

SAN FELIPE CREEK MASTER PLAN

**Developed by:
San Felipe Creek Commissioners
June 2007**

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MISSION STATEMENT

The San Felipe Creek Master Plan reflects the values of the Del Rio community as it interacts with the ecosystem of San Felipe Creek. The Master Plan seeks to restore the natural ecosystem of the creek through community education, preservation and rehabilitation efforts by utilizing local, state and federal resources available to civic and government entities. The Master Plan aims to create a balanced environment between recreation, development and preservation of the natural beauty of San Felipe Creek.

VISION STATEMENT

The San Felipe Creek Master Plan must achieve a sense of harmony between nature and human enjoyment

SCOPE OF MASTER PLAN

The San Felipe Creek Master Plan covers all areas of the creek within the city limits.

SAN FELIPE CREEK MASTER PLAN

I. SETTING

San Felipe Creek is primarily located within the City of Del Rio, in Val Verde County, Texas. The major source of water comes from the San Felipe Springs; flows typically range from 50 to 90 MGD (million gallons per day; 77-139 cfs). The creek flows into the Rio Grande just below Amistad International Dam.

Del Rio is situated in a biological transition zone in south central Texas; here three major biotic communities join. The Chihuahuan Desert, exemplified by the Big Bend country to the west, reaches its eastern limits in Val Verde County. The Edwards Plateau, or Balconian, community (known to Texans as the 'Hill Country'), lies to the north. The Tamaulipan Shrubland comes up from south Texas and Mexico and reaches its northern limits here. Flora and fauna characteristic of all three communities enrich Val Verde County, and create an attraction for residents and visitors alike.

Geologically, the Del Rio area is underlain by thick beds of 100 million year-old Cretaceous limestone formed in an ancient sea bed. Like all limestone, the rock is porous and can contain and convey vast quantities of water.

Climatologically, the Del Rio area is generally under the influence of the Gulf of Mexico. Tropical storms, and even a rare hurricane, occasionally make their way up the Rio Grande with disastrous and tragic results. Moving west from Del Rio, the climate becomes more continental- drier and less humid. This is why the semi-tropical Tamaulipan Shrubland eventually gives way to the arid Chihuahuan Desert.

San Felipe Creek, therefore, is at a biological and climatological crossroads. The varieties of habitats and resources that include the creek and its environs have attracted people for thousands of years. Modern humans continue to focus their attention on the creek.

II. HUMAN ENVIRONMENT

A. Settlement Along San Felipe Creek

Archeological evidence demonstrates that human beings have lived in the area now known as Val Verde County for thousands of years. At the edge of the Chihuahuan Desert, San Felipe Creek is the third largest natural spring in Texas. As early as 1590,

explorers marveled at such an oasis of life, vegetation, and water at the edge of a barren land mass. Over 43 spring sites have been recorded in the Val Verde County area. The springs are a natural attraction to life and settlers.

Archeologists have found evidence of settlements at least 11,000 years old. Hundreds of cave paintings found throughout the area are evidence of early human presence in the Val Verde County area. The National Park Service accounts for over 400 different archeological sites of early human presence throughout their recreation area with an unknown number currently on private land and in Seminole Canyon State Park and Historic Site.

Archeologists are unclear as to the nature of the tribes that settled along this jewel in the desert. As many as 15 different tribes may have permanently or seasonally inhabited the San Felipe Creek region. Record of these tribes come from archeological sites and recorded history from Spanish explorers who traveled the area around 1590 on their way to explore parts of New Spain.

Between 1672 and 1783 several attempts were made by the Spanish government of New Spain to settle near San Felipe. Settlements were not successful because of their remote location and the rugged terrain. Local legend credits the naming of the springs to Fray Juan Larios and Spanish priests who celebrated mass along the springs and named them San Felipe Springs. Although unverified, San Felipe Country Club currently has a historic marker on golf course property commemorating the first mass celebrated along the creek.

San Felipe Creek saw no new attempts at European settlement until after Texas became a part of the United States in 1845. Between 1845 and 1858, San Felipe Creek and modern day Del Rio became a high traffic area for travel west to El Paso and California. The route was carved out to capture trade from Mexico and all points west. However, no settlements were established along San Felipe Creek until 1859, when a man named Johnson settled along San Felipe Creek with his wife and two children.

The Johnson settlement did not last very long; therefore, the first permanent settlement and the one considered to be the founding of Del Rio is that established by James Taylor and his wife Paula Losoya Taylor in 1862. The Taylor settlement quickly became the economic and religious center of the new community along San Felipe Springs. The new community of San Felipe Del Rio was born.

Development Along the creek

After the Taylor settlement, development along the creek was quick. Between 1862 and 1890, San Felipe Del Rio grew exponentially due to cultivation of the rich soil along the creek banks by the Taylor *hacienda*. Sacred Heart Church was established in 1891 signaling the significant growth that had occurred in the previous 28 years of settlement. One year after the blessing of Sacred Heart Church in 1905, a new parish was

established – Our Lady of Guadalupe Parish. San Felipe Del Rio continued to grow with the establishment of a third parish– Saint Joseph’s– in 1927.

Development progressed due to the vision of James Taylor and some associates who established the San Felipe Agricultural, Manufacturing and Irrigation Company in 1868. The company paved the way for the cultivation of land along the San Felipe Creek and the establishment of the creek’s engineering marvels – the San Felipe irrigation canal system. Along with the Taylors, many prominent businessmen settled in San Felipe Del Rio making it a viable town. In 1875, the community applied for a charter from the Secretary of State. Despite this, Del Rio was not incorporated as a city and the first government was not organized until 1905; the first elections were held June 21, 1905. Boundaries were set for the city that constituted modern day downtown Del Rio and the properties along the San Felipe Creek in the proximity of downtown.

With the establishment of a city government, San Felipe Del Rio continued its growth. Development along the creek created large tracks of land for irrigation and cultivation, and economic growth was focused on the downtown area which was away from the creek banks. Development along the creek from the establishment of San Felipe Del Rio in 1905 until today has been predominately residential. The beauty of the area has attracted many residents to build large homes along the banks of the creek. Very few commercial businesses have opened along the creek; the most successful is Memo’s Restaurant.

The irrigation system continues to supply water to private homes and agricultural fields along the creek. This engineering marvel made Del Rio’s growth possible. The Taylor vision, the irrigation system, and the abundant water of San Felipe Springs made the settlement of San Felipe Del Rio a reality and the community we see today.

The Flood of 1998

As in many watersheds, structures along San Felipe Creek carry some risk of damage by the waters that rush through the creek. In 1998, disaster struck the residents of Del Rio and the homes along San Felipe Creek. The remains of Tropical Storm Charley settled over the Del Rio area in August dumping over 18 inches of rain. The result of the heavy downpour was a massive increase in the flow of San Felipe Creek.

The increased rainfall on San Felipe Creek created floodwaters higher than the 1954 flood. The wall of water destroyed over 200 homes along the banks of the creek and killed nine residents of Del Rio. The homes along the southern banks of the creek were devastated by the floodwater. Homes in the San Felipe neighborhood were washed away or destroyed completely. Many more homes were damaged beyond repair.

Today

The San Felipe Creek area is still recovering from the devastation of the ’98 flood. With the help of the Federal Emergency Management Administration (FEMA), the City of Del

Rio bought many of the properties damaged by the flood. Those individuals who lost their homes to the flood were issued temporary housing on Hwy 90 East. The properties that the City of Del Rio bought are in the process of being converted into a nature preserve park land for the citizens of Del Rio.

San Felipe Creek continues to be the centerpiece of Del Rio life. Children and adults alike find comfort, relaxation, and recreation along the banks of the creek. The enjoyment that the creek provides the citizens of Del Rio should be shared with the world. San Felipe Creek can become Del Rio's major tourist attraction.

Current Condition of San Felipe Creek:

1. 6,072 linear feet (1.15 linear miles) of the creek banks are rock-lined.
2. 9,640 linear feet (1.825 linear miles) of the creek is dominated by exotic cane (*Arundo donax*).
3. Currently the creek has six walkway bridges and seven street bridges in place.
4. The bulk of recreation is around Blue Hole, off of HWY 90. During the summer months this area is used for swimming and gatherings.

B. Events and Recreation at San Felipe Creek

San Felipe Creek Historic Events

San Felipe Creek has been the site of many historic events. The creek has been the center of life and recreation for the San Felipe Del Rio community since the first permanent settlements were established in the area. The community of Del Rio has used the creek as the center of all communal activities.

As with any other settlements in the Southwest, the church was the center of all celebrations, births, deaths and events. San Felipe Del Rio is no different. Doña Losoya would hold mass in her *hacienda* near the creek for the small Mexican community that worked on her property. The *hacienda* was the center of all political and religious activities around the creek. The religious community of San Felipe crossed the creek to have their children baptized until 1895 when the Sacred Heart Parish was established.

Many other events became part of the creek, especially the events established by the Mexican community in San Felipe. *Cinco de Mayo* was the biggest celebration in the San Felipe community. However, the community was unable to celebrate in a central location until 1908 when G.W. Brown donated a large tract of land for the purpose of creating a plaza or square near the creek. Plaza Brown was born along the San Felipe Creek landscape with the generosity of Mr. Brown and the hard work of the San Felipe community. The Plaza Brown served as the unifying force for the community that lived along San Felipe Creek and the entertainment center for San Felipe.

Many bands have played in the kiosk build in the Plaza and many politicians have asked for the San Felipe vote from that kiosk. Just like G.W. Brown envisioned, Plaza Brown has become the recreation center for Del Rio. Not only is *Cinco de Mayo* celebrated at Plaza Brown, but *Dieciseis de Septiembre* (Mexican Independence Day) has become a major celebration for San Felipe Creek.

Along with the celebrations on the Plaza many organizations have used the San Felipe Creek as the gathering place for showcasing their hard work or for fundraising events. San Felipe Creek has seen many car shows and motorcycle enthusiasts. Many of the organizations will hold food sales on the banks of the creek to raise funds for local charitable causes or for their operations.

The most important of celebrations has been held on the banks of the San Felipe Creek. The Fourth of July celebration is the cornerstone of all creek events. Once held at Moore Park, the celebration is now held at the Amphitheater. The Amphitheater has become the jewel of San Felipe Creek and the center of many important events on the creek.

San Felipe Creek Historic Recreation Areas

Moore Park has been the focus of recreation for Del Rio and San Felipe Creek for many years. The four acre park stands at the north end of San Felipe Creek just after it crosses Highway 90E. Equipped with the City of Del Rio pool, Moore Park serves as an alternative to the clear cool waters of San Felipe Creek and as a gathering place for birthday celebrations.

As San Felipe Creek crosses under the overpass from Highway 277S, a rock path leads to Del Rio's Amphitheater. Built during Mayor Gutierrez's tenure, the Amphitheater stands as a tribute to the beauty of the San Felipe Creek. Only under the restful, clear waters of the creek, can our community come together to celebrate and relax, listen to music, or watch a theater production. At no other time does this statement ring true than on the Fourth of July. On this day Del Rio becomes one community celebrating independence at the Amphitheater on San Felipe Creek.

Another of San Felipe Creek's unifying features is Plaza Brown. Built specifically to create a gathering place for the community of San Felipe; Plaza Brown serves as a cultural reminder of Del Rio's rich Mexican heritage. The *Dies y Seis de Septiembre* and *Cinco de Mayo* are the centerpiece of this unique community asset. Hundreds of citizens come to Plaza Brown to be part of the celebrations every year. Plaza Brown also serves as the focal point for the business community of San Felipe. Once, it was surrounded by a theater and hotel. Now, it is bound by the Casa de la Cultura and Del Rio's Legal Aid Office.

San Felipe Creek Education Program

The education and involvement of children are vital to the environmental awareness that needs to be promoted in the community. By the San Felipe Creek Commissioners

partnering with the San Felipe Consolidated Independent School District and The Casa de la Cultura the importance of the creek and the habitat that it supports can be expressed to children through educational programs. A hands on approach with children would be the preferred way to encourage the importance of maintaining the natural integrity of the San Felipe Creek and the habitat that relies on its existence.

Current Event and Recreation Challenges

Attracting audiences from around the region is a major challenge for San Felipe Creek Events. Many of the events on the creek are events that are also celebrated in the surrounding communities. Consequently, the surrounding communities will likely not attend the San Felipe Creek events. The challenge is to create events that are unique to San Felipe Creek and the surrounding communities. Events such as these have a potential for becoming tourist attractions for the City of Del Rio.

Events and recreation areas on San Felipe Creek face the monumental challenge of mitigating the environmental impact— parking, trash, vehicle pollution – on the creek itself. The natural wonder that is the creek must be maintained free of contamination of all types. Events and recreation areas bring people and people most of the time bring trash. Consequently, this plan must educate the public about the importance of minimizing the environmental impact on the San Felipe Creek.

Marketing is an important component of any event or recreation area. The San Felipe Creek is faced with a major challenge of marketing its natural, man-made, and event attractions. Developing a marketing strategy to attract tourists and locals to the creek on a consistent basis is important to the success of this Master Plan.

To ensure successful events and recreation facilities along the Creek, the City faces a safety challenge that can only be resolved with additional lighting and careful maintenance of vegetation. The creek must be a haven for individuals. They must feel safe before they venture into the creek. Consequently, safety becomes a major challenge.

Action Items

1. Membership recruitment for planning activities.
2. Work with groups currently having events along the creek (San Felipe Creek Walk Association, The Brown Plaza Association)
3. Work with local organizations to encourage their events to take place along the creek.
4. Develop a group who can raise funds to help the City with costs associated with caring for San Felipe Creek.
5. Become a 501C3 non-profit to have the ability to apply for educational grants.
6. Continue to block vehicular traffic from areas too close to the creek. Access is by walking or biking down to the creek's edge.
7. Up keep of hike and bike trail.

Proposed Events

1. Live music at the amphitheater encourages people to stay, play and picnic(summer)
2. Family Day with a variety of activities.
3. Clean-up events, working in conjunction with the City of Del Rio twice a year.
4. Arts and entertainment festivals, partnering with the local art community.
5. Duck Race.
6. Armored Catfish Festival.

C. Economic and Community Development

1. History of Economic Development on San Felipe Creek

One of the oldest businesses along the San Felipe Creek was the Ice Plant. The ice plant manufactured 50 pound blocks of ice for preserving food and cooling beer. The plant was built in 1883 on Academy Street. Ice was a very important commodity for South Texans, particularly in the hot summer months. However, the ice plant produced more than just ice. It was a gristmill, grinding grain from local farmers and from Mexico. Eventually, the ice plant became a power generating plant using coal from the mines in Eagle Pass to generate electricity for the town.

The oldest business near the San Felipe Creek in what is known as the San Felipe neighborhood was "La Constancia." Owned and operated by Don Jose Tagliabue and his wife, "La Constancia" opened its doors in 1881 as the first general store near San Felipe Creek. It catered to the people living in San Felipe along the creek who had to cross the creek to get any general goods prior to Don Jose opening his store. "La Constancia" became one of the many businesses that opened near the creek to serve the community along the creek.

San Felipe Creek saw the opening of a slaughterhouse and meat market in 1891. In 1893, the first of many Spanish language newspapers to serve the community opened. After the opening of this first newspaper, many followed in its place serving the needs of the Hispanic community living along the banks of the creek. Entertainment also became an important part along the Creek. The first Little Theater was organized in San Felipe in 1897 with its first production at the school house.

The early 1900s brought a growth in businesses along the San Felipe Creek. Many new grocery stores opened to provide the produce needed for the thriving population along the creek. The Villareal Grocery Store, "La Tienda Colorada," and Urby's Super Market all opened within a few years of each other near the creek.

Grocery stores were not the only businesses that opened. In 1909, Don Santos S. Garza opened Teatro Juarez, the first theater in San Felipe. Located on Cantu and Guillen Streets it was located along the creek. The theater offered celluloid films and live theater for the residents of the creek community. Many other theaters sprung up soon after Don Santos opened Teatro Juarez. Teatro Madero opened in 1913. The

Casino opened in 1923 on the northeastern part of the Plaza Brown and served the community until 1938.

A café, bookstore, cleaners, hotel and filling station, funeral home, and pharmacy were all part of the development of the community along the San Felipe Creek in the early 1900's. The vibrant community supported all these businesses as they sprung up along the creek boundaries. The community continued to prosper, even after the flood of 1954. The businesses along the creek were tied to the community in San Felipe and as San Felipe grew, so did these businesses.

However, the growth of Del Rio soon impacted the community. HEB, Wal-Mart, and Plaza del Sol Mall all contributed to the decline of the local grocery and department stores by crippling the many merchants that survived in the community. San Felipe residents found themselves crossing the creek more and more to shop at these stores.

The 1998 flood also had a devastating effect on the San Felipe Creek community. Hundreds of homes were destroyed and those individuals relocated to other parts of town. The community changed as the creek waters changed the landscape.

Today, there are few businesses along the creek or in San Felipe. The ones that survived the flood, like Memo's Restaurant, continue to operate. Commercial Development along the creek is minimal. No new businesses are moving to the creek, most locate on the north side of Del Rio or in downtown ignoring the opportunity that the creek might bring.

2. Economic Development Challenges

a. Floodway

Any development along San Felipe Creek faces the challenge of building in a flood zone. After the flood, the Federal Emergency Management Administration and the City of Del Rio recognized the need to regulate the building of structures along the San Felipe Creek. Consequently, a floodway map was created and regulations were adopted to ensure the safety of any structure that is built within this flood zone.

The zone extends outward from the banks of San Felipe Creek in three distinct intervals. First, the floodway which currently is designated as an area where residences cannot be constructed and any other buildings that are constructed require stringent elevation and safety features. Second, the 100 year floodway where residential buildings are allowed, but regulations require certain safety features and elevations. Finally, the 500 year floodway where construction is allowed under the regular building regulation with few of the regulations found in the other two zones.

The challenge to developers wanting to develop along the San Felipe Creek is the expense of complying with the floodway regulations. In order to build any structure adjacent to the creek, developers must incur significant building costs to meet all

regulations. The costs are prohibitive to developers who want to gain some return on investment along the creek.

b. Existing Zoning

If development is to occur along the creek, land use and zoning must be modified to secure the appropriate level of development. Currently, there are few areas zoned for commercial use along the creek. Most commercial areas are along major crossings; none are along the edge of the creek path. Without appropriate zoning, developing the creek will prove to be a sizable challenge.

There are pockets of developable land along the creek that can be used to create multiuse master plan developments as seen in other communities. The land, however, is currently either the property of the City of Del Rio, occupied by longtime residents, or owned by absentee owners.

It is the San Felipe Creek Commissioners belief that all new development proposed along the San Felipe Creek is presented to the Commissioners during a scheduled meeting for approval. If Commissioners believe that the proposed development will maintain the integrity of the creek and approve the development they will recommend approval to City Council and the Planning and Zoning Board. Without the San Felipe Creek Commissioners approval of the proposed development it would be determined that proposed development would not maintain the natural integrity of the creek and its habitat and therefore not be allowed to proceed.

Action Items

1. Develop criteria for development along the San Felipe Creek to be adopted by City Council.

III. Nature and the Environment

A. Natural History of San Felipe Creek

1. Source and Use of the Creek

San Felipe Creek flows from the third largest spring system in Texas. Although there are several springs throughout the aquifer area, the City of Del Rio uses only the two main springs for its water supply. The aquifer derives its water from the Edwards and Trinity plateau, which lies above the Balcones fault zone. The underground aquifer is believed to cover over 6,500 square miles. The West Spring is classified as ground water; the East Spring is classified as ground water under the influence of surface water.

2. Development of Natural Vegetation

Natural vegetation needs encouragement by removing non-native vegetation and minimizing compaction of soil by pedestrians and automobiles and thru the reduction of mowing.

3. Habitat

A. Riparian- This zone is the area adjacent to and interactive with the stream. Natural riparian areas are structurally diverse and more productive in plant and animal biomass than adjacent upland areas. Riparian areas supply food, cover, and water for many organisms, and serve as migration routes for a variety of wildlife. Because riparian ecosystems often are relatively small areas and occur in conjunction with waterways, they are vulnerable to alteration.

B. Stream- The stream consists of the flowing, aquatic habitat and its interactive organisms and physical elements. Organisms include plants, invertebrate, amphibians and fishes as well as terrestrial animals that depend on the stream. Physical elements include temperature, water chemistry, gradient current and substrate.

4. Conservation of Native Species

The Devils River Minnow (*Dionda diaboli*) is a small fish in the minnow family, *Cyprinidae*. It is recognized as a distinct species by the American Fisheries Society (Robins et al. 1991) based on morphology (Hubbs & Brown 1956), genetic markers (Mayden et al 1992), and chromosome differences (Gold et al 1992). Adult Devils River Minnows reach sizes of 25-53 mm (1.0-2.1in.) standard length. It is native to tributary streams of the Rio Grande in Val Verde and Kinney Counties, Texas and Coahuila, Mexico. This includes San Felipe Creek from headwater springs to springs in Del Rio and downstream.

b. San Felipe Gambusia (*Gambusia clarkhubbsi*) is the first new fish discovered in Texas in over 30 years (Garret and Edwards 2004). Nine species of *Gambusia* are known to have occurred in Texas. Two are extinct and one is now extirpated from Texas waters. The majority of these species are (or were) adapted to specific spring environments, and most occurred sympatrically with other *Gambusia*. This new species also appears to be a spring specialist, occurring with the Mexican mosquito fish (*G. Speciosa*) in the head waters of San Felipe Creek. The new species belongs to group of fishes called mosquitofish, named because they consume vast quantities of mosquito larvae and are instrumental in the control of mosquito-borne disease vectors. The adults of this new species are typically one inch long and female adults are about an inch-and-a-half long. The color of San Felipe *gambusia* is light overall with caudal fins that are colorless to dusky except for a dark bar near the margin in mature specimen.

The discovery of this fish is thought to be linked to innovative work by the city of Del Rio and the San Felipe Country Club to improve and protect aquatic habitat along the San

Felipe Creek. As enhanced vegetation and more environmentally friendly approaches to creek-side land management are instituted, aquatic habitat is improved, causing native fish populations to rebound and become more widespread and visible.

B. Environmental Issues

1. Water Quality

Water quality is of paramount importance. All existing activities and all future planning will be scrutinized for impacts on San Felipe Creek in terms of urban runoff, potential for accidental spills, and any other source of pollution. The use of pesticides and fertilizers should be minimized on city property and discouraged from use among private citizens along the creek. All possible sources of point and non-point source pollution should be investigated and eliminated.

The population of domestic ducks which reside near Highway 90 are a direct source of concentrated fecal pollution causing excessive growth of water plants and algae. In still waters, such as the Blue Hole area, these plants die in the summer and the decomposition process removes oxygen in the creek waters which may directly and negatively impact fish populations as well as other aquatic inhabitants. In addition, the presence of large amounts of feces and coliform bacteria may present a health hazard to the children and adults who swim at the Blue Hole. For these reasons, it is recommended the domestic ducks be removed from the area.

Commercial development along the creek should be regulated. Not only would it put these entities at risk in the event of a flood, but it would also create other sources of pollution. The City has the ability to control and restrict inappropriate development in the drainage basin through zoning ordinances.

The construction of conventional-style parking lots should be especially discouraged. Rainfall runoff from parking lots can produce pollution, so, provisions should be made to construct a catchment (retention pond) to process the runoff or it should be directed to extensive areas of native vegetation to filter pollutants out.

The City of Del Rio Code of Ordinances has various existing ordinances that pertain to protecting water quality. Chapter 11, Flood Damage Prevention, is designed to minimize flood losses. It provides for the restriction or prohibition of building floodplains, construction of stream channel or other natural barriers which accommodate floodwater, controls the filling, dredging, grading, or other developments that may increase flood damage, and prevents or regulates the construction of flood barriers. The areas of special flood hazard are identified by the Federal Emergency Management Administration to ensure conformance with this ordinance. This ordinance also designates the City Manager as the Floodplain Administrator.

Another Ordinance is contained in Chapter 19, Parks, Recreation and Public Gathering Places. This provides for the conduct in public parks and in city activities, sanitation, park property, and enforcement. Specifically, Article IV, San Felipe Creek Walk, Sections 19.5-150 to 19.5-173 provides for the planning, management and coordination of the activities which are conducted in that area and this is accomplished by the designation of the San Felipe Creek Walk Association as the official agency of the city to accomplish this.

Chapter 23, Sewers, regulates the discharge of wastes, provides rules for private sewage facilities and for licensing and regulation of the removal and disposition of private sewage facility wastes. Section 23.21 Same- To Public waters, states that no waste or wastewater may be discharged to public waters which contains acids, plating solutions. Fats, wax, grease, oils in excess of 100 milligrams per liter (mg/l) or which may solidify or become viscous at temperatures between 32°F and 150°F may not be discharged into public waters. Objectionable or toxic substances, liquids or gases are similarly restricted and disallowed. Permits for discharges are required.

Chapter 24, Solid Waste, regulates the collection and disposal of solid wastes. This chapter provides for the residential garbage collection and for commercial disposal of wastes. The city landfill, permitted by TCEQ, is inspected periodically. Permit number for this facility is MSW 207A, as amended. Wastes are not allowed to collect in order to prevent such wastes from being carried or moved from the property by actions of the sun, wind, rain, or snow. Such wastes, if not collected and removed, could ultimately be deposited in public waters.

Also, Chapter 29, Water, contains general provisions for the city as the water purveyor, for regulation of wells, and for water conservation and drought contingency plans. The city council or its designated agent, the City Engineer, shall inspect the wells, have made or make analysis of the well water, go onto private lands to inspect the wells, supervise and inspect the construction and require the owners to furnish all information on the well to include logs, geologic information and depth and size of well constructed. Further, the City is to monitor the daily water demand in case of emergency. The drought contingency plan provides for controls of water usage during droughts or emergency.

The City of Del Rio via Ordinance No. O:2000-01 approved a revised Drought Contingency Plan and Water Management Plan on January 11, 2000.

a. The plans contain various aspects to determine what is drought condition, what triggers the drought contingency plan, enforcement and fines, in order to establish practices for the conservation of water.

b. The plan defines essential water use, non-essential water use and other such watering. The plans set three contingency triggers and severe water shortage. These trigger conditions set the plan in motion. Basically, this is a measurement of stored water quantities in the Bedell Reservoirs and others.

c. Once the plan is put into effect, notification is given to citizens via radio, television, and newspaper notices. Enforcement can be accomplished by fines and citations for non-compliance. The plan also can require a minimal use of water for watering purposes and establishes watering days based on locations and time of the year.

d. Since it was approved by the City Council, the plan has been put into use only on one occasion.

All ordinances above or parts thereof were briefly discussed and are pertinent to protecting the water quality in the San Felipe Creek and the two springs which provide the source of water for the city for domestic and industrial use, recreational use, and to maintain the quality of the public waters of the city.

2. Ground Quality

As much as possible, stream banks are to be preserved in their natural state, or returned to their natural state as repair of existing sidewalks and retaining walls is performed.

a. Stream bank retention, repair, and reinforcement, where needed, are to be done by the "most natural" method practicable. A return to a completely natural state with the use of native vegetation is preferred; following that, the use of fiber mats, gabions, etc., should be considered. Concrete, brick, stone, and mortar are to be the last resort. Channelization should be avoided.

b. New sidewalks may be placed close enough to allow users a view of the waterway, but must be far enough away so as not to encourage erosion or to disrupt existing vegetation. As a general rule, sidewalks should be no closer to the stream bank than 10' and should meander up to 40' -50' from the stream. Occasional water-edge viewing areas may be constructed to look and function as part of the natural system.

c. Buffer zones of native vegetation will serve as traps for any pollutants (fertilizers, pesticides, etc.) which may runoff from neighboring streets, parking lots, residential areas, or the golf course. Native plants will be attractive to birds, butterflies and other forms of wildlife that nature tourists and local residents enjoy viewing.

d. In developed areas, such as along the creek walk, the buffer zone should extend from the edge of the water up to within 2' of the sidewalk. A buffer zone of 10' to 20' is preferred. In undeveloped areas, it should extend all the way to the edge of any private property.

e. Private property owners (within the 100 year flood and 100' zone) should be encouraged to allow their lots to revert to native vegetation as much as practical. To

enhance the process, no-mow zones should be designated in open space areas adjacent to the creek. Mosaic patterns should be used to soften the edges. As a practical guide, mowing should not take place within and under the drip line of existing trees. No-mow zones also serve to provide habitat for birds and other wildlife.

f. Passive restoration or re-establishment of native vegetation, including shrubs and trees, is the most practical, economically feasible, and preferred method.

g. Watershed- The watershed consists of all the surrounding land area that conveys rainfall into the San Felipe Creek basin. It is made up of both upland, undeveloped lots, and urban and highly developed residential and business areas. The status of the watershed can have a direct impact on the quality of water in San Felipe Creek and its ecosystem. Non-point and direct sources of pollution through runoff can especially have a damaging effect on the ecosystem. The upland zone is the area adjacent to the riparian zone. Natural upland areas in the San Felipe watershed contain many tree and shrub type plants, such as, huisache, cenizo, hackberry, and prickly pear cactus. These upland areas are key for providing food and habitat for maintaining the native fauna. Upland habitat provides additional benefit by reducing sediment loads, fertilizer runoff, and contaminants from flowing directly into the creek.

3. Current Environmental Challenges

a. Impact of the Flood

Subsequent to the flood of August 1998, the City of Del Rio has acquired a substantial amount of land adjacent to San Felipe Creek. The City of Del Rio Parks and Recreation Department plans to develop these areas into passive parks. The parks will be developed with one major goal in mind- to create a people-friendly natural area. Areas such as bird watching sanctuaries and walking trails will be developed in conjunction with passive parks. For example, trails will be built 10 to 20 feet away from the creek, allowing natural vegetation to grow and act as a natural buffer zone between the creek and the developed area. Because it is an urban park, other recreational opportunities will also be made available (e.g., baseball fields, playgrounds, etc.), but the City of Del Rio will take a precautionary stance in the development of San Felipe Creek. Wise planning, in conjunction with the Devils River Minnow Conservation Team, should allow a multi-functional greenbelt that protects the natural resources as well as provides the greatest benefit to the citizens of Del Rio.

b. Current Development Impact

1. San Felipe Springs are the only source of water for the City of Del Rio and Laughlin Air Force Base. Flow from San Felipe Springs typically ranges from 50 to 90 MGD (million gallons per day; 77-139 cfs). Its meandering creek provides for recreational use, outdoor experiences and excellent habitat for wildlife. Its serene flow allows for several passive parks and swimming areas. The surrounding vegetation and landscape allows for excellent bird watching. The City of Del Rio, with local funds and grants

(made possible by the NADBank/EPA), began construction of a water treatment plant in February, 2001.

The plant was completed in August, 2002. The water treatment plant is located on the east side of the creek. However, in order to pump water from the West Spring the contractors designed a structure that will not disrupt the flow or ecology of the creek. In light of a \$14 million dollar grant given to the City of Del Rio by the NADbank/EPA, we acknowledge the commitment to the conservation of the San Felipe Creek by both the City and federal government. With the anticipated growth of Del Rio, the water treatment plant also allows for expansion.

2. Nature tourism is the fastest growing segment of the tourism industry in Texas. San Felipe Creek has been designated by Texas Parks and Wildlife Department as a nature viewing site for the Central Texas Nature Viewing Trail and will attract birdwatchers to the community.

3. Water quality is of paramount importance. All existing activities and all future planning will be scrutinized for impacts on San Felipe Creek in terms of urban runoff, potential for accidental spills, and any other source of pollution. A monitoring system needs to be set up and accessed by the city on a regular basis.

a. The use of pesticides and fertilizers should be minimized on city property and discouraged from use among private citizens along the creek. All possible sources of point and non-point source pollution should be investigated and eliminated.

b. The population of domestic ducks should be removed from the area.

c. Inappropriate commercial development along the creek should be discouraged. Not only would it put these entities at risk in the event of a flood, but it would also create other sources of pollution. The City has the ability to control and restrict inappropriate development in the drainage basin through zoning ordinances.

d. The construction of conventional- style parking lots should be especially discouraged. Rainfall runoff from parking lots along the creek will end up polluting the creek with oils, gasoline and other pollutants. In the event that the construction of a parking lot is necessary, provisions should be made to construct a catchment (retention pond) to process the runoff or it should be directed to extensive areas of native vegetation to filter pollutants out. Other alternatives, such as porous cement ex. Ecocrete, can be looked into.

e. 1.4.7 The Devils River Minnow Recovery Plan by U.S. Fish and Wildlife Service page 2.4-7:

- Priority 1a- Reduce pollutants: Both point and non point pollution sources to aquatic habitats throughout the range of Devils River minnow need to be detected and eliminated to the maximum extent practicable. Of special concern are inputs from urban environments in San Felipe Creek from Del Rio.

- Priority 2- Restore and or enhance habitat: A habitat enhancement plan for San Felipe Creek in Del Rio (and other appropriate site) aimed at improving and maintaining physical habitat for Devils River minnow should be formulated and implemented. This may include the physical reconstruction of stream banks with native vegetation and natural stream morphology.

4. The Irrigation Canals that were built in Del Rio in the late 1800's were initially used for farming by Italian immigrants. The water in the canals are diverted from the creek at two different locations along the creek bank; Tardy Dam and the Blue Hole. The amount of water diverted from the San Felipe Creek for use in the canal system is regulated by the Texas Commission on Environmental Quality. Currently the commission set the yearly usage at 5,000 acre feet. However, the average amount of water pumped out of the San Felipe Creek into the irrigation canals is about 3,000 acre feet per year. They understand the importance of regulating water usage and only use what they need not the maximum allowed.

c. Preserving Natural Flow

1. Natural water flow is to be preserved to the greatest extent possible. There should be no new diversions of water into channels, canals, pools, fountains, etc. The city relies on the San Felipe Springs for its drinking water, and the San Felipe Irrigation Company diverts water from the Creek into its irrigation canals. Although these users are essential to the community, and have never been shown to adversely affect the ecosystem, conservation measures could and should be considered.

Water diversion outside the immediate Del Rio area (such as regional water marketing), should not be allowed.

2. Fountains in the creek are not advisable. They reduce flow through evaporation and they communicate a "water waste" message to the community. Natural flow is not only important to the San Felipe Creek ecosystem but also affects the Rio Grande ecosystem and ultimately, fresh-water outflow to estuaries in the Gulf of Mexico.

3. Laughlin AFB has taken steps to help with water conservation as well. They have taken steps to put a lawn watering schedule into place. Laughlin AFB also reserves the right to adjust the schedule through out the year should it be required. See attached.

d. No-mow Zones

1. No-mow zones should be designated in open space areas adjacent to the creek. Mosaic patterns should be used to make the resulting combination of open and closed areas pleasing to the eye by avoiding hard edges. As a practical guide, no mowing should take place within and under the drip line of existing trees. No-mow zones also serve to provide habitat for birds and other wildlife.

2. Private property owners (within the 100 yr + 100' zone) should be encouraged to allow their lots to revert to native vegetation as much as practical.
3. Map of no-mow zone is included. See attached.
4. Signs posted and fliers available to educate the public.

e. Removal of Noxious, Exotic Vegetation and the Restoration of Native Plants

River cane (*Arundo donax*) should be removed along the length of the creek with the cooperation and under the close supervision of personnel of the Texas Parks and Wildlife Department using EPA wetlands approved herbicide. This should be done only by prescription (due to the presence of a threatened fish species) and should be performed in the upper reaches of the creek first, to prevent re-establishment of the cane in lower areas through fragmentation. This should only be done after an agreement has been reached to allow re-vegetation of these areas with native vegetation through natural means. One year of experimentation with herbicides in lower reaches of the creek (where the Devils River Minnow is known not to occur) should first be performed to fully assess the effects of treatment to aquatic species and the surrounding ecosystem.

Exotic plant removal should ultimately be done in short stretches at a time in order to maintain the stability of existing banks in the event of a flood. Other introduced plant species (Chinese tallow, elephant ears) should also be selectively removed from creek side areas. As unwanted plants are removed, re-vegetation with native species is critical to success and system stability. Some segment-specific re-vegetation (e.g., butterfly gardens) may be desirable in some areas and passive re-vegetation may work best in others.

f. New Park Development

The damaged areas from the flood of 1998 along the San Felipe Creek that were bought out by FEMA have been cleared of debris and are now grass covered lots maintained and mowed by the City of Del Rio. Some of these areas have been turned over to various organizations in Del Rio to be used as parks. The city is currently designating areas along the creek as no mow zones (see attached map), these areas will help filter debris from entering the creek. The city is currently following procedures given to us by the Texas Parks and Wildlife to eradicate the non-native exotic river cane (*Arundo Donax*) along the creek; this is an on going process that will encourage the growth of native plants along the creek bank. We are also in the process of creating larger tracks of non-mowed areas with a walking path that will also serve as a habitat for the local birds. A hike and bike trail is also scheduled to be built along the creek to encourage wildlife viewing along the creek banks.

1. Only native plants should be used for landscaping; including planting more trees. (See Wasowski & Wasowski, "Native Plants of Texas")

2. Only hand held watering for flower beds.
3. No pesticides or fertilizers should be used.
4. Assistance with the design of beds and landscaping should be provided.
- 5 .No new parking lots. Only cement parking lots using “enhanced porous concrete; or similar product”).
6. Only native buffalo grass should be planted.
7. No watering using sprinkler systems.

Action Items

1. Removal of non native species in conjunction with the Fish and Wildlife Service, local university and the City of Del Rio. We are currently working with the Fish and Wildlife Service Department to remove the exotic suckermouth catfish from the San Felipe Creek.
2. Pass ordinances to preserve well being of the creek and its surrounding habitat, i.e., establish no parking zones under bridges and prohibit driving off designated roads.
3. Work with U.S. Fish and Wildlife Service to monitor steam flow, the Devils River minnow, and habitat health.
4. Signage and education for maintenance of natural areas and no-mow zones.
5. Water quality test annually or as Commissioners feel needed.
6. Do not allow water diversion outside of the Del Rio area.
7. Discourage conventional- style parking lots. Encourage use of enhanced porous concrete, Ecocreto.
8. Discourage pesticide use and encourage rejuvenation of natural vegetation. Working closely with the San Felipe Country Club Golf Course to ensure the proper maintenance involving the San Felipe Creek banks.
9. Create buffer zones or rainfall runoff catchments to filter runoff and reduce non-point source pollutants from entering the creek.
10. Encourage rejuvenation of natural vegetation.

Future Challenges

- No-mow zones and creating natural habitat areas.
- Eradication of non native invasive plants and animals.
- City establishes and maintains water quality along the creek.
- Forge a partnership with Val Verde County, Laughlin AFB and local ranchers to ensure the protection of the San Felipe Creek.
- Continue to work with U.S. Fish and Wildlife Service and Texas Parks & Wildlife Services.
- No driving and parking in natural and picnic areas along the creek bank.
- Ongoing education for local and general public about the importance of the health of San Felipe Springs and its habitat.
- Protect base flow for Devils River Minnow.
- Control duck population.
- No new fountains installed along the creek.
- Encourage stream bank retention.
- Use rainfall catchments to keep non-point sources of pollution from entering the creek.

IV REPORTING

- 1. The San Felipe Creek Master Plan Commissioners will create an annual report to be presented to City Council during the first quarter of the year. This report will include previous year goals met and/or revised along with current year goals.**
- 2. The San Felipe Creek Master Plan Commissioners will report to City Council on an as needed basis to discuss amendments to the current Master Plan.**