

Facts & Issues: Land-Use Planning in Comal County

“A Growing Problem”

A Study by the League of Women Voters of Comal Area

About the Study

In the spring of 2003, the League of Women Voters of Comal Area (LWV-CA) undertook a two-year study of land-use planning in Comal County. The appointed committee held a public meeting in the fall of 2003 and held monthly meetings throughout 2004. At each public meeting, the committee interviewed individuals about aspects of land use planning. The interviewees are included in the reference section of this report, and more detailed reports of the meetings are included on the LWV-CA website www.lwvcomal.com, along with an

expanded version of this report and more graphics. The committee interviewed elected officials and staff from Comal County, New Braunfels and Bulverde. Members also interviewed environmental experts, developers and a planning consultant. In addition, committee members attended conferences and conducted independent research. This report is a compilation of the information they gained. LWV-CA hopes that this report will create interest in further dialogue in Comal County about land-use planning.

Scope: A study to determine the governmental entities with authority to make land use decisions in Comal County; to investigate how effectively the governmental entities make land-use plans together and to evaluate the environmental consequences of current land use decisions.

Focus: County authority for land-use planning, effects of residential development in rural areas of the county, planning for public parks and pedestrian access in the city.

Introduction

Between 1990 and 2000, Comal County was twelfth in population growth of the 254 counties in Texas. Our region projects substantive growth because of its proximity to San Antonio and Austin, the growth in border commerce with NAFTA and associated economic trends, the demographic shift in the continental United States to the Sun Belt, and growth of native and immigrant populations. In the next fifteen years Comal County is projected to all but double, from 100,000 to 195,000, if

1990-96 growth trends continue. According to the same scenario, by 2020, New Braunfels is expected to grow to 108,000 — or 143,000, if its ETJ is included.

Population growth puts demands on resources, like water and air, and on infrastructure, like roads and utilities. Population growth can also change the quality of life for residents as the landscape becomes more urbanized, with more residential areas and fewer natural areas.

This report addresses the issues that local governments face in attempting to deal with the growth that has already occurred in Comal County and with a future involving even faster growth

This report has 5 sections:

1. Water in Comal County, Texas
2. Air Quality in Comal/ Guadalupe, Bexar/ Wilson County Region
3. Transportation in Comal County
4. Residential Development/ Parks/ Natural Areas.
5. City - County Relations.

Water in Comal County, Texas

Groundwater Issues

The science of water or “hydrological cycle” is quite simple. All the water that ever was is all the water there ever will be. All water is constantly recycled.

The current policies of water regulation are a legacy of an earlier, limited understanding of the science of water. The water that people saw,

i.e., surface water in lakes and streams, they declared belonged to the people, so the state regulates every drop of surface water.

The contribution of ground-water to surface water with the flow of rivers provided by groundwater between rains, or vice versa when surface water is the source to recharge the limestone “karst” aquifers like the Trinity and Edwards Aquifers in

Comal County, was not understood. As a result, the Texas Legislature declared groundwater to be private property and to belong to the landowner, like mineral rights.

Comal County sits on what is called the Balcones Escarpment – part of the Texas Hill Country. To the south and east of San Antonio, the land

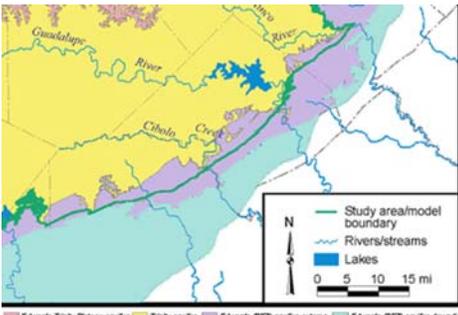


Figure 1 - The Trinity (yellow) and Edwards Aquifer (lavender - recharge zone; aqua - artesian zone) in Comal County.



Figure 3 - San Antonio River Authority (SARA, green line is Cibolo Creek, Lavender is SARA) in Comal County.



Figure 5 - The grey areas are the boundaries of the Certificates of Convenience and Necessities (CCNs) as of March 24, 2004 and coincide with population and rapidly growing areas of the county.

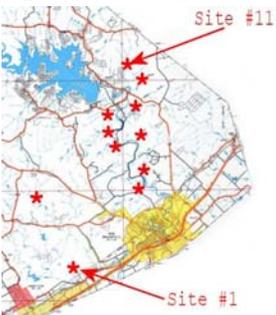


Figure 7 - Of eleven possible locations for flood control dams, studies showed the the 2 numbered sites to be best.

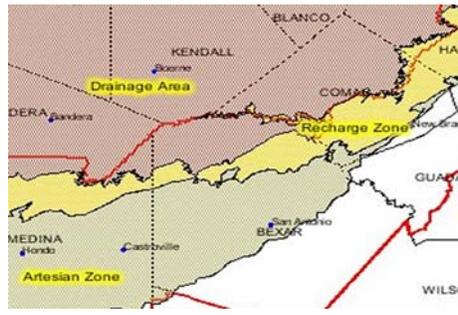


Figure 2 - Edwards Aquifer Authority (EAA, red line = boundary) in Comal County.

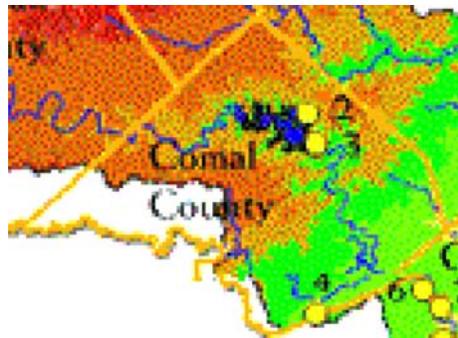


Figure 4 - Guadalupe-Blanco River Authority (GBRA, tan and green area = boundary) in Comal County.

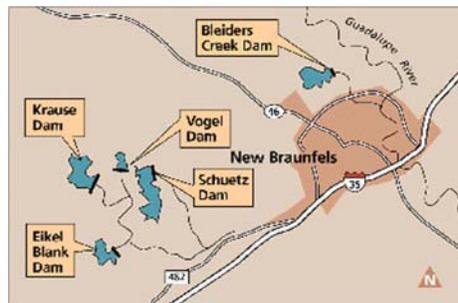


Figure 6 - The five flood control dams that currently exist in Comal County.



Figure 8 - Comal County (pink) is in Region L of the State of Texas Comprehensive Planning Groups.

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drops in a relatively flat, gentle slope to the Gulf of Mexico. When warm, humid weather systems blow relatively unconstrained from the Gulf, they are forced upward when they reach the Hill Country and cool. They can also bump into cold fronts descending from the Central Plains. Often conditions prevail that trap a moisture-laden storm system over Comal County. Because of its particular geology and location, meteorologists know this area as the “flash flood capital of the world.” This is both a blessing in recharging our water resources and a curse, causing two recent “100-year-flood” events in a four-year period.

In order to properly maintain Comal County’s water supply, both the quality and quantity of the water must be preserved, not only for human consumption and agriculture, but also for wildlife, industry and recreation. The Legislature has separated these functions, and this separation has resulted in conflicting regulatory systems.

The entire land surface of Comal County directly feeds one of two aquifers (figure 1 - this page). In the northwestern half, the Glen Rose limestone layer of the Trinity Aquifer is exposed. In the southern and southeastern half, the Edwards limestone is exposed. Depending on the number of fractures or cracks, porosity and large recharge features like caves, springs and fissures, the water enters the limestone layer unfiltered. This is very different from what happens to sand aquifers. As a result, the two major underground aquifers that supply drinking water to the residents of Comal County are extremely vulnerable to pollution. The Texas Commission for Environmental Quality (TCEQ) has the authority to regulate water pollution abatement over the Edwards Aquifer Recharge Zone for commercial — but not single

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residential — construction.

Environmentalists say the regulations are not stringent enough and TCEQ's ability to enforce the existing regulations is limited.

There is no similar entity with the authority to regulate construction over more than half of the rest of Comal County over the Trinity Aquifer. The property owners or city and/or county officials may petition the state for the authority to create a groundwater conservation district in an area that has been declared by the state as a Priority Groundwater Management Area, as the entire Trinity Aquifer region has been since 1990. In order to establish a groundwater district, the proposed district must be approved by local voters. They may then elect district board members. Residents in northwestern Comal County attempted twice, in 1995 and 2001, to establish a groundwater district, but the proposal was overwhelmingly defeated by voters who did not wish to create a bureaucracy that they felt would interfere with their property rights. The Trinity Aquifer underlies an eleven-county area. The voters in the ten counties surrounding Comal have all created groundwater conservation districts to protect their resource. Comal County is alone in leaving its section of the Trinity Aquifer unprotected and unregulated.

The Trinity Aquifer has relatively little water in it. The average rainfall for Comal County is 30 to 33 inches, although perhaps only as much as 4% of the total rainfall actually enters the aquifer as recharge, according to the experts. Sustainable yield, the balance between full pumping rates and normal rainfall, is 1800 acre-feet per year, by conservative estimates. However, more optimistic estimates suggest it might be as high as 7200 acre-feet per year. Based on the typical per-capita water use in Texas of 180 gallons per day, or 0.2 acre-feet per year, and the more optimistic

estimates of available water, the Trinity Aquifer in Comal County could support 36,000 people. According to the 2000 census, there are 41,527 people living in the county outside of New Braunfels. The majority of these residents are dependent on the Trinity Aquifer. Already in the drier parts of the Trinity Aquifer, like the Bulverde area, homeowners' wells have gone dry during seasonal droughts.

Although different geological strata make up the two aquifers, experts have found a connection between them. In fact, some geologists estimate that 25 percent of the recharge of the Edwards Aquifer occurs along Cibolo Creek between Comal and Bexar counties, coming from the Trinity.

There is also a symbiotic connection between the surface water and the groundwater. In dry times, when there has been no rainfall for months and there is no runoff from surface land into the river, the Upper Guadalupe River still flows into Canyon Lake. The Guadalupe River is rated by the U.S. Geological Survey (USGS) as a "gaining" stream. This means that the base flow of the river comes from the Trinity Aquifer. That is, when the water table of the Trinity Aquifer is high enough, spring flow along the bed of the river makes up the river flow. Man-made sources also contribute to the Guadalupe River base flow. The effluent from the wastewater sewage treatment plant (WWTP) in Boerne contributes a considerable amount of the base flow during drought periods. Fortunately for all of us in Comal County, the Boerne WWTP is built to "tertiary" standards, so it meets Environmental Protection Agency (EPA) standards for drinking water.

Another example of the connection between surface and groundwater is the Cibolo Creek. The USGS designates it as a "losing" stream. Except during or shortly after

significant rain events, most of the Cibolo Creek is usually dry because the creek rapidly drains underground to the Edwards and Trinity Aquifers below it. Although a river may be designated as a gaining or losing stream, under suitable conditions they may reverse their usual behavior. Thus, if the water table of the Trinity Aquifer is lowered, as occurred during the prolonged drought of the 1950's, the Upper Guadalupe River will stop flowing. When it rains, the water flows into the aquifer from the riverbed until the water table rises enough to provide the usual direction of flow from the aquifer to the river bed and springs. For the Edwards Aquifer, the Edwards Aquifer Authority (EAA – figure 2 on page 2) manages pumping from the aquifer so that the Comal and San Marcos Springs continue to flow. The Edwards Aquifer is much more significant than the Trinity Aquifer and is able to support large, irrigation-based farming west of San Antonio and to supply the majority of the drinking and landscaping water to San Antonio, New Braunfels, San Marcos and Travis County, including south Austin.

Recharge into karst aquifers depends on contact time of rainfall with the ground. Areas with good soil coverage and deep grass roots act as sponges, allowing good amounts of recharge. Large recharge features, like holes, cracks or caves, also result in rapid recharge. Covering the ground with material like cedar breaks and impervious cover, like parking lots, roofs, roads and driveways, will prevent water from entering the soil, decrease recharge and increase runoff. In fact, as little as a 10 percent increase in impervious cover can increase runoff by 7 percent, according to a conservative model used by the Texas Department of Transportation and the Lower Colorado River Authority (1).

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Commercial areas with large parking areas typically have 80 percent or more impervious cover which may increase runoff by 68 percent.

The greatest recharge of karst aquifers occurs during large, sustained rains. Obviously, runoff also is more likely to occur during big rains. The runoff includes trash, the effluent from flooded septic systems, and oil, gasoline, pesticides and fertilizers from farms, commercial enterprises, yards, roadways and parking lots. The greatest threat to the health of an aquifer is the presence of these contaminants in the poorly-filtered recharge.

Once the water table is filled and the ground is saturated, further recharge is impossible and flooding takes place. Without proper planning for drainage in developed and developing areas, flooding will increase at great risk to lives, property and livelihood.

Comal County is one of the fastest growing counties in Texas. Because Comal County is close to both Austin and San Antonio, the highly desirable Hill Country area is growing rapidly. In the 1950s and 1960s, the forward-looking leaders of New Braunfels invested in an 8-million-gallon-per-day surface-water treatment plant on the Guadalupe River in addition to six Edwards Aquifer groundwater wells, resulting in diverse water sources. The surface-water plant enabled New Braunfels Utilities (NBU) to reduce its demand on the Edwards Aquifer by 90 percent. In the year 2000, 36,494 townspeople representing 16,500 households served by NBU, used 2.3 billion gallons annually. Because there are 325,581 gallons per acre-foot of water, NBU uses 7064 acre-feet per year, or about 0.2 acre-feet or 180 gallons per day per person, close to the Texas average. Fifty thousand acre-feet of water will be required to accommodate the projected population of 250,000 in 2050, given present

usage.

Another important aspect of surface water is that plants and wildlife, as well as many industries, like recreation, fishing and seafood, depend on rivers and lakes. As the population continues to grow, demands for water by the increasingly urban population will likely overwhelm the requirements for fresh water by plants and wildlife, and the industries that depend on them.

Control of Surface Water

There are two river watersheds in Comal County: the San Antonio River Authority (SARA – figure 3 on page 2) and the Guadalupe-Blanco River Authority (GBRA – figure 4 on page 2). The Cibolo Creek is a tributary of the San Antonio River at Comal County's southwestern border with Bexar County. The GBRA has jurisdiction over the surface water in the rest of the county as well as nine other counties along the entire course of the Guadalupe River, from its headwaters in the Hill Country to the point where it enters the Gulf of Mexico. State-appointed authorities, like GBRA, preserve, protect and manage the resources and environment of local rivers and tributaries. River authorities fund themselves by selling water rights.

The largest lake on the Guadalupe River is Canyon Lake, located in northern Comal County. The Canyon Lake Dam was constructed in 1963 primarily for flood control and secondarily as a water reservoir for a future water supply. The U. S. Army Corps of Engineers controls the water in the lake when it reaches flood stage, above 909 feet mean sea level, and takes appropriate action at the outlet to minimize downstream flooding. Below the 909-foot level, the lake, considered surface water, is controlled by the GBRA. The river authorities grant senior and junior water rights to applicants who need water, mainly for

agriculture, industrial, and municipal uses. In times of low river flow, those with senior water rights have priority to any available river water.

In order to mitigate the lack of groundwater available in the Bulverde area and Kendall County, the GBRA is building the Western Canyon Project which includes the construction of a 10-million-gallon a day water treatment plant and 43 miles of pipeline to deliver up to 7,000 acre-feet of water per year to properties around the lake, seven schools in western Comal County, three water purveyors in the Bulverde area and the cities of Fair Oaks and Boerne. The present population cannot use that amount of water, so temporarily 6,000 acre-feet of water will go to northern Bexar County until Comal and Kendall County cities need it (2).

The next level of regulation is the local water purveyor. All cities and subdivisions that provide local public water supply fall under the TCEQ regulations. The water purveyors or local governments apply to the TCEQ for "certificates of convenience and necessity" (CCNs – figure 5 on page 2) for their areas. This allows them to be the only purveyor that may operate in that area, but also requires that, within reasonable affordability, they guarantee water to their customers. If their wells dry up during a drought, they are obligated to buy and transport water to meet the needs of their CCN. If they fall within the jurisdiction of authorities that regulate groundwater pumping, like the EAA, they might have conflicting requirements – limited pumping restricted by their permits and requirements to provide a guaranteed amount of water to their customers. Water purveyors may exist in various forms, like Municipal Water Suppliers, Municipal Utility Districts, Water Supply Corporations, Private Water Suppliers, Water Control and Improvement Districts, Special Utility Districts, and Freshwater Supply

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Districts.

The Texas Legislature has given the county the responsibility for developing regulations to minimize flooding. Comal County works with the Federal Emergency Management Agency and the National Flood Insurance Program to update flood plain maps that show the areas that will flood during the 100-year flood (3). As Comal County becomes more developed, the impervious cover, like paved areas and rooftops, increases, which causes increased run-off and actually changes the flood plain. Comal County Commissioner's Court has adopted several strategies to try to minimize flooding caused by development. One obvious strategy is to prohibit new building in flood plains. After the 1998 flood, the flood plain lines were redrawn from the original 1986 lines using the changes in the flood plain. For new subdivision development, the county now requires that no more water may leave a property under development than the run-off that occurred before construction began. This requires that retention ponds and other flood control measures be designed and built by the developer. There are already six dams on flood-prone rivers and creeks in the county. In addition to Canyon Lake Dam, there are five earthen retention dams that help protect New Braunfels from flooding (figure 6 on page 2). The County recently completed studying the feasibility and affordability of building other retention dams (figure 7 on page 2). The County is attempting to secure most of its funding from national sources to build additional flood control dams, but is in a race against skyrocketing property costs.

Water Quality Protection

Contamination of surface and ground water comes from agricultural, municipal, storm, sewage treatment

plant, and industrial run-off. The Texas State Soil and Water Conservation Board deals with water quality issues that come from agricultural activity like feedlot operations. The TCEQ regulates and issues permits for all other sources of contamination. The TCEQ requires Water Pollution Abatement Plans over the Edwards Aquifer for all but residential construction in areas in the Edwards Recharge Zone. For residential on-site sewage facilities, the county health department has jurisdiction, but for all larger plants, the TCEQ is the regulatory body.

Regional Water Planning

One common criticism of the way the state of Texas handles its water quality and quantity issues has been that there is a lack of coordination and communication among the myriad entities with some control over water. Senate Bill 2, passed in 1997, created sixteen regional water-planning districts in the state with a mandate to create a coordinated plan to provide water for the rapid growth in Texas and to ensure that all the entities coordinate and communicate. Comal County, along with Bexar County and all or part of 19 other counties, is a part of Region L (figure 8 on page 2). Every five years, the regional water planning districts review the programs, plans, current demographics and land use to see if the initial plans are still valid. Local representatives from all areas are appointed to the planning group. The planning activities are coordinated and supported by the Texas Water Development Board, which appoints the planning group members and provides the data and technical expertise. The regional planning is a grass roots process. Local needs and affordability dictate the amount of emphasis on water conservation and/or diversification of the water supply.

Another requirement of the

planning process is that all the regulated entities communicate with each other. For example, if a water storage area and pipeline are built on a river, the impact on downstream users and wildlife habitat must be considered. In addition, local water purveyors have been required to develop drought contingency plans to reduce demand by their customers when water is short. These plans are coordinated with the larger governmental bodies, like groundwater conservation districts or river authorities, to preserve water.

Long Term Solutions for Water Supply

As the population continues to grow, water demands will likely outstrip the total local surface water and groundwater supplies. Comal County is an arid region, averaging about 30 inches of rain a year, a fact not widely recognized. The drought of the 1950s is often cited as a benchmark in water circles for what can reoccur, if during a five-year period the average yearly rainfall is only about 10 inches. Notably, that event occurred when the population was about one third of its current size and perhaps one tenth as great as that predicted for 2050. Severe drought in our region with the projected population will be disastrous regardless of technological innovation.

The Region L Water Planning Group's conclusions include water conservation as their primary water source for future use. Their submitted plan includes many forms of water conservation, including the increased use of low flow toilets and showerheads, better control meters or mechanisms for automated watering systems, the reuse of treated wastewater for irrigation of parks and golf courses, increased use of drip irrigation by the agricultural sector, brush management, and many other

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effective techniques. The regional plan also includes water procurement from aquifers and rivers outside the region. The issue becomes water usage that is not sustainable in times of drought, including requirements for the fresh water estuaries along the coast to support fish and shellfish populations.

As part of the regional water plan to increase reliance on surface water, GBRA has increased the amount of water that it plans to sell from Canyon Lake from 40,000 to 90,000 acre-feet per year. The lake holds 386,210 acre-feet at the conservation level of 909 feet above sea level and can almost double to 732,210 acre-feet at full

capacity or 943 feet mean sea level (MSL). The Canyon Lake residents and people who depend on water recreation for their livelihood are concerned that the water levels during a drought will fall to levels below which boating is feasible (below 903 feet MSL) for such a period of time that would cause significant negative impact. (Go to www.gbra.org, and www.hillcountrywater.org to read about the issues.)

By 2040 Region L is projecting that desalination efforts along the Texas coast will supply a large portion of the needed water. Serious issues involved with desalination include the cost, both financially and in terms of energy consumption, of desalinating

enough water, including pumping it uphill 200 miles inland. Energy costs probably will increase significantly in the next few years. Desalinated water for San Antonio and the surrounding region will be very expensive, perhaps prohibitively so. Desalination involves the serious impact of the huge quantities of brine produced in processing seawater, in some cases exceeding the amount of fresh water generated.

Even with the regional planning efforts that have taken place, increasing demands on limited water resources will continue to be one of the important problems for local governments to solve.

Air Quality in Comal/ Guadalupe/ Bexar/ Wilson County Region

Air quality is not just a local issue. It is a regional, a statewide, a national and an international issue, as the movement of pollutants in the air recognizes no boundaries, political or otherwise. Unlike water issues, the Texas Legislature has not mandated regional planning for air quality issues. However, local governments have recognized the importance of working regionally.

The Air Improvement Resources Committee (AIRCO) of the Alamo Area Council of Governments (AACOG) has been designated the regional governmental body to work with the EPA to design a clean air strategy for our local area. Representatives of the four counties of Bexar, Comal, Guadalupe and Wilson, and their cities on this committee have resolved to develop and implement local control strategies with specific deadlines to clean the air. The clean air strategies recommended by AIRCO have been formalized in a State Implementation Plan (SIP) that was submitted to the TCEQ and EPA in

March of 2004 for their approval. EPA has until September 2005 to approve the SIP. Unique in the local agreement is a “deferred non-attainment agreement” between the local entity, AACOG, and EPA. It is the first early action agreement in the U.S.A. to propose a series of deadlines for instituting specific, locally chosen technological strategies to achieve and maintain federal air quality standards. With the implementation of these technologies by 2005, AIRCO hopes the region will be in compliance with EPA standards and be able to maintain those standards by the end of 2007. The SIP is an enforceable regulation. If the plan is not successful by the deadline, EPA will enforce the federal standards with additional strategies of its own choosing.

The Local Clean Air Plan

AIRCO’s Technical Committee examined more than 150 clean air strategies independently, and in various combinations, and determined

that the following three strategies are most beneficial and necessary for a Clean Air Plan for this region:

- o State I Vapor Recovery Systems return displaced gasoline vapors to the tanker truck when it delivers gasoline to a gas station tank. The regulation applies only to large volume gasoline stations that dispense 25,000 gallons per month or more.
- o Reduced gasoline Reid Vapor Pressure, a plan in which oxygenating compounds, like ethanol, are added to gasoline to reduce the fuel’s ability to vaporize, especially in the hot summer months
- o Controls on degreasing operations involving degreasing solvents that can easily volatilize into the air as volatile organic compounds (VOCs). This control measure lowers VOC emissions by requiring that cleaning equipment be equipped with

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covers. This measure applies to auto repair shops, auto body shops, and industries that must remove grease from a surface before coating or welding it.

Ozone is the critical air pollutant being measured at numerous sites across the region. Ozone is an odorless, colorless gas that is formed when nitrogen oxides, primarily produced by cars and trucks, and VOCs, emitted from gasoline and many other sources, combine in sunlight. At ground level, ozone can have harmful health effects, particularly on the young and the elderly. The EPA defines non-attainment of air quality standards by the amount of ozone that is measured at numerous sites across the region above a certain concentration, 0.08 parts per million (ppm) measured over an 8-hour period. To attain this standard, a 3 year average of the fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

Sources of Air Pollution

Who are the region's primary polluters?

- o Automotive: Automobiles, trucks, and heavy-duty off road equipment are all heavy polluters. While automobiles are more fuel-efficient and less polluting than before, there are now so many more of them on the road that pollution levels from automotive sources have actually gone up, not down. In addition, the North America Free Trade Agreement has resulted in greatly increased truck traffic on the interstate highways running through the region.
- o Gasoline powered equipment: Home power equipment, like lawn

mowers, power washers and chain saws are unregulated polluters.

- o Quarries: The numerous local quarries in Comal County are big emitters of air-borne dust and pollutants, combined with automotive-type pollutants from the rock removal equipment.
- o Industrial: The many local degreasing operations are heavy emitters of VOCs, as already discussed. Any industrial site has its own set of chemicals and pollutants. The planned Toyota plant in San Antonio, and any other new industrial site, will bring with it a new set of industrial pollutants.
- o Utilities: Public utilities, especially coal-fired power plants, are big polluters.
- o Airports: Airports affect local air quality substantially; the busier the airport, the greater the effect.
- o Increased demand from rapid growth: Another critical factor is the continuing rapid growth in the region. Each new house, development, and business adds to the collective air quality degradation through increased demand on all of the sources above.

Consequences of Non-Attainment

The advantages of the AIRCO Clean Air Plan include cleaning the air faster, allowing local governmental control, deferments of enforcement of non-attainment, and avoidance, for now, of any traditional federal "non-attainment" mandates. If, however, in 2007 the EPA finds that the local region has not met its goal for attainment of federal air quality standards, the region will once again be declared in non-attainment. The results of such a judgment would include imposition of the following mandates:

- o EPA-mandated emissions control strategies might require standardized emission controls

rather than voluntary or locally tailored emission controls.

- o Transportation Conformity would mean loss or delay of federal funding for transportation projects. Some projects, including new roads and adding lanes to older roads, would be prohibited until conformity modeling proves they would not further degrade the region's air quality.
- o New Source Review would stipulate that any business wishing to establish itself in this area or any business already established that wished to expand its operation would need to prove that its emissions would not increase ozone pollution.

The Importance of Comal County to Regional Air Quality

- o 45 percent of the Comal County workforce working within the state of Texas works outside of Comal County.
- o 32 percent of the Comal County workforce working within the state of Texas works in Bexar County.
- o The population of Comal County increased by 50 percent between 1990 and 2000. During the same period, the number of workers commuting from Comal to Bexar County increased by 89 percent.

The ideal land use plan should include strategies to minimize the impact on air quality. Efficient and affordable public transportation in high density areas would give residents an alternative to private vehicles. Mixed use developments could result in people living near enough to their work to be able to walk or ride their bikes.

Transportation in Comal County

The most prevalent means of transportation in Comal County is in individual cars and trucks. The county is situated between two main north-south corridors, I.H. 35 and U.S. 281. As a result, the densest development in the county is also along those corridors, in New Braunfels on the east and in Bulverde on the west. The area between those population centers had largely remained rural until the last few years, when population growth has pervaded the county. The only “mass transit” available in Comal County is Alamo Regional Transit (ART), which provides bus service in New Braunfels and the rural areas at no cost to Medicaid recipients or those over 60 and for a fee to all other residents. Pedestrian access through sidewalks is mainly restricted to downtown areas of New Braunfels. Bike lanes have been painted in some areas of New Braunfels, but are not enforced.

As new residential developments (figure 9 on page 11) are built, more pressure is placed on existing roads. New residents drive to work, to schools, to shopping areas, and to recreation areas in the county using existing two-lane farm-to-market and rural roads. The result is increasing traffic congestion, traffic accidents, air pollution and degradation of road surfaces. A 2002 Texas Department of Transportation (TxDOT) study showed that 22,000 vehicles per day converged at the Loop 337/ Highway 46 intersection.

Many residents of the county are calling for widening of roads, even contemplating plans for Highway 46

to become a “third loop” for San Antonio. TxDOT has proposed that U.S. 281 be widened from Stone Oak Parkway to the Guadalupe River to accommodate a 4-lane toll road (4). Other residents worry that widening roads will only encourage more traffic, more air pollution and possible environmental impacts over the Edwards Aquifer capture and recharge zones (see figure 2 on page 2).

Current transportation planning for the area is done by a consortium that includes the Alamo Area Council of Governments, Comal County Commissioners Court, City of New Braunfels, City of San Antonio, Comal County Engineer’s Office, New Braunfels TxDOT Office, San Antonio TxDOT Office and the New Braunfels Chamber of Commerce. A major thoroughfare plan is currently available on the Comal County Engineer’s website (5).

The Comal County Commissioners Court is also exploring the feasibility of forming a Regional Mobility Authority (RMA) for Comal County. RMAs are locally controlled entities working cooperatively with TxDOT to support transportation improvements that might not be able to be funded with state revenues. For example, a RMA could be used to construct a toll road.

Alternative Solutions

While widening roads is one form of managing the transportation needs of the county, there are other alternatives. A rail connection, especially along the IH-35 corridor,

could ease commuter problems between San Antonio, New Braunfels, San Marcos, and Austin. The Austin-San Antonio Commuter Rail District, a regional entity created by the Legislature, is currently determining the feasibility of a commuter rail passenger service within the existing Union Pacific railroad corridor from Georgetown to San Antonio, with multiple stops along the route. The Rail District is currently conducting meetings with communities along the corridor, seeking input, evaluating costs and benefits, and developing funding alternatives (6).

For intra-county transportation, a consortium could purchase low-cost, electric or electric-hybrid vehicles for use from park-and-ride locations in the county. More usage of the ART bus system could be encouraged, perhaps by instituting a regular schedule and park-and-ride locations. New Braunfels and Bulverde could provide more pedestrian and bicycle access in business and recreation areas. The county could consider hike and bike trails to connect recreational centers, like Canyon Lake and Landa Park. Public discussion is essential to generate other alternatives.

Meanwhile, planning is the key to provide the county’s future transportation needs. The County Engineer’s Office has indicated the need to protect future right-of-way corridors from new development. Protections could be considered for environmentally sensitive areas as well. Planning for transportation needs is an important aspect of managing for growth.

Residential Development/ Parks/ Natural Areas

Figure 9 on page 11 shows that as of April 2004, thirty-three new subdivisions, with a total of 11,548

lots, were being developed in Comal County. More subdivisions have been started since then. As discussed

earlier, this unprecedented growth has significant impact on water resources,

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air quality, and transportation. Additionally, growth impacts Comal County schools and their students, county services like fire and emergency services, and natural habitat.

Typically, developments in Comal County outside of city limits are acreage tracts and may have a small percentage of land set aside as “property owner’s parks” for recreation, but not necessarily protected environmentally or set aside as green space. Some of these developments have central water systems and some have individual water wells. Most have individual septic systems. New schools are being built in close proximity to these developments, creating homogeneous student populations. As stores and services open nearby, traffic congestion grows.

The negative impacts of conventional development are many. In addition to the previous discussion of problems of impervious cover and non-point source pollution, there are other impacts on the natural world. Habitat fragmentation caused by roads, curbs, easements and fencing leads to loss of diversity in wild populations. Temperature increases due to heavy concentrations of asphalt and cement also affect wildlife populations. Studies have shown that urbanization causes loss of native species and increase in the “generalist” species. For example, cardinals and blue jays are replacing native song birds. Lack of diversity is an indicator of an unhealthy and unhealthful ecosystem. Given current levels of biodiversity, Comal County could become a center for eco-tourism. Widespread conventional development could threaten that future.

Alternatives to Conventional Development

Some developers in Texas have rejected the conventional model for subdivision development and are working on new models.

Conservation development is one concept that can address the needs for both growth and preservation of environmentally sensitive areas. Conservation developments use the natural features of the property to determine the best place for homes, roads and natural areas. Natural swales and drainage areas are kept intact to collect run-off. Homes are clustered on smaller lots, with fewer roads and easements for utilities. The result is that the same number of families is living on a given property as in conventional development, but there is less negative environmental impact. Families have a large natural area for hike-and-bike trails, birding, and other eco-friendly recreation. Developers benefit because the infrastructure is less expensive to create and maintain.

Local governments can encourage conservation developments by writing water and septic regulations that allow clustered housing, storm water management regulations that allow ponds and other natural features, rather than concrete, and weed ordinances that permit natural grasses and native plants to remain intact.

Green-Belt Zoning is a tool cities could use. It would require that new construction be “clustered” housing on only half of the developed land and that the remaining natural area be preserved and maintained for parks, recreation and protected habitat for wildlife. Maintenance and protection of zoned green belt can be managed by the county or a property owner’s association or can become part of a land trust managed by an environmental or other organization. Green-Belt Zoning offers advantages to developers, local governmental entities and property owners. Developers can reduce infrastructure costs, local governments can reduce

maintenance costs and these savings are often reflected in property costs.

Conservation easements are tools for protecting open space or environmentally sensitive areas. “A conservation easement is a restriction placed on a piece of property to protect the resources (natural or man-made) associated with the parcel. The easement is either voluntarily sold or donated by the landowner, and constitutes a legally binding agreement that prohibits certain types of development (residential or commercial) from taking place on the land.” (Ohio State University Fact Sheet, “*Community Development*”)

Conservation easements provide a way for individual property owners to protect their land from unwanted development while keeping their land in private ownership, providing tax incentives for the landowner, and retaining land management responsibility by the owner. The Nature Conservancy has information about conservation easements at www.nature.org/texas.

Counties in fast-growing areas like Comal County have asked for **legislation** that would give counties more authority to implement guidelines for development and land use. These counties would like authority to set standards in new subdivisions for water and wastewater systems, for fire suppression systems, for improvements to roadways, for open space requirements, to limit impervious cover, and to impose impact fees on developers. Creating legislation that both meets the needs of growing counties and protects the rights of developers has proven elusive.

Current Land Use and Planning

The City of New Braunfels Comprehensive Plan. “Planning for the New Millennium,” a city plan adopted April 19, 1999 and last

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updated in January 2005, includes a Parks and Recreation Plan. The goals of the plan are to inventory, identify, protect and enhance existing and future parks, recreation facilities and open spaces. Goals specifically outline efforts to promote conservation of natural resources through land acquisition, open space preservation and planning with regard to environmentally sensitive areas.

Goals also include providing a diverse blend of parks with good geographic distribution and recreation opportunities “inherent in the landscape and outdoor environment.” Establishing cooperative agreements and coordinating efforts with other governmental jurisdictions (Comal and Guadalupe Counties), educational bodies (New Braunfels ISD and Comal ISD) and with private sector entities to acquire, develop and manage parks and open space was outlined with the goal of creating higher quality parks with less financial burden.

The study area includes areas within the city limits of New Braunfels and the surrounding extra territorial jurisdiction (a total of

approximately 140 square miles.) An updated and detailed inventory and plan for the parks system was completed in August 2001. To view the complete plan, visit www.ci.newbraunfels.tx.us/planning/compplan.html.

The City of Bulverde Comprehensive Plan, “Sunrise 2025,” was adopted by the City of Bulverde in 2004 after a two-year process of gathering citizen input and establishing goals and priorities. Some of the priorities for managing growth, as identified by a citizen survey, are to protect existing neighborhoods, protect the environment, keep Bulverde attractive, solve traffic problems, provide parks, and provide economic opportunity. The completed plan contains specific goals for land development/growth management, public safety and community services, infrastructure, transportation, historical and heritage preservation, economic development, and community development. More detailed information can be found at www.bulverdecity.com.

Comal County Commissioners report that while the state legislature has yielded little authority to the

county to manage growth and development, Comal County does require builders/developers to meet the following guidelines: developers must identify a water source and prove supply will meet the needs for 30 years at full build-out. Lots including both an individual well and septic system require at least 5 acres, and lots with a public water supply require 1 acre. At this time there is no ground water conservation district in Comal County and no authority in the county to regulate ground water.

Comal County is currently responsible for maintaining three county parks: Hidden Valley Sports Park, located near Canyon Lake in Sattler; Solms Park, a cooperative agreement between Comal County and the LCRA; and Jumbo Evans Sports Park, a 46 acre park in Spring Branch. A map of the parks can be viewed at parks.cceo.org.

U. S. Army Corps of Engineers (COE). In addition to responsibilities for flood control through regulation of Canyon Lake Dam, the COE also maintains several parks for camping and beaches for recreation around Canyon Lake, as well as four hiking trails.

City-County Relations

Historically the Texas Legislature has chosen to give cities great power over land use and counties very little. Because of the rapid development of cities like New Braunfels and San Antonio, the question of their extraterritorial jurisdiction, or ETJ, becomes one of the major governmental land-use decisions between cities and their counties. An ETJ’s boundaries are legally defined by the population of the city within that jurisdiction and may be changed over time.

Of the incorporated cities with some area in Comal County, New Braunfels, San Antonio and Bulverde

are the most important areas involving land use policy. In New Braunfels’ case, its ETJ is generally a 2-mile radius around its annexed area (7). In San Antonio’s case, its ETJ extends 5 miles beyond its annexed border (8). To see the multiple ETJs in Comal County and get an idea of their importance to land use in the county, see figure 10 on page 11.

In response to conflicting regulations in subdivisions shared by cities and counties, the Texas Legislature revised the Texas Local Government Code (Chapter 242) to limit subdivision regulations to one entity. This meant counties and cities

had to develop agreements concerning regulations in subdivisions they shared within their ETJs. Bulverde chose to cede its ETJ rights to Comal County (9) in 2001. The county ceded its rights in San Antonio’s ETJ to San Antonio that same year (8). New Braunfels and Comal entered into an agreement concerning New Braunfels’ ETJ in 2002.

The agreement between Comal County and New Braunfels assigns much county authority to the city, but the overall thrust of the document requires the city to protect county water resources from subdivision

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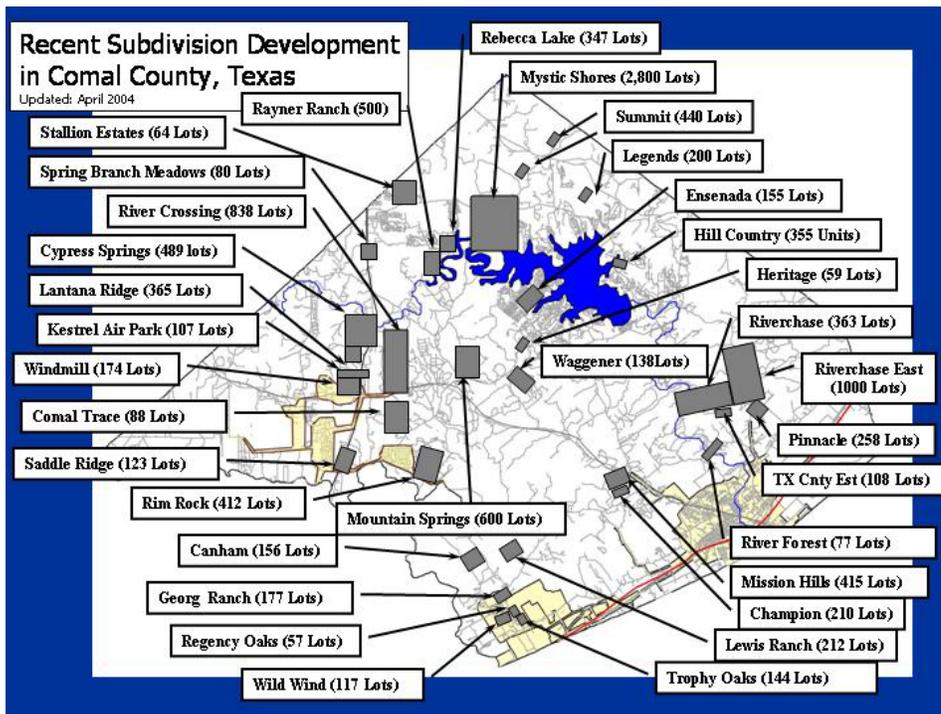


Figure 9 - Recent subdivision development in Comal County.

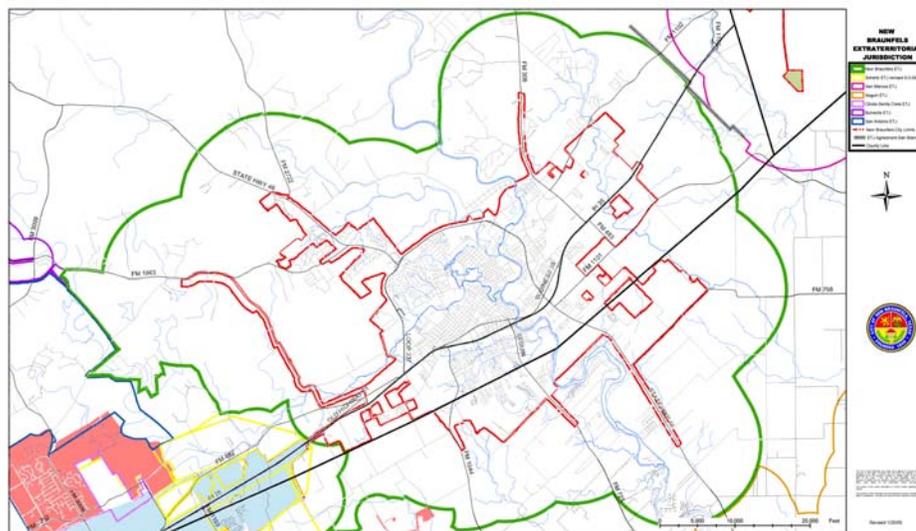


Figure 10 - The extra territorial jurisdictions in the New Braunfels (green) area include Bulverde (purple, far left), San Antonio (blue, completely surrounding Garden Ridge - pink solid area), Cibolo (below Garden Ridge), Schertz (yellow), and San Marcos (magenta, upper right).



Figure 11 - Southwestern Comal County showing the blue outline of San Antonio ETJ completely surrounding the City of Fair Oaks (in light pink in southwest corner of Comal County) and abutting the city of Bulverde.

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overuse and pollution. The agreement stipulates that the county “shall continue to administer and enforce ... flood plain, on-site sewage facility, and driveway regulations” in the subdivisions in the city’s ETJ. The city agrees to enforce provisions similar to the county subdivision regulations pertaining to residential water, sewage, roads, storm water drainage and division of plats.

Because cities have greater legislative ability to control growth and ameliorate its effect on air and water quality, the county’s interest in protection of natural resources from over-use would be best served by ceding authority in ETJs to a stronger political entity as soon as possible.

Another reason for the county to cede its jurisdiction is the fact that ETJs are generally county land that will eventually be annexed into the city.

Often the ability to regulate is tied to the ability to raise revenue. The county has two major sources of income, a county property tax and a percentage of the sales tax. In the county, the property tax is currently based on 32¢ per \$100 valuation of the appraised value of any property in the county. The county gets 0.5% of taxable sales in its jurisdiction. New Braunfels also receives 32¢ per \$100 valuation of the appraised value of any property in the city. The city, however, gets 1.5% of taxable sales in the city limits. Both the city and the county impose other fees. The county can charge developers a plat fee to cover administrative costs. The cities can charge fees for inspections and permits.

For these costs, citizens can expect certain services. The cities and counties provide many of the same services like roads, law enforcement, a court system and recreational areas. There are other services that are unique to the jurisdiction. The county

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provides indigent medical care, child protective and public health services. The city provides residential water, electricity, natural gas, sewage, and

garbage collection to municipal residents.

A further factor in city-county land-use issues that particularly affects Comal County and its associated cities is population growth. The phenomenal

growth discussed in this report will surely tax both existing land and water resources and stretch present city and county services, including both school districts, beyond their ability to respond.

References

Water

1. Landphair, H. C., McFalls, J. A., & Thompson, D. 2000. Design Methods, Selection, And Cost-effectiveness Of Stormwater Quality Structures, tti.tamu.edu/documents/1837-1.pdf.
2. Eckhardt, G. A. 2005. The Edwards Aquifer Home Page: Canyon Lake and the Guadalupe River, www.edwardsaquifer.net/canyon.html.
3. FEMA Maps of Comal County On-line, www.cceo.org.

Air Quality

- Conversation with Comal County Commissioner Jay P. Millikin on February 11, 2005. Commissioner Millikin is the current Chairman of the Air Improvement Resources Committee of AACOG.
- United States Code Annotated, Title 32 - Public Health and Welfare, Sections 7401 to 7900.
- 1990 Clean Air Act Amendments; EPA National Ambient Air Quality Standards (NAAQS); 40 CFR, Title I, Part A, Section 109.
- United States Census Bureau, 2000 U.S. Census

Transportation

4. Texas Department of Transportation. www.dot.state.tx.us.
5. Comal County Major Thoroughfare Plan. www.cceo.org/mtp_color_032905.pdf.

6. Austin-San Antonio Commuter Rail District. www.asarail.org.

City-County Relations

7. Interlocal Cooperation Agreement Between Comal County and the City of New Braunfels for Subdivision Regulation with the Extraterritorial Jurisdiction of the City of New Braunfels.
8. Interlocal Cooperation Agreement Between Comal County and the City of San Antonio for Subdivision Regulation within the Extraterritorial Jurisdiction of the City of San Antonio.
9. Interlocal Cooperation Agreement Between Comal County and the City of Bulverde for Subdivision Regulation within the Extraterritorial Jurisdiction of the City of Bulverde

General

- Alamo Regional Transit, Alamo Area Council of Governments
- Austin-San Antonio Intermunicipal Commuter Rail District
- City of Austin Hazard Mitigation Action Plan Page 7-3 <http://www.ci.austin.tx.us/oem/downloads/mit5.pdf>
- Texas Water Development Board, Population Growth and Projections, 2002
- United States Code Annotated, Title 42 – Public Health and Welfare, Sections 7401 to 7900.
- Woodward-Clyde Consultants, EIR for the City of Santa Barbara and Ionics, Inc.'s Temporary Emergency Desalination Project, March 1991. www.coastal.ca.gov/desalrpt/dchap1.html

Resources

Researched by the LWV-Comal Area Land Use Planning Study Committee, Jensie Madden, Chair. Written by Bonnie Leitch, Jensie Madden, Lisa Perrine, Jill Sondeen, and Julie Swift. Lay-out by Jill Sondeen. The authors are grateful to Jan Estes and Lynny Davis for their editorial and web page help. Thanks to all the League members who participated.

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- Scheel, Danny, Comal County Judge
- Sparks, Chance, Bulverde City Planner
- Stence, Don, Stence Associates
- Stephens, Rufus, Wildlife Biologist, Texas Parks and Wildlife Department

Sources for Figures.

- Figure 1. Adopted from Texas Water Development Board: www.twdb.state.tx.us/publications/reports/GroundWaterReports/GWReports/Report%20353/Figurehtmlfiles/Figure2.htm
- Figure 2. Adapted from www.edwardsaquifer.org/website/EAA_Internet/viewer.htm
- Figure 3. Adapted from www.sara-tx.org/site/about/maps_index/STREAM_SEG.jpg
- Figure 4. Adapted from the Main Basin map www.gbra.org/?datapage=map_main.asp
- Figure 5. Adapted from www3.tnrc.state.tx.us/iwud/maps/index.cfm?fuseaction=pickmap1&countyname=Comal&countyCode=046
- Figure 6. Source: www.cceo.org. Click on "Flood Control Planning," "Existing improvements," "Structures"
- Figure 7. Source: www.cceo.org. Click on "Flood Control Planning," "Existing improvements," "Study"
- Figure 8. Source: www.watershedexperience.com/who_is.html
- Figure 9. Source: www.cceo.org. Click on "View Subdivisions Across Comal County"
- Figure 10. Adapted from www.ci.new-braunfels.tx.us/planning/ETJ%2011x17.pdf
- Figure 11. Adapted from www.sanantonio.gov/dsd/mdp/mtp.pdf

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