

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting

Nebraska Groundwater Pumping within RRCA Model Area*												
Irrigated Land (Acres), Groundwater Delivered Volume (Acre-Feet), and Groundwater Delivered Depth (Inches)												
Year	Lower Republican NRD			Middle Republican NRD			Upper Republican NRD			Tri-Basin NRD		
	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)
1995	185,884	249,632	16.1	172,750	284,374	19.8	373,964	442,066	14.2	388,206	474,599	14.7
1996	193,196	127,784	7.9	191,323	179,279	11.2	384,149	331,079	10.3	403,317	275,655	8.2
1997	214,073	241,194	13.5	196,207	292,620	17.9	376,520	492,253	15.7	405,902	442,583	13.1
1998	211,195	197,910	11.2	198,686	301,786	18.2	370,946	506,262	16.4	401,126	336,762	10.1
1999	208,853	156,928	9.0	195,683	140,107	8.6	368,387	382,926	12.5	409,750	286,746	8.4
2000	223,024	267,215	14.4	204,587	384,438	22.5	383,363	666,396	20.9	426,174	512,756	14.4
2001	220,245	240,413	13.1	219,726	311,892	17.0	441,956	488,370	13.3	435,101	400,006	11.0
2002	222,563	361,733	19.5	227,604	429,938	22.7	443,161	672,760	18.2	439,325	550,312	15.0
2003	249,631	297,876	14.3	240,150	354,363	17.7	448,971	564,144	15.1	439,803	508,536	13.9
2004	279,955	274,909	11.8	250,351	317,224	15.2	440,828	468,733	12.8	454,679	462,052	12.2
2005	269,930	243,378	10.8	239,845	248,037	12.4	473,736	429,518	10.9	453,636	419,990	11.1
2006	291,651	197,653	8.1	277,777	254,585	11.0	458,971	430,868	11.3	459,682	400,325	10.5
2007	294,129	161,183	6.6	272,803	196,337	8.6	427,204	395,361	11.1	447,271	318,210	8.5
2008	272,290	135,072	6.0	268,697	208,659	9.3	428,564	429,780	12.0	438,956	334,891	9.2
2009	266,477	153,072	6.9	258,058	197,534	9.2	437,952	336,108	9.2	439,754	302,008	8.2
2010	268,920	113,663	5.1	260,516	194,637	9.0	427,008	381,870	10.7	440,133	252,421	6.9
2011	274,414	138,879	6.1	263,625	209,182	9.5	428,016	357,341	10.0	442,197	285,098	7.7
2012	273,486	290,556	12.7	267,300	411,131	18.5	425,855	673,917	19.0	443,892	526,664	14.2

*There is some additional groundwater pumping within the Nebraska portion of the model area that takes place outside these four NRDs.

Acreage and pumping data were obtained from NASS and power record estimates until 2006, when NRD certified acres and measured pumping volumes were substituted for these estimates for all wells within the basin (this change was made in the URNRD in 2000).

Information on Water Supply and Use in the Republican River Basin

For November 1, 2016, Stakeholder Advisory Committee Meeting

Nebraska Farm Field Delivery Data—Surface Water												
Irrigated Land (Acres), Surface Water Delivered Volume (Acre-Feet), and Surface Water Delivered Depth (Inches)												
Year	Frenchman Valley			H&RW			Frenchman-Cambridge			Nebraska-Bostwick		
	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)	Acres	Volume (AF)	Depth (Inches)
1995	8,580	4,741	6.6	11,020	4,921	5.4	45,223	53,135	14.1	22,787	24,010	12.6
1996	8,697	9,083	12.5	10,898	0	0.0	45,184	27,583	7.3	22,787	13,883	7.3
1997	8,810	10,907	14.9	10,709	0	0.0	45,160	50,862	13.5	22,787	19,558	10.3
1998	8,849	4,500	6.1	11,155	4,650	5.0	45,125	45,340	12.1	22,787	19,630	10.3
1999	8,664	5,679	7.9	10,953	3,760	4.1	45,104	35,989	9.6	22,907	21,361	11.2
2000	8,359	5,086	7.3	11,022	3,678	4.0	45,076	43,164	11.5	22,907	27,204	14.3
2001	8,619	5,348	7.4	10,989	0	0.0	40,807	28,471	8.4	22,935	19,283	10.1
2002	8,571	2,892	4.0	0	0	0.0	33,988	23,940	8.5	22,935	22,079	11.6
2003	2,695	3,576	15.9	0	0	0.0	15,883	10,023	7.6	22,935	11,977	6.3
2004	2,048	2,441	14.3	0	0	0.0	15,192	11,304	8.9	3,127	1,457	5.6
2005	1,482	447	3.6	0	0	0.0	15,945	9,758	7.3	2,800	1,483	6.4
2006	0	0	0.0	0	0	0.0	20,799	11,798	6.8	0	0	0.0
2007	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
2008	0	0	0.0	0	0	0.0	18,456	9,974	6.5	22,454	4,720	2.5
2009	874	537	7.4	0	0	0.0	37,505	17,793	5.7	22,454	10,855	5.8
2010	1,426	771	6.5	0	0	0.0	33,869	17,667	6.3	15,388	7,046	5.5
2011	1,250	1,096	10.5	0	0	0.0	33,742	21,577	7.7	15,388	9,108	7.1
2012	1,020	515	6.1	0	0	0.0	34,159	29,043	10.2	22,455	21,770	11.6

Data obtained from U.S. Bureau of Reclamation (USBR). These data include surface water originating only from USBR canals. There are additional surface water uses within the Basin not included here. The USBR data is intended to portray a general sense of surface water availability for surface water users within the Basin.

This dataset includes reported values only and may not reflect actual water delivery volumes or irrigated acres.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting

Nebraska TOTAL Farm Field Delivery Data– Surface Water			
Year	Irrigated Land (Acres)	Surface Water Delivery Volume (Acre-Feet)	Surface Water Delivery Depth (Inches)
1995	87,610	86,812	11.9
1996	87,566	50,549	6.9
1997	87,466	81,327	11.2
1998	87,916	74,120	10.1
1999	87,628	66,789	9.1
2000	87,364	79,133	10.9
2001	83,350	53,102	7.6
2002	65,494	48,911	9.0
2003	41,513	25,576	7.4
2004	20,367	15,202	9.0
2005	20,227	11,688	6.9
2006	20,799	11,798	6.8
2007	0	0	0.0
2008	40,910	14,694	4.3
2009	60,833	29,185	5.8
2010	50,683	25,484	6.0
2011	50,380	31,781	7.6
2012	57,634	51,328	10.7

Data obtained from U.S. Bureau of Reclamation (USBR). These data include surface water originating only from USBR canals. There are additional surface water uses within the Basin not included here. The USBR data is intended to portray a general sense of surface water availability for surface water users within the Basin.

This dataset includes reported values only and may not reflect actual water delivery volumes or irrigated acres.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting

Annual Precipitation within Nebraska portion of RRCA Model area (7,959,207 Acres)		
Year	Volume of Precipitation (Acre-Feet)	Rate of Precipitation (Inches/Year)
1995	14,249,415	21.5
1996	17,478,637	26.37
1997	13,383,395	20.19
1998	12,504,134	18.87
1999	14,922,491	22.52
2000	12,561,456	18.95
2001	14,064,239	21.22
2002	8,356,739	12.61
2003	12,047,663	18.18
2004	15,029,391	22.68
2005	13,740,362	20.73
2006	14,239,593	21.49
2007	17,637,553	26.61
2008	18,172,007	27.42
2009	16,816,802	25.38
2010	16,933,216	25.55
2011	16,331,622	24.64
2012	8,151,570	12.3

Precipitation data obtained from RRCA Model inputs. Amounts were estimated from individual COOP weather stations from the National Climate Data Center using a linear kriging method.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting

Average Precipitation Recharge Values for 1990-2015 (acre-feet)

NRD / County	Total Recharge	Recharge in 10/50*
URNRD	236,439	126,495
Chase	82,726	
Dundy	73,983	
Perkins	79,730	
MRNRD	191,887	117,051
Hitchcock	20,885	
Red Willow	28,042	
Frontier	32,939	
Hayes	36,307	
Lincoln**	73,716	
LRNRD	223,977	149,617
Furnas	40,470	
Harlan	62,674	
Franklin	68,519	
Webster**	24,440	
Nuckolls**	27,875	
TBNRD	313,676	16,218
Gosper	29,488	
Kearney***	139,668	
Phelps***	144,521	

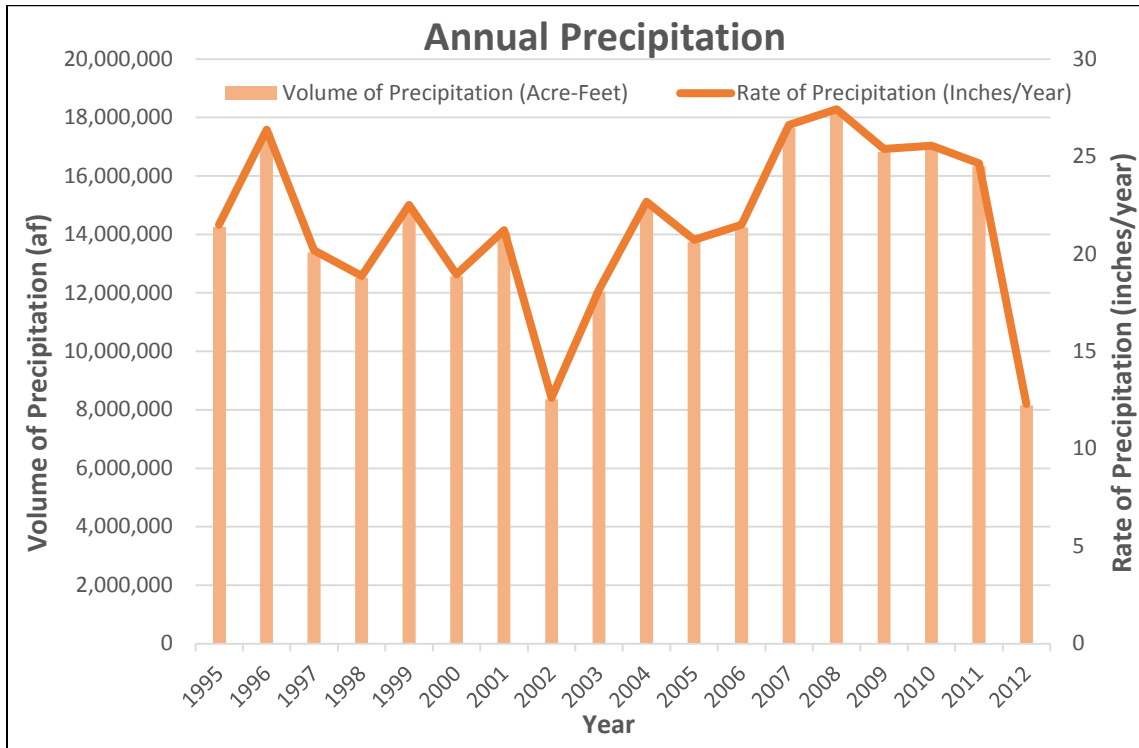
Data source: recharge modeled from RRCA data

*Recharge within the 10/50 area is approximated by prorating each NRD’s Total Recharge value by the percent of that NRD that is within the 10/50 area.

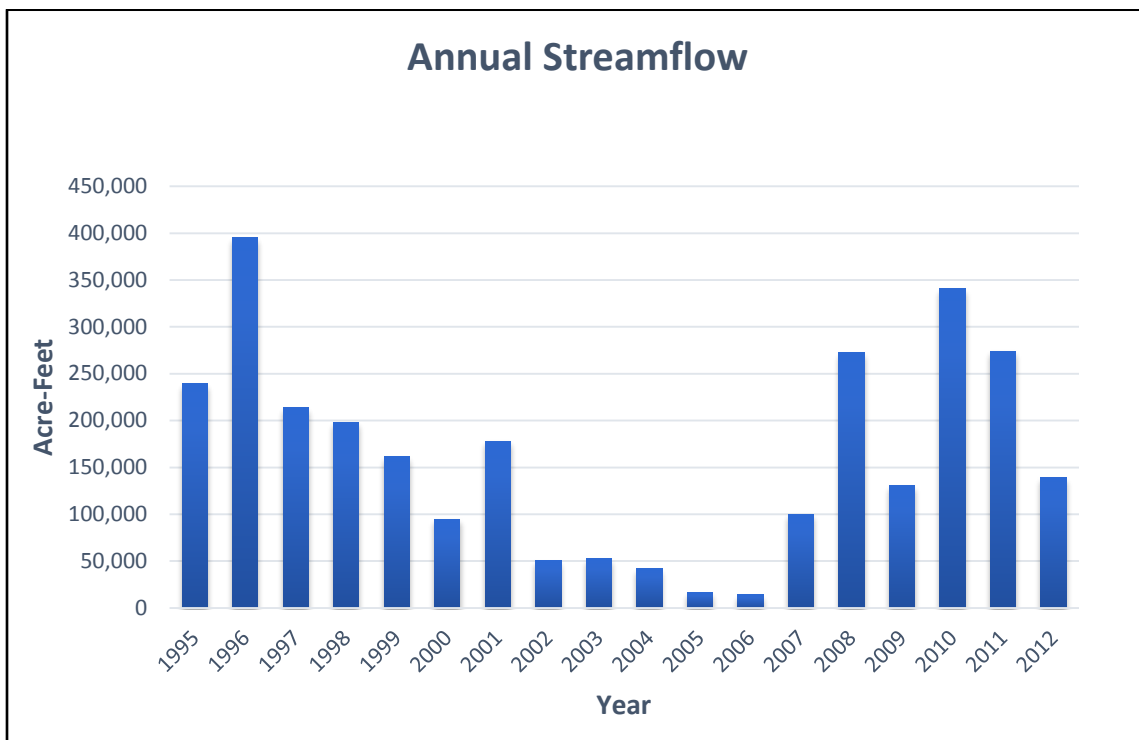
** Because only a portion of this county is within one of these NRDs, recharge is approximated based on the proportion of the county that is within that NRD.

*** Computed recharge for these counties is significantly affected by a spatial multiplier that results in much higher recharge values per unit area, everything else being equal.

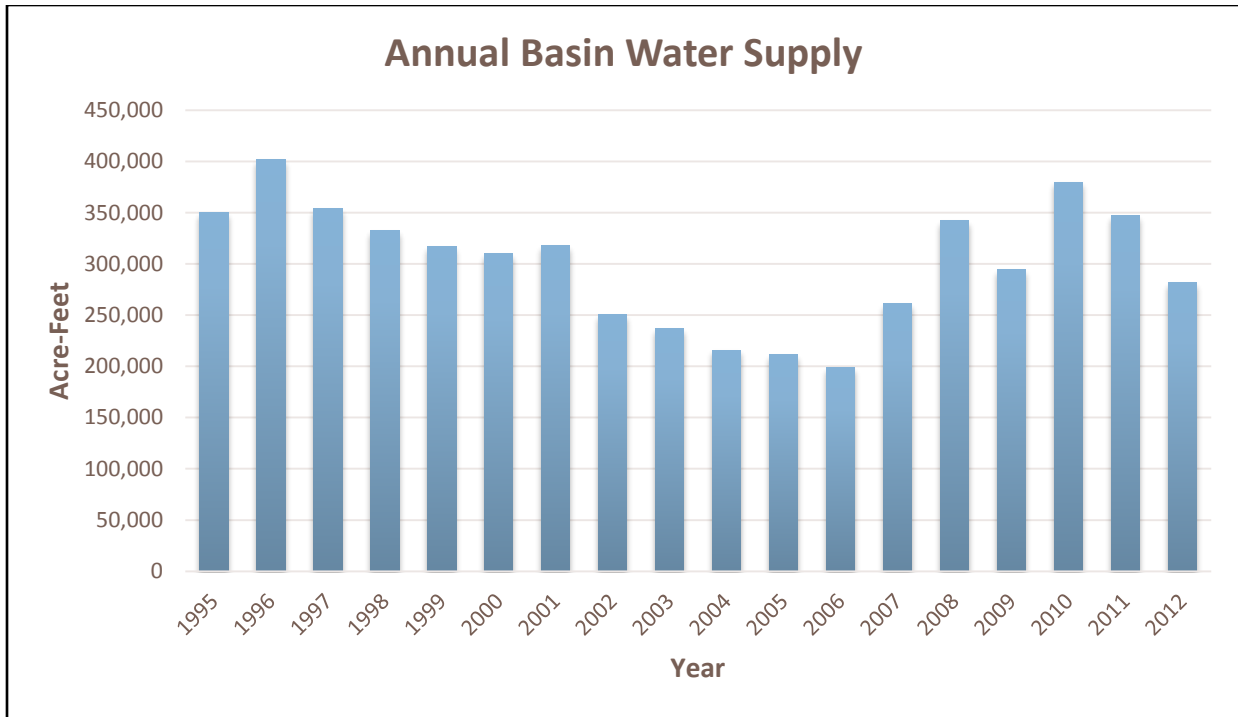
Republican River Basin INSIGHT Data



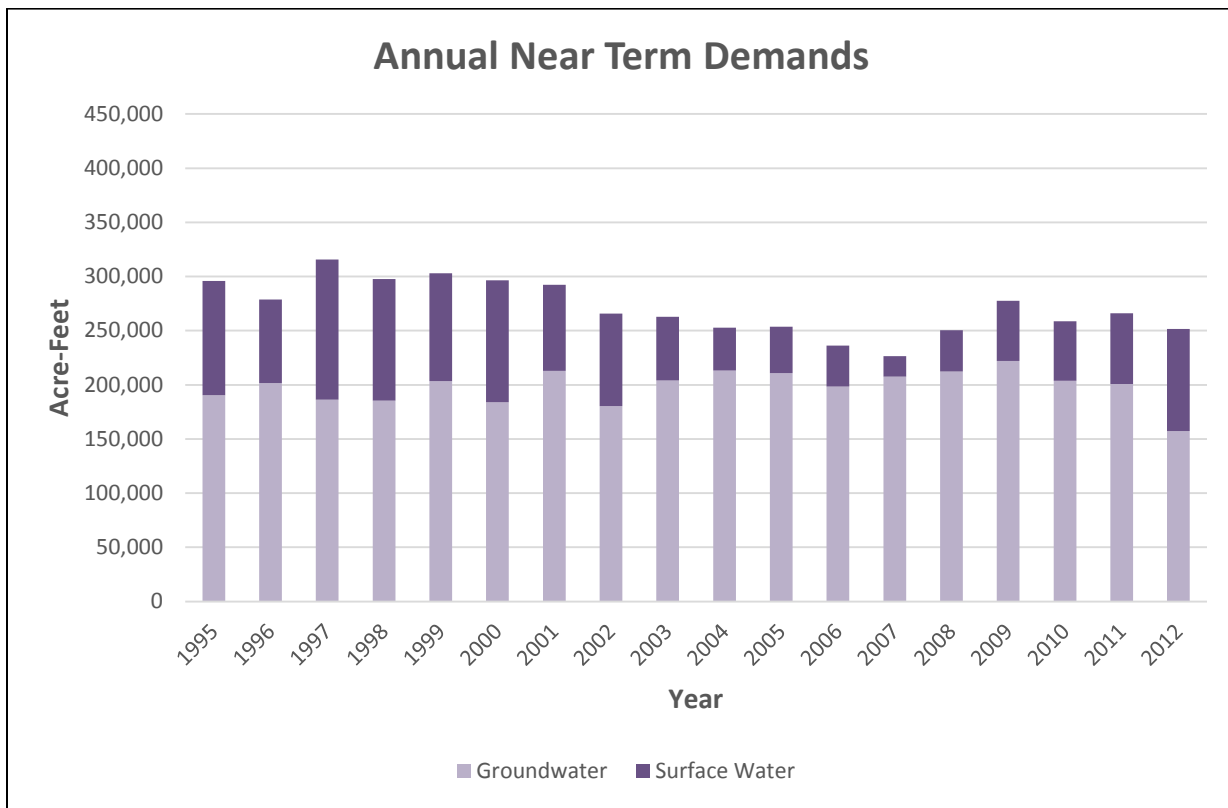
Data source: RRCA Model inputs. Estimated from individual COOP weather stations from the National climate Data center using a linear kriging method.



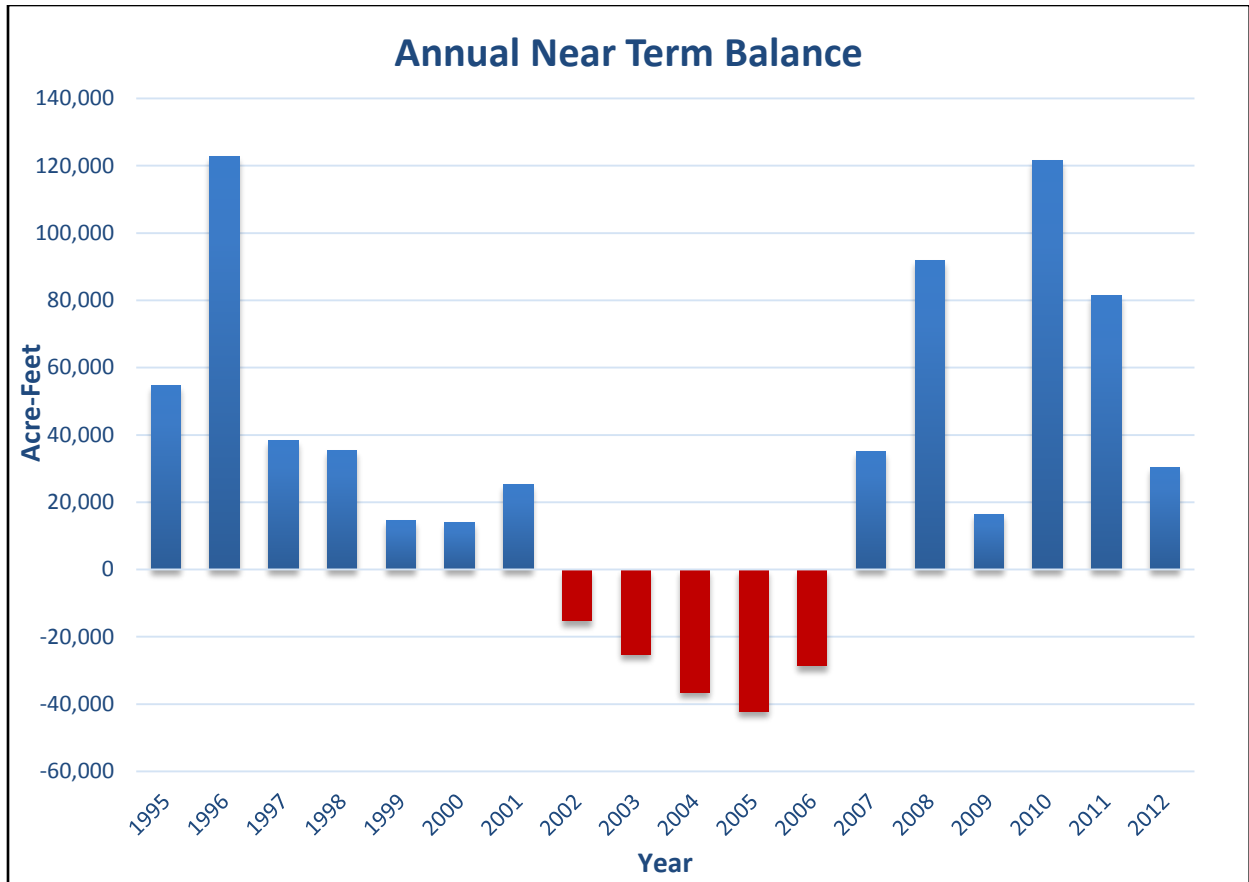
Data source: Current RRCA Accounting data at Hardy Gage. Data from 2006 forward are estimations and are not final accounting.



Data source: Current RRCA Accounting data. Data from 2006 forward are estimations and are not final accounting.

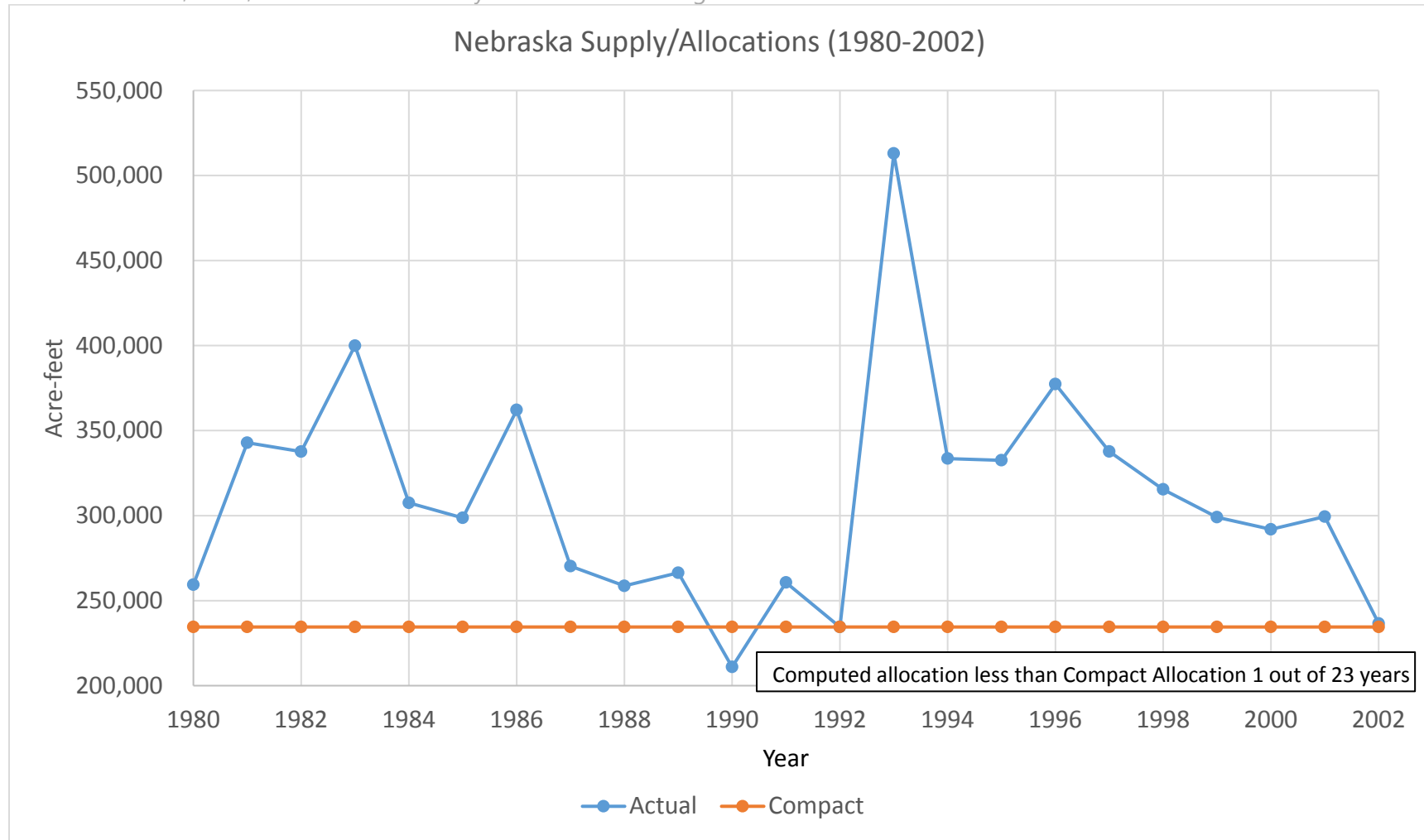


Data source: Current RRCA Accounting data. Data from 2006 forward are estimations and are not final accounting.



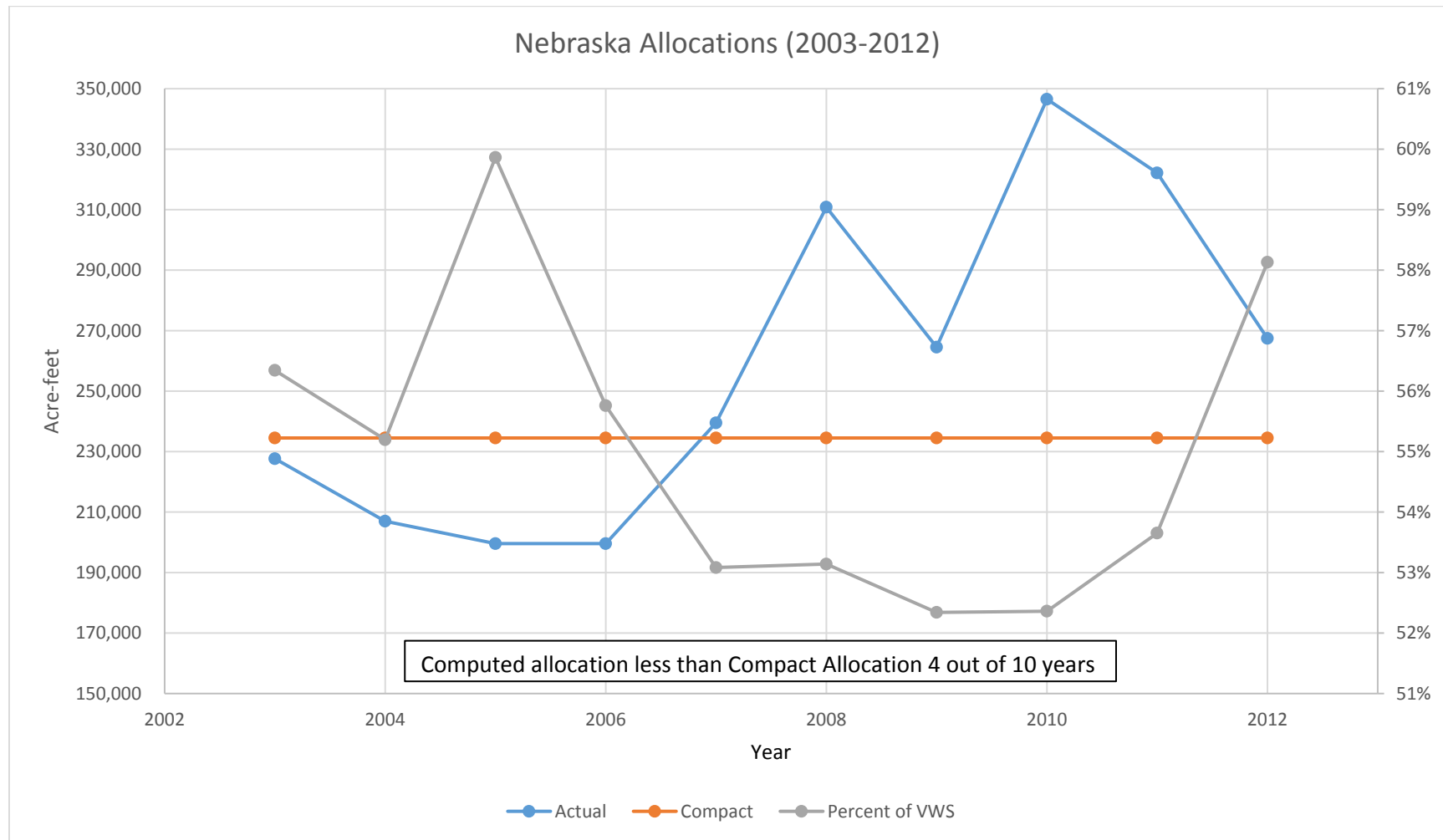
Data source: Current RRCA Accounting data. Data from 2006 forward are estimations and are not final accounting.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting



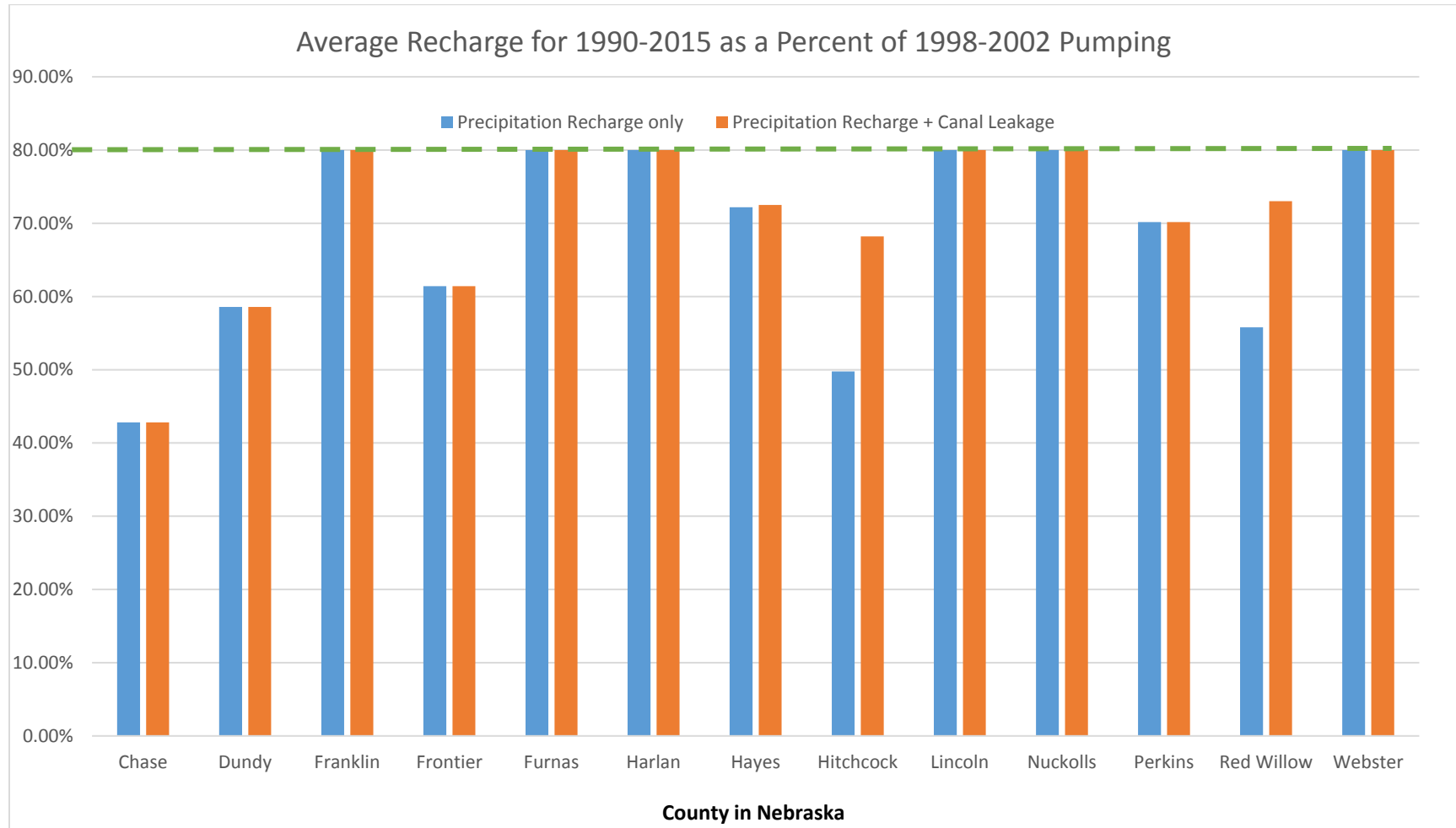
“Actual” represents the actual computed water supplies for Nebraska (RRCA Accounting).
 “Compact” represents the original Virgin Water Supply specified for Nebraska in the Republican River Compact.
 Based on RRCA Accounting Data. Data from 2006 forward are preliminary, not final.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting



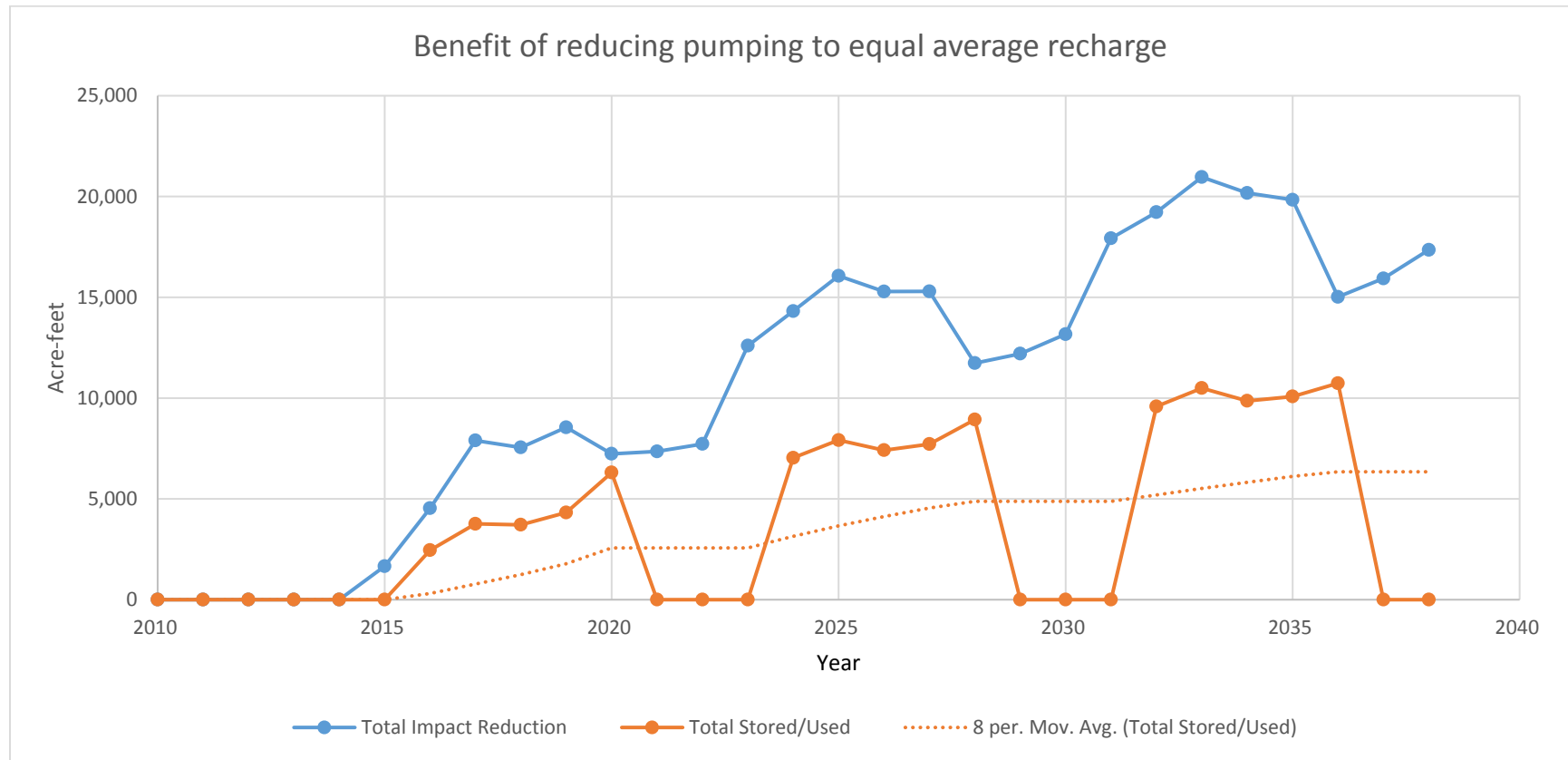
“Actual” represents the actual computed water supplies for Nebraska (RRCA Accounting).
 “Compact” represents the original Virgin Water Supply specified for Nebraska in the Republican River Compact.
 “Percent of VWS” represents the percentage of the total Water Supply that Nebraska received.
 Based on RRCA Accounting Data. Data from 2006 forward are preliminary, not final.

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting



This chart is intended to show the percentage of the 1998-2002 baseline pumping that would result in the pumping in each county equalling the average recharge. It was assumed that pumping would not be allowed to increase above the current level of 80% that is specified in the IMPs (denoted by green dashed line — —)

Information on Water Supply and Use in the Republican River Basin
 For November 1, 2016, Stakeholder Advisory Committee Meeting



This chart depicts the result of a hypothetical modeling scenario that repeats 2007-2014 three times to represent 2015-2038. The overall reduction in pumping is proportional to the potential county-specific pumping reductions. Therefore, these values represent an order-of-magnitude estimate of the benefit to streamflows (and surface water users) resulting from these potential pumping reductions.

“Total Impact Reduction” depicts the reduction in streamflow depletions that would result from reducing pumping to match recharge.

“Total Stored/Used” depicts how much of that reduction would be able to be stored or used.

“8 per. Mov. Avg. (Total Stored/Used)” also depicts how much of that reduction would be able to be stored or used as an 8-year moving average