

EXECUTIVE SUMMARY

INTRODUCTION

Larimer County is committed to planning for current and future water demands and to supporting healthy watersheds, productive agriculture, recreation, and tourism. The County’s 2019-2023 Strategic Plan establishes the following goals and objectives (Larimer County, 2019):

Goal 1, Objective 3

Improve long-term planning for water supply in unincorporated areas

Goal 1, Objective 4

Promote water-sharing strategies to preserve agriculture and sustain water supplies

Additionally, a top priority in the 2018 Citizen Survey for Larimer County residents was to initiate “more regional planning to manage growth” (The Center for Research & Public Policy, Inc., 2018). To address these objectives, County staff are exploring options to develop, adopt, and implement a long-range water element. However, Larimer County is not a water service provider and therefore seeks to understand the issues and how best to make water-related decisions that support communities and are collaborative in the region. Larimer County intends to work with water providers and other stakeholders to gather and share information and to define appropriate roles and objectives for the County’s regional water planning and collaboration.

REGIONAL WATER CONDITIONS IN LARIMER COUNTY

In 2021, the County initiated a Regional Water Existing Conditions project to assess existing regional water conditions as a foundation for performing the initial visioning and goal-setting activities to guide future work. This assessment focuses specifically on water supply and agricultural land. Sustainable water supply and agricultural land preservation in Larimer County are complex topics. Over the past 30 years, the County has experienced rapid population growth and development that support our economy yet strain our water and land resources. To better understand these impacts and the state of water sustainability in the county, the regional water conditions assessment includes:

- Metrics that quantify the growth drivers and impacts to land and water resources
- Success stories in advancing water supply resiliency
- Notable water-related risks and vulnerabilities

METRICS

It is difficult to succinctly summarize water supplies and demands across Larimer County due to the complex and interconnected systems, which include 124 water providers, 308 diverting structures, 6,229 water rights, and 13,090 water wells. Together, these systems supply water to a rapidly growing population that is expected to exceed more than half a million residents by 2040. While 96% of Larimer County’s projected growth is anticipated to occur within municipalities, all of Larimer County’s incorporated and unincorporated areas are inextricably linked to water supplies diverted from local watersheds and aquifers as well as the Colorado River. **Table 1** summarizes the water and growth metrics compiled and presented in the report.

TABLE 1. WATER AND GROWTH IN LARIMER COUNTY: BY THE NUMBERS

Population growth (Logan Simpson et. al., 2019)	56%	Projected growth in total population from 2017 to 2040
	343,853	Total population in 2017
	535,756	Projected total population in 2040
	12%	Projected growth in unincorporated areas from 2017 to 2040
	66,639	Unincorporated population in 2017
	74,554	Projected unincorporated population in 2040
Development potential (Logan Simpson et. al., 2019)	96%	Growth that will be absorbed by municipalities through 2040
	39,384 acres	Land designated as urban expansion areas ¹
Water supplies	23,245 acres	Land designated as urban/rural interface areas ²
	43%	Water supplies that originate from the Colorado River
Water rights and well permits³	57%	Water supplies that originate from local watersheds and aquifers
	6,229	Water rights administered under the prior appropriation doctrine (first in time, first in right)
	24,299 cfs	Fully developed direct flow rights (absolute rights)
	32,180 cfs	Direct flow rights under development (conditional rights)
	600,321 ac-ft	Fully developed storage rights (absolute rights)
	521,977 ac-ft	Storage rights under development (conditional rights)
Water diversions³	228%	Increase in water diversions between 1980 and 2020
	2,260,405 ac-ft	Water volumes diverted for use in 2020
	308	Structures actively diverting water in 2020
Agricultural land	47%	Decline in irrigated agricultural lands between 1987 and 2020
	104,063 acres	Irrigated agricultural land in 1987
	55,206 acres	Irrigated agricultural land in 2020
	8%	Farmland irrigated by sprinkler technology in 1987
	38%	Farmland irrigated by sprinkler technology in 2020
Water providers	124	Centralized public water systems that provide safe drinking water to residents and businesses
	385,559	People served by centralized public water systems in 2020 ⁴
	13,090	Water wells
	10,589	Homes reliant on groundwater wells
	47	Irrigation, ditch, and reservoir companies operating in Larimer County that deliver non-potable (raw) water
	9	Community water systems that publish their annual water demands and forecast future water demands
	25-90%	Projected growth in water demands at community buildout

¹ Urban Expansion Areas are areas located within Growth Management Areas where municipal development and services are anticipated (Logan Simpson et. al., 2019).

² Urban/Rural Interface areas are areas adjacent to municipal planning boundaries that could be incorporated into Growth Management Areas or developed in unincorporated Larimer County (Logan Simpson et. al., 2019).

³ Data represent water rights and diversions at structures located in Larimer County, some of which transport water from the Colorado River and other sources.

⁴ Population estimate may include service areas outside of Larimer County.

KEY WATER RISKS AND VULNERABILITIES

While Larimer County has notable water resiliency successes (including excess treatment capacity, water sharing and interconnection agreements among providers, improving irrigation efficiency, and improved consideration of riverine health), this report focuses on important risks and vulnerabilities related to reliable water supplies and preservation of agricultural land that must be considered and mitigated. In no particular order, they include:

- All water supplies are at risk of reduced water availability and poor water quality due to natural hazards such as drought and wildfires.
- Water used in Larimer County that originates from the Colorado River could be curtailed during a compact call⁵.
- Non-tributary groundwater wells⁶ are generally not monitored and reported, presenting a gap in water use information.
- Direct flow and storage rights in Larimer County could double in the future, putting additional strain on available water resources. Historical diversions have doubled over the period from 1980-2020.
- Weather trends show warming temperatures and periods of low precipitation, which reduce water availability.
- Based on water source alone, the water in Larimer County has relatively low reuse potential, as Colorado-Big Thompson return flows are reserved for agricultural users downstream and native supplies cannot be reused without additional water court actions. Windy Gap and other transmountain water can be reused.
- Agricultural water rights continue to be converted to municipal water rights, diminishing agricultural lands. While water-sharing pilot projects are occurring, water sharing efforts are needed on a larger scale to overcome buy-and-dry.
- Some community water systems are experiencing water delivery limitations. Service pressures are expected to grow as water demands are projected to increase from 25-90% through community buildout.
- There is a trend toward water supply diversification, but some providers remain heavily reliant on Colorado-Big Thompson water.
- Many community water systems report the need for more raw water storage to increase the yield of their water supplies. Many providers are actively participating in new storage reservoir and reservoir expansion projects, which are expensive and take many years to complete the permitting process.
- Community water systems are more connected than may be apparent, given they are legally distinct entities with their own water rights and service areas. These interconnections (including common water sources, joint infrastructure, and intergovernmental agreements) create the potential for both system resiliencies and cascading risks.
- Nearly all community water systems report aging or insufficient infrastructure, underscoring the need for water system infrastructure investment to ensure future water supply reliability.
- Information and planning gaps remain. These gaps include a lack of publicly available water information and missing (or outdated) long-range plans.

⁵ On any given day, a river may not have enough water available to satisfy all water rights. Water users then “call” for their water, and water rights are satisfied in order of priority date from most to least senior. The priority date that distinguishes which rights are fulfilled and which are not varies each day based on water availability and water calls (Hobbs Jr., 2004).

⁶ Non-tributary wells are groundwater wells (usually wells that are very deep and/or far from rivers) that are deemed not to be hydrologically connected to streams and therefore are exempt from administration under the priority system (Hobbs Jr., 2004).

FUTURE WORK

This regional water existing conditions report presents a profile of growth and water in Larimer County as a starting point to understanding regional water supplies, demands, and issues. Future work could include a broader look at water in the County that may include watershed, stormwater, and wastewater management as these topics are addressed in other plans and policies and as they relate to supporting integrated water resources management (also known as One Water principles) as well as identification of additional stakeholders and related work. The work that Larimer County is exploring can be valuable to help look across individual water providers and better understand systemic risks and vulnerabilities. As future work ensues, the following questions remain to be answered:

- **Defining Larimer County's role** in engaging in different types of water matters. That role is likely to differ for different situations, such as addressing water supply risks for residents who supply their own water, understanding development costs and water supply reliability for developments serviced by a centralized water utility, and engaging with other stakeholders in regional water conversations.
- **Defining desired outcomes** from the County's involvement in water matters, such as what achieving water supply reliability means in Larimer County and quantifying the relationship between water and other issues, such as water costs, development costs, and housing prices.
- **Filling gaps in the County's planning** and understanding of water issues that could be bolstered by development of a long-range water element. The County has done extensive stormwater master planning but has done less formalized work to date on water and wastewater.
- **Defining the implementation levers** the County has available to address water matters, such as educational and other programming, funding streams for projects and incentives, and policy and regulatory tools.
- **Identifying key stakeholders** the County needs to have ongoing and collaborative relationships with to address regional water issues. For example, working with water providers where appropriate in areas of mutual benefit, such as garnering grant and federal funds to Larimer County, improving collective water system resilience, and promoting water sharing to maintain productive agriculture.