



SOUTHERN  
NEVADA  
WATER  
AUTHORITY

2006 Water Budget

# SOUTHERN NEVADA WATER AUTHORITY

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## Summary

The Southern Nevada Water Authority (SNWA), as part of its Cooperative Agreement, is required to produce a water budget showing water resources available to the 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.

The SNWA staff has prepared this 2006 Water Budget with input from technical representatives of the member agencies. The document consists of eight tables showing annual potable and non-potable water demand projections by purveyor for the years 2005 through 2008, as well as actual demands for the years 2003 and 2004. The 2005 information remains the same as that presented in the previous water budget, since the historical figures for all of 2005 are not yet available. Actual 2005 information will be reflected in a future update to the Water Budget. The 2003 and 2004 Colorado River water use reflected in the SNWA's 2006 Water Budget approximates the Bureau of Reclamation's Colorado River water use Accounting.

### Major findings

- The 2006 Water Budget shows the State of Nevada's Colorado River consumptive use without artificial recharge was about 265,000 acre-feet during 2004, about 4,000 acre-feet less than 2003. The SNWA banked the remaining available Nevada Colorado River apportionment during 2003 and 2004 by recharging water in southern Nevada and through interstate banking. Nevada's 2003 and 2004 Colorado River consumptive use after banking was approximately 300,000 acre-feet.
- The 2006 Water Budget projects Nevada Colorado River water consumptive use without recharge will be below its 300,000 acre-foot apportionment in 2005 and 2006. During these years, it is anticipated that portions of Nevada's Colorado River water will be banked, by recharging water in southern Nevada and interstate banking. In 2007 and 2008, Nevada's Colorado River consumptive use without recharge is projected to exceed its 300,000 acre-foot Colorado River apportionment.

Other sources of water that may be available during the period include unused non-SNWA Nevada Colorado River water, interim surplus Colorado River water, and banked water as described in the 2006 Water Resource Plan.

- Between 2005 and 2008, some purveyors are projected to utilize all of their long-term resources and will need to use other purveyors' unused Nevada Colorado River water, as allowed for in the SNWA 1992 Water Delivery Contract and Cooperative Agreement. In addition, other water sources described above and detailed in the 2005 Water Resource Plan may be used to meet demands during this period.

Water demands in the 2006 Water Resource Plan are generated for the SNWA purveyor service area as a whole. The intent of the Water Resource Plan is 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 is more short-term in focus, with detailed forecasts provided by each purveyor for its respective service area. The water demands in the Water Budget differ from the regional forecasts in the Water Resource Plan. The Water Budget is a good source document for water demand and supply details of a specific purveyor service area for the next several years.

- The utilization of reclaimed water (wastewater reuse) is projected to increase from about 24,000 acre-feet in 2004 to about 28,000 by 2008.

# 2006 SNWA Water Budget, November 22, 2005

TABLE 1: CUSTOMER WATER USAGE, numbers in acre-feet per year (a) (e)

POTABLE	2003	2004	2005	2006	2007	2008
<b>Groundwater customer usage</b>						
LVVWD	40,126	40,612	40,612	40,571	40,571	40,571
North Las Vegas	4,878	2,398	5,500	2,350	2,350	2,350
Total	45,004	43,010	46,112	42,921	42,921	42,921
<b>Colorado River customer usage</b>						
<b>Diversions</b>						
Big Bend (Laughlin)	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City (b)	12,277	11,013	11,790	11,393	11,392	12,317
Henderson (b)	73,833	73,986	77,209	78,248	82,217	86,314
LVVWD	297,111	288,216	307,059	338,360	352,019	366,762
North Las Vegas	43,984	45,473	48,550	49,825	52,950	56,050
Total	432,520	423,610	449,870	482,720	503,685	526,843
<b>Recovery of artificial recharge (AR recovery)</b>						
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 (c)	1	265	7,000	0	0	0
North Las Vegas	0	0	0	0	0	0
Total	1	265	7,000	0	0	0
<b>Total Colorado River customer usage (diversions + AR recovery)</b>						
Big Bend (Laughlin)	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City (b)	12,277	11,013	11,790	11,393	11,392	12,317
Henderson (b)	73,833	73,986	77,209	78,248	82,217	86,314
LVVWD (c)	297,112	288,481	314,059	338,360	352,019	366,762
North Las Vegas	43,984	45,473	48,550	49,825	52,950	56,050
Total	432,521	423,875	456,870	482,720	503,685	526,843
<b>Total customer usage (CR + GW)</b>						
Big Bend (Laughlin)	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City (b)	12,277	11,013	11,790	11,393	11,392	12,317
Henderson (b)	73,833	73,986	77,209	78,248	82,217	86,314
LVVWD (c)	337,238	329,093	354,671	378,931	392,590	407,333
North Las Vegas	48,862	47,871	54,050	52,175	55,300	58,400
Total	477,525	466,885	502,982	525,641	546,606	589,764
<b>NON-POTABLE (WASTEWATER REUSE)</b>						
<b>Customer usage</b>						
Boulder City	467	477	800	700	850	1,008
CCWRD : LVV (d)	6,609	9,857	6,720	11,984	12,432	13,160
CCWRD : Laughlin	0	0	0	0	0	0
Henderson	8,401	7,865	8,000	8,000	8,700	7,900
Las Vegas (d)	6,401	5,426	5,660	5,492	5,645	5,799
North Las Vegas	0	0	0	0	0	0
Total	21,878	23,625	21,180	26,176	27,627	27,867
<b>TOTAL POTABLE AND NON-POTABLE</b>						
<b>Customer usage (GW, CRW, AR recovery)</b>						
Big Bend (Laughlin)	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City (b)	12,744	11,490	12,590	12,093	12,242	13,325
CCWRD : Las Vegas Valley (d)	6,609	9,857	6,720	11,984	12,432	13,160
CCWRD : Laughlin	0	0	0	0	0	0
Henderson (b)	82,234	81,851	85,209	86,248	90,917	94,214
Las Vegas (d)	6,401	5,426	5,660	5,492	5,645	5,799
LVVWD (c)	337,238	329,093	354,671	378,931	392,590	407,333
North Las Vegas	48,862	47,871	54,050	52,175	55,300	58,400
Total	499,403	490,510	524,162	551,816	574,233	597,631

**NOTES**

- (a) Source(2003+): SNWA member.
- (b) A portion of water usage is met with raw water used for irrigation.
- (c) Includes banking operation recovery (e.g. water resource centers).
- (d) CCWRD and LV provide sewer service to their service areas; both are in LVVWD's service area.
- (e) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

# 2006 SNWA Water Budget, November 22, 2005

TABLE 2: RESOURCES AVAILABLE, numbers in acre-feet per year

	----- Potable water resource -----				----- Colorado River water -----					
	Federal SNWS Water Delivery Contract	SNWA Delivery Contract	SNWA Delivery Contract	Other Delivery Contracts	Total Colorado Riv. water	Ground- Water	Total Potable Resource	Non- Potable Resource	Total Long-term Resource	Total Short-term Resource
	(a)	(b)	(c)	(d)				(e)	(f)	(g)
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	40,612	367,606.5	0	367,606.5	-
N. Las Vegas	26,635	15,043	0.0	0	41,678.0	5,711	47,389.0	1,200	48,589.0	-
<b>Total</b>	<b>295,000</b>	<b>123,000</b>	<b>2,500.0</b>	<b>47,161</b>	<b>467,661.0</b>	<b>46,323</b>	<b>513,984.0</b>	<b>21,800</b>	<b>535,784.0</b>	<b>(g)</b>

## NOTES

- (a) Contract 7-07-30-W0004 between SNWA and the Department of the Interior (a.k.a. "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 (a.k.a. "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) As described in Section 8(d) of the SNWA Cooperative Agreement and in the Water Supply Agreement (formal agreement that transfers portion of BMI water to SNWA), 2,500 AFY of the transferred water is held in reserve by SNWA for Victory Valley (BMI land development company) projects. Once a specific project is proposed, the reserved water is transferred to the purveyor in whose service area the project is to be located; this transfer is effective upon the date that a service area "Purveyor Service Designation" letter is issued.
- (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 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, banked water as described in the SNWA's 2006 Water Resource Plan and surplus Colorado River water made available to Nevada on a year-to-year basis by the Secretary of the Interior.
- (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 Big Bend in Laughlin and CCWRD in the Las Vegas Valley.

# 2006 SNWA Water Budget, November 22, 2005

TABLE 3: FACILITY USAGE BY SNWA PURVEYOR, numbers in acre-feet per year (a) (f)

	2003	2004	2005	2006	2007	2008
<b>Colorado River facility usage (includes artificial recharge, but no recovery of artificial recharge)</b>						
Big Bend Water District	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City						
SNWS	12,254	11,013	11,790	11,393	11,392	12,317
USBR (raw water) system	23	0	0	0	0	0
Total	12,277	11,013	11,790	11,393	11,392	12,317
Henderson						
SNWS	64,100	61,017	66,209	64,248	68,217	72,314
BMI system						
Potable	6,173	9,719	6,500	10,500	10,000	9,500
Raw	3,560	3,250	4,500	3,500	4,000	4,500
Total	9,733	12,969	11,000	14,000	14,000	14,000
Total	73,833	73,986	77,209	78,248	82,217	86,314
LVVWD (SNWS)						
Customer usage (no AR recov.)	297,111	288,216	307,059	338,360	352,019	366,762
Artificial recharge						
Current year banking operations (b)	986	929	7,000	0	0	0
Other (c)	27,554	16,187	12,921	1,660	0	0
Total Artificial recharge	28,540	17,116	19,921	1,660	0	0
Total	325,651	305,332	326,980	340,020	352,019	366,762
North Las Vegas (SNWS)						
Customer usage (no AR recov.)	43,984	45,473	48,550	49,825	52,950	56,050
Artificial recharge	167	0	0	0	0	0
Total	44,151	45,473	48,550	49,825	52,950	56,050
Total Colorado River purveyor usage						
Customer usage (no AR recov.)	432,520	423,610	449,870	482,720	503,685	526,843
Artificial recharge	28,707	17,116	19,921	1,660	0	0
Total	461,227	440,726	469,791	484,380	503,685	526,843
SNWS system loss to LVV (d)	2,593	8,950	5,899	5,702	5,935	6,214
Total Colorado R. purveyor usage (including SNWS system loss)	463,820	449,676	475,690	490,082	509,620	533,057
<b>Groundwater facility usage (includes recovery of artificial recharge)</b>						
LVVWD						
Pumpage of groundwater rights	40,126	40,612	40,612	40,571	40,571	40,571
Pumpage of artificial recharge (recovery)						
Banking operations (e)	1	265	7,000	0	0	0
Recovery for purveyor members	0	0	0	0	0	0
Total pumpage of AR	1	265	7,000	0	0	0
Total	40,127	40,877	47,612	40,571	40,571	40,571
North Las Vegas						
Pumpage of groundwater rights	4,878	2,398	5,500	2,350	2,350	2,350
Total pumpage of AR	0	0	0	0	0	0
Total	4,878	2,398	5,500	2,350	2,350	2,350
Total groundwater facility usage	45,005	43,275	53,112	42,921	42,921	42,921

**NOTES**

- (a) Source(2003+): SNWA member.
- (b) Recharge recovered during current year for system management and water resource centers.
- (c) Recharge for SNWA purveyors and Groundwater Management Program.
- (d) Southern Nevada Water System system loss, see Appendix 4.
- (e) Recovery for system management and water resource centers. Excludes recovery by Las Vegas Paiutes.
- (f) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

## 2006 SNWA Water Budget, November 22, 2005

TABLE 4: USAGE BY FACILITY, numbers in acre-feet per year (a) (g)

	2003	2004	2005	2006	2007	2008
<b>Usage by Colorado River facilities (includes artificial recharge, but no recovery of artificial recharge)</b>						
Big Bend system	5,315	4,922	5,262	4,894	5,107	5,400
BMI system:						
Henderson	9,733	12,969	11,000	14,000	14,000	14,000
BMI Complex (b)	5,332	5,861	5,352	5,597	5,597	5,597
Total	15,065	18,830	16,352	19,597	19,597	19,597
<b>Southern Nevada Water System (SNWS)</b>						
Boulder City	12,254	11,013	11,790	11,393	11,392	12,317
Henderson	64,100	61,017	66,209	64,248	68,217	72,314
LVVWD	325,651	305,332	326,980	340,020	352,019	366,762
Nellis AFB (c)	1,993	1,787	2,202	1,890	1,890	1,890
North Las Vegas	44,151	45,473	48,550	49,825	52,950	56,050
Total	448,149	424,622	455,731	467,376	486,468	509,333
SNWS system loss (d)	2,593	8,950	5,899	5,702	5,935	6,214
Total SNWS	450,742	433,572	461,630	473,078	492,403	515,547
<b>USBR (raw water) system</b>						
Boulder City	23	0	0	0	0	0
Total Colorado R. diversions by facility	471,145	457,324	483,244	497,569	517,107	540,544
<b>Usage by groundwater facilities (includes AR recovery)</b>						
<b>SNWA purveyors (e)</b>						
Pumpage of groundwater rights						
LVVWD	40,126	40,612	40,612	40,571	40,571	40,571
North Las Vegas	4,878	2,398	5,500	2,350	2,350	2,350
Total	45,004	43,010	46,112	42,921	42,921	42,921
Pumpage of AR (AR recovery)						
LVVWD	1	265	7,000	0	0	0
North Las Vegas	0	0	0	0	0	0
Total	1	265	7,000	0	0	0
Total SNWA pumpage	45,005	43,275	53,112	42,921	42,921	42,921
<b>Las Vegas Valley groundwater pumpers</b>						
Nellis AFB (f)	1,955	1,816	2,081	1,886	1,886	1,886
Private/permitted wells (f)	28,513	29,932	28,932	29,223	29,223	29,223
Total	30,468	31,748	31,013	31,108	31,108	31,108
Total pumpage of GW rights	75,472	74,758	77,125	74,029	74,029	74,029
Total pumpage of GW rights and pumpage of AR (AR recov.)	75,473	75,023	84,125	74,029	74,029	74,029

### NOTES

- (a) Source(2003+): SNWA member.
- (b) Source(2003-2004): Final and Provisional Decree Accounting. Source(2006+): average 2003-2004.
- (c) Source(2003-2004): Colorado River Commission. Source (2006+): average 2003-2004.
- (d) Southern Nevada Water System loss, see Appendix 4.
- (e) Total pumpage includes direct customer usage and recovery of artificial recharge.
- (f) Source(2003 - 2004): NV Division of Water Resources. Source(2006+): average 2003-2004.
- (g) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.



# 2006 SNWA Water Budget, November 22, 2005

TABLE 5: SNWA PURVEYOR POTABLE USAGE (including artificial recharge) BY RESOURCE, in acre-feet per year page 5

	2003	2004	2005	2006	2007	2008	Resources Available
<b>Purveyor potable usage (including artificial recharge) by resource</b>							
<b>Big Bend Water District</b>							
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	5,315	4,922	5,262	4,894	5,107	5,400	10,000
Short-term resource (c)	0	0	0	0	0	0	(c)
<b>Total</b>	<b>5,315</b>	<b>4,922</b>	<b>5,262</b>	<b>4,894</b>	<b>5,107</b>	<b>5,400</b>	
<b>Boulder City</b>							
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)	3,336	2,095	2,872	2,475	2,474	3,399	3,948
Other contracts (USBR)	23	0	0	0	0	0	5,876
Short-term resource (c)	0	0	0	0	0	0	(c)
<b>Total</b>	<b>12,277</b>	<b>11,013</b>	<b>11,790</b>	<b>11,393</b>	<b>11,392</b>	<b>12,317</b>	
<b>Henderson</b>							
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)	9,733	12,969	11,000	14,000	14,000	14,000	15,878
Short-term resource (c)	15,084	12,001	17,193	15,232	19,201	23,298	(c)
<b>Total</b>	<b>73,833</b>	<b>73,986</b>	<b>77,209</b>	<b>78,248</b>	<b>82,217</b>	<b>86,314</b>	
<b>LVVWD (includes artificial recharge)</b>							
Groundwater rights	40,126	40,612	40,612	40,571	40,571	40,571	40,612
Federal Delivery Contract (a)	232,426	232,426	232,426	232,426	232,426	232,426	232,426
SNWA Delivery Contract (b)	77,818	57,499	78,799	78,799	78,799	78,799	78,799
SNWA Delivery Contract (d)	0	0	348	363	363	363	363
Other contracts (15,407)	15,407	15,407	15,407	15,407	15,407	15,407	15,407
Short-term resource (c)	0	0	0	13,026	25,025	39,768	(c)
<b>Total</b>	<b>365,777</b>	<b>345,944</b>	<b>367,592</b>	<b>380,591</b>	<b>392,590</b>	<b>407,333</b>	
<b>North Las Vegas (includes artificial recharge)</b>							
Groundwater rights	4,878	2,398	5,500	2,350	2,350	2,350	5,711
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)	2,473	3,795	6,872	8,147	11,272	14,372	(c)
<b>Total</b>	<b>49,029</b>	<b>47,871</b>	<b>54,050</b>	<b>52,175</b>	<b>55,300</b>	<b>58,400</b>	
<b>Total purveyor usage by water resource (includes AR)</b>							
Groundwater	45,004	43,010	46,112	42,921	42,921	42,921	46,323
<b>Colorado River water (includes artificial recharge)</b>							
Federal Delivery Contract(a)	295,000	295,000	295,000	295,000	295,000	295,000	295,000
SNWA Delivery Contract (b)	116,055	94,495	116,572	116,175	116,174	117,099	123,000
SNWA Delivery Contract (d)	2,138	2,138	2,486	2,500	2,500	2,500	2,500
Other contracts	30,478	33,298	31,669	34,301	34,514	34,807	47,161
Short-term resource (c)	17,557	15,796	24,065	36,404	55,497	77,437	(c)
<b>Total</b>	<b>461,227</b>	<b>440,726</b>	<b>469,791</b>	<b>484,380</b>	<b>503,685</b>	<b>526,843</b>	
<b>Total</b>	<b>506,231</b>	<b>483,736</b>	<b>515,903</b>	<b>527,301</b>	<b>546,606</b>	<b>569,764</b>	

## 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 any Section 8(b) or 8(c) water that is unused by another individual SNWA purveyor; also includes "short-term resource" described in Table 2.
- (d) Section 8(d) water in the SNWA Cooperative Agreement.

# 2006 SNWA Water Budget, November 22, 2005

TABLE 6: WASTEWATER AND USE OF WASTEWATER (a) (g), numbers in acre-feet per year

Wastewater effluent	2003	2004	2005	2006	2007	2008
<b>Las Vegas Valley</b>						
BMI Discharge (b)	3,083	3,884	3,158	3,806	3,806	3,806
City of Las Vegas	71,736	74,731	77,145	77,897	80,197	82,806
CCWRD: Las Vegas Valley	99,824	104,235	103,934	113,554	119,815	124,552
Henderson	21,675	22,034	22,831	25,014	26,307	27,599
North Las Vegas (c)	0	0	0	0	0	0
<b>Total</b>	<b>196,318</b>	<b>204,884</b>	<b>207,068</b>	<b>220,271</b>	<b>230,125</b>	<b>238,763</b>
<b>Boulder City</b>	<b>1,350</b>	<b>1,184</b>	<b>1,180</b>	<b>1,280</b>	<b>1,311</b>	<b>1,384</b>
CCWRD: Laughlin	3,146	2,829	3,000	2,400	2,500	2,650
<b>Total (LVV + BC + Laughlin)</b>	<b>200,814</b>	<b>208,897</b>	<b>211,248</b>	<b>223,951</b>	<b>233,936</b>	<b>242,797</b>
<b>Use of wastewater effluent</b>						
<b>Las Vegas Valley</b>						
Direct reuse (reclaimed water)						
City of Las Vegas	6,401	5,426	5,660	5,492	5,645	5,799
CCWRD: Las Vegas Valley	6,609	9,857	6,720	11,984	12,432	13,160
Henderson	8,401	7,865	8,000	8,000	8,700	7,900
North Las Vegas	0	0	0	0	0	0
<b>Total</b>	<b>21,411</b>	<b>23,148</b>	<b>20,380</b>	<b>25,476</b>	<b>26,777</b>	<b>26,859</b>
Disposal to groundwater						
City of Las Vegas	0	0	0	0	0	0
CCWRD: Las Vegas Valley	0	0	0	0	0	0
Henderson	5,153	4,424	5,000	3,000	2,400	1,680
North Las Vegas	0	0	0	0	0	0
<b>Total</b>	<b>5,153</b>	<b>4,424</b>	<b>5,000</b>	<b>3,000</b>	<b>2,400</b>	<b>1,680</b>
Returns to surface water						
BMI Discharge	3,083	3,884	3,158	3,806	3,806	3,806
City of Las Vegas	65,335	69,305	71,485	72,405	74,552	77,007
CCWRD: Las Vegas Valley	93,215	94,378	97,214	101,571	107,383	111,393
Henderson	8,121	9,745	9,831	14,014	15,207	18,019
North Las Vegas	0	0	0	0	0	0
<b>Total</b>	<b>169,754</b>	<b>177,312</b>	<b>181,688</b>	<b>191,796</b>	<b>200,948</b>	<b>210,225</b>
<b>Boulder City (d)</b>						
Direct reuse (reclaimed water)	467	477	800	700	850	1,008
Disposal to groundwater	883	707	380	580	461	376
Returns to surface water	0	0	0	0	0	0
<b>CCWRD: Laughlin</b>						
Direct reuse (reclaimed water)	0	0	0	0	0	0
Disposal to groundwater	0	0	0	0	0	0
Returns to surface water	3,146	2,829	3,000	2,400	2,500	2,650
<b>Total direct reuse (reclaimed water)</b>	<b>21,878</b>	<b>23,625</b>	<b>21,180</b>	<b>26,176</b>	<b>27,627</b>	<b>27,867</b>
<b>Total Disposal to groundwater</b>	<b>6,036</b>	<b>5,131</b>	<b>5,380</b>	<b>3,580</b>	<b>2,861</b>	<b>2,056</b>
<b>Total returns to surface water</b>	<b>172,900</b>	<b>180,141</b>	<b>184,688</b>	<b>194,196</b>	<b>203,448</b>	<b>212,875</b>
<b>Wastewater used in return flow credit calculation (returns to surface water + reuse) (e)</b>						
<b>Las Vegas Valley</b>						
BMI Discharge	3,083	3,884	3,158	3,806	3,806	3,806
City of Las Vegas	71,736	74,731	77,145	77,897	80,197	82,806
CCWRD: LVV	99,824	104,235	103,934	113,554	119,815	124,552
Henderson (f)	16,522	17,610	17,831	22,014	23,907	25,919
North Las Vegas	0	0	0	0	0	0
<b>Total</b>	<b>191,165</b>	<b>200,460</b>	<b>202,068</b>	<b>217,271</b>	<b>227,725</b>	<b>237,083</b>

**NOTES**

- (a) Source(2003+): SNWA member.
- (b) Source(2003-2004): Colorado River Commission. Source(2006+): 62 % of use based on 2003-2004.
- (c) North Las Vegas wastewater treatment: majority by the City of Las Vegas and some by CCWRD.
- (d) Boulder City does not return to surface water.
- (e) Consists of returns to surface water and direct reuse that could have been returned to surface water.
- (f) Includes Henderson direct reuse and returns to surface water.
- (g) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

**2006 SNWA Water Budget, November 22, 2005**

TABLE 7: WASTEWATER REUSE AND REUSE THRESHOLD, numbers in acre-feet per year

	2003	2004	2005	2006	2007	2008	Section 9 Threshold
<b>1. Wastewater reuse by SNWA wastewater purveyor (a)</b>							
Boulder City (b)	---	---	---	---	---	---	(b)
City of Las Vegas (c)	6,401	5,426	5,660	5,492	5,645	5,799	2,000
CCWRD:							
LVV (c)	6,609	9,857	6,720	11,984	12,432	13,160	10,550 (e)
Laughlin (d)	0	0	0	0	0	0	550 (e)
Total	6,609	9,857	6,720	11,984	12,432	13,160	11,100
Henderson	8,401	7,865	8,000	8,000	8,700	7,900	7,500
North Las Vegas	0	0	0	0	0	0	1,200
<b>2. Wastewater reuse &gt; Section 9(a) threshold (f)</b>							
Boulder City (b)	---	---	---	---	---	---	(b)
City of Las Vegas	4,401	3,426	3,660	3,492	3,645	3,799	
CCWRD							
LVV	0	0	0	1,434	1,882	2,610	
Laughlin	0	0	0	0	0	0	
Total	0	0	0	1,434	1,882	2,610	
Henderson	901	365	500	500	1,200	400	
North Las Vegas	0	0	0	0	0	0	
<b>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)</b>							
<p>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.</p>							

**NOTES**

- (a) Source(2003+): SNWA member.
- (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 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'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.
- (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], 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.

**2006 SNWA Water Budget, November 22, 2005**

**TABLE 8: COLORADO RIVER DIVERSIONS, RETURN FLOW CREDITS AND CONSUMPTIVE USE IN NEVADA (AFY) (m)**

<b>Colorado River diversions</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Available Resources</b>	
<b>SNWA Purveyor Members customer usage (includes recharge for current year banking operations) (a)</b>								
Big Bend	5,315	4,922	5,262	4,894	5,107	5,400		
Boulder City	12,277	11,013	11,790	11,393	11,392	12,317		
Henderson	73,833	73,986	77,209	78,248	82,217	86,314		
LVVWD	298,097	289,145	314,059	338,360	352,019	366,762		
North Las Vegas	43,984	45,473	48,550	49,825	52,950	56,050		
<b>Total</b>	<b>433,506</b>	<b>424,539</b>	<b>456,870</b>	<b>482,720</b>	<b>503,685</b>	<b>526,843</b>		
<b>SNWA Artificial Recharge (includes recharge for carryover banking operations and other recharge) (a)</b>								
LVVWD	27,554	16,187	12,921	1,660	0	0		
North Las Vegas	167	0	0	0	0	0		
<b>Total</b>	<b>27,721</b>	<b>16,187</b>	<b>12,921</b>	<b>1,660</b>	<b>0</b>	<b>0</b>		
<b>SNWA Purveyor Members CR diversions (customer usage + artificial recharge)</b>								
Big Bend	5,315	4,922	5,262	4,894	5,107	5,400		
Boulder City	12,277	11,013	11,790	11,393	11,392	12,317		
Henderson	73,833	73,986	77,209	78,248	82,217	86,314		
LVVWD	325,651	305,332	326,980	340,020	352,019	366,762		
North Las Vegas	44,151	45,473	48,550	49,825	52,950	56,050		
<b>Total</b>	<b>461,227</b>	<b>440,726</b>	<b>469,791</b>	<b>484,380</b>	<b>503,685</b>	<b>526,843</b>		
Usage (customer + AR)	461,227	440,726	469,791	484,380	503,685	526,843		
SNWS System Loss (b)	2,593	8,950	5,899	5,702	5,935	6,214		
<b>TOTAL</b>	<b>463,820</b>	<b>449,676</b>	<b>475,690</b>	<b>490,082</b>	<b>509,620</b>	<b>533,057</b>		
<b>Other Colorado River Users (c) (d)</b>								
BMI Complex (e)	5,332	5,861	5,352	5,597	5,597	5,597	8,608	
Fort Mohave Indian Res. (e)	4,345	4,345	4,432	4,345	4,345	4,345	12,534	
Nellis AFB (e)	1,993	1,787	2,202	1,890	1,890	1,890	4,000	
Lake Mead Rec. Area (e)	1,107	885	1,143	996	996	996	2,000	
Pabco (e)	869	892	928	881	881	881	928	
Secretarial Reservation (e)	33	33	47	33	33	33	300	
Southern Cal. Edison (f)	11,564	12,038	13,687	12,364	12,364	12,364	(j)	
Nev. Division of Wildlife (k)	2,222	476	2,222	6,388	6,388	6,388	(k)	
Small water users (f)	0	0	10	0	0	0	10	
<b>TOTAL</b>	<b>27,465</b>	<b>26,317</b>	<b>30,023</b>	<b>32,494</b>	<b>32,494</b>	<b>32,494</b>		
<b>Total Nevada diversions</b>	<b>491,285</b>	<b>475,993</b>	<b>505,713</b>	<b>522,575</b>	<b>542,114</b>	<b>565,551</b>		
<b>Nevada Return flow credits</b>								
Las Vegas Valley (g)	187,448	189,908	199,026	212,351	222,624	233,087		
Laughlin (h)	3,146	2,829	3,000	2,400	2,500	2,650		
Nev. Division of Wildlife (c)(k)	2,210	465	2,210	6,376	6,376	6,376		
Unmeasured Returns (c) (j)	1,434	1,434	1,477	1,448	1,448	1,448		
<b>TOTAL</b>	<b>194,238</b>	<b>194,636</b>	<b>205,713</b>	<b>222,575</b>	<b>232,948</b>	<b>243,561</b>		
<b>Nevada Consumptive use</b>								
Consumptive use with AR (l)	297,047	301,357	300,000	300,000	309,165	321,990		
Artificial Recharge (l)	27,721	36,187	12,921	1,660	0	0		
Consumptive use no AR	269,326	265,170	287,079	298,340	309,165	321,990		
<b>Decree Accounting of Nevada use (c)</b>								
Consumptive use with AR (l)	298,392	302,254	-----Not Available-----					

**NOTES**

- (a) Source: SNWA members, see Table 3.
- (b) From Appendix 4.
- (c) Source: 2003 Final and 2004 Provisional Decree Accounting.
- (d) Available resource assumed as consumptive use.
- (e) Source(2006+): average 2003 to 2004.
- (f) Source(2005+): provided by user.
- (g) From Appendix 1.
- (h) From Table 6.
- (i) Source(2005+): one-third of Ft. Mojave Indian Res. use above.
- (j) Southern California Edison terminated its Col. R. contract for 23,000 AFY consumptive use which became available to SNWA; in return, SNWA purveyors agreed to see that up to 19,000 AFY of Edison's water demands were met through year 2026.
- (k) Source(2006+): 2002 Decree Accounting. Available resource is a consumptive use amount of 25 AFY.
- (l) Includes 20,000 acre-feet of Nevada Colorado River water diverted and recharged in Arizona and California in 2004.
- (m) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

## 2006 SNWA Water Budget, November 22, 2005

APPENDIX 1: RETURN FLOW CREDITS (U.S. Bureau of Reclamation method) (d)

	2003	2004	2005	2006	2007	2008
<b>CALCULATION OF RETURN FLOW CREDITS AT LAS VEGAS WASH GAUGE</b>						
<b>1. Total groundwater pumped to Las Vegas Valley users</b>						
a. LVVWD and NLV (groundwater pumped and total artificial recharge recovered.)	45,005	43,275	53,112	42,921	42,921	42,921
b. Private/permitted wells and Nellis AFB	30,468	31,748	31,013	31,108	31,108	31,108
c. Total groundwater pumped to Las Vegas Valley users (groundwater pumped and total artificial recharge recovered.)	75,473	75,023	84,125	74,029	74,029	74,029
d. Total Colorado River water recovered from local aquifer storage	1	265	7,000	0	0	0
<b>2. Colorado River water delivered to Las Vegas Valley</b>	424,846	424,273	446,271	479,622	500,608	522,827
Includes BMI Complex, Hend., LVVWD, Nellis, NLV; system loss; no banking nor recovery of artificial recharge, only customer diversions.						
<b>3. Ratio of Non-Colorado water to total water delivered to Las Vegas Valley</b>	9.58%	9.20%	9.23%	8.21%	7.90%	7.59%
[[1a)-(1d)]]/[(1a)+(2)] = Total GW pumped / (GW/AR pumped + CRW diverted for customers) (a)						
<b>4. Total effluent available from wastewater treatment plants</b>	191,165	200,460	202,068	217,271	227,725	237,083
Effluent available from CLV, CCWRD-LVV-Henderson and BMI discharges to LV Wash						
<b>5. Non-Colorado River water available for secondary water rights and phreatophyte use</b>	18,314	18,442	18,651	17,838	17,990	17,995
Groundwater available for effluent reuse and phreatophytes = (3)*(4)						
<b>6. Water right uses for agricultural use, powerplants, etc. (limited to historic use)</b>	9,190	9,190	9,190	9,190	9,190	9,190
Current reuse of effluent available for return flow credits or max. historical reuse (9,190 AF), whichever is less.						
<b>7. Phreatophyte consumptive use. (12,000 afy maximum from groundwater) (b)</b>	10,000	10,000	10,000	10,000	10,000	10,000
<b>8. Total secondary uses provided by effluent in line 4</b>	21,411	23,148	20,380	25,476	26,777	26,859
Current reuse of effluent available for return flow credits.						
<b>9. Additional secondary uses provided by commingled effluent in line 4</b>	12,221	13,958	11,190	16,286	17,587	17,669
Net reuse = (8)-(6)						
<b>10. Maximum non-Colorado water effluent remaining after historic use</b>	0	0	0	0	0	0
Remaining groundwater effluent, after reuse and phreatophyte usage subtracted out = (5)-[(6)+(7)]						
<b>11. Ratio of remaining Non-Colorado water effluent to commingled effluent remaining</b>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ratio of remaining GW effluent to remaining GW effluent and Colorado River influent = (10)/[(10)+(4)-(5)]						
<b>12. Non-Colorado Water effluent used to supply additional secondary uses, if available</b>	0	0	0	0	0	0
Groundwater in net reuse = (9)*(11)						
<b>13. Non-Colorado River water effluent remaining at LV Wash gauge</b>	0	0	0	0	0	0
Remaining groundwater effluent at gauge = (10)-(12)						
<b>14. Flow at Las Vegas Wash gauge (measured) (See Appendix 2.)</b>	193,412	203,195	201,659	214,972	225,241	235,700
<b>15. Surface runoff from Valley precipitation (from hydrograph) (See Appendix 2.)</b>	7,049	14,377	3,722	3,722	3,722	3,722
<b>16. Unmeasured Non-Colorado water accrual at Las Vegas Wash gauge</b>	0	0	0	0	0	0
Line 11*[(14)-(13)-(15)-[(4)-(5)-[(9)-(12)]]] (c)						
<b>17. Surface water credits as Col. River return flow from Las Vegas Wash</b>	186,363	188,818	197,937	211,250	221,519	231,978
Return flow credits at gauge = (14)-[(13)+(15)+(16)]						
<b>UNMEASURED FLOWS BYPASSING LAS VEGAS WASH GAUGE</b>						
<b>A. Ratio of Colorado River water to total water delivered to Las Vegas Valley = [(2) + (1a)]/[(1a) + (2)]. (a)</b>	90.42%	90.80%	90.77%	91.79%	92.10%	92.41%
<b>B. Underflow of Col. R. water bypassing North Shore Rd. gauge = (A) * 1,500. (From USBR.)</b>	1,356	1,362	1,361	1,377	1,382	1,386
<b>C. Phreatophyte use of Col. R. water below North Shore Rd. gauge = (A) * 300. (From USBR.)</b>	271	272	272	275	276	277
<b>TOTAL RETURN FLOW CREDITS AND CONSUMPTIVE USE IN LAS VEGAS VALLEY</b>						
<b>18. Total Colorado River return flow credits from LV Wash = (17) + (B) - (C).</b>	187,448	189,908	199,026	212,351	222,624	233,087

### NOTES

- (a) Calculation update for 2003 forward to reflect municipal groundwater share of total use.
- (b) Maximum phreatophyte usage from groundwater is 12,000 afy, in accordance with "Procedure for Determining Return Flow Credits," agreed to by the Bureau of Reclamation and the Colorado River Commission in 1984.
- (c) Calculation update for 2003 forward reflects calculation of Non-Colorado River portion of accruals based on line 11.
- (d) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

**2006 SNWA Water Budget, November 22, 2005**

APPENDIX 2: PROJECTION OF ACCRUALS AND GAUGE FLOWS (used in calculation of return flow credits), numbers in acre-feet per year (g)

ASSUME GAUGE FLOWS = EFFLUENT TO WASH - PHREATOPHYTES + STORMWATER + ACCRUALS

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
1. Estimate accruals (Accruals = Gauge Flows - Effluent to Wash + Phreatophytes - Stormwater)																									
a. Measured Wash flow at gauge (a)	83,334	90,614	99,997	105,522	120,030	125,006	123,203	139,766	133,576	132,099	143,496	146,017	170,514	170,329	170,585	160,246	173,235	173,302	193,412	203,195					
b. Effluent to Wash (b)	(78,692)	(80,332)	(83,653)	(87,304)	(91,581)	(103,411)	(102,844)	(106,404)	(113,750)	(123,040)	(127,434)	(132,245)	(143,025)	(145,770)	(149,781)	(155,174)	(159,337)	(160,811)	(169,754)	(177,312)					
c. Phreatophytes (c)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000					
d. Stormwater (a)	(404)	(1,777)	(3,304)	(622)	(711)	(1,976)	(1,065)	(9,640)	(4,126)	(2,155)	(3,896)	(1,429)	(8,696)	(11,357)	(5,405)	(2,746)	(2,959)	(1,410)	(7,049)	(14,377)					
e. Total (accruals)	14,238	18,505	23,040	27,596	37,738	29,619	29,294	33,722	25,700	16,904	22,166	22,343	28,793	23,202	25,399	12,326	20,939	21,081	26,609	21,506					
2. Calculate ratio of accruals/LVV customer usage																									
a. Accruals	14,238	18,505	23,040	27,596	37,738	29,619	29,294	33,722	25,700	16,904	22,166	22,343	28,793	23,202	25,399	12,326	20,939	21,081	26,609	21,506					
b. Total LVV customer usage (b)																									
1. LVV customer usage (d)	222,042	235,099	237,002	267,449	304,701	310,529	315,198	323,188	342,817	373,396	377,699	413,741	415,082	412,450	452,639	480,652	503,977	519,685	497,726	490,346					
2. SNWS system loss	1,831	1,948	4,018	1,191	2,961	1,551	3,244	3,104	2,293	2,206	2,452	4,772	11,066	4,738	5,675	6,287	1,744	11,648	2,593	8,950					
3. Total	223,873	237,047	241,020	268,640	307,662	312,080	318,442	326,292	345,110	375,602	380,151	418,513	426,148	417,188	458,314	486,939	505,721	531,333	500,319	499,296					
c. Accruals/Total LVV usage (%)	6.36%	7.81%	9.56%	10.27%	12.27%	9.49%	9.20%	10.33%	7.45%	4.50%	5.83%	5.34%	6.76%	5.56%	5.54%	2.53%	4.14%	3.97%	5.32%	4.31%					
3. Calculate median accruals/Total LVV usage (e)	5.32%																								
4. Project future accruals	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
a. Total LVV usage (b)																						524,497	547,949	568,702	590,642
1. LVV usage (d)																						5,899	5,702	5,935	6,214
2. SNWS system loss																						530,396	553,651	574,637	596,856
3. Total																						26,249	29,454	30,571	31,753
5.32% * Total LVV usage																									
5. Project future gauge flows (Gauge flows = Effluent to Wash - Phreatophytes + Stormwater + Accruals)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
a. Effluent to Wash (b)																						181,688	191,796	200,948	210,225
b. Phreatophytes (f)																						(10,000)	(10,000)	(10,000)	(10,000)
c. Stormwater (average of 1985 - 2003)																						3,722	3,722	3,722	3,722
d. Accruals																						26,249	29,454	30,571	31,753
e. Estimated Wash flows at gauge																						201,659	214,972	225,241	235,700
6. Measured and estimated gauge flows	83,334	90,614	99,997	105,522	120,030	125,006	123,203	139,766	133,576	132,099	143,496	146,017	170,514	170,329	170,585	160,246	173,235	173,302	193,412	203,195	201,659	214,972	225,241	235,700	

NOTES (a) Source(1985 - 2001): U.S. Geologic Survey, "Water Resources Data Nevada", water years 1984 to 2002. Source(2002-2004): provisional data reflected in the Year End Return Flow Credit Data for 2002, 2003 and 2004 (Colorado River Commission.)  
 (b) From Appendix 3.  
 (c) Maximum phreatophyte usage from groundwater is 12,000 afy, in accordance with "Procedure for Determining Return Flow Credits," agreed to by the Bureau of Reclamation and the Colorado River Commission in 1984.  
 (d) Includes recovery of artificial recharge (AR recovery)  
 (e) Median (1994 - 2004) corresponds with the City of Henderson discharges to the Las Vegas Wash  
 (f) Assume same as historical figures estimated by U.S. Bureau of Reclamation.  
 (g) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.

## 2006 SNWA Water Budget, November 22, 2005

APPENDIX 3: LAS VEGAS VALLEY WATER USAGE AND WASTEWATER FLOWS (used in calculation of return flow credits), numbers in acre-feet per year (g)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Resources Available
<b>Las Vegas Valley customer usage</b>																									
Colorado River customer diversion (no AR; no AR recovery (a))																									
<b>SNWA Purveyor Members</b>																									
Henderson	13,420	15,431	16,768	18,703	24,696	25,456	33,181	34,289	33,071	42,033	42,676	52,247	48,982	55,256	63,305	67,248	73,832	79,187	73,833	73,986	77,209	78,248	82,217	86,314	
LVVWD	119,804	127,332	130,155	155,872	185,016	191,434	187,873	188,911	210,139	223,298	223,682	244,824	249,210	243,140	272,749	294,109	304,368	313,091	297,111	288,216	307,059	338,360	352,019	366,762	
North Las Vegas	11,193	14,050	13,217	16,044	20,929	23,834	22,739	22,532	23,269	29,503	30,704	32,523	31,527	32,151	35,889	38,198	39,430	41,264	43,984	45,473	48,550	49,825	52,950	56,050	
<b>Total</b>	<b>144,417</b>	<b>156,813</b>	<b>160,140</b>	<b>190,619</b>	<b>230,641</b>	<b>240,724</b>	<b>243,793</b>	<b>245,732</b>	<b>266,479</b>	<b>294,834</b>	<b>297,062</b>	<b>329,594</b>	<b>329,719</b>	<b>330,547</b>	<b>371,943</b>	<b>399,555</b>	<b>417,630</b>	<b>433,542</b>	<b>414,928</b>	<b>407,675</b>	<b>432,818</b>	<b>466,433</b>	<b>487,186</b>	<b>509,126</b>	
<b>Other Las Vegas Valley Users</b>																									
BMI Complex (b)	6,880	7,159	8,244	7,824	6,608	5,562	5,739	6,302	6,021	6,496	5,084	4,988	6,730	6,339	5,489	5,286	5,210	5,372	5,332	5,861	5,352	5,597	5,597	5,597	
Nellis AFB (b)	2,268	1,802	1,340	2,296	2,898	2,952	2,598	2,817	2,961	3,193	3,015	3,251	2,781	2,525	2,248	2,206	1,760	2,410	1,993	1,787	2,202	1,890	1,890	1,890	
<b>Total</b>	<b>9,148</b>	<b>8,961</b>	<b>9,584</b>	<b>10,120</b>	<b>9,506</b>	<b>8,514</b>	<b>8,337</b>	<b>9,119</b>	<b>8,982</b>	<b>9,689</b>	<b>8,099</b>	<b>8,239</b>	<b>9,511</b>	<b>8,864</b>	<b>7,737</b>	<b>7,492</b>	<b>6,970</b>	<b>7,782</b>	<b>7,325</b>	<b>7,648</b>	<b>7,554</b>	<b>7,487</b>	<b>7,487</b>	<b>7,487</b>	
<b>SNWS System Loss</b>	<b>1,831</b>	<b>1,948</b>	<b>4,018</b>	<b>1,191</b>	<b>2,961</b>	<b>1,551</b>	<b>3,244</b>	<b>3,104</b>	<b>2,293</b>	<b>2,206</b>	<b>2,452</b>	<b>4,772</b>	<b>11,066</b>	<b>4,738</b>	<b>5,675</b>	<b>6,287</b>	<b>1,744</b>	<b>11,648</b>	<b>2,593</b>	<b>8,950</b>	<b>5,899</b>	<b>5,702</b>	<b>5,935</b>	<b>6,214</b>	
<b>Total</b>	<b>155,396</b>	<b>167,722</b>	<b>173,742</b>	<b>201,930</b>	<b>243,108</b>	<b>250,789</b>	<b>255,374</b>	<b>257,955</b>	<b>277,754</b>	<b>306,729</b>	<b>307,613</b>	<b>342,605</b>	<b>350,296</b>	<b>344,149</b>	<b>385,355</b>	<b>413,334</b>	<b>426,344</b>	<b>452,972</b>	<b>424,846</b>	<b>424,273</b>	<b>446,271</b>	<b>479,622</b>	<b>500,608</b>	<b>522,827</b>	
<b>Pumpage of Artificial Recharge Recovery (c)</b>																									
<b>SNWA Purveyor Members</b>																									
LVVWD	0	0	0	0	0	0	0	0	0	0	2,473	1,596	164	0	0	0	494	1,092	1	265	7,000	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	0	0	0	0	
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,473</b>	<b>1,596</b>	<b>164</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>494</b>	<b>1,092</b>	<b>1</b>	<b>265</b>	<b>7,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Groundwater Usage</b>																									
<b>SNWA Purveyor Members (a)</b>																									
LVVWD	38,185	38,623	37,145	35,952	34,025	33,925	36,653	39,785	35,647	37,907	40,247	39,947	40,152	39,857	39,028	38,255	40,126	40,126	40,126	40,612	40,612	40,571	40,571	40,571	40,612
North Las Vegas	6,187	5,308	5,635	5,076	4,270	3,253	4,312	4,240	4,594	2,569	3,345	5,669	5,614	5,687	4,135	5,226	5,449	5,586	4,878	2,398	5,500	2,350	2,350	2,350	5,711
<b>Total</b>	<b>44,372</b>	<b>43,931</b>	<b>42,780</b>	<b>41,028</b>	<b>38,295</b>	<b>37,178</b>	<b>40,965</b>	<b>44,025</b>	<b>40,241</b>	<b>40,476</b>	<b>43,592</b>	<b>45,616</b>	<b>45,766</b>	<b>45,544</b>	<b>43,163</b>	<b>43,481</b>	<b>45,575</b>	<b>45,712</b>	<b>45,004</b>	<b>43,010</b>	<b>46,112</b>	<b>42,921</b>	<b>42,921</b>	<b>42,921</b>	<b>46,323</b>
<b>Other Las Vegas Valley Users</b>																									
Nellis AFB (b)	1,439	1,519	1,855	2,501	1,707	1,319	1,467	935	978	920	815	1,019	1,144	1,005	1,530	2,083	2,367	2,206	1,955	1,816	2,081	1,886	1,886	1,886	2,950
Private/Permitted Wells (d)	22,666	23,875	22,643	23,181	24,552	22,794	20,636	23,377	26,137	27,477	25,658	27,677	28,778	26,490	28,266	28,041	30,941	29,351	28,513	29,932	28,932	29,223	29,223	29,223	
<b>Total</b>	<b>24,105</b>	<b>25,394</b>	<b>24,498</b>	<b>25,682</b>	<b>26,259</b>	<b>24,113</b>	<b>22,103</b>	<b>24,312</b>	<b>27,115</b>	<b>28,397</b>	<b>26,473</b>	<b>28,696</b>	<b>29,922</b>	<b>27,495</b>	<b>29,796</b>	<b>30,124</b>	<b>33,308</b>	<b>31,557</b>	<b>30,468</b>	<b>31,748</b>	<b>31,013</b>	<b>31,108</b>	<b>31,108</b>	<b>31,108</b>	
<b>Total</b>	<b>68,477</b>	<b>69,325</b>	<b>67,278</b>	<b>66,710</b>	<b>64,554</b>	<b>61,291</b>	<b>63,068</b>	<b>68,337</b>	<b>67,356</b>	<b>68,873</b>	<b>70,065</b>	<b>74,312</b>	<b>75,688</b>	<b>73,039</b>	<b>72,959</b>	<b>73,605</b>	<b>78,883</b>	<b>77,269</b>	<b>75,472</b>	<b>74,758</b>	<b>77,125</b>	<b>74,029</b>	<b>74,029</b>	<b>74,029</b>	
<b>Las Vegas Valley Total Usage (includes recovery)</b> (Including system loss)	<b>223,873</b>	<b>237,047</b>	<b>241,020</b>	<b>268,640</b>	<b>307,662</b>	<b>312,080</b>	<b>318,442</b>	<b>326,292</b>	<b>345,110</b>	<b>375,602</b>	<b>380,151</b>	<b>418,513</b>	<b>426,148</b>	<b>417,188</b>	<b>458,314</b>	<b>486,939</b>	<b>505,721</b>	<b>531,333</b>	<b>500,319</b>	<b>499,296</b>	<b>530,396</b>	<b>553,651</b>	<b>574,637</b>	<b>596,856</b>	
<b>Las Vegas Valley Total Usage (includes recovery)</b> (Excluding system loss)	<b>222,042</b>	<b>235,099</b>	<b>237,002</b>	<b>267,449</b>	<b>304,701</b>	<b>310,529</b>	<b>315,198</b>	<b>323,188</b>	<b>342,817</b>	<b>373,396</b>	<b>377,699</b>	<b>413,741</b>	<b>415,082</b>	<b>412,450</b>	<b>452,639</b>	<b>480,652</b>	<b>503,977</b>	<b>519,685</b>	<b>497,726</b>	<b>490,346</b>	<b>524,497</b>	<b>547,949</b>	<b>568,702</b>	<b>590,642</b>	
	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
<b>LVV wastewater flow to Wash</b>																									
Influent (e)	84,399	86,302	89,288	92,987	97,884	105,627	105,778	111,452	118,748	129,824	135,827	142,188	154,001	159,974	164,750	173,371	177,543	182,902	191,165	200,460	202,068	217,271	227,725	237,083	
Reuse (including Henderson Reuse) (f)	5,707	5,970	5,635	5,683	6,303	2,216	2,934	5,048	4,998	6,784	8,393	9,943	10,976	14,204	14,969	18,197	18,206	22,091	21,411	23,148	20,380	25,476	26,777	26,859	
Effluent to Wash (influent - effluent)	<b>78,692</b>	<b>80,332</b>	<b>83,653</b>	<b>87,304</b>	<b>91,581</b>	<b>103,411</b>	<b>102,844</b>	<b>106,404</b>	<b>113,750</b>	<b>123,040</b>	<b>127,434</b>	<b>132,245</b>	<b>143,025</b>	<b>145,770</b>	<b>149,781</b>	<b>155,174</b>	<b>159,337</b>	<b>160,811</b>	<b>169,754</b>	<b>177,312</b>	<b>181,688</b>	<b>191,796</b>	<b>200,948</b>	<b>210,225</b>	

## NOTES

- (a) Source(1985 - 2004): actual; Source(2005+): SNWA Purveyor Member.  
(b) Source(1985 - 2004): actual; Source(2005+): Table 8.  
(c) Includes recovery for banking operations and for purveyor members.  
(d) Source(1985 - 2004): Nevada Division of Water Resources. Source(2005 +): Table 4.  
(e) Includes Henderson returns to the Colorado River, Henderson reuse, and BMI discharges to the wash beginning in 1994.  
(f) Includes Henderson reuse beginning in 1994.  
(g) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future

**2006 SNWA Water Budget, November 22, 2005**

APPENDIX 4: COLORADO RIVER USAGE (CUSTOMER + AR) BY SYSTEM AND ESTIMATES OF SNWS SYSTEM LOSS, numbers in acre-feet per year (d)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Colorado River diversions by system (includes AR, but no AR recovery)(a)</b>																								
Big Bend Water District	865	1,155	1,716	2,289	3,434	3,816	4,127	4,343	4,423	4,833	5,286	5,315	5,034	4,970	5,162	5,232	5,268	5,325	5,315	4,922	5,262	4,894	5,107	5,400
Boulder City																								
SNWS	4,994	5,960	6,303	6,851	7,524	6,607	6,363	6,638	7,051	7,325	7,327	8,098	7,708	7,670	8,858	10,616	10,168	13,346	12,254	11,013	11,790	11,393	11,392	12,317
USBR system	0	0	0	0	2	30	0	3	157	246	280	279	171	132	179	223	434	950	23	-	-	-	-	-
Total	4,994	5,960	6,303	6,851	7,526	6,637	6,363	6,641	7,208	7,571	7,607	8,377	7,879	7,802	9,037	10,839	10,602	14,296	12,277	11,013	11,790	11,393	11,392	12,317
Henderson																								
SNWS	9,635	10,657	12,367	14,539	20,704	22,658	28,129	23,699	24,870	29,467	29,280	36,405	35,969	40,973	51,691	53,494	61,493	66,158	64,100	61,017	66,209	64,248	68,217	72,314
BMI system	3,785	4,774	4,401	4,164	3,992	2,798	5,052	10,590	8,201	12,566	13,396	15,842	13,013	14,283	11,614	13,754	12,339	13,029	9,733	12,969	11,000	14,000	14,000	14,000
Total	13,420	15,431	16,768	18,703	24,696	25,456	33,181	34,289	33,071	42,033	42,676	52,247	48,982	55,256	63,305	67,248	73,832	79,187	73,833	73,986	77,209	78,248	82,217	86,314
LVVWD (SNWS)	119,804	127,332	130,155	155,872	188,692	201,675	202,495	204,527	234,008	243,418	240,343	256,829	267,001	270,286	304,810	323,830	325,637	315,345	325,651	305,332	326,980	340,020	352,019	366,762
North Las Vegas (SNWS)	11,193	14,050	13,217	16,044	20,929	24,240	24,184	23,917	23,937	31,283	33,215	33,982	32,661	32,568	36,189	38,262	39,537	41,264	44,151	45,473	48,550	49,825	52,950	56,050
<b>Systems with multiple users</b>																								
BMI System:																								
Henderson	3,785	4,774	4,401	4,164	3,992	2,798	5,052	10,590	8,201	12,566	13,396	15,842	13,013	14,283	11,614	13,754	12,339	13,029	9,733	12,969	11,000	14,000	14,000	14,000
BMI Complex	6,880	7,159	8,244	7,824	6,608	5,562	5,739	6,302	6,021	6,496	5,084	4,988	6,730	6,339	5,489	5,286	5,210	5,372	5,332	5,861	5,352	5,597	5,597	5,597
Total	10,665	11,933	12,645	11,988	10,600	8,360	10,791	16,892	14,222	19,062	18,480	20,830	19,743	20,622	17,103	19,040	17,549	18,401	15,065	18,830	16,352	19,597	19,597	19,597
Southern Nevada Water System (at turnouts)																								
Boulder City	4,994	5,960	6,303	6,851	7,524	6,607	6,363	6,638	7,051	7,325	7,327	8,098	7,708	7,670	8,858	10,616	10,168	13,346	12,254	11,013	11,790	11,393	11,392	12,317
Henderson	9,635	10,657	12,367	14,539	20,704	22,658	28,129	23,699	24,870	29,467	29,280	36,405	35,969	40,973	51,691	53,494	61,493	66,158	64,100	61,017	66,209	64,248	68,217	72,314
LVVWD	119,804	127,332	130,155	155,872	188,692	201,675	202,495	204,527	234,008	243,418	240,343	256,829	267,001	270,286	304,810	323,830	325,637	315,345	325,651	305,332	326,980	340,020	352,019	366,762
Nellis AFB	2,268	1,802	1,340	2,296	2,898	2,952	2,598	2,817	2,961	3,193	3,015	3,251	2,781	2,525	2,248	2,206	1,760	2,410	1,993	1,787	2,202	1,890	1,890	1,890
North Las Vegas	11,193	14,050	13,217	16,044	20,929	24,240	24,184	23,917	23,937	31,283	33,215	33,982	32,661	32,568	36,189	38,262	39,537	41,264	44,151	45,473	48,550	49,825	52,950	56,050
Total	147,894	159,801	163,382	195,602	240,747	258,132	263,769	261,598	292,827	314,686	313,180	338,565	346,120	354,022	403,796	428,408	438,595	438,523	448,149	424,622	455,731	467,376	486,468	509,333
<b>Estimate of SNWS system loss</b>																								
1. SNWS diversions at intake (b)	149,725	161,749	167,400	196,793	240,205	259,683	263,788	264,702	295,120	316,892	315,632	343,337	357,186	353,067	409,471	434,695	440,339	450,171	450,742	433,572				
2. SNWS diversions at turnout	147,894	159,801	163,382	195,602	240,747	258,132	263,769	261,598	292,827	314,686	313,180	338,565	346,120	354,022	403,796	428,408	438,595	438,523	448,149	424,622				
3. System loss (intake-turnout)(c)	1,831	1,948	4,018	1,191	(542)	1,551	19	3,104	2,293	2,206	2,452	4,772	11,066	(955)	5,675	6,287	1,744	11,648	2,593	8,950				
4. System loss percentage (%):																								
(system loss/diversion at turnout)	1.24%	1.22%	2.46%	0.61%	(c)	0.60%	(c)	1.19%	0.78%	0.70%	0.78%	1.41%	3.20%	(c)	1.41%	1.47%	0.40%	2.66%	0.58%	2.11%				
5. Median of reasonable system loss %(c)																								
6. Replace unreasonable system loss figures and project * SNWS diversions at turnout																								
( 1.22% * SNWS div.at turnout)	1,831	1,948	4,018	1,191	2,961	1,551	3,244	3,104	2,293	2,206	2,452	4,772	11,066	4,738	5,675	6,287	1,744	11,648	2,593	8,950	5,899	5,702	5,935	6,214

**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 Water Diverted for Use in Southern Nevada," CRC internal spreadsheets.
- (c) SNWS system loss is estimated by subtracting SNWS turnout meter reading from SNWS intake meter reading. Because of meter imprecision, system loss figures are sometimes unreasonable, i.e., negative numbers or very small numbers.
- (d) Figures for 2005 are from the previous Water Budget, since all historical figures for 2005 are not available; these will be updated with historical information in the future.