

2015

Pearland

COMPREHENSIVE PLAN



SECTION 2

Growth Capacity and Infrastructure



Extensive home construction in recent years lifted the City's population past the 100,000 mark

All indications are that Pearland's growth trajectory of recent years will continue over the next few decades. The community's prime location within the Houston metropolitan area, and the sheer momentum from its rapid population increase and land development activity of recent years, should continue to make Pearland a magnet for commercial investment along with further residential construction. At the same time, Pearland also needs reinvestment and updates to existing properties as the community matures. The City continues to plan for and invest in the public infrastructure and services needed to support further growth, local school districts have likewise added campuses to handle growing enrollment, and the private sector continues to bring quality and affordable new homes to market. New medical, office and especially retail development round out this picture of a vibrant city, along with expanded

Extraterritorial Jurisdiction (ETJ) of Texas Cities

As a Home Rule municipality (greater than 5,000 population and with its own City Charter), Pearland has some authority over a larger unincorporated planning area, beyond its current City limits, which is known in Texas as the “Extraterritorial Jurisdiction,” or ETJ. In Chapter 42 of the Texas Local Government Code, the Texas Legislature declares it to be State policy that ETJs be created around cities so that municipal governments can “promote and protect the general health, safety, and welfare of persons residing in and adjacent to” the City limits.

For cities like Pearland that exceed 100,000 population, the ETJ is defined as the area contiguous to the corporate boundaries of the municipality and within five miles of those boundaries. However, because other cities and their respective ETJs are in close proximity, Pearland has much less of an extraterritorial jurisdiction than its statutory allotment as illustrated in the City-prepared **City Limits and ETJ Map** included in this plan section. This means that, unlike some populous and fast-growing Texas cities that can continue to expand outward, Pearland already knows the ultimate extent of its physical jurisdiction – and is actually already providing some services in the ETJ.

recreational and other amenities offered by both the public and private sectors.

This Comprehensive Plan and other City plans project that Pearland has adequate land remaining in its current incorporated area and extraterritorial jurisdiction (ETJ) to absorb further population increases through the early 2040s. However, looking beyond basic land supply, the purpose of this Comprehensive Plan section is to consider how prepared the City is for continued growth. Such an assessment must start with some fundamental questions:

- How much would our community grow if current trends were to continue?
- How much can our community grow? Do we have adequate utility infrastructure and public service capacity to handle this growth, especially if we are still catching up from some of the growth pressures of recent years?
- To what extent will our community strive to influence, guide or even direct the location

and pace of growth to maximize its benefits and limit the potential downsides of growth, including the financial implications for City government?

- Has our community deployed the various tools and methods available to Texas municipalities for managing growth effectively?

Other sections of this plan address the transportation implications of continued growth (Section 3, Mobility), the anticipated housing demands and new residential areas that growth will bring (Section 4, Housing and Neighborhoods), the potential for greater non-residential investment to bolster the City’s tax base (Section 5, Economic Development), the development pattern that will emerge through further growth (Section 6, Land Use and Character), and the added recreational facilities, green spaces and other amenities that will contribute to long-term livability and a positive community image (Section 7, Parks and Tourism). After outlining the growth assumptions on which this entire plan is based, this plan section focuses specifically on techniques the City of Pearland can use to influence the location, extent, timing and nature of the growth it expects to absorb over the next several decades, both in the City limits and in its extraterritorial jurisdiction (ETJ).

It should be noted that all assumptions in this plan section are based on the Land Use Plan in the Land Use and Character section. The planned future utility infrastructure and storm drainage systems for Pearland, or any extensions to the planned systems, may not be able to support future land use scenarios that vary significantly from the development intensities depicted on the Land Use Plan.

Growth Context

The City initiated this update to the Pearland Comprehensive Plan at a time when the following trends and factors were responsible, in part, for driving the City’s growth, or were clearly having some influence.

Texas and Houston Area Growth. At the time the City was preparing its 1999 Comprehensive Plan update, the State of Texas was approaching the 21 million population mark. By 2013, Texas was estimated to have surpassed the 26 million mark, making it the second highest populated U.S. state after California at 38 million. As Pearland embarked on this current plan update in 2013, both Texas and the Houston area were widely and regularly recognized in the national

media and elsewhere as remarkable engines of economic growth, leading to a renewed population surge after the nationwide recession of 2008-2010. A *Time* magazine cover in October 2013 featured an illustration of the nation as the “United States of Texas,” with the tagline “Why the Lone Star State is America’s Future.” The magazine singled out Texas as the nation’s fastest-growing large state, with three of the top five fastest-growing U.S. cities in Austin, Dallas and Houston. Further, since 2000, one million more people had moved to Texas from other states than had left Texas. Also in 2013 *Forbes* magazine predicted that within 10 years Houston will be known as “America’s next great global city.”

As the entire state was growing by nearly a quarter from 2000 to 2013, the Houston metropolitan area grew by nearly one-third, adding more than 1.3 million new residents (from 4.7 million in Census 2000 to roughly 6.2 million as of the last U.S. Census Bureau estimate in mid-2012). Taking advantage of its location within the fifth-largest metropolitan area in the nation, Pearland grew markedly faster, increasing its population by 170 percent between 2000 and 2013, from 37,640 to an estimated 101,900 residents. The 1999 Comprehensive Plan update had projected that the City’s population would increase by nearly 60,000 persons and be approaching 108,000 in 2020 (based on average annual growth of 2,600). In making this projection, the 1999 plan noted that, “As in the past, Pearland’s growth rate should substantially outpace the rate of growth experienced by the greater Houston area.” The *Pearland Economic and Demographic Profile 2013* highlights that Pearland ultimately recorded the highest growth rate among large cities in the Houston metropolitan area between 2000 and 2013, moving it from the tenth- to the third-largest area city after Houston and Pasadena, and ahead of The Woodlands, League City and Sugar Land.

South Houston and Brazoria Growth. Brazoria County had approximately 243,000 residents as of Census 2000. In the years since the County has added roughly 82,000 persons, growing by about one-third to nearly 325,000 residents according to a U.S. Census Bureau estimate in mid-2012. Pearland has accounted for a good share of this Brazoria growth as the most populated community in the County, and with most of its incorporated territory within the northernmost area of the County.

More generally, the entire south side of Houston has seen an uptick in growth in recent years. This is

CITY COUNCIL NEAR-TERM GOALS

In establishing its 2013-14 Council Goals, Pearland City Council prioritized various items that involve the implications of growth, and related considerations that are most directly linked to this Comprehensive Plan section. Among these are:

- Public Safety, including emphasis on crime prevention initiatives
- Finance, including exploration of all City financial management policies
- Land Use/Annexation Plans, including developing a 3-5 year plan covering all aspects of annexation planning
- Regional Detention, especially to advance the Cullen/FM 518 Regional Pond and Lower Kirby Regional Detention Plan

Additionally, the Council adoption of its near-term goals and priorities noted “a constant pursuit of improving the quality of life for the citizens of Pearland.” This theme carried over as the first item in an updated set of Council Goals disseminated in Spring 2014, which also highlighted these priorities relevant to growth effects:

- Annexation planning
- Creating a Parks Foundation
- Policy on future residential development (e.g., low-density and cluster provisions, high-pressure gas pipelines)
- Small business support related to compatible re-use, redevelopment, and infill development in older areas
- Police vehicle and equipment needs long term
- Capital, equipment and staffing needs for fire suppression and emergency medical services
- Technology tools for traffic congestion reduction
- Ongoing implementation of the *Pearland 20/20 Strategic Plan*
- Evaluation of impact fee levels
- City financial management (e.g., property tax outlook, “pay as you go” versus debt service, expansion of in-city Municipal Utility Districts)
- Cultural entertainment facilities
- Multi-family residential trends and policy

partly due to market dynamics and the availability of land relatively close to central Houston and major employment centers as other suburban areas especially to the north and west have been developed more extensively – to the point of build-out in some directions. Growth drivers for Pearland highlighted later in this section also apply here, including Texas Medical Center expansion and development induced by the Sam Houston Tollway. This development includes recent multi-family and retail activity along the north side of the Tollway corridor and near major intersections such as Cullen and Monroe (north connection to Pearland Parkway), and near the Tollway-SH 288 interchange.

Additionally, the City of Houston has promoted greater investment in the area, in part through a 2002 *Southern Houston Sector Study*. This study by the City of Houston Planning and Development Department focused attention on more than 30,000 acres of land (nearly 50 square miles) within Houston's southern limits that remained largely undeveloped and under-utilized despite significant growth occurring beyond this area in Brazoria and Fort Bend counties. The lack of development interest was partly due to extensive floodplains associated with Sims Bayou and Clear Creek, plus a legacy of oil and gas drilling, landfills and illegal waste dumping in the area. Most needed were investments by the City of Houston in basic infrastructure and services, especially roads to open up access, and water, sewer and drainage improvements. The study recognized that such projects would need to be targeted given the potential cost/benefit and likelihood of generating significant new public revenue. Another

challenge was existing low-income and often blighted neighborhoods and limited retail use in need of revitalization. While the overall study included roughly 117 square miles from Loop 610 south to the Tollway, and from US-90A across to Houston's south and east City limits, it recommended focusing on certain corridors including Cullen Boulevard and Mykawa Road.

Sam Houston Tollway. The opening of the "South Belt" portion of Beltway 8 in the mid-1990s greatly enhanced the accessibility of Pearland within the Houston metropolitan area, further fueling the city's escalating growth. By 2012 the Texas Department of Transportation reported that the Tollway was carrying, at a point just east of Cullen Parkway/FM 865, some 55,000 vehicles per day on average. This traffic count was the second highest along the South Tollway between U.S. 59 and IH 45/Gulf Freeway, after a 58,000 count just east of the Fort Bend County Toll Road. The Harris County Toll Road Authority recently completed a \$118 million expansion of the Tollway between U.S. 59 and SH 288, which began in late 2011. The widening project added two new toll lanes in each direction to the two existing, plus an additional EZ TAG lane at each main-lane toll plaza. Final design is proceeding on a similar \$200 million widening of the southeast Tollway segment between SH 288 and IH 45/Gulf Freeway, with construction expected to begin in 2015. Over the years, the introduction of the Tollway and related traffic growth led to the construction of Pearland Parkway and enhancement of pre-existing north-south entries into the city such as Cullen Boulevard, Main Street/SH 35, and Kirby Drive, as well as the Barry Rose Road connection to Hughes Road.

Texas Medical Center. The Texas Medical Center (TMC) remains the largest medical complex in the world, with more than 50 member institutions occupying a campus of about 1,350 acres. Each day tens of thousands of workers gravitate to TMC, including numerous residents of Pearland, who chose to live in the community for this proximity, among other benefits. TMC is the largest employment node in the Houston metropolitan area, with approximately 106,000 workers reported by TMC in 2011-12, including some 5,000 physicians; 15,000 nurses; and 5,700 researchers – plus 17,500 faculty who support 49,000 students in various life sciences. TMC estimates that about 160,000 people visit the "City of Medicine" on a typical day when also accounting for patients, their visitors and roughly 10,000 volunteers.

Growth Potential of the Entire 288 Corridor

A 2010 study of potential transit extension along the 288 corridor, conducted by the Metropolitan Transit Authority of Harris County (METRO), estimated that the corridor study area had just under 144,000 residents in 2009 and would grow to more than 241,000 by 2035. METRO noted that the entire Houston metropolitan area was projected to grow by just over one-third during this timeframe while the 288 study area would grow by roughly two-thirds under this scenario. The study area encompassed much more territory beyond Pearland, from Wheeler Street in central Houston on the north to SH 6 on the south, but the study further underscored the growth potential of this broader area.

In 2010 TMC's 34.2 million square feet of space alone placed it ahead of the entire downtown business districts in cities such as Dallas, Los Angeles, Denver, Phoenix and Atlanta (and, at some point in 2011, surpassing the approximately 36 million gross square feet in downtown Houston). With the nearly 38 million square feet that was planned through the end of 2014, the TMC campus already ranks as the eighth largest commercial concentration in the United States after the central business districts of Philadelphia and Seattle. TMC projects its ultimate capacity at 59 million square feet, which today would move the specific area of TMC alone to number four nationally, well ahead of San Francisco and behind only New York City, Chicago, Washington, DC, and Boston. Like Pearland, TMC in 1999 also developed a comprehensive plan entitled *Vision for Growth: A 50-Year Master Plan for the Institutions of the Texas Medical Center*, with other specialized plans completed in the interim plus a full Master Plan update in 2006.

Hobby Airport Proximity and Outlook. Among the locational advantages of living in Pearland, many residents cite the proximity of Hobby Airport as another benefit for both business and leisure travel. After more than 80 years of service, Hobby ranks as the 33rd busiest U.S. airport in terms of enplanements, with more than 10 million passengers (one-fifth of the Houston Airport System's 50 million total passengers) flying to 40-plus U.S. destinations during 2012. The airport also supports roughly 4,000 jobs and is a hub for corporate and private aviation. In 2012 the City of Houston Airport System and Southwest Airlines finalized an agreement to seek federal approval for and build a \$100 million, five-gate terminal that will introduce international air service to Hobby. Flights to and from Mexico and Caribbean destinations are expected to begin in 2015.

Population Outlook

Population projections are an important component of a long-range planning process. Population projections help to determine and quantify the demands that will be placed on public facilities and services based on the potential pace and scale of the community's physical growth. Projections reflect local, regional and even national and international trends and offer a basis to prepare for the future. However, forecasting population changes can be challenging, particularly for the long term, because it is often difficult to account for all circumstances that

may arise. Therefore, it will be important for the City to continue its year-to-year monitoring of population and economic growth to account for both short- and longer-term shifts that can influence development activity and trends in the City and larger region.

Demographers also caution that population projections become trickier as the geographic area gets smaller, making city-level population the most difficult to forecast. This is because population change within a city is strongly influenced by less predictable factors such as housing prices, availability of vacant land to develop, and annexation of additional territory, which may already have existing residents and result in an instant increase in the city-wide total.

As in most cities, a variety of population projections are available for Pearland. Also, as in most places, "apples to apples" comparisons can prove difficult. The projections may start from different base years, or differ in their base-year population assumptions. The numbers may also apply to different geographic areas, such as only the City limits, the City limits plus ETJ, or a particular service area (e.g., water service area) that differs from the current or future jurisdiction boundary.

Each year the annual City budget includes population growth assumptions for the next five years. In the 2013-14 budget, the five-year projection for Fiscal Years 2014-2018 assumed continued growth of roughly three percent per year on average. This would put the 2018 population at 120,100, which would be an increase of 29,400 persons (32.4 percent growth) over the decade back to 2009. The budget also indicated 2025 as the point when the current City limits may be approaching build-out.

For the 2010 update of the City's Parks and Recreation Master Plan, various and widely-ranging population growth scenarios for Pearland through 2030 were assessed. The plan was ultimately based on a "middle ground" projection that indicated 193,498 residents in 2030. This was slightly higher but not significantly different from the 2030 projection of 186,050 prepared by the City's Planning Department.

The *Pearland Economic and Demographic Profile 2013* provided population projections through 2040 for the current City limits. The projections also start from a base-year assumption of 97,233 in 2010 relative to 91,252 reported by Census 2010. The projection indicates 48 percent growth over the 30-year period from 2010 to 2040, when the population is shown approaching 144,000 after surpassing 139,800 in

PHENOMENAL GROWTH PHASE

The U.S. Census Bureau recently identified Pearland as the 15th fastest growing community in the nation among cities with 10,000 or more residents in 2000. Pearland's population growth of 142 percent during the 2000s made it the fastest growing city in the Houston metropolitan area and the second fastest growing city in Texas during that decade.

2030. Interestingly, this projection also considers the potential pace of growth, assuming that much of the increase will occur in the first half of the projection period by 2025 – with the largest percentage increase (14.7 percent) occurring in the first five years (111,478 persons by 2015). The rate of growth drops off in each ensuing five-year period, although the lower percentages still apply to an ever-expanding “pie,” resulting in continued strong numerical growth.

In recently updating its Water Master Plan, which focuses on areas that receive water service from the City (versus areas served by others, particularly Municipal Utility Districts in the area), the City estimated its service area population in 2012 as 94,100 persons. A near-term projection for 2015 was 110,400. The next projection was 132,100 in 2022, with this year selected as an anticipated point when annexation activity will pick up. After another 20 years, in 2042, when the water service area is expected to encompass the entire ETJ, the projected build-out population at that point is 224,600.

Finally, in support of its upcoming 2016 Regional Water Plan, the Texas Water Development Board in October 2013 released updated statewide, regional and community-level population projections for 2020 through 2070. As with any such exercise, the Board's projections rely on certain assumptions and are not as customized as local projections in terms of accounting for potential increases in incorporated territory through annexation. With these limitations in mind, as well as the very long-range horizon that water planning requires, the Board projects that Pearland will have just over 115,000 residents in 2020, will pass the 150,000 mark in 2050, and will have just under 175,000 residents in 2070. This would represent 52 percent growth in population over the 50-year timeframe.

It should be noted that the City's newest available population estimate, through December 2014, had the in-City population at 112,300 persons, which already exceeds some of the future-year projections from other sources cited in this section.

BOTTOM LINE

It is wise for cities to think in terms of a range of potential growth rather than an absolute number given the uncertainty of any small-area forecast that extends beyond a few years. As illustrated in **Figure 2.1, Assumed Future Population of City Limits and ETJ**, it is assumed for this Comprehensive Plan that the area within Pearland's current City limits will reach a build-out population in a range from 185,000 to 195,000 persons by 2030 (with the extent of ETJ population at such milestone points dependent on the direction and timing of any annexation activity by the City). Additionally, it is assumed that the combined area within the City limits and ETJ will reach a build-out population of just under 225,000 persons by 2042. These assumptions are based on:

- The City's population estimate from early 2014 of approximately 106,500 persons within the City limits and 26,900 in the ETJ, for a combined total of 133,400.
- Using 190,000 for the City limits as an approximate midpoint between a 2030 projection of 193,498 in the 2010 Parks and Recreation Master Plan and a City-produced projection at that time of 186,050, along with the stated assumption in recent annual City budget documents that the community will be approaching build-out in about 2025.
- Adapting the assumption above from the City's water master planning that the combined City limits and ETJ will reach build-out soon after 2040, with a projected maximum population of roughly 225,000 persons.

These build-out assumptions would mean the addition of just over 80,000 more residents within the current City limits over the next couple of decades. Additionally, this would mean that the combined City plus ETJ population (133,400 in early 2014) would increase by just over another two-thirds, or another 91,600 persons, over roughly the next 25 years.

Soon after the projections above were compiled, the Houston-Galveston Area Council (H-GAC) released new regional population and employment forecasts

through 2040 in support of its 2040 Regional Transportation Plan (RTP) update. While the Mobility section of this Comprehensive Plan cites some data from the prior 2035 RTP, no 2040 H-GAC data is reflected in this plan or factored into its population projections or the infrastructure and land use planning in other sections. This is advantageous as the City has found that, given the extent to which Pearland’s immense growth has outpaced the region-wide trend, H-GAC data has tended not to be a true representation of Pearland’s actual or projected future population (although more recent H-GAC numbers appear to be more in line with City numbers).

Since 2004 the City has maintained and frequently updated its own customized population estimates and projections based on residential building permits issued, persons per household findings from Pearland ISD demographic studies, and expected future construction of single- and multi-family dwellings based on land entitlements. The City routinely monitors its own figures and those produced by H-GAC, the U.S. Census Bureau, and others. This Comprehensive Plan and other key City plans and studies (e.g., the 2013 update of the City’s Water and Wastewater Impact Fee Report) rely on the more refined and localized estimates and projections the City is able to produce.

Legacy of Past Long-Range Planning

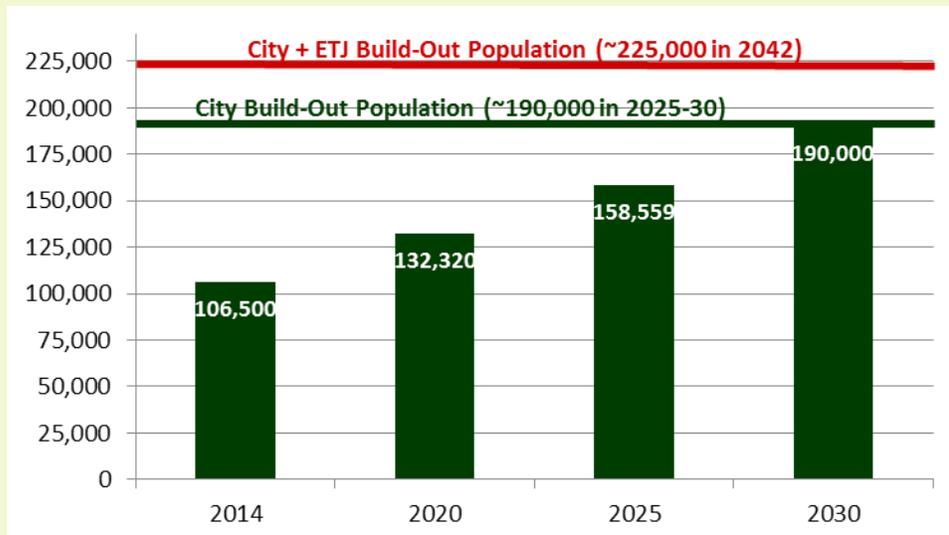
The “20/20 Vision Statement” from the City’s 1999 Comprehensive Plan update – which is still featured today on the City’s website – set out a marker that Pearland would be “identified as one of the most livable places in the United States in 2020.” With regard to promoting and planning for the community’s growth, other relevant assertions about desired conditions in 2020 include:

- Pearland offers a vigorous, diversified economy solidly based upon a pro-growth business environment.
- 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.

A common theme across the 1999 plan sections addressing Drainage and Flood Control, Water and Wastewater, and Community Facilities involved the “challenges” and “struggles” of the City to plan for and make necessary improvements amid rapid growth. The City’s westward growth trend was a further challenge, along with the area’s natural constraints (e.g., extremely flat landscape, periodic intense rainfall and tropical storms, limited capacities

FIGURE 2.1, Assumed Future Population of City and ETJ

Source: City of Pearland Planning Department (2014 estimate, projections through 2030); Water Master Plan (2042 build-out projection)



of most existing waterways, etc.). The plan describes systems “pushed to their limits,” especially during the 1990s, and emphasized that continued growth and development would depend upon ongoing improvement of these essential systems, where the City was, in fact, making significant progress. Particular priorities included:

- Reducing localized flooding through continued focus on regional and on-site storm water detention, inter-agency initiatives (especially regarding Clear Creek flooding), high drainage standards for development and associated fees to fund improvements, prioritization of needed improvements, and coordination of Drainage District easements for maintenance – and also for their potential recreational use and aesthetic benefit.
- Securing additional long-term water supply, plus ongoing water system investments involving additional ground water wells, ground and elevated water storage and associated pumping, and targeted distribution system upgrades.
- Expanding two existing wastewater treatment facilities and constructing two new plants over the next 20 years, especially to address future growth west of SH 288, along with ongoing collection system expansion and upgrades.
- Ongoing coordination with Municipal Utility Districts (MUDs) in the area that had constructed and operated their own water and wastewater systems, including two non-City wastewater treatment plants at that point serving the Country Place/Southdown developments (MUDs 4 and 5) and Silverlake development (MUDs 1, 2, 3 and 6) on the western side of the city.
- Pursuing opportunities to coordinate infrastructure, parks and aesthetic improvements, especially at the 108-acre site of the Southwest Environmental Center (SWEC)¹ along Mary’s Creek (and future Magnolia Boulevard extension), where conceptual plans included one of the City’s new wastewater plants (to be operational by 2000, with capacity to support substantial future growth in the city) plus multiple detention basins and associated recreational amenities and wetlands preservation.

- Upgrading existing community facilities and acquiring sites for future facilities better positioned for expanded service areas and for future annexations (and for better east side emergency access), including site acquisition and initial planning for a new Public Safety Center north of FM 518 along Cullen to house central police, justice, and fire functions, potential east and west police substations, up to six other new fire stations beyond existing locations (to maintain a 1.5-mile service area radius), new training facilities for both police and fire, appropriate siting of public works functions across the community, and additional administrative, public assembly and library space.

The City-prepared **Annexation Ordinances Map** included in this plan section provides a visual depiction of how Pearland’s territorial growth progressed over time, dating back to the original Old Townsite area in 1959, and then accelerating with the significant westward expansion that started in the 1990s. This annexation history is another legacy of the City’s past planning for growth and extension of public infrastructure and services across a much larger geographic area. In Pearland this often occurred in conjunction with the formation of in-city Municipal Utility Districts (MUDs) as an available mechanism in Texas for facilitating necessary infrastructure in conjunction with housing and economic development needs.

Status and Outlook for Utility Infrastructure

This section highlights strategic issues and needs and provides related summary information about the City’s water, wastewater and storm drainage systems. With regard to water and wastewater, more detailed information and maps are available in the most recent update of the City’s Water and Wastewater Impact Fee Report from May 2013. The Impact Fee Report includes specific capital project needs involving the water distribution and wastewater collection systems and elevated water storage and pumping, which go beyond the projects described in this section focused on major source water and wastewater treatment upgrades. The report also provides consolidated information on both water and wastewater planning over a 10-year period, even longer in some cases, and ultimately through a projected build-out point for the Pearland City limits and ETJ in the early 2040s.

¹ Since renamed the John Hargrove Environmental Complex (JHEC).

WATER

The mission of the City’s Public Works Water Production division is to safely provide clean, superior, high quality potable water for the citizens of Pearland, while offering professional and timely customer service. The City continually strives to adopt new methods for delivering the best quality drinking water and remain vigilant in meeting goals of source water protection and development, water conservation, and community education while continuing to serve the needs of all water users.

STRATEGIC ISSUES AND NEEDS

Water supply planning is a key issue statewide and for southeast Texas communities. The City of Pearland’s expected growth over the next 25 years, from an in-City population of approximately 106,500 in early 2014 to ultimate build-out of its City limits and ETJ with a population of approximately 225,000, drives the need for the City to plan for the development of additional treated water sources.

- **Basic Water Supply and Surface Water Conversion.** In recent years, the growing population and economic development of Pearland have led to increasing demands for water supplies. Historic reliance on groundwater supplies in the area has caused subsidence in the Gulf Coast Aquifer. Pearland is in a district

that is being encouraged, but not yet required, to transition from groundwater to surface water to help alleviate the subsidence of the Gulf Coast Aquifer. Additional surface water supplies will be required to meet higher water demands.

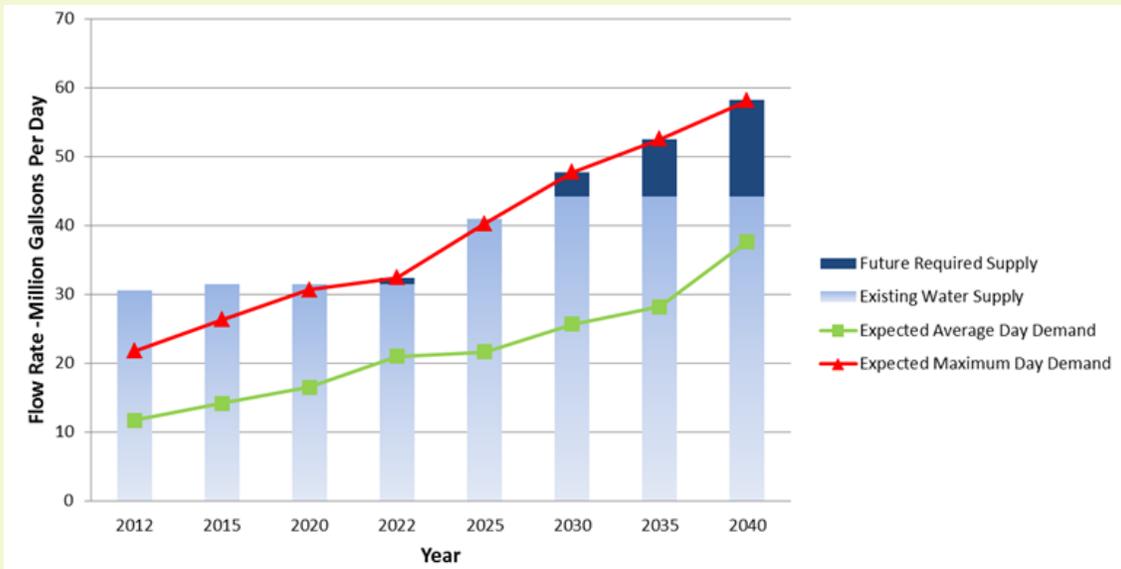
The City of Pearland recently decommissioned the Green Tee surface water connection and the Old City Hall Water and Alice groundwater plants. In addition, the City anticipates City of Houston infrastructure improvements that will allow it to receive its contracted 6 million gallons per day (MGD) of surface water – the amount of its current contract – at the Shadow Creek Water Plant in 2015.

The Texas Commission on Environmental Quality (TCEQ) requires that cities plan to provide 0.6 gallons per minute of source water per connection to the water system. Illustrated in **Figure 2.2, Expected Water Demand Versus Supply Through 2040**, is the City’s expected average day and maximum day water demand, based on anticipated population growth, compared to the existing supply capacity. The existing supply and demand calculation is based on the following assumptions:

- » Pearland is contracted to receive 6 MGD from the City of Houston at Shadow Creek

FIGURE 2.2, Expected Water Demand Versus Supply Through 2040

Source: City of Pearland Public Works Water Production Division





but is only able to rely on a maximum of 2.8 MGD with the current connection on high demand days. The City of Houston will remedy this with a waterline capital improvement project by 2015.

- » The City recently eliminated the existing Alice well, Old City Hall well, and Green Tee surface water connection.
- » All ETJ areas excluding the Savannah development will be added to Pearland's water system by 2025, with Savannah added by 2030.

As shown in Figure 2.2, the City will need to have developed additional source water by 2022 to meet expected maximum day demand. Additional source water can come from two potential projects:

1. increased supply through the Alice connection from the City of Houston; or
2. construction of a new surface water plant.

Both projects were identified through the City's long-term water infrastructure planning and are documented in the most recent update of the City's Water and Wastewater Impact Fee Report from May 2013. Since 14 MGD is needed by the point of City build-out, increasing the capacity of the Alice plant would still require the construction of a new, smaller surface water plant. Additional source water capacity may be implemented at the existing Alice Water Plant or the future surface water plant. However, for optimal operation of the City's water system, and based on the location of the growth in

demand through 2022, the City should plan to implement additional source water capacity by 2022 through the construction of a new surface water plant located in the southwest area of the City.

The required capacity by 2022 is a 5 MGD surface water plant with an ultimate build-out capacity of 10 to 15 MGD depending on the additional capacity obtained at the Alice connection. It is estimated that a 10 MGD facility will be required between 2030 and 2035 if the 5 MGD Alice connection expansion is not complete. Based on the American Water Works Association's industry standard curve of water treatment facility construction costs, the ratio of construction cost for a surface water plant between 5 and 10 MGD is 1.11. There would be an 11 percent economy of scale savings from construction of a 10 MGD facility for operation in 2022 versus construction of a 5 MGD facility for operation in 2022 with an additional 5 MGD expansion at a later date. Therefore, the City should plan to design and construct a 10 MGD surface water plant that can begin operation in 2022. Overall, the required additional future capacity by 2035 is approximately 10 MGD and by 2040 (ultimate City build-out) is an additional 15 MGD.

- **Ongoing Planning and Upgrades to Water System Components.** In addition to source water development projects, the City has water transmission, distribution, and storage projects included in its five-year and longer-range capital planning. Such improvements are also needed given ultimate City plans to extend water service to residential and commercial customers as the City continues to develop and progress toward build-out. The City's current model-based planning, for interim milestone years and ultimate needs, identifies the major water system projects required to take the City to expected build-out of the system while still meeting all TCEQ requirements for source water capacity, pumping capacity, and storage capacity. However, it is important that the City update its water master planning document every five years, or as dictated by the pace of land development activity, to ensure that projects are developed within the required timeframe to accommodate growth-induced demands. The City-prepared **Water Distribution System Map** included in this plan

Pearland Commitment to Capital Investment

Pearland has a well-established record of focusing on utility infrastructure and public facility investments through a robust capital improvements planning (CIP) process. This is especially significant at a time when the “report card” for the nationwide infrastructure status and outlook remains disappointing, as evaluated and scored each year by the American Society of Civil Engineers (ASCE).¹

ASCE issues an annual report and call for action that “depicts the condition and performance of the nation’s infrastructure in the familiar form of a school report card – assigning letter grades that are based on physical condition and needed fiscal investments for improvement.” The 2013 national Report Card assigned a D+ for all forms of U.S. infrastructure, ranging from utility and flood protection infrastructure (drinking water, wastewater, dams and levees) to all forms of transportation infrastructure (roads and bridges, freight rail, aviation, inland waterways, and transit). Both drinking water and wastewater received a D grade. ASCE continues to assign such low grades to draw attention to the ever-increasing scale of the national infrastructure challenge, and to the costs of continued deferral of necessary capital investments at all levels of government. For the nation to reach an acceptable grade by 2020, ASCE estimated necessary investment of \$3.6 trillion starting in 2013.

Even within Texas the City of Pearland excels when considering the last ASCE Report Card issued specifically for the Lone Star State in 2012. At that point Texas received a C- grade for wastewater infrastructure, D for flood control, and D- for water infrastructure. The State of Texas reported \$26 billion in drinking water infrastructure needs over the next 20 years, and \$11.5 billion in needed wastewater investments.

¹ 2013 Report Card for America’s Infrastructure, American Society of Civil Engineers (accessed on 03/21/14 at <http://www.infrastructurereportcard.org/>).

section illustrates the extent of the City’s water system.

As Pearland approaches its build-out population and the need for new water infrastructure decreases, the City will need to turn its attention to developing a plan for investing in the replacement and renewal of existing water infrastructure. Such replacement and renewal is already occurring in older areas of Pearland, but the City will need to develop an overall citywide plan for the future. This is to ensure that future City water customers will enjoy the same level of service experienced by past customers.

WATER SUPPLY

The City’s water customers are fortunate because they enjoy an abundant water supply from three sources. The City draws water from 10 City-owned wells, which tap the Chicot and Evangeline aquifers. The City’s second source is water purchased from the City of Houston, which Pearland receives from two surface water connections. The third source is raw water from the Gulf Coast Water Authority’s American and Briscoe Canal System.

Ground Water

- The 10 City-owned wells have a combined pumping capacity of 13,360 gallons per minute.

Surface Water

- The current surface water contract for the Alice Water Plant is a pay-as-you-go contract for up to 10 million gallons per day.
- The current surface water contract for the Shadow Creek Water Plant is a take-or-pay contract of 40 million gallons per month (1,333,333 gallons per day) with a maximum day capacity of 6 million gallons per day.

Raw Water

- The City recently entered into a long term raw water supply contract with the Gulf Coast Water Authority (GCWA) to purchase up to 10 MGD. This contract arrangement is coupled with the City’s purchase of the former Chocolate Bayou Water Company through the GCWA for an additional 10 MGD. These waters will be used at the City’s future surface water purification plant.

WATER TREATMENT AND STORAGE

- Combined, the City's water treatment facilities provide roughly three billion gallons of clean drinking water every year.
- The City provides continuous production of water to residential and commercial customers, with no current wholesale customers for City water.
- The total available city-wide storage capacity is 19.1 million gallons. This combines the 14.6 million gallons in ground storage and the 4.5 million gallons of available elevated storage.

WATER QUALITY

Water quality is maintained in the distribution system through continuous monitoring of water pressure and disinfectant residual. The Public Works Water Production division also collects hundreds of samples each year to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants as required by the State of Texas. Results of all water quality testing are reported in the City's annual Drinking Water Quality Report. Public water suppliers across the nation must provide these reports to their customers each year as required by the 1996 amendments to the Safe Drinking Water Act.

WATER CONSERVATION

The TCEQ requires cities to adopt water conservation goals based on a water conservation plan. The City of Pearland completed its required water conservation plan in April 2009 and is currently in the process of updating its plan. As part of this plan, the City has developed five-year and 10-year goals for per capita municipal water use. The City's average per capita consumption is approximately 140 gallons per capita per day. The statewide goal is for water consumption to be less than 140 gallons per capita per day. The City's other goals for water conservation include:

- Keep the five-year average water use as of 2014 below 109 gallons per capita per day (five-year goal).
- Keep the five-year average water use as of 2019 below 107 gallons per capita per day (10-year goal).
- Maintain the level of unaccounted water in the system below 10 percent annually.
- Implement and maintain a program of universal

metering and meter replacement and repair.

- Increase efficient water usage through a landscape water management ordinance.
- Decrease waste in lawn irrigation by implementation and enforcement of a landscape water management ordinance.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program.
- Develop a system-specific strategy to conserve water during peak demands, thereby reducing the peak use.
- Delay and decrease capital expenditures required to serve Pearland's future growth.
- Further develop reuse and recycling of wastewater.

Regarding the last goal, the water conservation plan noted that – at that time, 2009 – the City was treating wastewater at four plants with a total combined capacity of 10 MGD. Reuse water was being used for wash down at the treatment plants. It was also noted that the City had developed plans with Brazoria County MUD #4 (encompassing the Country Place subdivision, which has since been annexed into the City) to use effluent for golf course irrigation, and also to irrigate a proposed arboretum/nature center. The City is in the process of setting up an agreement with Brazoria County MUD #4 for reuse water for golf course irrigation. Additionally, the City has two other reuse agreements in place but is not yet supplying reuse water. One agreement would enable industrial customer Third Coast to receive reuse water from the Barry Rose Wastewater Treatment Plant for use in its industrial processes. A second agreement would enable the JHEC Wastewater Treatment Plant to supply reuse water for irrigating recreational grounds located adjacent to the plant.

Additionally, planned expansion of the Far Northwest Wastewater Treatment Plant could lead to reuse that would benefit Shadow Creek Ranch Park as the plant work will include upgrades to the existing disinfection system. However, additional disinfection modifications and distribution infrastructure would be required to implement a reuse system from this plant.

The City also intends to expand the use of "purple pipes" in Pearland, through which potable water can be conveyed and then converted for reuse. In addition to encouraging incorporation of purple

reuse pipes in irrigation plans and systems, the City could potentially require this practice through amendments to the Unified Development Code.

WASTEWATER

The mission of the City's Public Works Wastewater Treatment division is to efficiently and effectively treat wastewater to protect the environment as well as public health, safety and welfare, while ensuring the effluent to the receiving stream meets or exceeds all environmental standards and regulations. The City provides wastewater collection, conveyance, and treatment for parts of the urbanized areas within its City limits and portions of its ETJ in Brazoria, Harris, and Fort Bend counties. At the time of this Comprehensive Plan update, the wastewater service area was approximately 48 square miles, which will change as the City incorporates Municipal Utility Districts or otherwise extends service.

The City currently has five wastewater treatment plants: John Hargrove Environmental Complex (JHEC), Longwood, Barry Rose, Far Northwest, and Southdown. The current permitted total capacity of the plants is 11.55 million gallons per day (MGD). The existing city-wide sanitary sewerage system consists of approximately 408 miles of collection system lines and 76 sanitary sewerage lift stations. The City treats 100 percent of the collected wastewater. The system relies on gravity to move the wastewater to the treatment facilities. When that is not enough, lift stations are used. The effluent produced is currently discharged into Clear Creek and Mary's Creek.

STRATEGIC ISSUES AND NEEDS

Adequate treatment capacity is a principal need in the years ahead given the City's rate of population growth and land development. The wastewater collection system also requires attention, both to extend service to growth areas, and to rehabilitate portions of the system in Pearland's older developed areas.

- **Added Treatment Capacity.** The Texas Commission on Environmental Quality (TCEQ) provides design criteria to be used as minimum guidelines for wastewater collection, treatment, and disposal systems. As part of the permitting requirements, whenever flow measurement for any wastewater treatment plant reaches 75 percent of the permitted average daily or annual average flow for three consecutive months, the permittee must initiate engineering

and financial planning for expansion and/or upgrading of the treatment and/or collection facilities. Whenever the 90 percent threshold is reached for three consecutive months, the permittee must obtain the necessary TCEQ authorization to commence construction of the necessary additional treatment and/or collection facilities.

The Reflection Bay Water Reclamation Facility is currently under design for a 4 MGD expansion. Because of rapid growth in the western portion of the city, this facility exceeded its permitted capacity in September 2014. The expansion is expected to be complete and operational between the Spring and Summer of 2018.

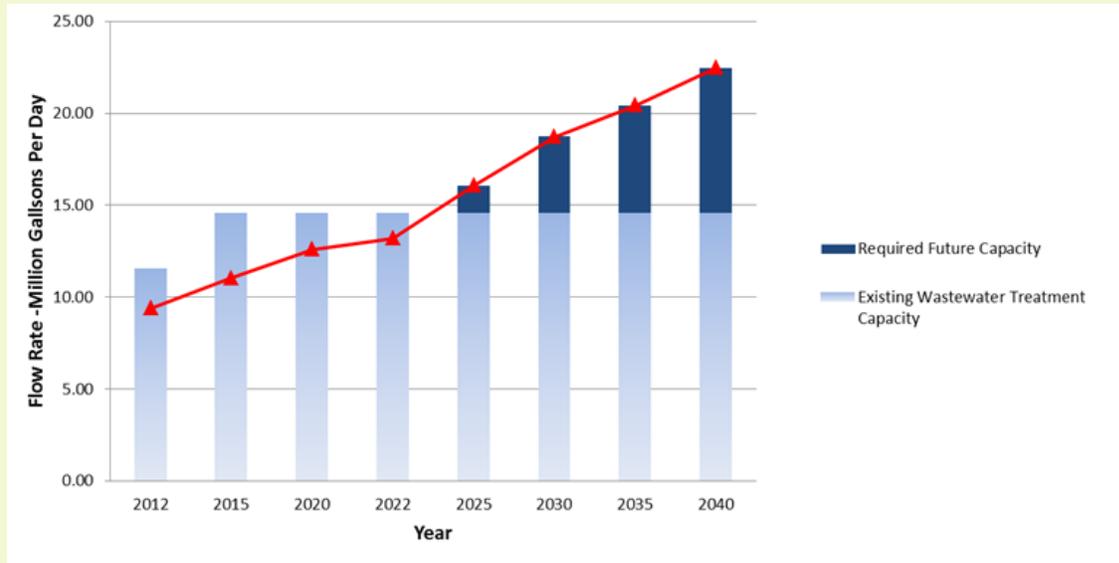
The Longwood Reclamation Facility is also approaching the limits of its capacity. Plans are in progress to redirect the flows from Longwood to both the Barry Rose and John Hargrove reclamation facilities. Portions of this project are currently under way with an anticipated decommissioning of the facility scheduled in approximately 2025.

Illustrated in **Figure 2.3, *Expected Wastewater Flow Versus Treatment Capacity Through 2040***, is the City's expected average day wastewater flow, based on anticipated population growth, compared to the existing wastewater treatment capacity. The existing capacity and projected flow calculation is based on the assumption that the Far Northwest Plant expansion currently under design will provide a treatment capacity increase of 4 MGD and the average wastewater flow rate per person is 100 gallons per day.

As shown in Figure 2.3, the City will need to have additional treatment capacity projects under design before 2025, in addition to the current Far Northwest Plant expansion project, for the additional capacity to be operational by the required timeframe. The City requires an additional 2 MGD operational by 2025, 5 MGD by 2030, 6 MGD by 2035, and an ultimate additional capacity of approximately 8 MGD. The City's current Capital Improvements Plan addresses the immediate need for additional treatment capacity by 2025 by identifying expansion projects for existing plants plus two regionalization projects. One project is for a portion of the Southdown service area, with flows to be redirected to the Far Northwest

FIGURE 2.3, Expected Wastewater Flow Versus Treatment Capacity Through 2040

Source: City of Pearland Public Works Wastewater Treatment Division



Wastewater Treatment Plant. Another is for the Longwood service area, with flows to be redirected to the Barry Rose and JHEC treatment plants.

Based on anticipated growth impacts the following major wastewater projects have been identified to address wastewater capacity requirements for expected growth in the next five years:

- » *Far Northwest Wastewater Treatment Plant Expansion.* The Far Northwest plant is permitted for an average annual flow of 2 MGD. During July 2013 the existing flows to the plant reached 75 percent of capacity. The project includes expansion of the existing 2 MGD plant to an intermediate 6 MGD capacity and ultimate 7 MGD plant. Based on the ultimate service area that includes diverted flows from the existing Southdown service area, it is estimated that the average annual flow will be approximately 6.75 MGD. The added capacity to 7 MGD will allow for service to areas outside of Shadow Creek Ranch including the ultimate build-out of the diverted Southdown service area.
- » *JHEC Wastewater Treatment Plant Expansion.* The existing 4.0 MGD plant will

be expanded to increase the treatment capacity to 6.0 MGD. This expansion will help the plant meet the wastewater treatment needs of future development in the service area including the flows expected to be diverted from the existing Longwood service area.

- » *Barry Rose Wastewater Treatment Plant Expansion.* The Barry Rose plant is permitted for an average annual flow of 3.1 MGD. In the last two years of record flows, the annual average daily flow was 48 percent of the permitted flow. With the rapid growth in the service area, the City should evaluate the next expansion to the facility. Based on the ultimate service area, it is estimated that the average annual flow will be 3.94 MGD. This project will expand the treatment plant to 4.5 MGD to serve the growing population in this area. Also, a large portion of the Longwood service area flows will be redirected to the Barry Rose treatment plant in accordance with the Longwood regionalization plan.
- » *Longwood Service Area Diversion.* This project includes a force main diversion from the Liberty, Misty, Longherridge and Pirate Alley lift stations in the Longwood

wastewater treatment plant service area to the JHEC wastewater treatment plant service area. The diversion project is the first of several such projects to begin removing flow from the Longwood wastewater treatment plant service area. The first phase diversion will reduce by 8.6 percent the flow to the existing Longwood plant. The final phase of the project will convert the site to a regional lift station that will pump flows to the Barry Rose treatment plant.

- » *Southdown Wastewater Treatment Plant Expansion or Diversion.* The existing Southdown plant is permitted for an average annual flow of 0.95 MGD with a two-hour peak flow of 2,639 gallons per minute. In the last two years of record flows, the annual average daily flow was 50 percent of the permitted flow. Based on the ultimate service area, it is estimated that the average annual flow will be approximately 3.0 MGD with a two-hour peak flow of 10,420 gallons per minute. The 2002 Comprehensive Master Plan estimated an ultimate flow of 3.0 MGD. The Southdown plant has reported peak wet weather flow of 1,263 gallons per minute under a two-day rainfall event totaling 10 inches. An alternative to this expansion would be diversion of the flows to the Far Northwest treatment plant. The future expected Southdown service area diverted flow is being included in the Far Northwest Phase 2 expansion design currently in process.

- **Ongoing Planning and Upgrades to Wastewater System Components.** In addition to wastewater treatment plant expansion projects and service area diversion projects, the City's five-year and longer-range capital planning includes lift station and trunk sewer line projects. These system improvements are necessary to extend sewer service to residential and commercial customers. All of the major collection system and treatment plant projects are required to take the City to expected build-out of the wastewater system while still meeting TCEQ requirements for treatment capacity, lift station pumping capacity, and pipeline collection system capacity. However, it is important that the City update its wastewater master planning document every five years, or as dictated by the pace of land development activity, to ensure

that projects are developed within the required timeframe to accommodate growth-induced demands. The City-prepared **Sanitary Sewer Collection System Map** included in this plan section illustrates the extent of the City's wastewater system.

As Pearland approaches its build-out population and the need for new wastewater infrastructure decreases, the City will need to turn its attention to developing a plan for investing in the replacement and renewal of existing wastewater infrastructure. Such replacement and renewal is already occurring in older areas of Pearland, but the City will need to develop an overall citywide plan for the future. This is to ensure a consistent level of service, and the sustainability of the wastewater system, into the future.

STORM DRAINAGE

The mission of the City's Public Works Streets and Drainage division is to create and maintain a safe and effective transportation and storm water drainage infrastructure throughout the city to meet the needs of the citizens and businesses of Pearland. Pearland's storm sewer system is made up of a series of ditches, culverts and underground pipes which collect storm water runoff and convey it to streams, bayous, and ultimately Galveston Bay. The City-prepared **Storm Sewer Collection System Map** included in this plan section illustrates the extent of the City's storm sewer system.

The City last updated its master drainage plan in 2008. This plan outlined the physical constraints and issues associated with the geology and topography of Pearland. The area's natural topography is generally flat with an average slope of two feet per mile. This slope runs from west to east, and the area from SH 35 to four miles east has the largest slope in the City at 16 feet per mile, or 0.075 percent slope.

Many areas within the City effectively have no slope. The railroad corridor through Pearland also creates a north-south "dam." The east-west crossings of the railroad dictate the current drainage channel paths. The American Canal is another overflow barrier that causes a "dam" effect in the southwestern area of the city. As a result, land south of the American Canal must drain to Mustang Bayou.

Pearland is drained by the following waterways:

- Clear Creek

Regional storm water detention basins at various locations across Pearland reduce flooding risk and also provide recreational and aesthetic benefits in some cases



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

Flooding due to the area's relative flatness - in addition to the after-effects of intense rainfall in short periods, plus periodic tropical depressions and hurricanes - is the basic drainage planning issue for Pearland. Also, a layer of water-bearing, erosive sand is under most of the community. This fine sand is generally eight to 15 feet below the surface, but closer to the surface west of FM 1128. All underground work, including deep channels and detention basins associated with storm water management, must take into account this sand layer.

STRATEGIC ISSUES AND NEEDS

The 2008 Updated Master Drainage Plan (UMDP) proposed drainage and detention capital improvement construction projects over the next 20 years. However, the UMDP did not address any of the routine culvert replacements, upgrades, or minor channel reworks regularly included in the work planned through the Department of Public Works annual budget.

- **Near-Term Capital Project Priorities.** The initiatives described below address specific drainage issues and needs identified for resolution through the City's five-year Capital Improvements Plan. These projects and improvements will help to facilitate development and regionalization of small local detention ponds into a regionalized drainage system. The regionalization projects do not address repetitive flooding areas, nor

do they provide storage or general floodplain mitigation.

- » *Lower Kirby Urban Center Regional Detention.* This project was identified as one of the highest priorities through the City's Regional Detention Study conducted in 2010. The concept is also supported by the Lower Kirby Urban Center Master Plan and Implementation Strategy. The project will allow properties within the sub-watershed boundaries to contribute to the construction of the system or buy into the detention system in lieu of constructing individual ponds on each property. The detention project will also increase the overall extent of developable land in the Lower Kirby Urban Center area.

The Lower Kirby Urban Center Regional Detention project will provide regional storm water detention for the area bounded by Beltway 8 (north), Clear Creek (south), Kirby Drive (west), and SH 288 (east). The system will consist of one detention pond near Clear Creek based on preliminary studies. This detention pond will be combined with a widening of the Texas Department of Transportation (TxDOT) ditch to provide conveyance and storage between Beltway 8 and Clear Creek. The drainage study for the area was completed in the 2012 fiscal year. TxDOT, Harris County Flood Control District, and Brazoria County Drainage District No. 4 approvals and detailed design began moving forward in the 2013 fiscal year. The initial construction phase will consist of the inflow and outflow structures and pond excavation to improve the City's existing pond. Subsequent projects will increase the pond and drainage ditch sizes and be developer driven and funded.

- » *Cullen/FM 518 Regional Detention Pond.* This project is a City Council goal and was identified as one of the highest priorities through the City's Regional Detention Study conducted in 2010. This proposed detention pond, to be located southwest of the FM 518/Cullen Parkway intersection, will provide the required storm water detention for future development of approximately 155 acres of undeveloped land. This will facilitate future development along FM

518 and eliminate the need for detention ponds on individual properties along FM 518. Along with the detention pond, the project will include upgrades to an existing ditch and construction of underground storm sewer improvements required to convey development runoff. The Cullen/FM 518 Regional Detention Pond project does not address existing issues such as repetitive flooding areas or the need for additional storage or general floodplain mitigation.

- » *Cowart Creek Diversion.* The basis of the Cowart Creek diversion and detention project is to separate the drainage corridor out of the Bailey Road transportation corridor (FM 1128 to Veterans Drive). This diversion will allow for development of both the ultimate transportation and drainage facilities in separate corridors. The project includes construction of approximately 4,300 linear feet of interceptor box culverts included as part of the Bailey Road project; 3.2 miles of diversion ditches already constructed; various road ditch improvements that will be completed by the City in 2015; and a 1,200 acre-foot regional detention facility already constructed. The City has completed part of the project in cooperation with Brazoria County Drainage District No. 4 under the terms of an interlocal agreement.
- » *Old Townsite Drainage.* The City's Sub-Regional Detention Master Plan identified an area within Pearland's Old Townsite as a potential location for a sub-regional detention pond. The 41-acre service area is located at the southwest corner of Walnut Street and Galveston Avenue and extends to SH 35 and FM 518, which is within the southeast quadrant of the Old Townsite.

The project scope will include developing a drainage and detention plan for serving the area with a sub-regional detention pond. A Preliminary Engineer Report will determine the pond location and size and conveyance to the sub-regional facility. Phase 1 of this project focuses on the area between Walnut Street and FM 518. The impracticality of constructing on-site detention in the Old Townsite area has made redevelopment difficult. Implementation of the project will help alleviate this constraint, allowing for

development of approximately 15 acres, and also providing regional detention for the redevelopment or more intensive use of approximately 20 acres. Additionally, the detention pond will mitigate impacts from expansion of the roadway network within this portion of the Old Townsite. The Old Townsite Drainage project does not address existing issues such as repetitive flooding areas or the need for additional storage or general floodplain mitigation.

- » *McHard Road Second Outfall.* The current drainage for portions of McHard Road flows through the Country Place area and utilizes existing drainage facilities. These facilities drain south through the subdivision to an east-west drainage ditch south of Country Place. This project will create inlets along McHard Road to drain to some of the ponds in the golf course within the subdivision. This project will also provide a second outfall to relieve flows currently running south, which will alleviate drainage issues on McHard Road and in the subdivision area to the south. Budget for this project was included as part of the 2011 bond sale by Brazoria County MUD #4.
- » *David L. Smith Detention Pond Expansion Phase I.* In accordance with the City's Master Drainage Plan, there is a need for additional storage capacity within the Clear Creek watershed. This storage will mitigate existing flooding and provide capacity for future development. The detention pond expansion will lower the 100-year water surface elevation of Clear Creek, alleviating existing floodplain issues. This will facilitate future expansion of the Pearland campus of the University of Houston at Clear Lake, as well as other City facilities on the David L. Smith site. To accommodate future development along McHard Road between Old Alvin Road and Pearland Parkway, Phase 1 of the project will expand the existing David L. Smith detention facility by approximately 150 acre-feet. This expansion will occur to the west of the existing McHard Road outfall ditch and south of the pipeline easement. A future phase will add another 150 acre-feet, providing 300 acre-feet of total detention for further floodplain improvements and regional detention.

The Pearland Public Safety Building, completed in 2010, provides a centralized facility for Police Department functions



- Ongoing Planning and Upgrades to Drainage System Components.** The City has major storm drainage regionalization projects included in its near-term and longer-range capital planning to prepare for expected development. However, the City needs to expand the scope of its planning to address identified repetitive flooding areas along with the regional detention projects for general floodplain mitigation. The City has identified specific projects required to take the City's drainage system to build-out capacity. However, it is important that the City update its master drainage plan regularly, especially as dictated by the pace of land development activity, to ensure that projects are developed within the required timeframe to accommodate growth-induced drainage needs. The 2008 UMDP is already outdated and requires an update, especially to provide necessary and accurate input to the City's five-year capital budgeting. This and all future plan updates must also account for any significant shifts in development trends or patterns that occur as the City progresses toward build-out conditions.

Just as with the City's water and wastewater infrastructure, as the City approaches its build-out population and the need for new storm water infrastructure decreases, the City will need to turn its attention to developing a plan for investing in the replacement and renewal of existing drainage infrastructure to provide the same level of service in the future.

Status and Outlook for Public Safety Services

POLICE

In 2012 and 2013, Pearland was identified as among the top 50 safest cities in the U.S. Pearland has also been recognized in many news articles and other surveys for feeling safe. The Pearland Police Department takes pride in addressing issues, both big and small, that affect public safety.

The Police Department provides its services within the current City limits. The Department has historically implemented a Community-Oriented Policing approach, by focusing patrols within districts, with officers regularly working the same districts so they build relationships and become familiar with conditions and patterns of activity. While this has served as a positive foundation for citizen safety, the Department is adding data-driven solutions to accomplish the mission of reducing crime and disorder in the 21st century.

The Department also supports surrounding agencies by responding to incidents outside its jurisdiction upon request in a mutual aid capacity when the police agency with jurisdiction is unable to respond immediately, when officers view crimes in progress, or when rapid response is needed due to an immediate life-threatening situation. The Department currently maintains memoranda of understanding with a number of surrounding agencies, which continue to add value to public safety in Pearland. Through a Pearland Independent School District (ISD) partnership, the Department assigns School Resource Officers to the PACE center, junior and senior high campuses. The School Resource Officers also respond to elementary schools and school events as needed. The Alvin and Pasadena ISDs maintain their own police departments which coordinate with the Pearland Police Department. The City is also served by Brazoria County Sheriff, constables and other law enforcement.

STRATEGIC ISSUES AND NEEDS

Pearland's continued growth will be the most significant factor in the development of the Police Department for the years ahead. Department resources have increased in response to recent City annexations and permits. The Department will have further needs depending on the extent and timing

of future annexation activity, population growth, and development. Keeping up with growth is also intricately linked with changing technology.

- **Database and Reporting Enhancements.** The Department regularly evaluates its equipment, technology and communications needs and budgets for replacements and upgrades as needed, especially as technology evolves. In 2009 the Department changed records management software, migrating from HTE Crimes to Sungard OSSI. The migration provides a platform for deriving useful information from police records, a critical component of the Department's data-driven policing efforts. Working with Municipal Courts, the Department is looking to switch to electronic citations as this saves manual data entry by the courts, reduces paper waste, saves money, and improves the local database. A major initiative utilizing technology will be online reporting. This program will allow citizens to report certain criminal activity without an in-person response from a Police Officer. With all of the technology needs, the Information Technology Department works to keep the more than 150 computers and servers up to date with additional equipment to support the Department's growing needs.
- **In-Car-Video and Body-Worn Cameras.** Additional technological advances have been made with in-car-video. However, the in-car-video camera systems have limitations for certain police actions that are out of view or out of the audio receiver range of the system. The Department is researching appropriate body-worn camera systems to implement in conjunction with the in-car-video. These newest systems provide critical video evidence for use in criminal prosecution, employee training and evaluation, public accountability, and limiting the liability profile of the City. To effectively deploy body-worn cameras additional considerations need to be taken into account including replacement schedules, State and Federal regulations, and internal data management policies and personnel.
- **Radio Communications.** In 2013, emergency services found that radio communications equipment utilized was not performing to acceptable standards. To address those issues and put the City in compliance with upcoming

Federal mandates, the City migrated to the City of Houston's radio system and purchased new equipment through their contract with Motorola in 2014. The Department continues to evaluate this migration and must ensure that all communications are within compliance. Communications are critical links in public safety and the mapping databases, vehicle locations, and coordination with the Pearland Fire Department, which has emergency medical dispatch through Harris County.

- **DDACTS Implementation.** Data-Driven Approaches to Crime and Traffic Safety (DDACTS) is the newest model of policing. Coupling community policing outreach with data and crime mapping, the DDACTS model is endorsed by the International Association of Chiefs of Police, National Institute of Justice, National Highway Traffic Safety Administration, National District Attorneys Association, Federal Highway Administration, and many others. The Police Department is implementing the DDACTS model during fiscal year 2016. In 2015, the addition of the Crime Analyst position allowed the development of a comprehensive Crime Analysis program to begin leveraging data for targeted enforcement in areas with concentrated criminal activity, traffic crashes, and traffic complaints. The Patrol Division is adding a Specialized Operation Squad with personnel assigned to a Proactive Unit and Traffic Unit. This team will work together to address the identified areas and positively impact crime and traffic in the area.
- **Fleet Maintenance.** The Police Department currently has a marked fleet of nearly 120 vehicles servicing the Patrol, Traffic, SRO and Community Services Units. The Home Fleet program, in place since 1994, assigns patrol vehicles to senior officers on the street and allows them to take the cars home daily. The program provides a greater deterrent to criminal activity and extends the useful life of the patrol vehicle. When Home Fleet vehicles are three to four years old with approximately 60,000 miles, they are moved to the Share Fleet, where they are utilized by officers on multiple squads. Share Fleet vehicles accumulate an average of 35,000 miles per year and have increased maintenance and repair costs. The City Service Center manages the vehicle fleet and determines replacement needs based on

mileage and resale value. Police patrol vehicles may be moved to the Spare Fleet and reach up to 150,000 miles before replacement. In general, one-sixth of the Patrol Fleet may be marked for replacement on an annual basis.

- **Ongoing Training Needs.** The Police Department strives to be a regional provider of quality Law Enforcement training so as to provide excellent customer service to the community. The Public Safety Building includes two large dedicated training rooms that can accommodate up to 100 persons. This space is available to other groups, while the Department also uses a third training room in a secure area of the building, for up to 25 individuals engaged in in-house training and distance learning. The Department has experienced a rapid growth in personnel, and approximately one-third of all police officers have been with the department less than five years. The Department has placed great emphasis on training personnel to ensure the best response possible to the citizenry. In fiscal year 2014, the Department provided 162 days of in-service training to the officers and employees of Pearland and surrounding agencies. In 2016, each officer will receive a minimum of 80 hours of training to include a legislative update and, most importantly, certification as Mental Health Peace Officers. Pearland will be one of the only agencies in the State of Texas to have all personnel certified as Mental Health Officers, which far exceeds State standards.
- **Animal Services' Needs.** In 2014, the Police Department was assigned oversight of Pearland Animal Services. Animal Services provides impound services for animals that are stray, abandoned or quarantined; support to residents and their pets during times of disaster; and pet adoption services, including education and promoting the benefits of spaying/neutering pets. The Animal Services Section provided 466 adoptions in fiscal year 2013 and 507 more in fiscal year 2014. The team works to handle the increased call volume, provides seven day a week adoption services and animal control services, with part of the day covered by an on-call status for emergency cases.
- **Adequate Staffing.** Personnel needs of the Police Department are a function of mobility, availability, and demand. In planning and

anticipating future needs, a Staffing Utilization Study to be conducted with consultant assistance in 2016 will be an important tool. Current planning looks at review of the distribution of officers' directed and self-directed time. Officers in 2015 generally have 48 percent of their time self-directed, with the remaining 52 percent directed. The 48 percent is well below the 60 percent threshold for staffing adjustments. The mobility issues facing the City are ever-evolving. Having sufficient units responding quickly through and around traffic congestion and other barriers is managed with scheduling and appropriate unit assignments within district boundaries. The Department utilizes data to make these assignments, considering variables such as: response times, roadway miles, population, known congestion, and call volume history.

The Department objective is to have units available for priority calls for service 98 percent of the time. Following a successful hiring campaign, the Department reached its full allotment of 155 officers in June 2015. This is only the second time in 20 years that all classified positions have been filled. The upcoming Staffing Utilization Study will leverage data to assess departmental resource allocation and lay out a plan for effective utilization of sworn and civilian personnel and resources as the City and the Department continue to grow.

The Police Department recently completed an organizational plan through the 2016 budget. This plan moves the newest, yet to be assigned police positions into support rolls such as Community Services, Professional Development and Standards, detectives, K9, first-line supervision, crime scene, motors units, crash investigation, and proactive patrol.

FACILITIES

- The Public Safety Building is located at 2555 Cullen Parkway and was completed in Spring 2010. The facility is expected to satisfy Police Department needs through at least 2020, with no near-term plans for any building expansion. The jail currently averages about 33 percent capacity with the ability to hold up to 72 persons. The building also includes facilities for the Municipal Court, the Utility Billing Department, and the Brazoria County Tax Office. The Police Department's long-term

space needs may be met by relocating these other services and repurposing the space for Department use in the future.

- The Public Safety Building also contains the City's Emergency Operations Center, through which City operations will be directed in the event of a natural disaster or other major event. Maintaining the technological and communications needs of the Emergency Operations Center is a continuing effort of all public safety departments, coordinated through the Office of Emergency Management.
- The Public Safety Building also houses the City's Municipal Courts. A thorough security evaluation was completed in 2015 and identified structural changes needed to the lobby and court entrance areas of the building.
- The Pearland Animal Shelter is located at 2002 Old Alvin Road. The facility was originally built in 1997 and expanded in 2005 and 2010. The building is located on the east side of Pearland and is more than a 10-mile drive from some locations within the city. The facility runs at nearly 100 percent capacity on most days for many animal types. Upgrading of the current facility and expansion of services to the west side of Pearland has been identified as a priority need for this unit.

KEY INDICATORS

Call Volumes

- The Police Department responded to 29,249 citizen calls for service during the 2013 fiscal year, which was up 6.7 percent from fiscal year 2012. During the 2014 fiscal year, the Department responded to 29,752 citizen calls for service, which was 1.7 percent higher than the 2013 volume. During the same time, the Department saw a drop in the total number of self-initiated calls. In fiscal year 2012, there were 63,218 self-initiated calls, and in 2013 there were 69,679 of these calls. In 2014, the number dropped to 58,138 which was 8.7 percent lower than in 2012. The overall decrease in total calls between 2012 and 2014 was 3.1 percent.
- The Animal Services Section of the Police Department, which keeps separate calls from the Police Department, reported 5,236 calls in fiscal year 2013. A dramatic increase in fiscal year 2014 led to 6,114 calls, which was up 16.7 percent from 2013.

Response Time

- The Police Department monitors its historical average response time and works to lower or at least maintain this level of performance. In 2014, the Department pinpointed 4.51 minutes as its response time for high-priority calls, from dispatch to arrival on scene (with 1.05 minutes of dispatch time and 3.46 minutes of travel time). Police dispatchers screen all calls for service, and calls for Fire Department or Emergency Medical Services response are transferred to a private dispatching service as detailed further under the Fire / EMS section.
- The Department's Patrol Division is working closely with the Communications unit to utilize the Automatic Vehicle Location features of the Computer Aided Dispatch system to identify the most effective response to calls for service. One major initiative that started in June 2015 is already having a positive impact on response times, involving the assignment of an officer to the lobby of the Public Safety Building. This officer is readily available to address customer needs, allowing other officers to remain on the streets ready to respond to calls for service.

FIRE / EMERGENCY MEDICAL SERVICES

The City of Pearland already provides fire suppression and emergency medical services (EMS) coverage to its entire ETJ, along with the current City limits, which is a combined area of nearly 70 square miles with more than 130,000 residents. Some ETJ areas have only limited development and population, but the City is still the first responder to these low-density locations. The Fire Department also provides EMS service to the neighboring City of Brookside Village, just north of Pearland, through a contractual agreement.

The Fire Department has mutual aid agreements with all other Brazoria County fire departments and with all other non-Brazoria agencies that abut the Pearland City limits. The Department also receives fire, emergency medical service, and hazardous materials mutual aid support from surrounding fire departments in Fort Bend and Harris counties including the City of Houston.

In Fall 2013 the City formally consolidated the previously separate Fire Department and Emergency Medical Services (EMS) Department. Improved service delivery and flexibility are anticipated as a result of this initiative.

STRATEGIC ISSUES AND NEEDS

The Fire Department continues to benefit from its last departmental study and plan completed in 2010, along with various other specialized documents addressing relevant issues and needs. The Department initiated a next strategic planning process during 2012, but this effort was postponed with the demands of the pending Fire/EMS consolidation and was to be revisited later in 2014. Discussions with department leadership for this Comprehensive Plan update identified the following key issues and priorities.

- **Adequate Staffing.** Further meaningful increases in fire suppression and EMS personnel are needed based on the population size and geographic area of Pearland. Fire/EMS consolidation and resulting cross-training of staff will yield some efficiencies, in terms of being able to do more with the same number of people as existing personnel are able to fulfill more functions.

However, the Fire Department currently has six stations, with three operating around the clock, when it should have additional resources placed in appropriate areas during days and nights, based on predictive demand data. More facilities to meet service demands also translates into more staff in this combination department of full-time and part-time personnel plus volunteers, who are needed on each of the Department's shifts.

- **New and Upgraded Stations.** To enhance response time amid Pearland's rapid growth, capital project funding will provide for design and construction of two new fire stations over the next several years. Also, two existing stand-alone EMS stations will be taken out of service as they are replaced by two other new combined fire/EMS facilities. A new Fire Station 3 (at Yost Road and Broadway Street) will be designed and constructed by mid-2015, along

Incidence of Damaging Fires in Pearland

Annual statistics compiled by the Pearland Fire Department show that the number of building fires in Pearland each year is usually in the 55-70 range, with a recent high of 69 in 2012. The total estimated fire loss resulting from these incidents was approximately \$2.4 million in 2012, compared to a recent low of about \$1.5 million in 2011.

with a new Fire Station (at Fite Road and Harkey Road) also by mid-2015.

- **Continued Volunteer and Part-Time Support in Combination Department.** Maintaining the volunteer fire fighting function in Pearland is essential as the City works to expand its paid, full-time fire fighting ranks. Volunteers were effectively filling 12 percent of staffing as of Fall 2013, with another 12 percent covered by part-time personnel (many of whom are off-duty Houston fire fighters working a second job).

The Pearland Volunteer Fire Department, Inc., generates annual funding through a City-approved fundraising letter.

- **ISO Rating.** The challenges faced by the City to commit more budget resources to Fire staffing, facilities and general support will ultimately play out in terms of the Insurance Services Office (ISO) rating the community receives the next time it is evaluated. Pearland currently enjoys a "2" rating on the 1-10 ISO scale in which 1 is the best and 10 the worst possible rating. The City is addressing facility needs by adding multiple new fire stations through its multi-year capital improvements planning and associated personnel through its annual budgeting. Fire Department leadership also noted good water supply conditions and hydrant coverage with in the current City limits, much of the ETJ and area Municipal Utility Districts, although some ETJ areas have no water service at all ahead of any significant land development in these locations.

However, basic response time will continue to be a key criterion, and the Fire Department leadership remains concerned with their ability to maintain satisfactory performance within a growing city now as populated and urbanized as is Pearland. Pearland already provides fire suppression and EMS response in its ETJ, so future annexations will not change the service equation much. However, annexation activity would likely further highlight the need to improve level-of-service capabilities in general. The future of Pearland Regional Airport will also influence emergency services planning, and is already a factor in assessing the need for a tenth fire station at some point to expand south-southeast coverage.

- **Equity of County Funding for ETJ Service.** Fire Department leadership are concerned that the

Citizen Survey Results

Nine in 10 respondents to the Pearland Citizen Survey (conducted December 2014 through February 2015) rated fire services and ambulance/emergency medical services as excellent or good.



City continues to receive a share of Brazoria County funding under a county-wide allocation that dates back some years and does not reflect the extent of population growth and development around Pearland relative to other Brazoria communities. Equity of funding going forward is the key concern, just accounting for call volume alone and the extent of ETJ service delivered.

- **Dispatch Moved to Contract Service.** During 2013 Fire and EMS dispatch functions were contracted out to an Emergency Services District in Harris County that provides this service to multiple area agencies, with the City of Pearland now its largest partner. The District satisfies unique mapping needs the department has, and also offers dispatching protocols more in line with Fire and EMS needs. In the end, the contract approach provides cost savings to the City and its taxpayers in lieu of needing to hire more in-house personnel.
- **Demands on Ambulances.** Given the volume of miles put on ambulances (approximately 40,000 miles per year), and considering the layout of Pearland and service provided into the ETJ, a maximum three- or four-year life span is all that can be expected for these specialty

vehicles. Going forward, and considering continued EMS call volume growth, this likely means budgeting routinely for replacement of one or more ambulances every year to maintain a reliable fleet. The City's Fiscal Year 2013-14 budget pointed out that another benefit of adding a fifth ambulance could be reduced reliance on mutual aid from other jurisdictions.

- **Hazardous Materials Capabilities.** Fire Department leadership pointed out that, with the growth and encouragement of more local industry in Pearland, the extent and potential volume of hazardous materials handled by some area businesses will likely increase. The City currently relies on Houston and Harris County for response to "hazmat" emergencies, so at some point building up internal capabilities will be advisable.
- **Impact of Health Insurance Trends.** An interesting issue for emergency medical services in the years ahead is whether federal health insurance reforms and related expansion and adjustments to coverage, will lead to more or fewer calls for ambulance service and ultimate transport to emergency care facilities.

FACILITIES

- The Fire Department's six stations as of Spring 2015 included:
 1. Fire Station 1 at 2020 Old Alvin Road at Orange Street for northeast coverage.
 2. Fire Station 2 at 2838 McLean Road near Apple Springs Drive for east central coverage.
 3. Fire Station 3 at 1801 East Broadway at Woodcreek Drive for east side coverage.
 4. Fire Station 4 at 8333 Freedom Drive along Cullen Boulevard for central coverage.
 5. Fire Station 5 at 3100 Kirby Drive, near Pearland Town Center, for west side coverage.
 6. Fire Station 6 at 1511 County Road 58, for southwest coverage.
- A new Pearland Fire Administration Building is located at 2703 Veterans Drive, south of Walnut Street, which was the former Pearland Police Department location. This site also provides for department training with classroom space and a Fire Training Field behind the building.

- Fire Station 3 was recently reconstructed. The new station is another combined fire/EMS facility that is actually at the location of current EMS Station 3 near the Broadway/Yost Road intersection. The current Fire Station 3 building at 1801 Broadway will be demolished.
- Fire Station 2 is also slated for reconstruction at a new site, with scheduled opening of the new station in October 2015 and demolition of the current facility.

At the time of this Comprehensive Plan update, Pearland Medical Center was the only hospital in the city. However, Memorial Hermann was constructing a new hospital that was slated to open in 2015.

KEY INDICATORS

Call Volumes

- Fire Department call volume increased 50 percent – from 2,410 to 3,602 calls for service – from 2010 to 2013.
- EMS call volume increased 18.5 percent – from 6,472 to 7,688 calls for service – from 2010 to 2012. In 2012 this resulted in about 4,800 individuals transported (63 percent of calls) and about 6,500 patients treated.

Response Time

- The Fire Department continues to apply the same station location standard as created by the Fire Station Location Master Plan, which calls for a four-minute travel time. This is in line with Insurance Services Office (ISO) standards. One motivation for the current Fire Station 3 reconstruction is to improve east side response time.

Average response time data compiled by the Fire Department shows that the average was as high as 7 minutes, 18 seconds in 2010 but then declined to 6:22 in 2011 and 5:56 in 2012 (with 5:54 as the Department target for 2013). In 2011 and 2012, the percentage of calls responded to in five minutes or less was roughly in the 50 percent range, compared to 39 percent in 2010.

- The Fire Department monitors EMS response-time standards of NFPA and others, some of which call for a target as low as four minutes based especially on the ideal rapid response to cardiac emergencies. Many standards call for the arrival of advance life support transport within eight minutes. In recent years the

Department has strived to meet this eight-minute target, even shaving off 20 seconds or so on average in 2011 and 2012.

- Fire Department leadership acknowledges the emergency response benefits of the railroad overpasses constructed in recent years. However, other circulation difficulties remain, most notably around the SH 288/FM 518 intersection given traffic volumes and congestion in the vicinity, and closely-spaced traffic signals. Even with more appropriate station coverage over time, Pearland's public safety services will always face the challenge of navigating a relatively spread-out city, with some unique residential enclaves and remaining low-density areas. Improvements to major north-south roads such as Veterans, McLean, Harkey, Garden, Roy and Max will improve emergency response times.

Key Planning Considerations

Input and discussions for this Comprehensive Plan update, through workshops with City Council and Planning and Zoning Commission, informal small-group sessions, a community-wide public open house event, the online Virtual Town Hall forum, interaction with the Comprehensive Plan Advisory Committee, and background discussions with City staff, yielded the following concerns related to this Growth Capacity and Infrastructure section of the plan:

- Effective management of growth through the point when remaining developable land is built out.
- The fiscal and public service implications for City government of future growth in general, and potential build-out scenarios in particular.
- The potential pace of growth, and the ongoing challenges of providing and maintaining adequate road and utility infrastructure, especially in such an elongated east-west city with needs in both new and old areas.
- The potential extent and timing of future annexation activity, and the financial and many other considerations.
- Implications of potential population densities for schools and other facility planning.

- Continued focus on public safety services so more growth does not bring more crime.
- The challenges to redevelopment and revitalization of older areas and corridors, especially as a way to absorb some share of growth internally within the existing city.
- The safety, reliability and aesthetics of utility infrastructure, including continued emphasis on multi-use design and incorporation of amenities in storm water detention projects.
- The importance of maintaining Pearland's systematic approach to capital improvements planning and budgeting, especially given the lead time necessary for major projects.
- As in cities across the nation, the need to focus on basic infrastructure maintenance amid many other competing community needs and wants, and how "recapitalization" of roads, sanitary sewer and storm drainage in older areas is crucial to attracting investor interest in redevelopment potential.
- The need for community discussion about growth and the benefits to residents of expanding Pearland's commercial tax base.
- The need to "think post-boom" and prepare to transition from growth to maintenance mode.

Library Services

City and County government jointly provide public libraries in Pearland, requiring ongoing coordination.

Goals and Action Strategies

GOALS

A "goal" is a statement of a desired outcome ("end") toward which efforts are directed, as expressed by more specific objectives and action priorities ("means"). Below are three goals intended to focus plan implementation efforts related to Growth Capacity and Infrastructure that follow the adoption of this new Comprehensive Plan:

- Goal 2.1:** A **fiscally responsible pattern of development** that supports the City's long-term financial health.

- Goal 2.2:** A **balance between investment in new and extended infrastructure** to support first-time development, and necessary investment in rehabilitation of aging infrastructure in previously developed areas.

- Goal 2.3:** A commitment to **sustained budget support for police, fire and emergency medical services** to maintain levels of service and responsiveness commensurate with projected growth and resident expectations.

ACTION STRATEGIES

Itemized below are a set of potential actions for responding to the key issues and community needs identified in this Comprehensive Plan section. In particular, three items are highlighted as strategic initiatives for the immediate future.

STRATEGIC PRIORITY 1: COST OF GROWTH/LAND USE STUDY

From the earliest discussions with City staff and focus group participants, and through the series of Comprehensive Plan Advisory Committee meetings, a frequently mentioned desire was to gain a better understanding of the fiscal implications for City government of how remaining developable land in Pearland's City limits and ETJ might be used in the years ahead. "Cost of growth and land use" studies are a niche specialty of certain consultants within the urban planning community, and go beyond the scope of a comprehensive planning effort given the level of detail and technical analysis involved. However, these studies often build off a newly updated city-wide plan, as well as more specialized master plans for transportation and utility infrastructure and public facilities and services.

Such studies typically focus on both the near-term fiscal impacts of particular land development choices, plus the longer-term sustainability of City finances based on the projected overall pattern of growth and land use. Relevant considerations for the City's annual and multi-year budgeting include the relationship between development location and densities and public infrastructure and service costs, the return on municipal investment under varying development scenarios, and the City's up-front capital costs compared to the near-term

Thoughts on the Public Costs and Benefits of Development Form

“Communities often experience some level of disconnect between economic development policy and ensuring sufficient tax revenue to cover the cost of the services the government provides ... [Data show that] a municipality receives a greater level of revenue from its denser and more walkable urban patterns than its suburban pattern of development.”

*“Thinking Differently About Development,” Joe Minicozzi,
Government Finance Review, August 2013*

“If enhancing revenue is the goal, municipalities are far better off with compact development that generates higher property taxes ... Such compact development also would mean a more rapid payback of public investment ... This is not to suggest, however, that future development in a community should switch to the most intense forms of mixed-use development ... in a quest for greater revenue. Clearly, a city or town isn’t likely to be made up only of such high-yielding buildings, nor would its citizens want it to be ... Indeed, most citizens in suburban areas, even when they are aware of the tax consequences, still oppose density if they feel that it threatens the ambiance and perceived value of their own dwellings.”

As issues related to revenue generation are increasingly linked to matters of building form and scale, communities should strive to hold more complete conversations about the trade-offs associated with growth.”

*“The Missing Metric,” Peter Katz,
Government Finance Review, August 2013*

and projected revenue stream. This can lead to adjustments in a range of municipal programs and practices, including development regulation, thoroughfare planning, capital improvements programming, annexation planning, and whether and when economic development incentives should be offered. A core consideration is how the types and relative mix of revenues the City derives from land development might shift under different scenarios, including the status quo.

Going forward, the study results and analytical tools would enable the City to explore “what if” scenarios, in which the potential value of particular land development outcomes could be weighed against the projected costs of service. This can include evaluation of how service costs would shift under varying level-of-service assumptions, typically figuring that most residents will expect a steady or higher level of service over time.



STRATEGIC PRIORITY 2: REGULAR UPDATING OF UTILITY MASTER PLANS

This plan section emphasizes regular updating of the three key utility infrastructure master plans – water, wastewater and storm drainage – especially during periods of rapid land development activity as Pearland has now experienced for multiple decades. The City of Pearland is in particular need of a comprehensive and in-depth update of its Drainage Master Plan (last updated in 2008) for this reason, although the last Wastewater Master Plan is actually older, from 2006, and the last full Water Master Plan update was in 2007. These plans likewise require a complete reassessment and full updates given highly dynamic conditions in Pearland, with the community continuing to experience dramatic on-the-ground change through both private and public projects and investments. Refreshed utility infrastructure master plans are needed to provide meaningful guidance

for crucial decisions related to ongoing utility system management and associated capital projects. As also highlighted in this plan section, all three master plans should place greater emphasis on the need for replacement and renewal of existing portions of the systems, along with planning for expanded overall system capacities.



STRATEGIC PRIORITY 3: ANNEXATION PLANNING

Given Pearland's history of and future prospects for expanding its physical jurisdiction through further incorporation of additional territory, this Comprehensive Plan includes a special focus on annexation possibilities and planning through the Annexation Outlook section below. The purpose was to review recent and/or planned annexation activity by the City and assess the outlook in coming years. Then City staff and consultants for this comprehensive planning effort coordinated on a focused evaluation of ETJ areas eligible for potential annexation to weigh options and possible timing based on growth projections, service implications and capacities, and other considerations, including the framework for municipal annexations under Texas statutes.

Through this Growth Capacity and Infrastructure section and in preparation for the annexation assessment, an inventory was completed of remaining vacant land within the City limits and ETJ. The inventory results are displayed in **Map 2.1, Remaining Vacant Land**. The inventory exercise was conducted with the following resources and parameters:

- Using high-quality aerial imagery of the Pearland area from 2012, and recognizing that certain properties have since or are in the process of dropping from the vacant land inventory due to recent land development activity (and significant such instances were identified as inputs to the future land use planning in Section 7, Land Use and Character).
- Including as "vacant" land not only parcels that appeared almost entirely unused, but also large properties that are relatively underutilized within a developed city in terms of having just a small homestead or only minimal disturbance from agricultural or limited personal or business use (e.g., vehicle/trailer storage, minor clearing or excavation activity, etc.).

- Seeking explanations for limited property use in some cases, including properties wholly or partly within floodplains, areas through which pipeline corridors pass, undeveloped areas within County parks, and City-owned properties in reserve for future park development and/or regional storm water detention projects. But also recognizing that allocation of some land for essential public purposes like recreational space and flood prevention also contributes to the overall "draw-down" of Pearland's overall remaining land supply. (The City-prepared **2015 Pipelines Map** included in this plan section shows the locations of pipelines within the Pearland City limits and ETJ.)

Calculations from the inventory results shown in Map 2.1 yielded the following statistics*:

- Just under nine square miles of remaining vacant land within the current City limits, which was approximately 19 percent of the City's incorporated area (46.3 square miles) based on the City limits as of May 2014.
- Approximately 4.4 square miles of remaining vacant land within the current ETJ areas, which was roughly 19 percent of the Pearland ETJ (23.5 square miles) as of May 2014.
- So, the combined City limits and ETJ (69.8 square miles) had about 19 percent of their total area vacant based on this inventory.

* NOTE: All calculations were made using Geographic Information System (GIS) data and mapping and are intended for general planning purposes only as the data is approximate and does not have the accuracy of on-the-ground land surveys.

OTHER ACTION ITEMS

ACTION: "SMART GROWTH" AUDIT

Pearland should join other communities that are enjoying the economic and quality-of-life benefits of steady growth, but also wanting to know if they are growing in an efficient and sustainable manner. The Smart Growth Network suggests that growth is "smart" when "it gives us great communities, with more choices and personal freedom, good return on public investment, greater opportunity across the community, a thriving natural environment, and a legacy we can be proud to leave our children and grandchildren."²

² This is Smart Growth, pamphlet published by the Smart Growth Network through a cooperative agreement with the International City/County Management Association (ICMA) and the U.S. Environmental Protection Agency (publication 06-064).

TABLE 2.1, Smart Growth Principles (as identified by the Smart Growth Network)

Smart Growth Principle	Potential Local Indicator
Mix land uses.	<ul style="list-style-type: none"> Total acres in developments designed with integrated and complimentary uses, especially where residential and non-residential uses are mixed within the same master-planned project.
Take advantage of compact building design.	<ul style="list-style-type: none"> Local comparisons of percent site coverage among sites with typical auto-oriented and horizontal design relative to sites with building footprints that preserve more open and green space.
Create a range of housing opportunities and choices.	<ul style="list-style-type: none"> Percentage of total housing stock not in single-family detached dwellings. Relative percentage of ownership and rental opportunities within total housing units. Extent of housing options for certain "life cycle" stages (e.g., young singles, "empty nesters," senior independent and assisted living, etc.).
Create walkable neighborhoods.	<ul style="list-style-type: none"> Total linear feet of sidewalk relative to total street length in sample neighborhoods. Number of non-street linkages to/from the neighborhood to nearby schools, parks, adjacent neighborhoods and other destinations.
Foster distinctive, attractive communities with a strong sense of place.	<ul style="list-style-type: none"> Survey residents elsewhere in the region on recognizable place names and destinations in Pearland. Measures of the total volume of landscaping in public areas at key community entries and along major corridors.
Preserve open space, farmland, natural beauty, and critical environmental areas.	<ul style="list-style-type: none"> Total acres in Pearland under conservation easements, land trust ownership, or other non-public preservation measures. Total linear feet of trail along area creeks and in other natural areas to facilitate public access.
Strengthen and direct development towards existing communities.	<ul style="list-style-type: none"> Total dollars of public investment to spur redevelopment in the Old Townsite area, in older established neighborhoods, and along the Main Street/SH 35 corridor. Relative percentage of building permit activity for improvement/rehabilitation of existing properties and structures.
Provide a variety of transportation choices.	<ul style="list-style-type: none"> Ridership trends on local park-and-ride bus service. Surveys of City trail network users to quantify those biking to/from work, shopping or other destinations versus purely recreational use.
Make development decisions predictable, fair and cost effective.	<ul style="list-style-type: none"> Measures of time savings for applicants, City staff and Board/Commissions from technology and other procedural streamlining steps. Annual statistics on approvals/denials, extent of variance requests, and other metrics from the City's development review processes.
Encourage community and stakeholder collaboration in development decisions.	<ul style="list-style-type: none"> Total hours of City Council and Board/Commission meeting time devoted to public hearings and comment opportunities on development-related matters. Website analytics on number of persons accessing agendas, packet materials, and other online information related to development-related matters.

The City can consider how well it is applying the Principles of Smart Growth identified by the Smart Growth Network, recognizing that Pearland may just be reaching a point of maturity in some aspects of its growth and development progression for certain principles to even be relevant or attainable locally. Pearland can also identify and apply measurable indicators as benchmarks for tracking progress on each of the principles as illustrated in **Table 2.1, Smart Growth Principles**. Additional resource publications include: *Smart Growth Audits* (American Planning Association, PAS Report 512); *Jobs-Housing Balance* (APA, PAS Report 516); and *Getting to Smart Growth: 100 Strategies for Implementation* (Smart Growth Network and ICMA, publication 02-202).

ACTION: ACCOMMODATION OF “GREEN” BUILDING PRACTICES

Pearland should continue to monitor trends and best practices in the building code, land development, and public facilities arenas related to “green” building and operational standards (including for energy efficiency; water conservation, capture, and re-use; waste reduction and recycling, etc.) to ensure that the City’s codes and policies promote and do not discourage such activity locally. The National Green Building Program sponsored by the National Association of Home Builders is an important information clearinghouse, along with other governmental and non-profit resources. Additionally, the Texas Gulf Coast Chapter of the U.S. Green Building Council, based in Houston (www.usgbc-houston.org), provides a regional forum for public and private sector coordination and information exchange.

Annexation Outlook

This section considers the potential extent and timing of future annexation of areas currently in the City’s extraterritorial jurisdiction (ETJ) and the associated rationale. This information is included in the Comprehensive Plan for general planning purposes only. More detailed study and planning would be necessary to satisfy statutory requirements and procedures for initiating specific annexations as

contained in Chapter 43, Municipal Annexation, of the Texas Local Government Code.

In conjunction with the City’s Land Use Plan map (in Section 7, Land Use and Character), Thoroughfare Plan map (in Section 3, Mobility), and the outlook for utility infrastructure extensions and upgrades summarized in this plan section (with more detail in the 2013 update of the City’s Water and Wastewater Impact Fee Report and related master plans), this information provides a broad overview of where and when Pearland might grow and extend municipal services beyond its current City limits.

ANNEXATION FACTORS

Compiled in the list below are five major factors that typically enter into decisions to annex certain ETJ areas sooner than later, or to defer annexation in some locations until later, if ever. Under each major factor are related considerations. Beyond this list, other intangibles include consideration of the potential degree of contention and opposition that particular annexation initiatives may provoke, plus the basic capacity of City officials and staff – in a large, rapidly-growing community – to devote the necessary time and effort that annexation proceedings require.

1. Fiscal

- Value added relative to cost to serve (based on various factors including land use)
- Municipal Utility District (MUD) debt/timing (a potential annexation date for each MUD in the City’s ETJ can be projected based on when each district’s outstanding debt will be paid off as summarized in **Table 2.2, Annexation of MUDs in ETJ**).

TABLE 2.2, Annexation of MUDs in ETJ

Source: City of Pearland Finance Department
 Note: Dates are based on the timing of when all MUD debt will be paid off.

Municipal Utility District (MUD)	Potential Date of Annexation	Potential to Issue More Debt
MUD 2	After 02/01/2017	No
MUD 3	After 09/01/2020	No
MUD 6	After 09/01/2024	No
MUD 21	After 09/01/2039	Yes
MUD 22	Not yet issued any debt but will in the future	Yes

2. Service Provision

- Proximity to current incorporated area
- Feasibility and realistic timing of service extension – and whether City prefers to be the service provider
- Extent of existing population/development
- Already providing certain municipal services to area (and ETJ residents already benefitting from use of in-City streets, parks, etc.)
- Other service providers
- Health/safety (housing/building conditions, sanitation, emergency response)

3. Growth

- Proximity to current incorporated area
- Available/developable land (including for schools, parks, other public facilities) without significant constraints or legacy issues (e.g., unplanned development, brownfields, etc.)
- Market/development community interest and/or economic development potential
- Already planned facility/service extensions

4. Other Community Objectives

- Orderly growth progression and effective land use management in prime areas and corridors
- Land use compatibility and quality (including to protect nearby in-City neighborhoods and developed areas)
- Resource protection (e.g., floodplains, well fields, creek corridors)
- Asset protection and area planning (e.g., airport vicinity)
- Community image/aesthetics (e.g., gateways, corridors)
- Amenity acquisition or future potential

5. Statutory / Strategic

- Ease of annexation (especially the Chapter 43 exemption, from the three-year annexation process, of areas with 99 or fewer tracts where each tract has one or more residential dwellings)
- Strategic or “defensive” annexations to set the stage for future actions and/or prevent potential adverse actions by other nearby cities

POTENTIAL ANNEXATION PHASING

Displayed in **Map 2.2, Potential Annexation Phasing**, are the results from a general evaluation of ETJ areas eligible for potential annexation and related discussions between City and consultant personnel that touched on many of the factors itemized above. Based on this assessment, 19 areas (labeled “A” through “S” on the map) were classified as appropriate for potential annexation in one of three timeframes, subject in all cases to more detailed and area-specific study and deliberation by City officials, staff and other stakeholders:

- Short Term (0-5 years)
- Medium Term (5-10 years)
- Long Term (10+ years)

It should be noted that the timing is meant to convey when annexation proceedings might be initiated but not necessarily completed. Also, while each area is identified for a particular timeframe, this does not mean that all of the land within an area would necessarily be annexed at that time given the more detailed area-specific analysis that will occur before any final decisions.

As displayed on Map 2.2 and in the accompanying **Table 2.3, Primary Factors in Potential Annexation Phasing**:

- The Short Term category includes eight areas, A through H, that account for nearly 10 percent of the ETJ (1,317 acres and 2.1 square miles).
- The Medium Term category includes four areas, I through L, that encompass 25 percent of the ETJ (3,458 acres and 5.4 square miles).
- The Long Term category has the seven remaining areas, M through S, which together are 65 percent of the ETJ (8,939 acres and 14 square miles).

To elaborate on the summary presentation in Table 2.3, below is a compilation of the primary factors considered in classifying each of the 19 areas, recognizing that lesser considerations in other or all five of the “annexation factor” categories might apply in some cases. In general, more checkmarks for a particular area in Table 2.3 suggests more – or more significant – reasons for expediting possible annexation in either the Short or Medium Term relative to areas in the Long Term category.

TABLE 2.3, Primary Factors in Potential Annexation Phasing (in conjunction with Map 2.2)

AREA	Fiscal	Service Provision	Growth	Other Community Objectives	Statutory / Strategic
SHORT TERM (0 - 5 YEARS)					
A	-	✓	-	✓	✓
B	✓	✓	✓	✓	✓
C	-	✓	-	✓	-
D	-	✓	-	✓	-
E	-	✓	-	✓	✓
F	-	✓	-	✓	✓
G	-	-	✓	✓	✓
H	-	✓	-	✓	-
MEDIUM TERM (5 - 10 YEARS)					
I	✓	✓	✓	✓	-
J	✓	✓	-	✓	-
K	-	-	✓	✓	-
L	-	-	✓	✓	-
LONG TERM (10+ YEARS)					
M	-	-	✓	✓	-
N	-	-	-	-	-
O	-	-	-	✓	-
P	-	-	-	✓	-
Q	-	-	✓	✓	-
R	-	-	-	✓	-
S	-	-	-	-	-

SHORT TERM**AREA A**

- Adjacent to planned subdivisions with premier high value residential areas

AREA B (*portion of Area 4 from 2009-2010 initiated by the City*)

- Includes new City water plant (required tie-ins within 1,000 feet of City service)
- Intersection of County Roads 48 and 59 (Minor Retail Node on Land Use Plan, current vacant property on northwest and northeast corners)
- Protection of nearby in-City areas (Southern Trails)
- <100 residential parcels

AREA C

- Vacant land
- Protection of nearby in-City areas (Country Place)
- Proximity to Clear Creek (potential trailhead location) and Tom Bass Regional Park

AREA D

- Located within the Magnolia Corridor Overlay District
- Surrounded by planned subdivisions and in close proximity to three schools on Manvel Road

AREA E (*Area 1 from 2009-2010 planning*)

- Importance of Bailey Road corridor and related street improvements
- Land use management along north Bailey Road frontage within ETJ
- Intersection of Bailey Road and Cullen Parkway (Minor Retail Node on Land Use Plan)
- <100 residential parcels

AREA F (*Area 2 from 2009-2010 planning*)

- Importance of Bailey Road corridor and related street improvements
- Land use management along south Bailey Road frontage within ETJ (with current City limits on north side)
- Intersections of Bailey with Manvel and Harkey Roads (Minor Retail Nodes on Land Use Plan)
- <100 residential parcels

AREA G

- Vacant land
- Development potential with transition of Massey Ranch property

AREA H

- Largely in regional storm water detention and open space near Dixie Farm Road

MEDIUM TERM**AREA I**

- Existing and potential additional industrial development (some vacant property)
- City water service extensions
- East-west roadway improvements on Thoroughfare Plan
- Tollway / Beltway 8 proximity

AREA J

- Significant existing commercial development
- Strategic location and high-profile area of city
- MUD debt / timing considerations (2, 3, 6)

AREA K (*Area 5 from 2009-2010 planning*)

- Interim services agreement in place
- Industrial focus on Land Use Plan (extraction activity in meantime)
- Dixie Farm Road extension on Thoroughfare Plan
- Eventual extension and improvement of County Road 129 and link across Main St/SH 35 to County Road 128 (Hastings Cannon Road) on Thoroughfare Plan
- City gateway factor (along with Area L) behind Main St/SH 35 frontage already in city

AREA L (*portion of Area 6 from 2009-2010 initiated by the City*)

- Pearland Regional Airport and vicinity to south (airport protection/buffering and economic development potential)
- Industrial focus toward Main St/SH 35 on Land Use Plan
- Pearland Parkway eventual extension on Thoroughfare Plan
- East-west link across Main St/SH 35 involving County Roads 414 and 130 on Thoroughfare Plan (airport access)

- Extension and improvement of County Road 129 and link across Main St/SH 35 to County Road 128 (Hastings Cannon Road) on Thoroughfare Plan
- City gateway factor (along with Area K) behind Main St/SH 35 frontage already in city

LONG TERM

AREA M

- Legacy of scattered residential development with uncoordinated platting and street network, not up to in-City standards
- Necessary upgrades to streets/infrastructure and other public service challenges (fiscal factor)
- Predominantly Low Density Residential on Land Use Plan
- Limited City interest in FM 521 frontage
- MUD debt / timing considerations in southern portion toward SH 6 (21, 22 - Lakes of Savannah)

AREA N

- All public land managed by Harris County (Tom Bass Regional Park)

AREA O

- Previously disannexed
- Minimal vacant land with park and storm water detention areas plus low density residential use
- MUD debt / timing considerations (16)

AREA P

- Existing low-density residential development with same designation on Land Use Plan (fiscal factor)
- Minimal vacant land

AREA Q

- Existing low-density residential development with same designation on Land Use Plan (fiscal factor)
- Only some scattered vacant properties

AREA R

- Isolated property at edge of city amid low-density residential use

AREA S (portion of Area 6 from 2009-2010 initiated by the City)

- Largely existing low-density residential

development with same designation north of airport on Land Use Plan (fiscal factor)

- Only some scattered vacant properties

ANNEXATION POLICIES

The written policy statements below may be used by City officials and staff as a guide and reference when making decisions regarding potential annexation activity or related growth guidance measures.

FISCALLY RESPONSIBLE

1. All annexation decisions should require fiscal impact assessments to determine that the annexation is fiscally responsible from the perspective of City operations, maintenance, capital investments, and debt.
2. The City should not annex special districts, such as municipal utility districts (e.g., MUDs) until the district's debt is paid off and/or the economic benefits outweigh the immediate and long-term costs of assuming the district's debt and providing municipal services. The City can negotiate a schedule to establish a future plan for voluntary annexation.
3. When an annexation is not fiscally feasible, the City should consider service agreements in lieu of annexation agreements to extend aspects of the City's regulatory authority without committing to provision of full City services or transfer of debt.

EFFICIENT INFRASTRUCTURE

4. The City should avoid strip and piecemeal annexations given the potential high cost of extending services in such situations. Annexations can be used in a strip or piecemeal nature to establish the contiguity necessary for eventual expansion into strategic areas if there is a long-term plan to annex the unincorporated, "passed over" land.
5. Wherever possible, existing infrastructure systems in areas proposed for annexation should have near or fully adequate capacities to accommodate current and projected development demands in such areas without the City bearing an inordinate burden for capital investment in the near or longer term.
6. To maximize the use and efficiency of existing City infrastructure, growth should first be directed toward vacant parcels and

underutilized lands within the City limits before extensive development is considered or encouraged within future growth areas beyond the City limits.

7. The City should promote reuse and/or redevelopment of obsolete, vacant buildings and underutilized properties to maximize the efficiencies of existing infrastructure and municipal services, along with the overall community and tax base benefits of restoring such properties to productive use.

ECONOMIC DEVELOPMENT

8. Annexation decisions should be consistent with the economic development objectives of the City as stated in this Comprehensive Plan and the *Pearland 20/20 Strategic Plan*.
9. Annexation agreements and voluntary ETJ agreements should be used as tools to secure the City's long-term jurisdictional interests and protect its growth trajectory and future development options in the ETJ.

QUALITY DEVELOPMENT

10. The City should prioritize annexations in highly visible areas at community gateways and along key corridors to ensure sound regulation of the type, pattern, and quality of development.
11. The City should weigh the intangible benefits of annexation and the possible costs of inaction, such as potential lost opportunities to extend the City's proposed zoning authority to undeveloped areas where growth is anticipated.
12. The City should use development agreements and/or strategic partnership agreements as a negotiation tool to increase the quality of site and building design, when appropriate.
13. Annexation should occur in strict compliance with the policies and planning guidance in this Comprehensive Plan, particularly the Land Use Plan and Thoroughfare Plan.

COORDINATION AND PARTNERSHIPS

14. Annexation and strategic partnership agreements should be used as vehicles to partner with and mutually define growth objectives with private landowners to ensure land is devoted to its highest and best use whenever possible, along with consideration of other community objectives and priorities.

15. The City should consider entering into interlocal agreements to facilitate ETJ boundary adjustments with adjacent municipalities in exchange for areas of strategic importance and equivalent value (i.e., "ETJ swaps"), when appropriate.

ANNEXATION PARAMETERS

Given the amount of territory already included within Pearland's corporate limits (roughly 46 square miles), the City has the ability to add considerable acreage through annexation where desired and feasible. As specified in Chapter 43 of the Texas Local Government Code, in any given year the City may annex a quantity of acreage that is equivalent to up to 10 percent of its current incorporated land area (i.e., approximately 4.6 square miles). If it does not annex all of the land that is allowed, the difference rolls over to the next year. The City can make two such rollovers, meaning it can annex up to 30 percent of its land area in a single year (i.e., nearly 14 square miles currently).

The flip side of this opportunity is that, even more so since Chapter 43 was significantly amended in 1999, Texas annexation statutes impose stringent standards for extending municipal services to newly-annexed areas in a timely and adequate manner, which must be comparable to pre-existing services and service levels in similar incorporated areas.

Growth Guidance Tools

Cities have an array of strategies for influencing the location, pattern and timing of development. Some methods simply aim to minimize the adverse effects of growth without affecting its direction or the nature of the development. Other techniques allow a city to guide and shape growth more directly. Given the limitations of Texas enabling laws for city and county government, there are few, if any, mechanisms currently available to entirely prevent scattered or "leapfrog" development trends, particularly within a City's ETJ. Instead, Texas cities are faced with a complex set of rules regarding their ability to manage all aspects of future growth and development. While there are some ways to better manage peripheral development, there are also factors over which the City has little control (e.g., no building permit requirements or code enforcement in the ETJ).

Within this context, it is wise for Pearland to consider ways in which it can exert more influence over the direction, timing, pattern, and quality of fringe development that it ultimately must serve. The intent

should not be to stop or necessarily slow growth in the area, but to guide growth toward areas that can best be served with public utilities and services in a cost-efficient manner. The bottom line is that no single “silver bullet” solution is available to the City. Rather, Pearland must be prepared to consider a combination of ways to better manage its growth.

AVAILABLE MUNICIPAL TOOLS

As a home rule municipality, the City of Pearland is equipped with a number of authorities and methods for tackling the challenges of local growth guidance and management. Summarized in **Table 2.4, Tools for Advancing Growth Guidance Objectives**, are key mechanisms through which Pearland is already pursuing its growth-related objectives. These tools are shown in five categories that represent the main ways that comprehensive plans are implemented:

1. Capital projects.
2. Policies and programs.
3. Regulation and standards.
4. Partnerships and coordination.
5. More targeted planning (especially as required to qualify for external funding opportunities).

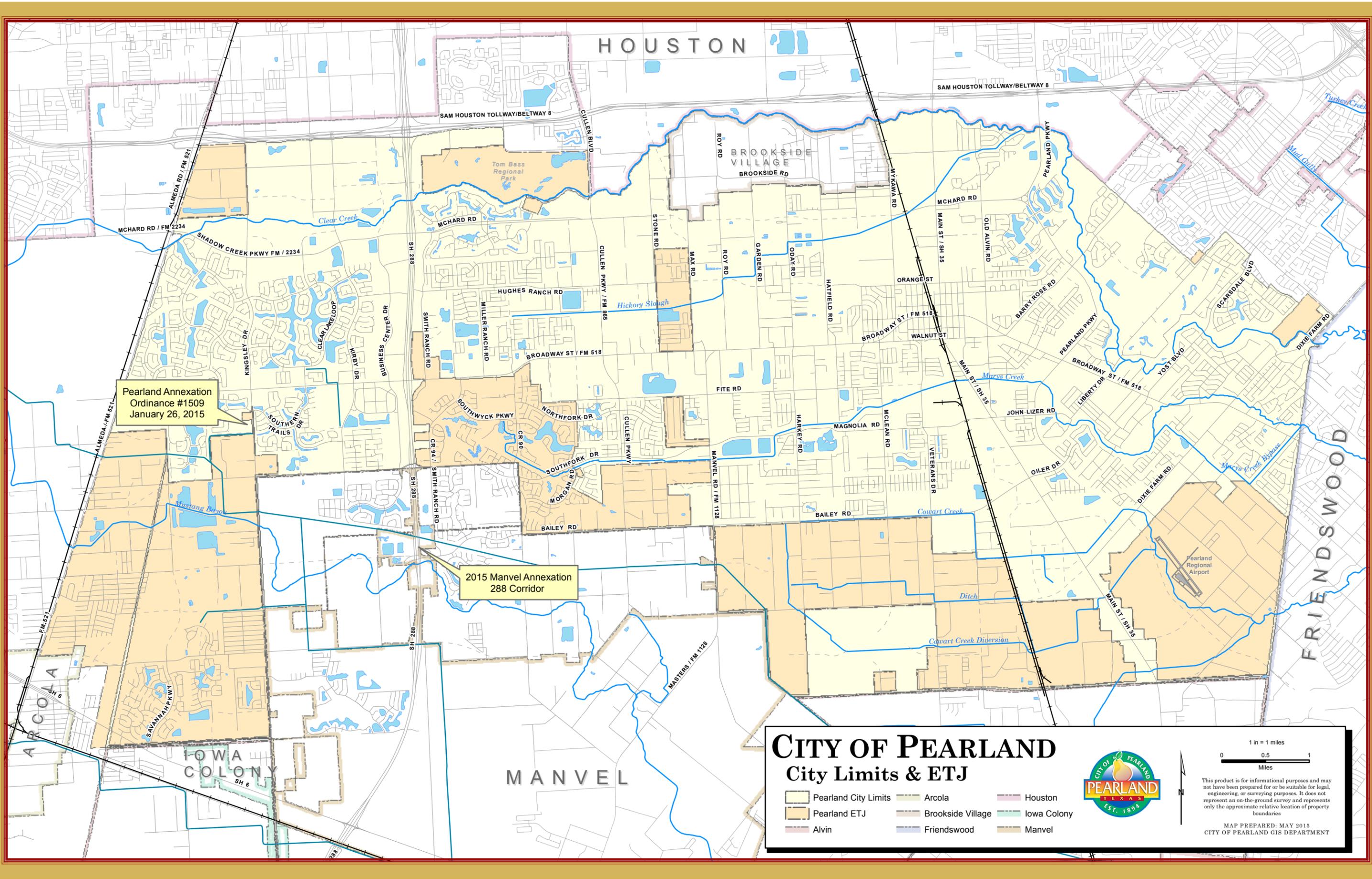
Given its size and the resulting level of sophistication of its municipal government, Pearland benefits from activities that are done here routinely relative to smaller cities with lesser means and capabilities – and compared to some larger cities with limited will or support to take certain actions. Along with the strategic priorities and other actions outlined in this plan section, it is important to capture in the Comprehensive Plan ongoing functions of City government, such as those highlighted in Table 2.4, that will also help to attain the plan vision and goals.

TABLE 2.4, Tools for Advancing Growth Guidance Objectives

TOOL	PEARLAND EXAMPLES
Overall Framework for Growth and Development	
Long-Range Planning	<ul style="list-style-type: none"> • Comprehensive Plan <ul style="list-style-type: none"> » Growth projections and assumptions » Land Use Plan (both new uses and redevelopment) » Thoroughfare Plan
Strategic Planning	<ul style="list-style-type: none"> • Pearland 20/20 Strategic Plan
Capital Projects	
Multi-Year Programming and Budgeting	<ul style="list-style-type: none"> • Capital Improvements Plan (CIP) <ul style="list-style-type: none"> » Targeted public investments in prime growth areas » Advance land acquisition for public improvements » Improved Insurance Services Office (ISO) rating
Policies and Programs	
Municipal Policies	<ul style="list-style-type: none"> • Utility policies (required connection, extension, oversizing and cost-reimbursement) • Engineering design criteria <ul style="list-style-type: none"> » Adequate infrastructure in ETJ development » “Green infrastructure” provisions • Water rate structure (conservation incentives)
Financial Management and Tools	<ul style="list-style-type: none"> • Fiscal impact analysis • Development impact fees • Cost-sharing and external funding opportunities
Special Initiatives	<ul style="list-style-type: none"> • Regional approach to storm water management • Brownfield remediation to support redevelopment

TABLE 2.4, Tools for Advancing Growth Guidance Objectives

TOOL	PEARLAND EXAMPLES
Special Districts	<ul style="list-style-type: none"> • Municipal Utility Districts (MUDs, in-city and in ETJ) • Brazoria County Drainage District No. 4 • Emergency Services Districts • Municipal Management Districts • Tax Increment Reinvestment Zones (TIRZ)
Regulations and Standards	
Land Development Regulations	<ul style="list-style-type: none"> • Unified Development Code (UDC) <ul style="list-style-type: none"> » Appropriate zoning of annexed land » Adequate public facilities provisions » Parkland dedication and fee-in-lieu provisions • Planned Development (PD) option • Cluster Development Plan option
Partnerships and Coordination	
Public/Public	<ul style="list-style-type: none"> • Multi-jurisdiction planning <ul style="list-style-type: none"> » Water supply » Drainage » Transportation » Parks/trails • Intergovernmental and interagency agreements • Pearland Economic Development Corporation • School districts (Alvin, Clear Creek, Fort Bend, Houston, Pasadena, Pearland) • County, state and federal entities with facilities in city
Public/Private	<ul style="list-style-type: none"> • Development agreements • Private property owners, and land development and real estate communities • Advocacy and resource organizations <ul style="list-style-type: none"> » Pearland Chamber of Commerce » Keep Pearland Beautiful » Old Townsite Business Coalition » Homeowner associations
Targeted Planning	
Annexation Planning	<ul style="list-style-type: none"> • Location, timing and logistics of potential annexations
Special-Area Planning	<ul style="list-style-type: none"> • Corridor and district plans • Neighborhood plans
City Master Plans	<ul style="list-style-type: none"> • Water, Wastewater, Drainage <ul style="list-style-type: none"> » Water Conservation Plan • Traffic Management • Parks and Recreation, Trails



Pearland Annexation Ordinance #1509
January 26, 2015

2015 Manvel Annexation
288 Corridor

CITY OF PEARLAND

City Limits & ETJ

Pearland City Limits	Arcola	Houston
Pearland ETJ	Brookside Village	Iowa Colony
Alvin	Friendswood	Manvel

1 in = 1 miles

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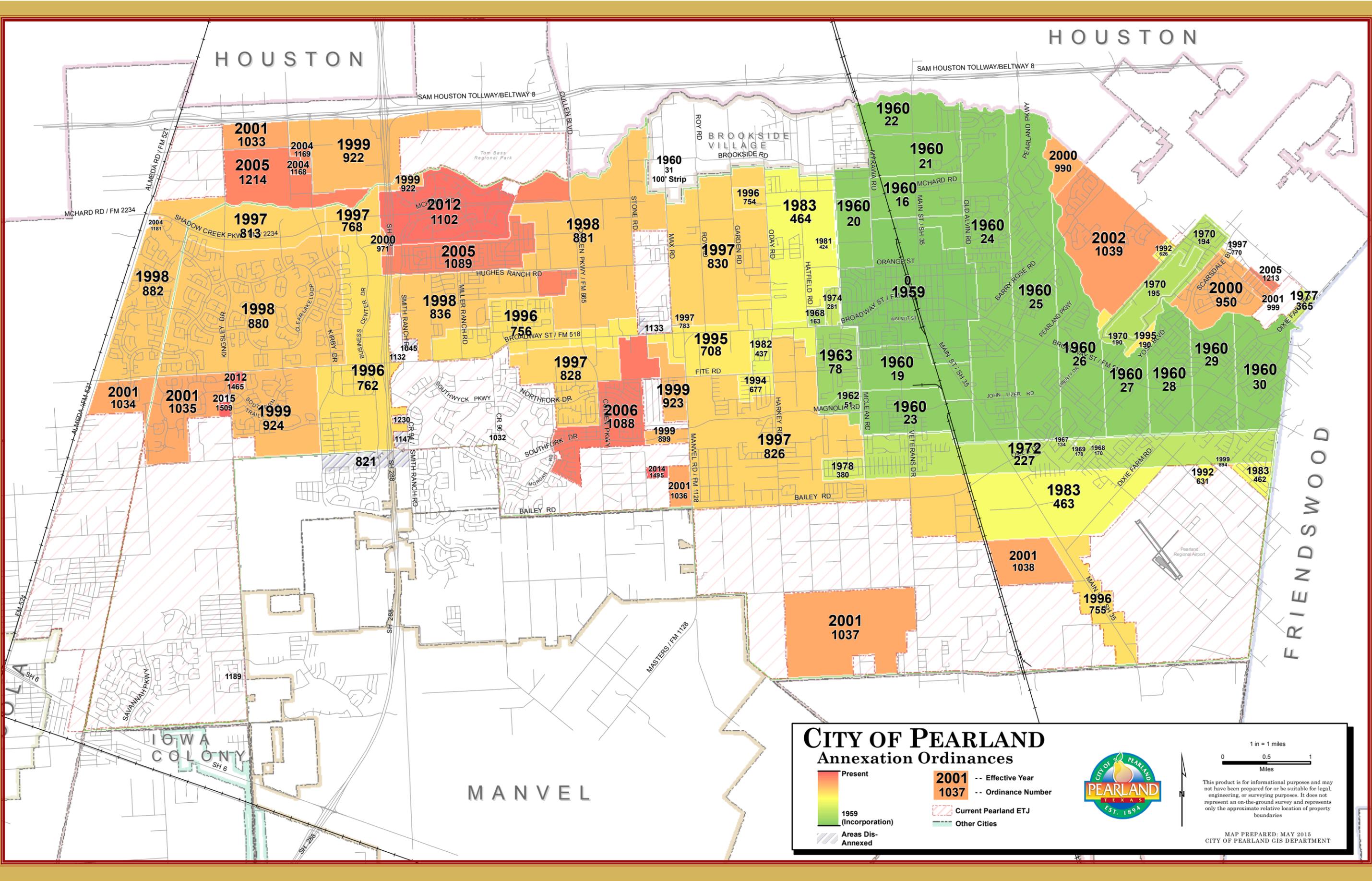
MAP PREPARED: MAY 2015
CITY OF PEARLAND GIS DEPARTMENT

HOUSTON

HOUSTON

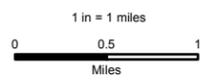
MANVEL

FRIENDSWOOD



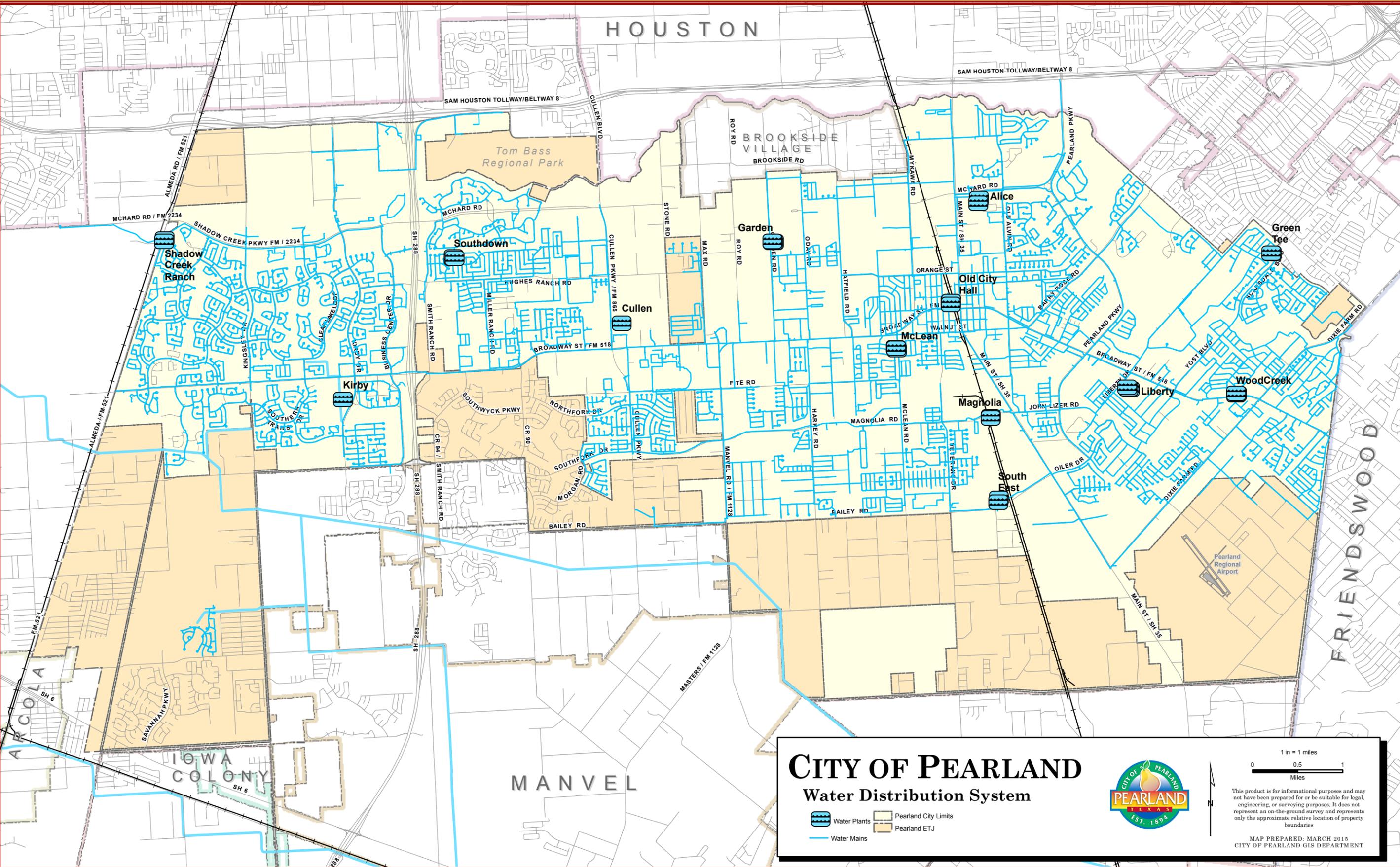
CITY OF PEARLAND Annexation Ordinances

- Present
- 2001 -- Effective Year
- 1037 -- Ordinance Number
- Current Pearland ETJ
- Other Cities
- Areas Dis-Annexed
- 1959 (Incorporation)



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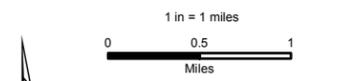
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CITY OF PEARLAND

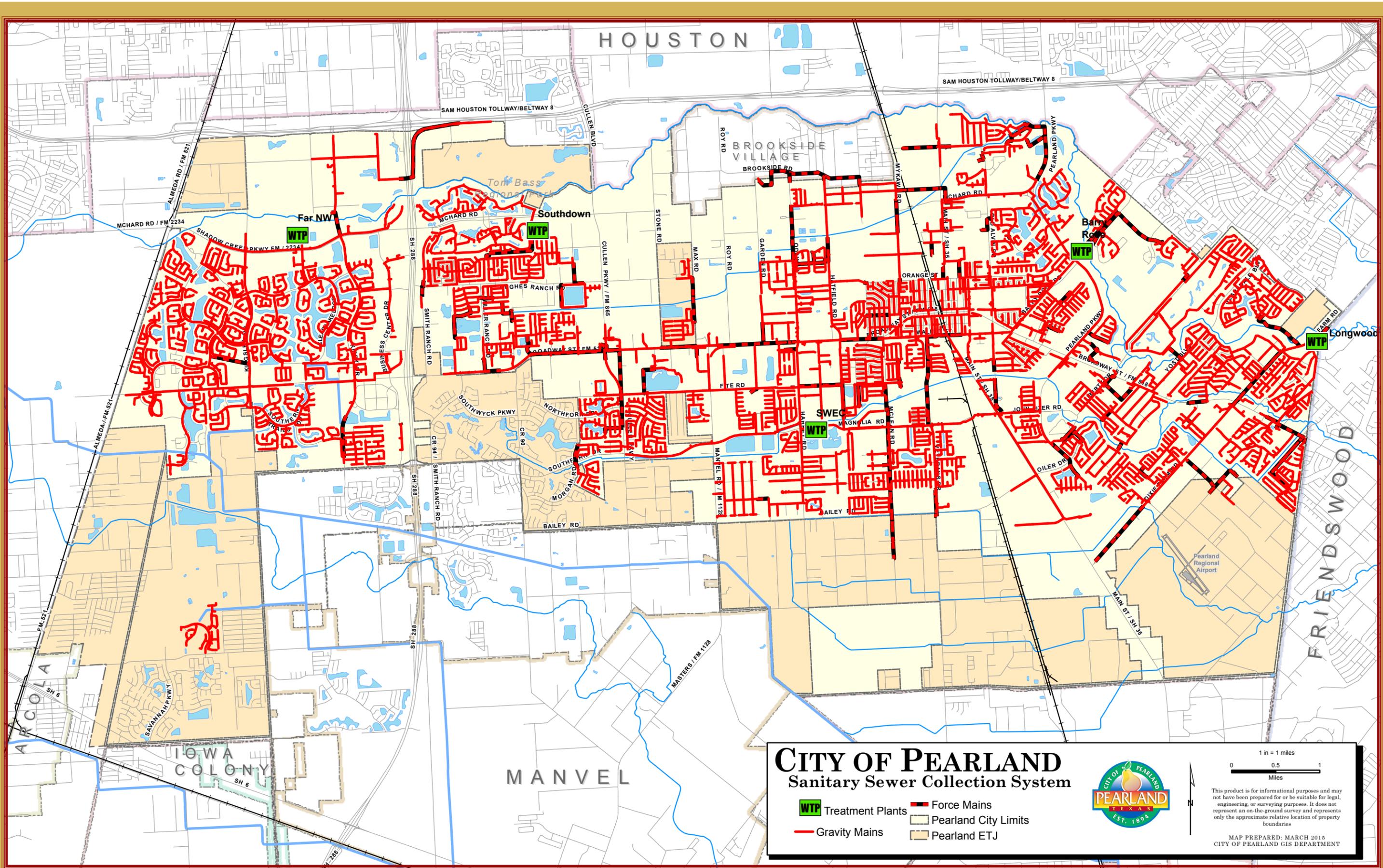
Water Distribution System

-  Water Plants
-  Water Mains
-  Pearland City Limits
-  Pearland ETJ



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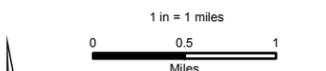
MAP PREPARED: MARCH 2015
CITY OF PEARLAND GIS DEPARTMENT



CITY OF PEARLAND

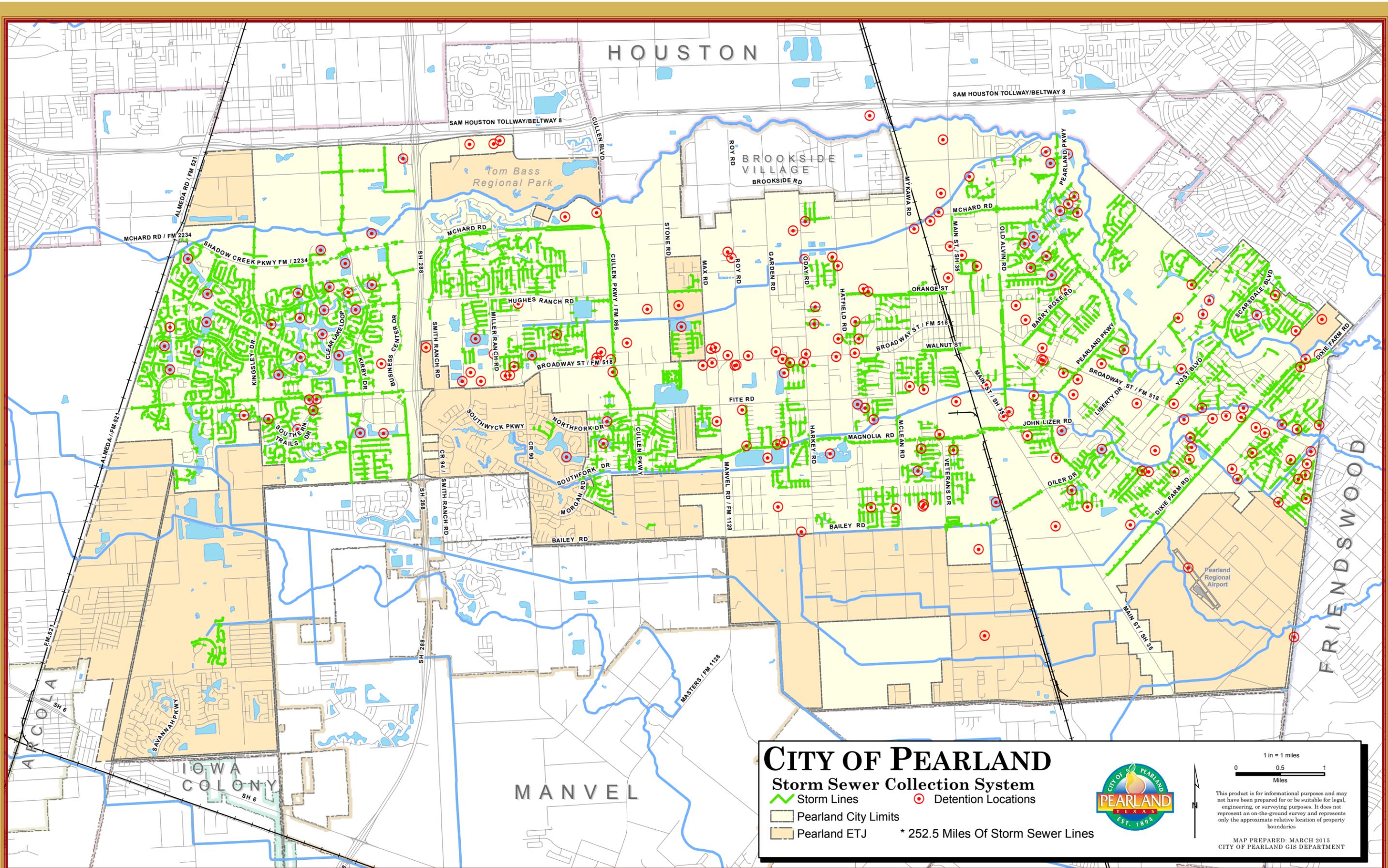
Sanitary Sewer Collection System

- Treatment Plants
- Force Mains
- Gravity Mains
- Pearland City Limits
- Pearland ETJ



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MAP PREPARED: MARCH 2015
CITY OF PEARLAND GIS DEPARTMENT

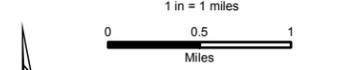


CITY OF PEARLAND

Storm Sewer Collection System

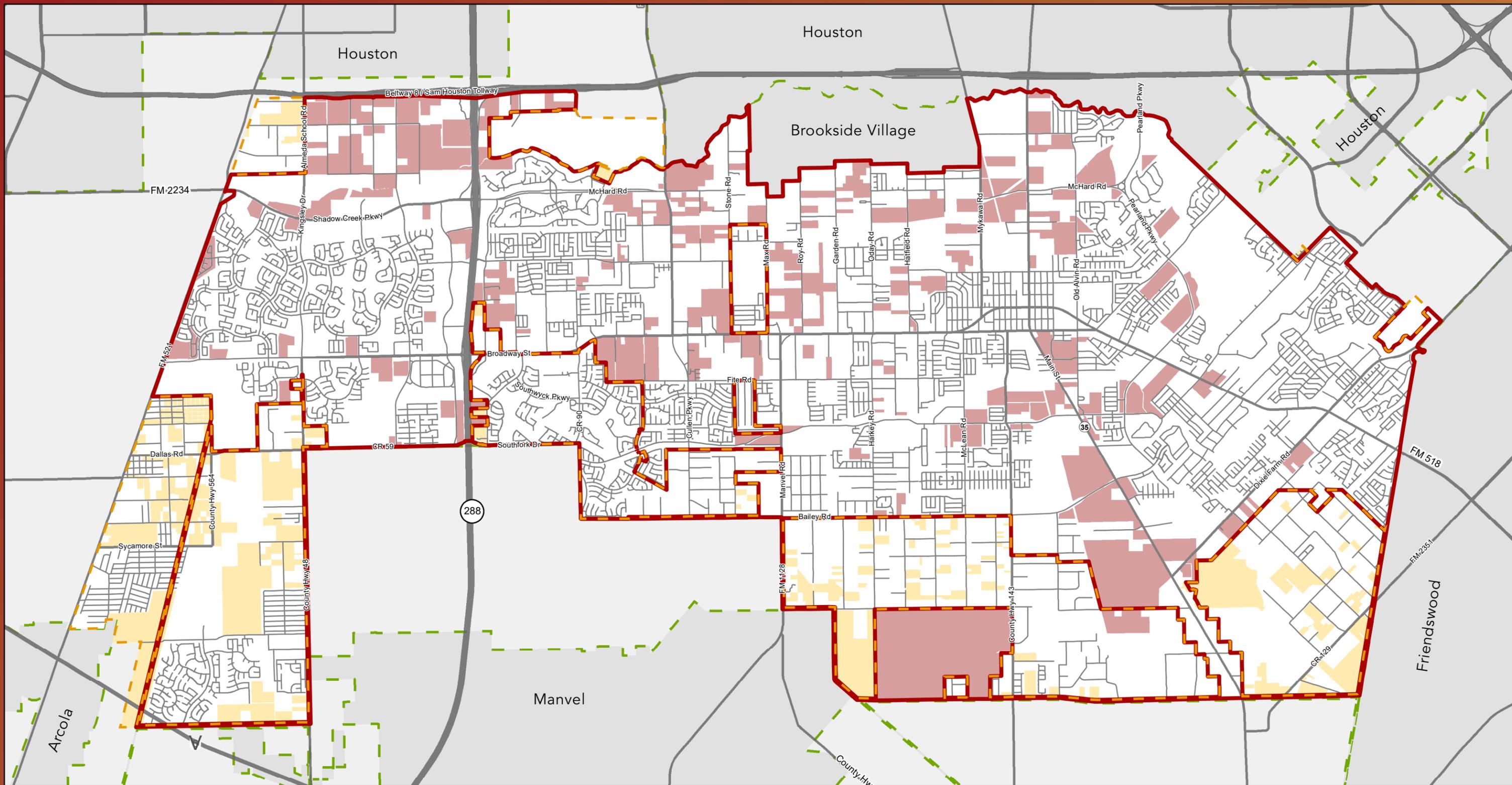
- Storm Lines
- Detention Locations
- Pearland City Limits
- Pearland ETJ

* 252.5 Miles Of Storm Sewer Lines



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MAP PREPARED: MARCH 2015
CITY OF PEARLAND GIS DEPARTMENT



Map 2.1

Remaining Vacant Land

Adopted
September 21, 2015



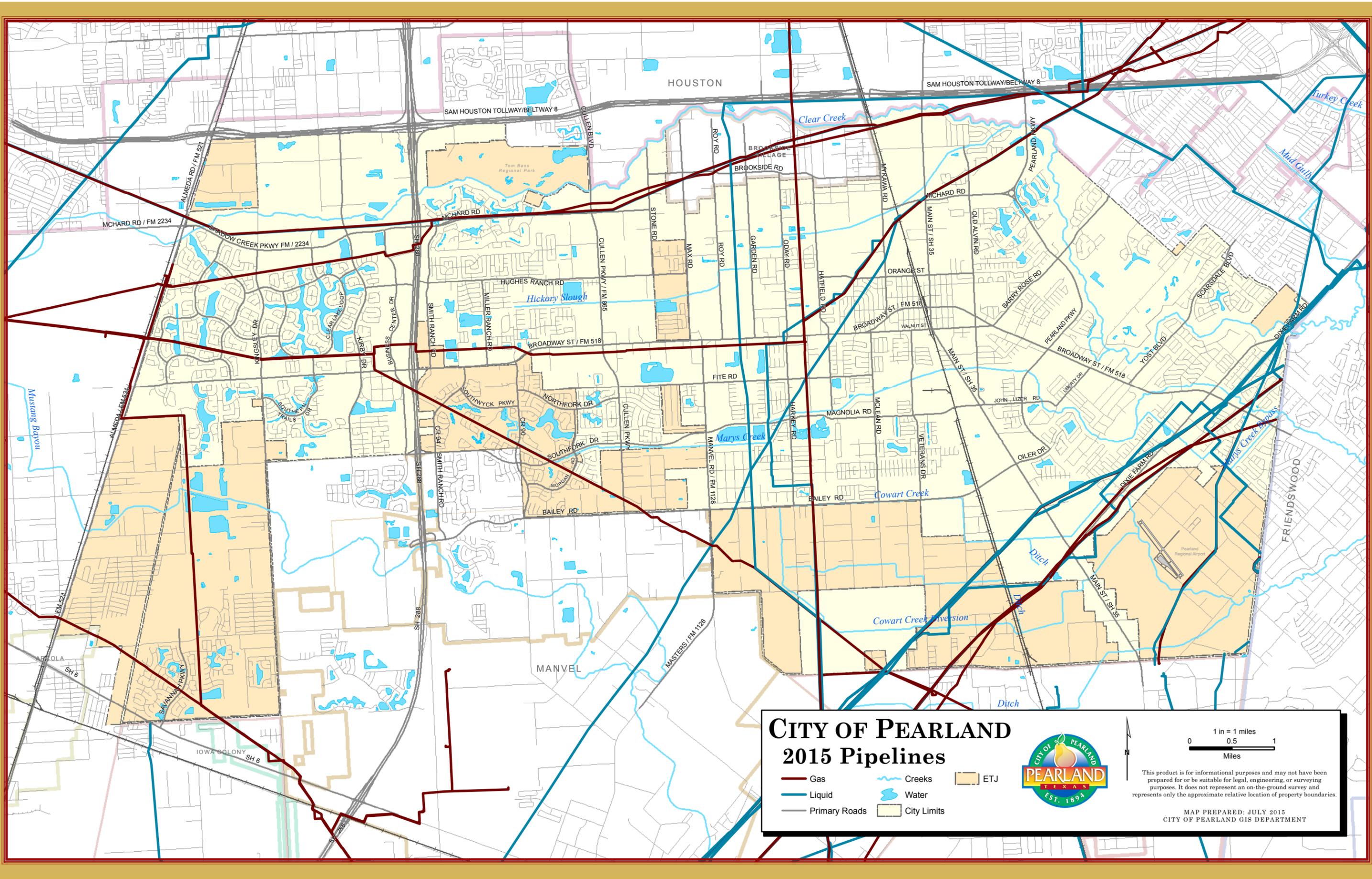
Area	Vacant Sq. Miles (approx.)	Vacant Acres (approx.)
City Limits	8.8	5,642
ETJ	4.4	2,831
Total	13.2	8,473

NOTE: Vacant land inventory based on Fall 2012 aerial imagery and further verification by City and consultant personnel.

NOTE: "Vacant" land includes entirely unused properties plus large properties with just a small homestead or only minimal disturbances (e.g., clearing/excavation, storage, etc.).

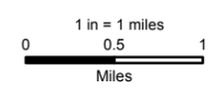
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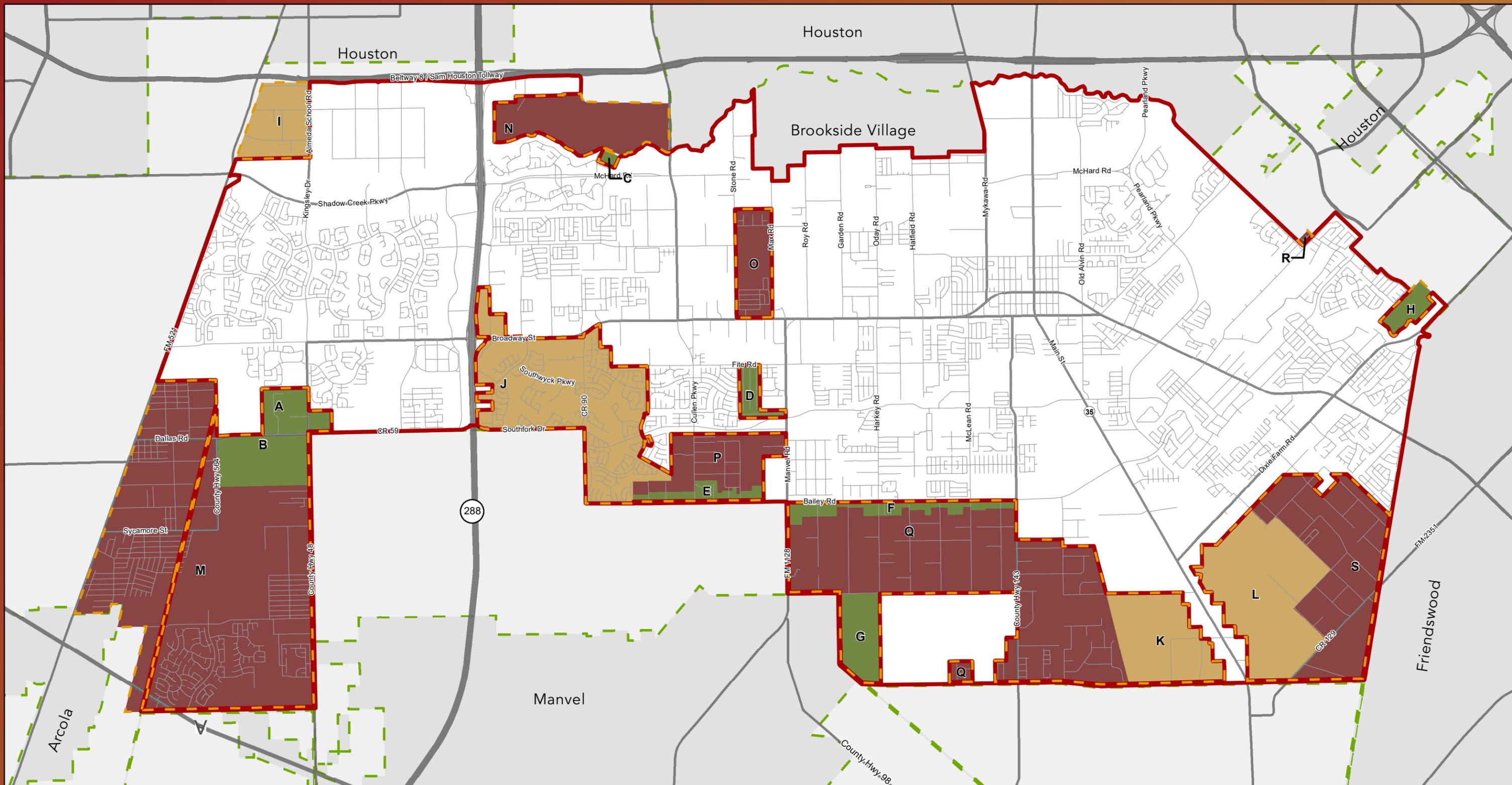
CITY OF PEARLAND 2015 Pipelines

- Gas
- Liquid
- Primary Roads
- ~ Creeks
- Water
- City Limits
- ETJ



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MAP PREPARED: JULY 2015
CITY OF PEARLAND GIS DEPARTMENT



Map 2.2

Potential Annexation Phasing

Adopted September 21, 2015



Areas	Sq. Miles (approx.)	Acres (approx.)
Short Term	2.1	1,317
Medium Term	5.4	3,458
Long Term	14.0	8,939
Total	21.5	13,714

NOTE: Identified areas are discussed further in Chapter 2 and do not suggest areas to be annexed in their entirety.

NOTE: This map is for a general planning purposes only and does not constitute the Municipal Annexation Plan required by Chapter 43 of the Texas Local Government Code.

DISCLAIMER: This graphic representation depicts generalized areas for informational and long-range planning purposes only. The illustration may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property and other boundaries. Data is not guaranteed for specific accuracy or completeness and may be subject to revision at any time without notification.

