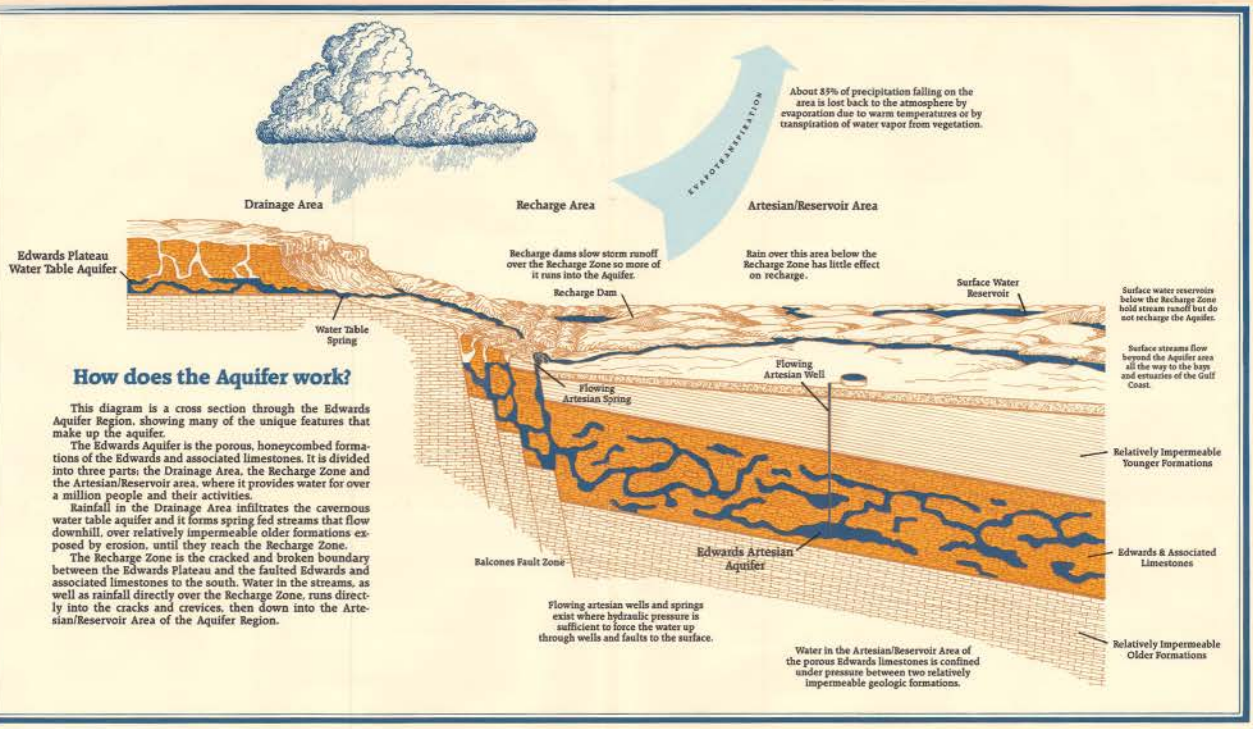


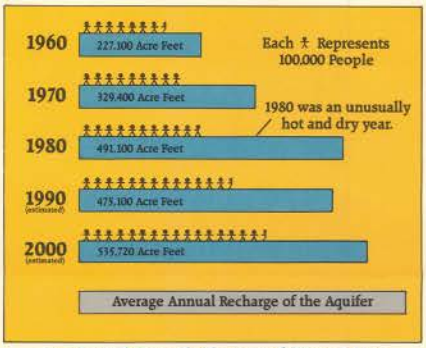
How does the Aquifer work?

This diagram is a cross section through the Edwards Aquifer Region, showing many of the unique features that make up the aquifer.

The Edwards Aquifer is the porous, honeycombed formations of the Edwards and associated limestones. It is divided into three parts: the Drainage Area, the Recharge Zone and the Artesian/Reservoir area, where it provides water for over a million people and their activities.

Rainfall in the Drainage Area infiltrates the cavernous water table aquifer and it forms spring fed streams that flow downhill, over relatively impermeable older formations exposed by erosion, until they reach the Recharge Zone.

The Recharge Zone is the cracked and broken boundary between the Edwards Plateau and the faulted Edwards and associated limestones to the south. Water in the streams, as well as rainfall directly over the Recharge Zone, runs directly into the cracks and crevices, then down into the Artesian/Reservoir Area of the Aquifer Region.



Regional Population and Water Use

(Blue bars show Aquifer discharge through wells)

Water Resources of the Edwards Aquifer Region

The Edwards Aquifer is one of the nation's unique groundwater systems. The Edwards Aquifer Recharge Zone is at the base of the Balcones Escarpment, separating two physiographic regions – the Edwards Plateau to the north and the Gulf Coastal Plain to the south.

The Edwards Plateau ranges in altitude from about 1,000 to 2,300 feet above sea level. The topography is rough and rolling; the area is commonly known as the Texas "Hill Country". Vegetation is primarily woodlands comprised of oak, mesquite and cedar, along with grasslands used for grazing cattle, goats and sheep. The 4,400 sq. mile area of the plateau is the catchment area containing the drainage basins and hundreds of spring fed rivers and streams that cross the Recharge Zone and lose water to the Edwards Aquifer.

The Recharge Zone is a 1,500 sq. mile area of fractured and cavernous limestones exposed on the surface allowing for large quantities of water to enter the Edwards Aquifer. Recharge occurs from direct infiltration of precipitation and from rivers and streams that cross the Edwards outcrop area. Surface water reservoirs constructed in the recharge zone also contribute significant quantities of water to the Edwards Aquifer.

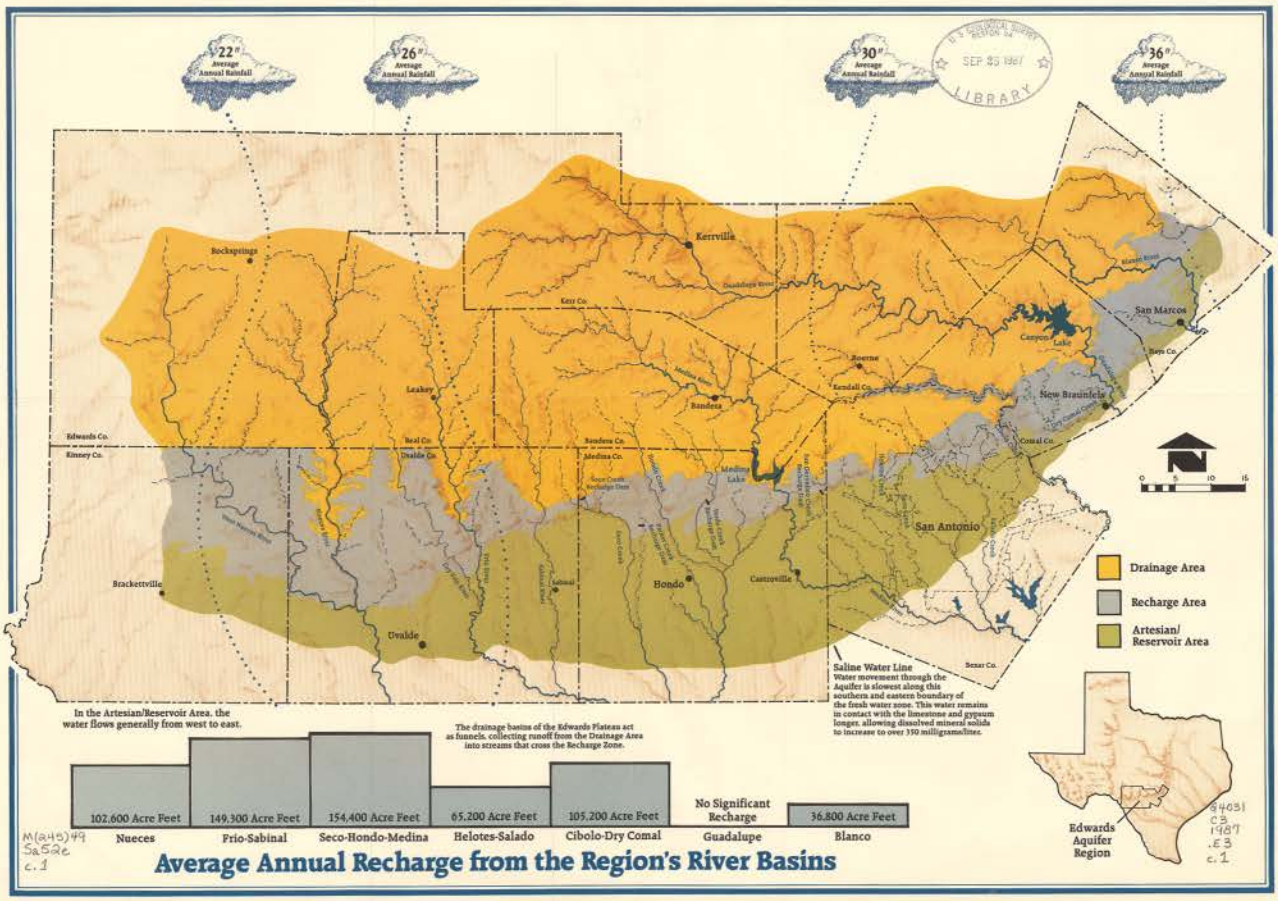
The Edwards Aquifer in the San Antonio area is one of the most productive aquifers in the southwestern United States. This region is part of the Gulf Coastal Plain, being gently rolling landscape with altitudes that vary from about 1,100 feet in the western part of the area to about 600 feet in the eastern part. The Aquifer is about 180 miles long extending from near Brackettville in Kinney County to near Kyle in Hays County. It varies from about 5 to 30 miles wide. Much of the area is agricultural or ranch land with some areas of dense population. The Edwards Aquifer supplies nearly all of the water for municipal, domestic, and agricultural needs of the area. Recreational establishments depend on water from San Marcos Springs and Comal Springs which issue from the Aquifer.

A long drought in the 1950's lowered water levels in the Edwards Aquifer drastically. Many springs and streams ceased to flow. The dry weather meant heavy pumpage from wells but there was little rain to recharge the Aquifer. The drought brought about an awareness that the region's most precious natural resource is water. Concerned citizens worked with the Texas Legislature and in 1959 the Edwards Underground Water District was created to protect, preserve and conserve that resource.

Today well over a million people live in the Aquifer region. As the population continues to increase, water demands may strain the Aquifer beyond its capacity. The Edwards Aquifer is one of the largest sole source aquifers in the country and the first to be so designated by the U.S. Environmental Protection Agency. The residents of the Edwards Aquifer region are faced with serious questions about the management and use of the Edwards Aquifer. The first step toward responsible decision making is a better understanding of the nature and limitations of the Edwards Aquifer. The Edwards Underground Water District has developed this poster as well as other educational materials in an effort to promote that understanding.

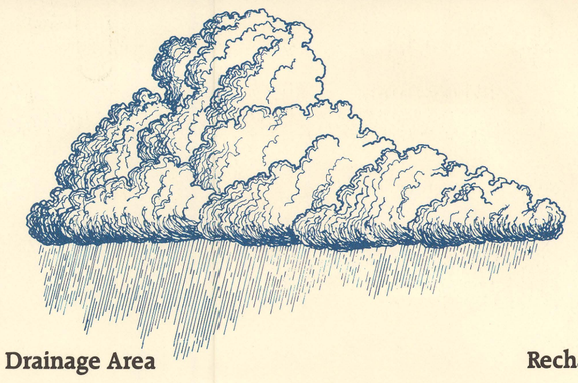
Edwards Underground Water District
1615 N. St. Mary's, P.O. Box 15830
San Antonio, Texas 78212

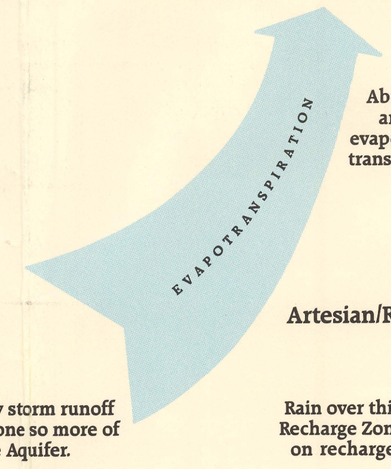
(512)222-2204 or 1-(800)292-1047



Average Annual Recharge from the Region's River Basins

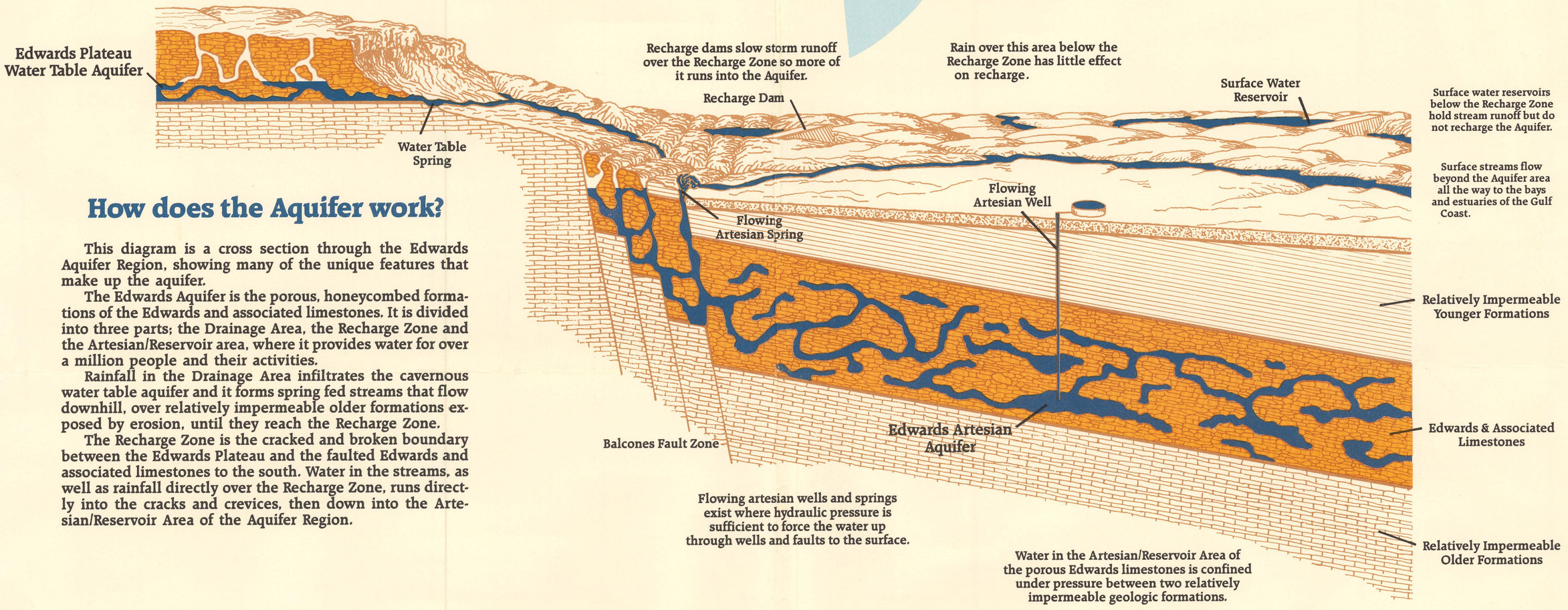
Note: Large-format version of the original plate is on the following page.





About 85% of precipitation falling on the area is lost back to the atmosphere by evaporation due to warm temperatures or by transpiration of water vapor from vegetation.

Drainage Area | Recharge Area | Artesian/Reservoir Area



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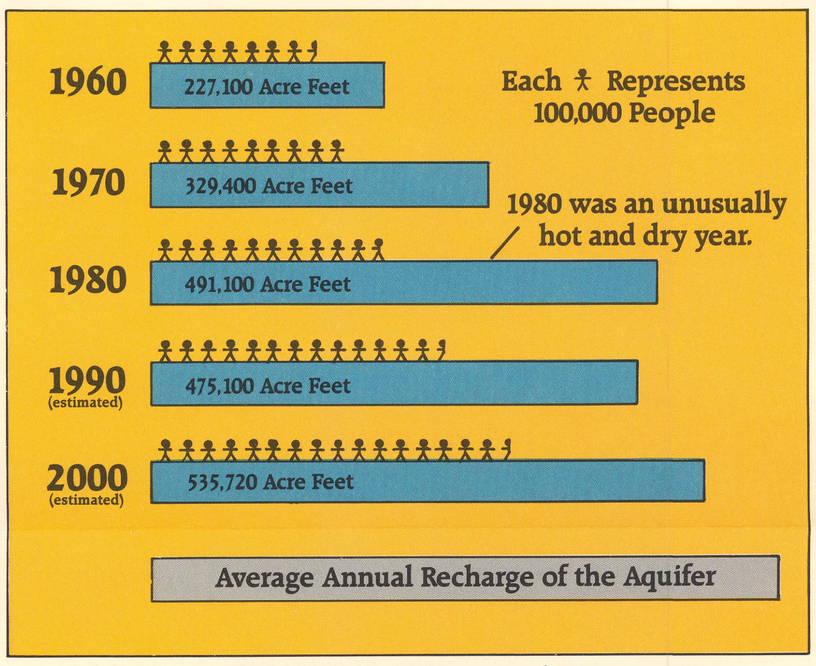

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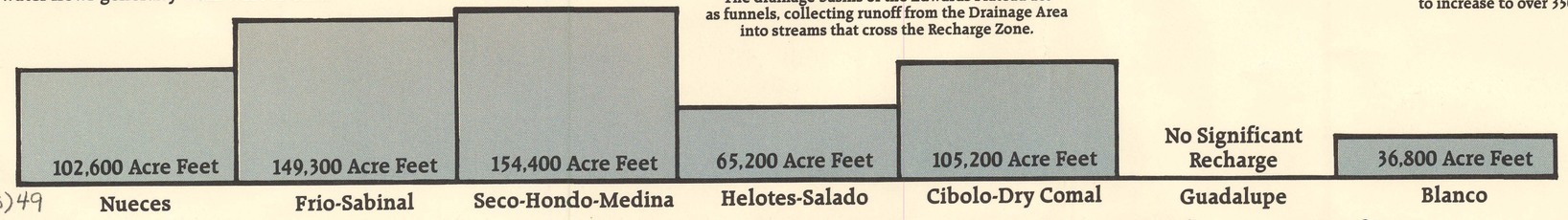
In the Artesian/Reservoir Area, the water flows generally from west to east.

Saline Water Line
Water movement through the Aquifer is slowest along this southern and eastern boundary of the fresh water zone. This water remains in contact with the limestone and gypsum longer, allowing dissolved mineral solids to increase to over 350 milligrams/liter.

The drainage basins of the Edwards Plateau act as funnels, collecting runoff from the Drainage Area into streams that cross the Recharge Zone.



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