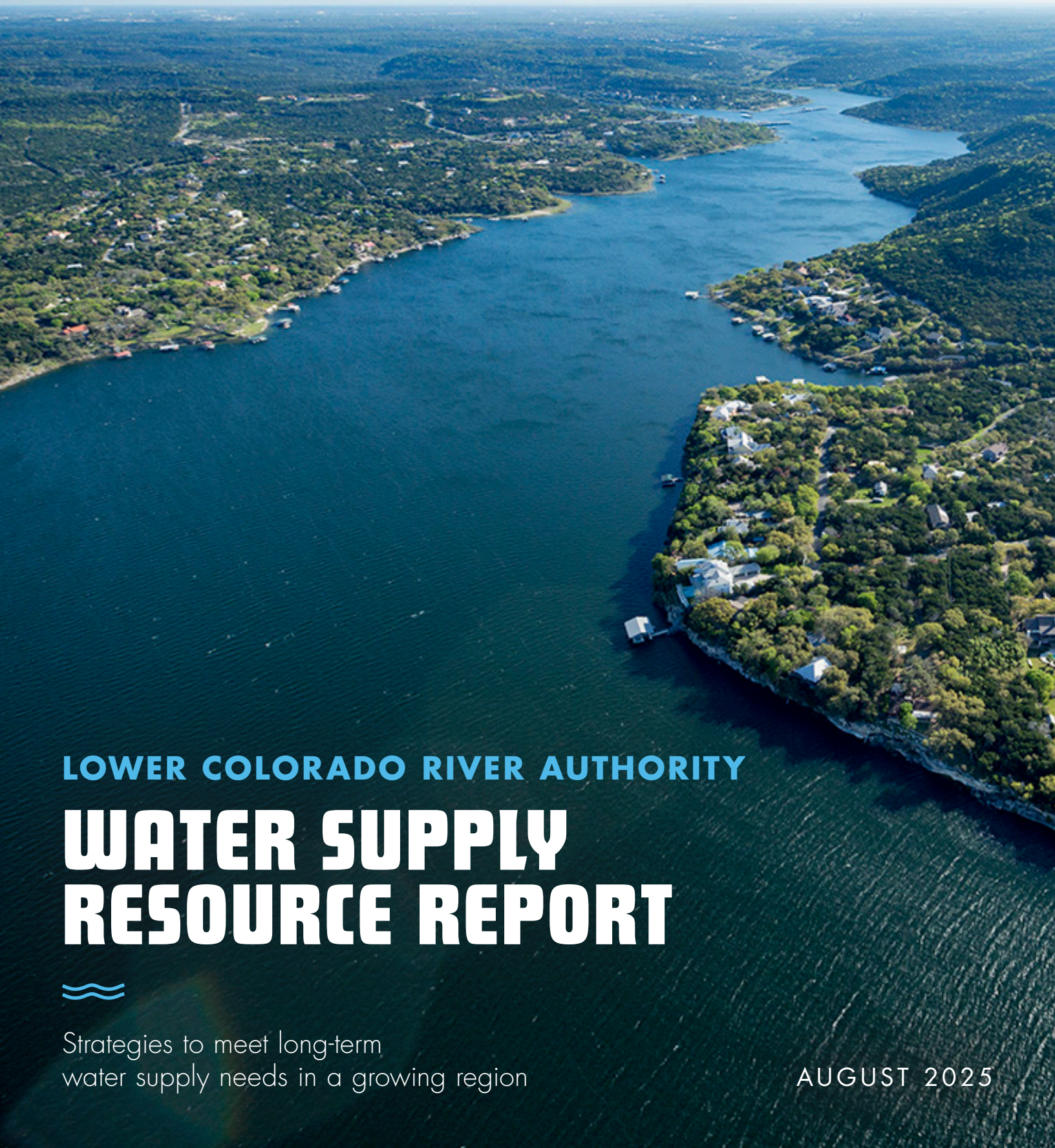
LCRA
ENERGY • WATER • COMMUNITY SERVICES

Draft for public comment



LOWER COLORADO RIVER AUTHORITY

WATER SUPPLY RESOURCE REPORT

Strategies to meet long-term
water supply needs in a growing region

AUGUST 2025

PLANNING
FOR THE FUTURE

The Lower Colorado River Authority is committed to maintaining a reliable water supply for a quickly growing region. This report evaluates the region's water supply needs through the year 2080 and identifies potential new sources of water to help meet the growing demand.

LCRA'S WATER SUPPLIES

LCRA's mission is to enhance the quality of life of the Texans we serve through water stewardship, energy and community service.

LCRA's water stewardship dates back to 1934, when the Texas Legislature created LCRA.

Between 1935 and 1951, LCRA built six dams along the Colorado River northwest of Austin, forming the Highland Lakes. Two of the lakes — Buchanan and Travis — are water supply reservoirs that provide water for more than 1.4 million people, as well as businesses and industries, agriculture and the environment. LCRA recently completed the Arbuckle Reservoir, which will become operational in late 2025. This off-channel reservoir in Wharton County will help reduce the amount of water otherwise required to be released from the Highland Lakes to serve downstream demands. LCRA also supplies water using its Colorado River run-of-river water rights with diversion locations from Lake Travis to Bay City.

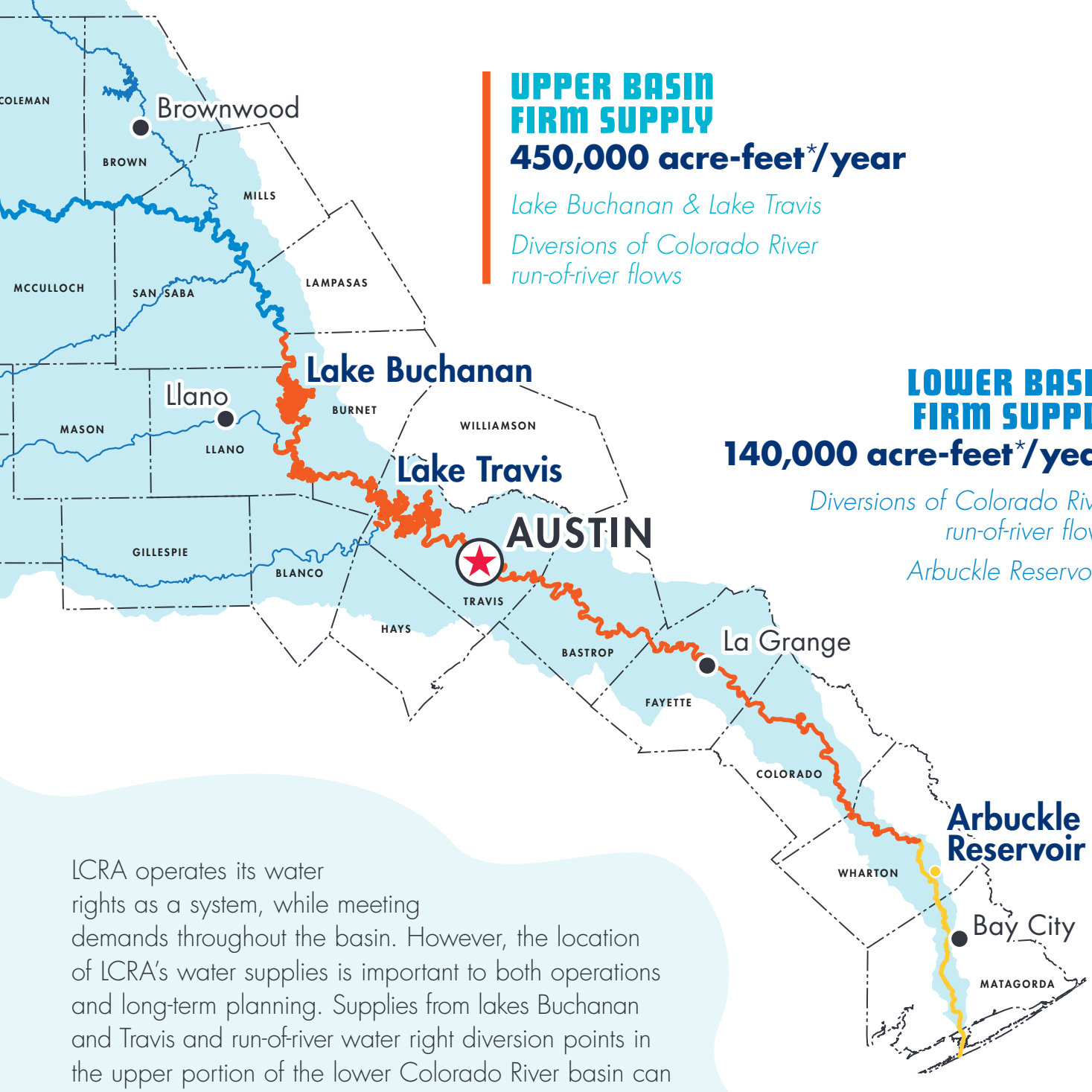
As part of this report, LCRA assessed the availability of and need for future supplies. LCRA projects future water availability by using a mathematical model that incorporates historical rainfall records, streamflow, evaporation, demands, and other variables to calculate the "firm supply" of LCRA's water supplies. The firm supply is the volume of water available at LCRA's storage and diversion points through a repeat of the worst drought in recorded history — known as the "drought of record". The drought of record in the firm supply model occurred between 2007 and 2015.

LCRA's water supplies come from three main sources:

LAKE BUCHANAN & LAKE TRAVIS

Diversions of COLORADO RIVER RUN-OF-RIVER FLOWS

ARBUCKLE RESERVOIR



LCRA operates its water rights as a system, while meeting demands throughout the basin. However, the location of LCRA's water supplies is important to both operations and long-term planning. Supplies from lakes Buchanan and Travis and run-of-river water right diversion points in the upper portion of the lower Colorado River basin can be used to meet demands throughout the entire basin, either by diversions at or near the source of supply or by releasing water through dams along the Highland Lakes to downstream customers.

Supplies in the lower basin, such as downstream run-of-river water rights in Colorado, Wharton and Matagorda counties and Arbuckle Reservoir†, cannot currently be used to meet upper basin demands. New infrastructure such as a pipeline and/or a water right amendment would be required to make this water available upstream.

**An acre-foot is the amount of water it takes to cover 1 acre 1 foot deep – about 325,851 gallons.*
†Arbuckle Reservoir will become operational in late 2025.

THE REGION'S GROWING WATER SUPPLY NEEDS

While LCRA's current supplies continue to meet demands, LCRA must look forward and plan to increase supplies to meet future needs.

LCRA's long-range projections for this report focus on evaluating water availability to meet the potential future contractual commitments of existing and new "firm" customers within LCRA's water service area. Firm customers contract for water that is projected to be available during a repeat of the drought of record.

LCRA currently has about 120 firm water supply contracts that provide water to 1.4 million people as well as businesses and industries. Most of these contracts are in the upper basin around the Highland Lakes. LCRA also has firm water supply contracts with more than 3,600 individual customers that draw water directly from the Highland Lakes, primarily for landscape irrigation. These are known as domestic use contracts.

LCRA'S CURRENT FIRM WATER SUPPLY CUSTOMERS:

120 FIRM CONTRACTS

1.4 MILLION PEOPLE

BUSINESSES & INDUSTRIES

3,600 DOMESTIC USE CUSTOMERS

LCRA coordinated with its largest customers to develop population projections over the next 50 years. LCRA projects the population of its existing firm customers to increase from about 1.4 million to 3.4 million people by 2080, and new industries are projected to continue moving to the region. Most of this growth is projected to occur in the upper basin.

IN 2025

1.4 MILLION PEOPLE

population of LCRA's existing customers*

BY 2080

3.4 MILLION PEOPLE

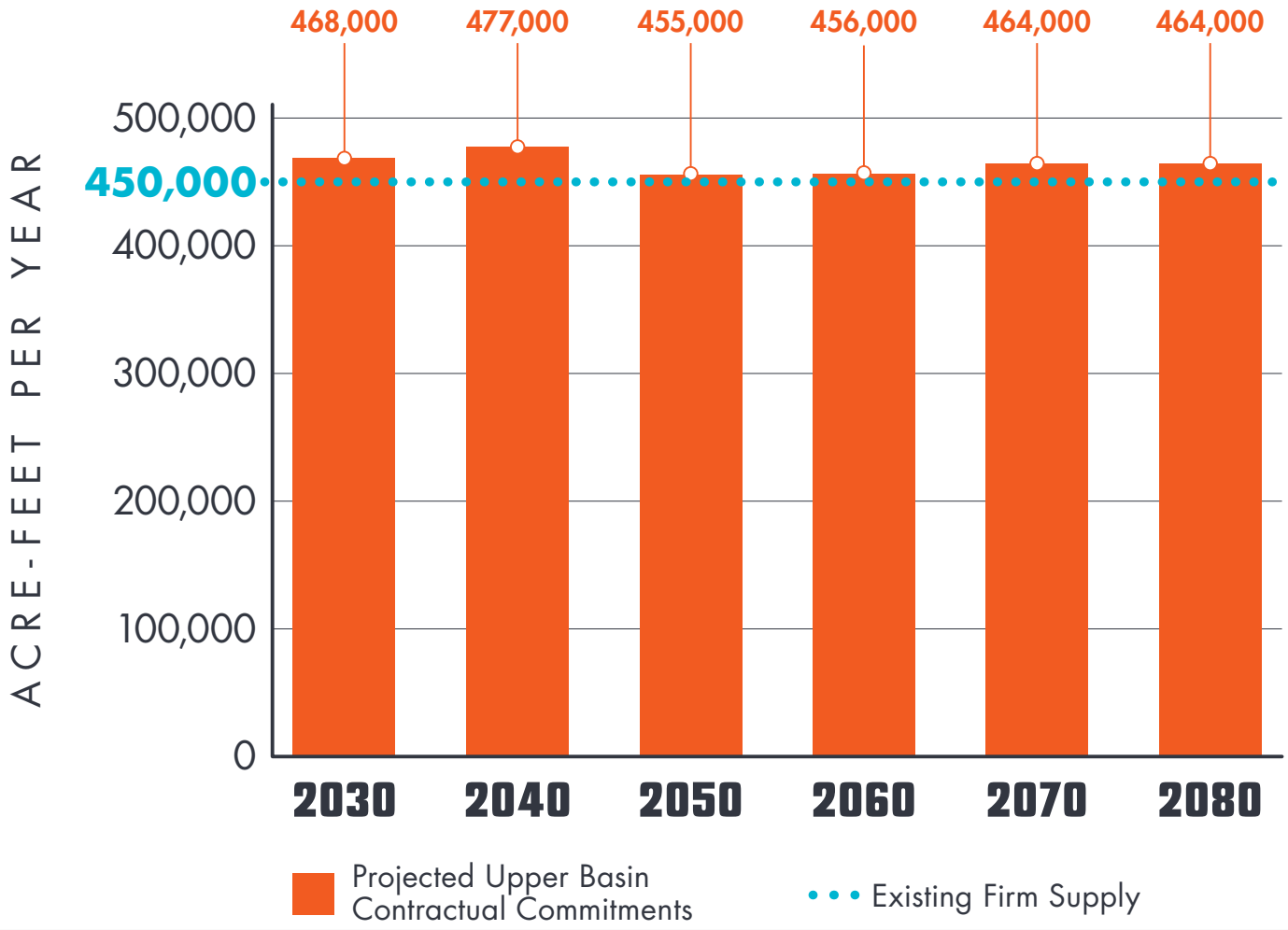
projected population of LCRA customers*

**includes cities and utility districts*

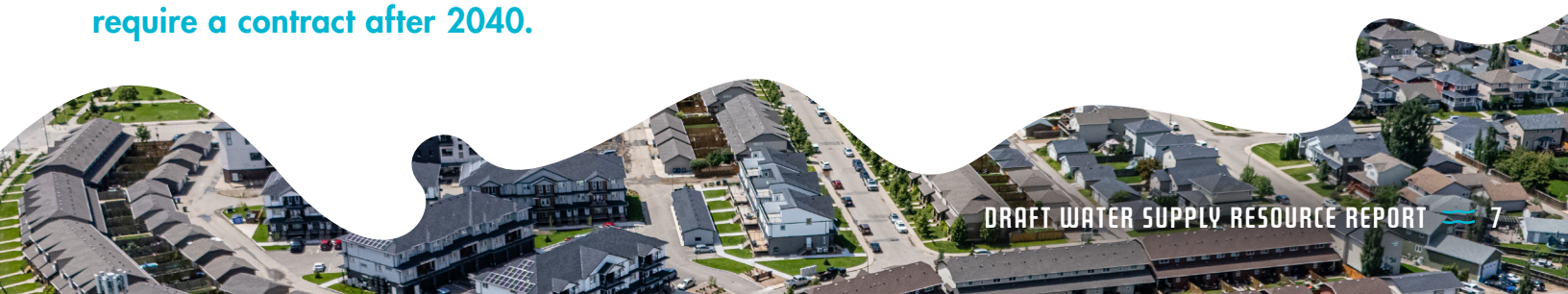
The population growth will be accompanied by an increase in demand for water from firm customers. **LCRA projects the volume of water committed under firm water supply contracts to increase through 2080 as firm customer demands for water grow.**

Because LCRA will only enter into a firm water supply contract with a customer if there is sufficient firm supply available to provide the requested amount of water through a repeat of the drought of record, LCRA must plan to have firm supplies available for firm customers in advance of their increasing demands.

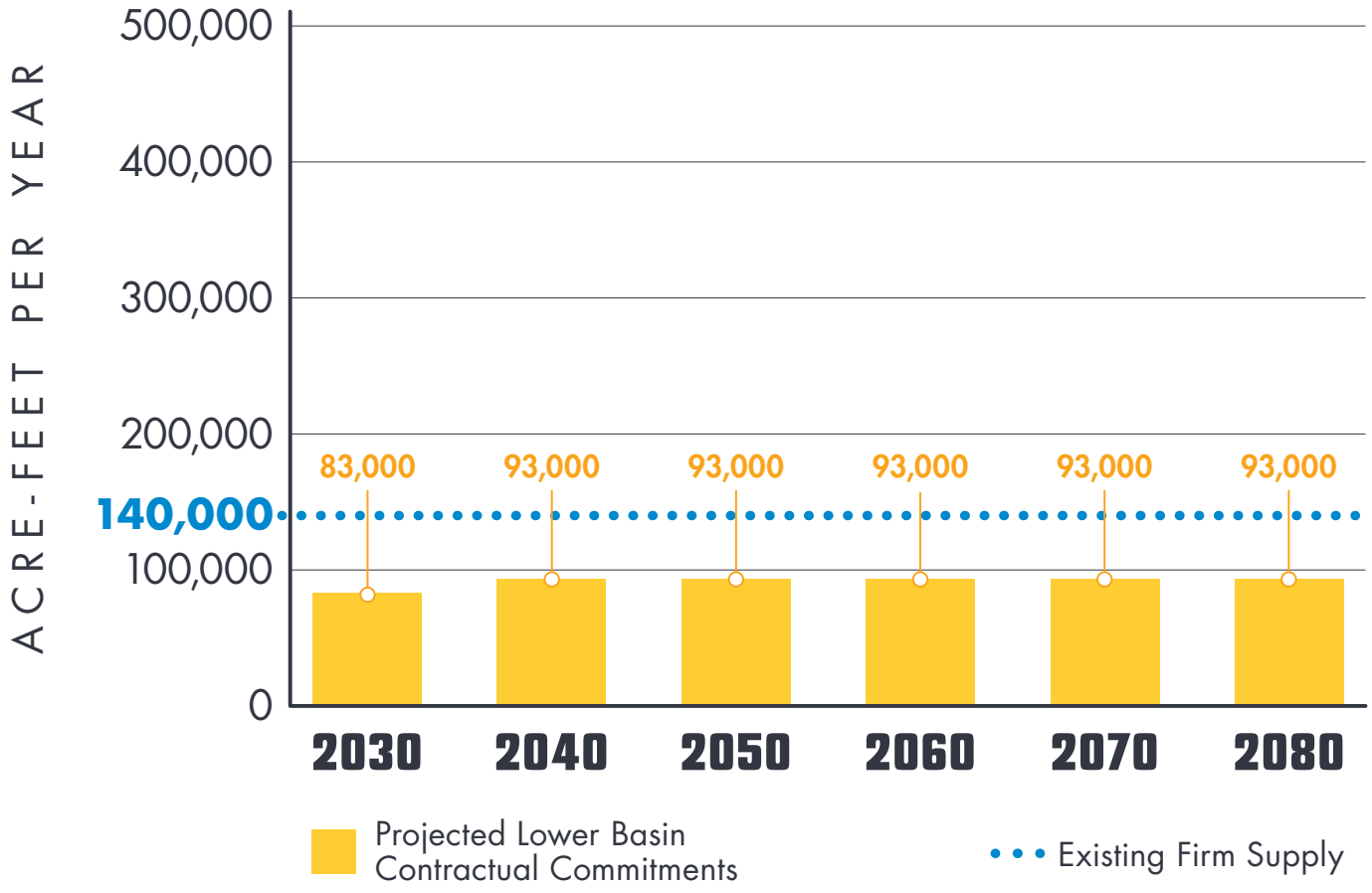
PROJECTED UPPER BASIN FIRM CONTRACTUAL COMMITMENTS



In the upper basin, LCRA projects contractual commitments will exceed the existing firm supply of 450,000 acre-feet per year through 2080, even as some customers may no longer require a contract after 2040.



PROJECTED LOWER BASIN FIRM CONTRACTUAL COMMITMENTS



In the lower basin, LCRA is projecting a surplus of water supplies throughout the planning horizon.

PLANNING
FOR UNCERTAINTY

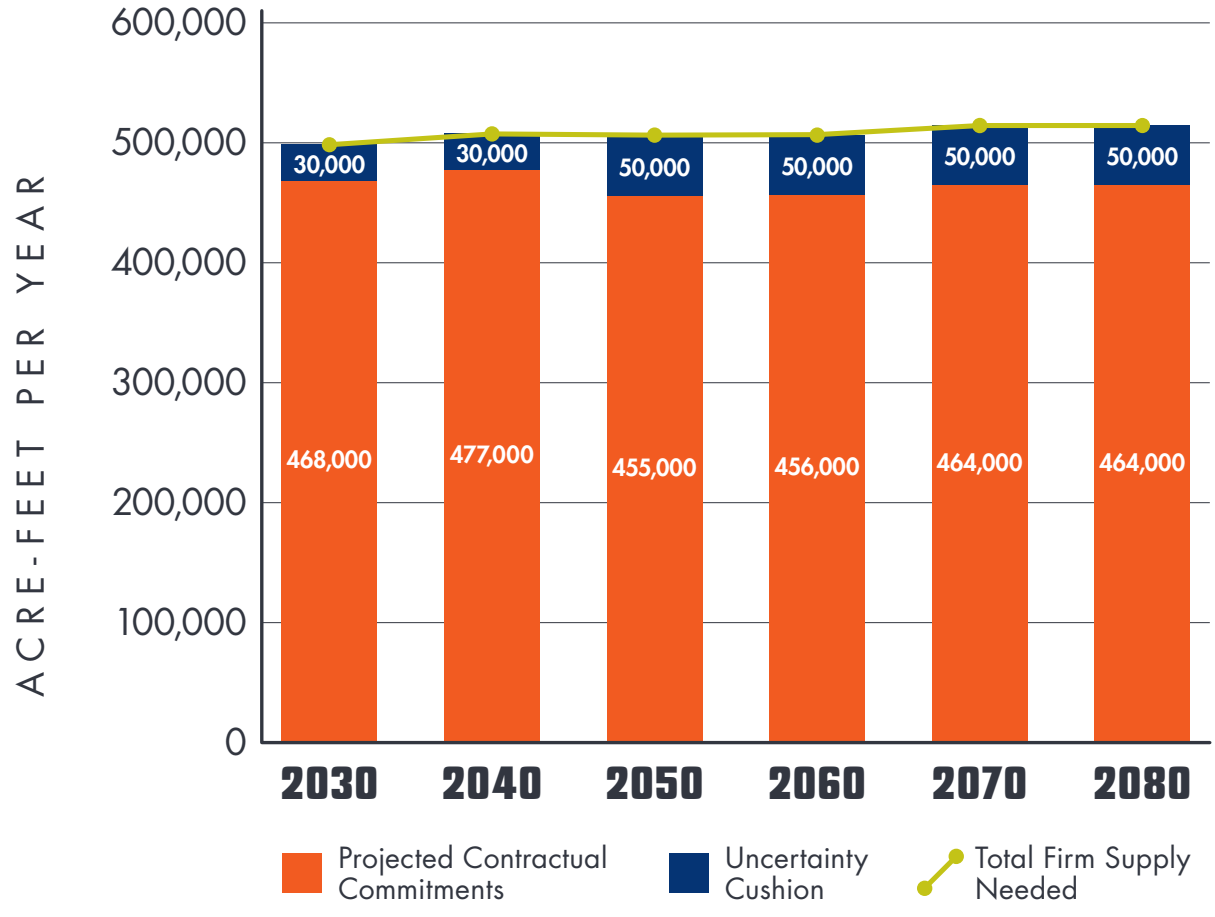
LCRA calculated the total firm supply needed by applying an uncertainty cushion on top of contractual commitments projected to occur in the upper basin over the 50-year planning horizon.

LCRA considered two areas of uncertainty:

1. The impacts of a future drought being a new drought of record.
2. The potential growth in water demands beyond what is projected, particularly in the upper basin.

LCRA accounted for these uncertainties in the upper basin by adding a 30,000 acre-feet per year cushion to projected contractual commitments through 2040 and a 50,000 acre-feet per year cushion through 2080.

UPPER BASIN TOTAL FIRM SUPPLY NEEDED

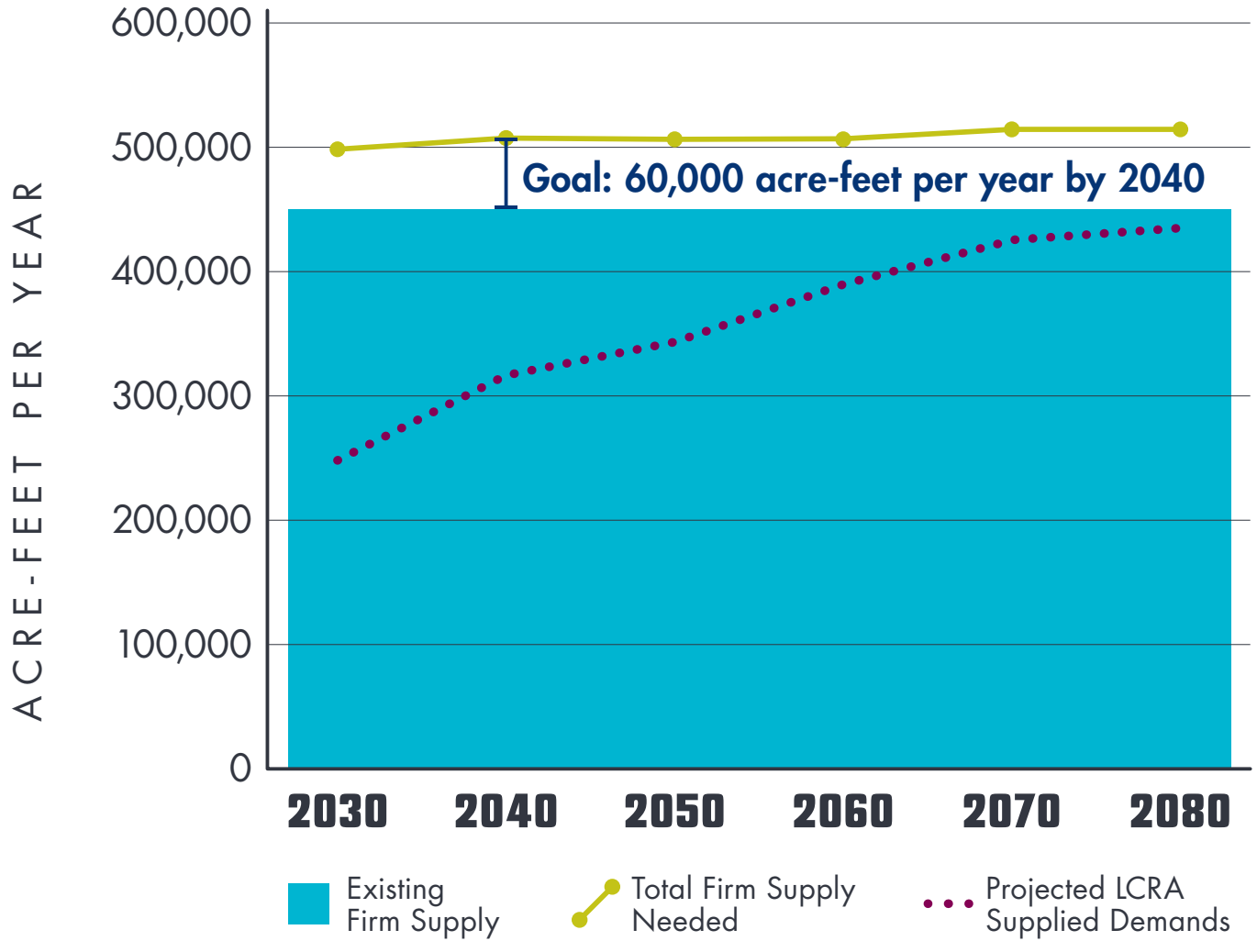


LCRA'S GOAL FOR A

RESILIENT FUTURE

To meet the projected firm water supply commitments and the uncertainty cushion in the upper basin, LCRA needs to add about 60,000 acre-feet per year of new firm water supply to its inventory by 2040.

UPPER BASIN WATER SUPPLY GOAL



THE PATH FORWARD

LCRA identified and evaluated 17 potential supply strategies in three main categories to help meet the goal of adding 60,000 acre-feet to its water supplies by 2040. All infrastructure strategies require the development and movement of water from various source locations to the upper basin, where projected demands are highest.

LCRA evaluated each strategy based on eight performance criteria, including volume of firm supply made available, conceptual-level costs and time to implement.

STRATEGY PERFORMANCE CRITERIA

- Supply QUANTITY
- Conceptual CAPITAL COST
- Conceptual UNIT COST
- Federal Legal & Regulatory REQUIREMENTS
- Time to IMPLEMENT
- State & Local Legal & Regulatory REQUIREMENTS
- Level of LCRA CONTROL
- End User WATER TREATMENT

WATER SUPPLY STRATEGIES

Options to add 60,000 acre-feet of supply in the upper basin by 2040

1 Water conservation and reuse

Canal lining (firm customers)

Enhanced incentives program

Permanent once-per-week watering

Municipal gallons per capita per day (GPCD) cap

Direct potable reuse

2 System optimization and new Colorado River supplies

Aquifer storage and recovery

Off-channel reservoirs with pipelines to Travis County

3 New, non-Colorado River supplies

Groundwater purchase

Transfer water from east Texas

Seawater desalination

The strategies vary widely in terms of the potential new firm water supply provided, cost and length of time required to implement. All values are preliminary and subject to change.

STRATEGY		FIRM SUPPLY (Acre-Feet Per Year)	CONCEPTUAL-LEVEL CAPITAL COST*	CONCEPTUAL-LEVEL UNIT COST PER ACRE-FOOT*	TIME TO IMPLEMENT
1 Water conservation and reuse	**Conservation –** Canal lining (firm customers)	2,400 - 5,900**	$5.4 million	$100	3 - 7 Yrs
	Conservation – Enhanced incentives	210 - 1,750**	$314,000 - $950,000	$500 - $1,500	< 5 Yrs
	Conservation – Permanent once-per-week watering	10,000 - 28,000**	N/A	N/A	< 5 Yrs
	Conservation – Municipal GPCD cap	4,900 - 17,600**	N/A	N/A	< 5 Yrs
	Direct Potable Reuse	1,120	$117 million	$10,100	12 - 22 Yrs
2 System optimization and new Colorado River supplies	**Aquifer Storage & Recovery**	22,000	$1.0 billion	$3,500	12 - 20 Yrs
	Bastrop County Off-Channel Reservoir (OCR) (60,000 acre-feet storage)	35,000	$1.8 billion	$3,800	12 - 24 Yrs
	Additional Fayette County OCR (48,000 acre-feet storage)	29,000	$2.3 billion	$6,000	13 - 26 Yrs
	Baylor Creek Reservoir (48,000 acre-feet storage)	29,000	$1.8 billion	$4,800	19 - 36 Yrs
	Lower Basin OCR (48,000 acre-feet storage)	49,000	$3.4 billion	$5,300	14 - 27 Yrs
	Lower Basin OCR (80,000 acre-feet storage)	73,000	$4.1 billion	$4,200	14 - 27 Yrs
	Arbuckle Pipeline with Fayette County OCR (48,000 acre-feet storage)	58,000	$4.0 billion	$5,200	14 - 27 Yrs
	Arbuckle Pipeline with Lower Basin OCR (48,000 acre-feet storage)	72,000	$4.5 billion	$4,700	14 - 27 Yrs
3 New, non-Colorado River supplies	**Purchase Wholesale Groundwater**	25,000	$635 million	$2,600	8 - 15 Yrs
	East Texas Transfer† (200,000 acre-feet/year)	66,667	$3.2 billion	$3,600	19 - 34 Yrs
	East Texas Transfer† (600,000 acre-feet/year)	200,000	$7.8 billion	$3,000	19 - 34 Yrs
	Seawater Desalination	30,000	$3.6 billion	$10,300	14 - 26 Yrs

**As of September 2023.*

**Represents the volume of firm supply extended, not the new firm supply created.*

†Involves partners. Firm supply and capital costs for this strategy reflect LCRA's share.

WHAT'S NEXT

LCRA WILL:

Now

Conduct siting studies and develop project layouts and configurations, as well as identify more detailed costs and permitting requirements.

Evaluate needed pipeline transmission infrastructure and water supply availability for projects with shared supply sources.

Near-term

Identify funding sources.

Select and begin developing the next new water supply project(s).

Ongoing

Coordinate with LCRA customers, as well as federal, state and local agencies, and other stakeholders.

Implement enhanced water conservation strategies. Given the lengthy time needed and high cost of developing any new infrastructure, water conservation will continue to be the most cost-effective means of managing growth in water demands.

Regularly

Update this report to account for population growth and changing demands and water supply needs.