

# Choices

## G R O W T H P L A N

### 4

#### CHAPTER

Over the course of the last 60 years, Temple has experienced a stable rate of growth, averaging nearly 25 percent per decade. From an economic perspective, the increase in population and corresponding employment growth is a positive indicator of the community's competitiveness and stability. Continuing economic growth is a primary goal. A question confronting Temple is how to maximize the fiscal benefits of this growth?

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The pattern of growth and efficiency of service provision are contributing factors to a community's fiscal well-being. Since 1985, the overall form of development has become increasingly scattered around the periphery of Temple and throughout the City's extraterritorial jurisdiction (ETJ). A scattered growth pattern strains local government resources – and can also undermine community character and individual quality of life as traffic congestion appears in more locations, provision of parks and other public facilities lags behind new growth, and older neighborhoods and retail areas lose their vitality. At this critical stage in its 130-year history, **Temple must consider mechanisms to coordinate the *pattern and timing* of development and to ensure cost efficiency in providing public facilities and services.** This means that Temple must get ahead of the “growth curve” and, to the extent possible, minimize the times when it is reacting to both the negative *and* positive impacts of growth.

### Purpose

The purpose of this element is to clarify and establish City intent and policy regarding how growth and new development will be accommodated and should occur in an orderly and beneficial manner in and around Temple consistent with other fiscal and community considerations. Chief among these are utility infrastructure and public service capacities, as well as efficient land and roadway network utilization to maintain and achieve a desired urban form and character. With regard to critical public safety services (police, fire/rescue), the paramount concern is the City's ability to serve its current geographic area and residents while also preparing for the service demands that will come with ongoing development and added population.

In addition to incorporating planning considerations and guidance related to the City's basic infrastructure and public service responsibilities, this chapter also establishes an overall framework for growth management, with strategic directions as to the changes in policies and practices that should be considered to better manage future growth and development. The emphasis is on viable and practical solutions the City can pursue to preserve its community character even as growth occurs, ensure efficient provision of adequate public infrastructure and services, protect its strategic community assets, and secure Temple's long-term fiscal health.

## **Growth Context**

### ***Reasons for Temple's Recent Growth Pattern***

There are several reasons why the recent pattern of growth has occurred in and around Temple, including, but not limited to, the following:

- There is a lure to “green field” development due to the ease of development approval, particularly since the City has no authority within its ETJ to regulate:
  - The use of any building or property for business, industrial, residential, or other purposes;
  - The bulk, height, or number of buildings constructed on a particular tract;
  - The size of a building that can be constructed on a particular tract of land, including, without limitation, any restriction on the ratio of building floor space to the land square footage (floor area ratio);
  - The number of residential units that can be built per acre of land; or
  - The size, type, or method of construction of a water or wastewater facility that can be constructed to serve a developed tract of land, subject to specified criteria.
- The City's cost-sharing ordinance for utility extensions (originally adopted in the early 1990s and amended in January 2004) commits the City to pay 100 percent of the cost for the first 2,500 feet of line extension and 50 percent for the next 2,500 feet. The ordinance included stated exceptions regarding cost effectiveness; the condition of the Water and Wastewater Fund; conformance with the Water and Wastewater Master Plan, the Comprehensive Master Plan (zoning), or other development policies; and the financial resources of the developer. However, the Comprehensive Plan at the time did not define a designated growth area, nor was it directly coordinated with the Water and Wastewater Master Plan. Therefore, there was no mechanism to coordinate the pattern and timing of development and ensure cost efficiency in the provision of adequate public facilities and services.
- There are both allowances and limitations within the zoning ordinance, including:
  - The minimum lot size within the Agricultural “A” district is only one acre, meaning that estate development is allowed.
  - The pyramidal structure of the zoning ordinance, which permits the preceding uses within each subsequent district, allows incompatibility among uses within the same district. Without the protection of sound zoning within the city limits, there is little lost by developing in the ETJ. The zoning ordinance should provide adequate protection among developments by way of restructured

districts and bufferyard standards to create an advantage to living within the city limits.

- There are no incentives, such as density bonuses, integrated into the ordinance to encourage certain development types. An increased density in exchange for development clustering and increased open space could allow a rural development environment within the city limits rather than necessitating development in the ETJ to achieve this character. The infrastructure necessary to support this development type is more efficiently provided and the environmental impacts (e.g., storm water runoff) are greatly reduced.
- The current requirements for use transitions and buffering are generally ineffective, providing reason to develop in the open countryside to gain relief from the impacts of urban/suburban development.
- There are several rural water providers around the periphery of the City, meaning that development may gain access to a public water system that meets the standards of the Texas Commission on Environmental Quality (TCEQ) without requiring connection to the City’s water system.
- The Bell County Health Department’s requirements for permitting septic systems is a minimum of a one-half acre lot where there is public water available and one acre when there is a private well. These requirements allow rural development within the ETJ due to the ready availability of water and sewer.
- Platting requirements under the Texas Local Government Code include an exemption when the divided lots will be larger than five acres, which allows rural development to occur without platting and, thus, without any provision for right-of-way dedication, delineation of easements, or other typical – and warranted – pre-development requirements.
- The City’s parkland dedication requirements apply equally within the City and ETJ. Since land costs are generally lower in the ETJ, this effectively lowers the value of land dedication outside the city limits. Also, the scale of development in the ETJ is usually less than 399 units, which is the threshold beyond which a park fee must be paid in lieu of land dedication.
- Development outside the city limits does not pay City taxes. Therefore, residents and businesses outside the city limits benefit from access to municipal facilities and services, such as roads, parks, trails, libraries, and other community facilities, but they do not share the tax burden associated with constructing and maintaining those facilities and services. Over time, this increases the tax burden on in-City residents.
- Land is generally less expensive outside the city limits due, in part, to the absence of public infrastructure and improvements, which equates to cheaper development and hence, lower home and building costs.
- The natural amenities offered by the gently rolling terrain, mature vegetation, and lake are highly desirable as a living environment. There is an attraction to this open, rural landscape, which will slowly disappear with increasing development over time and a lack of land use controls to protect the desirable character.
- There are multiple school districts, which influences the choice of residential location as individuals assess perceived differences in program quality, special offerings, facilities, etc.

***Consequences of Sprawl***

While Temple's recent growth has brought great opportunity, without adequate foresight and preparedness it may involve long-term consequences, including:

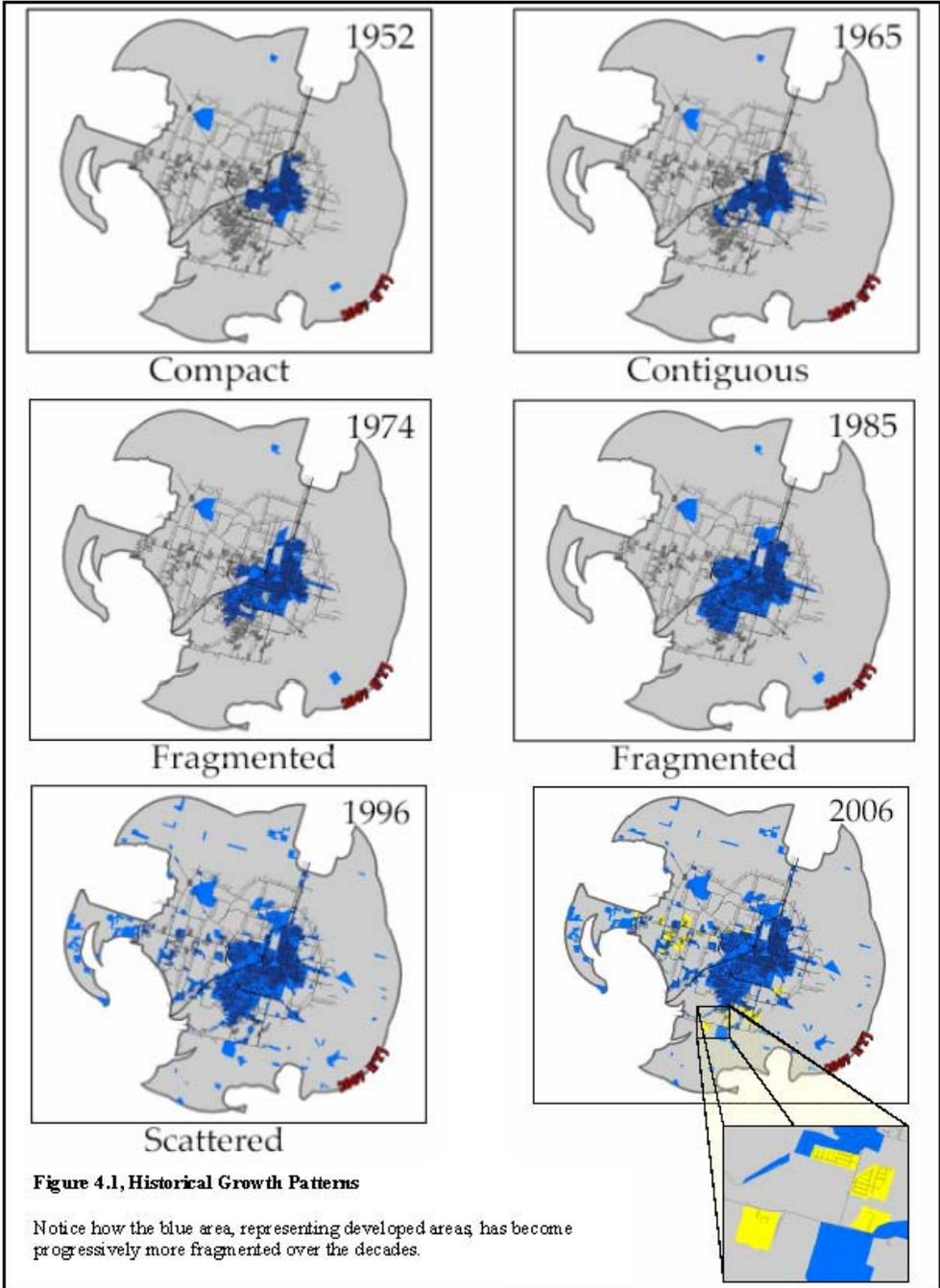
- Erosion of a defined community edge, thereby blurring its boundaries and contributing to a loss of community identity.
- Degradation of environmental resources such as floodplains, wetlands, habitat, vegetated areas, etc.
- Overwhelmed public infrastructure (e.g., roads, water and wastewater systems) and services (e.g., police and fire protection, parks, libraries, and schools), in some cases, creating unsafe conditions.
- A lack of coordinated planning between individual developments, leading to, among other things, a discontinuous and disjointed street system and inability to achieve linear linkages and greenways.
- Premature and unexpected shifts in traffic patterns, causing congestion and environmental impacts as development occurs in an uncoordinated fashion before adequate road infrastructure is in place.
- The private provision of streets and infrastructure systems, such as package treatment plants, in some locations, for which the burden may shift to the City in future years without the requisite funding to pay for it.
- Cumulative impacts on the natural environment due to urban stormwater runoff (increased drainage volumes and velocities) and non-point source pollution of Belton Lake and area streams and watercourses from contaminants and sediments carried by overland drainage.
- Inefficient provision of services, meaning a larger investment in infrastructure systems with fewer than the optimal number of connections/users to pay for them.
- Increased traffic as residents have to traverse relatively longer distances to reach places of work, shopping, services, education, recreation, and entertainment. This means that more public dollars must be expended on road building, expansion, maintenance, street lighting, and traffic enforcement (plus the associated drainage and environmental impacts of more widespread road surfaces).
- Declining rural character and agricultural operations as formerly large, contiguous farm and ranch properties are broken up by scattered development and the proliferation of "exurban", 5-plus acre lots. The agricultural industry is a significant sector of the regional economy, and the presence of local agricultural products is good for local consumers. Moreover, farming is an important part of the region's heritage that continues to contribute to the quality of life and identity of the community.
- Disinvestment in the original town area as new development continues to occur on the periphery.

Issues and Opportunities

Through the long-range planning process a number of issues and concerns were expressed related to management of growth in and around the community. These discussions formed the basis of the following issue statements, along with analysis of existing conditions, review of current plans and policies that factor into growth management, consideration of the City's public infrastructure and service capacities – at present and in the years ahead, and examination of expected future growth trends. These statements bring focus to this plan regarding the community's values, expectations and priorities for addressing Temple's growth management needs. Following the identification of the key issues is a set of community goals and objectives along with discussion of necessary implementation steps.

Exploring Growth Management Mechanisms

As displayed in Figure 4.1, Historical Growth Patterns, since 1985 Temple's overall form of development has become increasingly scattered. Dating to the early 1950s through the mid 1980s, the pattern of development occurred generally in a contiguous manner. Since 1986, however, development has become fragmented and scattered around the periphery of the City and throughout the extraterritorial jurisdiction (ETJ). Several factors have contributed to this post-1985 development pattern including annexation and utility (water and sewer) extension policies. Continuing this growth pattern will become increasingly problematic, resulting in service inefficiency, which strains the fiscal resources of the community. In fact, this strain is already apparent as seen by the proportion of



### Home Rule City

In many cases, the availability of a particular growth management technique depends upon the type of municipality (e.g., general law or home rule), the population of the county, and the population and geography of the city. Temple is a home rule municipality with a land area of about 70 square miles. Its extraterritorial jurisdiction (ETJ) extends up to 3½ miles from its city limits, in accordance with Texas Local Government Section 42.021, Extent of Extraterritorial Jurisdiction (which also provides for a five-mile ETJ once a city's population exceeds 100,000 persons). Nearby municipalities and their ETJs prevent the full extension of Temple's ETJ to the south, west, and northeast.

required investment and priority need to rehabilitate and replace Temple's existing, aging utility infrastructure. Thus, the viability of expanding the system extensively in the near term to serve outlying development is questionable from a growth management – versus economic development and/or strategic interest – perspective.

There are an array of strategies for managing the pattern and timing of development, ranging from simply minimizing the impacts of growth without affecting the pattern to strictly controlling growth. Given the limitations of Texas law there are few, if any, mechanisms currently available to entirely prevent sprawl. Therefore, it is wise for Temple to consider the ways in which it can exert more influence over the direction and timing of development that it ultimately must serve.

Key planning considerations for managing Temple's growth more effectively, as addressed by Goal 4.1, include:

1. Maintaining a commitment to continuous long-range and strategic planning to ensure a sound policy basis for the institution and administration of growth management measures. Further, the policies and objectives of the Comprehensive Plan must carry through to the City's master plans for the provision of street and utility infrastructure, public safety services, and other municipal activities.
2. Evaluating available regulatory mechanisms, most notably through local zoning and subdivision provisions, which to varying degrees can directly impact the character, form, location, and quality of development.
3. Pursuing annexation and expansion of the City's geographic jurisdiction in a strategic fashion, particularly since, under the Texas statutory framework, the City must have areas already within its corporate limits to implement a full range of regulatory and fiscal approaches to growth management.
4. Negotiating development and/or participation agreements, which provide for infrastructure funding (and may, in some instances, include land use controls).
5. Exploring the creation of additional improvement districts in the Temple area, as well as other types of political subdivisions authorized by state statute, which are independent entities that provide for infrastructure funding and operation.
6. Entering into interlocal cooperation contracts, as appropriate and where mutually beneficial, as they provide a means for local governments to agree with other units of government for the provision of infrastructure and public services, as well as administrative functions.
7. Planning effectively for the extension of publicly-owned utilities through ongoing capital improvement programming.

### ***Maintaining Basic Water and Wastewater Infrastructure***

The current updates to the City's Water and Wastewater Master Plans, which were previously updated in 2000, were prompted by the significant residential growth on the west and south sides of Temple in recent years, plus ongoing expansion of the industrial park area. A fresh look was also needed to assess future service demands. The master plans are intended to provide guidance in the development of water and wastewater infrastructure improvements so that the service area population and other wholesale customers will be adequately served in coming years – with a long-range planning outlook extending to 2060. Recommended improvements are shown in phases to serve expected

development, and the order of improvements presented in the plan is significant since many of the additions and upgrades to various system components are interrelated.

Key planning considerations for ensuring that Temple stays on top of its fundamental water and sewer infrastructure needs, as addressed by Goal 4.2, include:

1. Addressing pressing rehabilitation needs within the existing systems in the near term through targeted capital investments (e.g., to address deteriorated older pipes, provide additional water storage, and expand water line redundancy).
2. Preparing for the significant capital investment that will be required for the eventual design and construction of a third wastewater treatment facility to serve projected growth.
3. Supporting effective, ongoing planning and system monitoring – in parallel with land use and development tracking – to ensure that the City’s capital investment phasing and timing is on target with new and continuing service demands.
4. Ensuring that Temple is a committed player in support of ongoing regional water supply planning, while also looking out for the City’s own long-term best interests in an increasingly competitive and costly Texas water market.

**Supporting Essential Public Safety Services**

In addition to basic water and wastewater infrastructure, public safety services are a good indicator of how well positioned a City is to serve new growth. Under state law, a municipality must be able to provide emergency police and fire response immediately to newly-annexed territory. At the same time, existing residents and development rely on a basic level of protective services, which must be maintained as the City adds new population and grows geographically.

Key planning considerations for ensuring the continued quality and responsiveness of the City’s police and fire/rescue functions, as addressed by Goal 4.3, include:

1. Providing adequate staffing levels to meet basic response and operating standards, ensure personnel safety, and provide relief to personnel routinely required to work extended hours.
2. Investing in sufficient facilities, in terms of location, design, and functionality, to provide reliable response and service area coverage.
3. Budgeting adequately for the periodic acquisition – and maintenance – of the number and types of vehicles necessary to support core departmental responsibilities, particularly in a community like Temple with a large jurisdiction to cover.
4. Targeting adequate resources to areas that pose particular challenges in a growing community, including traffic- and school-related policing and emergency response.
5. Continuing to pursue inter-governmental approaches to coordinate basic functions and gain cost savings, while remaining sensitive to administrative and operational challenges that may be involved.

**Quantifying the Fiscal Impact of Growth**

A parallel effort to the comprehensive planning process was the calibration of a fiscal impact computer model that will assist the City in comparing and contrasting government costs to the resulting revenue flow associated with growth. This financial modeling will assist the City in making decisions about such things as proposed land uses and capital improvements.

6. Preparing for future population growth and potential service area expansion through annexation, while working to meet today's service demands more effectively.

### 20-Year Growth Planning Map

A key element of this chapter is provided in **Figure 4.2, 20-Year Growth Planning Map**. This map depicts the following four areas:

1. The core, largely contiguous **Developed Area** of the existing community;
2. Several **Protected Areas**, including the draft airport compatibility area contained in the City's draft Airport Master Plan (Working Paper No. 3, November 2007), the boundary for the TAES Blackland Research & Extension Center and the USDA-ARS Grassland Soil & Water Research Lab, as well as all areas within the 100- and 500-year floodplains;
3. The community's potential 20-year **Growth Area** for long-range planning purposes; and
4. The **Holding Area**, which encompasses the remainder of the ETJ and is intended to accommodate future growth beyond the 20-year horizon.

The Growth Planning Map is not intended as a rigid regulatory mechanism, but rather as a tool for general long-range planning purposes. It is very likely that some development outside the Growth Area boundary may make sense and cause no difficulties from a public service or fiscal impact standpoint within the 20-year timeframe. Likewise, some locations included within the Growth Area boundary may turn out not to be conducive for near-term development, at least with the support of City utilities and services.

For this mapping tool to be effective as part of the City's ongoing growth management efforts, the various boundaries must be reviewed at least annually and updated, as appropriate, based on changed market (or other) conditions, economic development opportunities, ongoing capital improvements and their timing/location/capacity, annexation activity by the City, etc.

This chapter and **Chapter 3, Urban Design & Future Land Use**, outline the various mechanisms available to the City for directing and encouraging growth in more sensible and sustainable locations, minimizing intensive development in natural resource areas or other difficult-to-serve locations, and promoting infill and redevelopment in central areas where infrastructure and public services are readily available. As noted earlier in this chapter, there is no single "silver bullet" for sprawl prevention in Texas given the restrictive statutory framework in which municipalities must operate. Therefore, Temple must use a combination of regulatory, capital investment, and financing methods to influence growth and development patterns, as best it can, to protect the community's long-term interests.

## Goals, Objectives and Action Recommendations

The following goals, objectives, and recommended actions were formulated to specifically address the issues and needs outlined above. The goals reflect the overall vision of the community, which may be achieved through the objectives and by acting on the recommendations. It is important to note that these are also general statements of policy that may be cited when reviewing development proposals and used in making important community investment decisions regarding the provision and timing of facilities and services.

### **GOAL 4.1: Growth and development patterns that are consistent with the City's infrastructure and public service capacities and desired community form and character.**

- ♦ *Follow a growth strategy, as established through this Comprehensive Plan (in Figure 4.2), so that the vast majority of development will occur in developed areas and identified growth areas – as either infill or contiguous development – while minimizing the amount of urban development in fringe areas the City cannot yet serve.*

1. Accommodate infill development within designated "developed areas" whenever possible, as depicted in Figure 4.2, which contributes to a more compact urban form and effective utilization of existing infrastructure and public facilities.
2. Encourage new development in designated "growth areas," as depicted in Figure 4.2, where there are readily available services that may be efficiently extended.
3. Minimize any significant development in designated "protection areas," as depicted in Figure 4.2, which encompass floodplains, wetlands, streams and drainage ways, and other natural areas that warrant permanent protection.
4. To the extent possible, limit any significant development within designated "holding areas," as depicted in Figure 4.2, which should contain all remaining land in the ETJ and outside the areas described above. This degree of control is really only possible within the city limits since,

other than withholding unwise utility extensions, municipal zoning is the only direct mechanism for a city to control land use and the density and intensity of development in fringe areas. Cities cannot exercise their zoning authority in the ETJ, and counties in Texas do not have any zoning authority.

- 5. Ensure that proposed utility extensions under the City’s cost-sharing policy are made only in Growth Areas identified on the 20-Year Growth Planning Map, subject to case-by-case review to determine when exceptions are warranted.
  - ◆ **Plan and implement both routine and strategic annexations that will enable the City to promote or discourage, as appropriate, development in key areas.**
- 6. Use the City’s significant annual annexation capability, as feasible from a fiscal and service provision standpoint, to extend the City’s jurisdiction to any areas facing immediate and near-term development pressures (generally over the next 10 years) that are not already within the city limits, as well as any other areas where City utilities have already been extended. By statute, a three-year “waiting” period will be required for some areas, but other areas may be exempted and eligible for much quicker annexation.
 

Another new challenge – as the City experienced with its most recent annexations – is that a statutory mandate added to the Texas Local Government Code in 2007 requires the City to offer special development and non-annexation agreements to land owners who maintain a Texas Tax Code exemption on their property for agriculture, wildlife and/or timber land management. The owner may voluntarily accept the agreement, or else the City can proceed with annexation. If the agreement is accepted, the owner agrees to forego any development activity (other than maintaining an existing single-family residence on the property). In return, the City postpones annexation for the term of the agreement but, significantly, is able to enforce its planning and development regulations so long as they do not interfere with the tax-exempted use of the property.
- 7. Employ growth management measures in areas the City annexes for their strategic, long-term significance rather than for purposes of promoting and directing near-term urban development, to prevent premature and inappropriate development in such areas. In some cases, strategic annexations are necessary due to the actions of other government entities and agencies, which may limit the extent of more routine annexations the City can pursue in the near term.
- 8. Encourage willing landowners to agree to annexation by way of voluntary petition to protect the City’s long-term interests in significant areas of the ETJ, including around Lake Belton, the regional airport, along key transportation corridors (existing and proposed). Also consider voluntary requests by landowners outside the current ETJ to have the ETJ extended to their property where it suits the long-term interests of both parties.
- 9. Use development agreements (the typical kind between cities and property owners/developers, as opposed to the special new agreements cited under item 6 above), where the City holds the necessary leverage, to influence inevitable development activity outside the 20-year growth area. Where appropriate, the City could allow a certain amount of development to occur by way of utility extensions, but it should negotiate potential cost-sharing, require the imposition of its land development

**Drainage Infrastructure**

Drainage infrastructure includes streets, curb inlets, storm drains, detention ponds, man-made channels and natural creeks.

Increased impervious cover through land development activity can place a burden on existing drainage infrastructure by overwhelming existing systems or accelerating reaction to increased runoff as evidenced by natural streams eroding through widening and down cutting in or downstream of urban areas.

Growth management practices should include identifying and managing drainage infrastructure in order to reduce potentially negative effects such as flooding and erosion.

The City of Temple’s Drainage Criteria and Design Manual addresses this to some degree. In addition, the Drainage Master Plan is being updated in 2008. The master plan update will identify and recommend several drainage improvements but should not be considered comprehensive enough to specifically address every new development site.

regulations, and might also offer a guarantee not to annex the property for a stated period of time.

10. Use reliable, sophisticated cost-benefit analysis methods to evaluate all proposed annexations (the fiscal impact model developed in parallel with this Comprehensive Plan update is intended to assist in this area, among others). In many cases where more than pure financial considerations are involved, policy decisions will be necessary to consider the value of annexation and growth control versus the increment of added cost for providing state-mandated services.
- ◆ ***Explore regulatory mechanisms that will enable the City to influence the location, pattern and timing of new growth.***
11. Consider amending the Agricultural district in the City’s zoning code to increase the minimum lot size to something higher than the current one acre. The intent is to limit premature urbanization in areas that cannot be served by current public utility infrastructure – and also to maintain a true rural character, at least for the time being, as the zoning district name implies. A rational basis for the density limitation, such as inadequate road capacity, must be cited to justify this regulatory strategy. The roadway network modeling required for preparation of a local Transportation Master Plan, as recommended in **Chapter 5, Transportation Plan**, would provide the analytical tool – and tracking mechanism over time – to support this management strategy. Site-specific traffic impact analyses (TIAs) could then be evaluated against the capacity and level-of-service determinations that a network model would supply.
12. Explore allowable residential densities in “holding” (agriculturally zoned) areas. This should include requirements for development clustering and open space preservation, via the dedication of conservation easements, as a means to allow some minimal development while barring any significant transition to urban land use until such time as adequate public facilities are available.
13. Consider amending the subdivision regulations, particularly to incorporate Adequate Public Facilities provisions, such as requiring adequate road capacities concurrent with development, as well as demonstration of the ability to meet minimum fire flow requirements. This the most direct means for the City to limit premature development in the ETJ since, unlike zoning, the City can apply its subdivision regulations across its entire ETJ.
14. Consider reworking the City’s parkland dedication and fee-in-lieu requirements so this particular regulatory mechanism does not provide a distinct advantage to developing in the ETJ versus within the city limits. First, the fee amount should be adjusted to be equivalent to the value of land dedication (which is an overall problem with the current ordinance, not just a growth management issue). Then, the fee amount should be adjusted to reflect differences in appraised land values within and between the City and ETJ.
- ◆ ***Use infrastructure-related measures to guide and focus development in preferred areas.***
15. Revise the City’s cost-sharing ordinance and utility extension policies to complement the City’s capital improvements program (CIP) and policies and initiatives established through the new Water & Wastewater Master Plans.
16. Consider using the cost-sharing ordinance and utility extension policies in areas designated for development incentives.

- 17. Negotiate non-annexation agreements with landowners that are outside of the 10-year growth area. A certain amount of development should be granted subject to imposition of the City's land development regulations and a guarantee by the City not to annex for a stated period of time. The City's willingness to extend utilities, where this is a factor, should be part of the negotiation process.
- 18. As a potential alternative to impact fees, investigate the use of improvement districts since they allow for funding of a broader range of public improvements.

**GOAL 4.2: Sufficient water and wastewater system capacity to accommodate growth expectations through 2030 and ensure state/federal regulatory compliance.**

- ◆ ***Pursue a strategy for constructing new or upgrading existing water system infrastructure that involves multiple projects aimed at replacing or rehabilitating various system elements, including water treatment plant components, water transmission and distribution lines, associated pumps, and ground and elevated storage tanks.***

- 1. Implement phased expansions in water treatment capacity to keep pace with projected demand, generally in 10 million gallon per day (MGD) increments.
- 2. Monitor maximum daily demand closely so that preliminary planning for a 10 MGD expansion to the membrane plant will be initiated approximately three years in advance of the need for the expansion.
- 3. Make the necessary improvements to ensure that the water system continually meets minimum pressure requirements of the Texas Commission on Environmental Quality.

- ◆ ***Implement phased, targeted improvements intended to increase redundancy within the water system.***

- 4. Complete improvements to where multiple feed points will distribute water into the City from the treatment plant to avoid the risk of interrupted water service in areas where a single transmission main currently feeds a portion of the system.
- 5. Complete phased pump station and water storage improvements, as itemized in the updated Water Master Plan, to ensure that projected demands can be met by the distribution system as growth and development continues within particular pressure planes (west and south Temple, industrial park area, etc.).
- 6. Provide additional ground storage within the distribution system to ensure adequate water availability within the system during potential service disruptions.

**Overall Water & Wastewater Policies**

- A. As growth continues in and around Temple, the City should continue to program and complete phased improvements to its water and wastewater systems. The long-term goal is to provide a system that is ultimately capable of serving up to 135,000 persons, which is the estimated population of the area over which Temple currently has water rights. This service area includes Morgan's Point, Little River/Academy, and Troy. The 135,000 population will be reached well beyond the horizon of the Water & Wastewater Master Plan, which assumes a population of 116,000 by 2060.
- B. Where financially and physically feasible, primary improvements (water mains, trunk sewer lines) should be sized and constructed to meet the needs of a service area's projected ultimate population since, over the life of a project, this is more economical because periodic upgrades are eliminated.
- C. The Water & Wastewater Master Plans should be re-evaluated and updated, as necessary, at least every three years during periods of moderate growth, or more frequently when major changes in population, land use, or growth patterns occur. This is especially important to determine whether the planned phasing of improvements, by fiscal year(s), is still appropriate, plus any associated implications for necessary funding availability and timing.
- D. The cumulative impacts of new and expanded commercial and industrial sites developed in coming years should be assessed periodically in relation to the water demands and wastewater flows projected in the updated Water & Wastewater Master Plans to ensure the plans will remain on target in terms of needed system and facility improvements.

**Preliminary Water & Wastewater Master Plan**

It should be noted that while this Comprehensive Plan cites findings and recommendations from the City's Water & Wastewater Master Plan, this separate plan had not yet been officially adopted by the City at the time this Comprehensive Plan update was being finalized.

7. Consider pursuing arrangements for an emergency connection to an alternative water supply source outside the current system (e.g., Central Texas Water Supply Corporation, City of Belton) to be prepared for potential service outages within the system.
  - ◆ **Focus on addressing significant maintenance issues in the existing wastewater system.**
8. Implement the array of projects itemized in the updated Wastewater Master Plan to address various maintenance issues at the Doshier Farm plant and replace deteriorating older lines in the collection system.
9. Take steps during the design and construction of lateral and trunk sewers to minimize rainfall and groundwater infiltration into the collection system. Improved sewer jointing materials should be utilized, together with careful line installation practices. Special attention should be given to small sewers since they normally constitute the largest percentage of pipeline length in a system.
  - ◆ **Pursue strategic wastewater system improvements that will satisfy expected growth demands and also improve overall system performance.**
10. Complete system improvements that will allow for various lift stations to be eliminated from the collection system.
11. Construct new interceptors in growing portions of the overall service area, which will provide the benefit of eliminating inter-basin transfers of wastewater flows.
12. Ensure there is sufficient treatment plant capacity available to serve the service area. Plan for any needed expansion or new plant construction accordingly and in conformance with the adopted Water & Wastewater Master Plan.
13. Monitor potential sites for the third wastewater treatment plant – and secure a workable site early, as appropriate – given concern that future urbanization in south Temple could complicate site acquisition.
14. Monitor growth trends and emerging development patterns in each wastewater service area to determine if improvements slated for the long-range planning period (2025-2060) may need to be constructed sooner. This includes potential new sewer trunk lines in the easternmost Little Elm drainage basin (outside the current Doshier Farm service area) depending on the rate of east side development and the City's capital investment capacity.
15. Maintain ongoing and early coordination with the Texas Commission on Environmental

Quality regarding upcoming discharge permit renewals, likely facility expansions and/or upgrades, and expected new rules and requirements related to wastewater system design, operations and maintenance.

**Preliminary Fire Rescue Master Plan**

It should be noted that while this Comprehensive Plan cites findings and recommendations from the City's new Fire Rescue Master Plan, this separate plan had not yet been officially adopted by the City at the time this Comprehensive Plan update was being finalized.

**GOAL 4.3: Adequate public safety facilities, equipment and professional staffing to meet current needs and prepare for future service demands.**

- ◆ **Support the mission and essential responsibilities of the City's key public safety functions and personnel through adequate budget and community support.**

1. Consider the *Temple Fire Rescue Master Plan's* recommendations in planning for the gradual, phased expansion of Temple Police Department (TPD) and Temple Fire Rescue Department (TFR) staffing. In the case of TFR, this plan determined current operational staffing of fire/rescue personnel to be “marginally adequate.” The plan also recommends the use of “floater” personnel – individuals who can move from station to station to fill temporary staffing gaps – to reduce overtime use.
  2. Anticipate and be prepared to address any TPD facility and/or equipment needs that are necessitated by increased staffing, as well as current space deficiencies identified by TPD (e.g., tactical police training space).
  3. Determine whether a new TFR headquarters will be achieved through remodeling or new construction, and proceed with planning and design for this significant capital investment.
  4. Given shortcomings of the current locations, consider a new location for the City's primary Emergency Operations Center (EOC), as well as a back-up EOC location for redundancy purposes, as recommended in the Temple Fire Rescue Master Plan. The plan also suggests incorporating the EOC function into a potential new fire administration building, and the alternate EOC could be housed at the City of Temple Service Center.
  5. Develop and implement a long-range facilities management plan, as recommended by the Temple Fire Rescue Master Plan. This plan should address: (1) the expected location, timing and cost of any new facilities; (2) identified long-term maintenance needs for existing facilities; and, (3) an ongoing funding plan.
  6. Complete the planning, design and construction of additional TFR stations – or upgrades to existing stations – in order to improve levels of service, especially as development continues and land use patterns potentially shift over time. The Temple Fire Rescue Master Plan also recommends developing a new or improved training facility, possibly in partnership with TPD, other area emergency response agencies, or area businesses or institutions.
- ◆ ***Address code content and enforcement procedures to enhance public safety and better coordinate inter-departmental functions.***
7. Consider the adoption of a residential fire sprinkler ordinance, as recommended by the Temple Fire Rescue Master Plan, to enhance the safety of Temple residents and reduce property losses. From a growth management perspective, sprinkler installation could also be considered in any fringe locations where available water service cannot meet minimum fire flow requirements and/or emergency response facilities are not within a specified distance for timely call response.
  8. Update and potentially “unify” the building-related codes used by TFR and the City's building department to ensure the most current fire safety standards are being applied, and to improve consistency and avoid procedural difficulties when different codes and standards are in use by different City departments. Additionally, the Temple Fire Rescue Master Plan points out the need for better coordination of the plan review and inspection process between the departments to eliminate some current duplication of effort in the elements being scrutinized.

## Growth Management Methods

There are an array of strategies for influencing the pattern and timing of development, ranging from simply minimizing the impacts of growth without affecting the pattern to strictly controlling growth. Given the limitations of Texas law there are few, if any, mechanisms currently available to entirely prevent sprawl. Instead, Texas cities are faced with a complex set of rules regarding a municipality's ability to manage its development. While there are some mechanisms available to better manage peripheral development, there are also factors over which the City has little control (e.g., no building permit requirements or building code enforcement in the ETJ, availability of water via rural districts in areas the City is not yet ready or able to serve).

In broad terms, growth management techniques considered for Temple include:

- **Comprehensive planning** to establish the policy basis for the institution and administration of growth regulations.
- **Regulatory mechanisms**, including zoning and subdivision controls.
- **Annexation**, which expands the geographic jurisdiction of the City to implement a full range of regulatory and fiscal approaches to growth management.
- **Development and/or participation agreements**, which provide for infrastructure funding (and may, in some instances, include land use controls).
- **Improvement districts and political subdivisions**, which are independent entities that provide for infrastructure funding and operation.
- **Interlocal cooperation contracts** as a means for local governments to agree with other units of government for the provision of infrastructure and public services, as well as administrative functions.
- **Extension of publicly-owned utilities** by way of capital improvement programming.

Below are further considerations for these various growth management techniques.

### ***Comprehensive Planning***

- Temple should make its Comprehensive Plan more authoritative with regard to decisions about land use and capital expenditures. By clarifying the intended character (i.e., density and intensity) of the future land use designations, the City will be able to plan its infrastructure more effectively.
- The Comprehensive Plan offers the ability to establish the City's growth policies, which must then be directly related to the City's primary implementation tools: the zoning and subdivision regulations, and capital improvements phased in accordance with the updated Water and Wastewater Master Plan. Generally, the plan should direct development, first, to areas where there is already adequate infrastructure and, secondly, to areas that may be readily and efficiently served with public facilities and services. Areas around the periphery of the community that cannot be efficiently served – or are simply premature for development –

should be reserved in the near term for agriculture or very low intensity uses, with infrastructure staging for longer-term development.

- Consistency with the “Comprehensive Master Plan” is one of the justifications for extending water or wastewater lines under the City’s cost-sharing policy. This policy should be strictly followed to where extensions do not occur to areas where the City does not intend to extend infrastructure before 2030.

**Regulatory Mechanisms**

Subdivision Regulations

- The most readily available means for minimizing the impacts of peripheral growth is by way of amending the subdivision regulations because, unlike zoning regulations, the subdivision regulations may be applied within the ETJ.
- The key to linking the subdivision regulations to growth management efforts is to establish clear, definitive development standards that must be met to receive subdivision approval. This is because, by statute, subdivision review and approval is an administrative function, meaning that a plat must be approved if all City requirements are met. Therefore, standards for adequate water, sewer and street infrastructure are especially crucial for managing subdivision activity in the ETJ.
- Access management standards could be imposed along rural ETJ roadways consistent with or similar to those recommended by the Texas Department of Transportation. For example, if the minimum spacing limitation between driveways is 360 feet (recommended for streets with a 45 m.p.h. posted speed), then 100- to 200-foot frontage lots with individual drives would not be allowed. This would preserve the safety and traffic-carrying capacity of roadways that may be improved to collector or arterial standards in the future. Strict application of spacing requirements could also trigger platting if a developer chose to construct an access street parallel to the main roadway to enable more lots and driveways (the access street would require public dedication, which in turns requires platting).
- State statutes prevent the City from directly regulating “the number of . . . units . . . per acre” in the ETJ (i.e., residential density). However, because the City can regulate the dimensions and layout of lots through its subdivision regulations, density may, as a practical matter, be influenced by authorized rules like minimum lot size, minimum lot width, and right-of-way dimensions. For example, a larger minimum lot size could be required based on inadequate capacity of area roadways and/or where there are not public water and sewer systems available. This would effectively establish a relationship between lot size, infrastructure demands, and the availability of adequate public facilities, which is a legitimate “health and safety” concern for the municipality.
- Together with the requirements for an increased lot size could be an allowance – or incentive – for development clustering. Rather than constructing a rural large-lot subdivision with no public open space, the developer could incorporate smaller lots and a high ratio of public open space into the subdivision design. This allows the rural character to remain with the advantages of less impervious cover, reduced water demands, increased recharge, and land conservation.

**Easement Successes**

A few communities are using conservation easements to preserve sensitive areas, such as in the Water Oak Conservation Development in Georgetown and the Chimney Rock Conservation Development in the Town of Flower Mound, Texas. Here, a conservation easement was used to preserve a scenic vista designated by the City along FM 1171, with the forested shore lands of Grapevine Lake visible in the distance. The easement prohibited obstruction of a view corridor that overlooks the property's grasslands. This is consistent with provisions in the City's land use plan to encourage conservation easements and partnerships with local land trusts, employing incentives embedded in the land development code. The result is 49 acres of preserved open space in a perpetual conservation easement and 48, one-acre single family lots.

Given certain performance standards, the open land could also continue to be used for agricultural purposes.

- As part of the delineation of "protection areas" through its future land use planning, the City may also establish standards for the identification and protection of floodplains, wetlands, habitats, mature vegetated areas, or other natural features. Resource protection standards would provide a method and means for requiring varying degrees of protection of resource features, depending on their scale and significance. Density bonuses can be used to support the focusing of development on the developable portions of a site. The bonuses would act as an incentive by allowing a gross density equivalent to or higher than a conventional subdivision layout. This is achieved by adjusting lot sizes or using different housing types in combination with an open space ratio.
- A development plat requirement is a way for the City to regulate development in areas of the City limits and ETJ that may otherwise be exempt from the subdivision plat process. Whereas a subdivision plat is required for the division of land into two or more parts, a development plat may be required concurrent with property development even if there is no division of land. Development plat review can be required to enable the City to document all planned improvements, easements and rights-of-way prior to initiation of construction, as well as conformance with any applicable City ordinances, plans or policies.

Zoning Regulations

- All newly incorporated areas should continue to be zoned "A" Agricultural as now required. However, to serve its growth management function, the minimum lot size should be increased from one to 20 or more acres. This would maintain the open, rural character of these areas. Their eventual rezoning to another district classification could also be timed with the City's staged growth plan and infrastructure improvement plan. Additionally, the City could allow for very low density residential development in these agriculturally zoned areas by allowing extreme clustering. This enables there to be some development value to the land and also allows for construction of additional homes for family members.
- If Temple is to be successful at enticing more development to occur within the city limits rather than the ETJ, its development processes and timing of approvals must not be a constraint. Since a subdivision plat is the only required approval for development in the ETJ (with no plat requirement for lots larger than five acres), the complexity of the process and length of time to gain approval within the City may outweigh the benefits of in-City development (public utilities, faster emergency response times, increased convenience, zoning controls, etc.). Various action statements in other chapters of this Comprehensive Plan are aimed at regulatory simplification and streamlining.

A **conservation easement** is a restriction landowners voluntarily place on specified uses of their property to protect natural, productive or cultural features. A conservation easement is recorded as a written legal agreement between the landowner and the "holder" of the easement, which may be either a nonprofit conservation organization or government agency.

**Conservation Easements,**  
*A Guide for Texas Landowners,*  
*Texas Parks & Wildlife Department*

**Conservation Easements**

- With a conservation easement, the landowner continues to own the land and is responsible to maintain it. The land also remains on the tax rolls, although there may be significant tax advantages to the landowner for the easement dedication, which also lowers the cost of acquisition.
- An important aspect of this land management tool is its flexibility. A variety of restrictions and development options can be tailored to the needs of the landowner and the City as the entity accepting the conservation easement. For example, an agricultural easement could allow the landowner the right to continue to farm or graze the land and keep his or her home and buildings. It could also allow some additional development. This provides an opportunity to customize the acquisition to meet landowner concerns and reduce the cost of the easement.
- This instrument is most appropriate for, and may best be used to supplement, a host of other management techniques, rather than as an independent method of conserving resources and open space. As noted elsewhere in this Comprehensive Plan, where greater density might be provided to developments in exchange for increased open space, a conservation easement may be used to permanently protect the open space.

**Annexation**

- Through annexation, the City is able to impose its land development regulations – particularly its zoning regulations – which provides an essential growth management tool to implement the Comprehensive Plan. Annexation also extends the City's ETJ, enabling it to regulate the subdivision and development of land over a larger area. However, Texas annexation statutes also mandate stringent requirements for extending 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.
- By statute, 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. 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. Given the amount of territory already included within Temple's corporate limits, the City has the ability to add significant additional acreage where desired and feasible.
- In 1999, the Texas statutory framework governing municipal annexation was significantly overhauled, establishing a much more involved planning and coordination process prior to conclusion of City-initiated (involuntary) annexations. However, a notable exemption from these procedural requirements was provided for annexation proposals that involve fewer than 100 tracts of land where each tract contains at least one residential dwelling. Various potential annexation areas qualify for this exemption, enabling the City to continue with a phased, multi-year annexation program to add previously developed areas that make sense for immediate incorporation.
- State statutes dictate the minimum level of service that municipalities must extend to annexed areas. Significantly, State law does "not require that a

uniform level of full municipal services be provided to each area of the municipality if different characteristics of topography, land use, and population density constitute a sufficient basis for providing different levels of service.” Therefore, to the extent that Temple’s current city limits include areas with minimal public services, for the reasons cited by State law, the City can annex territory with similar characteristics and, likewise, provide a minimal (rural) level of service.

***Adequate Public Facilities Requirements***

- Some communities allow development to occur only as adequate facilities and services are available. Also known as “concurrency” requirements, essentially this mechanism ensures that infrastructure exists, or is readily – and efficiently – available, prior to or concurrent with development.
- Adequate Public Facilities Ordinances (APFOs) require applicants for new development to demonstrate that facilities and services will be available to serve the project at the time the development is available for occupancy. Utilizing this system, the City is able to adopt level-of-service standards, which can be used as criterion for judging conformance with the subdivision regulations. As an alternative, increased developer participation in infrastructure construction and financing may be necessary to shorten development timeframes.
- The value of this approach is in how it establishes a direct, causal link between the provision of public facilities and the public health, safety, and welfare. The general components include:
  - Determining a service threshold at which demand exceeds the desired capacity of public facilities, whether it is water and wastewater systems, roadways, parks, or schools. Generally, the difference between the established threshold and the existing level of service is the amount available for development.
  - Determining if there are projects that will be exempted or receive flexibility in meeting the threshold requirements by way of achieving other community objectives, such as economic development, infill development, mixed use, affordable housing, etc.
  - Determining the measures to remedy situations when the threshold is exceeded, including delay of development until such time as the project no longer exceeds the threshold, reducing the project’s impact to the point that it meets requirements, or mitigating the impact of the project by upgrading public facilities or infrastructure.
  - Reserving the amount of capacity projected for a development during the time between approval of a project and its completion, which counts against the total capacity of public facilities in future applications for development. An expiration date for approved projects may be necessary so as not to unnecessarily burden or deny other projects.

**Development Agreements**

- Development agreements are written contracts that can be used for a wide variety of purposes, including to impose land use and environmental controls over property in the ETJ in exchange for the provision of City infrastructure and public services (e.g., streets, drainage, and water, wastewater, and other utilities).
- Such agreements can also document a City’s guarantee to annex a property (on agreed upon terms), or not to annex the property for a period of up to 15 years.
- Since they are contracts, development agreements require negotiation and execution by the City and developer. In many cases, there is little incentive for the developer to enter into a development agreement because the City has relatively little discretion. The City may not condition the provision of municipal utilities on the execution of a development agreement. Also, developers have several alternatives to provide for infrastructure and utilities, such as a petition for the creation of a political subdivision (as described under Improvement Districts). The City may place only very limited conditions on the formation of the political subdivision.
- The City does have some leverage in such negotiations, especially if the City is able to provide timely infrastructure and services on reasonable terms, which directly benefits the developer. Since the City may enter into development agreements with landowners in the ETJ, this may offer an opportunity for providing services in exchange for the abiding by aspects of the City’s development regulations that would not normally apply in the ETJ, and/or meeting other community objectives (e.g., resource protection).
- Development agreements run with the land but do not bind end-buyers of fully developed lots, except with respect to land use and development regulations that apply to the lots.

**Improvement Districts**

- Improvement districts may be created to fund infrastructure improvements by special assessment against the property owners who principally benefit from them, in fair proportion to the level of their benefit. Improvement districts are run by the governmental unit that creates them, in this case, the City. The district has the power to impose a special assessment, but not to tax.
- A variety of public improvements may be funded by an improvement district. Among those most essential to growth management are:
  - acquiring, constructing, improving, widening, narrowing, closing, or rerouting of sidewalks or of streets, any other roadways, or their rights-of-way;
  - acquiring, constructing, or improving water, wastewater, or drainage facilities or improvements;
  - establishing or improving parks;
  - acquiring, by purchase or otherwise, real property in connection with an authorized improvement; and, in the case of home rule municipalities like Temple,
  - levying, straightening, widening, enclosing, or otherwise improving a river, creek, bayou, stream, other body of water, street, or alley.

- Temple may create an improvement district within its corporate limits or ETJ, after completing a process specified by statute, including one or more public hearings regarding: the advisability of the improvement; the nature of the improvement; the estimated cost of the improvement; the boundaries of the public improvement district; the method of assessment; and the apportionment of costs between the district and the municipality as a whole.
- An ongoing service plan must be approved by the City. The plan “must cover a period of at least five years and must also define the annual indebtedness and the projected costs for improvements.” The service plan must include an assessment plan and must “be reviewed and updated annually for the purpose of determining the annual budget for improvements.”
- Use of this mechanism may be feasible and warranted as a means for meeting infrastructure needs within portions of designated growth areas where the City is not yet prepared to commit capital resources to extend services.

#### ***Interlocal Cooperation***

- As authorized by the Texas Government Code, the purpose of interlocal cooperation contracts is to “increase the efficiency and effectiveness of local governments by authorizing them to contract, to the greatest possible extent, with one another and with agencies of the state.”
- Municipalities are provided broad authority to contract with each other, with counties, with special districts and political subdivisions, with federally recognized tribal governments that are located in the State of Texas, and with State agencies to provide “governmental function[s] or service[s] that each party to the contract is authorized to perform individually.”
- Growth management is most effective when approached from several levels of government. Therefore, interlocal cooperation contracts should be considered between the City of Temple and other governmental entities (e.g., Bell County, Water Control & Improvement Districts) which play a role in public functions and services that could benefit from inter-jurisdictional coordination. Examples include:
  - transportation infrastructure;
  - water supply and wastewater treatment;
  - drainage;
  - police protection and detention services;
  - fire protection;
  - parks and recreation; and,
  - planning and engineering.

#### **Water & Wastewater Master Plan Updates**

The current updates to the City’s Water and Wastewater Master Plans, which were previously updated in 2000, were prompted by the significant residential growth on the west and south sides of Temple in recent years, plus ongoing expansion of the industrial park area. A fresh look was also needed to assess future service demands. The master plans are intended to provide guidance in the development of water and wastewater infrastructure improvements so that the service area population and other wholesale

customers will be adequately served in coming years – with a long-range planning outlook extending to 2060. Recommended improvements are shown in phases to serve expected development, and the order of improvements presented in the plan is significant since many of the additions and upgrades to various system components are interrelated.

The master plan updates employ a planning area that does not follow any legal jurisdiction lines or other geographically precise area. Instead, the planning area boundary falls between the current city limits and the extra-territorial jurisdiction (ETJ) line, encompassing areas that reasonably can be provided with water and wastewater services. Current and future service demands and facility needs within the planning area were determined based on the City’s adopted Future Land Use Map, as it existed prior to this Comprehensive Plan update, and, more generally, with continuation of the area’s current development trends.

The City of Temple is among various municipal and other water user interests represented on the Regional Water Planning Group for Region G. These RWPGs were established for all regions of the state in 1998 by the Texas Water Development Board as directed by the Texas Legislature to establish a coordinated system of statewide and regional water supply planning. Various projections used in the updated utility master plans (e.g., service area population, per capita water use, water demand) are based on the *Brazos G Regional Water Plan* of 2006, which projected such factors from Years 2010 to 2060. The Temple population projections through 2030 included in this Comprehensive Plan are consistent with the water planning assumptions.

Generally, the updated Wastewater Master Plan establishes sizes for trunk sewer lines based on the projected ultimate population of each drainage area to be served. Projected water demands and associated water system improvement needs are also closely tied to expected population, plus likely industrial and commercial development. The long-range plan for the ultimate water supply and distribution system is intended to serve a future population of approximately 116,000 persons. As of 2000, the Temple water system had 60,526 residents based on Census 2000 figures: 54,514 within Temple; 2,989 in Morgan’s Point Resort; 1,645 in Little River-Academy; and, 1,378 in the City of Troy. In cases where it is not practical to construct facilities in the nearer term that can also serve the ultimate population, improvements can purposely be designed and built to a certain capacity with the knowledge that future supplemental improvements will still be necessary at some point – and can be designed and accomplished relatively easily.

Two large maps in the updated Water & Wastewater Master plan, one for water and one for wastewater, depict visually the phased major improvements that are proposed to be implemented under this plan. In addition to highlighting various improvements in water treatment capacity and storage, the Water Master Plan map also illustrates a much more extensive network of distribution lines, within the existing city limits and ETJ, that will be required for an ultimate system designed to serve some 116,000 customers. Other minor improvements will be constructed as areas develop. Similarly, the Wastewater Master Plan map also shows a series of recommended projects:

- a first phase of strategic new sewer main installations, primarily in southeast and southwest Temple (followed by a later phase of line improvements all around the service area);
- the abandonment of four existing lift stations, and the potential addition of five new stations in the ultimate system; and,
- the possible construction of a third wastewater treatment facility at some point in the future, potentially to be located to the south of FM 93 along the Leon River.

**It's All Downhill ...**

The terrain within the Temple utility planning area varies from approximately 500 to 800 feet of elevation above sea level. Slope considerations influence the design and physical layout of water systems. Natural topography is also important for wastewater collection and trunk lines since sewers are most economically constructed as gravity flow conduits. Sewage is moved out of a drainage basin much in the same way as rainfall runoff moves. In areas where the terrain is flat as compared with sloping topography, a gravity conduit following natural ground slope will transport sewage at a slower rate. To keep pipe size to a minimum, the slope of the pipe can be increased, requiring the conduit to be buried deeper as the line progresses down the slope.

There is a practical limit to depth, due primarily to costs involved in excavation and working conditions. When the practical limit is reached, pipe diameter can be increased, or the sewage can be lifted by pumps where the process of pipe size and depth of excavation can again be evaluated.

It is often necessary to transport sewage from one drainage basin to another, either by pumping or sometimes by deep cuts through natural divides. Each case must be evaluated based on the areas that can be served, operation and maintenance costs to the City, and treatment plant location.

Also included are proposed long-range improvements in the southeastern part of the planning area, which is outside the respective service areas of the Temple-Belton Regional Sewerage System (T-BRSS) and Doshier Farm treatment plants.

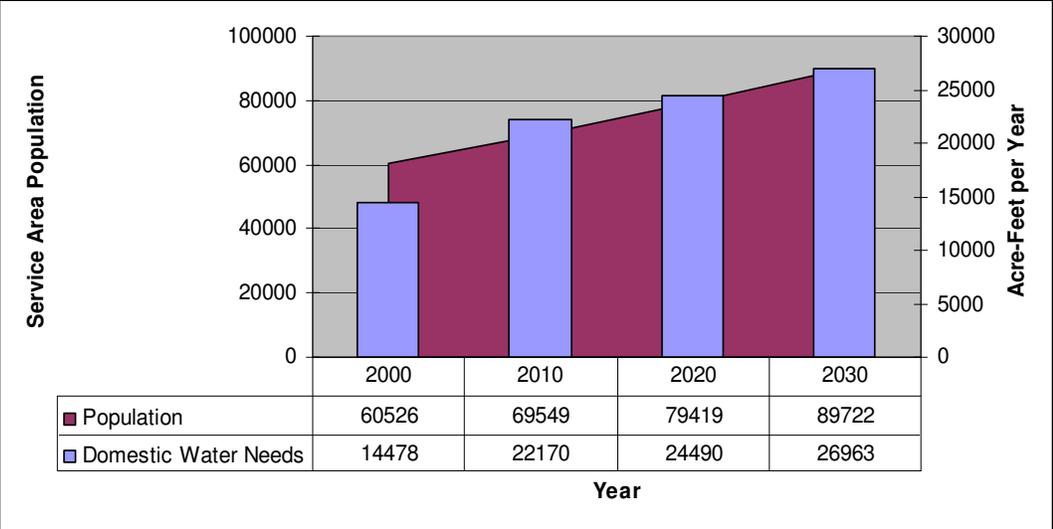
At the time this Comprehensive Plan update was being finalized, the overall costs and associated Phasing Plan for recommended improvements under the updated Water & Wastewater Master Plans were still under review. The draft master plan outlines phased improvements for several initial fiscal years (FY2007-08 through FY2010-11), then for a series of multi-year periods extending nearly through the 2030 horizon of this Comprehensive Plan, and then over a future long-range planning period which runs from FY2026-27 through 2060. As noted elsewhere, these gradual improvements would eventually enable the elimination of several existing sewage lift stations. The recommended program also features ongoing efforts to replace deteriorated collection lines across the system.

Finally, the plan emphasizes that in the years ahead, improvements may be accelerated or delayed, and priorities changed, based on the area's actual growth trends and development conditions, as well as actual utilization of available treatment plant capacities.

**Water System Facts & Figures**

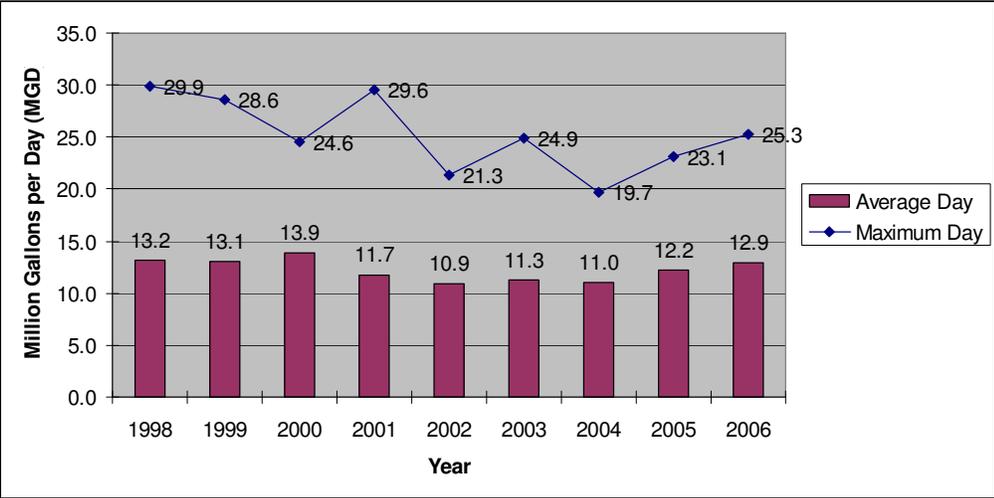
- The City of Temple currently has access to raw water supply in a range from 36,371 acre-feet per year (during severe drought) to 41,953 acre-feet per year (during wet periods). This water supply has been secured previously through water rights and contracts with the Brazos River Authority.
- In turn, the City of Temple acts as a wholesale supplier through contracts it has in place to provide water to other area entities, including the City of Troy (through November 2017), the City of Little River-Academy (through October 2017), the City of Morgan's Point Resort (through May 2018), and Arrowhead Hill (service continues to date past contract expiration in March 2002). All of these, as well as other area entities, hold authorizations from the Texas Commission on Environmental Quality (TCEQ) known as "Certificates of Convenience and Necessity," or CCNs, which recognize them as the primary service provider in their respective CCN area. For purposes of the master plan updates, it was assumed that these contractual relationships will continue indefinitely, and all system facilities were designed accordingly.
- Treated water for the Temple water system is currently supplied by the conventional water treatment plant on Parkside Road and the membrane plant on Charter Oak Loop, both of which are just off of Charter Oak Drive (FM 817) in southwest Temple. The source for the water system is the Leon River just downstream of Lake Belton dam.
- The conventional water treatment plant has a TCEQ-rated capacity of 29.4 million gallons per day. The membrane plant capacity is rated at 11.6 MGD. The combined system treatment capacity is 41.0 MGD.
- The existing water distribution system is designed around five "pressure planes." Pressure planes are delineated based on ground elevations (plus land development) within the overall service area, with some overlap of the planes. Generally, pressure planes are established to maintain a pressure range of 50 to 100 pounds per square inch (psi) within their boundaries.

**FIGURE 4.3: Projected Water Demand**



SOURCE: City of Temple Water & Wastewater Master Plan, Preliminary Draft (December 2007)

**FIGURE 4.4: Recent Water Demand**



SOURCE: City of Temple Water & Wastewater Master Plan, Preliminary Draft (December 2007)

**Wastewater System Facts & Figures**

- Temple currently has two wastewater treatment facilities: the Temple-Belton Regional Sewerage System (T-BRSS) which generally serves the western area of Temple (as well as the City of Belton), and the Doshier Farm plant, which generally serves the eastern portion of the community. The majority of the City’s projected growth, which is generally southward and westward, will occur to the west within the existing T-BRSS service area.
- The T-BRSS was established through an agreement with the Brazos River Authority (BRA) in 1971, and the resulting treatment facility began operation in 1975. It is located just south of FM 93, on the west side of the Leon River in Belton. Over the years, the plant’s treatment capacity has been expanded from an original design for five million gallons per day of average daily flow to the

**Daily Flow Cycles**

Water demand fluctuates significantly throughout the typical day. During the minimum hour (3:00-4:00 a.m.), demand is 30 percent of the entire day average. At the other extreme, water use reaches 170 percent of the average during the 8:00-9:00 p.m. peak hour. Likewise, peak wastewater flows occur at mid morning and early evening. These flow variations must be considered in designing pipelines, as well as the overall water and wastewater systems.

**The “75/90” Rule**

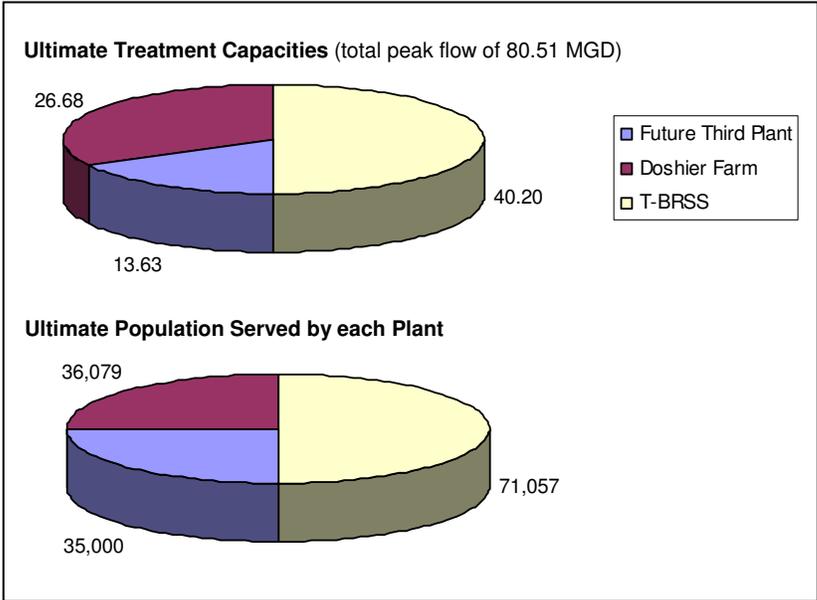
Texas Commission on Environmental Quality (TCEQ) regulations require that a wastewater permittee commence engineering design and financial planning for expansion when a plant reaches **75 percent** of permitted average daily flow for a consecutive three-month period. The rule further requires that the permittee gain regulatory approval and begin construction of expanded facilities when a plant reaches **90 percent** of permitted average daily flow for a consecutive three-month period.

current 10 million gallons per day, and a peak capacity (during wet weather) of 30 million gallons per day – enough to serve 66,667 persons. The BRA continues to operate the plant under contracts with each city. Two-thirds of the facility’s peak flow capacity – 20 of 30 MGD – is allocated to the City of Temple (adequate capacity for 46,188 persons).

- The annual cost of T-BRSS operations and maintenance is allocated between the cities of Belton and Temple based on their respective shares of the plant’s annual flow. In general, three-fourths of the T-BRSS flow is assigned to Temple.
- The Doshier Farm Wastewater Treatment Plant was first built at its present location, just inside Loop 363 and south of Avenue H, in 1939. Major expansions were completed in 1969 and 1994, taking the plant to its present capacity of 7.5 million gallons per day of average daily flow (and 22.5 million gallons of peak capacity during wet weather) – enough to serve 33,000 persons. The facility is currently operated by a private contractor.
- The Doshier Farm facility’s discharge permit from the TCEQ is scheduled for renewal in 2009. Permit renewals generally occur every five years, although any significant plant expansions or process modifications usually trigger interim permit revisions.
- The TCEQ permit for the Doshier Farm plant includes a provision for reclaimed water from the facility to be used at the City’s nearby James Wilson Park, to the north between Avenue H and Adams Avenue.
- The existing wastewater collection system has an abundance of lift stations (27 in all), small facilities that pump wastewater to increase flow rates or to overcome topography in a particular area. These stations, especially at this quantity, can become maintenance headaches and detract from system efficiency.
- As in every wastewater collection system with significant portions that were installed decades ago, flows within the piping system are increased by the infiltration of water through manhole covers, broken pipes, and faulty pipe joints, particularly at house connections, and especially during wet weather. The phenomenon magnifies the flows entering treatment facilities and can lead to overflows at lift stations, among other system impacts.
- **A recently completed Brazos River Authority study determined that the T-BRSS treatment plant can be expanded on its present site to a wet weather flow capacity of 16 MGD (from the current 10 MGD) and a peak flow capacity of 50 MGD (versus the current 30 MGD). It is projected that this increased capacity will be needed in 2030 and beyond,** although ongoing growth in Temple’s portion of the T-BRSS service area could cause Temple’s 20 MGD share of the overall 30 MGD peak flow capacity to be exceeded in the next few years.
- **The current 7.5 MGD design flow of the Doshier Farm treatment plant is anticipated to be adequate for some 10 years regardless of the source of flows into the facility.** The plant has experienced occasional “spikes” of influent flows (30-day average of 5.93 MGD in June 1997 and 5.74 MGD in May 2007, which are the wettest months on record over the last decade). The 30-day average must exceed 75 percent of design flow – or 5.63 MGD – for three consecutive months to trigger plant expansion per TCEQ requirements.

- For some period in the future, flows from the Friars Creek drainage basin will be pumped to the T-BRSS treatment plant. As development occurs in the Leon River basin above I-35 and densities increase in the Pepper’s Creek and adjacent drainage areas, flows to the plant will increase and additional treatment capacity will be required. This will involve both the expansion of the T-BRSS facility and construction of another plant downstream on the Leon River. This future plant will eventually serve areas south of Loop 363 and east of the T-BRSS service area. Figure 4.5 summarizes the long-term outlook for the overall wastewater system.

FIGURE 4.5: Ultimate Wastewater System Capacity and Service Population



NOTE: The Doshier Farm amounts include Little Elm Basin, which is not currently served by a trunk sewer. The T-BRSS and Future Plant amounts reflect the eventual transfer of Friars Creek Basin flows from T-BRSS to the new treatment facility.

SOURCE: City of Temple Water & Wastewater Master Plan, Preliminary Draft (December 2007)

- The new Water & Wastewater Master Plan calls for capital investments in new trunk sewer lines and other related improvements, at the appropriate times, both to keep pace with growth demands and implement needed system upgrades:
  - Construct the **West Airport Trunk Sewer** to extend service north from FM 2305 to the airport vicinity and thereby eliminate the Airport Lift Station.
  - Construct Phase III of the **Leon River Trunk Sewer** to extend service farther west and toward Lake Belton (construction timing dependent on continued development of the area and completion of Phases I and II).
  - Construct Phase II of the **East Airport Trunk Sewer** and the **Howard Road Trunk Sewer** to extend service north to the upper Pepper Creek Basin, the boundary of which is near the north city limits in the vicinity of Moores Mill Road (industrial and/or commercial growth will likely spur these extensions).
  - Construct the **Knob Creek Force Main** and lift station improvements to

accommodate the ultimate flow in this drainage area. The capacity of the existing Knob Creek Lift Station will need to be monitored as development in the area increases.

## **Public Safety Services**

### ***Temple Police Department***

At the time this Comprehensive Plan was prepared, the Temple Police Department (TPD) had 157 total personnel, of which 130 were sworn officers. Approximately 90 percent of this officer corps can actually be deployed during a typical period due to absences for training, injuries, military service, etc. TPD assesses its performance by focusing on response times and the visibility of its officers in the community versus standard ratios of staffing relative to population, especially since Temple's daytime population is significantly higher than the actual resident population.

### TPD Issues

- TPD is getting stressed by both the City's population growth and its physical expansion, and is particularly spread thin at times on the west side (TPD's West District covers nearly half of the community).
- In addition to the pressures on its staffing (both sworn and non-sworn positions), TPD must work to maintain an adequate vehicle fleet to fulfill its mission effectively. This becomes more challenging as more territory and miles of roadway must be covered in a growing jurisdiction. Each new police vehicle costs approximately \$45,000 after all necessary features are added, including laptop computers in all cars.
- In some cases officers must prepare police reports without responding directly at a scene, which is more common in larger cities. Valuable information is often lost in these instances. Also, when minor crimes are not responded to effectively, this can lead to a string of crimes, or a crime spree, by an individual or group.
- As another indicator of Temple's "growing pains," traffic enforcement is requiring more TPD attention and resources than in the past. Traffic-related issues on West Adams were cited as a particular burden. Other high-speed and high-volume roadways with traffic concerns include Central Avenue, 31st Street, I-35, Loop 363, Highway 317, and Airport Road. TPD also responds to citizen complaints from neighborhoods about driving behavior. The City's last community-wide survey showed traffic was the number one policing concern, which was the first time traffic had eclipsed drugs as the top issue.
- The northwest industrial area has not had major crime issues, mostly traffic concerns and car burglaries.
- Areas nearer the lake are busy for TPD, especially with the extent of construction activity and not always knowing who is a stranger to the area.
- TPD also provides policing support at area schools, including two officers assigned to Temple High School, plus three officers who spend the vast majority of their time covering middle school campuses, as well as the elementary schools that feed into them. A TPD sergeant also oversees these school-related activities, plus a D.A.R.E. officer who covers all the elementary schools. Some evening support is involved as well, including the assignment of up to 20 officers

for Temple High School football games, for which the district provides overtime reimbursement.

- TPD is engaged in several examples of inter-jurisdictional cooperation, which can provide definite cost savings (and reduced liability) but also leads to certain frustrations and inefficiencies. As one example of such cooperation, Temple has no local jail, just six holding cells, since contracting with Bell County to send all detainees to its facility. The City is also a participant in the Bell County Communications Center, which provides centralized dispatch services. TPD noted concerns about the slower decision-making and implementation that comes with an intergovernmental consortium.
- TPD also pointed out that the County Sheriff must cover the balance of unincorporated Bell County with only a handful of field deputies.

#### TPD Needs

- Even with its new downtown facility, TPD lacks appropriate space for tactical police training (an indoor gymnasium-like facility versus only classroom training space).
- The west side TPD facility presents some difficulties in terms of its basic size for the number of personnel housed plus the efficiency of how the space is used.
- TPD also lacks an appropriate meeting space for Police Advisory Board meetings and other public meetings, which currently must be held in a secure part of TPD headquarters.
- TPD expressed concern about the increasing demands of school-related policing within Belton ISD given Temple's west side growth and resulting school system expansion. TPD indicated a need for more financial support, which is still a good investment for the district considering what it would cost to establish its own police operation.
- TPD has had to increase the size of its traffic unit in recent years, especially as traffic-related fatalities increased, although these have been reduced more recently. It was noted that traffic incidents tie down officers in the field, as do major road closures, such as occasionally occurs along I-35. TPD also bears the brunt of public reaction to roadway issues, even though others design the roads and establish speed limits, which TPD must then enforce, and has good reason to do to improve safety on certain roadways where drivers regularly exceed posted limits.
- TPD is pleased to have individually assigned cars, which is a plus for recruiting, and also enables better tactical police response given Temple's relatively large area. TPD needs adequate budget support to meet its goal of replacing 12-15 vehicles per year, recognizing that periodic vehicle losses from crashes and mechanical problems will cut into this number. It was noted that approximately 15 cars must be replaced each year to maintain a "24/7" fleet. If vehicles are kept 10-12 years – versus the preferred eight years and roughly 120,000 miles – then maintenance issues multiply. TPD also maintains a small pool fleet of older vehicles to fill gaps and when other vehicles need repairs, but these pool cars were described as the "dregs." Also, technology gains enhance the department's effectiveness (e.g., fingerprint identification in the field), but the associated power drain can lead to more frequent and costly battery replacement.

- Temple must continue to navigate some of the challenges that come with intergovernmental approaches, such as the loss of direct management control which results from a consortium like that for the Bell County Communications Center. It was noted TPD's response time – a prime service benchmark – is higher than it should be, which can be attributed partly to communications issues.

TPD reports dealing mostly with residential and traffic issues currently, but increasing commercial development will also drive demands for police service – anywhere where people and potential conflict come into play and can lead to criminal activity, such as robbery.

TPD indicated that the impact of annexation initiatives by the City on its operations depends on the extent of population in annexed areas, and the speed with which such areas might develop and build out. With growth in west Temple already eclipsing TPD resources, TPD would need additional support, in terms of staffing, vehicles and other equipment, to be able to serve significant additional population or a substantially enlarged service area.

### ***Temple Fire & Rescue Department***

At the time this Comprehensive Plan was prepared, the Temple Fire & Rescue (TFR) Department had 89 personnel operating out of seven fire stations. A Temple Fire Rescue Master Plan was completed during 2007, providing a wealth of new analysis and recommendations related to TFR's organization, staffing, facilities, equipment, overall performance, and current and future needs. The information in this section is also based on interviews with TFR leadership.

#### TFR Issues

- TFR currently averages more than 10,000 fire and EMS calls per year. In addition to responding to fire incidents, TFR provides a first responder type of EMS system with paramedics on all fire department engine companies. Transport of patients is provided by private service.
- Among TFR's seven current station locations, Station No. 1 (505 N. 3rd Street) – the oldest location, dating from 1964 – has the most demand, with approximately 2,500 runs per year. Station No. 3 (3606 Midway Drive) is also a concern as it is the next busiest, approaching approximately 2,000 calls per year. This area is a particular challenge because it is difficult to navigate, has many high-value homes, has a generally older residential population, and includes the largest section of I-35 plus Loop 363, the hospital area, Temple Mall, and various apartments for seniors. The newest TFR station – Station No. 5 (510 N. Apache, just south of Airport Road), opened in 2005 – also must cover a relatively large service area.

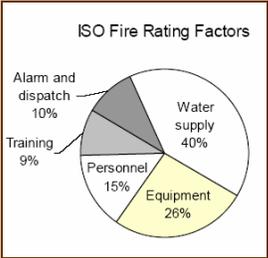
- With Temple’s ongoing growth, Station No. 4 on the south side (411 Waters Dairy Road) has gotten busier, as has the west-side Station No. 7 (8420 W. Adams Avenue), which must cover nearly a third of the community’s physical area. This includes all the way to the airport vicinity, where roads are not always in good shape.
- Other districts currently must provide support to Station No. 1, due to its high call demand, which creates a domino effect in terms of impacting operations at other stations.
- TFR typically has 25 personnel on duty per shift (three per front-line piece of equipment, plus a Deputy Chief). Another six are usually assigned per shift, but absences are expected due to illness and injuries, vacations, training, retirements, etc.), which leads to overtime hours for available staff.
- Given its staffing constraints, TFR no longer responds to calls in unincorporated areas unless specifically called to lend support (although TFR does respond to the unincorporated “donut hole” areas within the current city limits). TFR typically sends only a small booster truck and two personnel on such runs due to staffing limits that also keep it from running paramedic engines to rural incidents. But, this can put an engine out of service and creates a dilemma in case a City taxpayer calls in the meantime. From a cost standpoint, the County pays TFR a small amount for such runs, but this does not offset the actual cost. Volunteer fire departments in rural areas are trying to expand their response capabilities but still call TFR when needed.
- TFR is challenged by heavy demand on its vehicle fleet, in terms of the sheer call volume involved as well as the mileage racked up in extensive service areas.
- TFR noted water availability and/or pressure issues on the community’s outskirts in parts of north and east Temple. This includes off Loop 363 on the east side and in far north Temple, where it can sometimes be 1.5 miles to the nearest hydrant. In some cases, with a large fire, the City’s water personnel are notified so they can boost water to a particular location.

TFR Needs

- TFR is experiencing a seven to eight percent increase in call volume each year, yet the department has had no significant staffing increase since the early 1990s. This also reduces the ratio of personnel relative to the total population served.
- Additional staffing support for TFR is needed for a variety of reasons, including the “wear and tear” on existing personnel who routinely work extended, overtime hours. Personnel safety is also a serious concern when a four-person staffing ideal for major incident response (“two in, two out” per National Fire Protection Association standards) cannot be met. Currently, TFR is more likely to have only three personnel, and occasionally two on the ladder truck, in many cases.

The **Insurance Services Office (ISO)** collects information on public fire protection and analyzes the data using a Fire Suppression Rating Schedule (FSRS). ISO assigns a Public Protection Classification (PPC) from 1 to 10. Class 1 represents the best public protection, and Class 10 indicates less than the minimum recognized protection.

By classifying a community’s ability to suppress fires, ISO helps communities evaluate their public fire protection services. The program provides an objective, nationwide standard that helps fire departments in planning and budgeting for facilities, equipment and training. Most importantly, by helping communities to secure lower fire insurance premiums based on better citizen and property protection, the PPC program provides incentives and rewards for communities that choose to improve their firefighting capabilities and services.



- Pressure on TFR's staffing is to the point that only two personnel are often on ladder trucks versus the standard three, which should not be a routine practice. Operations are also impacted by individuals simply taking normal vacation time, or when long-term injuries occur.
- Additionally, TFR currently can allocate only one person to inspection and code enforcement activities, when it has assigned three persons to such functions in the past.
- The next one or two TFR stations will almost certainly be on the west side given growth trends and the need to provide relief to Station No. 7 on West Adams.
- TFR needs more small vehicles to extend the life of its larger vehicles. Good City support for vehicle and equipment needs was noted, but the gains of recent years must be continued, along with adequate maintenance budgets so vehicles do not wear out before their typical useful life. Engine replacement has been a critical need, along with more enclosed vehicles.
- Another reason TFR needs additional City support to fulfill its basic mission is that, like all local fire/rescue agencies nationwide, it is faced with an "explosion" of new mandates and programs in the emergency management arena. This places a particular burden on TFR administrative personnel. Some other cities have chosen to dedicate a staff member full time to this major new area of program activity.

TFR points to comparison cities in Central Texas that have more personnel to cover a considerably smaller jurisdiction than Temple's approximately 70 square miles. The result for Temple is longer distances covered to respond to calls.

With regard to potential annexation activity by the City, TFR faces the same challenges as TPD in terms of its current staffing and response capabilities for existing service areas within the incorporated city. The status of water infrastructure, if any, in newly-annexed areas would also be a fundamental concern.