,526,246	778,140	248,304,387
2028	-	210,067,850	22,172,340	232,240,190
2029	-	196,963,913	126,540	197,090,453
2030	-	197,641,906	63,270	197,705,176
2031	-	170,904,425	-	170,904,425
2032	-	170,610,925	-	170,610,925
2033	-	170,992,100	-	170,992,100
2034	-	170,946,130	-	170,946,130
2035	-	170,899,468	-	170,899,468
2036	-	170,865,630	-	170,865,630
2037	-	170,814,463	-	170,814,463
2038	-	170,769,610	-	170,769,610
2039	-	164,595,840	-	164,595,840
2040	-	53,996,350	-	53,996,350
2041	-	53,993,000	-	53,993,000
2042	-	53,995,150	-	53,995,150
2043	-	30,387,750	-	30,387,750
2044	-	30,387,750	-	30,387,750
2045	-	30,390,250	-	30,390,250
2046	-	30,387,000	-	30,387,000
Totals	<u><u>\$ 4,879,383</u></u>	<u><u>\$ 5,695,386,096</u></u>	<u><u>\$ 41,573,381</u></u>	<u><u>\$ 5,741,838,860</u></u>

(Totals may not add due to rounding.)

⁽¹⁾ Includes debt service on the LVVWD Commercial Paper Notes. Combined debt service on the MBRA Parity Obligations and the SNWA Parity Obligations. Gross of Federal participation on Build America Bonds.

SOUTHERN NEVADA WATER AUTHORITY
Continuing Disclosures Section (Unaudited)
Statements of Operating Revenues, Expenses, and Changes in Net Position
Last Five Fiscal Years

	Fiscal Year Ended June 30,				
	2012	2013	2014	2015	2016
Operating Revenues					
Wholesale Delivery Charges	\$ 119,239,660	\$ 117,534,578	\$ 121,045,154	\$ 121,100,263	\$ 125,054,059
Groundwater Management Fees	867,716	863,417	842,191	882,331	928,893
Las Vegas Wash Revenues	397,407	397,708	397,408	404,578	411,893
Administration Costs Recoveries	318,886	383,443	425,765	472,786	551,852
Other Revenues	2,705,745	3,525,867	3,843,389	3,538,758	49,201,788
Total Operating Revenues	123,529,414	122,705,013	126,553,907	126,398,716	176,148,485
Operating Expenses					
Personnel and Related	43,450,464	43,880,414	50,216,887	49,951,688	56,252,596
Energy	44,527,798	36,347,165	53,409,820	35,071,725	39,333,766
Operation and Maintenance	37,685,150	27,943,415	34,483,860	42,471,373	39,349,790
Depreciation	74,918,789	74,943,316	75,853,379	75,774,807	90,824,289
Total Operating Expenses	200,582,201	183,114,310	213,963,946	203,269,593	225,760,441
Operating Loss	(77,052,787)	(60,409,297)	(87,410,039)	(76,870,877)	(49,611,956)
Nonoperating Revenues (Expenses)					
Investment Income	869,505	740,407	2,309,538	1,592,657	3,852,256
Interest Expense (Net of BAB Subsidy)	(56,700,015)	(53,694,055)	(45,253,209)	(54,939,795)	(134,359,904)
Amortization of Refunding Costs	(2,254,389)	(2,926,272)	(2,921,604)	(3,492,409)	(4,581,254)
Bond Issue and Commercial Paper Costs	(7,264,123)	(5,606,185)	(3,314,554)	(3,299,596)	(4,378,509)
Amortization of Bond Premiums and Discounts	3,211,357	3,291,755	3,780,080	4,868,091	10,008,610
Other	37,112	63,295	44,132	94,294	198,903
Total Nonoperating Revenues (Expenses)	(62,100,553)	(58,131,055)	(45,355,617)	(55,176,758)	(129,259,898)
Loss Before Capital Contributions	(139,153,340)	(118,540,352)	(132,765,656)	(132,047,635)	(178,871,854)
Capital Contributions⁽¹⁾	135,679,772	205,919,057	237,839,036	281,927,406	300,691,026
Change in Net Position	(3,473,568)	87,378,705	105,073,380	149,879,771	121,819,172
Net Position - Beginning of Year As Previously Reported	1,340,407,420	1,336,933,852	1,424,312,557	1,529,385,937	1,616,758,821
Adjustment - Due to Related Party	-	-	-	(62,506,887)	-
Net Position - Beginning of the Year, As Adjusted	-	-	-	1,466,879,050	-
Net Position - End of the Year	\$ 1,336,933,852	\$ 1,424,312,557	\$ 1,529,385,937	\$ 1,616,758,821	\$ 1,738,577,993

(Totals may not add due to rounding.)

⁽¹⁾ Includes Regional Infrastructure Charges, Regional Connection Charges, Sales Tax, Regional Commodity Charges, Regional Reliability Charges, and other revenue sources. Regional Connection Charges have been adjusted with contingency estimates and do not reflect gross cash collections.

SOUTHERN NEVADA WATER AUTHORITY
Continuing Disclosures Section (Unaudited)
Budget Summaries and Comparisons – Budgetary Basis

	Fiscal Year Ending June 30,				
	2015 (Budget)	2015 (Actual)	2016 (Budget)	2016 (Actual)	2017 (Budget)
Operating Revenues					
Wholesale Delivery Charges	\$ 123,370,688	\$ 121,100,263	\$ 122,401,411	\$ 125,054,059	\$ 122,759,977
Groundwater Management Fees	892,964	882,331	874,637	928,893	873,661
Las Vegas Wash Revenues	727,398	404,578	416,715	411,893	416,715
Administration Costs Recoveries	1,185,173	472,786	459,920	551,852	459,920
Other Revenues	1,506,993	3,538,758	10,295,730	49,201,788	83,153,404
Total Operating Revenues	<u>127,683,215</u>	<u>126,398,716</u>	<u>134,448,414</u>	<u>176,148,485</u>	<u>207,663,677</u>
Operating Expenses					
Personnel and Related	45,215,400	49,951,688	49,248,424	56,252,596	47,415,116
Energy	44,367,515	35,071,725	37,524,906	39,333,766	38,008,556
Operation and Maintenance	39,599,848	42,471,373	36,628,270	39,349,790	49,192,884
Depreciation	80,000,000	75,774,807	80,000,000	90,824,289	80,000,000
Total Operating Expenses	<u>209,182,763</u>	<u>203,269,593</u>	<u>203,401,600</u>	<u>225,760,441</u>	<u>214,616,556</u>
Operating Loss	<u>(81,499,548)</u>	<u>(76,870,877)</u>	<u>(68,953,186)</u>	<u>(49,611,956)</u>	<u>(6,952,879)</u>
Nonoperating Revenues (Expense)					
Investment Income	1,196,376	1,592,657	1,205,857	3,852,256	1,477,234
Interest Expense (Net of BAB Subsidy)	(64,584,975)	(54,939,795)	(51,509,219)	(134,359,904)	(121,753,319)
Amortization of Refunding Costs	-	(3,492,409)	-	(4,581,254)	-
Bond Issue and Commercial Paper Costs	-	(3,299,596)	-	(4,378,509)	-
Amortization of Bond Premiums and Discounts	-	4,868,091	-	10,008,610	-
Other	-	94,294	-	198,903	-
Total Nonoperating Revenues (Expenses)	<u>(63,388,599)</u>	<u>(55,176,758)</u>	<u>(50,303,363)</u>	<u>(129,259,898)</u>	<u>(120,276,085)</u>
Loss Before Capital Contributions	(144,888,147)	(132,047,635)	(119,256,549)	(178,871,854)	(127,228,964)
Capital Contributions ⁽¹⁾	<u>235,518,357</u>	<u>281,927,406</u>	<u>283,444,357</u>	<u>300,691,026</u>	<u>345,135,626</u>
Change in Net Position	<u>\$ 90,630,210</u>	<u>\$ 149,879,771</u>	<u>\$ 164,187,808</u>	<u>\$ 121,819,172</u>	<u>\$ 217,906,662</u>

(Totals may not add due to rounding.)

⁽¹⁾ Includes Regional Connection Charges, Regional Infrastructure Charges, Regional Commodity Charges, Regional Reliability Charges, and other funding sources. Actual Regional Connection Charges have been adjusted with a refund contingency.

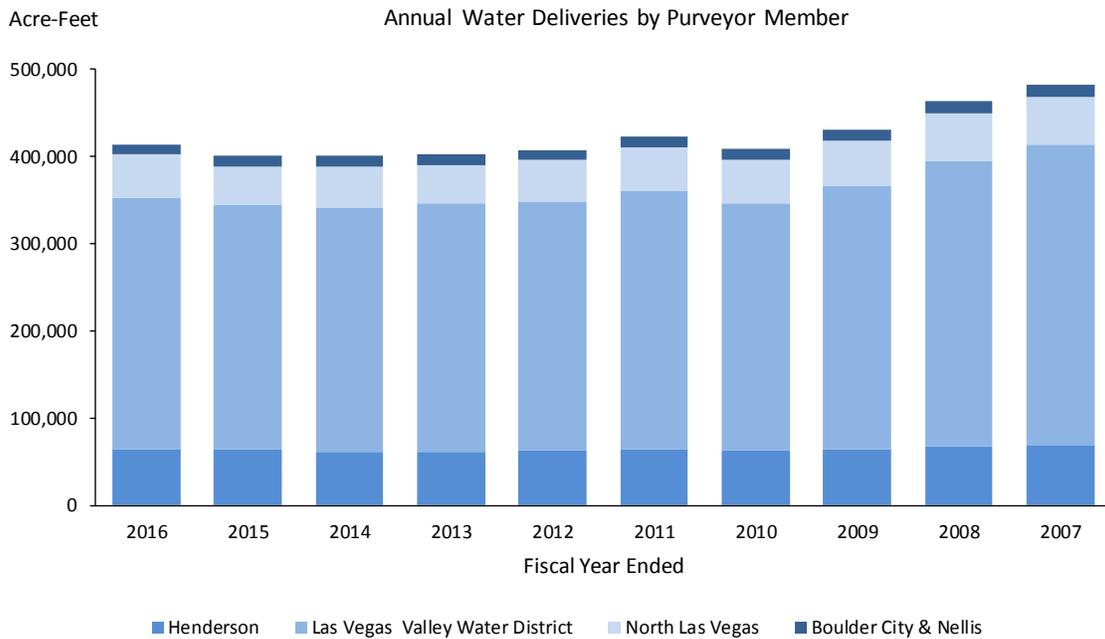
SOUTHERN NEVADA WATER AUTHORITY

Continuing Disclosures Section (Unaudited)

Annual Water Delivered by the Southern Nevada Water System in Acre-Feet
Last Ten Fiscal Years

Fiscal Year Ended June 30	City of Boulder City	City of Henderson	Las Vegas Valley Water District	Nellis Air Force Base	North Las Vegas	Total Deliveries
2016	10,458	65,284	287,374	1,044	49,569	413,729
2015	10,378	64,167	280,195	1,008	44,934	400,683
2014	10,688	61,890	280,417	1,097	46,459	400,551
2013	10,280	62,127	284,196	1,088	44,414	402,105
2012	10,514	63,450	284,662	1,069	48,120	407,815
2011	10,534	64,262	296,672	1,334	50,256	423,059
2010	10,845	63,092	283,052	1,511	50,302	408,802
2009	11,121	64,611	301,854	1,800	51,306	430,692
2008	11,345	66,897	328,435	2,664	53,987	463,328
2007	11,239	69,738	344,200	2,682	55,436	483,295

(Totals may not add due to rounding.)



SOUTHERN NEVADA WATER AUTHORITY

Continuing Disclosures Section (Unaudited)

History of Water Revenues

Last Five Fiscal Years

Fiscal Year Ended June 30	2016	2015	2014	2013	2012
Operating Revenues					
Wholesale Delivery Charges	\$ 125,054,059	\$ 121,100,263	\$ 121,045,154	\$ 117,534,578	\$ 119,239,660
Regional Connection Charges ⁽¹⁾	63,781,176	66,015,927	44,819,669	22,915,416	13,892,856
Regional Water Charges	61,704,236	53,761,657	48,209,644	45,641,138	45,263,892
Sales Tax	58,152,408	55,933,316	52,308,926	48,847,306	46,222,883
Regional Infrastructure Charges	106,459,684	87,046,856	80,244,881	79,114,278	16,193,130
Total Operating Revenues	415,151,563	383,858,019	346,628,274	314,052,716	240,812,421
Operating Expenses ⁽²⁾	134,936,152	127,494,786	138,110,567	108,170,994	125,663,412
Net SNWA Water Revenue	280,215,411	256,363,233	208,517,707	205,881,722	115,149,009
Annual Debt Service on the SNWA Superior Obligations	9,028,367	5,866,247	5,991,328	5,991,327	2,659,971
Remaining SNWA					
Water Revenues ⁽³⁾	271,187,044	250,496,986.13	202,526,379	199,890,395	112,489,038
Beginning Unrestricted Funds ⁽⁴⁾	382,138,848	322,928,812	308,634,591	236,252,384	305,553,937
Total	653,325,892	573,425,798	511,160,970	436,142,779	418,042,975
Annual Debt Service on the SNWA Parity Obligations ⁽⁵⁾	203,944,002	147,289,037	142,080,455	125,228,410	124,121,600
Less Capitalized Interest ⁽⁶⁾	-	-	(17,015,050)	(14,226,472)	-
Net Annual Debt Service on Parity Obligations	\$ 203,944,002	\$ 147,289,037	\$ 125,065,405	\$ 111,001,938	\$ 124,121,600

⁽¹⁾ Regional Connection Charges have been adjusted for a pending refund contingency, which was discontinued in fiscal year 2016.

⁽²⁾ Excludes depreciation.

⁽³⁾ Represents SNWA Water Revenues that are available to pay debt service on the SNWA Parity Obligations, and to fund the MBRA.

⁽⁴⁾ Consists of unrestricted cash, unrestricted investments, and unused sales tax proceeds.

⁽⁵⁾ Includes debt service paid on the SNWA Parity Obligations and MBRA Parity Obligations, but does not include principal debt service on the Notes.

⁽⁶⁾ Capitalized Interest here is not the same as described in the Construction Work In Progress Note. Instead, it is monies from bond issuances set aside to pay debt service. The capitalized interest was from the LVVWD 2012B bonds. The intent was to bring cash flow relief after the economic downturn.

This page intentionally left blank.

**Independent Auditors’
Report on
Internal Controls
and Compliance**



SOUTHERN NEVADA WATER AUTHORITY®

P B T K

PIERCY BOWLER
TAYLOR & KERN

Certified Public Accountants
Business Advisors

**INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL
OVER FINANCIAL REPORTING AND ON COMPLIANCE AND
OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL
STATEMENTS PERFORMED IN ACCORDANCE WITH
*GOVERNMENT AUDITING STANDARDS***

Board of Directors
Southern Nevada Water Authority
Las Vegas, NV

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Southern Nevada Water Authority (SNWA) as of and for the year ended June 30, 2016, and the related notes to the financial statements, which collectively comprise SNWA's basic financial statements as listed in the table of contents, and have issued our report thereon dated October 27, 2016.

Internal Control over Financial Reporting. In planning and performing our audit of the basic financial statements, we considered SNWA's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the basic financial statements, but not for the purpose of expressing an opinion on the effectiveness of SNWA's internal control. Accordingly, we do not express an opinion on the effectiveness of SNWA's internal control.

A *deficiency* in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of SNWA's basic financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters. As part of obtaining reasonable assurance about whether SNWA's basic financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of basic financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We noted certain matters that we reported to SNWA in a separate letter dated October 27, 2016.

Purpose of this Report. The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of SNWA's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering SNWA internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Perry Bowl Taylor: Ken

Las Vegas, Nevada
October 27, 2016

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM**

November 17, 2016

Subject: 2016 SNWA Request Resolution	Director's Backup
Petitioner: Julie A. Wilcox, Deputy General Manager Administration	
Recommendations: That the Board of Directors adopt a resolution requesting the Clark County Board of County Commissioners to take the necessary steps toward the issuance of bonds in the maximum principal amount of \$367,310,000 to refinance certain outstanding bonds for the Authority.	

Fiscal Impact:

The Authority will be obligated to make debt service payments to Clark County from Authority revenues generated through customer rates and charges.

Background:

Nevada law provides that the Authority may issue bonds to the public municipal marketplace or directly to other government agencies such as the Clark County Bond Bank.

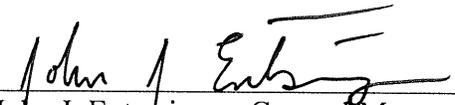
The Authority is requesting the County to issue general obligation bond bank refunding bonds (additionally secured by SNWA pledged revenues) in the maximum principal amount of \$367,310,000 to advance refund the Authority's Water Revenue Bonds, Series 2008, that are currently held by the Clark County Bond Bank. The purpose of the refunding is to reduce the Authority's existing debt service obligations.

Prior to the issuance of the bonds, the Authority's Board of Directors will consider one or more bond resolutions in which the Authority will authorize the issuance of its bonds to the Clark County Bond Bank.

At this time, the Board is being asked to adopt the attached 2016 SNWA Request Resolution requesting the Clark County Board of County Commissioners to take the necessary steps toward the issuance of bonds.

This resolution is authorized pursuant to NRS 244A.059, NRS 277.0745, and Section 6(l) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this resolution.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:JAW:GLN:dc
Attachment

AGENDA ITEM #	9
------------------	---

RESOLUTION

A RESOLUTION CONCERNING THE REFINANCING OF CERTAIN OUTSTANDING BONDS OF THE SOUTHERN NEVADA WATER AUTHORITY; REQUESTING THE BOARD OF COUNTY COMMISSIONERS TO ISSUE GENERAL OBLIGATION BOND BANK REFUNDING BONDS (ADDITIONALLY SECURED BY SNWA PLEDGED REVENUES) TO PURCHASE THE REFUNDING BONDS OF THE SOUTHERN NEVADA WATER AUTHORITY; AND PROVIDING OTHER MATTERS PROPERLY RELATING THERETO.

WHEREAS, the Board of Directors (the “Board”) of the Southern Nevada Water Authority (the “Authority”) deems it advisable to issue refunding bonds, notes, and other instruments of the Authority for the purpose of refinancing certain outstanding bonds of the Authority currently held by the Clark County Bond Bank in an aggregate principal amount not to exceed \$367,310,000; and

WHEREAS, pursuant to NRS 244A.013 to 244A.065, the Board deems it advisable to request that the Board of County Commissioners of Clark County, Nevada (respectively, the “County Board” and the “County”) issue general obligation bond bank refunding bonds to purchase the Authority’s bonds.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SOUTHERN NEVADA WATER AUTHORITY:

Section 1. This resolution shall be known as the “2016 SNWA Request Resolution.”

Section 2. The County Board is hereby requested to issue general obligation bond bank refunding bonds (additionally secured with Authority pledged revenues) in the maximum principal amount of \$367,310,000 in one or more series to refinance certain water revenue bonds of the Authority that have heretofore been purchased and are currently held by the County Bond Bank, including, without limitation, the Southern Nevada Water Authority, Nevada, Water Revenue Bonds, Series 2008.

Section 3. The Secretary to the Board is hereby directed to certify a copy of this resolution to the County Board, thereby formally requesting that the County Board proceed to issue general obligation bond bank refunding bonds of the County.

Section 4. The officers of the Authority be, and they hereby are, authorized and directed to take all action necessary or appropriate to effectuate the provisions of this resolution including, if necessary, amending the Authority’s capital improvement plan, statements of current and contemplated debt and debt management policy, arranging for the sale of the Authority’s bonds, and if required, deeming a preliminary official statement for any bonds issued by the County to finance the Authority’s bonds, to be final for purposes of Rule 15c2-12 of the Securities Exchange Commission.

Section 5. All resolutions, or parts thereof, in conflict herewith are hereby repealed to the extent only of such inconsistency. This repealer shall not be construed to revive any resolution or part of any resolution heretofore repealed.

Section 6. If any section, paragraph, clause or provision of this resolution shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall in no way affect any remaining provisions of this resolution.

Section 7. This resolution shall become effective on its passage and adoption.

PASSED, ADOPTED AND APPROVED at a meeting of the Board of Directors of the Southern Nevada Water Authority this November 17, 2016.

Mary Beth Scow, Chair
Southern Nevada Water Authority

John J. Entsminger, Secretary
Southern Nevada Water Authority

STATE OF NEVADA)
)
COUNTY OF CLARK) ss.
)
SOUTHERN NEVADA)
WATER AUTHORITY)

I, the duly chosen and qualified Secretary of the Southern Nevada Water Authority (the "Authority"), do hereby certify:

1. The foregoing pages constitute a true, correct, complete and compared copy of a resolution adopted by the Board of Directors of the Authority (the "Board") on November 17, 2016.

2. The original of the resolution has been approved and authenticated by the signatures of the Chairwoman of the Authority and the Board and myself as Secretary of the Authority and the Board, and sealed with the seal of the Authority, and has been recorded in the minute book of the Board kept for that purpose in my office, which record has been duly signed by such officers and properly sealed.

3. All of the members of the Board present at the meeting voted on the passage of the resolution as follows:

Those Voting Aye:	Sam Bateman Marilyn Kirkpatrick Bob Coffin Duncan McCoy Mary Beth Scow Steve Sisolak Anita Wood
-------------------	---

Those Voting Nay: _____

Those Abstaining: _____

Those Absent: _____

4. All members of the Board were given due and proper notice of the meeting.

5. Pursuant to NRS 241.020, written notice of the meeting was given by 9:00 a.m. at least three working days before the meeting, including in the notice the time, place, location and agenda of the meeting:

(i) By giving a copy of the notice to each member of the Board;

(ii) By posting a copy of the notice on the Authority's website, if any, and on the State of Nevada's official website; at the principal office of the Board, or if there is no principal office, at the building in which the meeting is to be held; and at least three other separate, prominent places within the jurisdiction of the Board, to wit:

- (i) City of Boulder City, City Hall
401 California Street
Boulder City, Nevada
- (ii) City of Henderson, City Hall
240 Water Street
Henderson, Nevada
- (iii) City of North Las Vegas, City Hall
2250 Las Vegas Boulevard North
North Las Vegas, Nevada
- (iv) City of Las Vegas, City Hall
495 South Main Street
Las Vegas, Nevada
- (v) Clark County Government Center
500 S. Grand Central Parkway
Las Vegas, Nevada
- (vi) Clark County Water Reclamation District
5857 E. Flamingo Road
Las Vegas, Nevada
- (vii) Southern Nevada Water Authority
100 City Parkway, Suite 700
Las Vegas, Nevada

(viii) Las Vegas Valley Water District
1001 S. Valley View Boulevard
Las Vegas, Nevada

and

(iii) By giving a copy of the notice to each person, if any, who has requested notice of the meetings of the Board in the same manner in which notice is required to be mailed to a member of the Board. Such notice was deposited with the postal service used by the Board no later than 9:00 a.m. at least three working days before the November 17, 2016 meeting.

6. A copy of the notice so given of the meeting of the Board held on November 17, 2016 is attached hereto as Exhibit A.

7. Upon request, the Authority provides, at no charge, at least one copy of the agenda for its public meetings, any proposed ordinance or regulation which will be discussed at the public meeting, and any other supporting materials provided to the members of the Board for an item on the agenda, except for certain confidential materials and materials pertaining to closed meetings, as provided by law.

IN WITNESS WHEREOF, I have hereunto set my hand on behalf of the Southern Nevada Water Authority in Clark County, Nevada, this November 17, 2016.

John J. Entsminger, Secretary
Southern Nevada Water Authority

Exhibit A

(Attach Copy of Notice of Meeting)

**SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS**

AGENDA ITEM

November 17, 2016

Subject: 2016 SNWA Consent Resolution	Director's Backup
Petitioner: Julie A. Wilcox, Deputy General Manager Administration	
Recommendations: That the Board of Directors adopt a resolution consenting to the issuance of Las Vegas Valley Water District refunding bonds in the maximum principal amount of \$27,020,000 to refinance certain outstanding bonds for the Authority.	

Fiscal Impact:

The Authority agreed in the Master Bond Repayment Agreement with the Las Vegas Valley Water District that it will maintain rates and charges for all services furnished by the Authority sufficient to pay its operations and maintenance costs and all amounts due to the Las Vegas Valley Water District under the Master Bond Repayment Agreement.

Background:

Under the Master Bond Repayment Agreement (Repayment Agreement), upon a request from the Authority, the Las Vegas Valley Water District (District) may issue District general obligation bonds and loan the proceeds thereof to the Authority for the purpose of funding capital additions and expansions to the water system. Pursuant to the Repayment Agreement, the Authority must consent to the refunding of any District bonds issued on behalf of the Authority.

The 2016 SNWA Consent Resolution requests the District to refinance certain outstanding General Obligation (Limited Tax) (Additionally Secured by SNWA Pledged Revenues) Water Bonds, Series 2009B and 2009D, by issuing refunding bonds on behalf of the Authority in an amount not to exceed \$27,020,000.

The proceeds of the refunding bonds will be used to achieve debt service savings and to pay the costs of issuing the bonds. This will allow the Authority to realize lower future debt service costs.

This resolution is authorized pursuant to Section 1(10) of the Las Vegas Valley Water District Act, Chapter 167, Statutes of Nevada 1947 and Section 6(l) of the SNWA 1995 Amended Cooperative Agreement. The office of the General Counsel has reviewed and approved this resolution.

Respectfully submitted:



John J. Entsminger, General Manager
JJE:JAW:GLN:dc
Attachment

AGENDA
ITEM #

10

RESOLUTION

A RESOLUTION CONSENTING TO THE REFINANCING OF CERTAIN OUTSTANDING BONDS OF THE LAS VEGAS VALLEY WATER DISTRICT; REQUESTING THE BOARD OF DIRECTORS OF THE LAS VEGAS VALLEY WATER DISTRICT TO ISSUE GENERAL OBLIGATION REFUNDING BONDS (ADDITIONALLY SECURED BY SNWA PLEDGED REVENUES); AND PROVIDING OTHER MATTERS PROPERLY RELATING THERETO.

WHEREAS, the Las Vegas Valley Water District (the “District”) has previously issued its General Obligation (Limited Tax) (Additionally Secured by SNWA Pledged Revenues) Water Bonds, Series 2009B (Tax-Exempt), and its General Obligation (Limited Tax) (Additionally Secured by SNWA Pledged Revenues) Water and Refunding Bonds, Series 2009D (collectively, the “Bonds”), at the request of the Southern Nevada Water Authority (the “Authority”); and

WHEREAS, Section 5 of the SNWA/LVVWD Master Bond Repayment Agreement (the “MBRA”) requires the consent of the Authority before the Bonds or any portion thereof may be called and/or refunded; and

WHEREAS, the Board of Directors (the “Board”) of the Authority deems it advisable for the District to issue refunding bonds in an aggregate principal amount not to exceed \$27,020,000 for the purpose of refinancing some or all of the Bonds.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SOUTHERN NEVADA WATER AUTHORITY:

Section 1. This resolution shall be known as the “2016 SNWA Consent Resolution.”

Section 2. Pursuant to Section 5 of the MBRA, the Board hereby consents to the refunding and call of all or any portion of the Bonds. In furtherance of such purpose, the Board of Directors of the District (the “District Board”) is hereby requested to issue general obligation (limited tax) (additionally secured by SNWA pledged revenues) refunding bonds in the maximum aggregate principal amount of \$27,020,000 in one or more series to refinance all or any portion of the Bonds.

Section 3. The Secretary to the Board is hereby directed to certify a copy of this resolution to the District Board.

Section 4. The officers of the Authority be, and they hereby are, authorized and directed to take all action necessary or appropriate to effectuate the provisions of this resolution including, if necessary, amending the Authority's capital improvement plan, statements of current and contemplated debt and debt management policy, and if required, deeming a preliminary official statement for any bonds issued by the District for the purposes described herein to be final for purposes of Rule 15c2-12 of the Securities Exchange Commission.

Section 5. All resolutions, or parts thereof, in conflict herewith are hereby repealed to the extent only of such inconsistency. This repealer shall not be construed to revive any resolution or part of any resolution heretofore repealed.

Section 6. If any section, paragraph, clause or provision of this resolution shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall in no way affect any remaining provisions of this resolution.

Section 7. This resolution shall become effective on its passage and adoption.

PASSED, ADOPTED AND APPROVED at a meeting of the Board of Directors of the Southern Nevada Water Authority this November 17, 2016.

Mary Beth Scow, Chair
Southern Nevada Water Authority

John J. Entsminger, Secretary
Southern Nevada Water Authority

STATE OF NEVADA)
)
 COUNTY OF CLARK) ss.
)
 SOUTHERN NEVADA)
 WATER AUTHORITY)

I, the duly chosen and qualified Secretary of the Southern Nevada Water Authority (the "Authority"), do hereby certify:

1. The foregoing pages constitute a true, correct, complete and compared copy of a resolution adopted by the Board of Directors of the Authority (the "Board") on November 17, 2016.

2. The original of the resolution has been approved and authenticated by the signatures of the Chairwoman of the Authority and the Board and myself as Secretary of the Authority and the Board, and sealed with the seal of the Authority, and has been recorded in the minute book of the Board kept for that purpose in my office, which record has been duly signed by such officers and properly sealed.

3. All of the members of the Board present at the meeting voted on the passage of the resolution as follows:

Those Voting Aye:

Sam Bateman
 Marilyn Kirkpatrick
 Bob Coffin
 Duncan McCoy
 Mary Beth Scow
 Steve Sisolak
 Anita Wood

Those Voting Nay:

Those Abstaining:

Those Absent :

4. All members of the Board were given due and proper notice of the meeting.

5. Pursuant to NRS 241.020, written notice of the meeting was given by 9:00 a.m. at least three working days before the meeting, including in the notice the time, place, location and agenda of the meeting:

(i) By giving a copy of the notice to each member of the Board;

(ii) By posting a copy of the notice on the Authority's website, if any, and on the State of Nevada's official website; at the principal office of the Board, or if there is no principal office, at the building in which the meeting is to be held; and at least three other separate, prominent places within the jurisdiction of the Board, to wit:

- (i) City of Boulder City, City Hall
401 California Street
Boulder City, Nevada
- (ii) City of Henderson, City Hall
240 Water Street
Henderson, Nevada
- (iii) City of North Las Vegas, City Hall
2250 Las Vegas Boulevard North
North Las Vegas, Nevada
- (iv) City of Las Vegas, City Hall
495 South Main Street
Las Vegas, Nevada
- (v) Clark County Government Center
500 S. Grand Central Parkway
Las Vegas, Nevada
- (vi) Clark County Water Reclamation District
5857 E. Flamingo Road
Las Vegas, Nevada
- (vii) Southern Nevada Water Authority
100 City Parkway, Suite 700
Las Vegas, Nevada

(viii) Las Vegas Valley Water District
1001 S. Valley View Boulevard
Las Vegas, Nevada

and

(iii) By giving a copy of the notice to each person, if any, who has requested notice of the meetings of the Board in the same manner in which notice is required to be mailed to a member of the Board. Such notice was deposited with the postal service used by the Board no later than 9:00 a.m. at least three working days before the November 17, 2016 meeting.

6. A copy of the notice so given of the meeting of the Board held on November 17, 2016 is attached hereto as Exhibit A.

7. Upon request, the Authority provides, at no charge, at least one copy of the agenda for its public meetings, any proposed ordinance or regulation which will be discussed at the public meeting, and any other supporting materials provided to the members of the Board for an item on the agenda, except for certain confidential materials and materials pertaining to closed meetings, as provided by law.

IN WITNESS WHEREOF, I have hereunto set my hand on behalf of the Southern Nevada Water Authority in Clark County, Nevada, this November 17, 2016.

John J. Entsminger, Secretary
Southern Nevada Water Authority

Exhibit A

(Attach Copy of Notice of Meeting)

SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM
November 17, 2016

Subject: Update on Water Resources	Director's Backup
Petitioner: Gregory J. Walch, General Counsel	
Recommendations: That the Board of Directors receive an update from staff on water resources including, but not limited to, drought conditions in the Colorado River Basin, the results of the implementation of the Authority's Water Resource and Conservation Plan, activities on the Colorado River, the development of in-state water resources, and the status of construction activities near Lake Mead.	

Fiscal Impact:

None by approval of the above recommendation.

Background:

The Colorado River Basin has been experiencing severe drought conditions that began in 2000. The severity of these conditions has become increasingly evident in lake levels along the lower Colorado River Basin, where major reservoirs such as Lake Powell and Lake Mead are experiencing some of the lowest water levels since their initial filling.

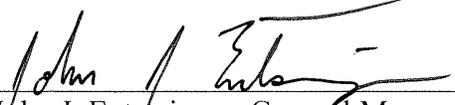
The nature of the drought in the Colorado River Basin has direct effects on water resources and future planning. The drought has prompted communities to launch major conservation initiatives to reduce water use among citizens and businesses, and has resulted in the development and implementation of the Authority's Water Resource and Conservation Plans.

In May 2005, the Board of Directors approved a project for design and construction of a third intake in Lake Mead to ensure Southern Nevada has access to best quality water in Lake Mead. The project design and environmental approvals were completed by 2007. Construction began on the project in March 2008. On December 10, 2014, the Board approved a low lake level pumping station for design and construction. When constructed, the pumping station will work alongside Intake No. 3 to protect access to the majority of Southern Nevada's drinking water supply despite severe drought conditions.

This agenda item provides for an update from staff on the drought, the results of the implementation of the Authority's Water Resource and Conservation Plans, activities on the Colorado River, the development of in-state water resources, and the status of construction activities near Lake Mead.

The office of the General Counsel has reviewed and approved this agenda item.

Respectfully submitted:


John J. Entsminger, General Manager
JJE:GJW:td

AGENDA ITEM #	11
------------------	----