

DRAFT TECHNICAL PAPER
DEVELOPMENT OF PROJECTED AGRICULTURAL DEMANDS
BY DOWNSTREAM IRRIGATION OPERATIONS
MAY 2018

DEMANDS

LCRA supplies water for agricultural irrigation to four canal operations in the lower Colorado River basin as shown on Exhibit 1. For this revision to the LCRA Water Management Plan (WMP), future agricultural demand assumptions were updated based on recent work by the Lower Colorado Regional Water Planning Group (Region K) for the 2021 Regional Water Plan, and prior work by LCRA for the 2015 WMP. Year 2020 demand projections from Region K were used because 2020 demands are the highest expected for the time in which this WMP revision is expected to be in place (from 2020 through 2025).

Region K developed demand projections based on actual 2011 water use and acreage. The Region K demands include adjustments based on expected reductions in water use on an acre-foot per acre basis, as compared to use in 2011 due to acre-feet per acre duties and surcharges in LCRA's interruptible agricultural contracts.

Region K demand projections are presented in Table 1.

**Table 1. Region K 2020 Demands for Downstream Agricultural Operations
(in acre-feet)**

	First season	Second season	Total
Garwood rice	71,711	28,289	100,000
Gulf Coast rice	90,010	46,656	136,666
Gulf Coast other ¹	12,914	7,110	20,024
Gulf Coast total	102,924	53,766	156,690
Lakeside rice	102,982	29,929	132,911
Lakeside other ²	-	2,400	2,400
Lakeside total	102,982	32,329	135,311
Pierce Ranch ³	21,000	9,000	30,000
Total	298,617	123,384	422,001

¹Gulf Coast other demands are split approximately 65 percent first season and 35 percent second season.

²Lakeside other is assumed as wildlife management, all in second season.

³Pierce Ranch annual demands are split 70 percent first season and 30 percent second season.

The demands presented above reflect maximum-year demands. As in prior WMPs, agricultural demands for similar acreages are expected to vary based on weather conditions. This variability is captured using regression equations, with inputs of seasonal evaporation and precipitation, to produce weather-varied demands for each year of the Water Availability

Model (WAM) period of simulation. The regression equations from the 2015 WMP were used, with limited adjustments, in order to constrain the computed demands so as not to exceed the maximum-year demands from Region K.

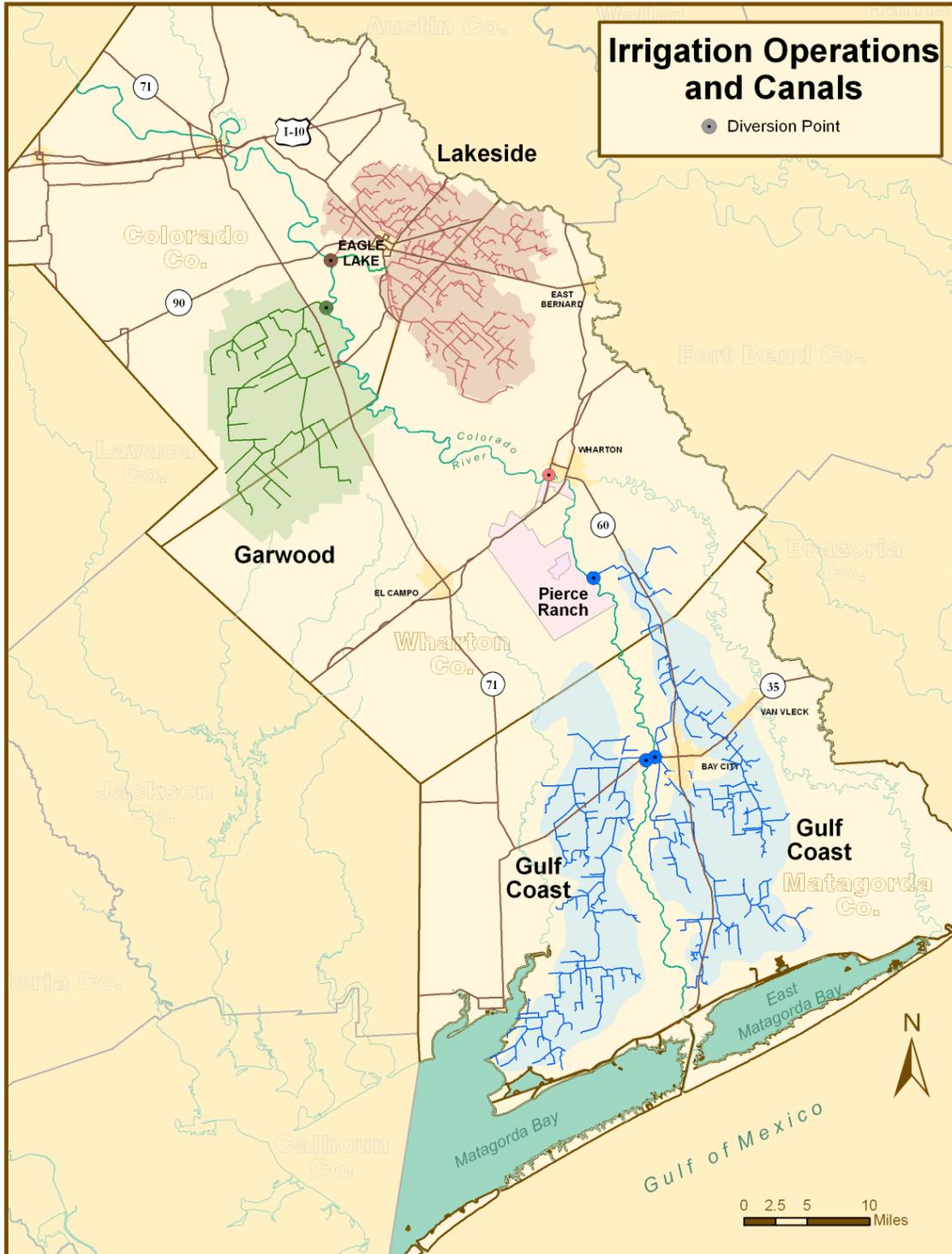
Using the regression equations, weather-varied demands were developed for the WAM period of simulation (1940 to 2016). The weather-varied demands do not exceed the maximum year demands developed by Region K. The average and maximum annual demands for each irrigation operation are shown in Table 2. The annual weather-varied demands for the four operations are shown in figures 1 through 5.

**Table 2. Weather-varied Annual Demands for Downstream Agricultural Operations
(in acre-feet)**

	Average	Maximum
Garwood	87,897	100,000
Gulf Coast	139,391	156,690
Lakeside	114,086	135,311
Pierce Ranch	26,827	30,000
Total	368,200	422,001

The weather-varied agricultural demands are inputs for the WMP WAM simulations, representing non-curtailed demands for each year of the simulation. The weather-varied demands do not reflect reduced planting that may occur under limited supply conditions. Any reduced plantings due to curtailments are simulated within the WAM modeling logic based on reductions in available supply.

Exhibit 1. Irrigation Operations and Diversion Points



Map Document: (V:\WaterCo\Project\Irrigation\irrigation_districts\all_dist_poster_8x11.mxd) 5/25/2010 -- 10:19:54 AM

Figure 1. Weather-varied Total Agricultural Demands

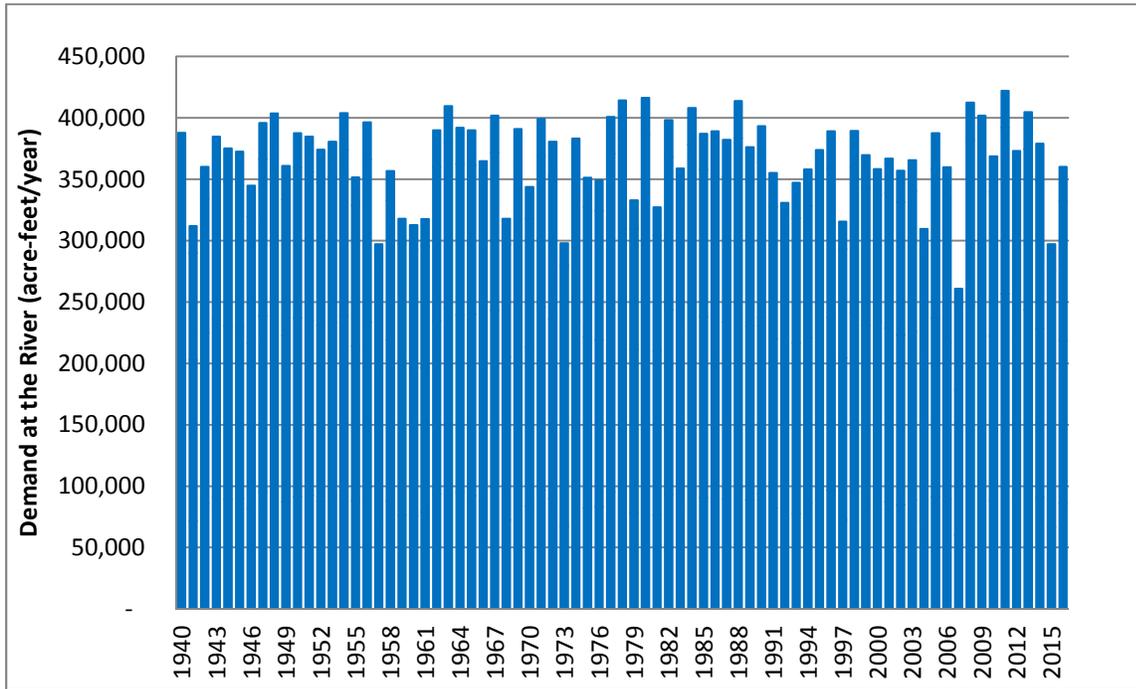


Figure 2. Weather-varied Garwood Demands

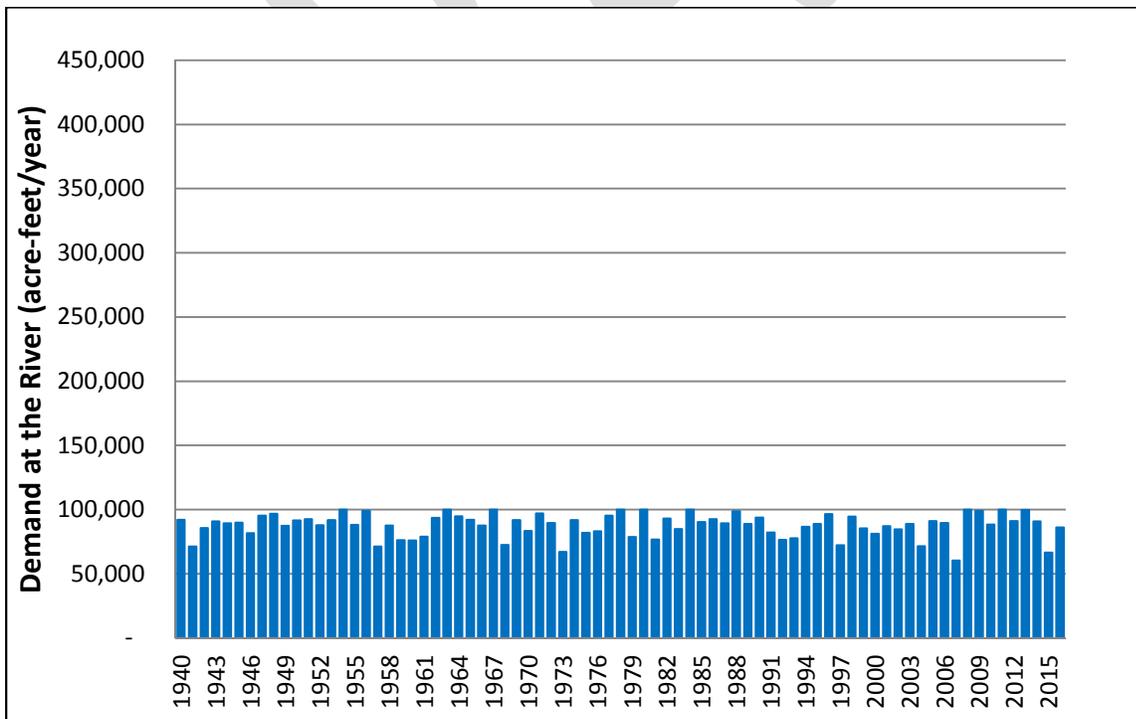


Figure 3. Weather-varied Gulf Coast Demands

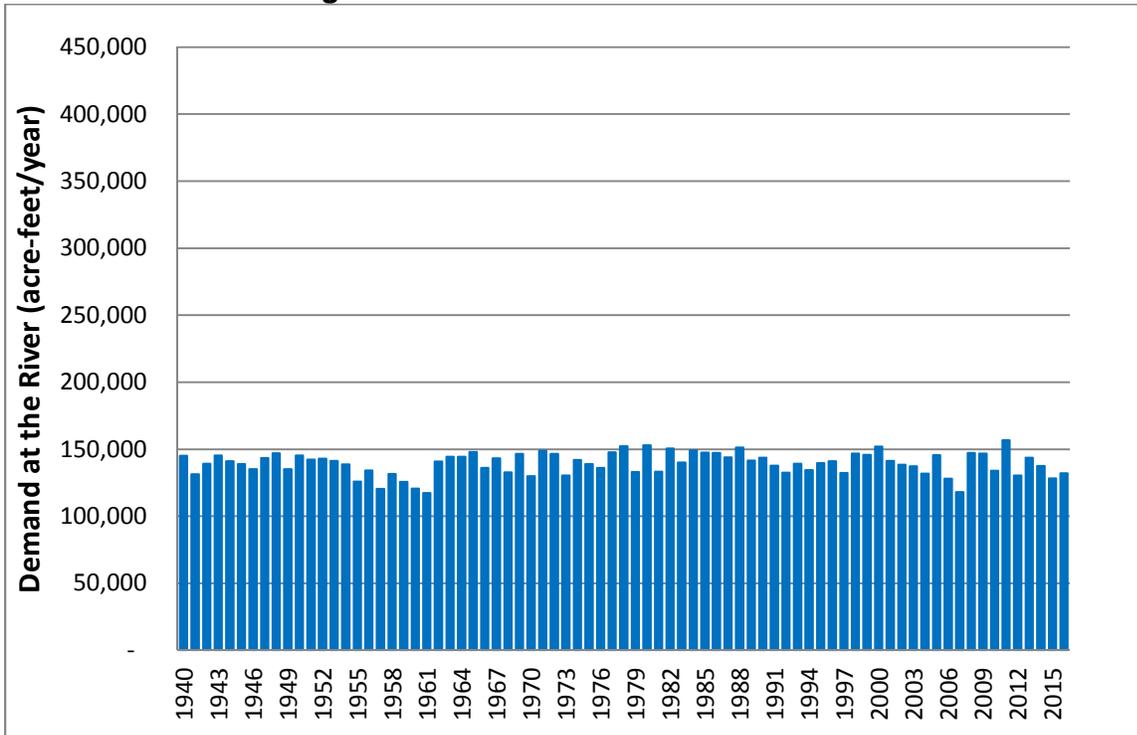


Figure 4. Weather-varied Lakeside Demands

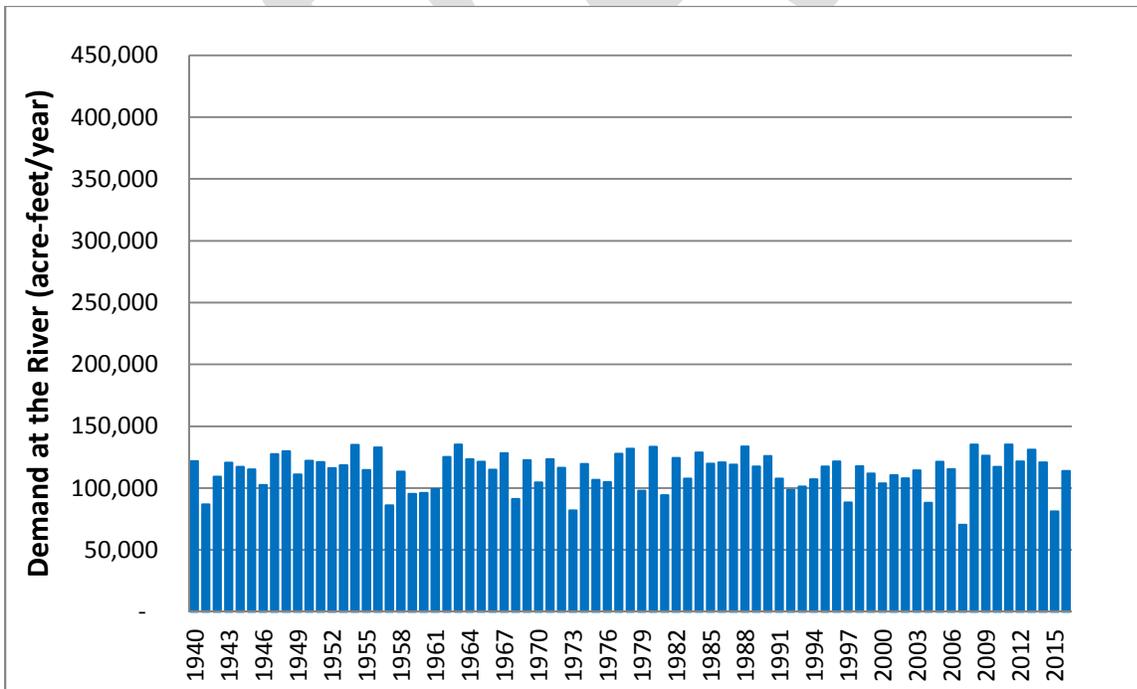


Figure 5. Weather-varied Pierce Ranch Demands

