

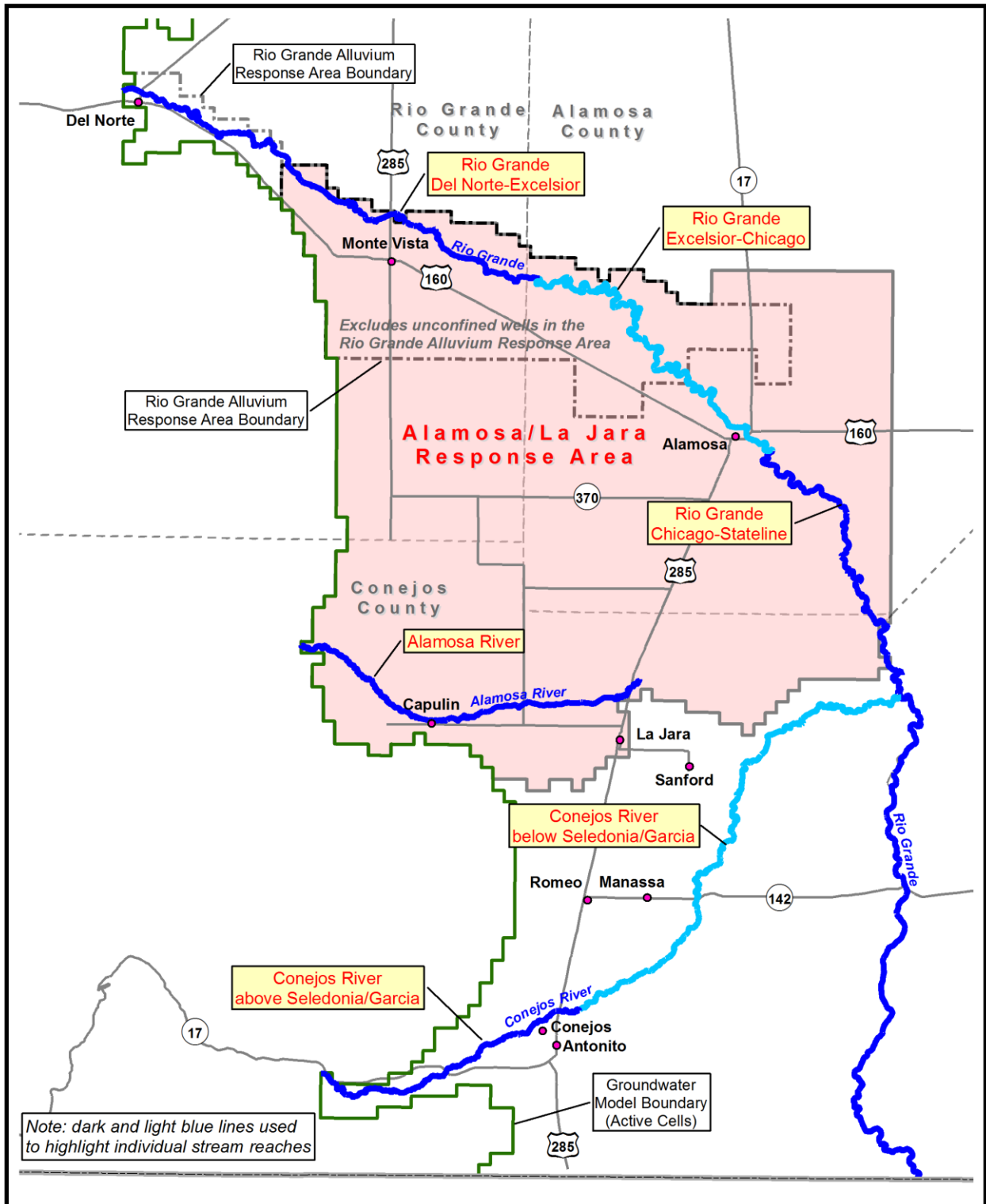
## RESPONSE AREA SUMMARY PACKAGE


### ALAMOSA/LA JARA RESPONSE AREA

*(Excludes Unconfined Wells in the Rio Grande Alluvium Response Area)*

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Figure 1	<p><b><i>Alamosa/La Jara Response Area, Stream Reaches with Response Functions</i></b> - This figure shows the stream reaches for which Response Functions were calibrated. For the Alamosa/La Jara Response Area there are six stream reaches with Response Functions:</p> <ol style="list-style-type: none"> <li>1. Conejos River above Seledonia/Garcia Ditches</li> <li>2. Conejos River below Seledonia/Garcia Ditches</li> <li>3. Rio Grande Del Norte to Excelsior Ditch</li> <li>4. Rio Grande Excelsior Ditch to Chicago Ditch</li> <li>5. Rio Grande Chicago Ditch to the State Line</li> <li>6. Alamosa River</li> </ol>
Table 1a	<p><b><i>Estimated Historical and Current Year Net Stream Depletions from Groundwater Withdrawals in the Alamosa/La Jara Response Area (acre-feet)</i></b> - This table provides a summary of the Alamosa/La Jara Response Area's groundwater withdrawal impacts to streams using Response Functions calibrated to the RGDSS Groundwater Model for the time frame of 2001 through 2015. For illustrative purposes, groundwater withdrawal was discontinued after 2015 and the Response Functions were applied to estimate post plan depletions. Net Groundwater Consumptive Use is defined as the groundwater consumed by the operations of one or more wells and represents the difference between groundwater withdrawals less any return flow to the hydrogeologic system.</p>
Table 1b	<p><b><i>Estimated Post Plan Net Stream Depletions from Groundwater Withdrawals in the Alamosa/La Jara Response Area (acre-feet)</i></b></p>
Figure 2	<p><b><i>2001-2015 Estimated Net Stream Depletions and Post 2015 Projected Net Stream Depletions from Groundwater Withdrawals in the Alamosa/La Jara Response Area</i></b> - The stacked graph shows the combination of Table 1a (historical and current year depletions) and Table 1b (post-plan depletions).</p>
Table 2	<p><b><i>Monthly Net Stream Depletions for 2015 Plan Year in the Alamosa/La Jara Response Area (acre-feet)</i></b> - This table provides the monthly distribution of Net Stream Depletions for the 2015 Plan Year.</p>



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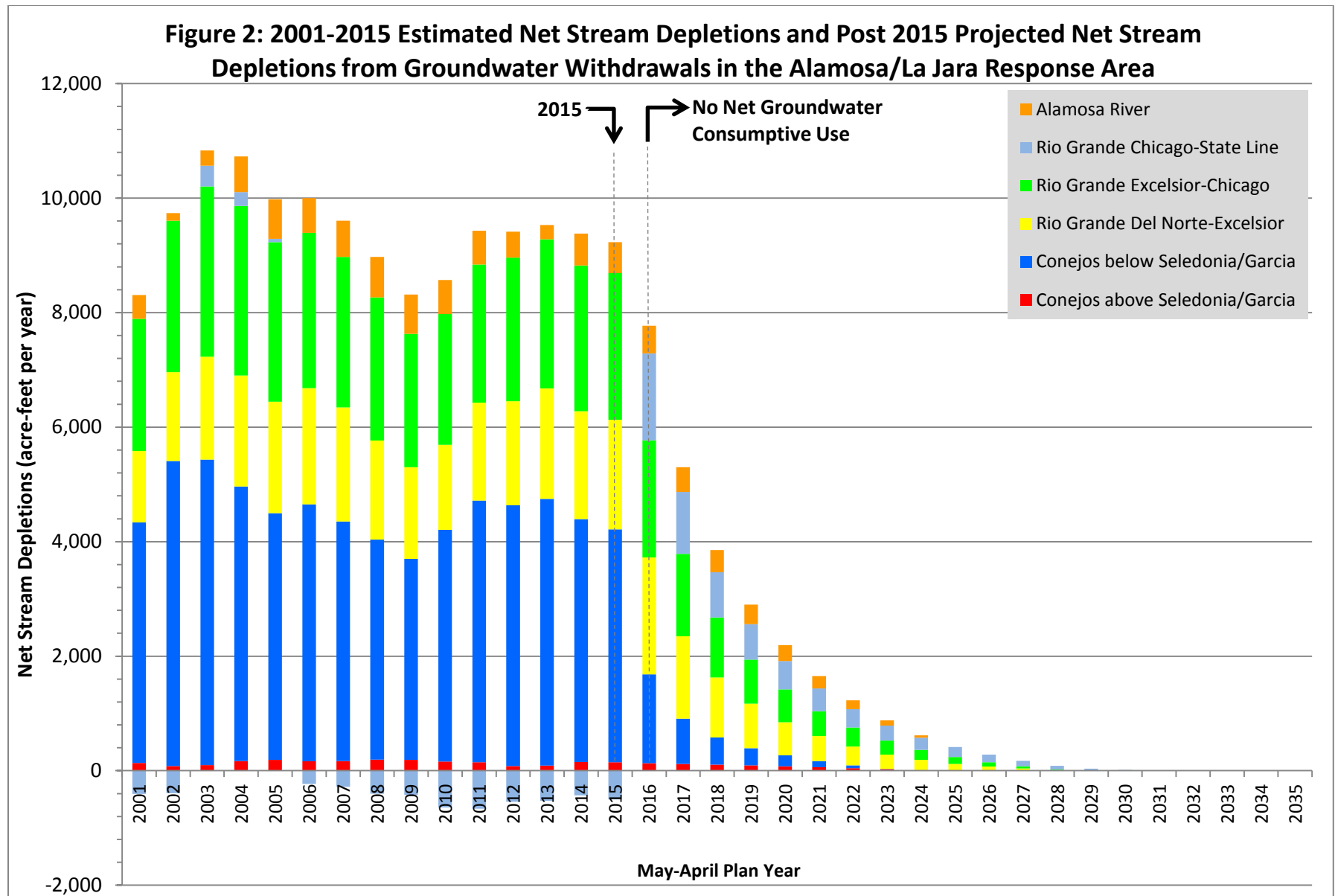
**Figure 1. Alamosa/La Jara Response Area Stream Reaches with Response Functions**

<b>Table 1a: Estimated Historical and Current Year Net Stream Depletions from Groundwater Withdrawals in the Alamosa/La Jara Response Area (acre-feet)</b>									
Year	Rio Grande at Del Norte Stream Gage (Apr-Sep)	Net Groundwater Consumptive Use (Jan-Dec)	Net Stream Depletions (May – April)						Total
			Conejos above Seledonia/Garcia	Conejos below Seledonia/Garcia	Rio Grande Del Norte-Excelsior	Rio Grande Excelsior-Chicago	Rio Grande Chicago-State Line	Alamosa River	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(10)
2001	655,233	73,065	134	4,201	1,248	2,308	-407	416	7,900
2002	96,717	112,680	81	5,327	1,551	2,645	-394	133	9,343
2003	261,300	102,124	96	5,339	1,794	2,977	361	267	10,834
2004	431,675	79,199	167	4,797	1,938	2,960	241	623	10,726
2005	682,540	69,323	191	4,307	1,947	2,784	58	694	9,981
2006	411,656	79,300	164	4,488	2,029	2,714	-232	606	9,769
2007	593,239	69,224	169	4,181	1,995	2,629	-281	632	9,325
2008	623,333	61,973	193	3,844	1,730	2,498	-400	708	8,573
2009	513,058	56,397	188	3,511	1,600	2,332	-420	683	7,894
2010	453,063	74,327	160	4,048	1,485	2,284	-644	592	7,925
2011	415,182	86,153	149	4,572	1,708	2,412	-662	593	8,772
2012	328,382	81,777	81	4,554	1,821	2,509	-543	451	8,873
2013	344,435	84,336	90	4,657	1,928	2,604	-525	251	9,005
2014	518,599	71,190	150	4,241	1,887	2,543	-432	557	8,946
2015	518,599	71,190	146	4,069	1,912	2,562	-503	541	8,727
Average	456,467	78,151	144	4,409	1,772	2,584	-319	516	9,106

<b>Table 1b: Estimated Post Plan Net Stream Depletions from Groundwater Withdrawals in the Alamosa/La Jara Response Area (acre-feet)</b>									
Year	Rio Grande at Del Norte Stream Gage (Apr-Sep)	Net Groundwater Consumptive Use (Jan-Dec)	Net Stream Depletions (May – April)						Total
			Conejos above Seledonia /Garcia	Conejos below Seledonia/ Garcia	Rio Grande Del Norte- Excelsior	Rio Grande Excelsior- Chicago	Rio Grande Chicago- State Line	Alamosa River	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(10)
2016			131	1,551	2,040	2,049	1,518	483	7,772
2017			117	790	1,441	1,439	1,081	432	5,300
2018			104	476	1,049	1,047	789	386	3,851
2019			92	303	774	773	619	339	2,900
2020			76	191	577	576	494	281	2,195
2021			59	109	435	434	400	216	1,653
2022			42	51	330	329	323	154	1,229
2023			25	7	247	246	263	93	881
2024			11	0	177	177	214	39	618
2025			0	0	120	120	171	0	411
2026			0	0	74	74	131	0	279
2027			0	0	39	39	94	0	172
2028			0	0	11	11	62	0	84
2029			0	0	0	0	35	0	35
2030			0	0	0	0	13	0	13
2031			0	0	0	0	0	0	0
2032			0	0	0	0	0	0	0
2033			0	0	0	0	0	0	0
2034			0	0	0	0	0	0	0
2035			0	0	0	0	0	0	0
Post plan Depletion			657	3,478	7,314	7,314	6,207	2,423	27,393

## Notes for Tables 1a and 1b columns:

1. Year
2. Rio Grande near Del Norte Gage streamflow in acre-feet for the period of April through September. The 2015 streamflow value was estimated to be the same as in 2014.
3. Net Groundwater Consumptive Use (NetGWCU) for January through December.
  - a. NetGWCU values for 2001 through 2010 were taken from the RGDSS Groundwater Model output.
  - b. NetGWCU values for 2011 through 2014 were calculated using well meter data and irrigated acreage information.
  - c. NetGWCU data for 2015 was estimated to be the same as in 2014.
4. Net Stream Depletions in the Conejos River above the Seledonia/Garcia Ditches for the plan year (May through April) in acre-feet.
5. Net Stream Depletions in the Conejos River below the Seledonia/Garcia Ditches for the plan year (May through April) in acre-feet.
6. Net Stream Depletions in the Rio Grande Del Norte to Excelsior Ditch reach for the plan year (May through April) in acre-feet.
7. Net Stream Depletions in the Rio Grande Excelsior Ditch to Chicago Ditch reach for the plan year (May through April) in acre-feet.
8. Net Stream Depletions in the Rio Grande Chicago Ditch to the State Line reach for the plan year (May through April) in acre-feet.
9. Net Stream Depletions in the Alamosa River for the plan year (May through April) in acre-feet.
10. Total stream impacts columns (4+5+6+7+8+9) in acre-feet.



**Table 2: Monthly Net Stream Depletions for 2015 Plan Year in the Alamosa/La Jara Response Area (acre-feet)**

Stream Reach	2015								2016				Total
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Conejos above Seledonia/Garcia	15	18	17	14	12	12	12	12	9	8	9	9	147
Conejos below Seledonia/Garcia	257	366	478	510	468	411	330	305	277	230	234	206	4,072
Rio Grande Del Norte-Excelsior	144	144	146	151	163	175	162	169	176	160	173	150	1,913
Rio Grande Excelsior-Chicago	202	198	211	216	212	221	214	218	225	208	225	211	2,561
Rio Grande Chicago-State Line	18	-55	-125	-161	-95	-58	-36	7	-3	-4	24	-15	-503
Alamosa River	154	110	52	28	26	26	3	1	1	1	1	138	541
<b>Total</b>	<b>790</b>	<b>781</b>	<b>779</b>	<b>758</b>	<b>786</b>	<b>787</b>	<b>685</b>	<b>712</b>	<b>685</b>	<b>603</b>	<b>666</b>	<b>699</b>	<b>8,731</b>

Notes for columns:

- 1 Stream reach
- 2-13 Monthly Net Stream Depletions in acre-feet
- 14 Total Plan Year Net Stream Depletions in acre-feet