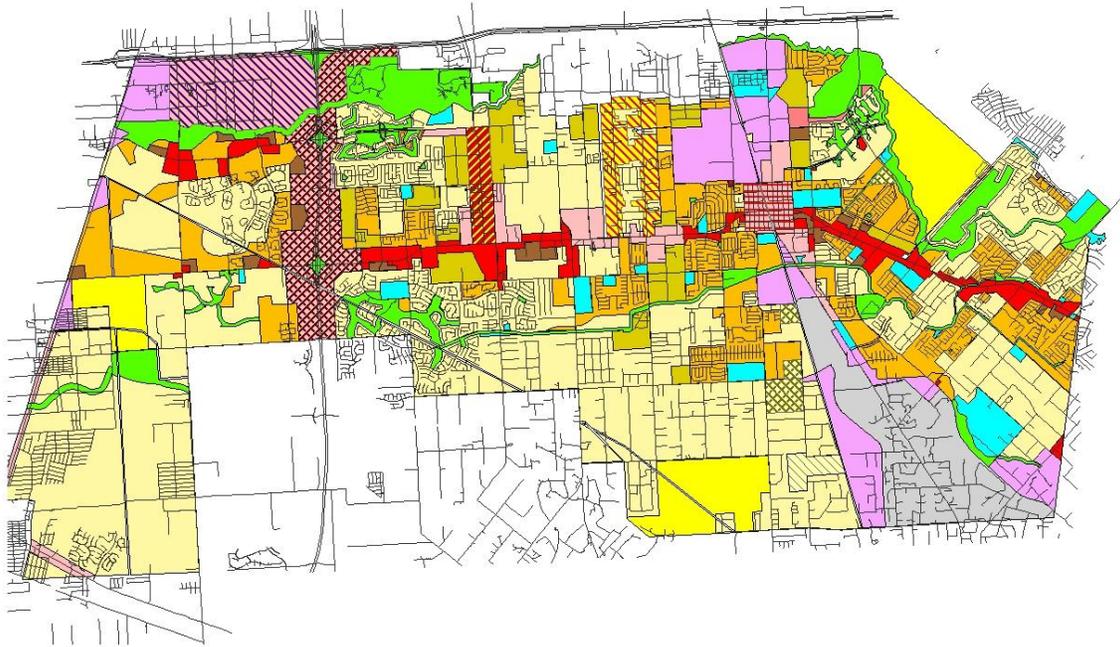


COMPREHENSIVE PLAN

City of Pearland, Texas



Ord. 0943-01 2000-03-27
Ord. 0943-02 2001-02-26
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Ord. 0943-04 2002-02-25
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City of Pearland

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**COMPREHENSIVE PLAN
CITY OF PEARLAND
December, 1999**

Prepared by:
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CDS Research

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Bill Berger, Mayor Pro Tem
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INTRODUCTION

Section 1.0

WHY PREPARE A COMPREHENSIVE PLAN?

Texas state law requires that in order to regulate the use of land within its corporate limit, a City must prepare a Comprehensive Plan for its future development. It is in the context of this Plan that zoning ordinances, and other development regulations can be enacted and have legal standing.

The need to review and revise the existing Comprehensive Plan for Pearland has been precipitated by the City's tremendous growth in the 1990's. From 1990 - 1996, Pearland's population increased by almost 72%. The City's population as of 1997 was estimated at 32,000. Since Pearland's growth will likely continue, if not accelerate, updating the Comprehensive Plan to better manage this growth is crucial.

This Comprehensive Plan has been adopted by ordinance of the City Council. A copy of the enabling ordinance is provided in Appendix A.

- A means to identify, prioritize and plan capital improvement projects
- A flexible instrument that can be adjusted for changing conditions and unforeseen events over time;
- A guide to coordinate and cooperate with the efforts of other public and semi-public agencies, and;
- The framework for zoning plans, ordinances and other regulations designed as tools to implement the goals of the Comprehensive Plan.

PURPOSE OF A COMPREHENSIVE PLAN

The Comprehensive Plan for Pearland has been prepared as:

- A statement of the development goals, objectives, policies and criteria for Pearland's physical growth;
- A decision-making tool to help evaluate proposals for new land use with respect to the City's development goals;

PLANNING CONTEXT

Section 2.0

HISTORY

The combination of railroads and fertile soil played an important part in the establishment of Pearland. Similar to many other Texas cities, Pearland was settled by immigrants from the north lured by the opportunities in the *garden spots* of the south.

A land grant in 1882 formed the basis of this area of the Texas coastal plain which later became Pearland. In 1883, the Gulf, Colorado and Santa Fe Railroad completed a line from Houston to Alvin that passed through the area and a freight depot was the community's first building. The area first became known as Mark Belt, named after an individual who lived nearby. In 1892, W. Zychlinski (rumored to be a Polish Count) platted the townsite and started selling lots. In 1894, the Southern Homestead Company acquired most of the remaining land, and changed the name to *Pear Land* because of the pear orchards growing nearby. The Southern Homestead Company conducted advertising campaigns in Milwaukee, St. Louis, and Houston to attract settlers. By 1900, Pearland had a drug store, a hardware store, a lumberyard, a hotel, a school and a newspaper called the *Pearland Advocate*.

But on September 6 of that year, a hurricane destroyed most of what had been built, along with many of the pear orchards. Those who stayed to rebuild, made their living by using the railroad as a shipping point for hay and livestock. Rice farming also became popular. In the early 1930's, the Hastings, Friendswood and Manvel oil

fields were discovered, and as Pearland became a boom town, it earned the nickname *Six Shooter Junction*. By then, rice had become the main cash crop in Brazoria County. Together, oil and rice dramatically changed the economic base of the Texas Gulf Coast.

The population of the City of Pearland was first reported in the 1940 U.S. Census. There were 30 people residing in town. By 1960, the population had increased to about 1,500. Since then, Pearland has steadily developed as a suburban community, even through the economic downturn of the mid 1980's. In the 1990's, Pearland's growth accelerated, and within the past few years, the rate of growth has been dramatic.

***The settlement
was renamed
Pearland in 1894***

PLANNING CONTEXT

Section 2.0

PREVIOUS COMPREHENSIVE PLANS

Comprehensive planning is not new for Pearland. The preparation of this Plan builds upon previous efforts by the City.

1968 The City's first comprehensive development plan was completed in 1968 by Marmon, Mok & Green, Inc. Planning surveys led to a number of findings and recommendations that were adopted as guidelines for directing the City's growth. The planning area included approximately 28 square miles.

1978 Responding to the growth rate and emergence of new local and regional development influences, City Council authorized Mormon, Mok & Green to review and update the previous plan. The planning area, inclusive of the City limits, covered almost 32 square miles.

1988 Bernard Johnson, Inc. was retained to conduct a comprehensive facilities planning program in order for the City to comply with the newly adopted provisions of State Senate Bill 336. The bill regulated the charging of capital recovery fees for new infrastructure. The City was authorized to continue using these fees to finance water and wastewater system improvements. Also, the Pearland planning area had experienced changes unanticipated in 1978 and portions of the Comprehensive Plan required significant updating. Because preparing a future capital improvements plan was required both to update the Plan and to comply with SB 336, the City combined the two tasks into one assignment.

The planning area was expanded to include not only recent annexations but also those areas solely within Pearland's extraterritorial jurisdiction. Extending south to the city limits of Alvin and Manvel and west to the Fort Bend County line, the planning area now included some 65 square miles.

1993 The City's Major Thoroughfare Plan for the eastern planning area, east of Manvel Road, was reevaluated and significantly revised. Information was added to clarify where sufficient street right-of-way existed or where right-of-way needed to be widened or acquired.

1993 The City's Park Master Plan was revised by J. T. Dunkin & Associates, Inc. The study area used in the report was defined by the current city limits plus adjacent portions of the extra territorial jurisdiction expected to be developed for urban use within the next ten to fifteen years.

PLANNING CONTEXT

Section 2.0

PLANNING PROCESS – PEARLAND 20/20

The current Pearland planning process began in 1995 with a community based effort entitled *Pearland 20/20 - Focus on Our Future*. To date, more than 2,000 volunteer hours have been spent in this effort. It is structured under an overall Steering Committee with a Strategic Planning Committee and Project Teams.

The members of the Steering Committee were chosen because of their unique positions and knowledge about area economic, educational, governmental and social issues. The Steering Committee was responsible for overseeing the entire process including, establishing the planning parameters, selecting the professional planners, reviewing and approving the Strategic Plan and recommending the allocation of resources necessary to implement the plan.

The members of the Strategic Planning Committee were nominated by the Steering Committee. The Strategic Planning Committee's responsibilities included creating a vision statement for Pearland, setting goals, recommending projects to meet the goals, and selecting project team leaders to develop and implement the various segments of the work.

The following Pearland 20/20 Vision Statement was adopted:

Pearland, Texas is identified as one of the most livable places in the United States in 2020. This feat is accomplished through a public-private

partnership of citizens institutions who selflessly commit their time, energy, and resources toward achieving this common goal. This family-oriented, Gulf Coast city manages its growth through proactive involvement of citizens who are committed to improving their quality of life and preserving their community values.

Pearland offers a vigorous, diversified economy solidly based upon a pro-growth business environment, a highly skilled and motivated workforce, and an environmentally friendly industrial base. It is an economy that offers a full spectrum of retail, health, transportation and business services that meet all the needs of the community. The community boasts of one of the highest per capita incomes in the state. The community provides a wide range of attractive and affordable housing in some of America's best planned neighborhoods. These developments offer many recreational amenities which blend in aesthetically with the environment and are conveniently accessible by a modern thoroughfare plan.

Pearland's local government sets a national standard in providing open, inclusive, and equitable government grounded in consensus planning. This government is proactive in ensuring that Pearland's citizens enjoy an attractive, safe, and wholesome environment where the quality of life is second to none. Based upon its "good-partner" approach to economic development, the city is exemplary in attracting industry

***The Steering
Committee***

***Strategic Plan-
ning Committee***

Vision Statement

PLANNING CONTEXT

Section 2.0

that makes a positive contribution to the tax base and the quality of the community's business portfolio.

Recognizing that education is the key that unlocks the benefits of future growth and network among parents, teachers, administrators, development, the citizens of Pearland maintain an interactive communication and community leaders; maintain relationships with business to ensure educational objectives are meeting industrial requirements; and offer a world class educational system that utilizes the most progressive communication and computing technologies in teaching, training, and re-training students and workers of all ages in the community.

The citizens of Pearland recognize that their future will always lie with themselves. They know that the present is built upon the past. Recognizing that the culture of the community is grounded in the traditional values of being good neighbors and good citizens, they are committed to preserving those values in the face of a changing world. They support each other in times of need and celebrate in each other's success. They open their civic organizations, churches, schools and neighborhoods to newcomers as sources of new ideas, knowledge, and friendships. The multicultural diversity of the community provides for a wide range of activities and organizations for residents to involve themselves. When it comes to accomplishing community projects, they believe their individual efforts will be maximized through collective actions. Therefore, the residents are committed to working together to plan the future.

The Pearland 20/20 effort identified and developed a series of goals and projects in four areas:

**The Economy
Education
Government
Social Life**

PLANNING CONTEXT

Section 2.0

Goals and Projects for the Economy

Long Term Goal: A positive environment for diversified economic growth in Pearland

Immediate Goal No. 1: Economic Diversification

Strategy: Utilize the Pearland Economic Development Corporation (PEDC) to the fullest extent while working closely with city government and the private business sector.

Objectives:

- Set guidelines and parameters for committee organization.
- Prioritize businesses that benefit and support community development.
- Develop plan to attract businesses that increase quality of life.

Results: The Economic Diversification Project Team is working closely with the PEDC, Pearland/Hobby Chamber of Commerce and the banking industry to develop plans for an “Old Town” square retail/restaurant area and for a medical facility area. The team is identifying potential parties who may be trying to gain a market presence in Pearland and is also researching the need for a specific use district to attract interested, compatible businesses.

Immediate Goal No. 2: Arts and Leisure

Strategy: Increase the number of quality recreation facilities as the community grows.

Objectives:

- Set guidelines and parameters for committee organization.
- Develop realistic time and resource plan.

Results: The project team created a foundation that will be the fund-raising arm for cultural arts, recreations, and park projects. Pearland Enrichment, Inc. is a 501(c)3 non-profit organization, and therefore eligible to apply for grants available through private foundations.

Immediate Goal No. 3: Attractive and Affordable Housing

Strategy: Provide individuals of all socio-economic, age, and physical capability groups with affordable housing.

Objectives:

- Set guidelines and parameters for committee organization.
- Promote community support for master plan.
- Communicate and educate public on issues.
- Research housing solutions.

Results: Realizing an effective program to diversify available housing will take several years to develop and implement, the project team narrowed their focus to increasing affordable

PLANNING CONTEXT

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housing for senior citizens. The team considered available options, including attracting developers and private investors, and applying for funding through HUD. A development company has identified the same market need in Pearland, and as a result, will soon build a seniors apartment project. A second senior citizen project is also in the planning stages.

most immediate need for tutors and after school clubs to help at-risk youths. Possible resources include the Brookside Concerned Citizen Group, older residents of Country Place, small businesses and industry. The initial goal is to target 20 to 30 second and third grade students who will be “read to/read with” thirty minutes per week on an individual basis.

Goals and Projects for Education

Long Term Goal: A world class education system in Pearland.

Immediate Goal No. 1: High Scholastic Standards and Achievements

Strategy: Promote parent, community, and mentor involvement in Pearland’s education system.

Objectives:

- Set guidelines and parameters for committee organization.
- Promote community support for the program.
- Recruit mentors to assist children with educational needs.
- Assist with volunteers that can be a part of the education system.

Results: The project goal of the *Mentoring for Success* program is to identify needs and recruit volunteers for a coordinated mentor program. Some schools do not have as many volunteers as others, so the team identified where the mentoring needs are greatest. The project team identified Lawhon Elementary as having the

Immediate Goal No. 2: Vocational/ Alternative Education

Strategy: Involve Pearland industry in education.

Objectives:

- Set guidelines and parameters for committee organization.
- Promote community support for the program.
- Recruit industry/business participation.
- Establish a multitude of vocational/technical alternative educational opportunities for teaching jobs and career skills for those not going to college.

Results: CLASS Act (Community Leadership Achieving Student Success) is a partnership of Pearland Independent School District, Pearland Economic Development Corporation, Pearland Chamber of Commerce, and Pearland industry representatives. Its goal is to help students prepare for success after they have left school for college or further training. A consultant from the Fort Worth I.S.D. worked with the partnership to establish specific short and long term goals that will incorporate applied academics into the curriculum and get student in-

PLANNING CONTEXT

Section 2.0

volvement. In fact, students from the Pearland High School journalism and art departments created the project name, CLASS Act, and are developing a logo and brochure. A media and marketing campaign began in Spring, 1997.

Immediate Goal No. 3: Parent Partner Educational System

Strategy: Produce good communication between parents and school staff, and the community at large.

Objectives:

- Make parents and the general public more aware of P.I.S.D. educational assets goals, and opportunities by expanding and better utilizing the current parent advisory committee.

Results: The team identified several ways to reach and inform a broader section of the community, such as through utility bills, church newsletters, civic group newsletters, and homeowners association newsletters. In addition, the *Pearland Reporter News* has generously offered to periodically publish brief facts about P.I.S.D. schools. Expanding communication with the community with ongoing, timely information about the school district will help foster support of new programs and capital improvement projects.

PLANNING CONTEXT

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Goals and Projects for Government

Long Term Goal: Foster an efficient, caring, responsive and responsible government.

Immediate Goal No. 1: Coordinated Community/Government Activities.

Strategy: Develop a community-based process for inter-governmental oversight to promote cooperation, coordination, and communication among governmental agencies, units and departments.

Objective: Bring representative groups together to encourage joint effort and cooperation.

Results: The Pearland Area Infrastructure Development (P.A.I.D.) committee has been formed with high-ranking representatives from the following organizations:

Brazoria County Commissioners
Jim Clawson and Jack Harris
Brazoria Drainage District #4
City of Pearland
Harris County Flood Control District
Harris County Precinct No. 1
Houston Lighting & Power
Pearland Independent School District
Pearland Planning & Zoning Commission
Santa Fe Railway
Southwestern Bell
Texas Department of Transportation
Texas Natural Resource Conservation Commission
Texas-New Mexico Power
Tri-Tech Regional Council
Turner Communications, Inc.

The committee meets quarterly to comprehensively address Pearland infrastructure needs.

Immediate Goal No. 2: An Attractive Community

Strategy: Design and implement proper zoning to assure a master planned community.

Objective:

- Tree preservation
 - Complete the tree preservation ordinance and present it to City Council for adoption.
 - Identify historic trees and significant trees and tree masses in the City.
 - Develop a Plan for planting low maintenance trees throughout the city.
- Improve street signs/Sign Ordinance
 - Establish a volunteer committee to identify nonconforming signs.
 - Propose revisions to Sign Ordinance.
 - Improve the appearance of directional signs.

Results: The Tree Preservation project team has classified several historic trees for preservation, have identified the land owners and are acquiring protective easements around each tree. The team reviewed and revised the originally proposed Tree Preservation and Landscape Ordinance, which was subsequently adopted by the City Council. The City has also employed an Urban Forester/Park Superintendent

PLANNING CONTEXT

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who enforces the Ordinance and lends expertise in planning for low maintenance foliage on public land.

The Street Signs/Sign Ordinance project team has reviewed the current ordinance and recommended changes that will improve the aesthetic appearance of Pearland as it grows. In addition, they have designed attractive signs directing motorists to important locations in the city, such as the police station, animal control center, city hall, community center, library and post office. Sign installation is pending.

Goals for Social Life

Long Term Goal: Foster a Safe, Equitable and Supportive Social Environment

Immediate Goal No. 1: Family Oriented Programs

Strategy: Develop community-based programs that promote and support traditional family values.

Objectives:

- Support existing community programs and increase participation through improved communication.
- Assess voids in current programs to determine additional needs.

Results: The Project PEARland (Participation, Enjoyment, Activities, Relationships) team was formed to develop a comprehensive survey to identify the needs of the community. The survey will assess issues such as: 1) why community members do not participate in available activities, 2) what activities the community would par-

ticipate in, if available, and 3) how they receive Pearland news and information.

Immediate Goal No. 2: Citizen Awareness/Commitment

Strategy: Establish a community based process for attracting the attention of the populace, stimulating their interests and involvement in community issues, and obtaining their feedback.

Objectives:

- Identify ways to promote community activities to Pearland residents.
- Increase participation in family-oriented activities.

Results: The challenge of *the Let Pearland Know!* project team was to find creative and affordable ways to get residents more involved with improving the community. One was to utilize the Government Access Channel, CityView 40, available through TCI, the local cable provider. Pearland residents now have access to immediate news about coming events, the schools and other information of general interest. The team also recognized the need to reach Pearland residents that do not have access to TCI cable services. Television and VCR sets are being placed in locations where people typically stand in line to receive service, such as banks, grocery stores, the post office, and large retail stores.

Immediate Goal No. 3: Youth Centered Programs

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Strategy: Develop activities to meet the social needs of a broader spectrum of teenagers.

Objectives:

- Develop wholesome activities for youth.
- Character-building opportunities.
- Promote social interaction with a moral community framework.

Results: The goal of the project team has been to work with youth to encourage leadership skills, and develop activities that genuinely interest them. Youth have participated in several activities including a “lock-in” at the YMCA and the Clean Pearland Trash-Off.

PLANNING AREA

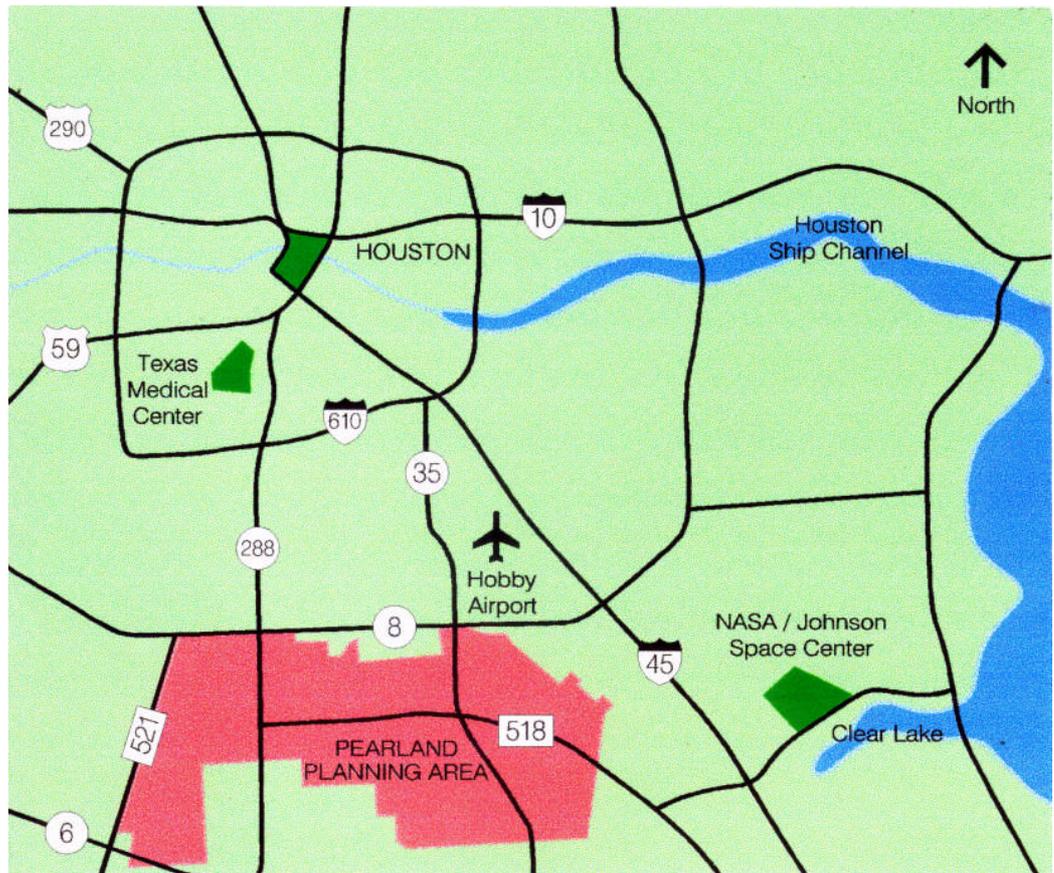
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REGIONAL LOCATION

Pearland is located about 14 miles southeast of downtown Houston and five miles south of Hobby Airport as shown in Figure 3.1. Most of the city lies in northern Brazoria County with portions extending into Harris and Fort Bend Counties. The original town site is centered at the intersection of State Highway 35 and F.M. 518. Although these two roads have long served as the City's principal north/south and east/west thoroughfares, Pearland's growth and access have been strongly influenced by State Highway 288. Officially named the Nolan Ryan Expressway but still commonly referred to as the South Freeway, S.H. 288 extends south from Houston into Pearland

and across Brazoria County. This freeway, one of the least congested in the region, provides convenient access to downtown Houston, the Texas Medical Center and Loop 610. Pearland's access and perceived proximity to the greater Houston metropolitan area has been greatly enhanced with the recent completion of the Beltway 8/Sam Houston Tollway across southern Harris County. The Tollway, besides improving regional mobility, has significantly decreased travel times from Pearland to major employment centers in far west Houston as well as the vast industrial employment base located along the Houston Ship Channel.

Figure 3.1:
Regional Map



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Section 3.0

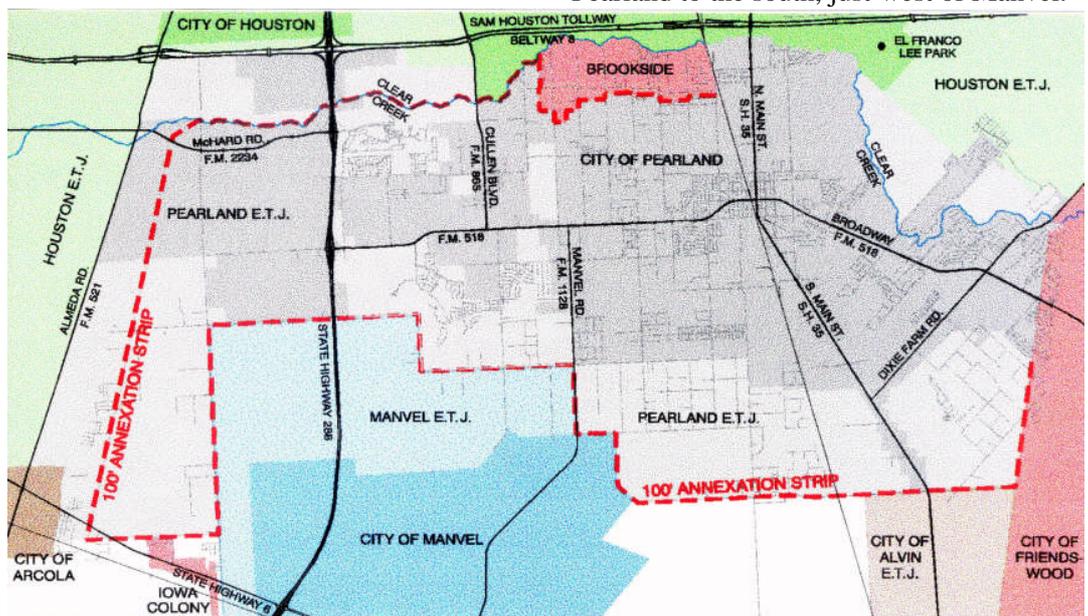
GEOGRAPHIC LIMITS AND BOUNDARIES

The Pearland Planning Area has become better defined as a result of annexations and agreements to common boundaries with adjacent municipalities. Unincorporated areas contiguous to the corporate boundaries of a municipality are referred to as the extraterritorial jurisdiction (ETJ). The extent of Pearland's ETJ is largely defined by a 100' wide strip of land the City annexed in June, 1960 that essentially enclosed an area covering northernmost Brazoria County except for the town of Brookside Village. The annexation strip begins at a point on the north side of Pearland, follows the Brookside Village limit to Clear Creek, follows the creek upstream to the Ft. Bend County line, and then down the county line to just south of State Highway 6. From there, the annexation strip turns east wrapping around Manvel to the south, then continues east across State Highway 35 to the Galveston County line. It then follows the county line northward ending at a point on

the City's southwest side. In recent years, the portion of this strip along Clear Creek has been used as a base for annexing sizable acreages along the S.H. 288 corridor.

As shown on Figure 3.2, most of the Pearland annexation strip now abuts the corporate or ETJ limits of other cities. In 1970, the cities of Pearland and Houston entered into an agreement setting the limits of their ETJ's in the area east of Clear Creek within Harris County. The agreed upon line generally extends southeast from a point on Clear Creek at El Franco Lee Park down to Dixie Farm Road. In 1975, Pearland made an agreement with the City of Friendswood that set the Brazoria/Galveston County line as their common boundary. Areas to the south of Pearland's annexation strip are mostly within the jurisdiction of the cities of Manvel and Alvin as the result of various annexations and disannexations that left behind incorporated "buffer strips". The small town of Iowa Colony also adjoins Pearland to the south, just west of Manvel.

Figure 3.2:
Pearland
Planning
Area



PLANNING AREA

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In 1997, the City of Pearland entered into another agreement with the City of Houston to resolve previously overlapping ETJ's in Fort Bend County and in Harris County north of Clear Creek. The agreed upon line between the two cities' ETJ's extends along the east right-of-way line of F.M. 521/Alameda Road from Arcola to Beltway 8, then eastward along the south right-of-way line of Beltway 8 to Fellows Road, down Fellows Road to Cullen Boulevard, and down Cullen to Clear Creek. (Pearland's ETJ within Fort Bend County also includes a small area immediately east of Arcola.) This agreement with Houston gives Pearland an important presence on Beltway 8, additional frontage on State Highway 288 and a more distinct western boundary along F.M. 521.

Pearland's ultimate boundaries will not likely extend beyond the planning area shown in Figure 3.2 unless additional territory is transferred to Pearland from the jurisdiction of adjacent municipalities. Further discussions may occur between Pearland and Houston regarding lands currently within Houston's jurisdiction located between Clear Creek and Beltway 8 from Cullen Boulevard to Monroe. Pearland would like these areas to be transferred to its jurisdiction. Houston generally prefers to align common boundaries along distinct physical features, such as Beltway 8.

PLANNING AREA

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PHYSICAL FACTORS INFLUENCING DEVELOPMENT

A number of physical factors existing within the Pearland Planning area have had and will continue to have varying degrees of influence on the City's development. Physical factors can either be natural or man-made, and their influence can be community-wide or site-specific. Natural physical factors include topography, soils, drainageways, flood plains, wetlands and geologic fault lines. Man-made physical factors include major highways, railroads, airstrips, major public utility corridors, petrochemical pipelines, natural resource extraction and documented hazardous waste sites.

Natural Factors of Influence

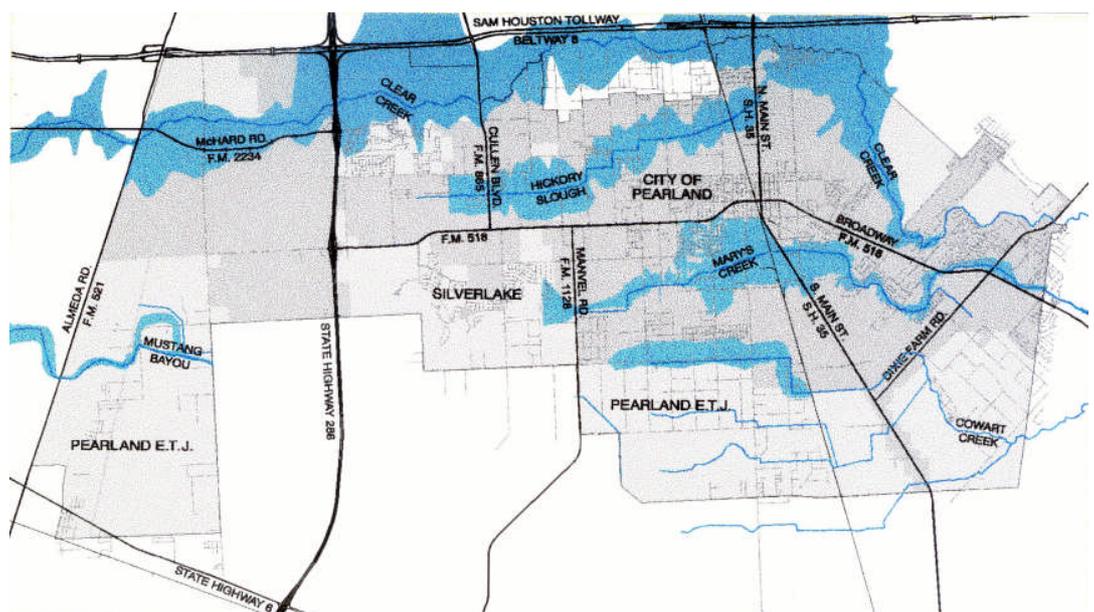
Surface elevations across the Pearland planning area vary from 45 feet to 65 feet above mean sea level. However, the only perceptible gradient changes are found along the major drainageways. Soils are mostly in the Lake Charles clay and

Bernard clay loam complexes. Typical of the region, these dark gray soils are poorly drained, limiting private septic systems and increasing storm water runoff. However, these soils have been favorable for many years for agricultural use.

Figure 3.3 shows the major drainageways for Pearland and their associated flood-plains. Clear Creek is the principal drainage channel. Its watershed covers most of the planning area, either directly or through its tributaries. Clear Creek, eventually empties into Clear Lake and Galveston Bay.

Major tributaries of Clear Creek draining the Pearland area include Hickory Slough, Mary's Creek and Cowart Creek. Hickory Slough begins just east of State Highway 288, and north of F.M. 518. The channel extends in a northeasterly direction across northern Pearland, eventually intersecting Clear Creek east

Figure 3.3:
Major
Drainageways
&
Flood plains



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of State Highway 35. The headwaters of Mary's Creek originate in the Silverlake development east of State Highway 288 and south of F.M. 518. Stormwater runoff from Silverlake is controlled through detention systems that reduce flood peaks. Mary's Creek traverses west to east, joining Clear Creek within the neighboring City of Friendswood. A large portion of the Pearland planning area is within the Mary's Creek watershed. The Cowart Creek watershed encompasses most of the southeast section of the Planning Area. The shallowness of Cowart Creek at its upper end in combination with an undersized crossing beneath the railroad have disproportionately increased its flood plain west of the railroad.

The Pearland Planning Area includes two other watersheds besides Clear Creek and its tributaries. A small portion of the upper southwest part of the area is drained by Mustang Bayou. The bayou is located west of State Highway 288 and south of County Road 59. The southernmost portion of the far west planning area is part of the Chocolate Bayou watershed. The bayou itself is located south of State Highway 6 and outside the limits of the 100' annexation strip.

Wetlands

Within the past ten years, the presence of wetlands have become an increasingly important natural physical factor influencing land development and land use patterns. Wetlands of varying size and environmental quality have been identified across the entire Houston metropolitan area, including Pearland. Three principal criteria must be met for a wetland to exist and become subject to regulation by the U.S. Corps of Engineers. These criteria are: hydric soils, hydrophytic vegetation and hydrology. Hydric soils are characterized by a frequent abundance of moisture. Hydrophytic plants

require a great amount of water and are able to grow in water or soil too waterlogged for most plants. Hydrology refers to the physical factors of water on and within the soil. Although the presence of wetlands may be indicated by ponding water or initial review of aerial infrared photography, their presence can only be confirmed by a thorough on-site investigation. Such work must be conducted by a qualified expert and cannot occur without the property owner's permission. Consequently, it is beyond the scope of this planning effort to define and document area wetlands.

Where adequate investigation confirms the presence of wetlands, the following measures, in order of importance, are recommended:

- avoidance
- minimization of impact
- mitigation.

With regard to mitigation, an option that is becoming more popular is "wetlands banking". Typically, wetlands banking involves the acquisition of property that can be developed into wetlands meeting the three criteria discussed earlier. A site can be identified and acquired by either the public or private sector. (To date, it usually has been public agencies that have mitigated wetland banks.) As properties are developed for urban use in the surrounding region, any qualifying wetlands found can often still be put to urban use with the loss offset by recreating an area of wetlands within the bank site. Accompanying fees are usually required; approval by the Corps of Engineers is always required. Wetlands banking permits more rational urban development and concentrates urban wetlands into fewer but larger sites providing better environmental quality as compared to small, scattered locations.

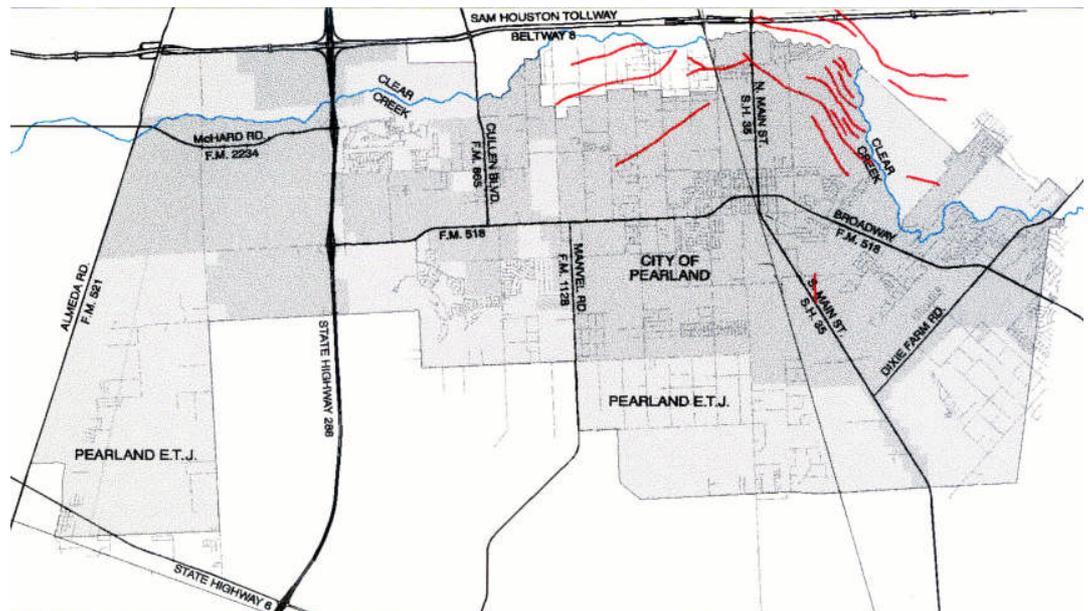
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Geologic Faults

A longstanding but sometimes overlooked factor of influence are geologic faults. Information obtained from the U.S. Geological Survey and shown on Figure 3.4 indicates that there are several fault lines within the Pearland area. Although sometimes visible on aerial photographs, fault lines cannot usually be pinpointed without on-site investigations. Their presence influences the location of buildings as well as streets and utilities.

*Figure 3.4:
Geologic
Fault
Lines*



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Man-Made Factors of Influence

In the course of a city's development, certain man-made factors are either encountered or created which influence the type and direction of growth for many years. The most common man-made factors of influence are transportation related.

The Railroad

From an historical perspective, the railroad has had the most profound influence on Pearland. The advent of rail transportation in the area was a formative step in the origin and early development of the City of Pearland. Today, this railroad, now known as the Santa Fe Railway, has a much different influence. While the railroad presents opportunities in terms of attracting industry and other rail-dependent businesses, it also poses constraints. The Santa Fe line, which runs in a northwesterly-southeasterly direction just west of State Highway 35, has strongly impacted the City's east-west traffic mobility. Although there are five minor two-lane, at grade crossings as shown on Figure 3.5, the only major thoroughfare crossing was on F.M. 518. Recently, however, the City has completed its first grade-separated crossing on McHard Road about one mile north of F.M. 518. Further relief will be provided in the future by the extension of Beltway 8 service roads across the railroad, a project currently in the planning stage by the Texas Department of Transportation (TxDOT).

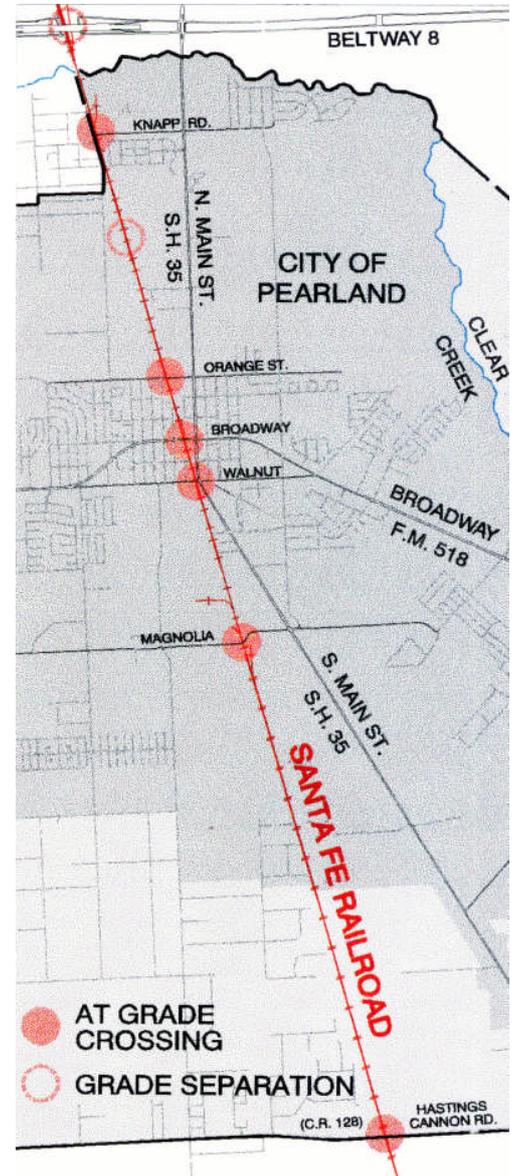


Figure 3.5:
Railroad Crossings

PLANNING AREA

Section 3.0

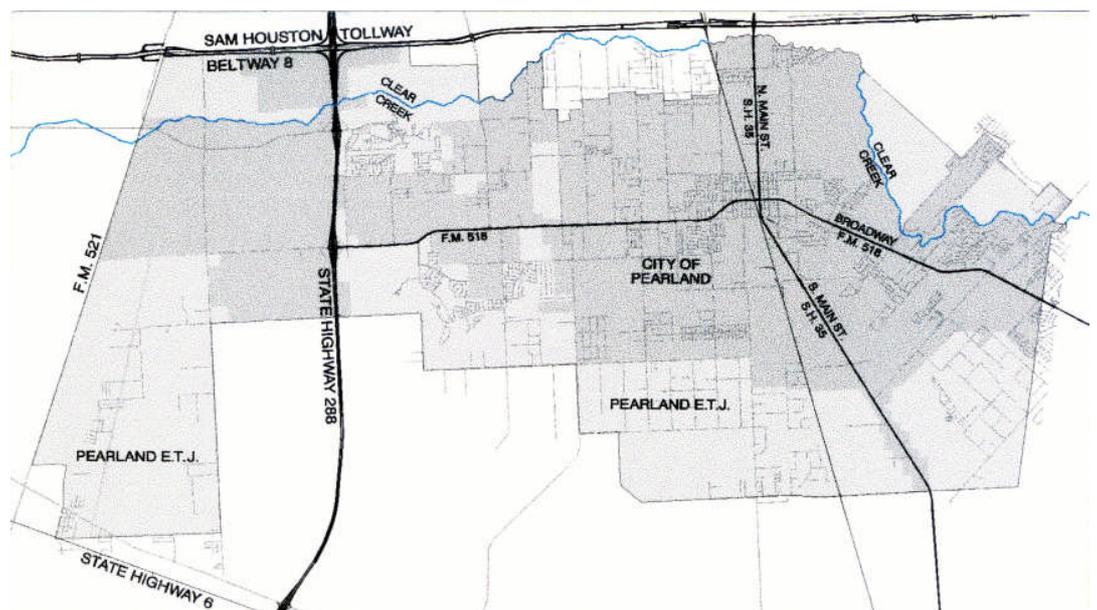
Highways

Major highways also have an impact on development in terms of access and location. Generally, limited access highways delineate and separate areas of a city, but they also provide highly visible corridors suitable for a wide variety of nonresidential uses. At present, Pearland has only one major limited access highway - State Highway 288 (see Figure 3.6). Built by (TxDOT) during the 1970's, S.H. 288 is unlike almost all other freeways in the Houston metropolitan area in that no frontage roads were built or even planned. The freeway facility is comprised of main lanes with widely spaced entrance and exit ramps intersecting major cross streets. Access from adjacent properties is not permitted to either the main lanes or the ramps. The absence of continuous frontage roads along S.H. 288 explains why there is so little commercial or industrial development immediately adjoining the freeway. In cooperation with the private sector, the City has initiated negotiations with TxDOT to explore the possibility of constructing frontage roads along portions of the freeway that could then provide access to adjacent

properties. Approval is contingent on a number of factors including a determination if adequate right-of-way exists, establishing suitable project limits, reworking any affected entrance and exit ramps, and most importantly, agreeing upon cost participation. Frontage road construction funded solely by the State could take many years. Local cost participation could dramatically improve the timetable for completion.

A second limited access highway of importance to the City is Beltway 8. Newly completed, Beltway 8 is comprised of frontage roads built by TxDOT with a center toll road facility constructed and operated by the Harris County Toll Road Authority (HCTRA). The southern portion of Beltway 8, just north of Pearland, was the last segment to be built of this outer loop highway encircling Houston that was first proposed in the 1950's. In contrast with State Highway 288, properties

Figure 3.6:
Major
Highways



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adjoining Beltway 8 generally have access to the frontage roads subject to State regulations.

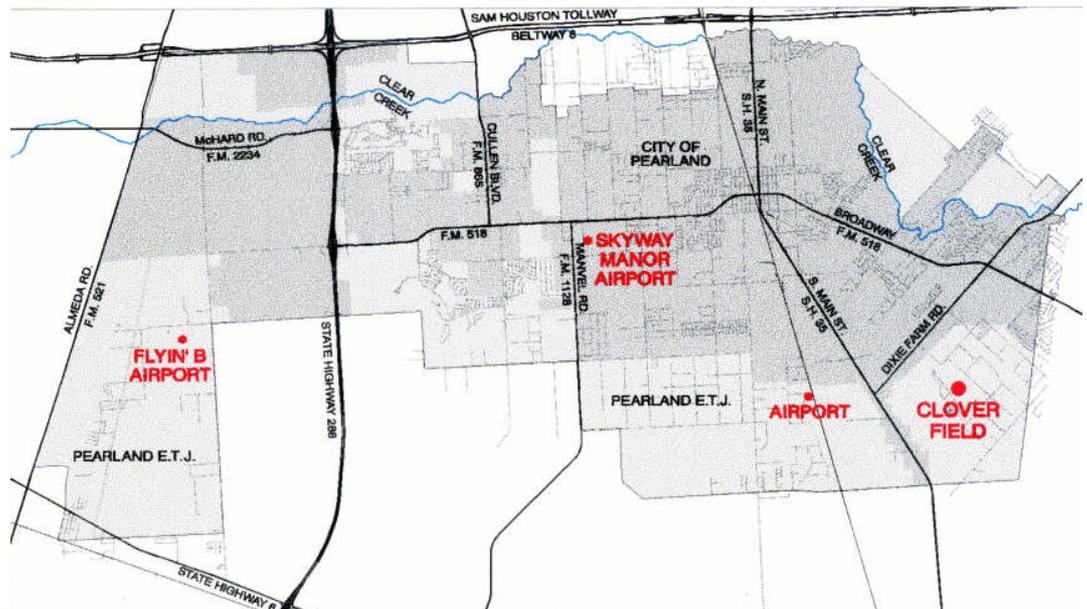
The City's two most heavily traveled major thoroughfares are F.M. 518 and State Highway 35. F.M. 518 begins at S.H. 288 and extends eastward across the entire length of the City. S.H. 35 crosses the entirety of the City on a north-south axis and provides quick access northward to Hobby Airport.

Aviation

A third transportation-related factor of influence are aviation facilities. There are four privately owned airports within the Pearland Planning Area. As shown on Figure 3.7, the largest of the four and the only one with a paved runway is Clover Field. Located south of Dixie Farm Road and east of S.H. 35, Clover Field is a general aviation airport, open to the public, that provides air transportation access to Pearland, Friendswood, Alvin, and northeastern Brazoria County. The airport currently serves mostly recreational and student flyers. Clover Field has several grassed runways in addition to the single paved runway which has a northwest/southeast orientation. Al-

most all of the runway protection zones prescribed by Federal Aviation Administration regulations extend beyond the limits of Clover Field's boundaries. All three other airports are small landing strips with few supporting facilities. The westernmost facility is Flyin' B Airport located just off County Road 59, about three miles west of S.H. 288. Located south of F.M. 518 and east of Manvel Road in the central part of the Planning Area is Skyway Manor Airport. The third small, private airstrip is an unnamed, poorly accessed facility located adjacent to the Santa Fe railroad about two miles south of John Lizer Road. Although the future of Clover Field has been much debated and is further discussed under the Transportation Section of this report, the other three airports should be considered temporary uses of land that will change as urban development approaches and land prices increase. None of the three have room for significant expansion. Any nearby developments, however, should take into account that these airports could continue to operate for an undetermined number of years.

Figure 3.7:
Airports



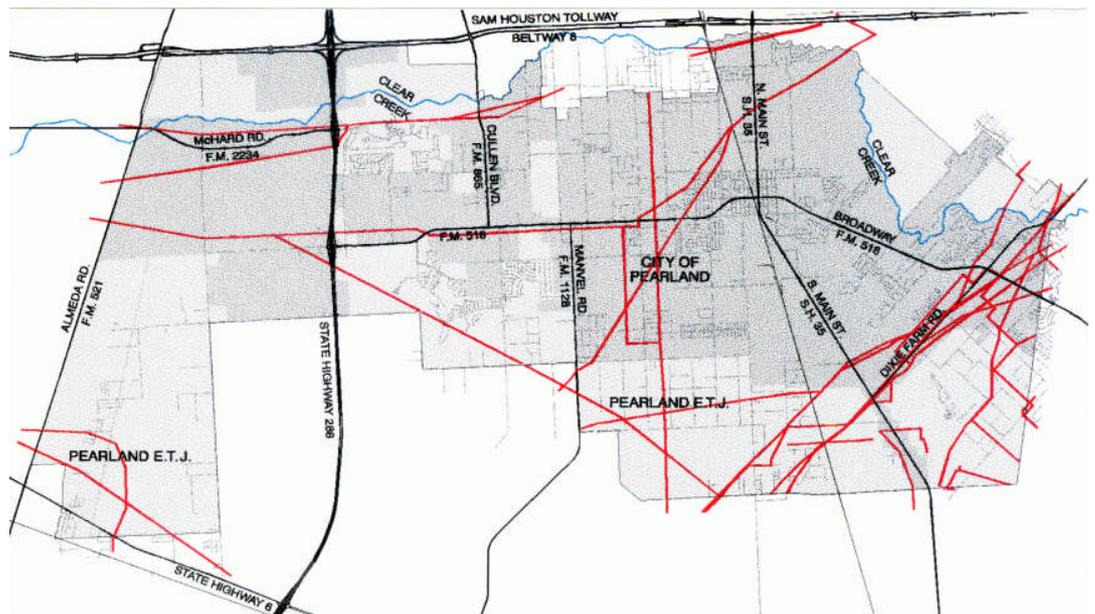
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Pipelines

Typical of the Texas Gulf Coast Plain, there are numerous pipelines crossing the region that transport crude oil, natural gas and various petrochemical products. All pipelines verifiable by field inspection are indicated on Figure 3.9. The heaviest concentration is in the southeastern portion of the Planning Area, especially near Dixie Farm Road. In the past, the influence of pipelines was mostly a physical one, impacting efficient land use and increasing development costs where pipelines had to be crossed by streets or public utilities. Today, however, the influence and potential impact is becoming more than just physical; it is increasingly becoming an environmental concern as well, especially with regard to pipelines carrying petrochemical products. The general public is becoming more aware of the potential hazards of some of the transported products and will likely become less inclined to reside in close proximity to certain product pipelines.

Figure 3.9:
Pipelines

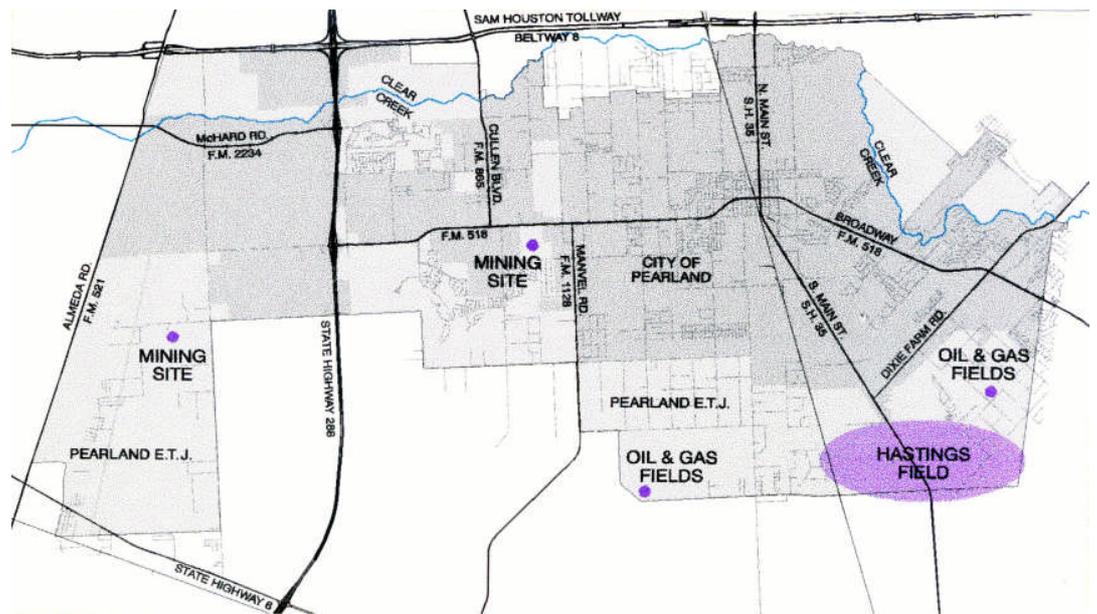


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Natural Resource Extraction

The most notable natural resource extraction site is the Hastings oil and gas field straddling S.H. 35 at the southern edge of the Planning Area, (see Figure 3.10). Although production is diminishing, the Hastings Field still has a number of active wells and collection lines. Immediately south within Alvin's ETJ is the Amoco Hastings Plant. Several scattered, small oil and gas production facilities are located near Clover Field and in the central southernmost portion of the area. Sand and gravel mining operations are currently active in two locations. The location is in the central part of the Planning Area, south of F.M. 518 and west of Manvel Road. The second location is on County Road 59 near the Fort Bend County line. There are about a dozen abandoned sand and gravel pits scattered across the area; most have since filled with water. One water filled pit southwest of Hughes Ranch Road and Cullen Boulevard has been aesthetically incorporated into a residential development.

Figure 3.10:
**Extraction
Sites**



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Soil Pollution

Also of influence are sites documented by federal and state agencies to contain various types of environmental hazards. Figure 3.11 shows the locations of such sites based upon data from Environmental Risk and Imaging Services. Usually, these sites have resulted from past, not current, activities. However, their impact can be long-lasting and costly to remediate. Many, older service stations will be listed because of their underground storage tanks. No environmental hazard sites have been documented at Clover Field.

An area of concern not documented but readily apparent in reviewing aerial photography are several oil pits scattered across the Hastings Oil and Gas Field. Once the field plays out and the opportunity for urban development increases, these sites will have to be clearly defined, recorded, and remediated if put to urban use.

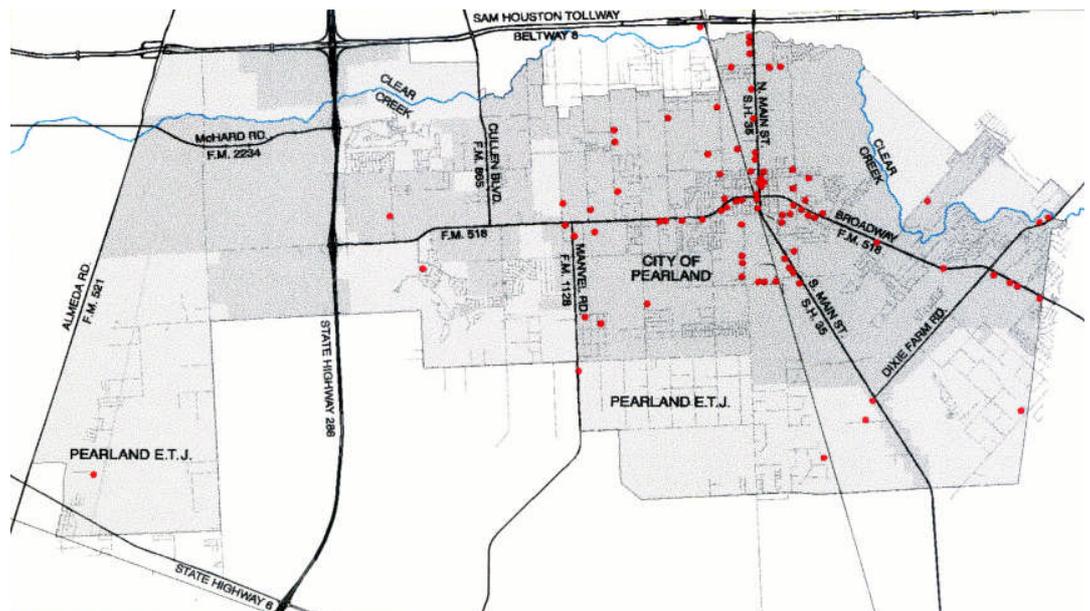


Figure 3.11:
*Pollution
Sites*

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JURISDICTIONAL INFLUENCES

Counties / County Precinct Line / Drainage District

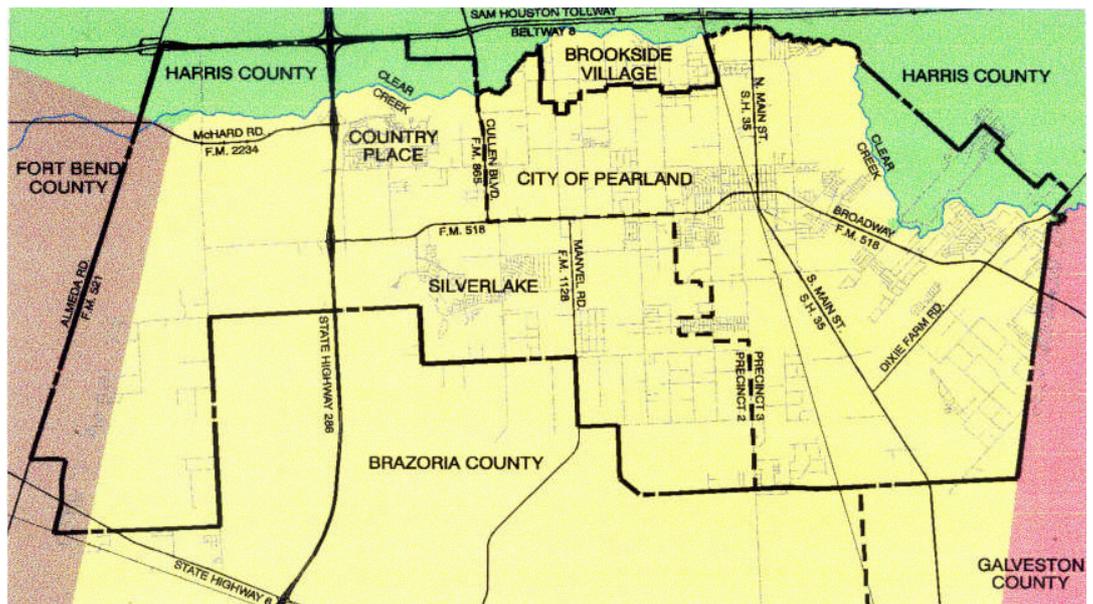
Most of the Pearland Planning Area is within Brazoria County as shown on Figure 3.12. In fact the planning area comprises all of northernmost Brazoria County except the small community of Brookside Village located along Clear Creek west of Mykawa Road. Pearland's incorporated areas and ETJ east of Clear Creek are all within Harris County. On the far west side, that portion of the City's ETJ outside of the 100' annexation strip and abutting Arcola is within Fort Bend County.

With regard to Brazoria County, the planning area falls within two precincts. County Precinct 3 covers the north central and eastern portion of the area and includes most of Pearland's city limits. County Precinct 2 covers the south central and western portion of the area and includes the

master planned communities of Country Place and Silverlake. All of the planning area within Brazoria County is also within Brazoria Drainage District No. 4.

Portions of Pearland within Harris County are in that county's Precinct 1. The portion of Pearland's ETJ within Fort Bend County is within its Precinct 2.

Figure 3.12:
Counties



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Municipal Utility Districts

Shown below are Brazoria County municipal utility districts established within Pearland's ETJ. All are located in the western half of the planning area.

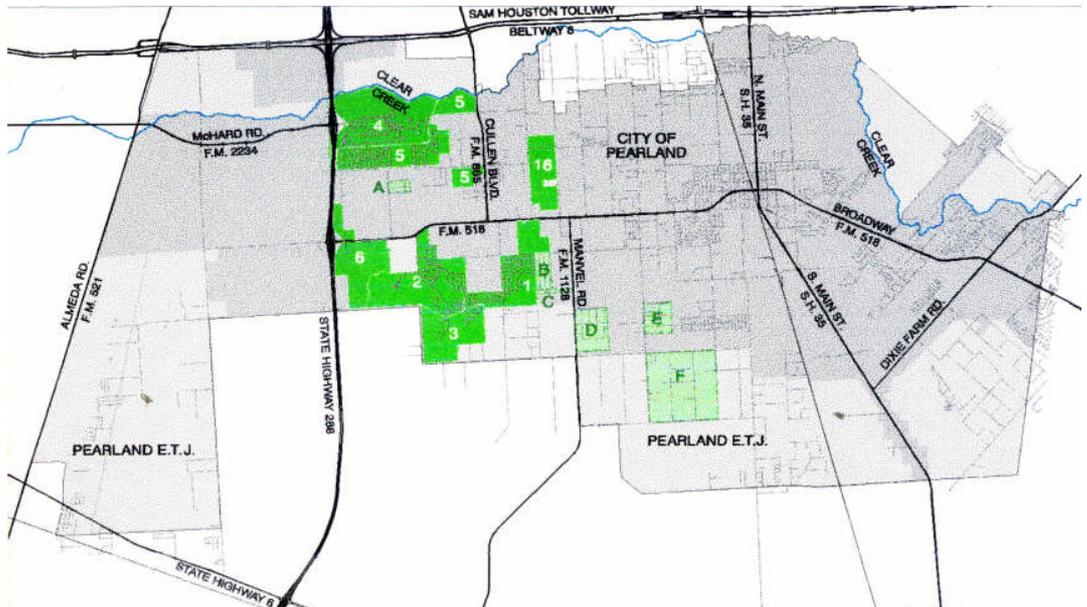
<u>Mud #</u>	<u>Development Name</u>
1	Southwyck/Silverlake
2	Southwyck/Silverlake
3	Southwyck/Silverlake
4	Country Place
5	Southdown
6	Southwyck/Silverlake
7	(Dissolved - 1996 Annexation)
9	(Dissolved - 1999 Annexation)
10	(Dissolved - 1996 Annexation)
16	Parkwyck - northwest of F.M. 518 and Max Road

Almost all of the districts were created in the early to mid 1980's. As noted, three of the districts have been annexed by the City of Pearland and thus dissolved. The one district with no facilities or bonds sold is No. 16.

Private Utility Systems

Also shown on Figure 3.13 are six areas within Pearland's ETJ that are served by private utility systems. All six have existed for many years. Areas A, B and C are comprised almost entirely of mobile homes with a few permanent single family residences. Area D is a well-maintained neighborhood of single family homes on large lots. Area E is an equal mix of permanent homes and mobile homes on smaller lots. Area F includes a mix of permanent residences and mobile homes with a few commercial uses and a large place of worship.

Figure 3.13:
Utility
Districts



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School Districts

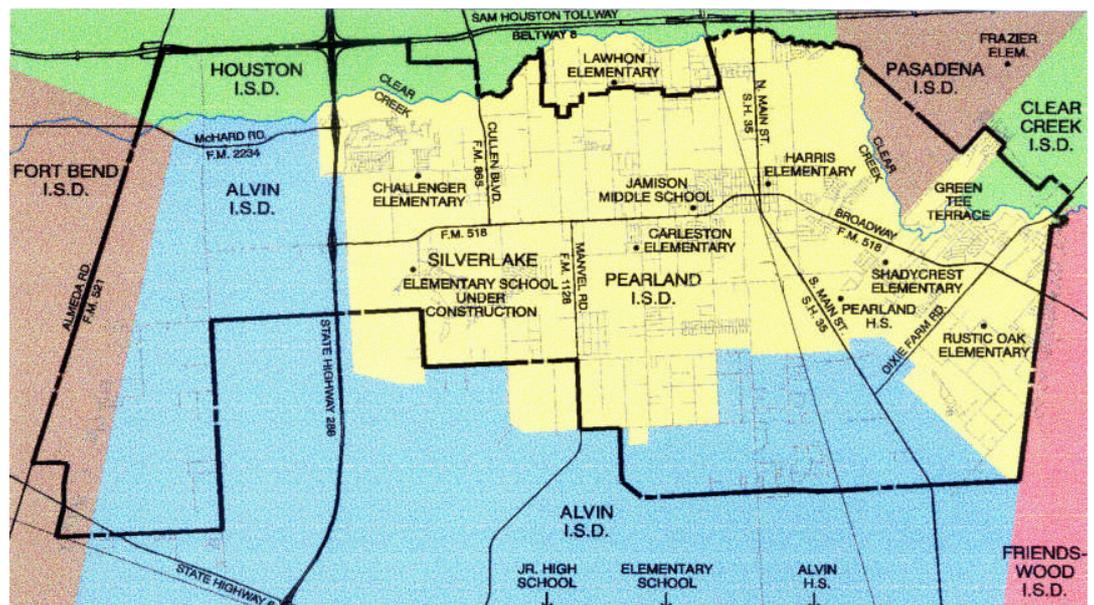
The Pearland Planning Area overlaps the boundaries of six independent school districts - Alvin, Clear Creek, Fort Bend, Houston, Pasadena, and Pearland. As shown on Figure 3.14, most of the City and ETJ east of State Highway 288 is within the Pearland Independent School District (P.I.S.D.). The district's boundaries also include an area east of Clear Creek within the Green Tee subdivision. Originally, this area was a part of the Clear Creek I.S.D. In 1987, the area was de-annexed by Clear Creek I.S.D. and incorporated into P.I.S.D. This change has yet to be reflected on several regional maps depicting school districts including recent maps prepared by the Houston-Galveston Area Council (HGAC).

The largely undeveloped area within Pearland's ETJ south of the Green Tee subdivision down to Dixie Farm Road is still part of the Clear Creek I.S.D. The nearest elementary school, Clear Creek, is six miles away via existing roads. The largely undeveloped area north of the original

Green Tee subdivision is served by the Pasadena I.S.D. A recent addition to Green Tee was built across and within the Pasadena I.S.D. Homes sales have been slow, partly due to students having to take a circuitous route south, east and north through existing neighborhoods served by Pearland I.S.D. and Clear Creek I.S.D. in order to access Pasadena schools.

As shown on Figure 3.14, several large but mostly undeveloped areas of the City and its ETJ are served by the Alvin Independent School District. Of special note is the area west of State Highway 288 extending southward from Clear Creek. As evidenced by residential development activity just east of the freeway, it would appear that areas to the west would soon follow suit. But the nearest Alvin schools are older facilities located within the City of Manvel to the south, a distance of about 4½ miles from the intersection of S.H. 288 and F.M. 518. Further away is the senior high school, which is within the City of Alvin. Given

Figure 3.14:
Public
School
Districts



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the tax base potential of the S.H. 288 corridor, it is unlikely that Alvin I.S.D. would relinquish any of this area to Pearland I.S.D. The short-term absence of nearby schools is one of several factors that could make properties west of S.H. 288 more conducive to commercial and industrial development for the foreseeable future.

The fifth district that is within the Pearland Planning Area is the Fort Bend Independent School District. Their boundaries include all of Pearland's ETJ extending into Fort Bend County. As typical of the other school districts on the periphery of the planning area, the nearest Fort Bend schools are several miles away.

Upon review of the five school districts within the planning area and their attendant facilities, it is readily apparent that residential development will continue to be attracted to those areas served by the Pearland Independent School District.

The Pearland Independent School District encompasses 43.5 square miles and includes six elementary schools, two middle schools, two junior high schools and one high school. With the passage of bond issues in September, 1995 and February, 1996, the district has undertaken an aggressive building program. By the 1997 school year, the district had renovated the second oldest elementary school in the district. Construction began in early 1997 on a ninth and tenth grade campus adjacent to the present high school and on a new facility that will replace the district's oldest elementary school. In mid 1997, construction began on a seventh elementary school, located in the Silverlake development.

Current enrollment within P.I.S.D. is approximately 9,000 with over 600 teachers. The ethnic distribution is 71.7% Anglo, 19.6% Hispanic, 5.2% Black, 3.9% Asian and .2% Other.

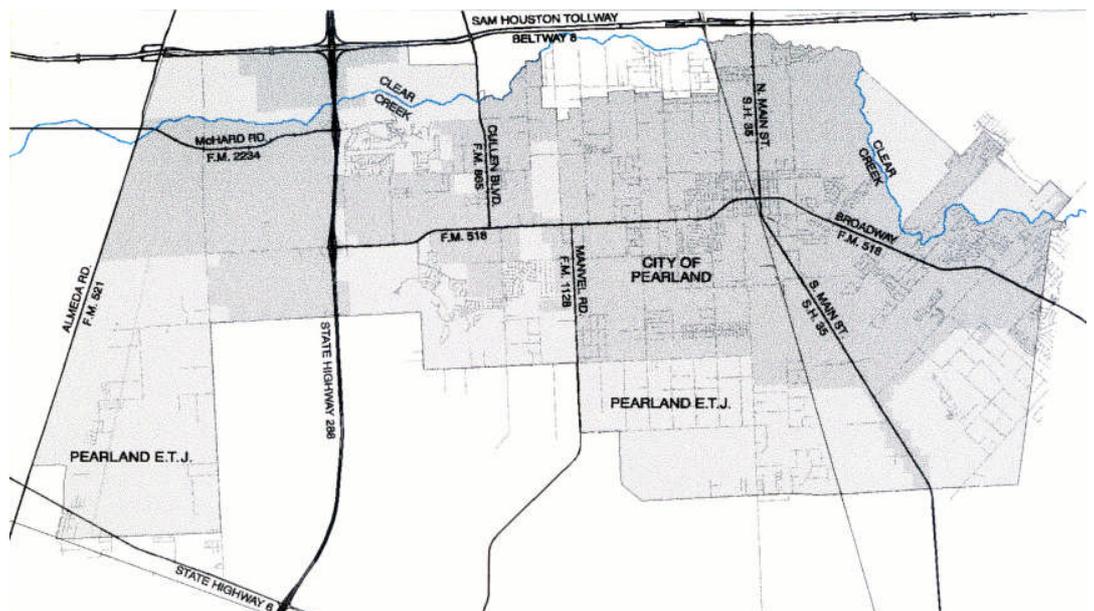
PLANNING AREA Section 3.0

Texas Department of Transportation Maintained Roads

In addition to State Highway 288, a number of other major roads within the planning area are under TxDOT's jurisdiction. Driveway access along these thoroughfares is subject to TxDOT's control and regulations. As shown on Figure 3.15, the following roads are owned and maintained by the State of Texas:

- Beltway 8
- F.M. 518/Broadway Street
- State Highway 35/Main Street
- F.M. 2234/McHard Road (west of S.H. 288)
- F.M. 865/Cullen Boulevard
- F.M. 1128/Manvel Road
- F.M. 2351
- F.M. 521/Almeda Road
- State Highway 6

*Figure 3.15:
TxDOT
Roads*



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Pearland Economic Development Corporation

Although Pearland has experienced strong residential growth over the last decade, commercial and industrial development has been less than desired. Consequently, in 1995 the City of Pearland created the Pearland Economic Development Corporation (PEDC) to promote the Pearland area for business expansion and relocation. The PEDC is a non-profit corporation, supported by a voter approved ½ cent sales tax, that operates as a department of the City. The corporation is staffed by City employees and managed by a Board of Directors who together create and implement programs to aid in economic development of the community. Incentive packages and tax abatement plans are offered for new and existing businesses based on the benefits a company will bring to the City. Of importance are a company's annual gross payroll, increased employment and local capital investment.

Already within the first two years of its existence, the PEDC has aggressively assisted in creating approximately 750 new jobs and 700,000 square feet of new taxable value. Other projects of the PEDC include participation in a school to work program, community college training programs for employees, and compiling city information for publication on the Internet.

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EXISTING LAND USE

Both the 1978 and 1988 updates of the Pearland Comprehensive Plan provided maps of then-existing land use. The planning area covered by the 1978 update was much smaller than the planning area today and included only the region east of Manvel Road and north of Massey Ranch Road (County Road 100). The planning area covered by the 1988 update is essentially the same as today's, the only difference being an added area of ETJ within Fort Bend County. To update this map to current conditions, a street by street field survey was conducted with the assistance of aerial photography and base mapping provided by the City. Each property was examined and the type and extent of use was recorded and mapped in *AutoCad*.

Figure 3.16 depicts land uses throughout the Pearland Planning Area as of mid-1997. (The analysis of existing land uses preceded the late 1997 agreement between Pearland and Houston that extended Pearland's ETJ west to F.M. 521 and north to Beltway 8. Thus, those newly added areas are not depicted.) Thirteen categories of use are shown. Following is a brief description of each category:

Land Use Categories

Single Family Residential

Detached permanent structures having one dwelling unit

Manufactured Housing/Mobile Homes

Detached structures of a more temporary nature having one dwelling unit, either on individual lots or within mobile home parks

Multi-Family Residential

A single structure having two or more residential units; includes duplexes,

townhomes, apartments and rooming houses.

Commercial

Retail stores and shops, offices, professional and business service establishments, automotive repair shops and light warehousing; includes cemeteries

Industrial

Manufacturing, assembly, processing, storage and/or distribution uses; machinery and salvage yards; also includes public uses of an industrial nature such as sewer treatment plants (are identified on Figure 16 by the letter "P")

Natural Resource Extraction

Oil and gas exploration; sand and gravel mining

Utilities

Major water distribution canals; major electrical transmission corridors

Aviation

Airports, airstrips, heliports and Federal Aviation Administration facilities

Railroads

Railway transportation corridors

Drainage/Detention

Streams, creeks, sloughs, stormwater detention sites and ponds; other bodies of water

Public & Semi-Public

Governmental office facilities; fraternal lodges; churches, synagogues and temples.

Parks

Public and private parks, playgrounds, athletic facilities, golf courses and other recreational open space. (Figure 16 also shows several large parks located along Clear Creek that are maintained by Harris County)

Schools

Public elementary, middle, and high schools. (All are Pearland I.S.D.)

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In comparing the current land use map with the one included in the 1988 update, it is readily apparent that most of Pearland's growth in the past decade has been single family residential. Most of that growth has occurred within the master planned community of Silverlake, located east of State Highway 288 and south of F.M. 518. In 1997, Silverlake became the second fastest growing master planned community in the Houston area, surpassed only by the Woodlands, north of Houston in Montgomery County. Growth has also continued within the Countryplace and Southdown residential developments near S.H. 288 and north of Silverlake. Countryplace, Southdown and Silverlake are all within Pearland's ETJ and served by municipal utility districts. Within the City itself, single family residential growth has occurred along Dixie Farm Road east of Cowart Creek and along Harkey and McLean Roads south of F.M. 518.

This update of the Comprehensive Plan has been the first to distinguish between permanent single-family housing and that which is considered temporary (i.e. mobile homes). As evidenced on Figure 3.16, a significant amount of the existing housing stock within the outlying unincorporated areas is mobile homes. Many are located on unplatted lots within substandard subdivisions. There are several well-maintained mobile home communities in the planning area, a few of which have expanded in recent years.

As would be expected, most of Pearland's commercial and industrial growth has occurred along or near the City's two principal thoroughfares - State Highway 35 and F.M. 518. Nonresidential development, although spotty, has accelerated within the past few years due to the efforts of the Pearland Economic Development Corporation

as well as the improved economy of the Houston metropolitan area. Retail/commercial growth along State Highway 288 has been stymied by poor access. Consequently, Pearland's sole freeway corridor has not experienced the extent of growth typically seen along the metropolitan area's other freeways.

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Land Use Trends

The original 1968 Comprehensive Plan and previous updates prepared in 1978 and 1988 provided information documenting land use trends among the major land use categories - single family, multi-family, commercial and industrial. This information is presented again in Table 3.1 below and expanded to include the data gathered in 1997.

**TABLE 3.1: HISTORICAL LAND USE TRENDS
PEARLAND PLANNING AREA**

Land Use	1968	1978	1988	1997
Single Family	6.4	11.3	9.5	14.2
Multi-Family	<0.1	0.2	0.3	0.3
Commercial	2.2	0.9	1.4	1.7
Industrial	0.5	1.9	1.6	2.2
Other	90.9	85.7	87.2	81.6
TOTAL	100	100	100	100

Table 3.1 notes:

- The 14.2% for single family residential use in 1997 can be further split to 11.9% permanent housing and 2.3% temporary housing (i.e. mobile homes). The City's previous comprehensive plans did not make this distinction.
- The decrease in commercial use from 1968 to 1978 and corresponding increase in industrial use is partly attributable to changes in how certain types of use were classified.
- "Other" includes miscellaneous land uses such as utilities, transportation, public/semi-public park and schools as well as all lands still undeveloped. In 1997, the 81.6% for other uses can be split into 5.7% - miscellaneous and 75.9% - undeveloped.

Table 3.2 lists the acreage and square miles included in the planning area of the 1968 Plan and subsequent updates.

**TABLE 3.2: PLANNING AREA SIZE
(1968-1997)**

	1968	1978	1988	1997
Acreage	18,231	20,274	39,477	39,754
Square Miles	28.5	31.7	61.7	62.1

Table 3.2 notes:

- The planning area in 1968 and 1978 extended no farther west than Manvel Road.
- The 1988 update included all of Pearland's ETJ enclosed by the 100' annexation strip that extends out to the Fort Bend County line and down to State Highway 6.
- The 1988 figures have been recalculated and corrected from the numbers previously indicated.
- The 1997 update includes ETJ added within Fort Bend County.

POPULATION

Section 4.0

INTRODUCTION

A key component of any comprehensive plan is a demographic analysis of the planning area and a projection of its future population. This section presents highlights of the analyses and an assessment of the projection's potential impact.

Information has been gathered from many sources including CDS Research, Inc., Donnelley Marketing Information Services/Demographics On Call, American Metro/Study Corporation, U.S. Bureau of Census, Houston-Galveston Area Council (HGAC), City of Pearland staff, the Pearland Economic Development Corporation,

various real estate professionals, and developers. Although recent data is available for the incorporated City, certain demographic and economic characteristics of the unincorporated areas are more difficult to access. For example, Census statistics are now eight years old and just two years away from revision. Consequently, considerable effort has been made gathering and reviewing information on single family home purchases across the planning area with respect to number, location and price range. Utilizing this data is important in light of development activity within the outlying master planned communities, most notably Silverlake.

RESIDENT CHARACTERISTICS

Detailed below are a number of resident characteristics including past population growth, age distribution, education status, household income, and housing costs.

Ethnically, according to the 1990 census, Pearland citizens were 88% Anglo, 7% Hispanic, 3% Black, and 2% other races and ethnic backgrounds.

*Table 4.1:
Past
Population
Growth*

Year	Incorporated City		Planning Area (including the City)	
	Population	% Increase	Population	% Increase
1970	6,400	-	12,700	-
1980	13,200	106%	25,800	203%
1990	18,700	42%	35,600	38%
Mid 1997	32,100	72%	48,600	37%

Pearland has experienced substantial growth for several decades, even during the severe economic downturn of the mid-1980's. Based on home sales since 1990, population growth throughout the Planning Area has averaged about 2,000 new residents per year. Within the past year,

the rate of growth has accelerated. Pearland's growth rate continues to average roughly twice that of the Houston metropolitan area.

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**Table 4.2:
Age
Distribution**

Age Group	1990	1996	Change
<18	29%	27%	-2%
18-24	8%	11%	+3%
25-34	18%	13%	-5%
35-44	18%	18%	0%
45-54	11%	14%	+3%
55-64	8%	8%	0%
65+	8%	9%	+1%

Table 4.2, above, shows ages (by groups) of residents living within the City in 1990 and in 1996. The median age has increased from 32.5 years to 34.5 years, similar to the increase experienced throughout the Houston area. The current age composition of the entire planning area is difficult to pinpoint without current information on the new residents within the ETJ. As noted earlier, the most

recent data is the 1990 census. However, residential developments such as Southdown and Silverlake typically lower the overall age characteristics because new suburban housing generally means more young parents ages 25 to 44 and more children under the age of 18. The downward adjustment would be somewhat offset by the senior housing developed in Country Place.

**Table 4.3:
Educational
Status**

Education	1990	1996
High school graduates/some college	54%	57%
College graduates including Associate Degrees	18%	28%

The education level of the City's adults indicates the overall skill and income-generating potential of the population. Table 4.3 compares the educational status of the adult population of the City of Pearland for 1990 and 1996.

The substantial increase in number of residents with college degrees reflects the educational level of individuals moving to the City. If current data were available for the ETJ, the percentage increase would likely be greater.

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**Table 4.4:
Household
Income**

Income Level	1990	1996	Change
Under \$10,000	6%	5%	-1%
\$10,000 - \$14,000	4%	3%	-1%
\$15,000 - \$24,999	14%	11%	-3%
\$25,000 - \$34,999	15%	12%	-3%
\$35,000 - \$49,999	20%	19%	-1%
\$50,000 - \$74,999	25%	26%	+1%
\$75,000	16%	24%	+8%

Table 4.4 shows the change in household income levels for Pearland residents from 1990 to 1996. Household income includes income from all persons age 15 years and older as well as those living alone and other non-family households. Income levels under \$50,000 have all decreased while those above \$50,000 have increased. The largest increase occurred in the \$75,000+ bracket. Half of Pearland's households now have incomes greater than \$50,000. The median house-

hold income has increased approximately 2.7% annually to just under \$50,000 in 1996. By contrast, the 1996 median household income was \$32,515 in the City of Houston and \$71,012 in the City of Sugar Land. Per capita income has increased approximately 2.3% annually to \$20,182 in 1996. Median household income and per capita income are both expected to increase at their current pace in the next few years.

**Table 4.5:
Housing Costs**

Price Range	1990 to mid-1997	1995 to mid-1997
<\$110,000	17%	12%
\$110,000 - \$140,000	59%	50%
\$140,000 - \$200,000	17%	31%
>\$200,000	7%	7%

Another indicator of increased affluence in the Planning Area is the upward change in purchase price of housing within the past few years. Table 4.5 shows the percentage housing cost by price range from 1990 to mid-1997 in comparison with 1995 to mid-1997. Most notable is the increased market share for housing priced from \$140,000 - \$200,000. Meanwhile, the under \$140,000 price ranges have lost overall market percentage points.

The continuing rise in income level of Pearland residents will influence the local demand for housing, services, and retail sales. The higher income level can be expected to have effects similar to the rising educational level with respect to cultural, social, recreational and health services.

POPULATION

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HOUSING DEMAND

Single Family

Residential development activity since 1990 within the Pearland area has been analyzed as one of the bases for projecting population growth. The Planning Area has been divided into four geographical quadrants to better assess recent growth. The quadrants - Northwest (NW), Northeast (NE), Southeast (SE), and Southwest (SW) are defined by the north/south alignment of State Highway 35 and the east/west alignment of F.M. 518.

Figure 4.1 on the following page depicts area home sales by quadrant from 1990 to 1997. (Sales have been projected for the second half of 1997 based on actual performance in the first half.)

Most notable is the restart of home sales in the former Southwyck development, re-named Silverlake. Sales in Silverlake began in 1995, and by mid-1997 accounted for 80% of homes sold in the Southwest quadrant and over 40% of all homes sold throughout the entire Planning Area.

In summary, home sales have totaled more than 4,300 from 1990 through mid-1997 with an additional 530 sales expected in the second half of 1997. The annual average over the eight year period is 606, ranging from a low of 417 in 1994 to an approximate high of 1,060 in 1997.

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Multi-Family

Table 4.6 provides information on Pearland's existing multi-family developments as of September, 1997. Immediately apparent is the high demand.

*Table 4.6:
Pearland
Apartment
Complexes*

Complex Name	Year built/remodeled	# of Units	% occupancy
Park Place	1970	100	99%
Windmill II	1972	298	91%
Salem Village	1972/1992	141	96%
Silver Maple	1976/1994	152	98%
Pearland Village	1979/1989	130	97%
Strawbridge	1983	171	100%
Whispering Winds	1985	286	97%
Remington	1993	352	99%
		1,630 total	97% average

The average age of the City's eight apartment complexes is almost 20 years old. The average size is 204 units. Occupancy levels are extremely high despite the average age. The newest complex, Remington, is the largest by far and is 99% occupied. Annual growth from 1970 to 1997 has been approximately 60 units.

Average monthly rents are approximately \$0.70 per square foot. The Houston regional area average is \$0.60 per square foot.

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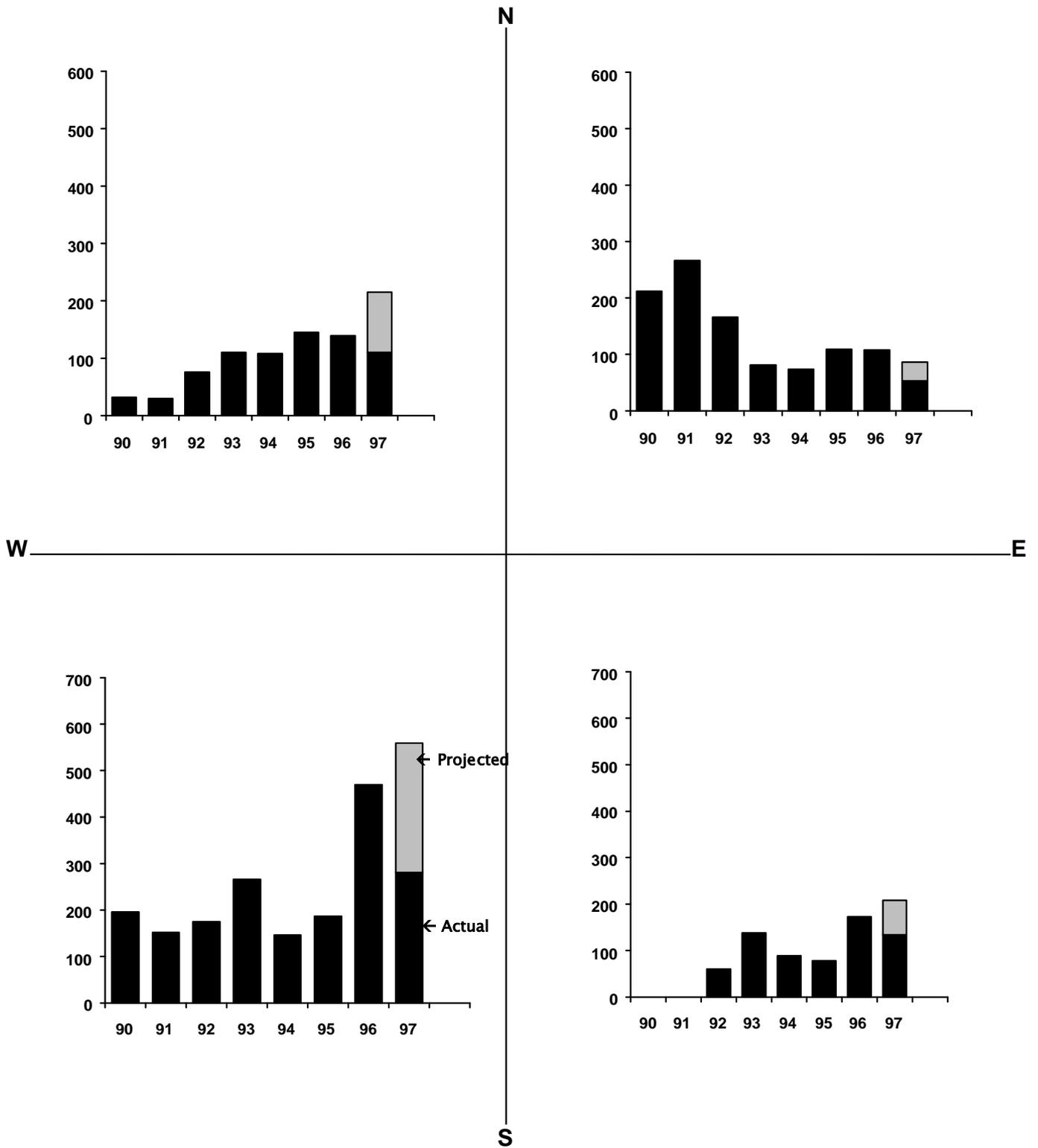


FIGURE 4.1: HOME SALES BY QUADRANT (1990-1997)

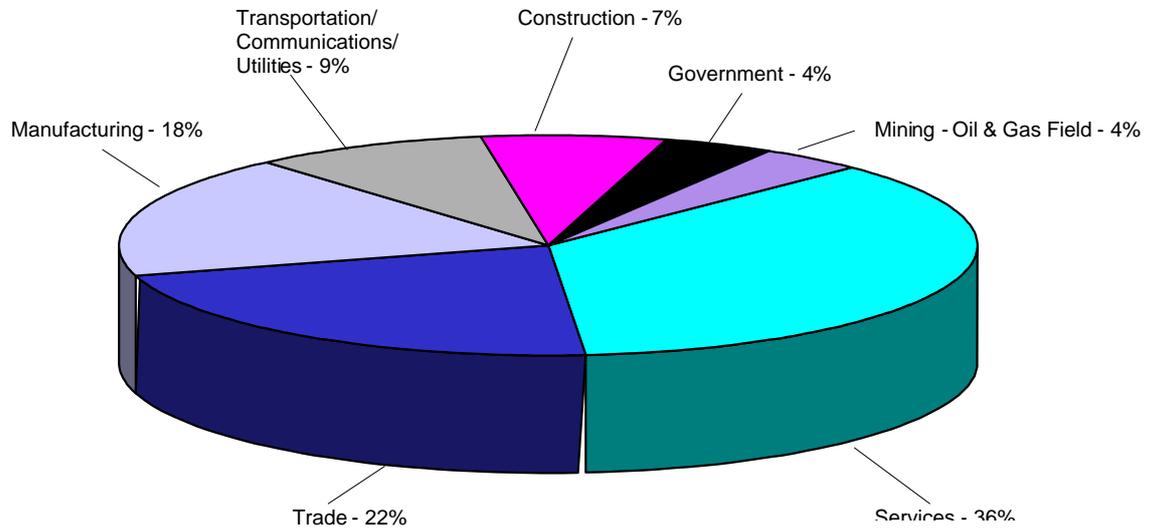
POPULATION

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EMPLOYMENT CHARACTERISTICS

Figure 4.2 shows the percentage of employment by major category within the City. This information is based on the 1990 Census. Total employment within the City approximated 10,000.

**Figure 4.2:
Percentage
Employment
by Type**

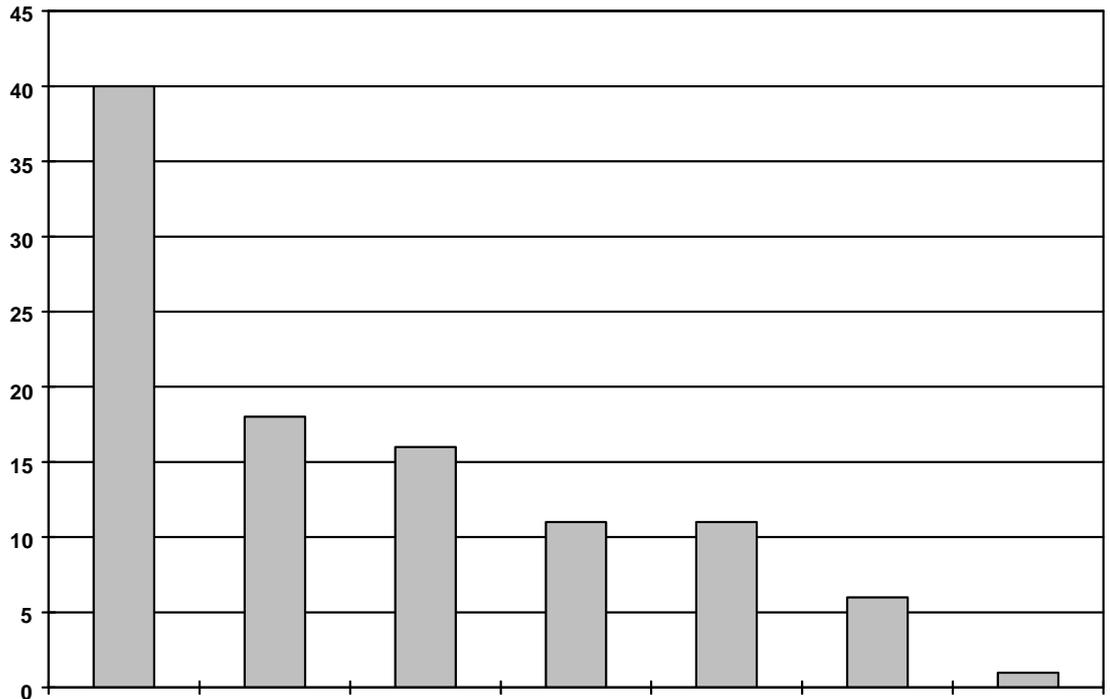


If more recent data were available that included the ETJ, construction-related employment would likely be higher given the current level of residential development activity in the unincorporated areas near State Highway 288. Comparative information on recent job growth in the Houston metropolitan area is shown in Figure 4.3 on the following page.

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**Figure 4.3:
Regional
Job
Growth**



Job growth in the services sector has doubled the growth rate of any other employment sector. Mining-oil and gas field employment has increased only 1%.

Pearland's largest employers include the following organizations:

**Pearland's
10 Largest
Employers**

Pearland I.S.D.	Public Administration	1076
Weatherford Pearland Mfg.	Oil Field Equipment	250
City of Pearland	Government	205
Pauluhn Electric Mfg.	Marine Lighting Equipment	130
Associated Equipment	Welding Equipment	115
Davis-Lynch, Inc.	Oil Tool Energy Coatings	100
Packaging Service Co., Inc.	Solvents and Chemicals	100
Strickland Chevrolet/Geo	Automobile Dealership	100

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POPULATION GROWTH

Examining current demographic characteristics and recent housing supply and demand provide an excellent basis to estimate future population growth. However, while short term population projections can be fairly accurate, long term projections are more subjective, more assuming, and more influenced by evolving socio-economic conditions.

Population growth comes from two sources: local births and in-migration. For example, growth in the greater Houston area from 1990-1995 was 61% local births and 39% in-migration (27% foreign, 12% domestic). Both create housing demand. Housing supply is influenced by a host of factors including available lands, natural and man-made physical constraints, and governmental regulations. All factors combined ultimately determine housing costs and its marketability.

The population projections discussed herein extend to the year 2020. In summary, a total of 18,530 new single family and multi-family housing units are antici

pated from 1998 to 2020. Using 3.2 persons per household as estimated by the City of Pearland, population growth within the Planning Area will approximate 59,300 persons or an annual average of about 2,600 persons for a total population of almost 108,000 in the year 2020. As in the past, Pearland's growth rate should substantially outpace the rate of growth experienced by the greater Houston area.

Projected single and multi-family housing absorption is presented in Table 4.7. The resulting change in population is shown in Table 4.8. The information for both tables is tabulated for the three year period from 1998 to 2000 and then in five-year increments for 2001 to 2020.

Continued, strong residential growth will accelerate retail / commercial / industrial development activity. The rate of growth will likely increase further with the ongoing efforts of the Pearland Economic Development Corporation to assist local businesses in expanding their facilities and to attract new businesses to the area.

**Table 4.7:
Housing
Absorption
(1998 - 2020)**

	1998-2000	2001-2005	2006-2010	2011-2015	2016-2020	TOTAL
New Units	3,030	4,875	4,125	3,875	2,625	18,530
Yearly Av.	1,003	975	825	775	525	806

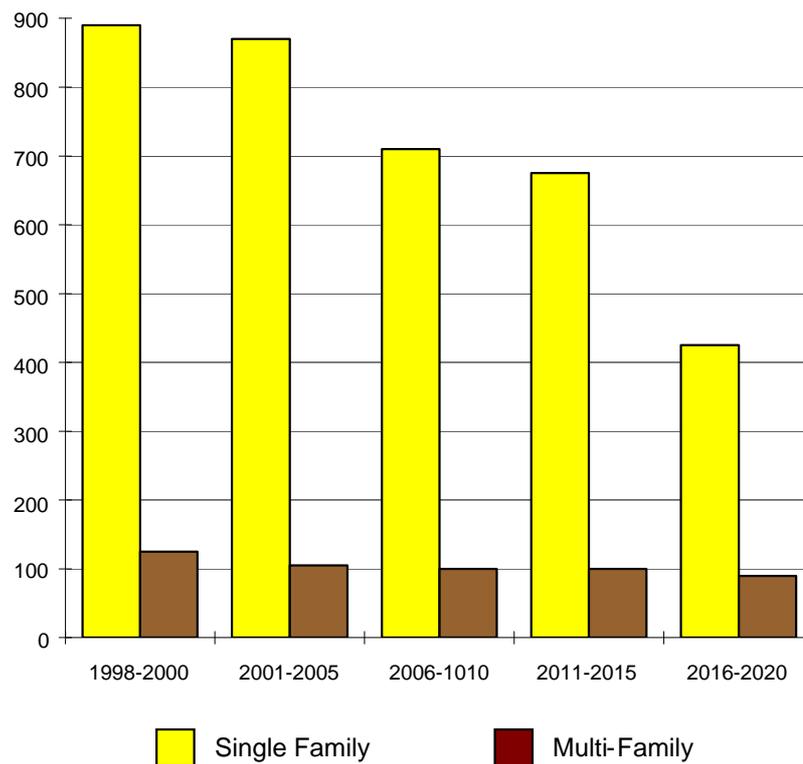
**Table 4.8:
Population
Projections
(1998 - 2020)**

	1998-2000	2001-2005	2006-2010	2011-2015	2016-2020	TOTAL
Additional Population	9,696	15,600	13,200	12,400	8,400	59,296
Yearly Av.	3,232	3,120	2,640	2,480	1,680	2,578

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Figure 4.4 below, converts the housing absorption data into yearly averages using the time increments identified above. Single family and multi-family units are separately shown.

**Figure 4.4:
Average Annual
Housing
Absorption
(1998 - 2020)**



Over the 23 year period, a yearly average of 703 single family units and 102 multi-family units are projected. By comparison, the yearly averages during the 1990's have been 606 for single family and 60 for multi-family.

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Single Family Absorption

Estimating future single family absorption (i.e. housing sales) requires an examination of the existing housing market. The project status of already developing residential subdivisions has been reviewed in all four geographical quadrants of the Planning Area. As of late 1997, a potential 5,072 future home sales can be expected from houses under construction, finished unsold houses, model homes, vacant developed lots and planned lots yet to be developed. More than 1,500 of these home sites are within Silverlake. Through the year 2000, housing demand is expected to capture all but 2.3 years of the available lots and housing from currently "active" subdivisions. During this period, demand will absorb nearly all currently available housing and lots in the Northeast and Southeast quadrants.

Figure 4.5 on the next page depicts projected home sales by quadrant through 2020. Strong housing demand can be expected from 2001 through 2005 with an area-wide average of 865 annual home sales.

From 2006 through 2010, single family absorption will likely decrease due to several factors including:

- completion of the Silverlake master-planned community in the Southwest quadrant
- completion of a projected master-planned community in the Northeast quadrant
- the scarcity of available lots in the Southeast quadrant

The average annual rate will still be strong with about 725 homes sold each year.

After 2010, housing activity will remain strong in the western sector of the Planning Area but will taper down in the eastern sector with limited land remaining for single family development. Average annual absorption is projected at 675 units from 2011 through 2015, and 440 units from 2016 to 2020.

Figure 4.6 converts the data presented in Figure 4.5 into population growth by quadrant through 2020.

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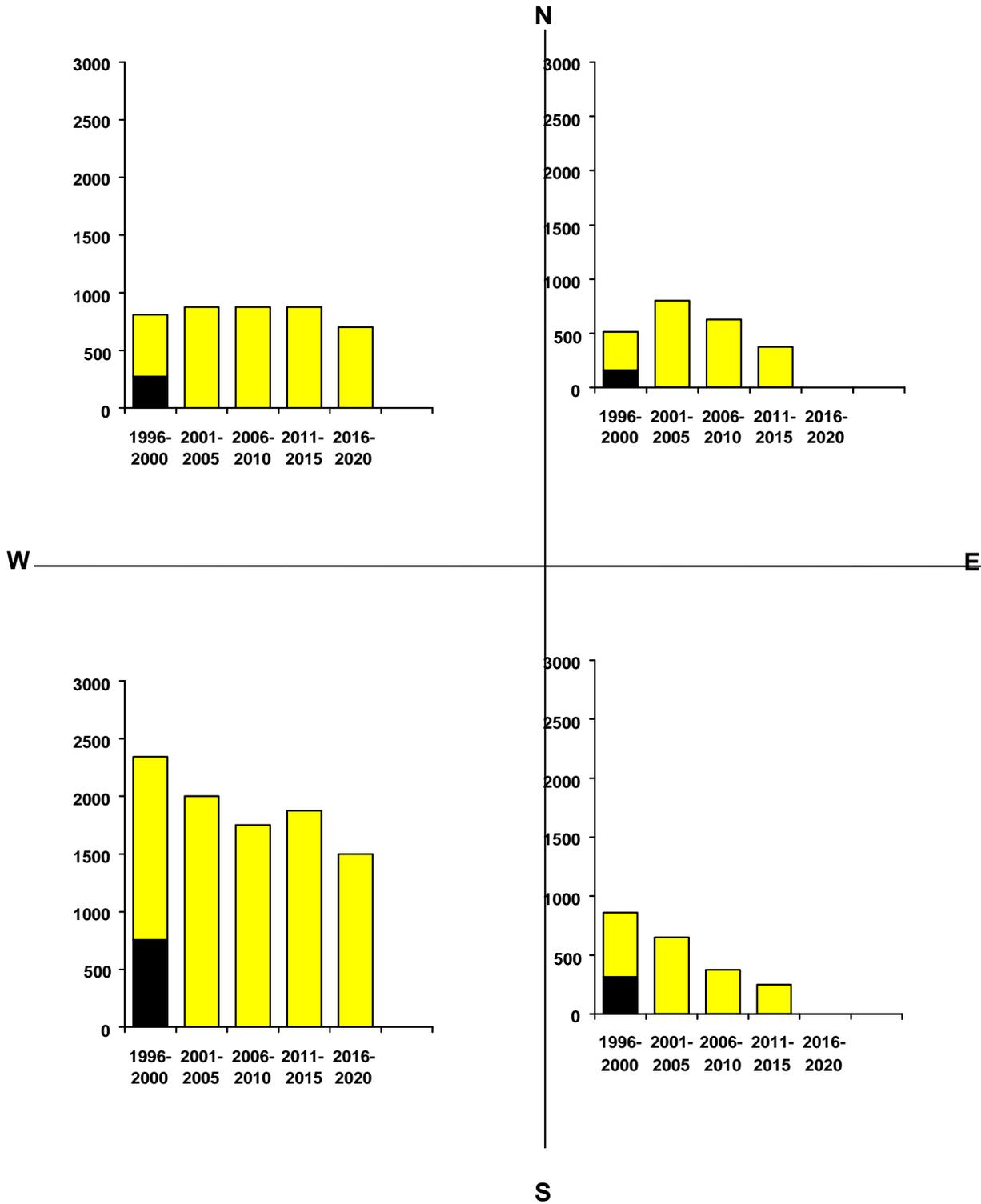


FIGURE 4.5: PROJECTED HOME SALES BY QUADRANT THROUGH 2020

- Actual through mid-1997
- Projected

POPULATION Section 4.0

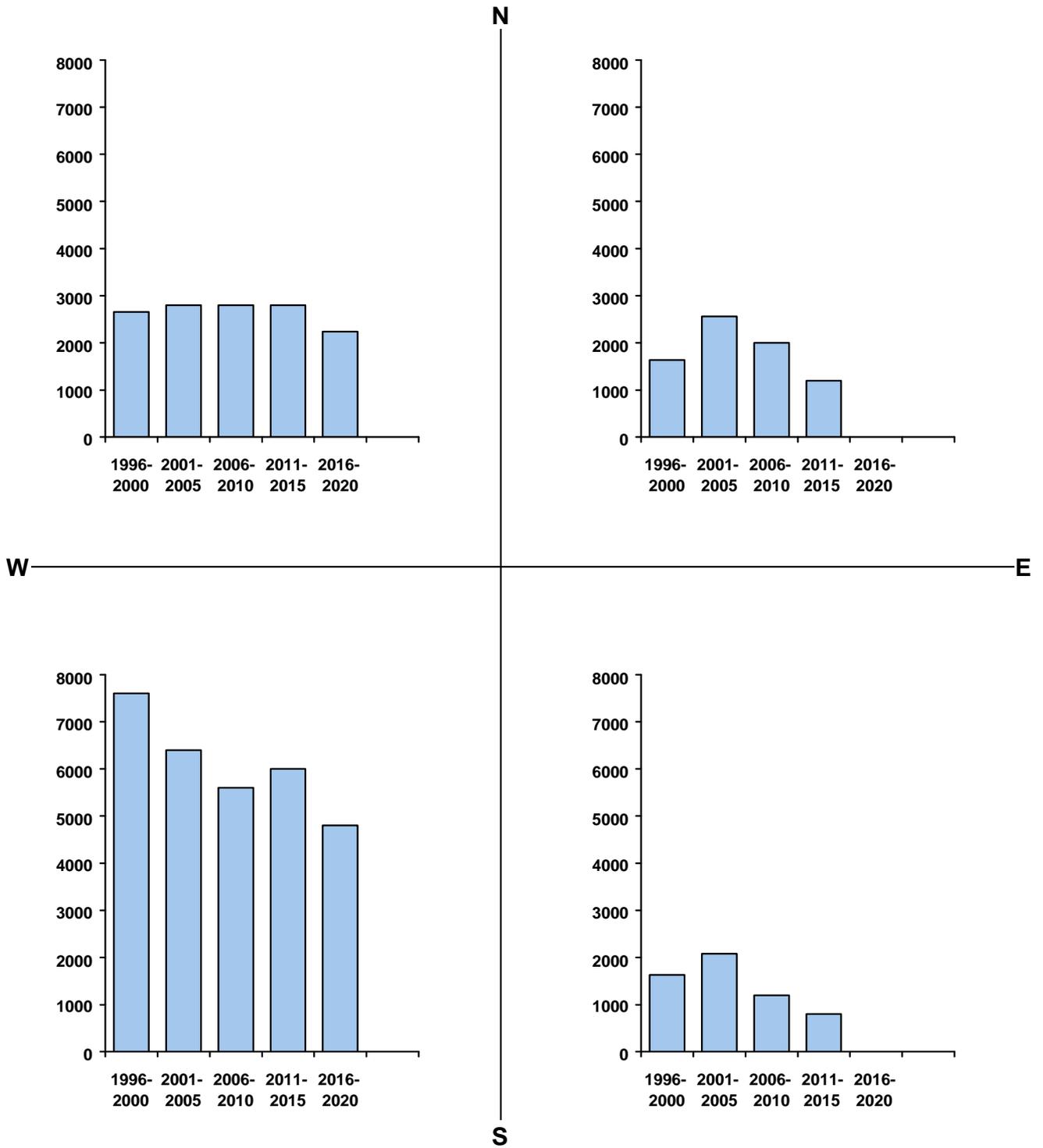


FIGURE 4.6: POPULATION GROWTH BY QUADRANT THROUGH 2020

POPULATION Section 4.0

Multi-Family Absorption

Market demand to build more multi-family units is apparent in reviewing the statistics. As noted earlier, the current occupancy rate among the City's 1,630 apartment units is 97% and the average monthly rents are generally over \$0.70 per square foot. Occupancy rates higher than 90% and monthly rents greater than \$0.70 per square foot are the two principal market factors that will precipitate new multi-family development. Pearland could see construction of about 100 units annually through 2020. New units will likely have monthly rents averaging about \$0.80 per square foot. Such growth would comprise about 13% of anticipated residential development activity within the Planning Area.

LAND USE

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INTRODUCTION

The Land Use Plan is typically the most important and most referenced element of a Comprehensive Plan. The Land Use Plan for Pearland reflects the existing city and presents an arrangement for future growth of the entire Planning Area through the year 2020 and beyond. Included is Shadow Creek Ranch, a 3,305 acre Planned Unit Development approved in September, 1999. The development will encompass almost the entire area west of S.H. 288 from Clear Creek to County Road 92.

Pearland has experienced tremendous growth in the 1990's and the rate of growth has been accelerating. The population of the Planning Area is expected to at least double over the next two decades. The City's major goal is to accommodate anticipated growth while preserving its sense of community, attractiveness and safety. Primary objectives to achieve this goal have been identified in the Pearland 2020 Vision Statement and are reiterated below:

- Establish a vigorous, diversified economy solidly based upon:
 - A pro-growth business environment
 - A highly skilled and motivated workforce
 - An environmentally friendly industrial base
- Provide a full spectrum of retail, health, transportation and business services that meet all the needs of the community.
- Accommodate a wide range of alternative and affordable housing in well planned neighborhoods that offer:
 - Convenient access via modern thoroughfares

- Many recreational amenities which blend in aesthetically with the environment.

The Land Use Plan strives to meet the Pearland 2020 objectives while respecting existing land use patterns, natural and man-made physical constraints and jurisdictional influences. Major features of the Plan include the following ten initiatives:

- 1. Reinvent the old townsite as a modern village with a compatible mix of residential and non-residential uses.**
- 2. Establish Pearland Parkway as a central axis linking many of the City's major recreational, educational and institutional assets.**
- 3. Develop a restaurant and entertainment district in a park setting with convenient regional access.**
- 4. Establish an attractive business park environment along the State Highway 288 corridor.**
- 5. Provide well-defined residential neighborhoods with centrally located parks.**
- 6. Concentrate local retail, offices and services into nodes centered at the intersections of major thoroughfares, instead of continuous commercial strips.**
- 7. Designate sizeable areas for industrial and light industrial economic development.**

MAJOR GOAL:
Accommodate anticipated growth while preserving a sense of community, attractiveness and safety

LAND USE

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8. Preserve major drainageways as open space, recreation corridors, and natural habitat.

9. Develop a series of gateways within and around the periphery of the City.

The Land Use Plan presented in Figure 5:1 includes these major features and indicates the proposed land use pattern throughout the entirety of the Pearland Planning Area. The map is general in its representation and is not intended to specify land use on a parcel by parcel basis. Following is a brief description of the land use categories shown on the map along with the appropriate implementing zoning districts. Most categories can be implemented using zoning districts already outlined in the Land Use and Urban Development Ordinance. Several land use areas such as the old townsite will require a new zoning district in order to achieve the recommendations of the Land Use Plan.

LAND USE CATEGORIES

Low Density Residential

- Conventional single-family detached development
- 0-4 dwelling units per acre
- Average lot size: 7,500 square feet
- Smaller lots may be acceptable if common open space is provided and overall density is not increased
- Appropriate zoning districts:
 - R-1, Single Family
 - R-2, Single Family

Medium Density Residential

- Less traditional attached and detached development including duplexes, townhomes, and patio homes, or
- Mix of low and high density residential use
- 4-10 dwelling units per acre
- Average lot size: 4,000 – 6,000 square feet
- Smaller lots may be acceptable if common open space is provided and overall density is not increased
- Appropriate zoning districts:
 - R-3 Single Family
 - R-4, Single Family

High Density Residential

- Apartment/condominium residences
- 10 units or more per acre
- 3 story maximum height
- Appropriate zoning district:
 - MF, Multi-Family

Manufactured Housing

- Manufactured houses, mobile homes
- Minimum lot size: 6,000 square feet
- Appropriate zoning district:
 - MH, Mobile Home Park

Retail, Offices and Services

- Neighborhood or convenience shopping centers, or developed as separate uses
- Preferably located at major street intersections
- Limited outdoor retail activities
- Buffer from neighboring single family residential
- Appropriate zoning districts:
 - OP, Office and Professional
 - NS, Neighborhood Service
 - GB, General Business (selected uses)

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Office

- Mid-rise office buildings (adjacent to the David L. Smith Project)
- Retail and restaurants as a secondary use within the buildings
- Parking areas preferred within the building sideyards and rearyards

General Business

- Extensive variety of business activities
- Larger tracts of land normally required
- Outdoor commercial activities permitted
- Appropriate zoning districts:
 - GB, General Business (all uses)
 - C, Commercial

Light Industrial

- Warehousing, distribution, assembly, fabrication and light manufacturing; industrial parks; high tech industries
- Supporting retail, office and service uses congregated at street intersections
- Performance standards for certain uses
- Indoor and outdoor commercial uses
- Appropriate zoning districts:
 - M-1, Light Industry

Industrial

- Manufacturing, assembly, processing, storage and/or distribution
- No adjacency to residential areas
- Strict performance standards
- Supporting commercial uses congregated at street intersections
- Appropriate zoning districts:
 - M-1, Light Industry
 - M-2, Heavy Industry

Village District

- The old townsite
- Low and medium density residential uses
- Residential-compatible retail, office and service uses (preferably adjacent to major thoroughfares and collector streets)
- Supporting recreational, educational, cultural and civic facilities
- Appropriate zoning district to be established (currently zoned MF, GB, C and OP)

Business Park

- State Highway 288 corridor and portions of Beltway 8 nearest S.H. 288
- Mixed use area developed in coordinated, master planned campus-like settings with interdependent and complementary uses
- Preferred uses include:
 - office buildings of various heights
 - regional shopping centers and malls
 - research and development facilities
 - light manufacturing

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- High density residential may be incorporated as a transitional use along the outer edge of the corridor
- Special design standards
- Appropriate zoning districts:
 - PUD, Planned Unit Development
 - Corridor Overlay District or new base zoning district

Public/Semi-Public

- Government-owned or operated buildings such as libraries, fire stations, or city hall
- Public schools and school administration buildings
- Cemeteries

Parks and Open Space

- Sites under public ownership including:
 - neighborhood parks
 - community parks
 - linear parks and greenbelts
 - regional parks
 - special use facilities such as the David L. Smith Project
- Sites under private ownership including:
 - neighborhood parks within residential subdivisions
 - golf courses

Drainage and Flood Protection

- Creeks, bayous and attendant floodways not intended for public use
- Stormwater detention sites

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PLANNING INITIATIVE #1

Reinvent the old townsite as a modern village with a compatible mix of residential and nonresidential uses.

Introduction

Pearland's original town site is one of many nineteenth century villages in the central and eastern United States that have been engulfed by suburban development. Numerous crossroad villages are now encompassed by larger lot subdivisions on former agricultural land, infiltrated by commercial strip development, and subjected to heavy traffic. As a result, the village loses its original identity, frequently becoming an island within an expanding town or city.

Meanwhile, the village form, long disregarded or ignored as a vestige of the rural past, has been rediscovered. A number of architects, planners, and developers have embraced the self contained, tightly gridded, walkable village - identified by a seamless mix of residential, business and civic uses - as a viable alternative to the spacious, auto-dependent suburban development with its curvilinear streets and strict separations of uses. The nostalgic popularity of the village form is being used as a marketing tool to produce instant "villages" or "neo-traditional towns" that may differ from the standard subdivision only in their inclusion of a central square or houses with gingerbread trim.

Although Pearland's old town has lost much of its original identity, the area still includes certain elements commonly used to define a village. It is compact, has a mix of smaller scale residential and business uses, and has a fairly well-defined edge.

The total size is less than one square mile and almost all of the area is within a one-half mile waling distance of Broadway and Main. Many of the City's largest and finest trees are also located here. With carefully designed land use controls and site development guidelines, Pearland's old town can assimilate new development and regain its village identity.

Boundaries

The old townsite comprises a rectangular area of about 320 acres as shown on Figure 5.2. The area is centered at the crossroads of State Highway 35 and F.M. 518 and is defined by the following streets:

North -	Orange Street
East	Galveston Avenue
South	Walnut Street
West	Austin Avenue

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Existing Conditions

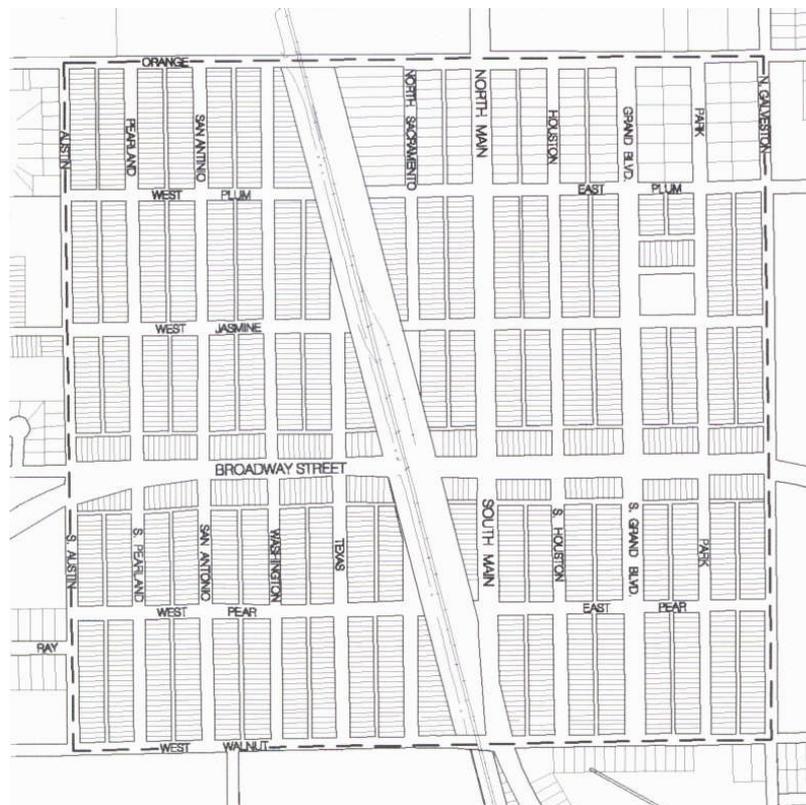
- **Streets and Lots**

The townsite was originally subdivided in 1892 with the streets oriented on a north/south, east/west grid. Most of the interior streets have a 60 foot right-of-way, narrow pavement widths, and open drainage ditches. Grand Avenue has a 120 foot right-of-way width. This five block long street has a center esplanade that is landscaped in the outer two blocks and used for parking in the middle three blocks. The City has initiated a street improvement program for the townsite which has already resulted in several streets being widened, curbed and guttered. The two major thoroughfares, F.M. 518 (Broadway) and State Highway 35 (Main) have 100 foot rights-of-way. Both streets are maintained by the

Texas Department of Transportation and have been partially improved. Main Street north of Broadway will soon be widened to seven lanes. The original plat also defined alley rights-of-way as 20 feet wide; however, none have been paved, and several have been abandoned.

The typical lot size for most of the townsite is only 25 feet wide by 125 feet deep (3,125 square feet). Larger residential-sized lots can be found in the northernmost portion of the northeast quadrant. The generally small lot size has resulted in fragmented land ownership patterns over time making it more difficult to assemble larger tracts for singular uses. Although land ownership patterns have deterred development of a true central business district, they have helped to retain the overall small scale associated with historic villages.

Figure 5.2:
Existing Layout



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Land Use

Figure 5.3 indicates current land uses. Most surprising is the prevalence of single family residential on many of the interior streets, especially west of the railroad. Multi-family residences are limited to about twelve, scattered sites. As expected, businesses are congregated along the two major streets. Additional businesses have located along several of the interior streets in the southeast quadrant. This quadrant also has the largest number of vacant lots. Business uses include a wide variety of retail stores, restaurants, offices and personal services. Most are small in size.

Public and semi-public uses include several churches north of Broadway, the Senior Citizens Activity Center on South Grand, and the old city hall building on N. Texas which is now known as the Pearland Neighborhood Center and used by several social service agencies. Pearland's main post office is at the southeast corner of the old townsite.

The area also includes a few, small, light industrial uses, mostly located alongside the railroad. Building heights throughout the townsite are all one or two stories.

Figure 5.3:
Current Land Use & Zoning



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- **Existing Zoning**

As shown on Figure 5.3, most of the area west of the railroad is zoned MF- Multi-Family, despite the prevalence of single family use. Lots fronting Broadway west of the railroad are zoned GB - General Business (Retail), as is most of the townsite east of the railroad. A number of single family homes are also included with the GB District. A few small tracts in the northeast quadrant have been zoned OP - Office and Professional. Several blocks along South Main and the railroad are zoned Commercial (C). The Land Use and Urban Development Ordinance states that the commercial district is intended to permit a wide variety of businesses characterized by those uses that require an extensive amount of land for the conducting of business. However, most of existing commercial uses within the townsite are less than one acre. The "C" District also permits a wide variety of outdoor activities and uses including outdoor display, storage and sale merchandise, equipment and vehicles.

The minimum lot sizes required by the Land Use and Urban Development Ordinance for the MF, GB, OP and C districts range from 65,000 for multi-family to 12,500 for office and professional. General business and commercial uses require parcels with at least 22,500 square feet. As noted earlier, the old townsite was originally subdivided into lots about 3,125 square feet each.

The existing townsite zoning reflects the direction of past comprehensive planning efforts. The 1978 Plan, reiterated in the 1988 Update, proposed that land east of the railroad be used for a concentration of personal and professional services. West of the railroad, the Plan stated that "the major use and support facilities are keyed to multiple-family development". The F.M. 518 frontage was identified for business use. Today, the existing zoning appears to be a misfit in light of the street and lot pattern, lot sizes, and continued presence of single family use along many of the interior streets.

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Development Plan

The Village District depicted on the Land Use Plan is intended as an area of low to medium intensity uses normally associated with the traditional village. The district should include a well planned and integrated mix of residential, business and public/semi-public uses. The development plan for the old town site provides the opportunity to create a unique, inner-city community that contrasts with and provides an alternative to standard land development patterns seen elsewhere throughout the City.

Principal plan elements include the following:

1. ***Utilize the present street and alley grid as a framework.*** The existing grid keeps distances scaled to pedestrians rather than automobiles, allows small but flexible development increments, and establishes a readily identifiable area.
2. ***Develop a corridor of large shade trees along Broadway and Main within the limits of the district.*** The old town site includes many, wonderful species of trees with canopies extending well out over the streets. However, the two most prominent thoroughfares sorely lack a similar appearance. The City should develop a master street tree planting plan for Broadway and Main to include a single row of equally spaced trees along each side of each street. The tree row should be consistently located just inside or outside street right-of-way depending on utility lines and the degree of cooperation provided by the Texas Department of Transportation (both are State roads).

A single species with a required minimum size, should be used. The master plan can be implemented incrementally as properties develop and redevelop. The City's Land Use and Urban Development Ordinance already requires street trees as part of private site development. The master plan would prescribe the specific type and locations of trees to be planted in order to create a cohesive and unified streetscape. This simple, but challenging task, offers the greatest long-term impact in identifying and enhancing the Village District.

3. ***Devise zoning standards that are both more flexible and more sensitive to design issues than conventional zoning.*** Special land use controls will be needed to foster the diversity inherent in the traditional village. A typical village zoning district permits a mixture of residential business and civic uses. A block-by-block variety of uses should be sought rather than large areas of houses separated from offices and businesses.
4. ***Recognize and enhance the individual character of each of the four quadrants that comprise the Village District.*** Using Broadway and Main as dividing lines, each quadrant has its own atmosphere reflective of existing land use, the railroad's influence, degree of vacant land, and extent of large canopy trees. The varying traits of each quadrant collectively enrich the village as a whole.

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Village Zoning

5. **Identify, preserve and protect historical buildings which reflect Pearland's heritage.** Historic preservation in Texas requires public sector persistence and private sector cooperation. The City can encourage historic preservation by offering to modify land use, land development or building code requirements which might otherwise be detrimental to a worthy site.

Appropriate zoning regulations for the Village District should address land use as well as setbacks and dimensional standards.

1. Land Use

Residential uses should primarily be a variety of low and medium density housing. Townhomes are an excellent option which could individually fit on the standard 25' x 125' sized lot. Multi-family development, as a stand alone use, should be limited to conversions of existing buildings.

A common characteristic of many traditional villages is inclusion of a secondary residential building on a single-family lot. The secondary unit, whether rented or used as an elder cottage, is a means of providing affordable rental housing in a non-intrusive manner. This encourages a far wider range of ages, incomes and lifestyles than the typical suburban neighborhood. The size of the secondary building and its parent lot must be adequate to avoid overburdening the lot with parking or paving.

Alley rights-of-way located throughout the area provide an excellent means to access residential uses. Rear-entry garages allow the front yard to remain "green", thus improving the streetscape, especially on narrow width lots.

Business uses should be restricted to those that fit their surroundings in terms of size, scale and intensity. Larger, traffic intensive uses should be located along Broadway and Main or between Main and the railroad. Large scale commercial uses or those characterized by outdoor activities and storage should be discouraged within the Village District and encouraged within the City's commercial and light industrial areas as defined by the Land Use Plan.

An important element of village zoning is mixing several uses in a single building. Uses can be mixed horizontally or vertically. An acceptable combination found in many traditional villages is a ground floor business and a second floor residence.

The appropriateness of a given use often depends less on the use itself than on its size, scale and design. For example, a limited number of small, professional office uses may be acceptable in a largely residential district if similar in appearance to nearby homes.

2. Setbacks and dimensional standards

Village standards usually represent a substantial reduction from suburban standards. Other standards may become variable.

- Minimum lot widths are one example of a standard that should vary by primary use. Recommended minimum lot widths include:
 - 25' for single family attached (i.e. townhomes)
 - 50' for single family detached
 - 75' for all other uses fronting on local and collector streets
 - 100' for all uses fronting on major thoroughfares

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Village Design

- Lot depths are already well defined by the street and alley grid; hence, there is little need to prescribe a minimum lot depth or lot size. However, maximum lot sizes and floor areas should be defined for business uses when located on local or collector streets. Maximums may vary by individual uses.
- Recommended front yard setbacks include:
 - 25' on major thoroughfares
 - 15' on other streets, or 20' where a garage faces the street
- Maximum building heights throughout the Village District should not exceed three stories.

Design guidelines for the Village District should include the following principal components:

1. Architectural compatibility

The old town site is not a perfectly preserved relic of a particular historical period, rather it is an eclectic collection of architectural styles spanning many decades. Consequently, compatibility is more important than conformity with regard to construction of new buildings or building additions. Architectural elements that should be reviewed to promote compatibility include:

- building design and detail
- building size, scale and height
- front facade windows
- materials and details
- roof shape
- placement of the lot
- treatment of side and rear facades facing existing buildings or side streets

A number of existing buildings offer little architectural value. It may become more desirable for nearby new con-

struction to offer improvement instead of compatibility.

2. Control of Parking

- Discourage front-yard parking except for lots facing major thoroughfares. Domination of the streetscape by front-yard parking is a typical element of the commercial strip, and one of the most visible intrusions into the village setting
- Encourage parking within side and rear yards and utilize alley rights-of-way for driveway access.
- Encourage shared driveways to decrease curb cuts along street frontages. Shared driveways in combination with rear yard driveways off alleys can establish a traffic circulation system that bypasses much of the street frontage. Shared driveways can also allow increased parking and landscaping on small parcels.
- Permit on-street parking on collector and local streets with standard pavement widths. On-street parking already is in place along portions of Grand Avenue.
- Prohibit structured parking except for single-family residences

3. Enhanced Streets

- Where space allows, provide sidewalks along all streets to allow pedestrian accessibility. (Drainage considerations may not allow sufficient space for sidewalks in certain locations.) Sidewalks are essential to a pedestrian-friendly village but noticeably absent throughout most of the old townsite. Especially important is pedestrian access across the railroad. Sidewalk construction should be included with every village street improvement project.

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- Maximize the width between the sidewalk and street curb to allow greater distance from vehicular traffic and more room for shade tree plantings and other landscaping
 - Incorporate decorative street pavement at key points and intersections
 - Install nostalgic, decorative street lights, with a height less than those of standard fixtures
 - Install uniform, decorative traffic signal fixtures
 - Utilize custom designed street signs at all street intersections within the Village District
4. Squares and Public Spaces
- Redevelop the old school yard, north of the former C.J. Harris Elementary school building, into a pocket park
 - Acquire public open space along the west side of the railroad to develop a heavily treed landscape buffer. A visual buffer from the railroad would also encourage development of currently vacant lots.
 - Incorporate smaller sized gathering places within private developments such as a wide walkway between buildings with benches or low walls for seating, or a restaurant with outdoor seating in a front or side yard.
5. Restricted Signage
- Encourage compatibility with site architecture and building materials
 - Prescribe minimum sign setback lines from street right-of-way
 - Allow ground signs, projecting signs and wall signs (which may include window or awning signs).
 - Reduce the allowable sign face area, height, and width for lots fronting on non-major thoroughfares streets
 - Confine signs on multi-tenant buildings to a long continuous information band directly above the storefront or applied directly to the display window.
 - Permit one small sign advertising a home occupation
 - Require external sign illumination; discourage internally illuminated “box” signs

Implementation

The Village District can best be implemented through its own, individual zoning district which identifies opportunities for residential uses with compatible business and service uses and supporting recreational, educational, cultural and civic facilities. Permitted uses can be categorized in one of three ways:

- Allowed, by right
- Limited, subject to specified performance standards
- Conditional, subject to specified performance standards and requiring a specific use permit

Design guidelines can be implemented in one of two ways - as part of the zoning district or simply referenced in the zoning district. The former alternative requires more specificity and establishes more rigidity. Guidelines provided as a separate free-standing document offer more flexibility and more room for creativity. The recommended funding mechanism for redevelopment is to establish a Tax Increment Reinvestment Zone (TIRZ). Taxes from new developments within the TIRZ could be used to finance infrastructure improvements, streetscapes, and public open spaces.

A Tax Increment Reinvestment Zone is recommended

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PLANNING INITIATIVE #2

Establish Pearland Parkway as a distinctive central axis linking many of the City's major recreational, educational and institutional uses.

Pearland Parkway, a planned major thoroughfare, will extend the entire north/south length of the City from Beltway 8 to Friendswood. North of Beltway 8, the parkway will become Monroe, a City of Houston major thoroughfare and a future direct route to Hobby Airport. The alignment of Pearland Parkway generally parallels State Highway 35/Main Street, and will provide a more attractive alternative to the highway.

A parkway can be defined in several ways:

1. A broad landscaped thoroughfare
2. A thoroughfare connecting parks
3. A landscaped strip of land paralleling or running in the center of a thoroughfare

Pearland Parkway will be all three. The thoroughfare features a wide center esplanade and provides a 15' continuous strip of open space between the outside edge of the driving lanes and the right-of-way line. Design guidelines have already been enacted to provide greater control over the aesthetic, functional, and safety characteristics of development within the thoroughfare corridor. The guidelines have been implemented through use of a corridor overlay zoning district that supplements the standards of the underlying conventional zoning districts with new or different standards which are more restrictive. Special

standards have been established for landscaping as well as parking lot setbacks, building facades, lighting and signage. Parking areas must be set back at least 30 feet from the street right-of-way line. Buildings have a lesser setback of only 20 feet. Utilities will be located underground and sidewalks will be widened to hike and bike trail standards.

The parkway alignment will be anchored at the northern end by David L. Smith Project (described in Planning Initiative #4). At the southern end is existing Clover Field Airport and a proposed large community park. In the middle at F.M. 518 is the Town Center and adjacent to Mary's Creek linear park. Along its route, the parkway will front the Clear Creek linear park, Independence Park, Pearland Senior High School and the Cowart Creek linear park.

Pearland Parkway will truly be a parkway. The thoroughfare can become the City's grand, central corridor accommodating vehicular, bicycle and pedestrian traffic in an attractive, spacious setting.

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PLANNING INITIATIVE #3

Develop a restaurant and entertainment district in a park setting with convenient regional access.

The City has already acquired a several hundred acre site on Clear Creek less than ½ mile south of Beltway 8. The site is known as the David L. Smith Project in honor of a former City councilman and long-time emergency management coordinator for Pearland. Mr. Smith was instrumental in assembling the acreage which was previously comprised of numerous parcels with multiple owners.

The David L. Smith Project site is bisected on a north/south axis by the future alignment of Pearland Parkway. Another major thoroughfare, McHard Road, will enter the site from the west and terminate at the Parkway. Along Beltway 8, a grade separated intersection has already been built at Pearland Parkway as part of constructing the Sam Houston Tollway. Entrance and exit ramps from the toll road are already in place providing immediate access to the greater Houston area. Adjoining the David L. Smith site to the north and east is the 324 acre El Franco Lee Park under development by Harris County. The County's park site extends westward along Clear Creek crossing the future location of Pearland Parkway.

Wooded areas, nature preserves and over 100 acres of developed lakes will enhance the restaurant and entertainment district. Restaurant and entertainment facilities will be located on a 10 acre island and 14 acre peninsula delineated by the curvilinear lakes. Lakefront uses are expected to include:

- Restaurant sites with outdoor dining areas
- A retail center with craft shops, a coffee house, boutiques, a breakfast/lunch cafe and perhaps a microbrewery.
- Amphitheater

Other uses under consideration are:

- Family aquatic amusement park
- Working arboretum with a retail nursery/garden center and educational seminars
- High-tech conference center
- Office buildings

Recreational uses of the three proposed lakes will include paddle boating, canoeing, sculling, wind surfing and fishing. Each will feature a fountain. The lakes are being created as a means to provide significant stormwater detention. Earthwork is underway. Excavated soil is available for use as fill material in local public and private land development projects.

Land use adjacent to the David L. Smith Project should complement the restaurant and entertainment district. In this regard, the Land Use Plan recommends mid-rise office use along the southern perimeter of the site and medium and high density residential use to the west along Old Alvin Road.

Office use within and adjacent to the site will help support weekday retail and restaurant trade. Higher density residential areas will increase weeknight and weekend use. Multi-story buildings along the southern perimeter of the site will enjoy impressive views of the lakes in the foreground and the downtown Houston skyline in the background.

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An initial master plan for the David L. Smith Project has already been completed and is presented as Figure 5.5. Implementation should occur through use of the Planned Unit Development mechanism provided in the City's Zoning Ordinance. A PUD could be defined for the restaurant and entertainment district alone or encompass the entire site. Also applicable will be the Pearland Parkway Corridor Overlay District.

Site development will not be instantaneous. The David L. Smith Project will require a period of time for the lakes to take shape as soil continues to be excavated and for access to be provided. But the opportunity is there to develop a special facility unique to the entire Houston metropolitan area.



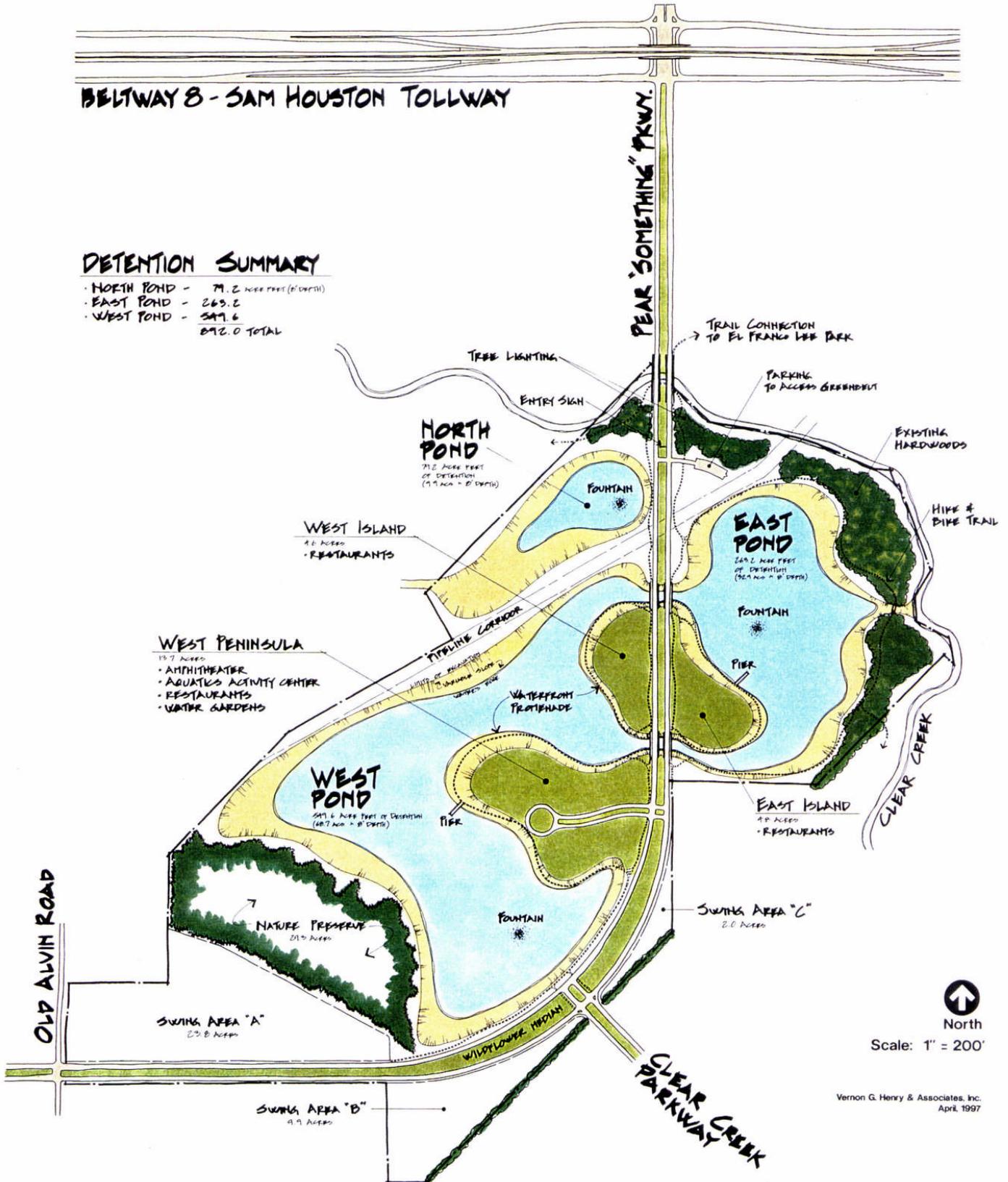
David L. Smith Project

PRELIMINARY MASTER PLAN

BELTWAY 8 - SAM HOUSTON TOLLWAY

DETENTION SUMMARY

- NORTH POND - 71.2 ACRE FEET (6' DEPTH)
- EAST POND - 269.2
- WEST POND - 347.6
- 687.0 TOTAL



Vernon G. Henry & Associates, Inc.
April 1997

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PLANNING INITIATIVE #4

Establish an attractive business park environment along the State Highway 288 corridor.

Little retail, commercial or industrial development has occurred along State Highway 288 primarily because of the absence of frontage roads. However, the resulting amount of undeveloped land facing the freeway provides the City a significant opportunity to strongly influence the desired type and quality of future development. Pearland has already taken the first step by annexing portions of the freeway corridor so that development will occur in accordance with the City's zoning ordinance.

The Land Use Plan presents a vision for the corridor as outlined by the Business Park land use classification and further defined below. Developing an attractive business park along the freeway requires three main components:

1. Providing adequate access
2. Identifying and distinguishing between preferred uses, limited uses and undesired uses
3. Establishing appropriate design standards

Access

Properties fronting S.H. 288 have good visibility but only a few have good access. Currently, the only parcels with access are those with frontage on intersecting cross streets or frontage on County Road 94, a paralleling street about 500 feet to the east. Consequently, if the freeway corridor is to become a business park, streets must be provided that allow appropriate mobility.

The City has already taken the first step by initiating discussions with the Texas Department of Transportation to design and construct continuous frontage roads along either side of the freeway. Mobility will be further enhanced by secondary thoroughfares that parallel either side of the freeway. Secondary thoroughfares are designed with four lanes of moving traffic and a center esplanade with widely spaced left turn lanes. The thoroughfare east of S.H. 288 follows the existing alignment of County Road 94 and its continuation south of F.M. 518 within the Silverlake Development. The proposed thoroughfare to the west is spaced $\frac{1}{4}$ to $\frac{1}{2}$ mile from the freeway. Both would extend from McHard to Dallas Road (County Road 59).

As discussed on page 7.5 of the Thoroughfare Plan, a cyclical relationship exists between land use and the extent of transportation facilities available to serve those uses. The additional streets planned by the City in accordance with the Thoroughfare Plan will tremendously improve accessibility which in turn enhances land values and promotes the type of land uses envisioned within the business park.

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Land Use

The main focus of the business park corridor is to be corporate headquarters and research facilities arranged in campus-like settings. Also desired are office buildings of varying heights as well as light manufacturing facilities. Such uses are preferred throughout the entirety of the business park as delineated on the future land use map. Individual office buildings or office building complexes may include restaurants and retail shops as accessory uses. Regional shopping centers and malls are also a preferred use but should be anchored at major thoroughfare intersections. Hotels and motels should have freeway frontage.

High density residential should be considered a limited use appropriate along outer portions of the corridor. Multi-family development should not have freeway frontage, but instead be used as a transition between high intensity, non-residential use and low density, residential neighborhoods. Through its zoning powers, the City may set a maximum number of multi-family dwelling units permissible within the business park corridor.

Although the district should provide flexibility for a variety of uses, certain uses frequently seen along area freeways should be discouraged in order to maintain a true business park environment. These uses include retail or commercial strip development characterized by small individual sites with numerous signs and driveways. Also discouraged should be predominantly outdoor commercial activities involving open sales lots or storage yards.

Design Standards

The quality of development can be dramatically improved through appropriate design standards that enhance the corridor's image as a desirable place to live, work and shop. To this end, the City should establish design standards that exercise greater control over the aesthetic, functional and safety characteristics of new development. Following is an outline of recommended standards for the S.H. 288 business park corridor.

- Lots and Setbacks
 - Minimum lot size of one acre (except as pad sites within shopping centers)
 - Set back buildings at least 50 feet from the freeway and major thoroughfares
 - Set back buildings at least 25 feet on all other streets
 - Set back parking areas at least 20 feet from streets and 10 feet from side lot lines
- Building Facades
 - Include at least 75% masonry or glass in street-facing walls
 - Prohibit fluorescent, iridescent or dayglo colors
- Driveways (would supplement TxDOT standards where within State right-of-way)
 - Limit number of driveways and their proximity to street intersections
 - Require a minimum driveway width of 30 feet
 - Require a minimum driveway curb return radius of 20 feet

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- Detention Facilities
 - Incorporate as lakes or ponds where located on-site within larger tracts
- Landscaping
 - Provide more trees with larger sizes than currently required
 - Require an irrigation system
- Lighting
 - Provide uniformity in fixture design within each development
 - Prohibit creosote treated wooden poles
 - Prohibit glare and light spillage across property lines
- Screening
 - Require for mechanical and utility equipment, and vehicle loading and unloading areas
- Buffering
 - Require for parking areas facing streets, service station fuel pumps, and drive-thru windows facing streets
 - Limit height to 3 feet for walls, berms or shrubs
- Signs
 - Permit ground signs; prohibit pole signs
 - Limit size, height, spacing and quantity of ground signs
 - Provide generally uniform signs for buildings with multiple tenants
 - Limit window signs
- Utilities
 - Locate service lines underground

Implementation

Several alternatives are available to implement land use controls and design standards for the business park corridor.

1. *Establish a Planned Unit Development for each project site.*

This alternative offers the most flexibility and affords the City the maximum opportunity to influence site use and design. However, it often becomes a detailed and time consuming process that could occur many times.

2. *Establish a Corridor Overlay District in combination with existing zoning districts.*

An overlay district similar to the one now in place along Pearland Parkway could be created for the entire corridor width or for areas immediately adjoining S.H. 288 and Beltway 8. This alternative provides considerable influence on land development but less influence on preferred land uses.

3. *Establish a new zoning district solely for the corridor.*

A new district would precisely define preferred uses, and limited or conditional uses. District regulations would include desired design standards. This alternative would simplify public review but offer less opportunity to customize standards on a site-specific basis.

LAND USE Section 5.0

PLANNING INITIATIVE #5

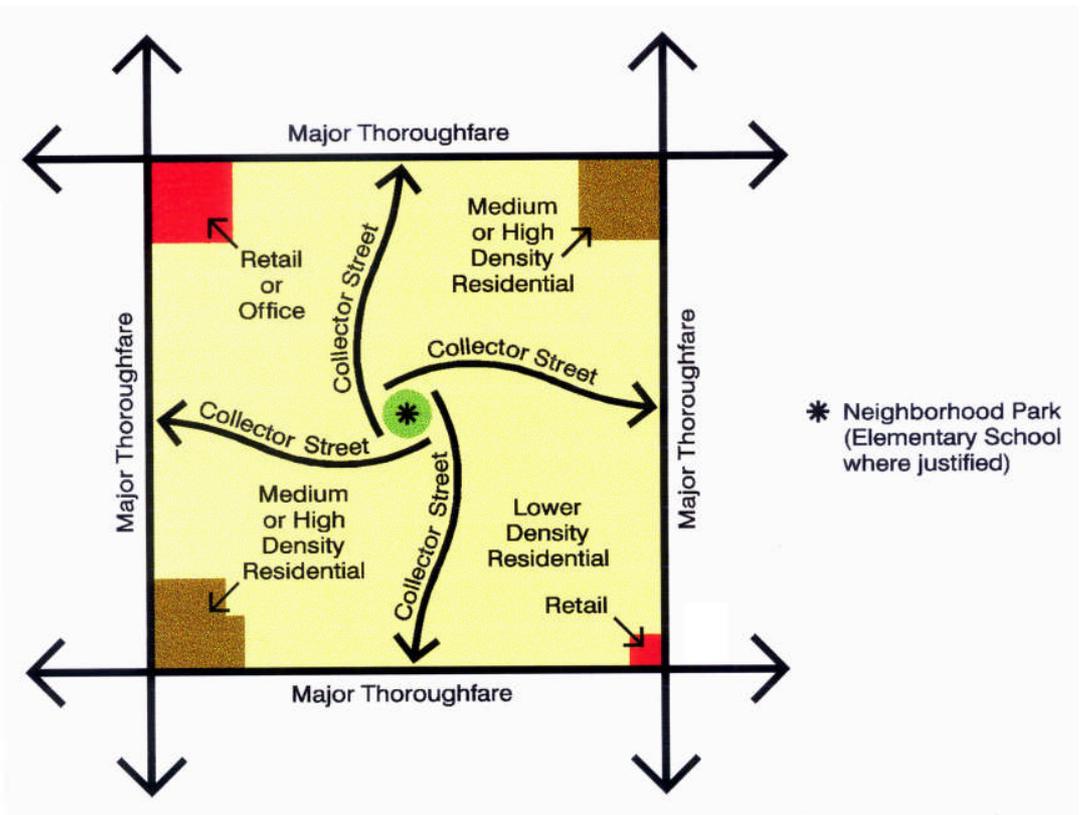
Provide well-defined residential neighborhoods with centrally located parks.

Centrally located within each typical neighborhood should be an area of park and recreational open space sized to meet the needs of the surrounding neighborhood unit. Pursuant to the Parks Master Plan, a neighborhood park should be a minimum of five acres and perhaps as large as ten acres. Where justified by school district service zones and population demographics, this neighborhood center could also contain an elementary school. However, typical elementary school service zones have increased over time to serve several adjoining neighborhoods thus making it more conducive to locate the school along the periphery of an individual neighborhood instead of at the center.

Neighborhood Unit Concept

Residential development in Pearland should be predicated upon the Neighborhood Unit Concept as shown in Figure 5.6. An individual neighborhood unit is approximately one to two square miles in area and is bounded by major or secondary thoroughfares, natural or man-made physical features, and/or non-residential centers and corridors. A neighborhood unit may consist of a number of properties and subdivisions, and the overall shape may or may not be rectangular. Several adjoining neighborhood units collectively comprise a community.

***Figure 5.6:
Typical
Neighborhood
Design***



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Lower density residential, primarily single-family housing, should surround the neighborhood park and constitute the predominant land use within the neighborhood unit. Lower-density residential lots placed along the neighborhood perimeter should not have direct access to adjacent major thoroughfares. Perimeter lots should instead take access from interior streets. Medium and higher-density residential uses such as townhomes and apartments are best suited along the periphery and often at major thoroughfare intersections. Traffic generated by medium and high density residential development should not be routed through low density residential areas. Retail, office and service uses should be concentrated at important perimeter intersections, but need not occupy every corner at every major thoroughfare intersection. Further discussion on retail nodes is presented under Planning Initiative #7.

Community facilities such as churches, day-care centers, middle and upper level schools, larger parks and athletic facilities, libraries and fire stations may be found in every neighborhood. Because these types of facilities generally serve several neighborhoods, they should be located on the periphery of an individual neighborhood.

Within a typical neighborhood unit, collector streets should originate near or at the neighborhood center and terminate at the neighborhood perimeter. Collector streets should provide convenient access from internal residential areas to perimeter thoroughfares and perimeter-oriented uses including retail, office and community facilities. Collector streets should not bisect an individual neighborhood and should discourage through traffic across several adjoining neighborhoods.

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PLANNING INITIATIVE #6

Concentrate local retail, offices and services into nodes centered at the intersections of two major thoroughfares instead of continuous strips along the length of either thoroughfare.

Pearland has experienced considerable commercial and retail strip development along the City's two main roads - Broadway and Main. Much of this development has the following characteristics:

- Shallow depth lots
- Numerous individual ownerships
- Numerous driveways that impair mobility
- Numerous small buildings with no architectural unity
- Numerous signs
- Little or no landscaping
- Limited parking often restricted to the front setback area

The City's appearance can be improved and traffic mobility can be enhanced by limiting future commercial to selected areas and congregating retail, office and service uses at the intersections of major thoroughfares. This objective is most imperative for far western undeveloped portions of Broadway. Through its zoning powers, the City can prevent West Broadway from duplicating East Broadway. The Land Use Plan map proposes residential "windows" on Broadway between Manvel Road and Cullen Boulevard, between Cullen and Southwyck Boulevard, and between Southwyck and the South Freeway. These residential windows can be a mix of densities with higher densities more prevalent nearer the freeway.

In clustering retail and related uses at major thoroughfare intersections, the challenge will be how to limit the amount of retail zoning to that which can be supported by nearby residents. When the Texas economy declined in the mid-1980's, a number of communities had an oversupply of retail zoned property. Zoning all four corners retail had been prevalent, with each corner tract generally sized at 10-15 acres. Cities developed on major thoroughfare grids spaced about one mile apart soon learned that a square mile residential area could not support 40-60 acres of retail, offices and services at every intersection of two major thoroughfares. About half that amount was found to be more practical.

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Major and Minor Retail Nodes

In order to avoid the experiences of other Texas cities, the Land Use Plan for Pearland designates key intersections as either major or minor retail nodes. Major retail nodes are intended to have an approximate maximum of 50 acres zone for retail, office and service uses. Minor retail nodes should comprise less than 25 acres. The total allocation for either a major or minor retail node can be distributed in any number of ways among an intersection's four corners depending on factors such as property ownership, physical constraints, and jurisdictional influences. As discussed under the Neighborhood Unit Concept, retail, office and service uses need not occupy every corner of intersecting major thoroughfares. Also appropriate at or near the corner are medium and higher density residential.

The Land Use Plan indicates limited strip development for general business use along State Highway 6 and F.M. 521 in the far western and southwestern portions of the Planning Area. Until these areas are annexed, the City cannot control their use. Further development with a variety of uses will likely occur prior to annexation and application of the City's zoning ordinance. Strip business development along F.M. 521, however, can serve as a buffer to probable similar development along the west side of the street in Houston's extra territorial jurisdiction that will probably never be zoned.

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PLANNING INITIATIVE #7

Designate sizeable areas for industrial and light industrial development.

The Land Use Plan depicts three major districts within the Planning Area intended for industrial development.

- ***North Central District***

This area incorporates the Main Street corridor north of the old townsite and the McHard Road corridor from Main to the proposed new State Highway 35 corridor. Considerable light industrial development already exists here and a Foreign Trade Zone has already been established for a portion of the district west of the railroad as shown on the Land Use Plan, Figure 5.1. The district purposefully does not extend south to Orange Drive so that Orange may remain a residential collector street. Homes currently exist on both sides of the street. Screening and buffering between adjoining residential and industrial use must be utilized.

The total size of the North Central District is approximately 1,240 acres, or 1.9 square miles.

- ***South Central District***

This area encompasses the Main Street/railroad corridor from the old townsite to the southern limits of the Planning Area. The district is largely defined by existing physical features and the City's future limits. A wide variety of commercial and industrial businesses already exist within this district. Also included is an area west of the railroad from the Police Station south to Bailey Road. Further south, a number

of single family homes and mobile homes are located along the west side of the railroad between Bailey Road and Hastings Cannon Road. This land use pattern will likely remain, thus precluding further industrial development normally more appropriate alongside a busy railroad.

The South Central District is the only one of the three districts to include heavier industrial uses. Heavy industrial uses should not be located across Main Street from the Senior High School. Most of the area south of Dixie Farm Road is part of the Hastings Oil and Gas Field. Once the field plays out, it would likely be unsuitable for residential use due to environmental concerns associated with previous oil and gas production.

The total size of the South Central District is approximately 3,500 acres, or 5.5 square miles. About 60% is designated for heavier industrial uses with 40% intended for light industrial.

- ***Northwest District***

This district includes areas along McHard Road, Beltway 8 and F.M. 521/Alameda Road. Most of this area was previously within Houston's ETJ and is already populated by a variety of industrial uses. A separate area on F.M/ 521 south of McHard Road is within the Shadow Creek Ranch development.

The total size of the Northwest District is approximately 640 acres, or one square mile.

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PLANNING INITIATIVE #8

Preserve major drainageways as open space, recreation corridors, or natural habitats.

The Land Use Plan in conjunction with the Parks Master Plan recommends that linear parks be acquired and developed along the following drainageways:

- ***Clear Creek***

A green belt along Clear Creek, developed in coordination with Harris County, could extend across the entire length of the Planning Area from McHard Road on the west to Dixie Farm Road on the east. The overall distance is about 16 miles. Variable width tree masses exist along most of the creek's course. The native tree cover enhances the creek corridor as a linear park and backdrop for adjoining park and recreation facilities. Harris County has already acquired and continues to develop five park sites along the creek totaling almost 1,000 acres. The largest site is the 550 acre Tom Bass Regional Park. Also located adjacent to Clear Creek is the David L. Smith Project and several park sites to be acquired by the City. Most, but not all, of the creek frontage is still undeveloped.

- ***Mary's Creek***

Another one of the City's major drainageways is Mary's Creek, a tributary of Clear Creek. Mary's Creek originates in the Silverlake development and extends across the mid-section of the City in an easterly direction. Native tree cover along the banks is more prevalent downstream from Old Alvin Road.

This linear park would be about 8.5 miles long and connect with the South-

west Environmental Center, Centennial Park, the proposed Town Center and Independence Park.

- ***Cowart Creek***

Only a limited portion of this creek, about 1.5 miles in length, is suitable as a linear park. The recommended section extends from Clover Field Airport down to F.M. 2351. Upstream of Clover Field, the creek has been largely channelized by past agricultural use and offers little natural tree cover.

- ***Mustang Bayou***

Mustang Bayou extends across the far western portion of the Planning Area from F.M. 521 to County Road 48, a distance of approximately two miles. A portion of the bayou just east of the Fort Bend County line has already been realigned, but sections both upstream and downstream remain in their original alignment with scattered trees along the banks. Mustang Bayou is the only other major drainageway besides Clear Creek that will serve the City west of State Highway 288.

All four drainageways, if preserved in their natural condition, offer an attractive setting to provide public use trails that link many neighborhoods, businesses, and community facilities. Establishing each as a linear park will require a continuous commitment to strongly influence adjacent land development in order to avoid their becoming hidden strips of land. With plentiful access and visibility, all four linear parks can instead become focal points and major assets to the City.

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PLANNING INITIATIVE #9

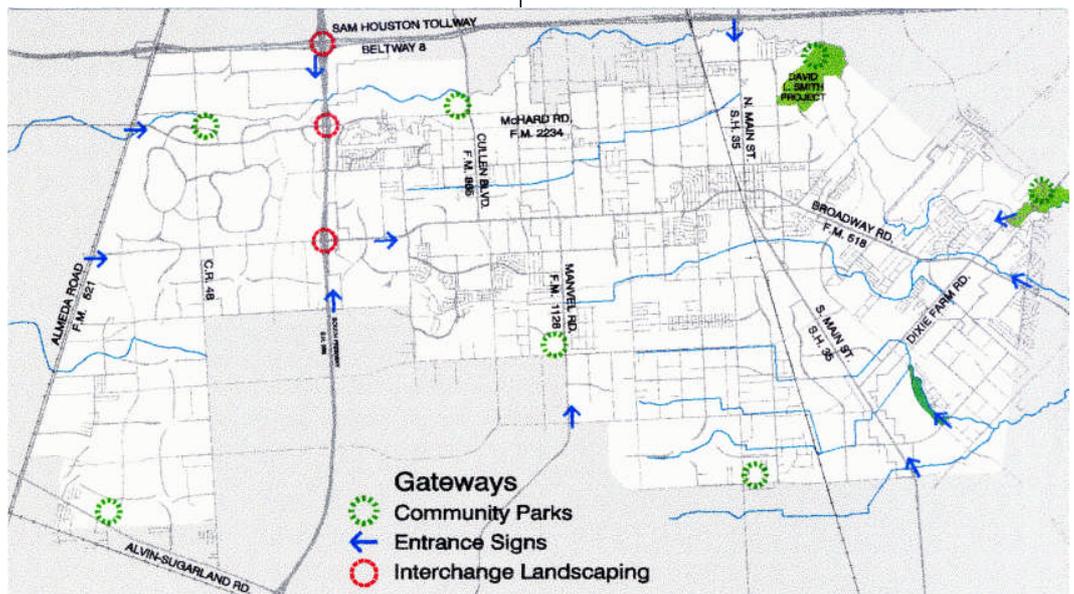
Develop a series of gateways within and around the periphery of the City.

Pearland’s regional identity can be defined and enhanced through the use of gateways located at strategic points throughout the City. Gateways can take several shapes including monuments, signage, landscaping or special pavement within or adjacent to major thoroughfare right-of-way. Pearland has already taken the initiative by constructing landscaped entrance signs on eastbound F.M. 518 east of State Highway 288 and southbound State Highway 35 at Clear Creek, just south of Beltway 8.

As shown on Figure 5.7, gateways for Pearland will take the following form:

1. Additional landscaped and lighted entryway signs located at various perimeter points identified on the Land Use Plan map. Points include:
 - Southbound S.H. 288 south of Beltway 8
 - Northbound S.H. 288 at Pearland’s future southernmost city limit
 - Westbound Dixie Farm Road west of Clear Creek
 - Northbound F.M. 518 south of Dixie Farm Road
 - Northbound S.H. 35 north of Hastings Cannon Road
 - Northbound Manvel Road at Pearland’s future southernmost city limit
 - Westbound McHard Road east of F.M. 521
 - Westbound future Broadway west of F.M. 521
2. Six community parks located at the pe-

Figure 5.7:
Gateways



LAND USE

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riphery of the Planning Area. Proposed sites include:

- County Road 48 at Clear Creek
- Cullen Boulevard at Clear Creek
- Dixie Farm at Clear Creek (existing Harris County park site)
- Vicinity of Veterans Drive and Hastings Cannon Road
- Vicinity of Manvel Road and Bailey Road
- Vicinity of State Highway 6 at a proposed north/south secondary thoroughfare (southwest corner of Planning Area)

A community park should be a minimum size of 40 acres and have major thoroughfare access and visibility similar to Centennial and Independence Parks. By their locations near the outer edge of the Planning Area, these six sites can also serve as portal parks into the City. Each park could include an entrance sign depending on the site's precise location and relationship to the major thoroughfare.

3. State Highway 288 at the following intersections:

- Beltway 8
- McHard Road
- F.M. 518

All three of these grade-separated intersections have oversized rights-of-way. The right-of-way configurations at McHard and F.M. 518 were originally intended for the cross street to pass over the freeway. Instead the freeway was elevated leaving large areas of open space at all four corners. Each corner remains suitable for mass tree plantings similar to the intersection of the Southwest Freeway at First Colony Boulevard in Sugar Land. Because the right-of-way is maintained by the State, their cooperation and assistance will be required. Funding could occur from the Texas Department of Transportation but local cost participation would likely hasten the time frame to complete.

PARKS AND OPEN SPACE

Section 6.0

INTRODUCTION

Parks and other recreational facilities are often considered less important than quality schools, good streets, or stormwater protection. However, Texas cities who have protected and acquired open space as part of a well-planned park system have found it to become one of their greatest assets, one that can enhance property values and become a valuable attraction for economic development. Pearland is facing major land use changes within the near future. Thousands of acres of vacant land will be developed with urban uses. The extent of open space set aside for park and recreational uses will greatly influence the City's ultimate character and quality of life.

Pearland's previous Comprehensive Plans have discussed park planning and development. The 1978 Plan Update established four objectives that are still valid today:

1. Enhance the environment contributing to the quality of life.
2. Acquire land for park purposes before price and other developments make such acquisition impractical.
3. Make available essential space for leisure time activity which will become increasingly important as the City's population increases.
4. Preserve points of historic significance and natural beauty.

Also still important are four recommendations presented in the 1988 Comprehensive Plan Update:

- Each neighborhood unit should be planned with at least five acres of parks and open spaces to meet the needs of the people in the neighborhood service area. The coordination of school sites with park areas should be considered when economically and logistically possible.
- An open space area should be developed along Mary's Creek to connect Independence Park and McLean Park (i.e. Centennial Park) and provide access to other developments. This should be coordinated with the Drainage Plan.
- Other parkways, jogging trails, etc. along other drainageways in the Planning Area, should also be developed in coordination with the Drainage Plan, Section 8.0.
- Other large park facilities should be developed to serve the Planning Area as additional growth occurs.

The objectives identified in the 1978 Plan and recommendations presented in the 1988 Plan were reiterated in a new Park Master Plan completed in 1993. This comprehensive planning effort addressed the area east of Manvel Road and north of Bailey Road.

PARKS AND OPEN SPACE

Section 6.0

RECENT ACCOMPLISHMENTS

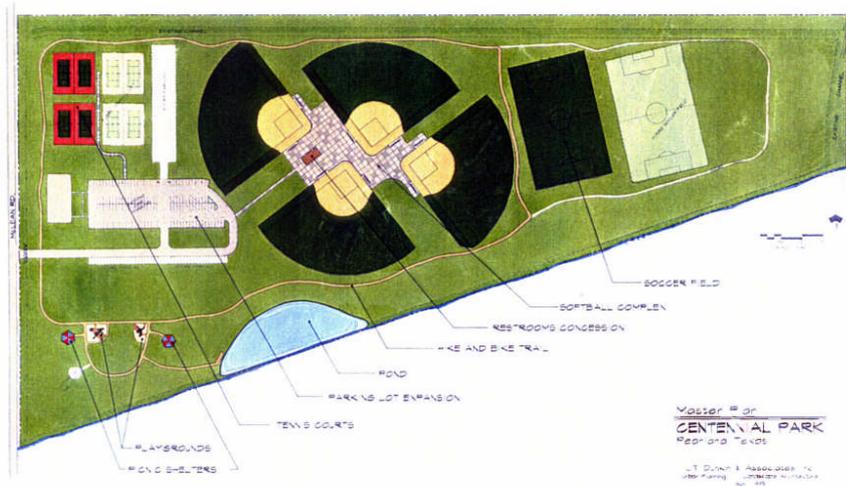
The 1993 Park Master Plan has precipitated significant park and recreation planning and development activities within the past few years. Discussed below are recent accomplishments.

Centennial Park, a designated community park originally called McLean Park, has seen substantial improvements. Added facilities, as shown on the master plan in Figure 6.1, include:

- 4 lighted softball fields
- 2 soccer fields
- parking
- 4 lighted tennis courts
- 3 basketball courts
- 2 playgrounds (tot lot and older children)
- .8 mile paved jogging trail
- fishing pond
- 2 picnic pavilions

Although greatly improved, the park needs additional parking for soccer and softball programs and special tournaments.

Figure 6.1:
Centennial Park



PARKS AND OPEN SPACE

Section 6.0

A designated neighborhood park, Hyde Park, has also been improved with walkways, pavilion, picnic tables, two playgrounds (tot lot and older children), drinking fountain, and tree plantings. All improvements have been completed according to the park's master plan completed in February, 1994, and shown below.

With regard to bikeways, approximately one mile of bike lanes have been built by the Texas Department of Transportation as part of widening F.M. 518, east of State Highway 35. A curbside bike lane was added in either direction.

In 1994, a school-based recreation site was developed and staffed at Pearland Junior High School East. Seasonal programs and activities utilizing the school's facilities were implemented and they continue to expand. A second school-based recreation site began December, 1997, at Jamison Middle School, on the City's west side.

Park planning activities have included development of a new master plan for Independence Park, Pearland's first community park. Proposed facilities include a family aquatic center, tennis complex, new playgrounds, walking and rollerblading trails, miniature golf course and an amphitheater. Pursuant to its master plan, Independence Park has been expanded to incorporate a stormwater detention area that will have a permanent pool of water. The park's access and visibility have been substantially improved with construction of Pearland Parkway along the park's west side and reconstruction of a bridge in Lizer Road over Mary's Creek on the park's north side. The master plan for Independence Park is presented in Figure 6.3.

Figure 6.2:
Hyde Park



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EXISTING FACILITIES

A variety of park and recreational facilities are available within the Pearland Planning Area. Facilities include:

- Pearland municipal parks
- Pearland Independent School District sites
- Semi-public and private sites
- Harris County parks

All are shown on Figure 6.4.

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Pearland Municipal Parks

The City's existing parks total 136 acres. Two community parks - Centennial and Independence - comprise 96 acres. The City also owns an additional 25 acres immediately adjacent to Independence Park that is currently used for stormwater detention. Six neighborhood parks range in size from 0.31 acres to 6 acres. Table 6.1 lists all eight parks and their features.

Currently, the City owns one undeveloped park site. The 25 acre site, acquired in 1998, is located on County Road 128 near Veterans Drive.

While the two community parks, Centennial and Independence, are both adequately sized with good access and visibility, the neighborhood parks are significantly undersized and offer less than

optimum access and visibility. Several are the typical size of pocket parks. The City's six neighborhood parks average less than 2.5 acres and each site has only limited frontage on one street. As evident in Table 6.1, their small size allows insufficient space for field sports activities such as volleyball, football, softball or soccer. Also, small park sites can become more easily overused, thus requiring more maintenance. Corrigan is the only neighborhood park that can be expanded to provide greater opportunities for passive and active recreational use. Additional park acreage should be secured before adjacent vacant land is developed.

Table 6.1
City of Pearland
Park Inventory

Parks	Acreage	Playground	Soccer Fields	Basketball Court	Tennis Court	Softball Field	Picnic Pavilion	Other
Neighborhood Parks:								
Aaron Pasternak Memorial	0.75	1						
Corrigan	1.5	1		1				
Hyde	1.3	2						1/6 mile walking / jogging path
Sonny Tobias	0.31	1						
Twin Creeks	4.8				1			
Woodcreek	6	1						
Community Parks:								
Centennial	50	2	2	3	4	4	2	- soccer practice field - .8 mile hike & bike trail
Independence	46	2	4	2	4		3	- swimming pool - restrooms

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Schools

The Pearland Independent School District provides the following facilities:

- Carleston Elementary School
- Challenger Elementary School
- C.J. Harris Elementary School
- Lawhon Elementary School
- Rustic Oaks Elementary School
- Shadycrest Elementary School
- Silverlake Elementary School
- Jamison Middle School
- Sablatura Middle School
- Pearland Junior High East
- Pearland Junior High West
- Pearland Senior High School

These sites contribute significant open space for field sports activities in contrast with the City's neighborhood parks. Several of the elementary schools provide open space in neighborhoods unserved by City parks.

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Semi-Public and Private Recreational Areas

Several of Pearland's residential neighborhoods include privately developed and maintained parks and recreational amenities. Within the corporate limit, the Green Tee Subdivision includes a private country club offering golf, swimming, and tennis to its members. Residential subdivisions located near State Highway 288 within the City's ETJ have parks and open spaces available for use by their residents. The Silverlake development has several parks and a daily fee golf course. Country Place has a private country club with golf

and tennis. Southdown has two small neighborhood park sites. Facilities within these subdivisions are listed below.

Other semi-public facilities in the City include the Pearland YMCA and the Dad's Club athletic fields on Fite Road. The YMCA site includes one soccer field. The Dad's Club site provides space for youth baseball, softball and football teams in local associations and leagues.

Semi-Public & Private Facilities

- | | | | |
|--|--|--|---|
| <ul style="list-style-type: none"> • Countryplace | <ul style="list-style-type: none"> community center 18 hole golf course 7 acre lake swimming pool 2 tennis courts | <ul style="list-style-type: none"> • Silverlake - West Recreation Center | <ul style="list-style-type: none"> 18 hole golf course 8 acre park with: <ul style="list-style-type: none"> playground 1 soccer field swimming pool 4 tennis courts sand volleyball court |
| <ul style="list-style-type: none"> • Crystal Lake | <ul style="list-style-type: none"> 23 acre lake w/boat dock <1 acre park with: <ul style="list-style-type: none"> 2 shade shelters swimming pool | <ul style="list-style-type: none"> - Lake Silverlake | <ul style="list-style-type: none"> 38 acre park with: <ul style="list-style-type: none"> 29 acre lake 2 playgrounds 10 picnic tables shade shelter sand volleyball court |
| <ul style="list-style-type: none"> • Southdown | <ul style="list-style-type: none"> 2 acre park with: <ul style="list-style-type: none"> playground swimming pool 2 tennis courts 2.5 acre park with: <ul style="list-style-type: none"> playground sports field | <ul style="list-style-type: none"> - South Recreation Center | <ul style="list-style-type: none"> 3 acre park with: <ul style="list-style-type: none"> playground softball/soccer field swimming pool |
| <ul style="list-style-type: none"> • Green Tee | <ul style="list-style-type: none"> 18 hole golf course 6 tennis courts swimming pool | <ul style="list-style-type: none"> - East Recreation Center | <ul style="list-style-type: none"> 3 acre park with: <ul style="list-style-type: none"> 1 picnic table playground soccer field swimming pool |

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Harris County Parks

The Clear Creek Parks Chain, developed by Harris County Precinct One, includes several parks within or immediately adjacent to the Pearland Planning Area. Harris County Parks, although accessible to Pearland residents, serve a much larger multi-county region with several hundred thousand residents. Consequently, these parks are of limited use and availability to Pearland citizens, especially with regard to recreational programming.

The largest facility is Tom Bass Regional Park, approximately 550 acres located west of Cullen Boulevard. Across the street on the east side of Cullen is Christia Adair Park, an approximately 60 acre, mostly wooded, site. The 324 acre

El Franco Lee Park is located further down Clear Creek, but is within the City of Houston. Existing facilities within the three parks are listed below.

Harris County also owns two undeveloped tracts on Clear Creek on either side of Dixie Farm Road. Each is about 40 acres in size. The tract on the north side adjoins a large stormwater detention pond maintained by the Harris County Flood Control District. Surrounding the pond is the southern end of the South Belt hike and bike trail. The 8' wide asphalt trail extends north along the east side of a drainage ditch. The trail ends at Blackhawk Drive about 1½ miles north of Scarsdale. Total length is approximately 3½ miles.

**County
Park
Facilities**

- | | | | |
|--|---|--|---|
| <ul style="list-style-type: none"> • Tom Bass | <ul style="list-style-type: none"> community building cricket sports fields exercise course fishing lake and pier frisbee golf course gazebo 18 hole golf course hike & bike trails horticulture compound maintenance office model airplane field natural areas with trails performing arts pavilion 6 picnic pavilions numerous picnic tables 4 playgrounds restrooms softball fields 2 volleyball courts | <ul style="list-style-type: none"> • Christia Adair | <ul style="list-style-type: none"> community building maintenance office mural pavilion 3 picnic pavilions picnic tables 2 playgrounds restrooms sports fields 2 tennis courts |
| | | <ul style="list-style-type: none"> • El Franco Lee | <ul style="list-style-type: none"> natural areas picnic pavilions picnic tables playground restrooms 8 soccer fields 8 lighted softball fields volleyball court |

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PARK PLANNING INFLUENCES

A number of factors influence the planning and development of a municipal park system. Discussed below are the most significant factors which include:

- Population Growth
- Thoroughfare Plan
- Land Use Plan
- Physical Features
- Recreational Activities

Population Growth

As discussed in Section 4.0: Population, Pearland's growth rate is expected to substantially outpace the rate of growth projected for the greater Houston area. Since 1990, the population within the City's corporate limit has increased approximately 72%. The population within the Planning Area has increased about 37% during the same period resulting in a current estimated population of 48,600. By the year 2020, the population within the City and its extraterritorial jurisdiction is projected to total almost 108,000, about 2,560 new residents every year. Steady, strong residential growth increases the demand for park and recreation facilities while concurrently decreasing the amount of suitable land available for such use. Timely acquisition of park land is critical.

Thoroughfare Plan

The general location, arrangement and hierarchy of streets provide a principal element structuring urban growth and development. The Thoroughfare Plan, presented in Section 7.0, establishes a framework for land use patterns and begins to define neighborhoods.

Land Use Plan

The Land Use Plan, presented in Section 5.0, builds upon the Thoroughfare Plan by delineating existing or desired land use throughout the Planning Area and within individual neighborhoods. Existing residential neighborhoods are protected and new residential areas are proposed.

The intensity of residential land use must also be recognized with regard to park planning. For example, areas with numerous apartment complexes will increase the demand for park facilities in contrast with an equal area of large lot single family homes. (This increased demand can be partly alleviated by requiring multi-family developments to include open space useable for recreational activities.) Residential use in Pearland will continue to be predominantly low density detached single family with limited medium and high density areas such as townhomes or apartments. Higher density residential use is generally located along commercial corridors or at major thoroughfare intersections.

Physical Features

The location and alignments of natural and man-made features, such as creeks, stormwater detention sites, pipelines, or major utility lines can become an important part of a park system. Wooded creeks offer aesthetic beauty worth preserving, especially in areas like Pearland where past farming has left limited remaining tree cover. Utility corridors can provide pedestrian linkages between parks and across multiple neighborhoods. Of course, property ownership and the rights of easement holders will influence the feasibility of establishing certain linkages.

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Clear Creek

The best opportunities to utilize existing physical features within the Planning Area are along the natural courses of Clear Creek, Mary's Creek, Cowart Creek and Mustang Bayou. Creekside greenbelts could include hike and bike trails, detention lakes and adjoining neighborhood parks in wooded settings.

Clear Creek is one of the region's major drainageways and traverses the entirety of the Pearland Planning Area from west to east. Both sides of the creek are within Pearland's corporate limit or ETJ upstream of Cullen Boulevard and downstream from El Franco Lee Park. Between Cullen and Mykawa is the town of Brookside, along the creek's south bank. The creek centerline is also the boundary between Harris County to the north and Brazoria County to the south. In Harris County, the Flood Control District (H.C.F.C.D.) has jurisdictional influence. The District prefers to acquire fee simple ownership along the drainageway as opposed to holding an easement. In Brazoria County, Drainage District #4 has jurisdictional influence. Generally, the District acquires an easement from the property owner at the time of development.

Clear Creek has a large flood plain and floodway that extends outside the channel itself. Much study has been made of the watershed with regard to flood control improvements; however, no comprehensive plan has been implemented.

Most of the land alongside the creek is undeveloped. As noted earlier, Harris County has developed several large park facilities along the creek. Within Pearland's corporate limit, several residential subdivisions have been platted with lots

backing up to the creek. One area is the Twin Woods subdivision east of State Highway 35. The other area includes several subdivisions north of Dixie Farm Road. Industrial use adjoins the creek in one location between S.H. 35 and the Santa Fe Railroad.

Variable width tree masses exist along most of the creek's course. In some locations, a single row of trees line the bank(s); elsewhere, the woods may extend several hundred feet out from the bank. The native tree cover tremendously enhances the creek corridor as a linear park and backdrop for adjoining park and recreation facilities.

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Mary's Creek

Mary's Creek is a tributary of Clear Creek and one of the City's major drainageways. Beginning in the Silverlake development, the creek traverses the mid-section of Pearland in an easterly direction. Brazoria Drainage District #4 has jurisdictional influence over the entire width of the drainageway. Similar to Clear Creek, the District acquires an easement from the property owner at time of development.

Currently, the flood plain attendant to Mary's Creek is over a mile wide in areas west of S.H. 35. Further upstream in the upper end of the watershed, the flood plain is more contained where the creek has been channelized. The flood plain also narrows downstream from S.H. 35.

Existing land use alongside Mary's Creek is mostly single family residential or is undeveloped. The City's two community parks, Centennial and Independence, are both adjacent to the creek. Also adjacent are several limited areas with commercial and industrial use. One area is on either side of S.H. 35 between the Santa Fe Railroad and Old Alvin Road. The second area is also along the north side of F.M. 518 where the creek parallels the street.

Upstream of Centennial Park, there is little tree cover along the creek banks. Existing tree masses become more prevalent downstream from Old Alvin Road. Large hardwoods are located near the creek within Independence Park. The natural tree cover is conducive for the development of a linear greenbelt linking various recreational facilities and residential neighborhoods.

With regard to manmade factors of influence, stormwater detention sites are becoming increasingly important in park

planning and development. Several detention sites already exist and more are planned within the Clear Creek and Mary's Creek watersheds. Detention sites are being developed and maintained by the City of Pearland, Brazoria Drainage District #4 and H.C.F.C.D. Detention can either be dry bottom or wet bottom, the latter designed to contain a permanent pool of water. Detention sites can also be terraced with recreational uses located on the "upper", mostly dry terraces.

The Pearland Planning Area is also criss-crossed by numerous petrochemical pipelines and several major electrical distribution corridors. However, their locations, widths, arrangement and relationship to existing streets and land uses is not conducive to inclusion in the park system. Use of pipeline corridors as linkages would be inherently difficult since most are placed in easements with specific rights granted the easement holder (i.e. a pipeline company) by the fee property owners. Securing rights to a third party for park related uses, if even feasible, would likely be time consuming and cost prohibitive. Also, most of the pipelines already located within developed areas have minimal access and visibility.

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Current Recreational Activities

The City is fortunate to have assistance and involvement from local organizations and groups in organizing youth recreational programs. Their activities have allowed the City to concentrate on developing suitable adult athletic facilities such as Centennial Park where competitive play can occur. Participating organizations and groups include the following:

- YMCA - The Pearland “Y” provides programs in soccer, baseball, and basketball for youth in Pearland and the neighboring cities of Alvin, Manvel and Friendswood. All practices occur on school campuses. Shown below is the level of participation according to a survey conducted in 1993.

		# of Teams	Participants
Baseball	Spring 1993	61	802
Basketball	Winter 1993	123	924
Soccer	Spring 1993	18	216
	Fall 1993	34	491

- Pearland Little League - In 1993, the League had 59 teams with 700 participants. The League serves both Pearland and Manvel residents.
- Patriot’s Football Club - The Club serves boys ages 5 to 12 years from Pearland and Manvel. In 1992, there were 5 teams with 115 participants. The Club uses school property as well as private sites for practice space.
- Girls Softball League - The League has a fast pitch program for girls ages 5 to 16 years. Participants must reside in the City of Pearland and Pearland Independent School District. In 1993, the League had 20 teams and 220 participants. School sites are used for practice.

- Dad’s Club - An athletic facility maintained by the Club is used by the various associations and leagues.

In 1996, the City began a youth soccer program that is now one of the fastest growing recreational programs in the area. League play occurs both in the spring and fall. With this rapid growth, the need for more soccer fields is most apparent.

Future Needs

Standards for estimating recreational needs are set forth by the Texas Parks and Wildlife Department (TP&W) and the National Recreation and Park Association (NRPA). TP&W standards have been developed pursuant to the 1990 Texas Outdoor Recreation Plan (TORP). Together, these two sources provide guidance for estimating the City’s future needs beyond those facilities already existing. Table 6.2 presents a list of facilities needed for Pearland through the year 2020 based on a projected population of approximately 108,000. Private recreational facilities already existing within master planned communities located in the ETJ have been taken into consideration.

Y.M.C.A. Sports Participation (1993)

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**Table 6.2:
Recreational
Needs
Through**

Facility Type	TORP Standards	NRPA Standards	Facilities Needed
Basketball Courts	10	20	18 to 20
Tennis Courts	48	50	34
Baseball Fields	14	20	20
Softball Fields	12	20	10 to 14
Football Fields	4	4	4
Soccer Fields	4.6	10	32
Playgrounds	48 acres	-	18 to 20 play structures
Picnic Tables	110	-	65 to 75
Swimming Pools	4	4	2
Volleyball Courts	N/A	20	18 to 20
Trails	11.6	-	As many as possible
Recreation Center (stand alone)			1 per 50,000 population
Miniature Golf Course			1 per 75,000 population
Amphitheater			1 per 75,000 population
Golf Course (public)			1 per 50,000 population

Needs Assessment

The City has identified, evaluated and prioritized its recreational needs through several different means. First, needs have been assessed by the City's Parks, Recreation and Beautification Board. Second an intensive visioning process entitled Pearland 20/20 - Focus on our Future was initiated by the City Council. Many community-minded citizens participated. Results of this process are summarized in Section 2.0, Planning Content.

The Parks, Recreation and Beautification Board is an advisory body whose members are appointed by the City Council. The Board prepared and distributed a

citizen survey to determine facility needs for the City and the priority of those needs. Following is the summary response from the survey in priority order:

1. Swimming Pool / Aquatic Center
2. Soccer Fields
3. Hike and Bike Trails
4. Recreation Center (stand alone facility)
5. Tennis Complex
6. Miniature Golf Course
7. Amphitheater
8. Golf Course (public)

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The Parks, Recreation and Beautification Board has adopted the facility needs survey regarding the listed needs and their respective priorities as indicated by the survey respondents. The Board has long thought that a family aquatic center is the City's number one parks and recreation need. The center would offer a variety of leisure and challenging activities for all citizens. Regarding priority item #2, the immediate need for soccer fields is reflected in both the Board's survey results and the recreational needs through 2020, identified in Table 6.2. The strong desire for hike and bike trails, priority item #3, is reflected in the Park Master Plan and the Thoroughfare Plan.

The need for items 4-8 arises from the fact that none of these facilities currently exist anywhere within the City. Although the City does have recreation programming in two junior high schools, a stand-alone recreation center is desired that will allow programs and activities to expand and operate year round with unrestricted hours. For example, the Parks, Recreation and Beautification Board would like to initiate a City operated youth basketball league, but adequate gym space is needed. A tennis complex with pro shop, lockers, etc. is desired to accommodate league play and tournaments. An amphitheater in a natural park setting would provide a venue for a variety of uses including theatrical plays, seasonal events, and outdoor classroom instruction. With regard to golf, the only 18 hole course within the central city is part of a country club. As noted earlier, the Silverlake development in the ETJ includes a privately owned and operated daily fee golf course. The desire for a public golf course has led to authorization and completion of a feasibility study

which confirmed market demand for a public golf course in Pearland.

More than 2,000 volunteer hours were invested in Pearland 20/20 - Focus on Our Future. The process evolved through three levels of involvement - a Steering Committee, a Strategic Planning Committee and twelve Project Teams. One Project Team was charged with the responsibility of examining needs for recreational and cultural amenities. They identified a family aquatic center as the number one priority. Another Project Team conducted a telephone survey to determine various needs among Pearland's citizens. One question asked, pertinent to parks and recreation, was, "Would you like to see Independence Park expanded?" The response was 63% in favor of expansion, 29% opposed and 8% expressed no opinion.

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PARK PLANNING GUIDELINES

Park Types

Various park types have been identified based upon their intended function, size, design and location. The park classification system detailed below is nationally accepted and used throughout the State of Texas.

- Mini Park or Pocket Park
 - Usually less than an acre in size
 - Limited facilities such as a playground, picnic tables and benches
 - Minimal useable open space
 - May be appropriate for existing neighborhoods where no park currently exists or where land availability is low
 - Inadequate for a typical size residential neighborhood
- Neighborhood Park
 - Basic building block for most park systems
 - Serves an approximate one square mile residential area as defined by major street and land use patterns
 - Facilities may include playgrounds, picnic tables, benches, basketball and/or volleyball courts, passive recreational open space, multi-purpose sports field for practice or non-league play.
 - Easily assessed by children
 - 5 acre minimum, 10 acres desired
- Community Park
 - Lighted athletic facilities, community centers, tennis courts, hike & bike trails, swimming pools, picnic shelters, playgrounds, etc.
 - May incorporate neighborhood parks

- Approximate 3± mile service radius
- Major thoroughfare access and visibility
- Minimum 40 acres
- Ex: Centennial Park and Independence Park
- Regional Park
 - Primary function is to allow urban residents to escape the city without actually leaving the city
 - Serves the entire city
 - Typical features include wooded and picnic areas, water facilities for swimming or boating, hiking and riding trails, and sports fields
 - May include day camps or possibly golf courses
 - Major thoroughfare access
 - Minimum 100 acres
 - Ex: Harris County's Tom Bass Park and El Franco Lee Park.
- Parkways, Linear Parks
 - Include floodplain lands along creeks and major utility corridors
 - Conserve environmentally unique areas
 - Provide pedestrian access to other parks and destinations
 - Unite various parts of a park system to create an integrated network of open space
- Special Facilities
 - May be located on individual sites or as part of other parks
 - May include zoological and botanical gardens, sites of historical or ecological significance, natural and scenic areas, or cultural and/or entertainment facilities
 - Ex: David L. Smith Project (currently under development)

Park Standards

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State and nationally recognized standards have long been established to guide the desired size and number of parks that a community should provide. The widely recognized overall standard is 10-12 acres

per 1,000 persons. Table 6.3 shows the general division of this acreage among the different types of parks, the population to be served and the corresponding service area.

**Table 6.3:
Park Types**

Type of Facility	Acres per 1000 Persons	Minimum Acreage	Service Radius	Population Served
Neighborhood Park	2	5	½ mile	2,000 - 10,000
Community Park	2.5	40	3+ mile	10,000 - 50,000
Regional Park	5	100	Entire City	Entire City
Parkway, Linear Park	Variable	Variable	Variable	Variable
Special Facilities	Variable	Variable	Variable	Variable

Park standards should be considered flexible guidelines, subject to local conditions or influences. This is especially true for the Pearland Planning Area which includes large stormwater detention facilities with partial park use, county parks serving a region much larger than the City itself, and residential subdivisions with their own privately developed open space, lakes and golf courses. Harris County park land along Clear Creek totals more than 1,000 acres. Privately developed recreational facilities within the Planning Area total about 500 acres. However, the City's existing, useable park land is less than 136 acres but serves over 32,000 residents. The resulting ratio of 4.2 acres per 1000 persons is far short of the standard 10-12 acres per 1000 persons. Utiliz-

ing the data in the table above, the City should have about 64 acres in neighborhood parks. As noted earlier, the City has less than 15 acres in neighborhood parks and their average size of 2.5 acres is half the recommended minimum. Also, the City's current park system does not include any regional type parks or linear parks.

At first glance, it might appear that there is plenty of park land available to Pearland residents. However, a closer look reveals a different picture with regard to the number, size, and type of parks that are needed not just to comply with national standards but to meet residents' needs.

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Facility Concepts and Standards

Listed below is information describing the types of facilities necessary to respond to the needs assessment discussed earlier.

Swimming/Aquatic Center-	shallow and deep depth pool, water playgrounds, water and drop slides, wet and dry sand play areas, sand volleyball court and lawn areas enclosed by a decorative fence
Hike and Bike Trails-	concrete paved, 10' desired width (8' minimum)
Soccer Fields-	various sizes for various age groups
Recreation Center (stand-alone facility)-	gymnasiums (minimum of two), indoor walking track, handball/racquetball courts, six to ten classrooms that can accommodate preschoolers, elementary-aged students, teenagers and adults, aerobics and fitness rooms, game room, teaching kitchen and weight room
Tennis Complex-	12 or more lighted courts, bleachers for several courts, pro shop, restrooms, lockers, showers
Miniature Golf Course-	18 hole course, lighted
Amphitheater-	grassed and sloped seating area for a maximum 500 persons, lighted stage and backstage area, restrooms and concession booth
Golf Course (public)-	18 hole course, approximately 6,500 yards in length, driving range, putting green and clubhouse; 135-175 acre site desired

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MASTER PLAN

The Park Master Plan, presented in Figure 6.5, addresses the entire City and its ETJ. The City's park system will include pocket parks, neighborhood parks, community parks with athletic facilities, linear parks, parkways and joint venture sites with school districts. Several park sites incorporate stormwater detention ponds as amenities. Other sites include ponds resulting from past sand extraction. The water quality in these ponds usually exceeds that found in area creeks and bayous. The Plan recognizes existing recreational facilities within the residential communities near S.H. 288 as well as the nearby Harris County-maintained regional parks, Tom Bass and El Franco Lee. The Plan provides guidance in identifying and acquiring park land that can be developed in accordance with the type of park intended.

Pocket Parks

Pearland's old town site, identified as an Urban Neighborhood on the Land Use Plan, is an appropriate area for pocket parks where inadequate space does not allow development of a standard neighborhood type park. In fact, the original plat included a 1.2 acre park north of F.M. 518 and east of S.H. 35. For many years, this property has been used as a school yard for adjoining C.J. Harris Elementary School. The Pearland Independent School District has built a new C.J. Harris about ½ mile to the east. Completion of the new elementary school will allow the site to be restored as a pocket park.

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Neighborhood Parks

As discussed under Park Standards, all neighborhood park sites should be at least 5 acres and serve an approximate ½ mile radius area. Access should be provided by collector streets and residential streets. Street adjacency on most, if not all sides of the park is preferred in order to increase site visibility and decrease any need for offstreet parking. Also, site grading becomes easier with less likelihood for underground drainage systems. Residential lots should side or face the park. Lots backing up to park land are discouraged. Preferred street and lot orientation to a park is best exemplified by the pocket park within the old town site. The rectangular tract is bounded by streets on all four sides.

Figure 6.5 locates neighborhood park sites throughout residential portions of the entire Planning Area. Existing neighborhood parks are named; proposed park sites are numbered from 1 to 31. Sites 2, 3 and 4 should be located adjacent to Clear Creek and its proposed greenbelt. The optimum location for Site 4 is at the intersection of Scarsdale and Yost. Sites 5, 6, 7 and 15 should be located alongside the Mary's Creek greenbelt. All seven creek-side sites could be expanded to incorporate a stormwater detention area with a permanent pool of water. Site 8, south of Clover Field, marks the location of an existing 40 acre grove of mature pecan trees, all equally spaced. Preservation of this grove merits special consideration. Site 11 is within the Southwest Environmental Center. Site 18 signifies expansion of existing Corrigan Park to 5-10 acres.

Where possible, neighborhood parks and elementary school sites should adjoin,

thus reducing the total land required if each were freestanding. However, this objective has become more challenging in recent years since service zones for elementary schools now typically include several residential neighborhoods as defined by major thoroughfares. Furthermore, the preferred school site is then located on the periphery of an individual neighborhood instead of within the neighborhood as preferred for the park site. It may become more practical to locate community parks next to elementary school sites. In Pearland, the challenge will be greater since the Planning Area includes portions of six independent school districts. However, most of the City's growth in the next 20 years will be within the Pearland Independent School District.

Community Parks

The City presently has two sites that function as community parks - Independence Park and Centennial Park. Both sites are located on Mary's Creek; one to the west and the other to the east of S.H. 35.

Independence Park was built during the 1970's. Quoting from the 1993 Park Master Plan, "study is suggested of the park area to determine if maximum utilization is being made of this site and its facilities. Among these facilities is the swimming pool. Movement of water oriented recreation to more leisure and challenging activities such as family aquatic centers may indicate a need to assess alternative uses of this facility." The current facility is a fifty meter, rectangular-shaped swimming pool bordered by concrete paving and enclosed by a chain link fence. Although this is the City's only public pool, the facility has required increased maintenance

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while becoming less attractive to children, adolescents and adults. Pool attendance was approximately 25,000 in 1997 and declined to 17,041 in 1999. Pursuant to the recommendation of the 1993 Plan, the City employed a consultant in August, 1995 to examine opportunities to renovate and improve the park. After several public work sessions, a concept plan was presented in a joint meeting of the Parks, Recreation and Beautification Board and City Council on November 13, 1995. After further public input, the City Council formally adopted the proposed concept plan for redevelopment and expansion of Independence Park. As presented in Figure 6.3, the new master plan for Independence Park includes an aquatic center along with added acreage to increase the park size. Projected annual attendance for the proposed family aquatic center is more than 125,000. The center is expected to be self supporting with regard to annual maintenance and personnel costs. The master plan also includes a tennis complex, miniature golf course and amphitheater - all of which have been identified as priority needs.

As discussed earlier, Centennial Park has seen significant improvements with the addition of lighted athletic facilities and other recreational amenities. Centennial Park also serves as a neighborhood park for the immediate area. The Park Master Plan recommends expansion of the site southward across Mary's Creek to provide space for additional athletic facilities, namely soccer fields. Site expansion should be coordinated with proposed plans by Brazoria Drainage District #4 to locate a regional detention facility within the vicinity. Incorporated into the park, the detention site could become an aesthetic amenity similar to Independence

Park. In the context of the Land Use Plan, Centennial Park provides an excellent transition between residential areas to the west and industrial areas to the east. As an alternative, park expansion could also occur east of Veterans Drive on either side of Mary's Creek.

The Park Master Plan identifies eight additional community park sites to be acquired. Proposed sites are keyed by letter on Figure 6.5. Unless discussed otherwise, individual sites are intended to denote their general location and should not be considered property specific. All proposed community parks should accommodate athletic facilities.

Site A is on the southern end of Pearland Parkway in the vicinity of Clover Field Airport. A park site possibly encompassing the old airport could provide numerous sports fields and utilize the existing tree corridor along Cowart Creek. Similar to Centennial Park, the park would serve as a large scale buffer between existing residential use to the east and planned industrial use to the west. Sites B and C, serving the south central portion of the Planning Area could be used as gateways into the City from the south. Likewise, sites D and F could provide gateways from the north and be anchored along tree-lined Clear Creek. Site E on Hughes Ranch Road is needed to provide athletic facilities to nearby residential areas served by semi-public neighborhood parks but lacking sports fields for organized play.

Site G is a potential 150+ acre park currently comprised of a small airstrip, the Stevens and Pruitt Ranch, an ongoing sand mining operation and an inactive sand pit that has been made into a lake. The site is bounded by Dallas Road, a

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planned major thoroughfare, the American canal, Mustang Bayou, and a county road planned to become a secondary thoroughfare. Although obviously a long term acquisition, the site has significant potential as the central park for westernmost Pearland, offering a variety of recreational opportunities. Also, stormwater detention could easily be incorporated into the site given the location on Mustang Bayou.

The last of the proposed community park sites is Site H, located in the southwest-most portion of the Planning Area. With frontage on S.H. 6, this park would create another gateway into Pearland.

Also shown on the Park Master Plan is a community park site owned by Harris County on Dixie Farm Road at Pearland's eastern edge. The City has the opportunity to influence site design since no plans have been prepared for the acreage. Like many of the other proposed community park sites, this one could mark Pearland's eastern gateway.

As evidenced by their general locations, community parks should have access and visibility from major and/or secondary thoroughfares. Sites located at the intersections of principal streets could be planned to permit select retail uses (i.e. restaurants) at the hard corner similar to the concept already employed in Independence Park at the intersection of Pearland Parkway and John Lizer Road. This unique approach has obvious economic benefits in financing park land acquisitions.

Linear Parks

Consistent with the recommendations of previous park plans, linear parks are proposed along Clear Creek and most of

Mary's Creek. The revised Park Master Plan presented in Figure 6.5, identifies several additional linear parks within the Planning Area. Major sites include Cowart Creek south of Dixie Farm Road and Mustang Bayou between F.M. 521 and County Road 48. Other sites include the Mary's Creek Bypass, Town Ditch, Barry Rose Ditch, and Regency Ditch. All corridors, if preserved in their current condition, offer the opportunity to provide pedestrian, biking and equestrian trails that can link various parks, residential neighborhoods, community facilities and businesses. Trails can accommodate both recreational and purposeful trips while keeping the floodway unencumbered. Existing tree cover abutting the creeks should be protected to the extent possible.

Use of attractive creek corridors as linear parks can become major assets for a community as well demonstrated in other Texas cities such as Austin and Plano. Critical to successful linear park development is an ongoing commitment to coordinate and strongly influence both public and private land development along the course of the corridor. Without the upfront commitment, a linear park can easily become a narrow strip hidden behind homes and businesses. The City must also coordinate the design of future streets and bridges to allow uninterrupted pedestrian, bicycle, and equestrian travel under heavily used vehicular routes. This can be accomplished by providing adequate headroom between the path and bridge support structure or within the height of box culverts. With little access, visibility or continuity, park use decreases and safety concerns increase. Clear Creek and Mary's Creek have each experienced limited encroachment from past development activ-

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ity but the opportunity still remains for both to become major assets for Pearland.

Clear Creek

The entirety of Clear Creek within the Planning Area is recommended as a linear park. This would entail two segments - one upstream from the town of Brookside and the other downstream. The lower section would extend from Mykawa Road to Dixie Farm Road, a distance of nearly 7.5 miles. This greenbelt would link the David L. Smith Project (discussed in Section 5.0 Land Use, Planning Initiative #4), El Franco Lee Park, three proposed neighborhood park sites and several large existing and proposed residential areas. The central portion would have direct frontage on Pearland Parkway. At the southern terminus of the greenbelt is undeveloped park land owned by Harris County. Hike and bike trails along the creek could connect with the previously discussed South Belt Trail already developed by Harris County. The South Belt Trail currently ends at Hall Road and is planned to extend north to El Franco Lee Park where it could reconnect with the Clear Creek trail to create a loop system of over 10 miles in length.

The upper section could extend from McHard Road to east of Cullen Boulevard, a distance of about 5.5 miles. The greenbelt would link Tom Bass Regional Park and Christia Adair Park with two proposed community park sites. East of S.H. 288, trails would be limited to the creek's north side because of the existing Countryplace golf course on the south side. West of S.H. 288, the park can provide a central greenbelt in an area planned for office, commercial and light industrial uses.

Trail development along Clear Creek could be jointly ventured with Harris County. The County's assistance would be most beneficial in linking the trail system through areas currently within Houston's and Brookside's jurisdictions.

Mary's Creek

An approximate 8.5 mile length of Mary's Creek is proposed as a linear park on the Park Master Plan. The greenbelt would extend from Silverlake to south of Dixie Farm Road, and intersect eight major thoroughfares. Destinations along the way include Independence Park, Centennial Park, an existing park within Silverlake, four neighborhood park sites, the proposed Town Center and the Southwest Environmental Center (discussed in Section 9.0 - Water and Wastewater). Hike and bike trails along Mary's Creek could connect to the Clear Creek trails via Liberty Drive or Pearland Parkway. A third connection can also be made between the southern termini of both linear parks via an existing residential collector street, Longwood Drive. All three connections are depicted on the Park Master Plan.

Trail planning along Mary's Creek will demand special attention in several locations. Existing commercial development along the creek between the Santa Fe Railroad and Old Alvin Road may require the trail to detour from directly paralleling the high bank of the creek. Also to be considered is the trail's crossing of the railroad and State Highway 35. Further downstream, south of Independence Park, the creek passes through an existing residential subdivision where the platted lots back up to the creek on both sides. As

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shown on Figure 6.5, the trail can shift away from the creek itself and follow a paralleling street just to the west for a distance of less than 1,500 feet.

Cowart Creek

A limited portion of Cowart Creek, about 1.5 miles in length, is suitable as a linear park. The recommended section extends from the north end of Clover Field to F.M. 2351. Near Clover Field, the greenbelt would parallel and front onto Pearland Parkway. The proximity of Pearland Parkway and its attendant trails precludes the need for a separate hike and bike trail along the creek. Detention lakes could be located between the street and creek. Also adjacent is proposed community park site A.

Mustang Bayou

A fourth linear park is proposed along Mustang Bayou in the far western portion of the Planning Area. A hike and bike trail could extend the entire two mile distance from F.M. 521 to County Road 48 and link two neighborhood parks and a proposed community park. Pearland's initiative in establishing this greenbelt should encourage the City of Manvel to extend the greenbelt downstream within their jurisdiction.

Secondary Sites

In addition to major creeks and bayous, linear parks are proposed along the following connecting drainageways:

- Town Ditch – 1.6± miles starting at S.H. 35/Main Street, extending east across Old Alvin Road to Clear Creek

- Regency/Barry Rose Ditches – 1.4± miles starting at Old Alvin Road on the south side of Pearland Junior High East, extending east past the new C.J. Harris Elementary School/Park, and then paralleling Barry Rose Road to Clear Creek
- Mary's Creek Bypass – 1.7± miles from its connection with Mary's Creek, crossing Dixie Farm Road, passing by Rustic Oak Elementary School, and ending at a semi-public recreation area on Galaxy Drive within the Nasawood subdivision.

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Acquisition

Linear park acreage can be acquired at any time but is usually obtained in piecemeal fashion as adjacent properties are platted and developed. Dedication at time of platting is better defined since the creek corridor will become encumbered by a drainage easement required by a flood control agency. The width of the park land acquired along the creek should be one of the following, whichever is greatest:

- 50' out from either high bank
- width of the recognized floodway
- width of the required drainage easement

With room to maneuver, future trails can be located to take advantage of or avoid the variety of natural and man-made physical features that will be encountered along the creek. The impact of possible channel improvements by the appropriate flood control agency must also be considered.

Adjacent Development

As part of the land acquisition process, development adjacent to linear parks must be influenced and regulated to ensure adequate park access, aesthetics and visibility. Platted lots should preferably front or side to the linear park. Lots backing up to the park should be avoided, especially in residential areas where residents often will consider the linear park an extension of their backyard and then object to trail development within the park as an invasion of their privacy and an invitation for vandalism. In single family residential areas where the City has designated a creek corridor as a linear park, one of the following should be provided:

- parallel streets fronting along the park

- cul-de-sac streets perpendicular to the park with the cul-de-sac bulb fronting on the park
- U-shaped loop streets with part of the "U" fronting on the park

All portions of a linear park should be readily visible from public streets or adjacent land uses. In multi-family developments, apartment buildings should predominantly front the park instead of parking lots. Visibility can be improved within nonresidential areas by prohibiting opaque fences and screening walls within the designated building setback area adjoining the park and by increasing the building setback itself. Better visibility allows the linear park to become a true focal point in the community. Land development adjacent to creekside linear parks must also be reviewed with regard to proposed drainage patterns. Often, stormwater runoff is directed to the creek across the surface of the park creating erosion problems and increased trail construction and maintenance costs for low water crossings, culverts and bridges. One solution that can be implemented via the subdivision ordinance is to require underground storm drainage from the development site to the creek channel or, where possible, direct runoff to existing ditches and creek tributaries.

Parkways

Pearland Parkway, a planned major thoroughfare, will extend the entire north/south length of the City from Beltway 8 to Friendswood. The center section from F.M. 518 across Mary's Creek to Pearland Senior High School has already been constructed. The parkway alignment will be anchored at the northern end by the David L. Smith Project (described below). At the southern end is Clover Field

Development adjacent to linear parks must be influenced and regulated to ensure adequate access and

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Airport and a proposed community park. In the middle is the proposed Town Center at F.M. 518. Along the way, the parkway will front the Clear Creek linear park, Independence Park and Pearland Senior High School. Between the Town Center and Independence Park, the boulevard will intersect the Mary's Creek linear park.

Design guidelines have already been enacted to provide greater control over the aesthetic, functional, and safety characteristics of development within the thoroughfare corridor. Special standards have been established for parking lot setbacks, landscaping, building facades, lighting and signage. Utilities will be located underground, sidewalks will be widened and bicycle parking will be required. Pearland Parkway will become the City's grand, central corridor accommodating vehicular, bicycle and pedestrian traffic in an attractive, spacious setting.

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IMPLEMENTATION

Implementing the Park Master Plan is a two part process: 1) acquire land, and 2) develop facilities as they are needed. The key to building an exceptional park system is timely land acquisition. Once park land has been secured, site development becomes a matter of “when”, not “if”. Community groups such as civic clubs and homeowner organizations can later be called upon to provide vital support and financial assistance in improving an already acquired site. Hyde Park is an excellent example of neighborhood participation to develop an existing site and accelerate the time frame for improvement.

Land acquisition can occur in several ways:

- fee simple purchase
- donation by property owners or developers
- park dedication ordinance

Funding for fee simple purchases generally comes from bonds or grants. A park dedication ordinance, incorporated into the subdivision ordinance, requires dedication of park land or monetary contributions in lieu of land for new park development as part of the residential land development approval process. Most ordinances establish a ratio between the number of dwelling units being platted and the amount of acreage to be dedicated or fee to be paid. Lands dedicated or fees paid must be used for parks that will serve the new residents. Neighborhood parks and sometimes community parks are often acquired via dedication ordinances.

Larger sites usually require additional funding sources. Park dedication ordinances, when properly used, have withstood legal challenges. One is recommended for Pearland.

Another land acquisition tool available for zoned cities like Pearland is “transfer of developments rights” or “transfer of density”. As part of large acreage rezoning cases requested by a property owner or developer, park land can often be acquired at no cost or reduced cost by transferring some or all of the zoning density that would have been permitted on the delineated park site(s) to the remainder of the property. Transferring development rights or density is a negotiated process that can also entail related issues such as infrastructure locations and shared cost responsibilities.

Park development funding sources include bonds, grants, and private donations. Funding for acquisition or development often occurs in accordance with a capital improvement program, which establishes a prioritized list of projects. The program will include information on the scope, timing, and cost of each project listed.

A Park Dedication Ordinance is Recommended for Pearland

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Listed below in Table 6.4 are the recommended timelines for each of the priori-

tized needs discussed earlier under Needs Assessment.

**Table 6.4:
Prioritized
Needs
Implementa-**

PRIORITY	NEED	LOCATION	TIME FRAME
1	Swimming Pool/Aquatic Center	Independence Park	Immediate
2	Soccer Fields	(to be determined)	Immediate
3	Hike and Bike Trails	City-wide	On-going
4	Recreation Center - site identification, facility development	(to be determined)	2002 2005
5	Tennis Complex	Independence Park	2005
6	Miniature Golf Course	Independence Park	2005
7	Amphitheater	Independence Park	2005
8	Golf Course - land acquisition & development	(to be determined)	2010

As shown above, the top three prioritized needs for the citizens of Pearland are a family aquatic center, soccer fields, and hike and bike trails. Preliminary planning for the aquatic center has already been done. A family aquatic center is included in the City Council approved master plan for Independence Park. The center will be developed in accordance with the facility standards described herein. Construction plans will be prepared once total funding is secured.

Providing additional soccer fields is occurring in several ways. First, the master plan for Centennial Park (formerly McLean Park) included two fields. Second, the City is presently looking for new sites to acquire and develop.

With regard to hike and bike trails, implementation is largely contingent on private sector development and construction of major thoroughfares in order to provide suitable access, visibility and continuity. Trail corridors such as that planned along Mary's Creek and Clear Creek will be acquired in segments as development occurs adjacent to the creek. Trail construction cannot occur until sufficient segments provide complete linkages. Development of bike lanes as part of thoroughfare construction has already occurred, most notable along a portion of F.M. 518, the City's principal east-west thoroughfare. The road was widened and rebuilt by the Texas Department of Transportation.

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Construction of a free-standing recreation center will likely not be feasible until approximately 2010. In the interim, school based recreation sites will be used to meet the public need. Meanwhile, recreation center staffs and programs can be further developed and then put to use within the stand-alone facility once completed. The tennis complex, miniature golf course and amphitheater are all included in the new master plan for Independence Park. Finally, a recently completed feasibility study authorized by the City Council indicated market demand for a public golf course in Pearland. The study also included preliminary site(s) identification and evaluation. Opportunities to develop a public golf course could arise sooner with private developer participation in providing a suitable site.



**INDEPENDENCE PARK & POOL
REDEVELOPMENT & EXPANSION**

CITY OF PEARLAND, TEXAS

11/13/95



Figure 6.3

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INTRODUCTION

A well-planned, integrated transportation system is critical to a city's proper development and future growth. Key components of a transportation system are:

- **Thoroughfares**
- **Bikeways**
- **Railroads**
- **Airports**

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THOROUGHFARE PLANNING

Streets provide the corridors needed to circulate between different areas of a community and the region. Street design and capacity have a direct impact on land use. The Thoroughfare Plan for Pearland addresses specific circulation needs and proposed land-use requirements with the following objectives:

- Increase accessibility to and from Pearland by tying the local street system to the regional thoroughfare system.
- Provide a logical framework for future growth and development which creates identifiable neighborhoods bounded by high capacity thoroughfares.
- Provide convenient access to all portions of the City.
- Link major activity and employment centers.
- Minimize traffic movements through residential areas.
- Define right-of-way, pavement, alignment and intersection standards capable of handling anticipated traffic volumes.
- Guide the expenditure of funds as needed to improve or expand the thoroughfare system.
- Coordinate thoroughfare development efforts by governmental agencies including TxDOT, HGAC, Brazoria County and adjacent municipalities as well as private developers.
- Incorporate existing roads where practicable.

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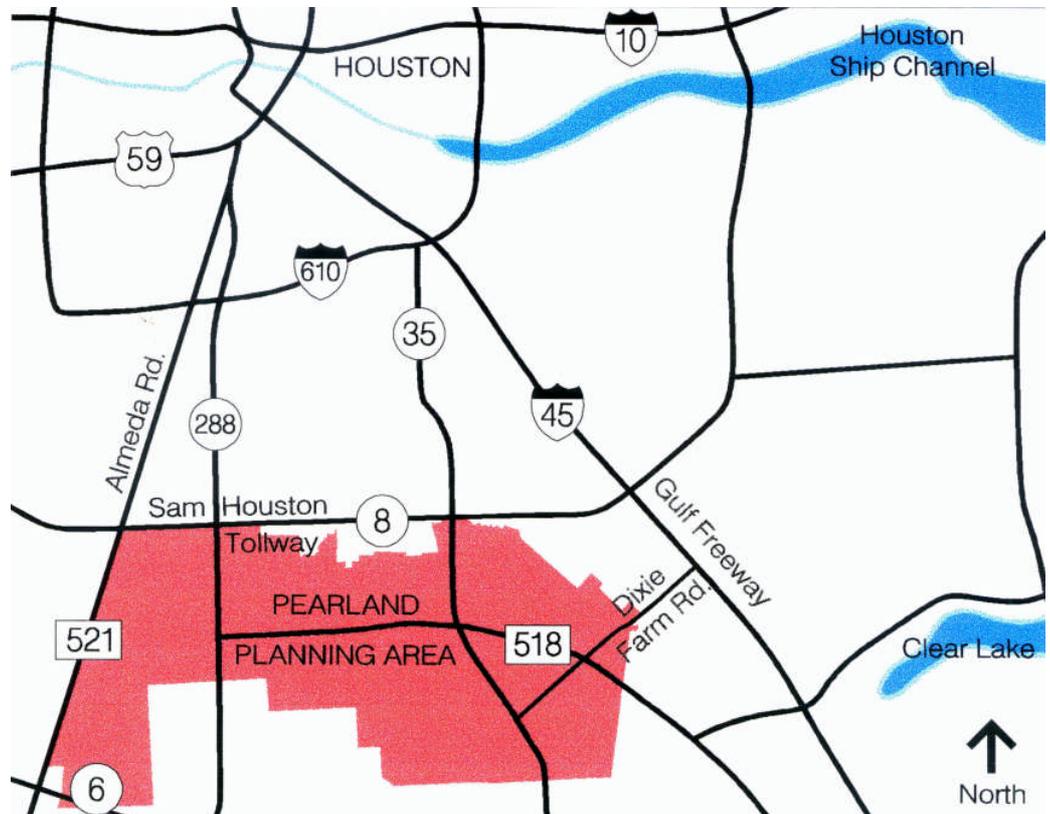
REGIONAL ACCESS

Pearland's access to the Houston metropolitan area is provided by several state and county thoroughfares. As shown on Figure 7.1, the most important of these thoroughfares include the following:

- **State Highway 288** - This limited access freeway connects Pearland and Houston and is the most important existing regional highway link serving the community. The freeway's presence precipitated the development of several, large, nearby residential neighborhoods including, Silverlake, Southdown and Country Place. All three continue to grow, especially Silverlake.

- **Beltway 8/Sam Houston Tollway** - Encircling Houston, the southern segment of this highway from the Southwest Freeway to the Gulf Freeway was the last portion to be completed. Pearland's access, visibility and regional mobility have been greatly enhanced by its construction. Still remaining to be completed are permanent frontage road overpasses at the Santa Fe railroad.

Figure 7.1:
Regional
Access



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- **State Highway 35 (Main Street)** - This highway is the City's principal north/south thoroughfare and the center of its industrial/commercial activity. Prior to completion of S.H. 288, S.H. 35 was the primary connector to Houston and still provides convenient access to Hobby Airport. Unlike limited access facilities such as S.H. 288 and Beltway 8, the thoroughfare is frequently intersected by cross streets and private driveways serving commercial interests.
- **F.M. 518 (Broadway)** - Extending east from S.H. 288, F.M. 518 is Pearland's only continuous east/west thoroughfare and the center of its retail/commercial activity. A portion of the thoroughfare east of S.H. 35 has been improved with a continuous left turn lane and bike lanes. Further east, F.M. 518 provides access to employment centers in the Clear Lake area.
- **Dixie Farm Road** - This mostly two lane thoroughfare has long provided an important connection to the Gulf Freeway. Dixie Farm Road is so heavily used that plans are underway for its widening from State Highway 35 to Beamer Road.

An important consideration with regard to Pearland's regional access is the fact that many Pearland residents are employed in Houston and other areas outside Pearland. Consequently, drives to and from work significantly contribute to the weekday traffic demands on the thoroughfares described above. Outbound traffic is heavy in the morning with the inbound side heavier in the afternoon. The difference in traffic in either direction on a particular road at a given time is referred to as the "directional split". Obviously, a large directional split exists on Pearland's re-

gional thoroughfares during rush hours. Peak period traffic is further impacted by the lack of continuous, alternative routes.

Pearland's continued growth will increase the need for additional thoroughfares as well as increased capacity on existing ones. If more of Pearland's residents are employed within the City, fewer drivers will travel to work outside the immediate area, and the disproportionate peak period demand on regional thoroughfares will be less. The thoroughfare system would become more efficient.

The degree of nonresident traffic passing through a community is also of importance when evaluating regional access. The impact can be tremendous in a positive or negative way. Fortunately, cross-town traffic in Pearland appears limited and confined mostly to S.H. 288 - a freeway intended to provide regional mobility. A lesser amount of cross-town traffic likely occurs on S.H. 35 but is probably decreasing percentage-wise as local Pearland traffic increases.

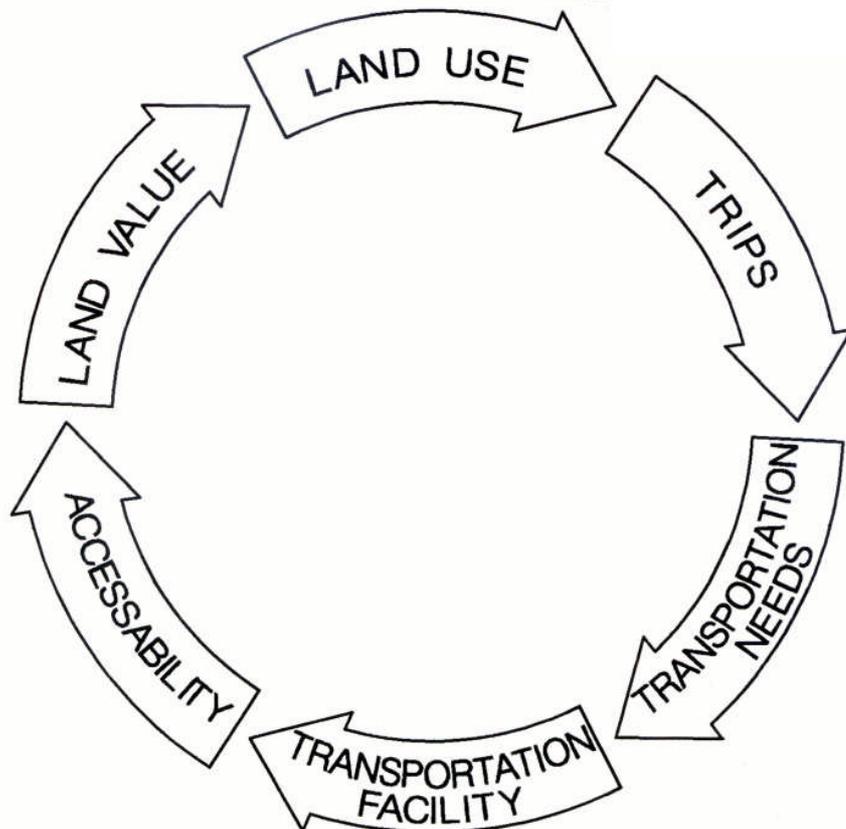
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LOCAL TRAFFIC

While regional traffic movements greatly impact Pearland, locally generated traffic usually represents the majority of trips in an urban area. Local traffic reflects the relationship between land use and the extent of transportation facilities available to serve those uses. This cyclical relationship, as illustrated below, starts with LAND USES. Activities on the site generate TRIPS to and from the site. These trips identify TRANSPORTATION NEEDS which lead to new TRANSPORTATION FACILITIES. New facilities, in turn, provide additional ACCESS to land and improve its VISIBILITY. With better access and visibility, LAND VALUE is enhanced, and finally, increased land value completes the cycle by affecting land use.

Left unchecked, the cycle leads to more intensive land uses on more expensive land with transportation demands that become more difficult to meet. A zoned community, such as Pearland, can positively influence the cycle through its comprehensive planning efforts.



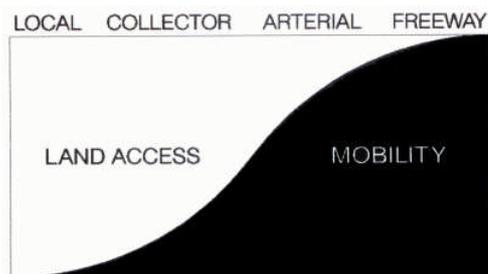
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THOROUGHFARE STANDARDS

Current development activity in Pearland coupled with anticipated growth require a thoroughfare system which can accommodate a maximum amount of traffic while still providing an acceptable quality of service. The vehicular capacity of a thoroughfare is determined by several factors including alignment, right-of-way width, number of travel lanes and design speed. A thoroughfare's efficiency is influenced by the frequency of driveway and street intersections and the type and density of adjacent land use.

Thoroughfares are classified by their function and capacity. A standard hierarchy of streets ranges from freeways providing regional mobility with limited access to local streets providing adjacent properties with plentiful access. Better mobility is achieved with less land access; more land access decreases mobility.



The relationship between the two is most evident in Pearland on the city's two main arteries - S.H. 35 and F.M. 518. Both streets are intended for regional mobility but their efficiency is compromised by

numerous commercial driveway intersections. Classifying streets by their intended function in keeping with adjacent land uses will establish a more efficient thoroughfare system.

The right-of-way width of a thoroughfare is determined by the number of traffic lanes required to perform the intended function plus space for utilities, sidewalks, visibility zones, and sometimes bikeways. Drainage needs may also influence the right-of-way width. Additional right-of-way may also be needed at intersections to accommodate turning movements. Roadway overpasses usually require additional right-of-way to accommodate sloped embankments. The following thoroughfare standards are recommended for Pearland:

Freeways

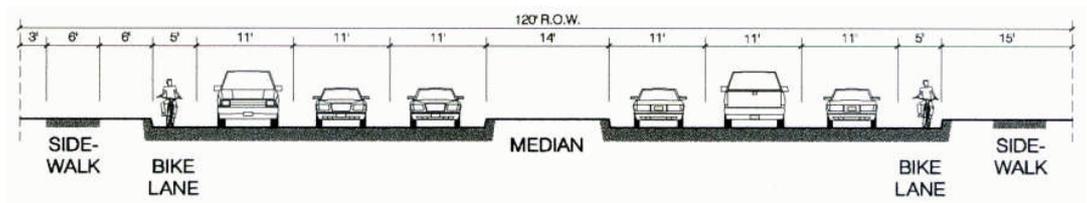
- Regional highways providing the highest vehicular capacity.
- Approximate 400' right-of-way width requirement as determined by the Texas Department of Transportation (TxDOT).
- 2-4 main lanes, either direction
- 2-3 frontage road lanes, either direction, sometimes with designated right-turn, left-turn and U-turn lanes at cross street intersections
- Access to and from main lanes via entrance and exit ramps located near designated interchanges (typically one mile minimum spacing)
- All interchanges are grade-separated
- Access to adjacent lands is strictly controlled by TxDOT

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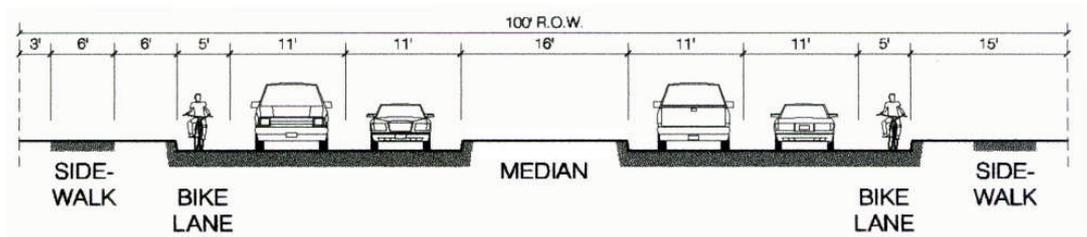
Major Thoroughfares

- Provide continuity and high volume traffic movements between major traffic generators (neighborhoods, commercial centers, etc.)
- Interconnect with freeways
- 120' minimum right-of-way width
- Divided roadway with a maximum of 3 lanes, either direction
- Protected left turn lanes provided at infrequent median openings
- Limited driveway and street intersections
- No parking permitted on street
- 6' wide sidewalks
- Bicycle lanes



Secondary Thoroughfares

- Accommodate high to moderate volumes of local traffic
- 100' minimum right-of-way width
- Divided roadway with a maximum of 2 lanes, either direction
- Protected left turn lanes provided at median openings
- No parking permitted on street
- 6' wide sidewalks
- Bicycle lanes

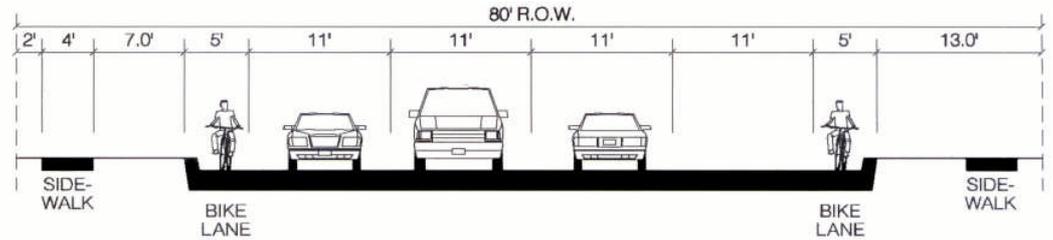


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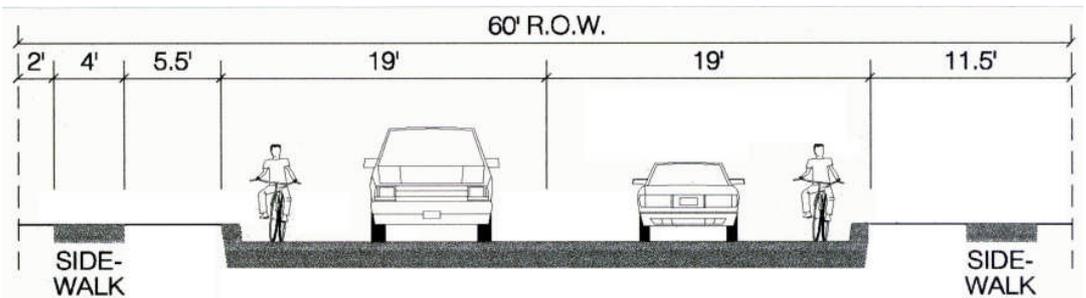
Major Collectors

- Accommodate moderate volumes of local traffic
- Used within high density residential, commercial, industrial or mixed use areas
- 80' minimum right-of-way width
- 4 lanes undivided with no parking permitted on street
- Bicycle lanes and 6' wide sidewalks



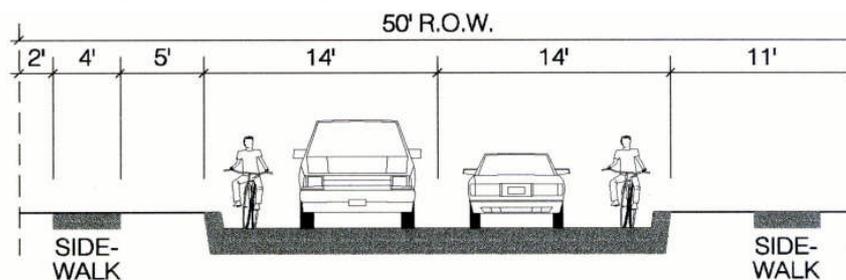
Minor Collectors

- Connect local residential streets to higher capacity streets
- Provide access to elementary schools and neighborhood parks
- Bike routes
- 60' minimum right-of-way width
- One inside travel lane and one outside parking lane on either side
- Should discourage through traffic movements within residential neighborhoods by offsetting intersections or terminating at "T" or right angle intersections
- Collector streets from adjacent residential neighborhoods should align at their intersection with perimeter major or secondary thoroughfares, or major collectors.



Local Residential Streets

- 50' minimum right-of-way
- Parking permitted along both sides
- Use by trucks discouraged except for local deliveries



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THE THOROUGHFARE PLAN

The Comprehensive Plan Update, completed in 1988, included a Major Street Plan for the entire planning area. In 1993, a new Thoroughfare Plan was prepared for the eastern half of the planning area. The new plan included significant changes from the previous edition. A number of mobility improvement projects have been completed or initiated pursuant to the latest Thoroughfare Plan. Of most importance have been 1) the construction of Pearland Parkway (originally called Centennial Parkway) from F.M. 518 to the Pearland Senior High School, and 2) the McHard Road railroad overpass north of F.M. 518. Also, the Texas Department of Transportation improved a portion of F.M. 518 east of State Highway 35. Other projects recently completed include several bridge replacements over Mary's Creek and realignment of several cross street intersections on F.M. 518 in order to eliminate inefficient offsets. Projects initiated include 1) widening Dixie Farm road to major thoroughfare standards, and 2) constructing a second railroad overpass on Magnolia Road south of F.M. 518.

The Thoroughfare Plan presented herein (Figure 7.2) encompasses the entire Planning Area and includes the street types defined earlier. Highlights of the plan include:

- Proposed frontage roads and paralleling thoroughfares within the State Highway 288 corridor in order to improve the accessibility, mobility and traffic capacity needed for a business park environment.
- Revised alignment of Pearland Parkway both north and south of the portion recently completed.
- Refined alignment for McHard Road based on analysis of existing land use.
- Additional delineation of the secondary street system including secondary thoroughfares, and major and minor collector streets.
- Linkages with major thoroughfares proposed by the City of Houston in areas of their jurisdiction to the north, east, and west of Pearland.

The plan also delineates a special study area in northeast Pearland defined by Beltway 8, Pearland Parkway, Barry Rose Rd., Broadway, Dixie Farm Road and Blackhawk. Traffic engineers will be employed to examine transportation patterns and needed capacities within the area. The study will be jointly conducted by the City and Harris County in coordination with the City of Houston and their Major Thoroughfare Plan. Recommendations of the study may require amendments to Pearland's Thoroughfare Plan.

Following is a discussion of specific thoroughfares shown on the Plan.

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Freeways

State Highway 288 (Nolan Ryan Expressway) - The freeway is a controlled access facility with no existing frontage roads. As shown on Figure 7.3, grade separated interchanges have been built at McHard Road and F.M. 518. A three level interchange exists at the Beltway 8/Sam Houston Tollway intersection. Long-range improvements proposed by TxDOT as part of the Houston-Galveston Regional Transportation Study (H-GRTS) include two additional grade separations, one at Dallas Road on the Pearland/Manvel border and the other two miles south at Post Road. Presently, these two projects are at least a decade away from being constructed. TxDOT's current plans do not include a grade separation at either Hughes Ranch Road or the western extension of Bailey Road.

The City has initiated negotiations with TxDOT regarding the possibility of adding frontage roads. Local governments can petition the Department to provide continuous service roads between major thoroughfare cross streets. TxDOT will determine if adequate right-of-way exists and determine engineering constraints. Construction can occur on a much quicker time schedule with local cost participation. The City of Pearland should proceed with petitioning the State to provide frontage roads between Beltway 8 and Dallas Road.

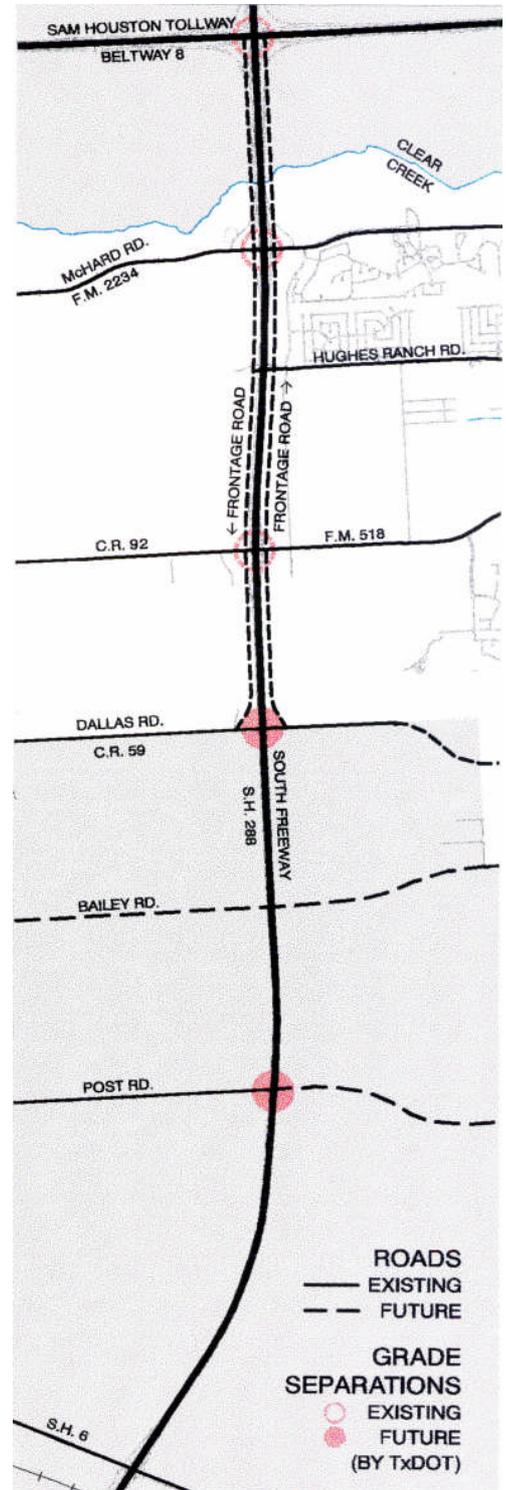


Figure 7.3: S.H. 288

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New State Highway 35 (Alvin Freeway)

- The Freeway and Expressway System Map updated annually by H-GRTS has for many years indicated a proposed freeway that would bisect Pearland on a north/south axis. As shown on Figure 7.4, the Alvin Freeway would begin at the Gulf Freeway south of downtown Houston, go south across Loop 610 and Beltway 8 and out to Alvin and Angleton. The only portion of this facility that has been built is an approximate one mile length of frontage roads south of the Gulf Freeway. Other portions north of Beltway 8 are currently classified as either long range projects or possible future projects. TxDOT officials have indicated that a federally-required Major Investment Study (M.I.S.) should be underway sometime in 2000. The Study will assess the feasibility of the project and will likely take several years to complete.

TxDOT's maps indicate the freeway's approximate alignment to be just west of Suburban Gardens Roads. South of Bailey Road, the alignment turns southeast toward the City of Alvin. Nowhere in the City and its ETJ does the proposed freeway follow any already defined major thoroughfare alignment. Nor does it bear any favorable relationship to existing land use patterns or neighborhood boundaries. Numerous properties would need to be condemned in order to assemble the necessary freeway right-of-way. Several homes lie within the proposed path of the freeway; many more are nearby. Lawhon Elementary School is also close by. In light of all existing conditions, it is impracticable to suggest compatible land uses for a presently undefined, uncertain freeway corridor. Therefore, until the M.I.S. is complete, the freeway feasibility determined, and the alignment set, the proposed highway will not be shown on

the City's Thoroughfare Plan. However, property owners within the proposed corridor should assess the impact to their lands prior to site development.

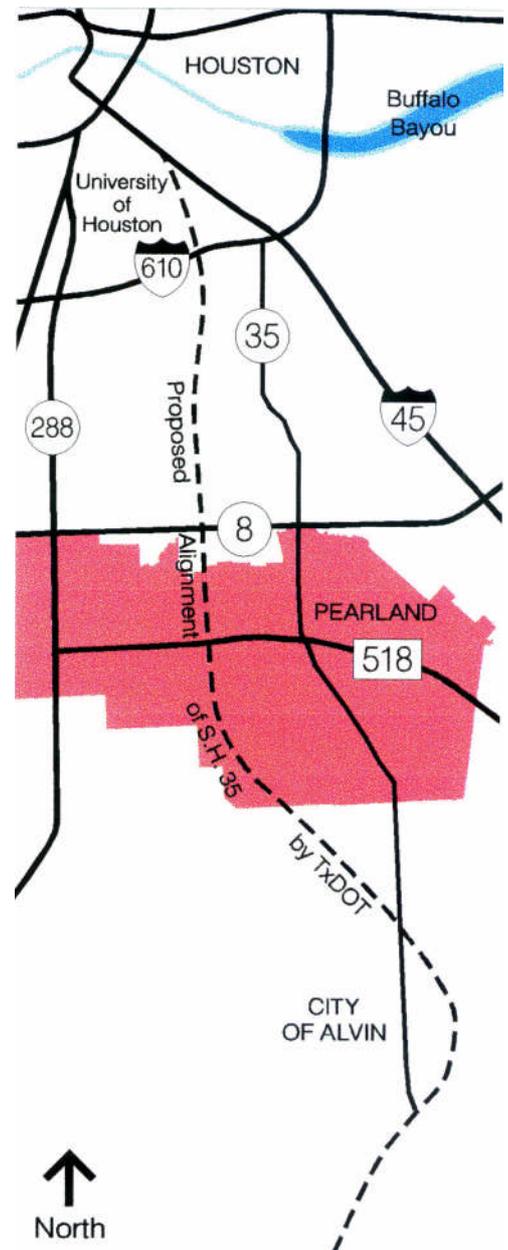


Figure 7.4: Proposed S.H. 35

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Major Thoroughfares

North/South

- **Pearland Parkway** - The alignment of this road has significantly changed from routes indicated on the previous thoroughfare plans. North of F.M. 518, the new route extends to Beltway 8 instead of connecting to Hughes Road within Houston. North of Beltway 8, Pearland Parkway will become Monroe, a future route to Hobby Airport. South of Oiler Boulevard, the alignment has been straightened and will now extend along the west side of Cowart Creek and Clover Field. Special attention will be required to “thread the needle” between Cowart Creek and the southeast corner of the existing landfill. In its new location, Pearland Parkway will better serve the City’s future industrial areas south of Dixie Farm Road. The new alignment of Pearland Parkway generally parallels State Highway 35.
- **Max Road/Manvel Road** - Currently, these two streets intersect F.M. 518 about 700 feet apart. The linkage, to occur on the north side of F.M. 518, is already about halfway complete with construction of a community shopping center at the corner. Max Road, north of McHard Road will transition down to become a collector street.
- **Cullen Boulevard / Old Chocolate Bayou Road** - Currently, these two streets intersect F.M. 518 about 800 feet apart. As shown on the Thoroughfare Plan, the connection will be made by realigning Old Chocolate Bayou Road as it nears F.M. 518.
- **County Road 48 (Almeda School Road)** - This major thoroughfare follows the existing road alignment from Beltway 8 to State Highway 6. Al-

though important to local mobility, its contribution to regional mobility will be lessened due to the absence of a grade separated interchange with the Sam Houston Tollway.

East/West

- **McHard Road** - The proposed alignment is being closely studied with regard to existing land use. East of Countryplace, the route generally has been shifted southward to avoid Brookside and better serve Pearland.
- **Oiler Boulevard / Bailey Road** - Regional thoroughfare plans dating back to the 1980’s have shown Bailey Road extending west across State Highway 288 and tying into Sycamore Street at F.M. 521. However, the one mile section on either side of S.H. 288 is within the jurisdiction of Manvel, and TxDOT’s current plans show no grade separation at the freeway intersection.
- **Dixie Farm Road/Massey Ranch Road** - Connecting these two roadways will someday be vital to improving mobility within the southern reaches of the Planning Area. An overpass at the Santa Fe Railroad is also proposed. The Dixie Farm Road alignment west of the railroad will require special attention with regard to existing petrochemical pipelines. Regional thoroughfare plans for years have shown Massey Ranch Road intersecting State Highway 288 and connecting to Post Road west of the freeway. However, most of this route is within Manvel’s jurisdiction.
- **F.M. 2351/Hastings Cannon Road** - The existing alignment of F.M. 2351 includes two sharp turns as it nears S.H. 35. The intersection with S.H. 35 is about 1,300 feet south of the

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Hastings Cannon Road intersection. Once the Hastings oil and gas field plays out and urban uses develop, every effort should be made to directly align the two roads.

ther side of S.H. 288, the alignment straddles the Pearland/Manvel boundary. As discussed under “Street Naming”, simplifying the multiple names of this thoroughfare would be beneficial.

As noted above, access from S.H. 288 to southern portions of the Pearland Planning Area is contingent on alignment and construction of several thoroughfares wholly or partly within the City of Manvel’s jurisdiction. Thus, it is important that good communication be maintained between the two cities to ensure adequate regional mobility for both.

Secondary Thoroughfares

This street classification is new to Pearland’s thoroughfare plans. It provides an intermediate step between a major collector street and a major thoroughfare. Secondary thoroughfares are recommended in a number of locations, especially where acquisition of right-of-way for a major thoroughfare is impractical.

Special attention should be given to the following proposed secondary thoroughfares:

- **Mykawa Road / Veterans Drive** - Linking up these two existing streets will greatly improve mobility just west of the Santa Fe Railroad. The connection, to occur south of F.M. 518, will require a reverse curve at Walnut and careful attention to existing land use and land ownership patterns.
- **John Lizer Road / Magnolia Road / Southfork Boulevard/Dallas Road** - This thoroughfare, south of F.M. 518, will connect several existing roads and extend from Pearland Parkway to F.M. 521 on the far west side. On ei-

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Major Collector Streets

- **Barry Rose Road/Hughes Road** - With the realignment of Pearland Parkway, Barry Rose Road could connect to Hughes Road, a City of Houston major thoroughfare, subject to the proposed transportation study for northeast Pearland. Barry Rose can readily serve as a highly used collector street since no existing homes face the street. Any new homes built adjacent to Barry Rose also should not face the street.
- **Yost Road/Scarsdale Road** - The extension of Yost Road across Clear Creek may be needed to provide a second point of access, especially for emergency vehicles, to residential areas east of the creek. Previous thoroughfare plans have shown the two roads directly connecting, raising concerns about cut-through traffic. The alignment and possible connection of these two roads will be addressed in the proposed transportation study for northeast Pearland.
- **Orange Street** - Past thoroughfare plans have shown this street extending westward, directly connecting with Hughes Ranch Road within an existing residential neighborhood west of O'Day Road. Residents here and along other portions of Orange Street would have been impacted by cross-town traffic. The new, discontinuous alignment encourages cross-town drivers to use McHard to the north or F.M. 518 to the south.
- **Old Alvin Road (south of F.M. 518)** - This collector street currently intersects John Lizer Road just 300 feet east of State Highway 35. The close proximity of the two intersections is impacting traffic flow especially during peak period travel times. The Thoroughfare Plan recommends Old Alvin Road be curved southwesterly to intersect S.H. 35 about 800 feet north of the John Lizer intersection. The existing pavement within Old Alvin Road south of the new curve would terminate at a cul-de-sac bulb just north of John Lizer.
- **Walnut Street** - Currently, Walnut Street veers off F.M. 518 right at its intersection with McLean Road. This awkward three-street intersection should be changed by terminating Walnut just east of McLean. An appropriate time for this improvement is when Mykawa Road and Veterans Drive are aligned.

Minor Collector Streets

- **Rustic Lane** - Currently, a two-lane, uncurbed road, Rustic Lane provides the sole access to Rustic Oaks Elementary School. The proposed extension of Rustic Lane to F.M. 518 is intended to accommodate students within the school's service zone who today must take a circuitous route to school.

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LEVEL OF SERVICE

The service quality of a thoroughfare is the rate of traffic flow relative to the vehicular capacity of the street. This rate is traditionally described as the *level of service* and expressed as a letter value from “A” to “F”. “A” is the best; “F” is the worst. The Level of Service (LOS) is a qualitative measure of traffic congestion representing the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety and driver comfort and convenience.

A street’s capacity, and in turn its level of service, can be effected by a number of roadway conditions including:

- signalized or unsignalized intersections
- mid-block driveways
 - frequency
 - width
 - curb return radii
- lane configuration and width
- street alignment, and radius where curved
- visibility
- curb parking or loading

The acceptable LOS for streets in Pearland and its extraterritorial jurisdiction is “C”. LOS “D” may be acceptable on occasion for a limited period of time. At no time should LOS “E” or “F” be considered satisfactory.

The City should require a traffic impact study of a proposed rezoning which will significantly intensify the land use from that shown on the City’s land use plan. The estimated future traffic volumes and resulting LOS of impacted streets and intersections should be one of the criteria used to evaluate proposed zoning changes.

Depicted herein are the six levels of service.

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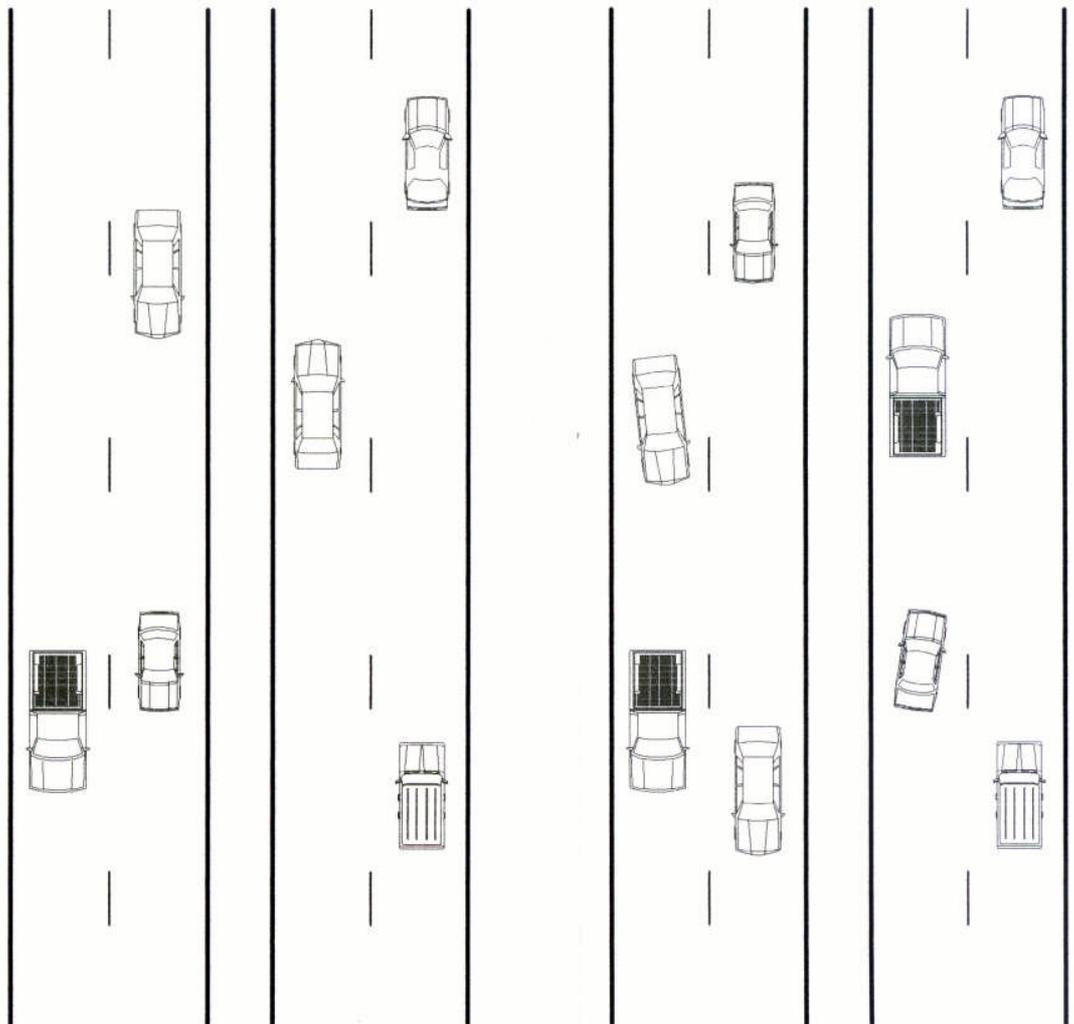
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Level of Service "A"

- highest quality of service a thoroughfare can provide
- free flow condition
- few or no restrictions on speed or maneuverability

Level of Service "B"

- stable traffic flow
- operating speeds begin to be restricted by other traffic
- negligible restrictions on maneuverability



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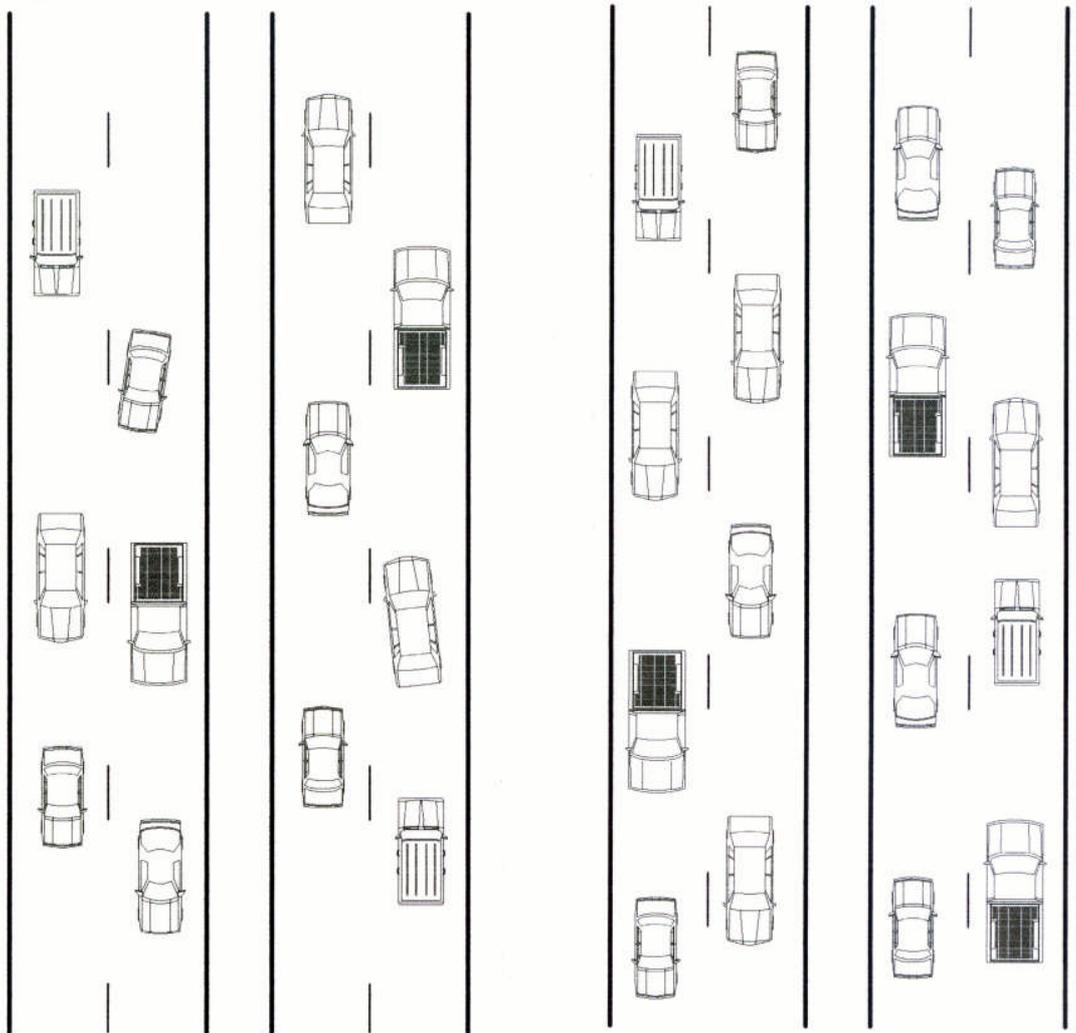
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Level of Service "C"

- stable traffic flow
- drivers become restricted in their freedom to select speed, change lanes or pass other vehicles

Level of Service "D"

- unstable traffic flow
- average operating speeds tolerable but subject to considerable and sudden changes
- freedom to maneuver and driving comfort are low
- considered unsatisfactory by most drivers



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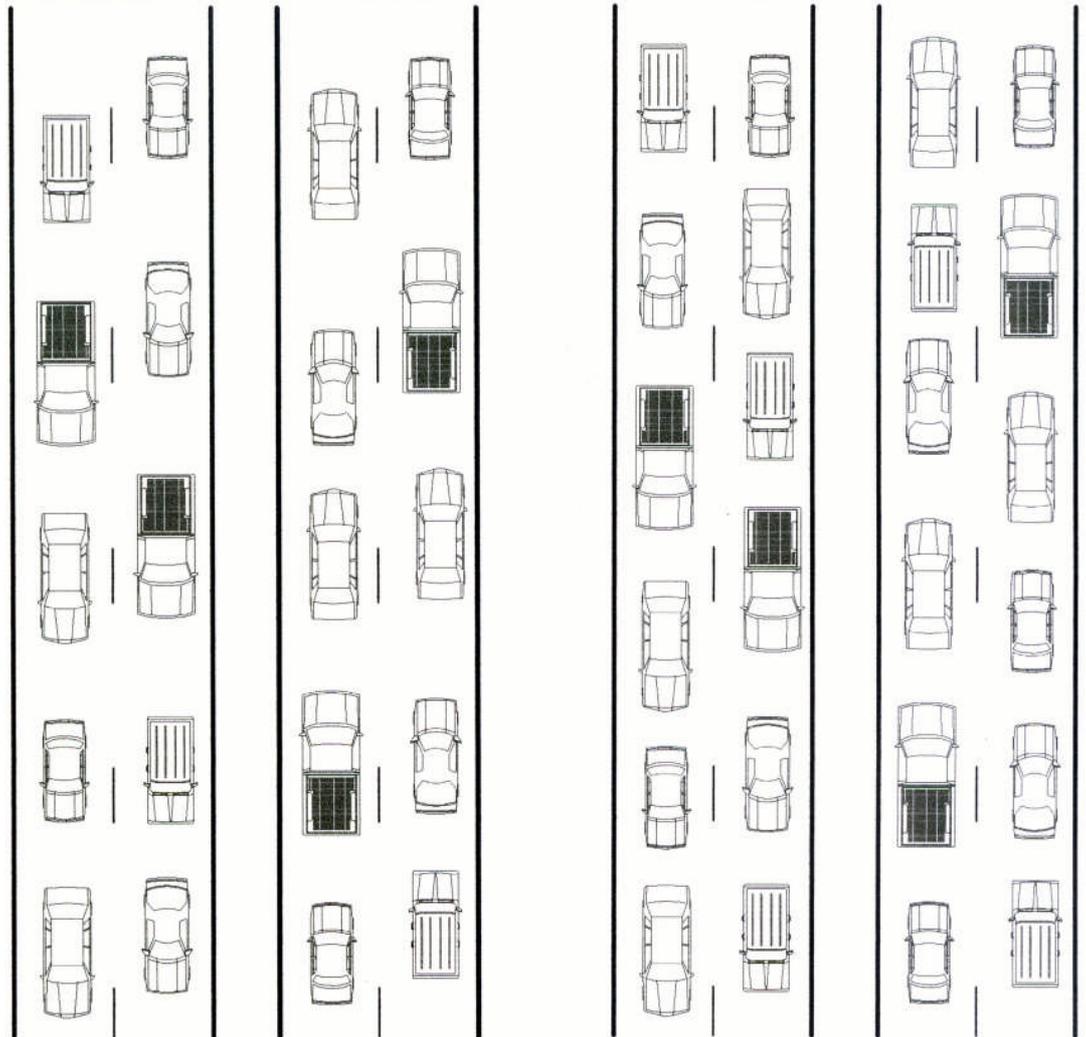
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Level of Service "E"

- unstable traffic operations
- speeds and flow rates fluctuate
- little independence of speed selection or maneuvering
- low driver comfort
- high accident potential

Level of Service "F"

- forced flow conditions
- very low speed and flow rates
- periodic traffic gridlock



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GRADE SEPARATIONS

Using overpasses or underpasses to separate the intersection of one road from another road or from a railroad significantly improves mobility. Locally, overpasses are preferred because of the high water table and drainage challenges associated with underpasses. Grade separations are common at major thoroughfare intersections along controlled access facilities such as State Highway 288 and Beltway 8. In Pearland, grade separations are recommended at most of the major thoroughfare intersections with the Santa Fe Railroad. Because of congestion at the F.M. 518 railroad crossing, the City has already constructed an overpass about a mile to the north as part of a new thoroughfare from State Highway 35 to Mykawa Road. Also, the Texas Department of Transportation plans to extend the Beltway 8 frontage roads over the Santa Fe Railroad.

Grade separated intersections often require more right-of-way in order to accommodate sloped embankments. Overpasses located along existing roads must be carefully planned with regard to access. Existing access to adjacent properties should be maintained and not impaired. At-grade frontage roads or “connector roads” may be required which will further widen the needed right-of-way.

While the construction of grade separations is expensive, the benefits include improved safety and less delays for motorists and emergency vehicles. This is most important at grade separated railroad crossings. Auto/train accidents are avoided and the rail facility can be put to its optimum use. Grade separated intersections also reduce auto emissions and fuel usage.

STREET NAMING

A number of Pearland’s proposed major thoroughfares will link together portions of already existing streets, almost all with different names. The City should minimize multiple names for primary streets as they become continuous. For example, John Lizer Road becomes Magnolia. Eventually, Magnolia will tie into existing Southfork Boulevard within the Silverlake Development. Someday, Southfork will tie into Dallas Road at S.H. 288. Further west, Dallas Road becomes Palmetto Road. Several other major thoroughfares will entail aligning different streets with different names.

Where major thoroughfares from adjacent cities extend into Pearland, the City may prefer to change the name in order to give the street a local identity. One example already proposed is to change Monroe Road to Pearland Parkway as it crosses Beltway 8. This would necessitate changing the exit signs on the Sam Houston Tollway which would give Pearland even greater identify. Cullen Boulevard is a second example of a “Houston” street that perhaps could use a different identity upon entering Pearland.

As the City’s thoroughfare system develops and becomes more continuous, singular street names will become more important. Street name changes confuse both residents and visitors and can hamper emergency response times. Should a continuous thoroughfare remain with more than one name along its route, the change should occur at the City’s edge or at distinct points within the City such as major highway crossings.

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DRIVEWAY DESIGN CONSIDERATIONS

The service quality of a thoroughfare is affected by vehicles entering, exiting, or crossing at intersecting streets and driveways. Thus, it becomes important to regulate vehicle ingress and egress from adjacent developments and cross streets.

Roadway users need to be able to travel on a thoroughfare with relative safety and freedom from undue interference and conflicts. However, adjacent property owners normally have the right to take access from the roadway. Cities, counties, and states having jurisdiction over thoroughfares can alleviate the conflicts by adopting appropriate driveway regulations. The City of Pearland should consider the following with respect to driveway location, design and operation:

- Changes in land use (i.e. rezoning requests) and subdivision platting should not be approved without considering driveway access elements.
- High activity land uses can produce driveway volumes greater than those of most local or collector streets.
- Driveway design elements are directly related to the parking area layout, type of loading facilities, vehicular circulation pattern and building placement within the site.
- Review and approval of both building and driveway permits should be concurrent.
- The left-turn entry movement, in the absence of a separate left-turn lane, generally causes the greatest hazard and street congestion.
- Left-turn exit movements near traffic-controlled street intersections are likely to interfere with traffic movements at the intersection.
- Radii for right turn ingress and egress should be consistent with the design vehicle's sweep path requirements, in order to minimize encroachment onto an inside travel lane. (If radii are inadequate, the entering or exiting vehicle will likely occupy most of the driveway width. This may be acceptable for low-volume driveways.)
- Design elements of a high-volume driveway should be based on expected volumes by directions of arrival and by vehicle types. Elements include location, spacing, sight distance, throat width and depth, radii, angles, grades and sometimes, acceleration and deceleration lanes.
- Street widening in already developed areas may require variations to access regulations.
- Driveway design controls should be expressed as guidelines, subject to administrative variations based on land planning and engineering judgement.

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POLICIES FOR IMPLEMENTING THE THOROUGHFARE PLAN

- Right-of-way dedication pursuant to the Thoroughfare Plan Map should be required at the time of platting or replatting property within the city limit or extraterritorial jurisdiction.
- Orderly extensions and linkages should be required of all streets shown on the Thoroughfare Plan Map.
- Additional collector streets, not shown on the Map, may be required as property is put to use in undeveloped portions of the City.
- A traffic impact study should be required for any rezoning which will significantly intensify land use from that proposed on the Land Use Plan.
- Through-traffic should be avoided within residential neighborhoods by using discontinuous routes, looped streets, and cul-de-sacs.
- Pedestrian and bikeway linkages are encouraged between residential areas and neighborhood office and retail areas.
- Safe, sidewalk routes should be established for children to access parks and elementary schools within the school's respective service zone.
- The Thoroughfare Plan Map should periodically be evaluated, updated, and amended as needed.

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BIKEWAY PLANNING

Bicycling is inherently a local activity, as trip lengths are typically less than five miles. Recreational cyclists will ride longer distances for fun and fitness, but, if a community wants to offer bicycling as a safe and convenient option for personal transportation, it must strive to enhance cyclist mobility through all parts of the community and improve access to local destinations. Most cities try to accommodate bicycle traffic after much of their street infrastructure has been built. As a result, bikeways become relegated to selected routes or perhaps a few retrofitted streets. Opportunities for purposeful trips or recreational travel become limited.

The opportunities to plan and develop bikeways in Pearland are still plentiful. Few major or secondary thoroughfares have been constructed to design standards, and the area's major creek corridors remain largely available for off-street bike travel in a scenic setting. Collector streets developed in accordance with the Thoroughfare Plan provide a natural network of bicycle friendly routes. Pearland has the potential to develop an on- and off-street bikeway system that offers maximum mobility to cyclists of all types and ages. All of the City's streets should be intended for both vehicular and bicycle travel.

User Groups

Nearly 100 million people in the United States own bicycles, according to estimates by the Bicycle Institute of America. The Bicycle Federation of America estimates that less than 5% of bicycle owners

are skilled or experienced riders. In order to accommodate all cyclists, Pearland's bikeways must address the needs of both experienced and novice riders. Three groups of bicyclists are considered herein:

- **Advanced Cyclists**
 - travel under a wide variety of street conditions
 - prefer to ride on the street with traffic and will take the most direct route to their destination
- **Basic Cyclists**
 - average or recreational cyclists who typically avoid bike travel in traffic without special provisions
 - prefer off-road bikeways, separated facilities or bike routes on streets with low speeds and traffic volumes
- **Children Cyclists**
 - use bicycles with monitoring by parents
 - prefer sidewalks, local residential streets or off-road bike paths
 - usually destined for nearby schools, churches, recreation facilities or neighborhood activities

While advanced cyclists may be undeterred by the busiest major thoroughfare, basic and children cyclists require a network of designated bicycle facilities such as bike lanes and bike paths. With greater opportunities for bicycle travel, children cyclists can become basic cyclists and basic cyclists can become advanced cyclists.

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BIKEWAY DESIGN GUIDELINES

All bikeways should meet the minimum standards recommended by the American Association of State Highway and Transportation Officials (AASHTO) in the publication Guide for the Development of Bicycle Facilities, August 1991, or its most current edition. Pavement striping, signage, and signals should be in accordance with the most current Texas version of the Manual on Uniform Traffic Control Devices (MUTCD).

Bikeway Types

Standard types of bikeways include shared roadways, bicycle routes, wide curb lanes as a special case of bicycle routes, shoulder bikeways, bicycle lanes, and bike paths. Types recommended for Pearland include bicycle lanes along major and secondary thoroughfares, off-street bike paths within designated linear parks and parkways, and shared roadways for collector and local streets. Bicycle routes and wide curb lanes may be used on multi-lane streets with limited right-of-way.

- Shared Roadway - Because a bicycle is a vehicle, any roadway, except limited access highways, freeways, and other specifically prohibiting bicycle traffic, may be considered part of the on-road network. Because existing roads typically offer the most direct route to a destination, they tend to be favored by advanced cyclists. Collector streets are suitable for both advanced and basic cyclists. Local streets carrying only neighborhood traffic are suitable for all bicyclists.

Drainage grates throughout the City should be positioned with the metal bars perpendicular to the flow of traffic to ensure that bicycle tires do not become lodged in the grate.

- Bicycle Route - Shared roadways designated as Bike Routes should be signed using standard MUTCD signage. Such designations are used to denote streets that can have significant bicycle usage and are already built to past multi-lane thoroughfare standards.
- Wide Curb Lane - The standard width considered desirable for an outside lane to safely accommodate a bicycle and motor vehicle is 14 feet, with an optimum width of 15 feet. This distance is typically measured from curb face to lane stripe, but the lane should be wide enough to allow safe passage for the cyclist around obstacles such as drainage grates, parking, and longitudinal ridges between paving and curb and gutter. Lanes wider than 15 feet may encourage use by two motor vehicles and are not conducive to safe cycling. A wide right-hand lane of 14 to 15 feet width should be adopted as a standard design section for major and secondary thoroughfares. The current standards for collectors and local residential streets are adequate for bicyclists to coexist with local traffic.

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- **Shoulder Bikeway** - Advanced and basic riders commuting long distances or riding for sport or recreation can safely make use of smooth, paved roadway shoulders, where available. Shoulders should be 6 feet wide as a standard, but may be a minimum of 4 feet wide in severely limited situations. Shoulders should be paved, all-weather surfaces with no ridges, seams, or other obstructions. Shoulder bikeways can be used in rural areas where roads have not yet been developed to urban standards.
- **Bicycle Lane** - Bike lanes are recommended for streets with motor vehicle speeds greater than 35 mph or with traffic volumes (ADT) greater than 10,000 vehicles per day. These are well marked portions of the roadway designated for exclusive use by bicycles. The standard width for a bike lane is 5 feet for one rider. The minimum width is 4 feet, in accordance with AASHTO. Bicycle lanes are depicted in the typical cross-sections for major and secondary thoroughfares presented under “Thoroughfare Standards”.

Bike lanes should be signed and marked with an 8-inch wide stripe in accordance with the Texas MUTCD and AASHTO standards. As vehicles, bicycles must ride with the flow of traffic. Bike lanes, therefore are always one-way and should be clearly marked as such.

- **Bike Path** -A bike path is an off-road bikeway that is physically separated from roadways by open space or a barrier. It may be within the roadway right-of-way, a utility right-of-way or an independent right-of-way. Bike

paths in Pearland are proposed along Clear Creek and most of Mary’ Creek. These facilities are sometimes referred to as bike trails or hike and bike trails. Bike paths should have a 10 foot width where trail traffic of 100 users per hour is anticipated during peak periods. An eight-foot width is acceptable where: 1) bike traffic is expected to be low, even during peak times, 2) pedestrian use is not expected to be frequent, 3) good horizontal and vertical alignment will provide safe and frequent passing opportunities, and 4) the path will not be used by maintenance vehicles that could damage the pavement edges. One-way bike paths are difficult to police and should be avoided, if possible. Where they are used, they should be clearly signed as one-way, with a standard width of 6 feet and a minimum width of 5 feet. Bike paths should have an additional 2 feet of smoothly graded area on either side of the pavement. In addition, there should be 3 feet of horizontal clearance on either side of the pavement and at least 8 feet of vertical clearance (10 feet preferred).

Bike paths should be constructed of smooth, hard, all-weather paving surfaces such as concrete or asphalt. Although more expensive, concrete paths require less maintenance than asphalt paths, which can buckle, crack, and erode quickly, especially along creeks and bayous. Good maintenance is essential on bike paths to eliminate hazardous conditions.

Bike paths that pass in close proximity to a neighborhood or which provide high levels of recreational activity will likely have multiple uses.

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Conflicts between cyclists and skaters, joggers, pedestrians, animals, and other less experienced cyclists can be anticipated.

Curb cuts and ramps for access to bike paths should be provided at all street intersections. Slopes should comply with current requirements of the Americans with Disabilities Act (ADA). Curb cuts should be a minimum of 8 feet wide.

Use of a Y-intersection, with the trail splitting into two one-way sections of narrower width is a good way to transition a bike path to an on-street facility. Proper alignment of the one-way segment with the receiving roadway encourages the mental transition of the cyclist from off-road to on-road behavior. Road crossings should be perpendicular to, and generally close to, the intersection, especially at a signalized intersection of a multi-lane roadway.

Bicycle Parking

Bicycle parking should be provided at all public buildings. Bicycle parking should be encouraged, if not required by ordinance, to complement the system of bike-ways and further encourage cycling. The ordinance can be brief and establish the following objectives:

- Provide a minimum level of bicycle parking equipment and space appropriate to the level and type of activity occurring at a development or business.
- Locate bicycle parking on the site at least as conveniently as the most convenient car parking area.

- Locate bicycle parking in well lit, highly visible areas to minimize theft and vandalism.
- Provide incentives by allowing trade-offs with vehicular parking spaces already required by ordinance.

For example, the City of Dallas has established a bicycle parking regulation applicable to new developments or qualified expansions. Generally, bicycle parking represents less than 2% of the required off-street parking. Short-term and long-term parking needs are differentiated.

Bicycle Parking Equipment

There are two basic types of bicycle parking equipment: bicycle racks and bicycle lockers. Bicycle racks are usually provided where parking needs are short term and some provisions are made for security or surveillance. Lockers are preferred for all-day parking if the location is far from the destination and where a greater level of security is desired.

Bicycle racks most useful are those where the bicycle frame and wheels can be secured to the rack structure. Many rack styles are available, ranging from the basic wheel-engaging school yard type, to the more functional U-shape or ribbon rails, to the “bike traps” with moveable segments to lock the bike in place.

Bicycle lockers are a physical enclosure for the bike, typically in individual compartments. The bike is protected from inclement weather. Lockers are preferred by commuters, especially at park and ride lots. Bicycle lockers typically require a paved structure for mounting and will require more physical space than a fully occupied bike rack of the same capacity.

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RAILROADS

The principal railway serving the Planning Area is the Burlington-Santa Fe line which runs on a northwest/southeast axis west of State Highway 35. Also, a Union Pacific line extends along the east side of F.M. 521 south of Beltway 8 almost to McHard Road. Just north of McHard, F.M. 521 curves and crosses the railroad. From that point south, the railroad parallels the west side of the highway and is within Houston's ETJ.

Enhancing rail service in the City can be achieved in two ways. First, industrial use should continued to be encouraged along the rail corridor in order to provide opportunities for rail service and at the same time provide a buffer from nearby residential uses. Consistent with past comprehensive plans, the current Land Use Plan meets this objective. Second, at-grade vehicular crossings of the railroad should be minimized in order to maximize rail usage for moving trains as well as temporarily parked trains. The Thoroughfare Plan meets this objective by proposing grade-separated crossings at most of the major thoroughfare/railroad intersections.

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AIRPORTS

Clover Field is the largest aviation facility within the Pearland Planning Area. The airport has been the subject of much discussion over the years with regard to future aviation needs of the area. The Houston-Galveston Area Council classifies Clover Field as a “minor” regional system airport providing primarily general aviation service. Clover Field is privately owned and serves mostly recreational and student flyers. As shown on Figure 7.5, the developed site is bounded by Cowart Creek to the west, County Road 130 to the south and County Road 127 to the north and east. Runways include the following:

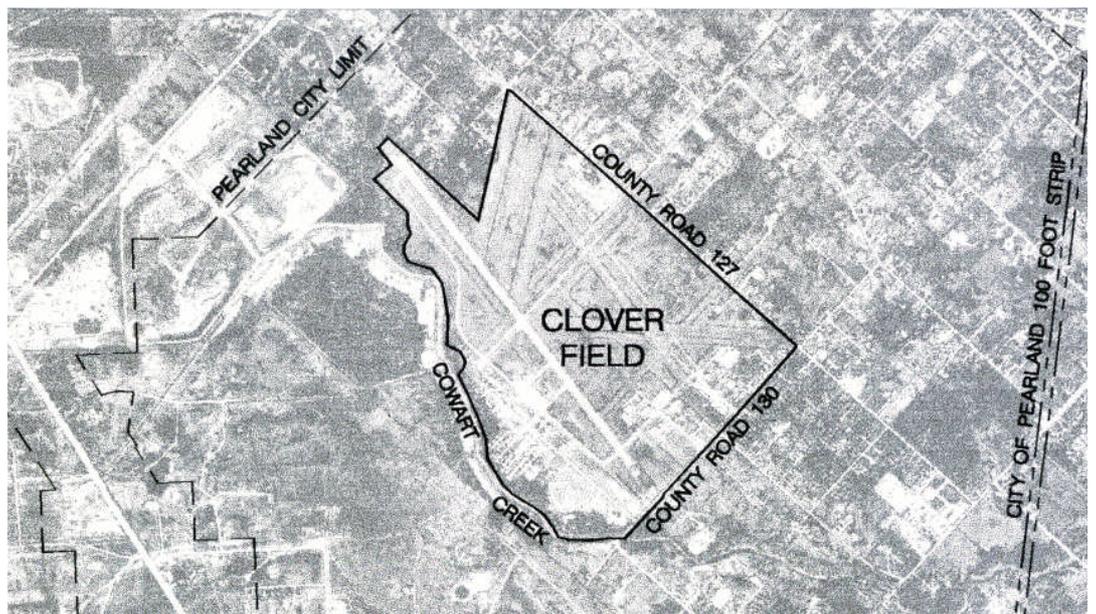
Dimensions	Surface	Axis
4307' x 70'	asphalt paved	NW/SW
3200' x 100'	grassed	E/W
2700' x 90'	grassed	NW/SE
2455' x 100'	grassed	NE/SW

All three grassed runways appear to have limited, if any use. All runway protection zones extend beyond the limits of the property except the western end of the 3200' runway. Existing ground facilities include:

- FAA relay transmitter
- fuel storage area
- water wells
- general aviation terminal
- airplane hangers
- offices
- covered tiedowns
- rotating beacon
- airport/maintenance building

The main facilities are located between Cowart Creek and the paved runway. Primary access is to the south from C.R. 130. Several other airport related facilities and businesses are located along C.R. 130 and

Figure 7.5:
Clover Field
Airport



to the east along C.R. 127.

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Previously completed reports on Clover Field are briefly summarized below:

- Clover Field Airport Feasibility Study - March, 1990.

The cities of Friendswood, Pearland and Alvin contracted, through the City of Friendswood, with Wilbur Smith Associates, Inc., to study possible airport acquisition. The executive summary noted the following:

- Annual economic impact totals approximately \$4.1 million.
- Employment attributable to the airport includes 53 jobs.
- Portions of the airport are situated within the 100 year flood plain.
- Existing underground fuel storage tanks have not yet been brought into compliance with State and Federal regulations for testing and monitoring.

The study concluded that airport acquisition by a public entity was feasible based on projected airport activity and estimated financial performance.

- Draft Master Plan for Clover Field Airport, Friendswood, Texas - August, 1993

This document was prepared for Clover Land Corporation by Coffman Associates, Inc., airport consultants, and was financed in part through a grant from the Department of Transportation/Federal Aviation Administration. (The authors were apparently unaware that the airport site is located within Pearland's ETJ, not Friendswood.) The report presented six alternative development concepts with information on terminal area development, protection zones and projected noise

contours. The master plan proposed that the paved runway be extended from 4307 feet to 5400 feet. The resulting runway protection zones would extend about 500 feet north of Dixie Farm Road and about 1100 feet south of C.R. 130. The plan notes the eventual closure of C.R. 130 near the end of the runway. The 65 decibel noise contour associated with the lengthened runway would extend about 1,600 feet north of Dixie Farm Road and about 1000 feet south of F.M. 2351. (According to the Environmental Protection Agency, a 65 decibel noise level is offensive to approximately 40% of affected individuals and can lead to complaints or threats of legal action.)

- Environmental Assessment for the Acquisition and/or Development of a Public Airport in the Pearland ETJ - March, 1997

This report was prepared for the City of Pearland and the Federal Aviation Administration by Coffman Associates, Inc. The Clover Field site was evaluated as well as a possible alternative site west of State Highway 288 and south of McHard Road. With regard to Clover Field, the study noted that the paved runway provides more than 95% coverage, eliminating the need for a crosswind runway. Clover Field was favorably assessed and recommended for acquisition as a public airport.

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In the summer of 1997, the City Council, after much discussion and substantial citizen input, declined an opportunity to purchase Clover Field. Many residents living near the airport objected to its purchase.

Existing and proposed land use surrounding the airport and within the runway approach zones must be considered with regard to the airport's future. While areas to the west and southwest include industrial uses and the Hastings oil and gas field, areas to the north, east, and southeast are mostly residential with scattered estate-sized lots. A single family subdivision with smaller lots is under development just north of Dixie Farm Road. The existing land use pattern, of course, strongly influences future land use for remaining undeveloped properties. Consequently, the Land Use Plan presented in Section 5 proposes low density residential use east of the airport and industrial use mostly west of the creek.

The airport itself will continue as long as it remains economically viable. Making a successful commitment to foster Clover Field's growth and long term expansion would require designating a sizeable area of nonresidential use around the entirety of the airport in order to support the facility and buffer aviation-related noise. Because nearby areas already include a number of homes, with more under construction, it is apparent that the citizens of Pearland do not wish to make the commitment at this time.

Opportunities to enhance the airport's growth and expansion are still available to the private sector but will become more difficult as areas near Clover Field and beneath the final approach flight paths see more residential growth. Although Clover Field cannot be expected to provide commercial service, its use for general aviation purposes will likely continue for many years.

DRAINAGE AND FLOOD CONTROL

Section 8.0

INTRODUCTION

Adequate drainage of stormwater runoff has long been a challenge for the Pearland area in light of several factors including:

1. Extremely flat topography
2. Periodic intense rainfall from tropical storms and thunderstorms
3. Limited capacities of most existing drainageways

Localized flooding that hinders traffic mobility and threatens residences and businesses has occurred frequently. Many homes were flooded in 1994, 1996 and 1997. The 1994 event, in October, produced a record 24-hour rainfall total of 13.5 inches.

Continued growth and development of Pearland will be greatly influenced by how well existing drainage problems are managed and new problems are avoided. The 1988 Comprehensive Plan Update presented seven recommendations regarding drainage issues. The City has made remarkable progress on many of these issues. Reiterated below are individual recommendations followed by achievements to date.

1. *The City should adopt a policy to require some type of detention in most developments of five acres and above, unless engineering analysis clearly shows that the development will not adversely impact downstream areas.*

The City has enacted a flood control ordinance that prescribes on- or off-site detention requirements for urban development that will increase stormwater runoff.

2. *The City should work with Brazoria County Drainage District No. 4 to develop plans for regionalized detention.*

The City has strongly taken the initiative to acquire and develop regional detention sites. Regional detention will also be fostered by the new flood control ordinance. The Drainage District has completed a Flood Protection Plan, which proposes a series of detention basins along the major drainageways in order to reduce the existing flood plain. Still needed is development of a land acquisition plan to acquire detention sites to mitigate the impact of future land development.

3. *The City should actively pursue the help of other local, county, state, and federal agencies for rectification of the Clear Creek drainage channel.*

The U.S. Army Corps of Engineers in association with the Harris County Flood Control District, Galveston County and other agencies continue to pursue improvement plans to Clear Creek south of Pearland to Clear Lake. Environmental impact issues, however, have delayed implementation.

4. *The City should continue to apply and enforce high drainage standards to the development process, and continue to refine that process.*

The City is continuing to review and revise its drainage design criteria manual and also develop a stormwater utility fee program.

5. *The City should designate a qualified engineer as drainage coordinator to insure that appropriate action is taken to correct inherent drainage problems and that new development plans are consistent with the design criteria.*

Although the City has not specifically hired a “drainage coordinator”, additional engineering, inspection and public works staff have been employed to oversee infrastructure improvements and development such as drainage systems. Outside consultants have also been retained as needed to complete various drainage-related studies and projects.

6. *The city should identify all ditches and culverts under City jurisdiction and establish a priority for correcting those situations found to be inconsistent with drainage criteria.*

This work has been completed as part of a comprehensive citywide drainage study. A summary of the Master Drainage Plan is provided herein.

7. *The City should work with the Drainage District to secure necessary easements with appropriate open spaces for maintenance, and develop compatible multiple-uses of the drainage facilities.*

The Drainage District in their adopted Flood Protection Plan has identified criteria for maintenance easements paralleling drainageway and unobstructed access easements to connect drainage facilities with nearby streets or alleys. The District’s Plan also recommends that ditches and future detention reservoirs be promoted as visual recreational amenities for both the District and the City. The City’s Park Master Plan designates several major drainageways as linear parks with hike and bike trails desired.

EXISTING DRAINAGEWAYS

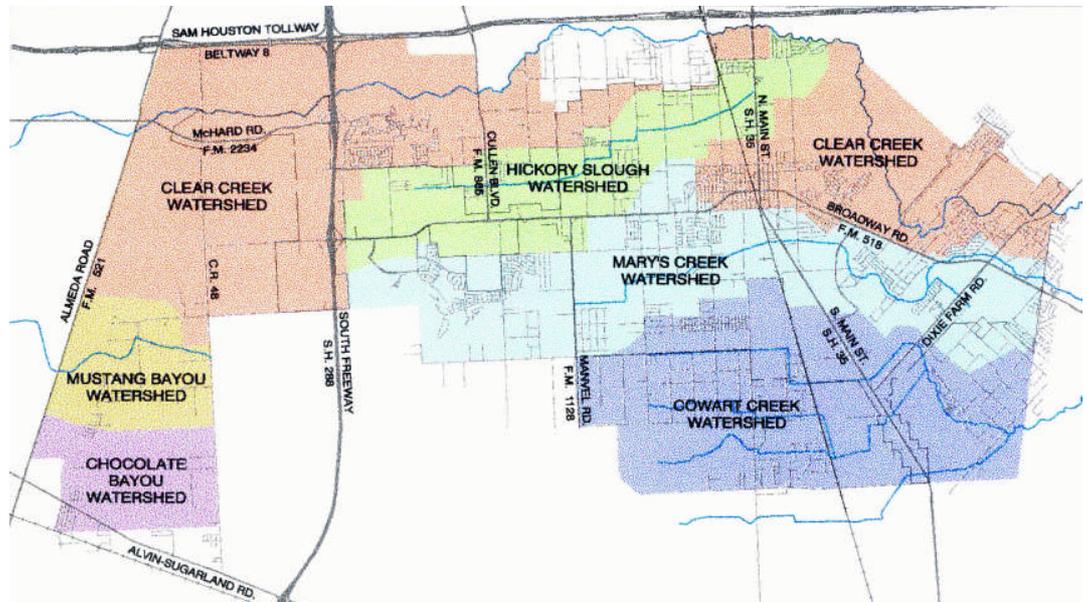
A regional storm drainage system typically consists of two distinct elements – the primary system and the secondary system. The primary drainage system includes major ditches, drainage channels, creeks and their tributaries. The secondary system includes open and closed conduits intended to convey runoff from frequent, low intensity storms to the primary system.

The primary drainage system serving the Pearland Planning Area is comprised of the following major drainageways:

- Clear Creek
- Hickory Slough
- Mary's Creek
- Cowart Creek
- Mustang Bayou
- Chocolate Bayou

Their alignments and attendant watersheds are also shown below in Figure 8.1. (The flood plains along these major drainageways are shown on Figure 3.3, in the discussion on physical factors influencing development.) All six run generally in a west to east direction. Although the watershed of Chocolate Bayou extends into the Planning Area, the channel itself is south of State Highway 6, beyond the limits of the City's ETJ.

Figure 8.1:
Major Watersheds



Hickory Slough, Mary's Creek and Cowart Creek are tributaries of Clear Creek. Hickory Slough merges with Clear Creek in the northeastern part of the City near the David L. Smith Project. Mary's Creek and Cowart Creek converge with Clear Creek south of Pearland in the City of Friendswood. The upper portions of all three tributaries have been largely aligned and established by past agricultural activities. The lower portions of Mary's Creek and Cowart Creek are lined with mature trees.

A small segment of Mustang Bayou crosses the far western portion of the Planning Area. Just east of the Brazoria County line, a manmade channel exists that bypasses the natural channel which loops north of County Road 59 (Dallas Road). The bypass channel is located along the south side of several existing uses including a sand and gravel mining site, the Stevens and Pruett Ranch, and the Flyin' B Airport. Mustang Bayou continues downstream across Manvel and Alvin, eventually emptying into the Gulf of Mexico.

JURISDICTIONAL INFLUENCES

The entirety of the Planning Area located within Brazoria County is also within Brazoria Drainage District No. 4. The district is centered in the northern portion of the County and its boundaries include Pearland and Brookside Village, as well as portions of Manvel and Alvin. Pearland's ETJ within Harris County is subject to the regulations of the Harris County Flood Control District. The far western portion of the Planning Area within Fort Bend County is subject to the rules and regulations of the Fort Bend County Drainage District.

The City of Pearland is responsible for managing flood plain regulations within its corporate limit. The appropriate county agency is responsible for managing flood plain regulations within the City's unincorporated areas as well as securing adequate easements or rights-of-way along major drainageways both inside and outside the City limit. Since most of Pearland is in Brazoria County, Brazoria Drainage District No. 4 will have the largest geographical influence. An exception is Clear Creek which is subject to the jurisdictions of several counties, cities and the U.S. Army Corps of Engineers. To date, the Harris County Flood Control District has been the lead agency on matters regarding the main channel of Clear Creek.

RECENT STUDIES

Flooding events in the mid 1990's coupled with accelerated urban development led to several comprehensive evaluations of existing drainage systems. Two major studies have been completed; one by Brazoria Drainage District No. 4 and the other by the City of Pearland. Following is a review of each study.

Flood Protection Plan for Brazoria Drainage District No. 4

The Drainage District contracted with Rust Lichliter/Jameson in October, 1996 to perform a drainage study of the District and develop a Flood Protection Plan for the area. Five watersheds were examined: Clear Creek Hickory Slough, Mary's Creek, Cowart Creek and Chigger Creek. (The Chigger Creek watershed is located outside the limits of the Pearland Planning Area.) The engineer's work included evaluating the existing watershed conditions and updating previous models. To determine the extent of existing flooding, 5-, 10-, and 100-year frequency floodplains were identified and delineated on City of Pearland topographical maps. The maps have a two-foot contour interval. Areas of overbank channel flooding were analyzed in conjunction with localized flooding areas identified by citizens within the District.

The information was used to develop a recommended plan for each major watershed. The primary goal of the plan is to alleviate existing flooding within the District's boundaries and confine the 100-year floodplains within the banks of the major drainageways. Elements of the recommended plan include channel improvements, regional detention facilities, bridge or structural replacements and channel clean-outs.

The total cost to implement the District's entire Flood Protection Plan is approximately \$53 million dollars. This figure excludes costs for any detention facilities along Clear Creek. Because of insufficient funding, the plan outlines an initial 5-year Capital Improvement Program to complete the highest priority projects at an approximate cost of \$16.5 million dollars.

The Flood Protection Plan was approved and adopted by the District in October, 1997. The final document also outlines changes in drainage and flood plain management criteria for new development or redevelopment.

A copy of the plan is presented herein as Figure 8.2. Briefly summarized below are recommendations for each watershed.

Clear Creek

The U.S. Army Corps of Engineers, in conjunction with the Harris County Flood Control District and other agencies, has developed plans for a channel improvement project from the Brazoria-Galveston County line downstream to Galveston Bay. The proposed plans have been the subject of much public debate with regard to environmental impact. Consequently, the plans may be revised and the time frame for completion lengthened. Pending completion of downstream improvements, alternatives to alleviate flooding in the upper portion of the watershed must not increase downstream flooding. The Flood Protection Plan identifies two alternatives, which can be initiated now:

1. Clean the channel and banks of obstructive vegetation along the entire length of its approximate 16-mile course within the District.
2. Construct detention basin(s) which will detain 100-year flows to about the 10-year frequency level. Approximately 12,000 acre-feet of detention volume would be needed with a surface area of 1000 acres and a depth of 14 feet. (One thousand acres equates to a 1¼-mile square area.)

Hickory Slough

- Widen and deepen the channel from 1,000'± east of State Highway 35 to O'Day Road (150' R.O.W. needed)
- Replace 9 bridges including S.H. 35, Mykawa Road, Hatfield Road, O'Day Road and the railroad.
- Construct the following detention basins

General Location	Detention Volume (acre-feet)	Surface Area (Acres)	Depth (Feet)
Near Hatfield Rd.	1,400	170	9
Near F.M. 865 (Cullen)	1,100	145	8

Mary's Creek

- Widen the bypass channel from west of F.M. 518 to its divergence from the main channel (180' R.O.W. needed)
- Widen and deepen the main channel from just upstream of the bypass channel to S.H. 35 (200' R.O.W. needed)
- Construct a concrete-lined channel from S.H. 35 to the railroad (restricted R.O.W. – 115')
- Widen and deepen the main channel from the railroad to east of Harkey Road (210' R.O.W. needed)
- Widen and deepen the main channel from east of Harkey Road to near Manvel Road (180' R.O.W. needed)
- Replace the following bridges within the Planning area:
 - Long Herridge
 - Liberty Drive
 - Old Alvin Road
 - S.H. 35
 - Railroad
 - McLean Road
 - Harkey Road
- Construct the following detention basins:

General Location	Channel	Detention Volume (acre-feet)	Surface Area (Acres)	Depth (Feet)
F.M. 518	Bypass	1546	130	15
Bypass	Main	911	77	14
McLean	Main	459	48	12
Harkey	Main	649	61	14

Cowart Creek

- Widen and deepen the existing main channel from north of Dixie Farm Road to east of Veterans Drive (110' R.O.W. needed)
- Enlarge the existing ditch along the south side of Westwood Village and Springfield subdivisions (75' R.O.W. needed) to serve as a bypass channel.
- Replace 8 bridges along the main channel including S.H. 35 (TxDOT project) and the railroad
- Replace 3 bridges along the bypass channel including Veterans Drive, McLean Road and Bailey Road
- Construct the following detention basins:

Location	Detention Volume (acre-feet)	Surface Area (Acres)	Depth (Feet)
Confluence of main channel & bypass	520	85	7.0
Downstream of S.H. 35	400	35	15.0

- Widen and deepen a tributary of Cowart Creek extending across the Hastings Field between S.H. 35 and the railroad (100' R.O.W. needed)

City Of Pearland Master Drainage Plan

The City contracted with Rust Lichliter/Jameson in April, 1997 to complete a Master Drainage Plan. The purposes of the Plan were to:

1. Identify areas and causes of localized flooding.
2. Recommend appropriate solutions to the flooding problems.
3. Assist the City in defining projects within the Capital Improvement Plan budget that will decrease the flooding potential.

The planning area used in the study encompassed all of the City's corporate limit and part of its ETJ. The area includes portions of the following watersheds: Clear Creek, Hickory Slough, Town Ditch, Mary's Creek, and Cowart Creek. The scope of work was comprised of the following principal tasks:

- Comprehensive data compilation
- Flooding analysis
- Master drainage plan
- Stormwater utility plan
- Implementation plan
- Cost analysis

Data collection included various types of information: storm sewers, roadside ditches, roadside ditch culverts, collector channels, collector channel culverts, drainage areas, detention basins and flooding. The information was gathered by reviewing existing subdivision and roadway storm sewer plans, conducting extensive field investigations, and researching flooding complaints. Locations of localized flooding problem areas came from four different sources:

- Federal Emergency Management Agency (FEMA) structural flooding claims
- Brazoria Drainage District No. 4 flooding complaint forms
- City of Pearland flooding complaints forms
- Known flooding areas identified by City staff

As part of the flooding analysis, existing storm water conveyance systems were reviewed in detail to determine if each system meets the City's current drainage criteria. A recommendation for improving the hydraulic capacity of the system to bring it up to current standards was then included in the proposed Capital Improvement Program (CIP).

The Master Drainage Plan recommends a variety of drainage system modifications and improvements required to remedy existing inadequacies and identified flooding problems. The Plan includes the following types of projects:

- Enhance an existing storm sewer or add a new storm sewer.
- Replace an existing roadside culvert with a larger diameter pipe.
- Remove silt build-up within existing roadside culverts causing constrictions at entrance and exit points.
- Regrade an existing roadside ditch to improve efficiency; remove and replace culverts within the ditch as needed.
- Clean out a channel, side slopes and bottom, by mowing or cutting down large trees and/or vegetation.
- Improve a channel by excavating to a desired depth and geometry within existing right-of-way or the current high banks.

- Construct a new channel through right-of-way acquisition, excavation and hydromulching.
- Replace an existing collector culvert with a larger diameter pipe.
- Add new inlets in a storm sewer system or expand inlet capacity where storm sewers are adequate but the inlets are inadequate.
- Construct berms or swales where storm water runoff needs to be directed to a storm sewer or collector ditch.
- Construct a concrete/earthen levee around an area to alleviate flooding.
- Elevate existing street pavement where roads will intersect proposed levees.
- Replace an existing bridge with a minimum headloss structure.
- Remove silt from an existing detention pond to restore its original capacity.

Listed below are the total amount of capital improvements recommended in the Master Drainage Plan:

Modification or Improvement	Locations or Linear Footage
Storm sewer	49,073 LF
Roadside culvert replacement	543
Roadside culvert clean out	48
Roadside ditch regrade	39
Channel clean out	3
Channel improvement	5
New channel	3
Collector culvert replacement	23
Inlets	24
Berm/swale	3
Levee	16,206 LF
Pavement adjustment	9
Bridge replacement	2
Detention excavation	1

Figure 8.3 presents the Recommended Master Drainage Plan (Exhibit 4.0 of the drainage study). The Plan maps the areas across the City where drainage system

improvements are needed. Each area represents a watershed, subdivision or street where one or more projects are recommended. Individual projects total more than 110 with estimated total costs of approximately \$22.5 million dollars.

Fully implemented, the Master Drainage Plan will alleviate most of the existing drainage problem areas identified in the data compilation phase and flooding analysis. Any increases in flow due to increased conveyance of the roadside ditches and the storm sewer systems during major storm events have been considered in the Brazoria Drainage District No. 4 study of the major drainageways. Large-scale improvements to the collector channels may increase existing flows in the main channels; however, the City continues to develop regional detention facilities, which should offset impacts from these improvements.

PLANNING CONSIDERATIONS

Stormwater Detention

A key element in flood control is stormwater detention facilities that can detain increased runoff from urban development and/or reduce the size of existing flood plains. In years past and even today, on-site detention has been required for most development projects, especially those of large acreage. Detention has been commonly used to reduce the 100-year frequency peak runoff flowrate outfalling from a developed site to the flowrate leaving the site prior to development or redevelopment.

For several years, the City of Pearland has aggressively pursued the concept of regional detention. The City has already acquired and developed or partly developed regional detention sites within the Clear Creek, Hickory Slough and Mary's Creek watersheds. To further this goal, the City Council, in 1997, passed the first regional detention ordinance of its kind for incorporated Texas municipalities.

Objectives of the ordinance include the following:

- Minimize public and private cost associated with flooding.
- Provide protection to citizens from certain previously uncontrolled actions of others.
- Protect development inside and outside special flood hazard areas from the cumulative effect of development in the City at large.
- Reduce the proliferation of small, local detention ponds.

The ordinance provides for developer purchase of available detention in City-owned detention basins to compensate for

increased water runoff caused by urban development. Under specified conditions, remote replacement detention can be provided at a site other than the site responsible for increasing runoff. The ordinance also controls practices of earth filling and earth excavating on lots and properties that elevate the land above local flooding threats, or direct existing runoff patterns.

Existing and proposed regional detention sites are shown on Figure 8.4. Existing facilities also include sites currently under development. The City has completed two detention basins along Dixie Farm Road at Clear Creek, and more recently, a detention pond at Independence Park near the intersection of Pearland Parkway and John Lizer. Presently under development are three detention ponds at the David L. Smith Project and SouthWest Environmental Center (SWEC). Two additional detention sites have already been purchased – on Clear Creek, west of Mykawa Road and on Mary's Creek, east of Veterans Drive. Future sites are proposed along Cowart Creek near Clover Field and along Mustang Bayou in the far western portion of the Planning Area. The Mustang Bayou site is located in an area with ongoing sand and gravel mining operations. Resulting excavations could someday be reshaped and groomed into one or more detention lakes.

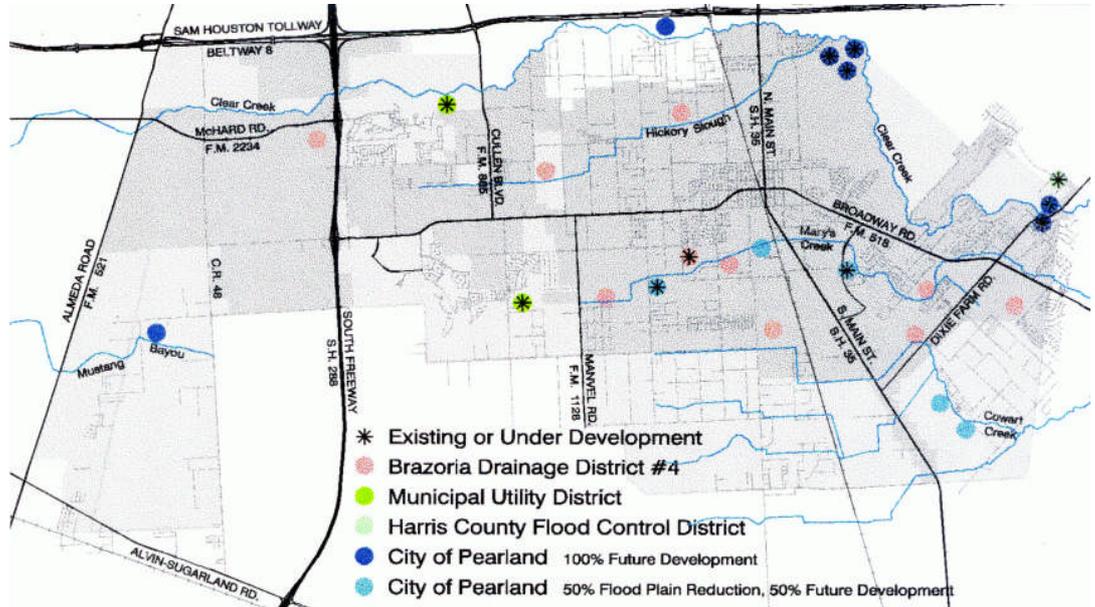
Two types of City detention sites are delineated on Figure 8.4:

1. Sites intended solely to mitigate future development
2. Sites intended to both mitigate future development and reduce existing flood plains (approximately 50% each).

DRAINAGE AND FLOOD CONTROL

Section 8.0

Figure 8.4:
Detention Sites



Also shown on the map are existing and proposed Brazoria Drainage District No. 4 detention sites. The only existing site is at the southeast corner of Fite and Hatfield Roads. Proposed sites are those recommended in the Flood Protection Plan and discussed earlier under Recent Studies. All are intended solely to reduce existing flood plains along major drainageways. Combined, they total over 750 surface acres.

Three other detention facilities are shown on Figure 8.4 in addition to the City and Drainage District sites. One is on Clear Creek west of Cullen Boulevard and exclusively serves the Countryplace and

Southdown residential developments. Further south at the upper end of Mary's Creek is the detention basin serving the Silverlake development. At the far eastern edge of the Planning Area just north of Dixie Farm Road is an approximate 60-acre detention basin owned and maintained by the Harris County Flood Control District. The site is referenced by the District as A-521-01. Encircling the detention basin is a County-maintained hike and bike trail. The site provides detention for upstream neighborhoods within Houston's ETJ.

Aesthetics

Two separate aesthetic issues arise with regard to drainage planning considerations. The first concerns detention sites; the second concerns proposed widening of certain major drainageways.

Detention basins are usually constructed as either dry bottom or wet bottom, the latter having a permanent pool of water. Wet bottom detention generally requires a greater area of land to provide the same acre-feet of capacity as a dry bottom site. Additional excavation is also required to provide adequate pond depth. However, detention basins transformed into ponds offer superior aesthetics and provide recreational amenities. Detention ponds should be encouraged where highly visible and easily accessed. The City of Pearland has taken the lead in providing detention ponds. An excellent example is the lake at Independence Park. Detention ponds will also be a principal feature of the David L. Smith Project.

The other concern regards drainage channel widenings recommended in the Flood Protection Plan adopted by Brazoria Drainage District No. 4. The District has proposed that certain portions of Mary's Creek and Cowart Creek be substantially widened to provide greater capacity and reduce attendant flood plains. Of concern are the existing mature trees that line the banks of these two creeks in their lower reaches. For example, it appears that many of the trees along Mary's Creek in Independence Park would be removed. South of the park, the creek is lined on both sides by wooded residential backyards. Tree protection and/or mitigation should be an important component of any improvement project along an existing tree-lined drainageway.

Coordination With the Parks Master Plan

The Parks Master Plan, presented in Section 6.0, proposed linear parks along selected major drainageways. Linear parks are recommended along Clear Creek, most of Mary's Creek, and portions of Cowart Creek and Mustang Bayou. As noted in the Park Plan, variable width tree masses exist along most of Clear Creek. Along Mary's Creek, tree cover exists downstream from Old Alvin Road. Trees in both corridors greatly enhance use of the creeks as linear parks and must be considered with regard to any major drainageway improvements.

Hike and bike trails are the primary facilities planned within linear parks. In order to provide sufficient room to safely locate trails, the Parks Master Plan (page 6.26) provides standards for linear park acquisition. Additional standards are prescribed for adjacent land development in order to ensure adequate park access and visibility.

In addition to linear parks, the Parks Master Plan proposed a number of neighborhood and community parks alongside Clear Creek, Mary's Creek and Mustang Bayou. These sites are shown on Figure 6.5. Neighborhood parks are intended to have a minimum size of five acres. Community parks should be at least 40 acres in size. Any of these creekside park sites could be expanded to incorporate attractive detention ponds.

SUMMARY

Satisfactory drainage system planning and design will always be influenced by a myriad of policies and ordinances. Listed below is a summary of pertinent documents, most of which have been referenced herein.

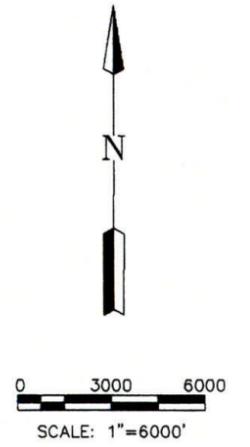
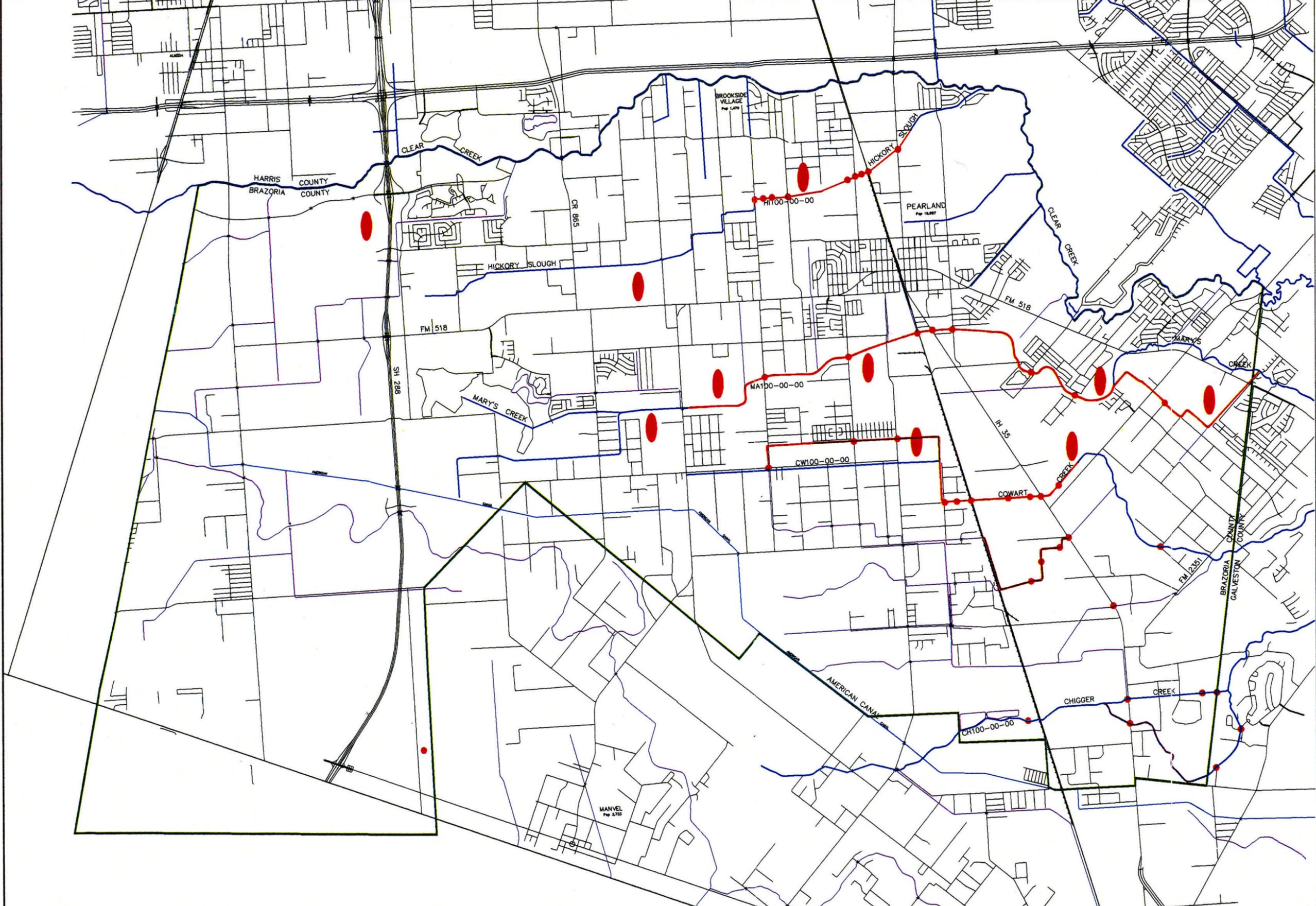
From the City of Pearland:

- Drainage Master Plan
- Design Criteria Manual
- Flood Control Ordinance
- Stormwater Utility Fee Program
- Parks Master Plan

From other agencies:

- Brazoria Drainage District No. 4 Flood Protection Plan (applicable to most of the Pearland Planning Area)
- Design criteria from either:
 - Brazoria Drainage District No. 4
 - Harris County Flood Control District
 - Fort Bend County Drainage District

Figure 8.2



LEGEND

	WATERWAY
	BRAZORIA DRAINAGE DISTRICT NO. 4 BOUNDARY
	CHANNEL IMPROVEMENTS

	CHANNEL CLEAN OUT
	STRUCTURE REPLACEMENTS
	REGIONAL DETENTION FACILITY

DRAWN:	P.B.
DESIGN:	C.W.
CHECKED:	C.W.
PM:	M.J.
SCALE:	1" = 6000'
DATE:	NOVEMBER 1997

FRIST LICHTER/JAMESON
 Environment & Infrastructure
 Consulting Engineers, Scientists and Planners
 2829 Briarpark Drive, Suite 600, Houston, Texas 77042-3205

**BRAZORIA DRAINAGE DISTRICT NO. 4
 FLOOD PROTECTION PLAN PROJECT**

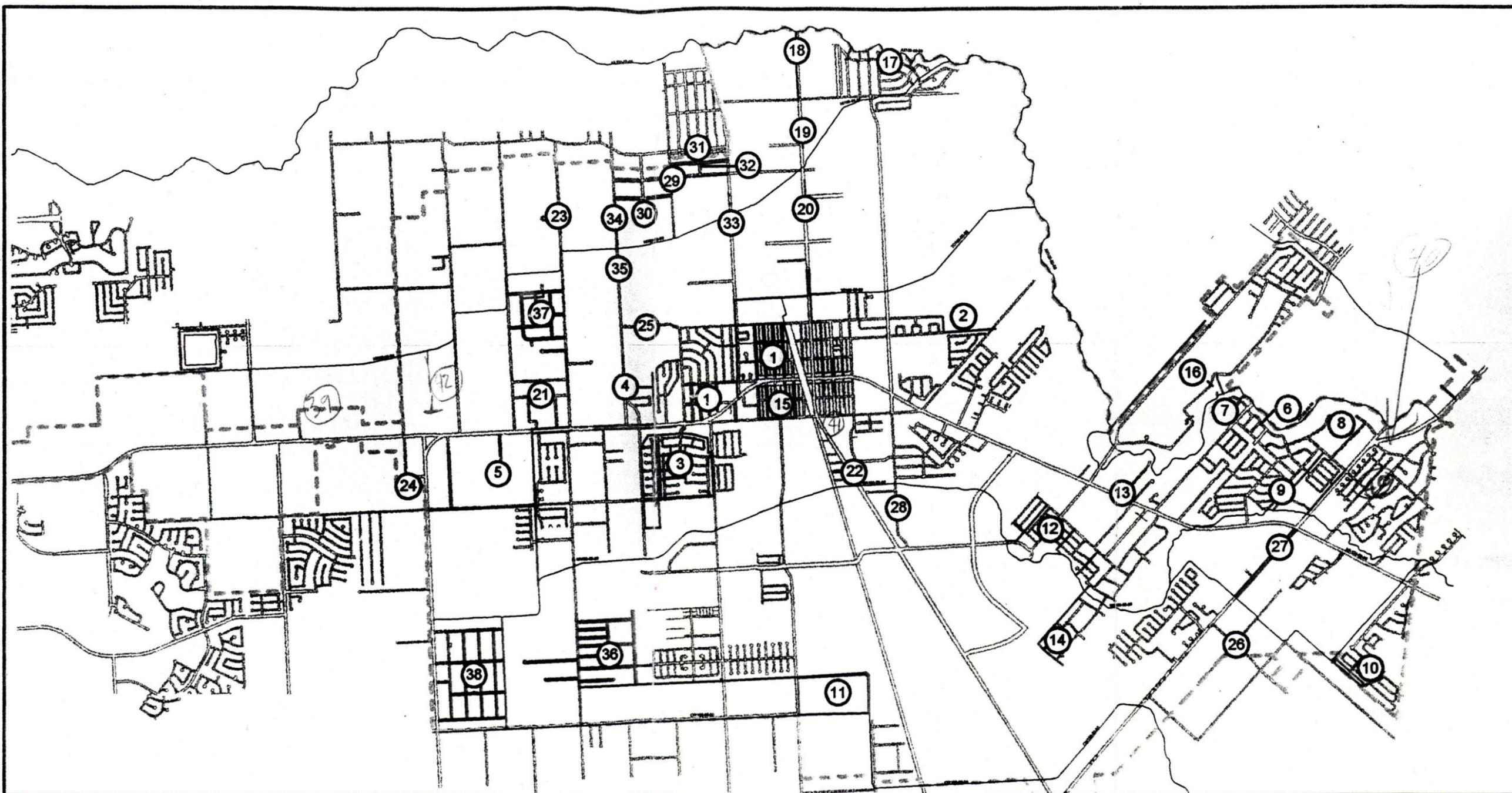
RECOMMENDED FLOOD PROTECTION PLAN

EXHIBIT NO.	4-1
PROJECT NO.	69197

Exhibit 4.0 Recommended Master Drainage Plan



City of Pearland Master Drainage Plan 1997



Right of Way
 Main Channel
 City Limits
 Capital Improvement Plan
 CIP Inlets



0 4000 Feet

- | | | |
|---|--|---------------------------|
| 1. TOWN DITCH WATERSHED | 15. MA158-00-00 WATERSHED | 29. SCOTT STREET |
| 2. AX135-00-00 WATERSHED | 16. GREEN TEE SUBDIVISION | 30. RICE STREET |
| 3. CORRIGAN SUBDIVISION | 17. TWIN CREEK WOODS SUBDIVISION | 31. COMAL STREET |
| 4. MA166-00-00 WATERSHED | 18. AX149-00-00 WATERSHED | 32. PECOS STREET |
| 5. MA178-00-00 WATERSHED | 19. HI106-00-00 WATERSHED | 33. HI112-00-00 WATERSHED |
| 6. AX121-00-00 WATERSHED | 20. HI107-00-00 WATERSHED | 34. HI120-00-00 WATERSHED |
| 7. VAN WINKLE STREET WATERSHED | 21. GARDEN ACRES SUBDIVISION | 35. HI119-00-00 WATERSHED |
| 8. AX119-00-00 WATERSHED | 22. SECOND STREET IN OLD TOWN PEARLAND | 36. COTTONWOOD EDITION |
| 9. MA118-00-00 WATERSHED | 23. O' DAY ROAD | 37. KELLY EDITION |
| 10. SUNSET MEADOWS SUBDIVISION | 24. WESTMINSTER ESTATES | 38. WEST LEA SUBDIVISION |
| 11. WESTWOOD VILLAGE/SPRINGFIELD SUBDIVISIONS | 25. WEST ORANGE STREET | |
| 12. PARKVIEW SUBDIVISION | 26. WEST FIELD/BUCKHOLT ROADS | |
| 13. REGAL OAKS SUBDIVISION | 27. DIXIE FARM ROAD | |
| 14. SHADY CREST SUBDIVISION | 28. OLD ALVIN ROAD | |

39. WESTGATE
 40. RICE WATERSHED
 41. WINDY
 42. ...

Figure 8.3

WATER AND WASTEWATER

Section 9.0

WATER

Existing water supply and distribution facilities have been pushed to their limits in the 1990's because of the City's substantial growth. Facilities have been expanded and improved as a result of the recommendations of the 1988 Comprehensive Plan Update. However, it has remained challenging for the City to keep up with demand due to the extent of residential, commercial and industrial developments in recent years.

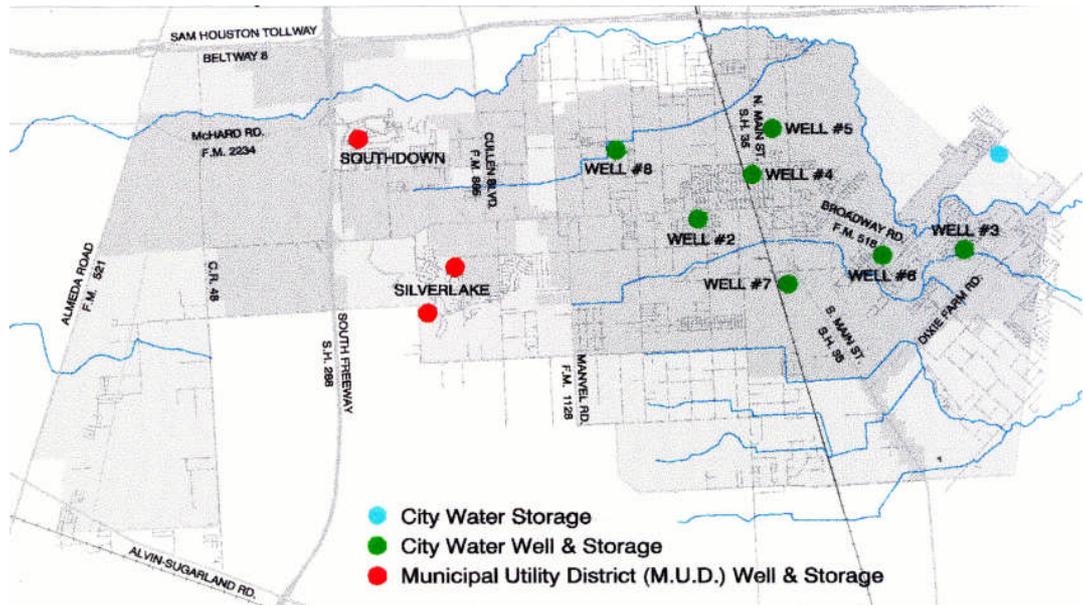
Existing Facilities

Existing water supply and distribution facilities throughout the Planning Area have been inventoried. In addition to the City's facilities, two other public water systems exist in the western portion of the Planning Area outside the City limit but within the City's extraterritorial jurisdiction (ETJ). One system serves the Silverlake (formerly Southwyck) develop-

ment and is comprised of Brazoria County Municipal Utility District (MUD) Nos. 1, 2, 3, and 6. The second system serves the Countryplace and Southdown developments and is comprised of MUD Nos. 4 and 5. These districts have been established independent of the City's water system and at no cost to the City's taxpayers. Neither water system is currently connected to any of Pearland's facilities. The City has approved the design and construction of the districts' facilities, but has no operation or maintenance responsibilities.

Figure 9.1 shows existing City and municipal utility district water supply facilities. Several small private systems also exist in the Planning Area, serving older developments with mostly residential use. Their service zones are shown on Figure 3.13, page 3.15.

Figure 9.1:
Existing Water
Supply Facilities



WATER AND WASTEWATER

Section 9.0

Wells

In 1988 the City had six water wells in production. A seventh well had been added as of 1997. Total system pumpage from these wells is 6,670 gallons per minute (GPM), or more than approximately 9.6 million gallons per day (MGD). In addition to the City's water wells, three wells are operated by the MUD's with a total capacity of 3,000 GPM or 4.32 MGD. Capacities and depths of all ten wells are shown in Table 9.1.

**Table 9.1:
Existing
Water Wells**

Well Location	Normal Capacity (GPM)	Auxilliary Power Capacity (GPM)	Depth (feet)
City			
Liberty Water Plant (Well #6)	1,236	950	1,050
Alice Water Plant (Well #5)	1,218	950	1,000
Magnolia Water Plant (Well #7)	976	750	1,000
McLean Water Plant (Well#2)	632	950	660
Mary's Creek Water Plant (Well #3)	762	0	660
Old City Hall Water Plant (Well #4)	546	0	640
Suburban Gardens Road (Well #8)	1,300	950	1,075
M.U.D.			
Countryplace & Southdown	1,000	1,000	1,000
Silverlake (Well #1)	1,000	1,000	1,000
Silverlake (Well #2)	1,000	0	1,000
	9,670	6,550	

Five of the City's seven wells and two of the three utility district wells have auxiliary power. Diesel or natural gas motors can operate these wells in emergency situations when outside electrical power has been lost. The City's five auxiliary powered water plants can pump 4,550 GPM of water to the distribution system in the event of a power failure.

WATER AND WASTEWATER

Section 9.0

Storage

All ten water plants in the Planning Area have ground storage tanks and booster pumps. Three of the City's plants also have elevated storage tanks. Storage capacities in the City's operating water plants have increased from 3.5 million gallons in 1988 to 4.14 million gallons in 1997. Pumping capacities have more than doubled, from 7,300 GPM to 15,240 GPM.

Total storage and pumping capacities within the Pearland Planning Area are shown in Table 9.2. The City currently has 2,640,000 gallons of ground storage, a combined pumping capacity of 15,245 GPM, and 1,500,000 gallons of elevated storage. The three utility district water plants have 1,600,000 gallons of ground storage and a pumping capacity of 7,640 GPM.

**Table 9.2:
Storage and
Pumping
Capacities**

Water Plant	Ground Storage (Gallons)	Booster Pumps		Elevated Storage (Gallons)
		No.	Capacity (GPM)	
City				
Liberty Water Plant	500,000	3	2,648	500,000
Alice Water Plant	300,000	3	2,228	500,000
Magnolia Water Plant	400,000	3	2,643	---
McLean Water Plant	250,000	2	1,139	500,000
Mary's Creek Water Plant	350,000	2	905	---
Old City Hall Water Plant	200,000	2	1,013	---
Green Tee Water Plant	212,000	2	1,069	---
Garden Road Water Plant	428,000	3	3,600	---
M.U.D.				
Countryplace & Southdown	500,000	2	2,000	---
Southwyck	550,000	2	2,500	---
Silverlake	<u>550,000</u>	2	<u>3,140</u>	---
	4,240,000		22,885	1,500,000

Distribution

Potable water is conveyed to existing service connections through over 100 miles of water lines constructed with bond funds, other public improvement funds, or by private interests as a part of new developments. Line sizes range from two

inches to sixteen inches in diameter. In the last five years, more than 10 miles have been added to the City's water distribution system.

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Water Use

Table 9.3 lists water usage in the City of Pearland for selected years between 1990 and 1997. The report indicates a general increase in total annual water pumping with a decrease in gallons per capita per day. The decrease in total water pumped

from 1996 to 1997 is mainly due to below average rainfall in 1996 and above average rainfall in 1997. The City's water supply and distribution system has continued to expand sufficiently to keep up with the substantial increase in total water usage caused by accelerated urban development.

Table 9.3:
City of Pear-
land
Water Pump-
ing
Report:
1990 - 1997
(Million

Month	1990	1992	1994	1995	1996	1997
January	66.59	83.95	90.08	84.65	92.46	91.24
February	59.71	79.15	81.28	76.76	86.69	91.19
March	69.14	68.96	84.55	89.23	87.17	96.78
April	63.28	81.05	86.08	96.46	108.22	69.60
May	77.73	90.70	94.40	108.90	132.60	80.64
June	108.55	89.73	96.54	107.88	131.42	92.49
July	96.31	100.30	128.39	122.49	141.39	89.57
August	118.94	112.76	102.47	115.85	112.28	131.71
September	92.39	90.86	95.90	128.78	89.59	98.61
October	84.10	107.31	96.75	106.36	95.75	90.79
November	73.55	82.34	87.79	85.33	90.73	87.38
December	78.63	79.54	83.55	88.38	91.29	91.00
Total	988.74	1,082.26	1,132.46	1,209.28	1,270.20	1,083.71
Average Monthly	82.40	90.19	94.37	100.77	105.85	90.31
Population	18,716	20,000	25,000	30,000	32,090	33,610
Gallons per day per person *	146.75	150.31	125.83	111.97	109.95	89.57

*Equals the average monthly quantity (in millions) ÷ 30 days/month ÷ population

WATER AND WASTEWATER

Section 9.0

Planning Criteria

The 1988 Comprehensive Plan Update listed minimum design criteria for waterworks planning. The agencies referenced were the Texas State Board of Insurance, the National Board of Fire Underwriters (now a part of the American Insurance Association), and the Texas Department

of Health for Public Water Systems. For this Plan Update, criteria of the Texas Natural Resource Conservation Commission (TNRCC) for public water systems have been included. Table 9.4 lists the updated planning criteria.

**Table 9.4:
Waterworks
Planning
Criteria**

ELEMENT	CRITERIA
Per Capita Water Usage	
Average Demand	100 gallons/capita/day
Peak Demand	2.0 times average demand
Water Supply	
Wells	0.6 gallons per minute/connection
Booster Pumps	Peak demand plus 1,000 gallons minute
Supply Mains	In duplicate
Storage	
Ground	100 gallons/connection
Elevated	100 gallons/connection
System Pressures	
Normal Demands	35 pounds per square inch (minimum)
Fire Flow Demands	20 pounds per square inch (minimum)
Fire Flow Requirements	
Scattered Residential	500 gallons per minute
Congested Residential	750 gallons per minute
Light Mercantile	1,500 gallons per minute
Principal Mercantile and Industrial	3,000 gallons per minute
Fire Hydrant Spacing	
Residential Areas	500 feet
Mercantile and Industrial Areas	500 feet
Distribution Mains	
Residential Areas	no smaller than 6-inch (looped)
Mercantile and Industrial Areas	no smaller than 6-inch (looped)
Maximum 6-inch Line Length	1,800 feet
Maximum 6-inch Loop Length	3,500 feet
Valve Spacing	
Residential Area	300 feet
Mercantile and Industrial Areas	500 feet
Arterial Mains	1,300 feet
Maximum Connection to Main	
2-inch	10
4-inch	100
6-inch	250

WATER AND WASTEWATER Section 9.0

Projections

Service unit projections for the years 2000, 2010, and 2020 are provided in Table 9.5. The projections have been made by major type of land use and are based on: 1) the anticipated population growth discussed in Section 4.0, and 2) the Land Use Plan presented in Figure 5.1.

**Table 9.5:
Utility Service
Unit Projections,
Pearland
Planning Area**

Type of Development	Service Unit Factor	1997		2000		2010		2020	
		Existing Connections	Equivalent Service Units	Connections	Equivalent Service Units	Connections	Equivalent Service Units	Connections	Equivalent Service Units
Single Family	1	12,624	12,624	15,279	15,279	23,229	23,229	28,804	28,804
Multi Family	0.7	1,790	1,253	2,165	1,515	3,215	2,250	4,140	2,898
Commercial	4.0	510	2,040	556	2,224	708	2,832	860	3,440
Industrial	6.0	6	36	10	60	25	150	35	210
TOTAL		14,930	15,953	18,010	19,078	27,177	28,461	33,839	35,352

This data and the planning criteria provided earlier have then been used to estimate future water use and required capacities for the same base years noted above. Projected water use and capacities are summarized in Table 9.6. Future waterworks needed are substantially more than those presented in the 1988 Update primarily due to the increase in population growth projected through the year 2020.

WATER AND WASTEWATER

Section 9.0

**Table 9.6:
Water Use and
Capacities,
Pearland
Planning Area**

	EXISTING CAPACITIES		REQUIRED CAPACITIES		
	1988	1997	2000	2010	2020
Population	20,200	48,631	58,327	87,127	107,927
Service Units	7,721	15,953	19,078	28,431	35,322
Water Usage					
Total (MGD)	3.09	6.38	7.63	11.37	14.12
Per Capita (GPD)	152	131	130	130	130
Well Capacity (GPM)	4,633	9,670	11,447	17,059	21,193
Ground Storage (Gallons)	772,100	1,595,300	1,907,800	2,843,100	3,532,200
Booster Pumps (GPM)	5,092	9,455	11,111	16,068	19,720
Elevated Storage (Gallons)	772,100	1,500,000	1,907,800	2,843,100	3,532,200

Accordingly, the City will need to plan for the following new facilities by the year 2000:

- Additional water well with 2,000 GPM
- 320,000 gallon ground storage tank with 1,700 GPM booster pumps
- 500,000 gallon elevated storage tank

By the year 2010, the following improvements will be needed:

- Additional water supply of 5,600 GPM
- One million gallon ground storage with 5,000 GPM booster pumps
- One million gallon elevated storage tank

And by the year 2020, the following improvements are anticipated:

- Additional water supply of approximately 4,200 GPM
- 700,000 gallon ground storage tank with 4,000 GPM booster pumps

- 700,000 gallon elevated storage tank
- Existing and projected water facilities for the Planning Area through the year 2020 are shown in Figure 9.2. The water facilities plan also shows available connection points for groundwater delivery from the City of Houston water system and recommends which points should be accessed during the planning period.

WATER AND WASTEWATER

Section 9.0

Capital Improvements Plan

In conjunction with the analysis conducted to comply with State Senate Bill (SB 336), specific improvements were identified for construction by the years 2000 and 2010. These recommended improvements are shown on Figure 9.2. A brief description of each improvement project is provided below.

Year 2000 Water Supply and Storage Improvements

- Purchase a minimum of 20,000 GPM of water from the City of Houston at County Road 48 and Beltway 8 in the northwest corner of the Planning Area, or as an alternative, provide a 2,000 GPM well
- Provide 320,000 gallons of ground storage with booster pumps of 1,700 GPM in the vicinity of County Road 48 and Beltway 8
- Construct a 500,000 gallon elevated storage tank at the existing Suburban Gardens Road water plant
- Connect the existing 12" City of Houston water line in Scarsdale Street with the existing ground storage tank at Green Tee Terrace.

Year 2000 Water Distribution System Improvements

- Alice Road: 2,000'± of 12" line connecting to a 10" on Old Alvin Road
- County Road 48: 15,000'± of 24" line from Beltway 8 to County Road 92
- Dixie Farm Road: 3,000'± of 16" to replace an existing 6" water line
- E.M. 518: 18,000'± of 16" line from Cullen Blvd./F.M. 865 to County Road 48
- Harkey Road: 5,000'± of 16" line south of Fite Road
- Magnolia Road: 2,500'± of 8" line east of Harkey Road
- O'Day Road: 2,000'± of 12" line connecting existing 2-12" lines (north of future McHard Road)
- Suburban Gardens Road: 5,000'± of 12" in two sections connecting the existing water line on Butler Street to a line on the south side of F.M. 518
- Veterans Drive: 1,500'± of 12" line from Springfield Avenue to Bailey Road.

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Year 2010 Water Supply and Storage Improvements

- Additional water supply of 5,600 GPM
- 1,000,000 gallon ground storage with 5,000 GPM booster pumps
- 1,000,000 gallon elevated storage tank
- Connect to the City of Houston water system at delivery point C-1 on S.H. 35, as indicated on Figure 9.2, and at delivery point C-4 on Cullen Boulevard (F.M. 865).
- Construct a 500,000 gallon ground storage tank with 2,500 GPM booster pump at the following general locations:
 - Cullen Blvd. (F.M. 865), north of McHard Road
 - North of F.M. 518, between S.H. 288 and Southwyck Blvd.
 - S.H. 35, near Clear Creek.
- Construct a 500,000 gallon elevated storage tank at the following two locations:
 - County Road 48 at Beltway 8, adjacent to the existing ground storage tank
 - North of F.M. 518, between S.H. 288 and Southwyck Blvd.

Year 2010 Water Distribution System Improvements

- Bailey Road/Oiler Blvd.: 22,000'± of 12" line from Manvel Road to Pearland Parkway, and extending eastward to and along Mary's Creek
- Barry Rose Road: 2,000'± of 12" line to connect the proposed 16" line west of Pearland Parkway
- Cullen Blvd. (F.M. 865): 16,000'± of 24" line from Beltway 8 to F.M. 518
- Hughes Ranch Road and County Road 94: 13,000'± of 12" line from 16" line on Cullen Blvd. to 16" line on F.M. 518 just east of S.H. 288
- Manvel Road: 10,000'± of 12" line from F.M. 518 to Bailey Road
- McHard Road: 3,000'± of 16" line from the proposed 16" line on Pearland Parkway to 10" line on Old Alvin Road to complete a loop in the north central section of the City
- Pearland Parkway: 6,000'± of 16" line north of F.M. 518
- S.H. 35 (Main Street): 6,500'± of 24" line from Beltway 8 to McHard Road

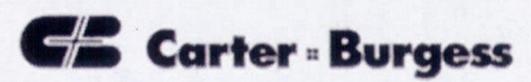


CONCEPTUAL PLAN
SOUTHWEST ENVIRONMENTAL CENTER

City of Pearland, Texas



Scale



Consultants in Engineering, Architecture,
Planning and the Environment

Figure 9.5

COMMUNITY FACILITIES

Section 10.0

INTRODUCTION

A variety of public buildings are needed to house the various governmental functions and services which a municipality provides for its citizens. Most functions can be centralized in a single facility such as City Hall. However, several services, such as fire protection require individual stations strategically located across the city. Pearland's projected growth rate in combination with further annexations will require a considerable investment in order to maintain a high quality of service for every citizen. Service area planning and timely acquisition of future sites for community facilities will be imperative. The Community Facilities Plan, presented in Figure 10.1, includes:

- Libraries
- Municipal center
- Public safety facilities for fire and police protection
- Service centers for Public Works

Also discussed are high-tech conference centers, a new type of community facility, which could be very suitable for Pearland.

COMMUNITY FACILITIES

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LIBRARIES

The Pearland Community Library, a branch of the Brazoria County Library System is located within the Community Center next to City Hall. The library, owned by the City but staffed by Brazoria County employees, also serves outlying areas such as Brookside Village and Manvel. The current facility of only 11,000 square feet is already too small to serve the approximately 55,000 patrons using it. The library will soon be relocated to a new, larger facility within the proposed Civic Center on the north side of Liberty Drive. The new library will have 20,000 square feet which can later be expanded up to 50,000 square feet.

Three additional library sites will be needed to serve the entirety of the Planning Area. The first site is located near Cullen Boulevard and F.M. 518. This facility should be developed within five years. The library could be part of the proposed central public safety center or incorporated as a freestanding building within a retail center. The far northwestern site is located on McHard Road within the Shadow Creek Ranch development. This facility will likely be needed within five to ten years. The far southwestern site, located near Post Road and a proposed north/south secondary thoroughfare, probably will not be needed until well into the next century.

COMMUNITY FACILITIES

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MUNICIPAL CENTER

Pearland's present municipal center was developed in the 1980's and includes the following facilities:

- City Hall - A three story building constructed in 1987.
- Community Center - Constructed in 1983, this one story structure includes several meeting rooms, the Pearland Community Library, and administrative offices of the Parks and Recreation Department.
- Pearland/Hobby Chamber of Commerce - This building was reconstructed from the old depot station and reflects the importance of the railroad in Pearland's history. Behind the building is a restored red caboose.
- City Hall Plaza - Located to the side of City Hall, this recently constructed plaza includes a band gazebo, fountain and outdoor plaza with benches and decorative light fixtures. An artist's rendering of the gazebo is presented below.

*City Hall
Plaza
Gazebo:*



COMMUNITY FACILITIES

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All three buildings are fully used and occupied. Consequently, City officials have initiated plans to extend the Municipal Center northward across Liberty Drive. The expanded site could accommodate many public and semi-public activities including the following:

- City administrative offices and courts
- New, larger community library
- New, larger Chamber of Commerce building
- Remodeling of the existing Chamber building (old depot station) into a museum
- Other community facilities, perhaps for civic groups, semi-public service agencies, or even a repertory theater.

The existing orientation of City Hall creates the opportunity to develop a municipal campus with a park-like outdoor mall, set on an axis from City Hall's main entrance. The landscaped mall could have the same character, on a much smaller scale, of the Mall in Washington D.C. Low rise buildings, all similar in architectural design, would front either side of the mall. Parking would be placed behind and between the buildings. The mall could accommodate a wide variety of outdoor events and activities.

COMMUNITY FACILITIES

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Police

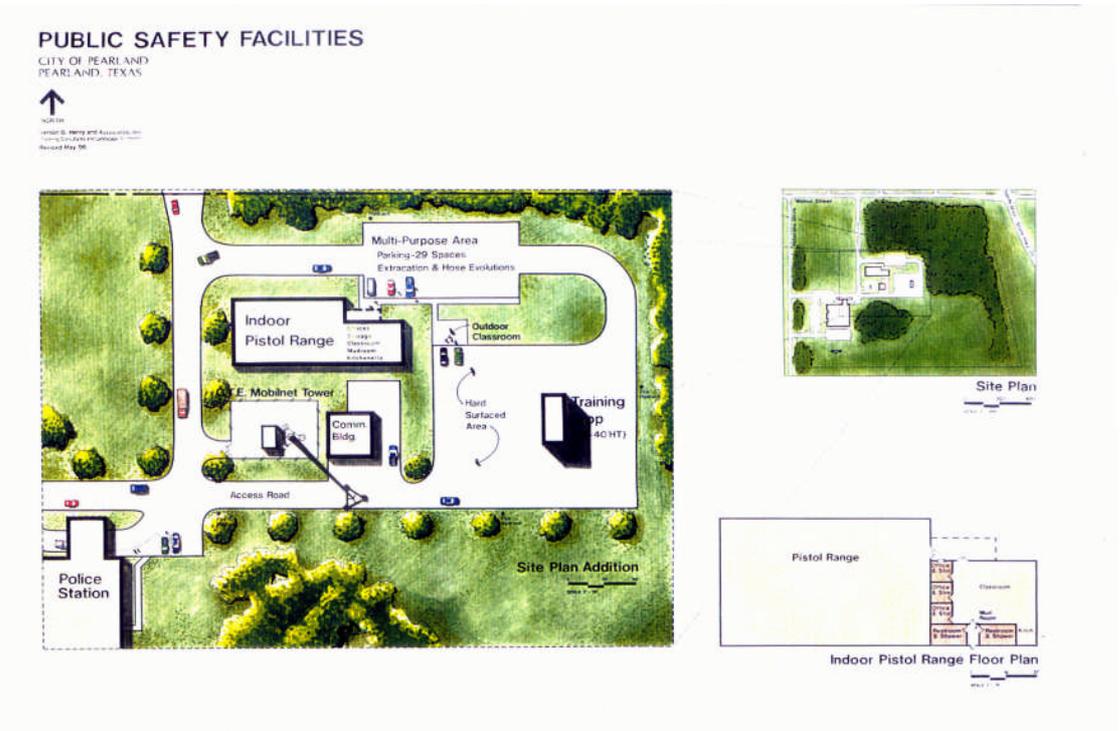
PUBLIC SAFETY FACILITIES

In 1986, the Police Department and Municipal Court moved into the Pearland Public Safety Building on Veterans Drive. (The Court has since relocated to City Hall.) All police personnel are housed at this facility which occupies only the front center portion of the 19 acre tract.

A master plan for public safety training facilities was completed in 1996 for part of the acreage behind the police station. (See Figure 10.3.) Facilities planned for use by police and fire department personnel include:

- Indoor pistol range with offices, classroom, mudroom, kitchenette and storage areas
- Communications building
- Training prop or drill tower (already constructed)
- Outdoor classroom
- Hard surfaced area
- Multi-purpose area other fire department training activities and parking

Figure 10.3:
Training
Facilities
Master Plan



COMMUNITY FACILITIES

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The existing public safety building and training facilities will occupy less than half of the 19 acre site leaving room for expansion. Police operations can continue to be centralized here, or if desired, certain administrative functions could be incorporated into the expanded municipal center in order to conserve use of the remaining land. The emergency command center could also be located at the municipal center in order to be closer to public officials who office nearby.

Concerns have been raised about emergency egress from the police station east across the railroad. Response times have sometimes been impacted by trains blocking street intersections. Also of concern is access and use of the existing station in the event of a nearby train derailment. Consequently, the Community Facilities Plan recommends that the police station proposed near Cullen and F.M. 518 become the central public safety center with the existing facility to become the eastside substation. The public safety center will also include the future central fire station.

Pearland's western growth and the overall configuration of the Planning Area will require a police substation west of S.H. 288 in order to maintain quick response times. A site has already been identified on McHard Road within the Shadow Creek Ranch development and is shown on Figure 10.1.

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Fire

Pearland presently has three fire stations:

- Central Station - Old Alvin Road north of Orange Street at the City Service Center
- Station No. 2 - McClean Road south of F.M. 518
- Station No. 3 - F.M. 518 north of Dixie Farm Road

An additional seven stations are proposed throughout the remainder of the Planning Area based on a 1½ mile service radius. Proposed sites for the new five stations and their respective service radii are shown on the Community Facilities Plan, Figure 10.1. Their general locations are listed below in order of anticipated need.

- New Central Station - Cullen Boulevard north of F.M. 518, as part of a proposed west side public safety facility. (Site acquisition underway.) The existing central station on Old Alvin would then be downsized to a two-bay substation and identified as Station No. 4.
- Station No. 5 - McHard Road, between Kirby Road and County Road 48, within the Shadow Creek Ranch development
- Station No. 6 – Off Beltway 8, just west of S.H. 35, intended to serve the South Belt corridor
- Station No. 7 - County Road 92, between S.H. 288 and Kirby Road
- Station No. 8 - S.H. 35 north of Dixie Farm Road (This site may be needed sooner depending on nearby development activity.)
- Station No. 9 - Harkey Road south of Bailey Road
- Station No. 10 - Post Road at a proposed secondary thoroughfare.

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SERVICE CENTERS

The City Service Center has been located at Old Alvin Road and Orange Street for many years. The five acre site today includes the following facilities:

- Emergency Medical Services
- Central Fire Station
- Public Works building
- Outdoor areas for City equipment, vehicles, maintenance supplies, and material stock piles
- Animal Control Shelter

The Service Center has recently been expanded with the purchase of three acres located to the rear of the site. Although the additional land will accommodate immediate needs, an even larger site will be required in the years to come. The question then arises whether this site should continue to house all of its current functions or whether certain activities should someday be located elsewhere. Upon reviewing the site's location and access with regard to the Future Land Use Plan and Thoroughfare Plan, it becomes apparent that the site's "light industrial" type functions would be better located on a larger tract within an area intended for industrial or commercial use.

Existing land use around the service center includes single family residential to the south and a small business, church and additional homes to the west. The Town Ditch extends along the northern boundary of the property. Areas to the north and east across Old Alvin Road are undeveloped. Homes along Orange Street to the south, face the road and the service center. Based on existing land use patterns, the future Land Use Plan recommends residential development to the

north along Old Alvin Road and eastward to Pearland Parkway. As a result, the service center could become an isolated light industrial use in a predominantly residential area.

An additional concern is the amount of existing head-in parking directly off Orange and Old Alvin. As the area develops and traffic increases, head-in parking on the public street will become more problematic. The existing spaces will have to be removed or replaced with fewer parallel parking spaces. The type and amount of traffic a service center generates must also be considered.

Public Works related activities involving heavy equipment, truck traffic and outdoor storage areas should eventually be relocated to a more appropriate area with suitable access. The Community Facilities Plan recommends that the City's main service center be a component of the multi-purpose site on Cullen Boulevard north of F.M. 518. This site will also include a future library, central fire station and central police station. The Cullen property is centrally located to the entire Pearland Planning Area. The Old Alvin Road facility could continue to house public works functions that are compatible with adjacent land use.

Even with future development of a new public works service center, the City's continued western expansion will necessitate a third site in order to reduce travel times for personnel and equipment. The facility should be located within or immediately adjacent to an industrial or commercial area. The Community Facilities Plan recommends a site near F.M. 521 south of County Road 92.

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HIGH-TECH CONFERENCE CENTER

Cities and other public or semi-public agencies have wisely invested in public assembly facilities to foster economic development. Currently, the Clear Lake Area Economic Development Foundation is pursuing plans to locate and develop a convention center with nearby hotel(s) and amenities. Several cities and property owners are vying for the proposed facility. While many communities have developed a variety of convention centers, exhibition halls and civic centers, not all have lived up to expectations in terms of economic impact. A high profile example regionally is the George R. Brown Convention Center in downtown Houston on a relatively isolated site. Recently, the City of Houston has embarked on a complex public/private venture to develop a nearby hotel which should increase usage of the center.

Meanwhile, other communities have carefully analyzed their market potential and customized their group meeting facilities to meet specific needs. An emerging niche in several areas of the United State is the market for high-tech conference centers. The demand is increasing for sophisticated meeting facilities that can accommodate 50-250 people with the latest computer technology, satellite uplinks and video conferencing capability. High-tech conference centers can:

- Anchor downtown mixed use developments
- Encourage and expand tourism
- Fill an unserved market niche
- Leverage the development of new hotels
- Recruit and attract industry

- Stimulate development of a destination resort.

Smaller cities and suburban communities can support conference/hotel developments if the competitive situation is right and one of the following conditions is met:

- A major metropolitan area is less than 2 hour's drive.
- A regional airport is no more than 1½ hours away.
- The area has unique, visitation amenities or a retreat-like environment.

By the year 2020, Pearland should include a high-tech conference center. The City already meets the first two conditions and has several opportunities, pursuant to the Comprehensive Plan, to meet the third condition. The center could be located within the David L. Smith Project, the Town Center, or near Clear Creek within the State Highway 288 business park corridor. The Smith Project site offers a scenic retreat-like setting with planned restaurants and recreational opportunities. The Town Center could offer amenities typical of a well developed central business district. The S.H. 288 site could provide an attractive setting with quick access to nearby businesses and convenient access to most of the Houston metropolitan area. Pearland's high-tech conference center should include the following features:

- 25,000 to 75,000 square feet (without an exhibit hall)
- 60% of net space permanently dedicated to single purpose conference meeting usage.
- Meeting rooms with:

COMMUNITY FACILITIES

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- ergonomic chairs
- high quality conference tables
- individual lighting and climate control
- individual audio-visual equipment
- sound insulation
- Skilled conference planning staff
- Business center for copying, faxing, typing, electronic mailing and other last minute services.

A number of governmental entities are currently planning and developing high-tech dedicated conference centers. Locations include Jackson, Mississippi, Spotsylvania County, Virginia (near Richmond and Washington, D.C.), Allentown, Pennsylvania and Roanoke, Virginia. The experiences of these and other communities should be studied as part of the planning initiative in Pearland to develop a high-tech conference center.