
















## List of 21 Water Supply Options To Be Screened

Supply side options were discussed as larger categories in Workshop #3. This is the detailed list of all options under consideration. Relative magnitudes indicated for each option are planning level estimates and may be refined through the IWRP process.

Relative Magnitude of Annual Supply (Acre-Feet)	Resiliency	Supply Types
 < 10,000 AF	Low	Drought
 10-20,000 AF	Medium	Constant
 >20,000 AF	High	Variable

	Category	Option	Brief Description	Est. Annual Supply	Resiliency	Supply Type
1	Aquifer Storage and Recovery	Aquifer storage and recovery (FEA 5)	Aquifer storage and recovery is a strategy in which water (ex: potable drinking water) can be stored in an aquifer during wetter periods and recovered for use during drier periods. Storing water underground can improve drought preparedness and reduces the amount of water that evaporates compared to water storage in open above-ground reservoirs. This type of strategy is currently being used by cities in Texas including San Antonio, Kerrville and El Paso. Exploring aquifer storage and recovery as a potential option was a recommendation of the 2014 Task Force and has been analyzed by Austin Water as part of Feasibility and Engineering Analysis #5 (Northern Edwards and Trinity Aquifers).		Medium	Drought
2	Expanded Reclaimed Water System	Direct non-potable reuse (centralized reclaimed purple-pipe system)	Through its Water Reclamation Initiative (WRI) program, Austin Water provides highly treated wastewater effluent for non-potable uses such as irrigation, cooling, manufacturing, and toilet flushing. Austin's direct reuse (purple pipe) system currently supplies approximately 4,600 AF per year. The 25-year direct reuse system master plan includes a total of 130 miles of transmission mains to be constructed and an estimated annual use volume of 25,600 AF. Potential expansion beyond this amount may be explored as part of the IWRP process.		High	Constant
3	Additional LCRA Supply/Enhanced Lake Operations/Capture of Stormwater Inflows	Lake Austin operations (lake level variation)	This option is an operational drought strategy to vary the Lake Austin operating level during non-peak months (October-May) and after combined storage in the Highland Lakes falls below 600,000 acre-feet. This strategy would allow local usage to draw the lake down a maximum of three feet to be able to catch runoff from local storm events should they occur. This approach would allow for use of this runoff as opposed to excess runoff spilling over Tom Miller Dam to flow downstream. This measure was included as a recommendation of the 2014 Task Force.		Low	Drought
4	Rainwater and Stormwater Capture	Stormwater Harvesting	This option involves the collection and reuse of stormwater to meet appropriate end use demands. The implementation of this strategy is dependent on a number of factors including the catchment area, storage capacity, rainfall frequency, and water demand of the end user. On average, the Austin area generally receives about 32 inches of rainfall per year. This rainfall is not distributed uniformly during the year and, as a result, implementation of this strategy should consider water demands and supplies over a multi-month period. This option is being analyzed as part of Task 6.3.		Low	Constant, subject to availability
5	Rainwater and Stormwater Capture	Rainwater Harvesting	This option involves the collection and reuse of rainwater to meet appropriate end use demands. The implementation of this strategy is dependent on a number of factors including the catchment area, storage capacity, rainfall frequency, and water demand of the end user. On average, the Austin area generally receives about 32 inches of rainfall per year. This rainfall is not distributed uniformly during the year and, as a result, implementation of this strategy should consider water demands and supplies over a multi-month period. This option is being analyzed as part of Task 6.3.		Low	Constant, subject to availability
6	Decentralized Options for Wastewater Reuse	Sewer mining (wastewater skimming)	This option involves the extraction (mining or scalping) of wastewater from the centralized sewer system, treatment at a small local facility, and reuse to meet non-potable demands. Implementation of this strategy is highly site-specific, dependent on factors including accessibility of wastewater flows and proximity to suitable non-potable demands, with drivers being to minimize potable water consumption and infrastructure upsizing. Wastes from the treatment process are typically discharged to the centralized sewer system for subsequent treatment at the downstream Wastewater Treatment Plants (WWTPs). This option is being analyzed as part of Task 6.3.		High	Constant
7	Decentralized Options for Wastewater Reuse	Distributed wastewater systems	This option involves the onsite capture and treatment of the wastewater stream generated in a building or development for reuse to meet non-potable demands onsite. To be feasible, this option requires that a building or development have sufficient non-potable demand to beneficially use all of the reuse water that is produced and that the building have enough wastewater available to reuse and meet non-potable demands. Types of treatment systems may include constructed wetlands (for example the "Living Machine" at SFPUC), membrane bioreactors, etc. This option is being analyzed as part of Task 6.3.		High	Constant

	Category	Option	Brief Description	Est. Annual Supply	Resiliency	Supply Type
8	Additional LCRA Supply/Enhanced Lake Operations/ Capture of Stormwater Inflows	Capture Lady Bird Lake Inflows (FEA 4)	This option would Capture available spring and stormwater flow into Lady Bird Lake and convey the water to the Ullrich WTP through a potential new intake pump and piping system. Exploring capturing Lady Bird Lake inflows as a potential option was a recommendation of the 2014 Task Force and has been analyzed by Austin Water as part of Feasibility and Engineering Analysis #4.		Low	Variable
9	Indirect Potable Reuse	Indirect reuse – bed and banks	Recapture discharged treated effluent from Austin’s Wastewater Treatment Plants downstream to be pumped back upstream for treatment. City of Austin and LCRA have applied jointly for the water right permit for indirect reuse in accordance with the terms of the 2007 settlement agreement between Austin and LCRA.	Variable, subject to permitting, availability, and terms of the 2007 agreement		
10	Indirect Potable Reuse	Indirect Potable Reuse through Lady Bird Lake (FEA 2)	This option would convey highly treated reclaimed water from one treatment train at South Austin Regional Wastewater Treatment Plant to Lady Bird Lake and subsequently divert water by a potential new intake pump and piping system downstream of Tom Miller Dam to the Ullrich Water Treatment Plant to help meet City demands. This approach could supplement water releases from lakes Buchanan and Travis to extend water supplies during severe drought. This option was a recommendation of the 2014 Task Force and has been analyzed by Austin Water as part of Feasibility and Engineering Analysis #2		High	Drought
11	Indirect Potable Reuse	Indirect Potable Reuse through Alluvial Aquifer (FEA 3)	This option would convey highly treated reclaimed water from one treatment train at South Austin Regional Wastewater Treatment Plant to an infiltration basin within the Colorado River alluvium. After a minimum six month retention time, recovery wells and pump station would capture and transport the water to Lady Bird Lake. A potential new intake pipe and pump station downstream of Tom Miller Dam would convey the water to the Ullrich Water Treatment Plant to help meet City demands. This approach could supplement water releases from lakes Buchanan and Travis to extend water supplies during severe drought. Exploring reclaimed water infiltration as a potential option was a recommendation of the 2014 Task Force and has been analyzed by Austin Water as part of Feasibility and Engineering Analysis #3.		High	Variable
12	Direct Potable Reuse	Direct potable reuse	This option is relatively new to Texas and involves taking treated wastewater effluent, further treating it at an advanced water treatment plant, and then either introducing it upfront of the water treatment plant or directly into the potable water distribution system.		High	Constant
13	Groundwater	Desalination – brackish groundwater	Desalination is the process of removing dissolved solids from seawater or brackish groundwater, often by forcing the source water through membranes under high pressure. The specific process used to desalinate water varies depending upon the total dissolved solids, the temperature, and other physical characteristics of the source water but always requires disposal of concentrate that has a higher total dissolved content than the source water. Disposal may take the form of an injection well, evaporation beds, or an ocean outfall diffuser. Exploring desalination of brackish groundwater as a potential option was a recommendation of the 2014 Task Force		High	Constant
14	Seawater Desalination	Desalination – seawater	Desalination is the process of removing dissolved solids from seawater or brackish groundwater, often by forcing the source water through membranes under high pressure. The specific process used to desalinate water varies depending upon the total dissolved solids, the temperature, and other physical characteristics of the source water but always requires disposal of concentrate that has a higher total dissolved content than the source water. Disposal may take the form of an injection well, evaporation beds, or an ocean outfall diffuser.		High	Constant
15	Additional LCRA Supply/Enhanced Lake Operations/ Capture of Stormwater Inflows	Lake Evaporation Suppression	Under development		High	Variable
16	Groundwater	Conventional Groundwater	Under development	TBD	Medium	Variable
17	Additional LCRA Supply/Enhanced Lake Operations/ Capture of Stormwater Inflows	Additional supply from LCRA	Under development	TBD	Medium	Constant

	Category	Option	Brief Description	Est. Annual Supply	Resiliency	Supply Type
18	Aquifer Storage and Recovery	Aquifer Storage and Recovery (Carrizo Aquifer)	Under development	TBD	Medium	Drought
19	Partnership Approaches	Explore partnership approaches on regional strategies with Corpus Christi or others	Potential strategies could include aquifer storage and recovery, purchase of available water supply, or other partnerships.	TBD	TBD	TBD
20	Inter-Basin Transfers	Inter-Basin Transfers from Available Surface Water Supplies	Under development	TBD	TBD	TBD
21	New Off-Channel Storage Reservoir	Off Channel Reservoir (Austin vicinity)	Under development	TBD	TBD	TBD
<b>Planned</b>		Add municipal uses to steam-electric water rights, where appropriate	Increase flexibility related to use of Lady Bird Lake (currently being used for Austin's portion of Fayette Power Project and other Austin Energy uses) and Decker Lake steam-electric water rights.			