

4.2 the public open space plan

Open Spaces protect the quality of community *life* by preserving the quality of community *environment*.

Open Spaces serve as an integrated system in which meaningful public spaces form an interconnected network, preserving and enhancing both community life and the natural habitat. Open Spaces protect the quality of community *life* by preserving the quality of community *environment*. The Public Open Space Plan for the City of Seguin seeks to create a network of open spaces in the City by defining those areas that:

- Currently serve as park and recreational areas within the community
- Are culturally and environmentally significant undeveloped areas
- Connect community members with the natural environment
- Preserve the riparian corridors and significant tree stands within the City
- Improve environmental quality for the City, through improved storm water management, absorption of air pollutants, and noise buffering
- Enhance quality of life for the residents of Seguin

The Public Open Space Plan addresses two issues relating to the expression of the natural environment within the City, and is therefore divided into two parts: The Standards for Public Open Spaces (Part I), and Policies for Public Open Spaces (Part II). It was developed in response to the Community Goals identified through the Public Planning Process. The particular Community Goals that were incorporated into the Open Space Plan are:

1. Regulate, improve, enhance, facilitate drainage through combined natural and physical systems that will control increased run off



generated by new development, prevent increased flooding events, better protect existing flood prone areas (such as Glen Cove, Chaparral, Treasure Island, and Elm Wood) and preserve/restore natural drainage ways in existing and future developed areas.

2. Establish policies, plans, and procedures that balance preservation of the natural system with the economic and social needs of the City.
3. Preserve and enhance unique historical, natural, and cultural features in ways that increase people's understanding, influence city form, and contribute to the preservation of cultural identity.
4. Establish landscape and smart growth ordinances, policies, and standards that will preserve and enhance Seguin's natural systems, visual identity, and property values.
5. Establish policies, regulations, guidelines, standards, procedures, and initiatives that will coordinate and guide the public and private aspects of development within a target area so that a more unified, coherent, environmentally responsive city fabric results.
6. Establish policies, regulations, and/or procedures (as well as promote building/landscape practices) that enhance air quality.
7. Provide pedestrian trails and linkages that connect the Timber Lots District to other pedestrian trails, parks (such as Starcke Park), natural corridors (such as Walnut Creek and the Guadalupe River), and the downtown core.

As Seguin continues to grow, the Public Open Space Network will be developed proportionately over time. It is therefore important to establish directives for public spaces, such as park standards and appropriate inclusion of recreational facilities. Part One of the Seguin Public Open Space Plan was crafted to provide a framework to address those issues revolving around public open spaces that would service Seguin through the predicted growth.

EXISTING PUBLIC OPEN SPACE

Currently, the City of Seguin maintains a number of parks and recreational areas, accommodating a range of forms and functions. These spaces service a population of 26,000. As the population estimate associated with the Planning Horizon is 78,000 people, it is clear that a Plan is needed for the acquisition, creation, and maintenance of additional open spaces within Seguin. Figure 1 identifies existing public open spaces within the City.

FUTURE PUBLIC OPEN SPACE

To address the need for public open spaces that will arise as Seguin continues to grow, it is necessary to establish an integrated system consisting of spaces at various scales, accommodating a range of functions to benefit the future communities. The following is a list of the typologies that comprise the Public Open Space Network for the City of Seguin:

Type A: Parks and Recreational Areas

- Block Parks
- Neighborhood Parks
- Community Parks

Type B: Corridors

- Trails
- Greenways
- Blueways

Type C: Designated Natural Areas

These Public Open Spaces encourage interface of the community with the natural fabric. For each of the Public Open Spaces identified above, the general character and intent of that space will be identified. This will ensure that future development within Seguin is consistent with the intent established in the Comprehensive Planning Process, namely: (1) the provision of opportunities for public enjoyment of open spaces, and (2) the preservation of the natural resources that characterize Seguin and enhance the quality of life enjoyed throughout the City.

In addition to information regarding general character and intent, recommended standards will be provided for each of the Open Spaces in the Network. These will include recommended space requirements (based on population counts), directives for site selection, and standard associated amenities. General guidelines will also be established regarding public spaces adjacent to designated waterways within the City.

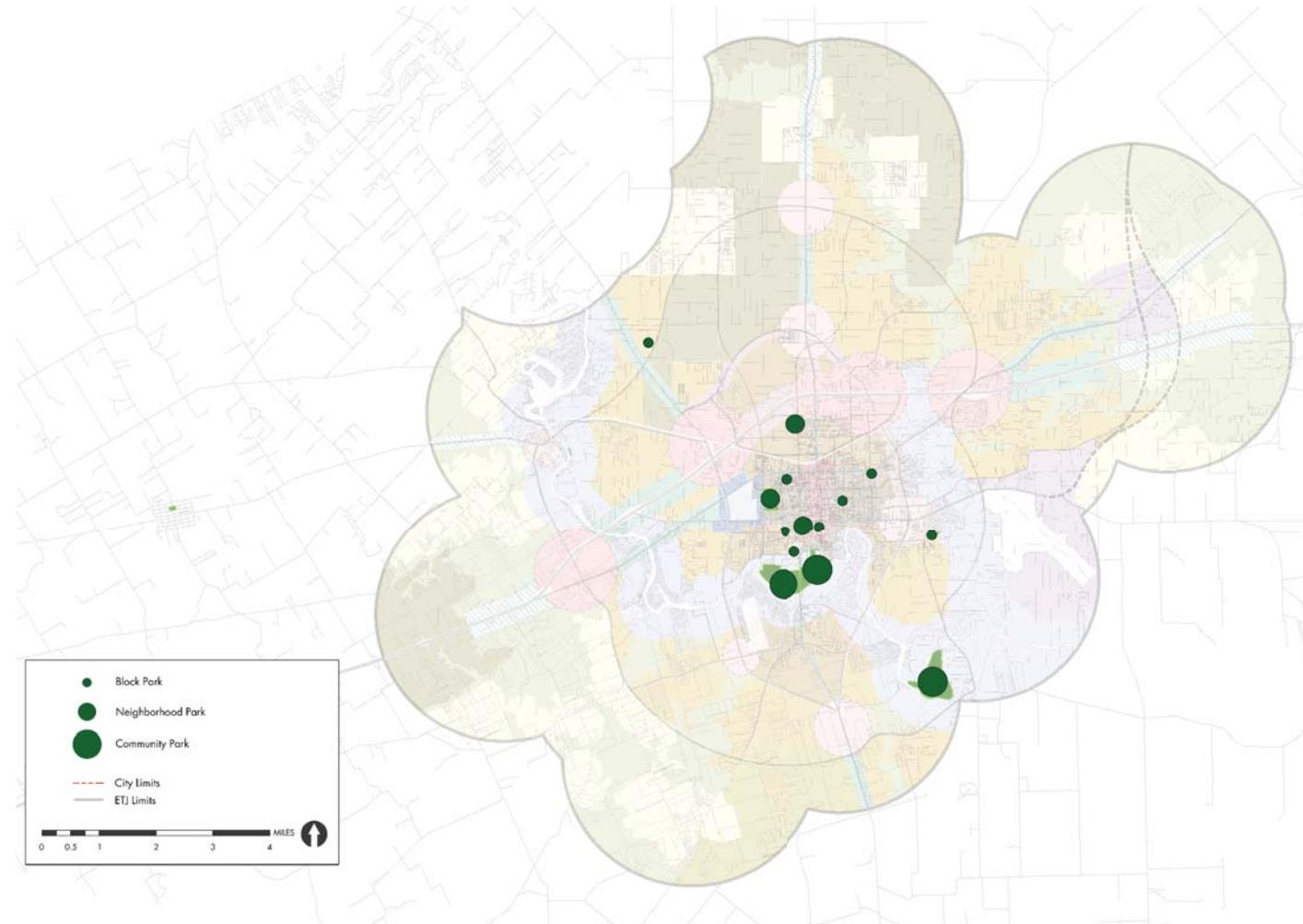


Figure 1. Existing Open Spaces.



DEFINING PUBLIC OPEN SPACES

Parks and greenways provide many benefits for communities, and can be incorporated at a variety of scales, in a variety of ways. They create a positive venue for community interface, connect people to the natural environment, provide spaces for recreational activity, and positively impact property value. Larger parks can also perform a destination function for communities, encouraging retail spending in surrounding areas. The following section of the Open Space Plan defines standards for three types of open spaces in Seguin: Parks, Corridors, and Designated Natural Areas.

TYPE A: PARKS

1. Block Parks

Block parks serve a concentrated or limited population, or a specific group within the community. These parks are ideal for incorporation into areas of higher residential density, mixed use, or non-residential use, where availability of land for open spaces is limited. Block parks should be located

throughout the City, and, as they serve a variety of purposes, are suitable for incorporation in many of the Land Use Districts of Seguin.

Figure 2 identifies those districts in which Block Parks may be designated.

Park Standard:	0.3 acres per 1000 people
Service Area:	less than ¼ mile radius
Park Size:	1 acre maximum
Service Population:	less than 4,000 people

Recreational activity within block parks should be informal, due to limits of space. Sport facilities and other recreational complexes would not be appropriate at this scale. Rather, facilities should be provided that gather neighborhood residents and encourage community enjoyment of outdoor space. Acceptable recreational facilities in Block Parks include:

- Dog Park/Pet Play Area
- Picnic Station
- Playground

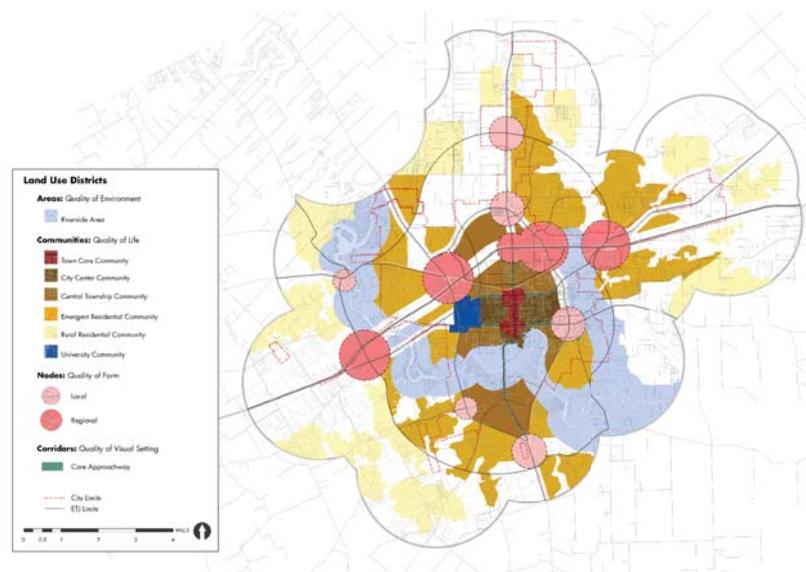


Figure 2. Appropriate Districts for Block Parks in Seguin.

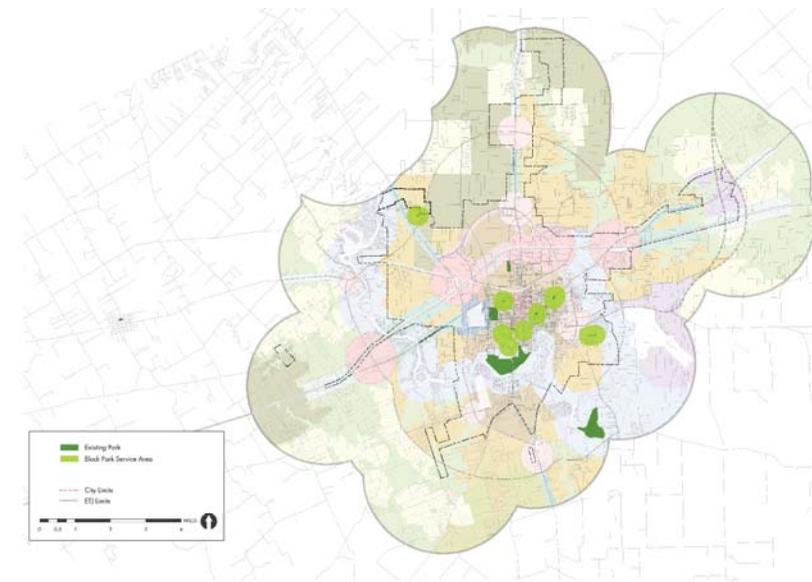


Figure 3. Service Area of Existing Block Parks.

2. Neighborhood Parks

Neighborhood Parks, as their name implies, are intended to serve specific neighborhoods within the City of Seguin. Neighborhood Parks should be located in those Land Use Districts that are designated as Communities in Seguin, as most residential neighborhoods are found within these districts. Neighborhood Parks should be easily accessible to the population that they serve, connecting with the surrounding fabric via bike and pedestrian pathways. Neighborhood Parks should be geographically centered within the designated area of service. It is appropriate for (and recommended that) some neighborhood parks to be developed as part of a school-park facility.

Figure 4 identifies those districts in which Neighborhood Parks may be designated.

Neighborhood Parks should provide relief from surrounding development through the expression of the natural landscape, but are also intended to provide space for recreational activity. Athletic fields, playgrounds, swimming pools, and other recreational areas are typically found within neighborhood parks.

Park Standard: 2 acres per 1000 people
 Service Area: ¼ - ½ mile radius
 Park Size: 15+ acres
 Service Population: less than 5,000 people

Recreational activity within Neighborhood Parks should be appropriate to space provided, but should provide opportunity for organized sports, open fields, pedestrian trails, and other such uses. Rather, facilities should be provided that gather neighborhood residents and encourage community enjoyment of outdoor space. Appropriate recreational facilities in Neighborhood Parks include:

- Baseball
- Basketball
- Canoe Launch
- Dog Park/Pet Play Area
- Football
- Picnic
- Playground
- Recreation Court
- Skate Park
- Soccer
- Softball
- Swimming
- Tennis
- Track
- Volleyball

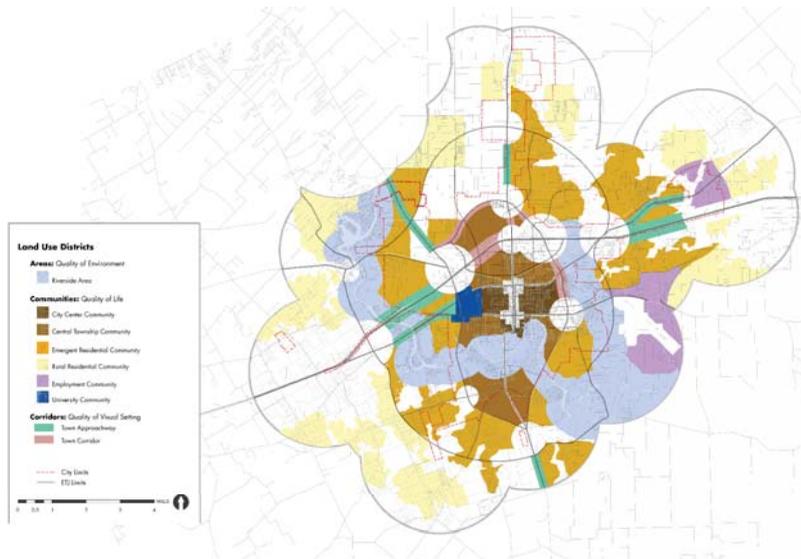


Figure 4. Appropriate Districts for Neighborhood Parks in Seguin.

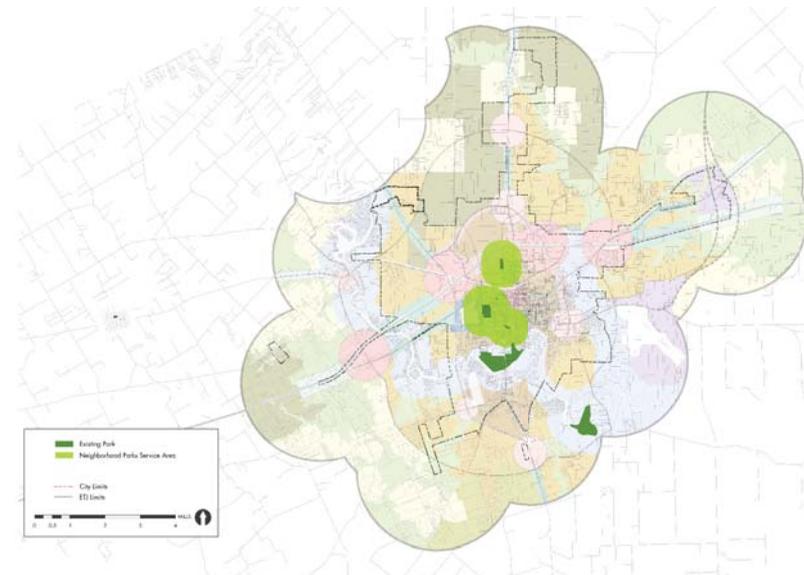


Figure 5. Service Area for Existing Neighborhood Parks.



3. Community Parks

Due to the concentration of Open Space afforded to Community Parks, they are intended to provide a range of services and opportunities to the City. Because of their space requirements, designation of future Community Parks is appropriate in those areas of Seguin that have yet to be developed, yet it is important to locate Community Parks so that they are accessible to the surrounding communities. They should be serviced by arterial and/or collector streets and be geographically centered within their designated area of service (either a defined cluster of neighborhoods or a particular Land Use District).

Figure 6 identifies those districts in which Neighborhood Parks may be designated.

Community Parks should provide areas for intense recreational activity, such as athletic complexes, larger swimming pools, and golf courses (where appropriate). They should also protect natural features within the City, creating relief from more intense development in surrounding areas. Greenways, Blueways, and buffers should be incorporated into the form and function of Community Parks, as natural features, such as water bodies and significant tree stands, are frequently found within Community Parks.

Park Standard: 7 acres per 1000 people
 Service Area: 1 - 2 mile radius
 Park Size: 25+ acres
 Service Population: greater than 5,000 people

Of the Park types designated for the City of Seguin, Community Parks provide the greatest opportunity for recreational use. This is due to the scale of these parks, and the larger service area within the City. The following are acceptable recreational facilities in Community Parks:

- Amphitheater
- Arena
- Baseball
- Basketball
- Boat Dock
- Boat Ramp
- Camping
- Canoe Launch
- Dog Park/Pet Play Area
- Driving Range
- Fishing Pier/Cleaning Station
- Football
- Golf
- Marina
- Picnic
- Playground
- Recreation Court
- Skate Park
- Soccer
- Softball
- Swimming
- Tennis
- Track
- Volleyball
- Water Park Amenities
- Wildlife Viewing Station

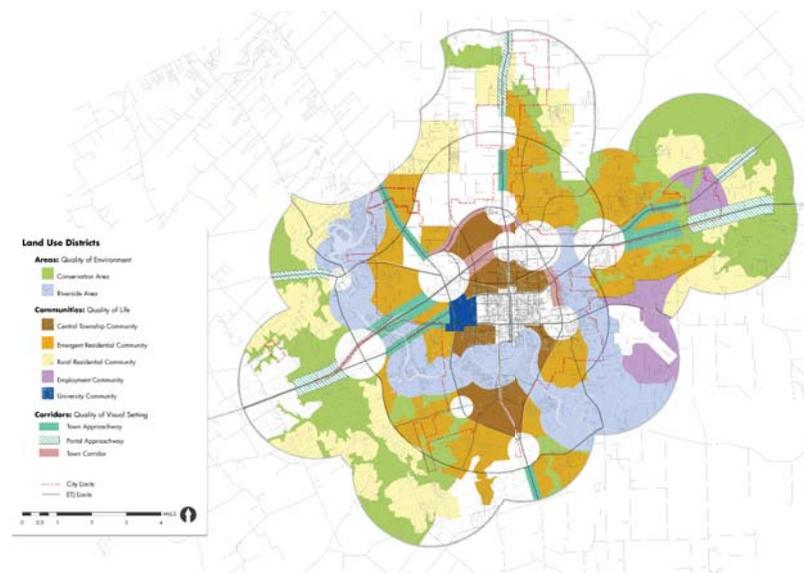


Figure 6. Appropriate Districts for Community Parks in Seguin.



Figure 7. Service Area for Existing Community Parks.

TYPE B: CORRIDORS

4. Trails

Trails are the non-vehicular connective fabric of a city. They join people to places, by linking points of origin (neighborhoods) with points of destination (such as parks, shopping areas, and employment centers). Sidewalk trails provide access to schools and libraries, and bicycle trails provide alternate forms of mobility for residents that do not drive.

Because trails are intended to establish a network of connective space and to enhance mobility within the community, they should link the various areas of activity within the City. Trails are to be incorporated into all of the Land Use Districts identified in the Future Land Use Plan, in a manner that is reflective of the intent of each District. There are several Trail Types identified for the City of Seguin. These include both segregated and shared use trails.

Segregated Trails:

- Sidewalk Trails
- Paved Pedestrian Trails
- Paved Bicycle Trails
- Unpaved Equestrian Trails
- Unpaved Mountain Bike Trails

Shared Use Trails:

- Paved Multi-Use Trails

Because the Land Use Districts of Seguin are oriented around form and functionality, it is important that the public spaces within each of these districts is consistent with that general intent. Figure 8 illustrates which trail types are suitable for each land use district.



	SEGREGATED TRAILS					SHARED USE TRAILS		STATIONS	
	Paved Pedestrian	Paved Bicycle	Unpaved Equestrian/Hiking	Unpaved Mountain Bike	Blueways	Paved Multi-Use	Unpaved Multi-Use	Wildlife Viewing	Rest Areas
AREAS									
Conservation Farm	Permitted								
Ranch	Permitted								
Riverside	Permitted								
COMMUNITIES									
Town Core	Permitted								
City Center	Permitted								
Central Township						Permitted			
Emergent Residential									
Rural Residential		Permitted							
Employment						Permitted			
University									
NODES									
Local	Permitted								
Regional	Permitted								
CORRIDORS									
Core Approachway	Permitted								
Town Approachway		Permitted							
Town Corridor			Permitted						
Portal Approachway		Permitted							

Legend: [Blue Box] Permitted

Figure 8. Trail Types by District in Seguin.



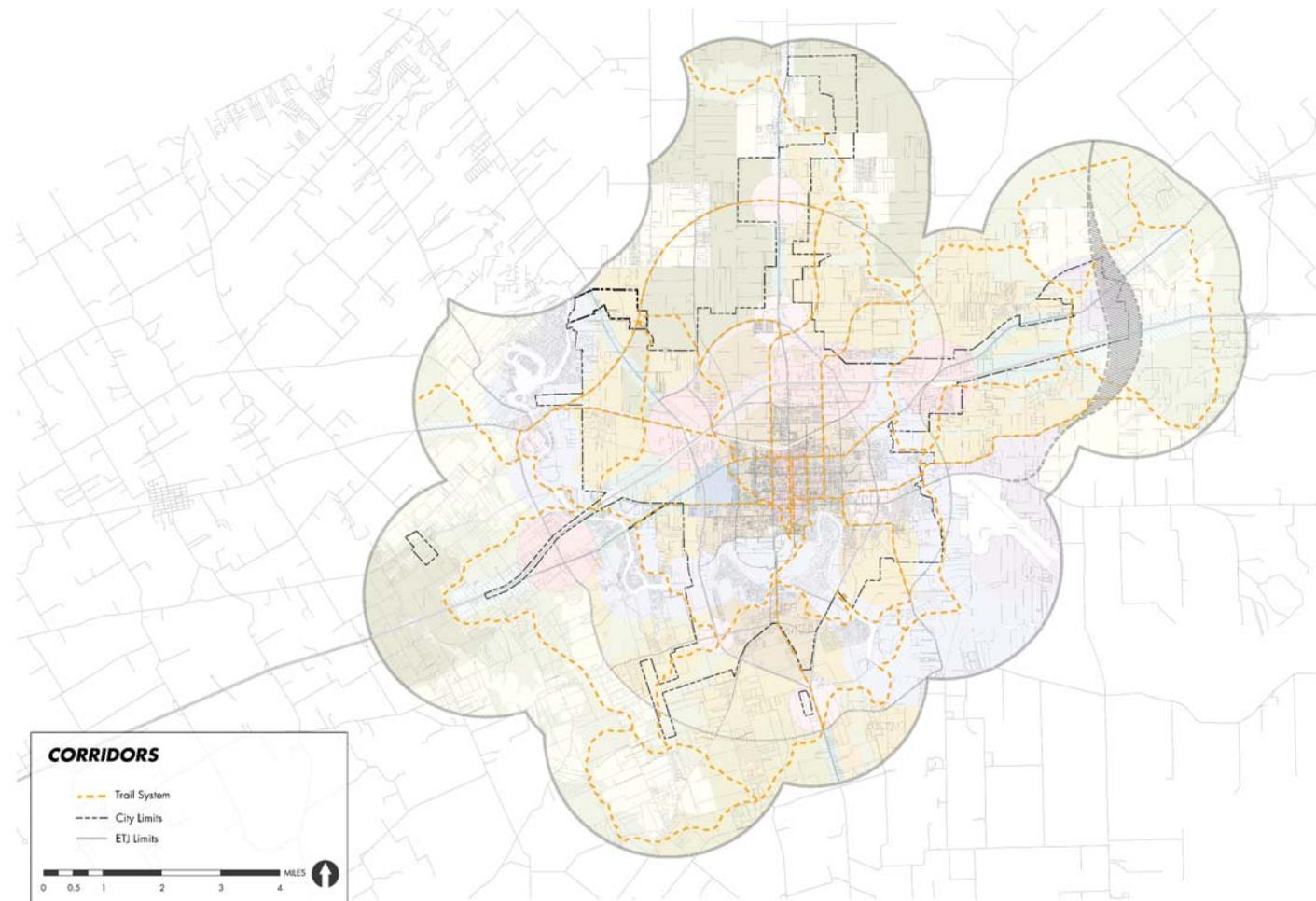


Figure 9. Recommended Trails in Seguin.

5. Blueways

Like the Trails of Seguin, the Blueways are intended to facilitate connectivity by linking the community with the surrounding environment. The Guadalupe River is an integral part of the history and culture of the Seguin community, but also of everyday life. Therefore, any network of connectivity in Seguin must be reconciled to the River and its environs.

A blueway is a portion of the Open Space Network that allows for movement along waterways, via approved water craft. Blueways function as a trail through the water, connecting various public open space lands. They are a means of encouraging public use and enjoyment of the waterways in areas with limited public access. Rather than large expanses of public space along the riverfront, Blueways require access at strategic points. This appropriation of the river and riverside land use accommodates private ownership, while increasing public accessibility and use. Because access points are necessary for the creation of Blueways, this system also serves as a guide for the locating future public parks (of various scales) along the Guadalupe River. Figure 10 identifies recommended locations for Blueways in the City of Seguin. Blueways should not be established in any intermittent creek, stream or waterway in Seguin.

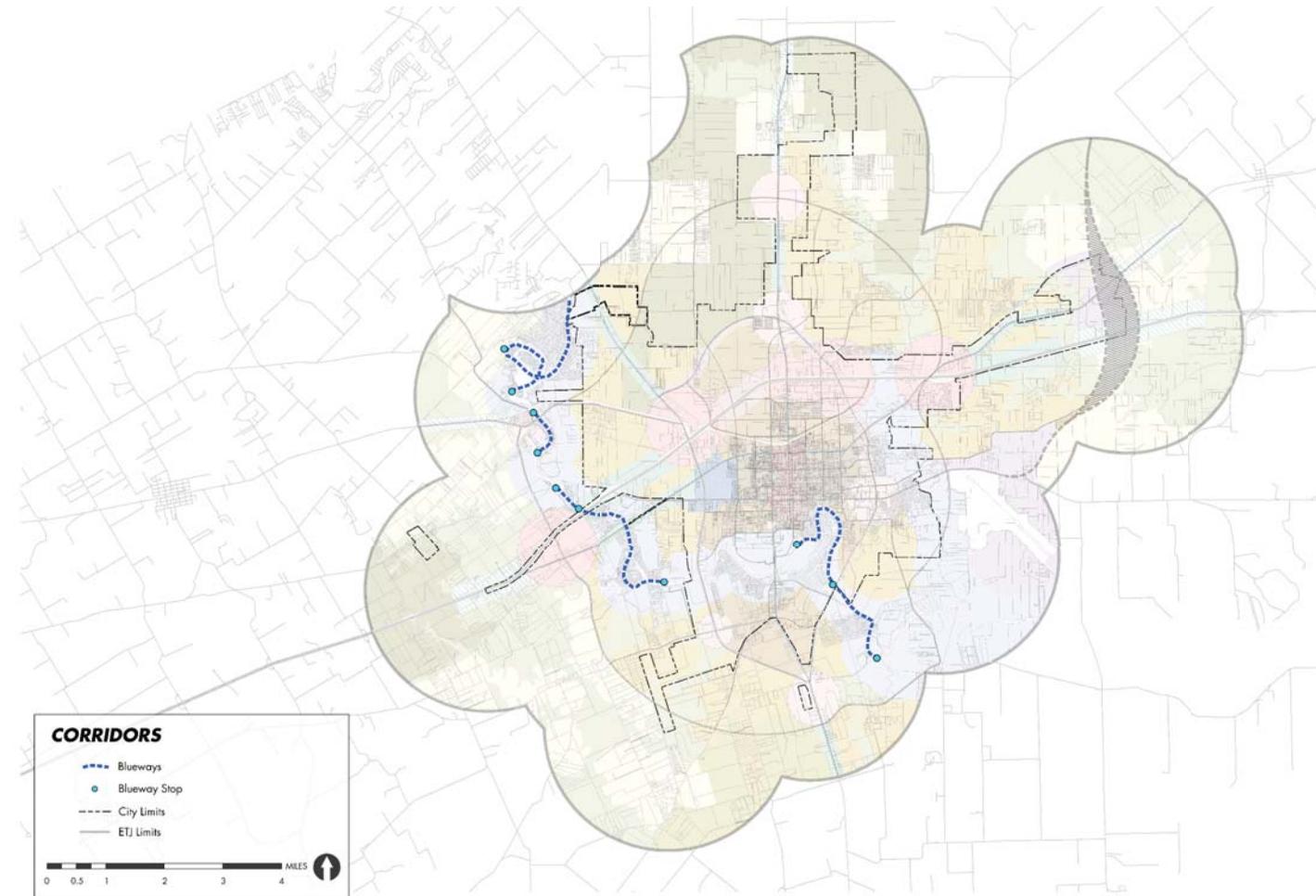


Figure 10. Recommended Blueways in Seguin.



6. Greenways

Along with other corridors, Greenways help to create a connective network within the City of Seguin. They connect people with the natural world, by connecting points of origin to points of destination, facilitating non-vehicular travel throughout the City.

Greenways are distinctive from other open spaces in that they accommodate passive community use and limited forms of activity (such as hiking and biking). Greenways provide meaningful corridors of natural space throughout the City, encouraging interface between people and the natural environment. Greenways are distinctive from Designated Natural Areas (Type C of the Open Space Plan), as Greenways maintain the dual functions of recreational space and habitat preservation, while Designated Natural Areas exist solely for preservation of natural habitat.

Greenways provide several benefits for the residents of Seguin. Their primary function is to tie pockets of parks and natural areas together to transform them into a network of open spaces for the City. Greenways are also effective as land use buffers, as they enhance the value of adjacent properties while providing transition between uses. They increase accessibility to green space, due to their flexible form and proximity to areas of urban use. They enhance pedestrian movement throughout the City. Finally, Greenways provide habitat corridors for wildlife within the urban fabric of Seguin.

When designating Greenways, existing public easements provide a range of opportunities. Utility and infrastructure easements throughout the City provide a type of network that is easily modified to accommodate trails and natural spaces. Rail lines and roadways that are not in operation can also be converted for greenspace use. Other locations well-suited for use as part of the Greenway system include lands adjacent to parks and designated natural areas and vacant/abandoned properties that could be targeted for ecological restoration. Figure 11 shows the recommended locations for Greenways in Seguin.

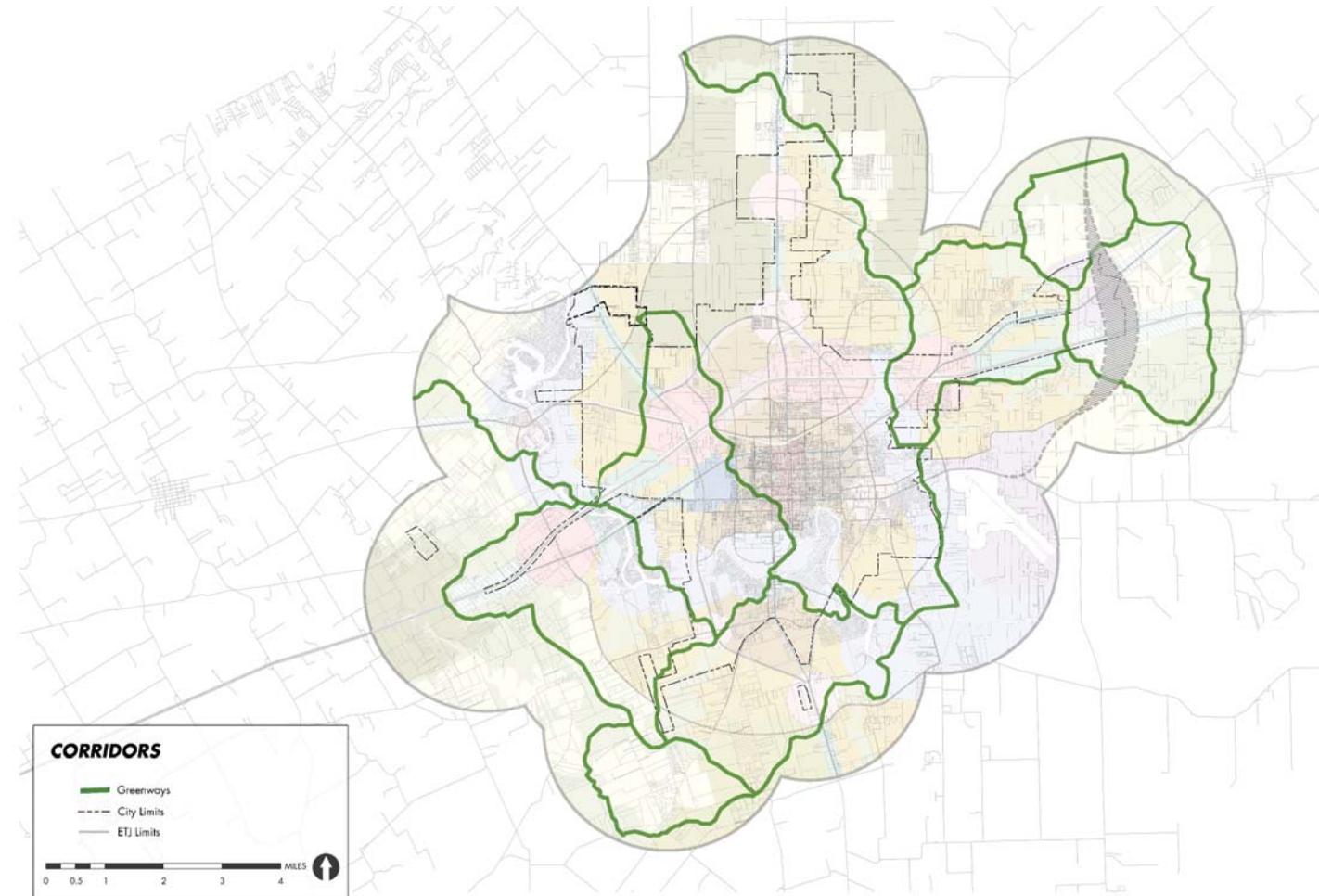


Figure 11. Recommended Greenways in Seguin.

Although Greenways are intended to connect pockets of Open Space within the City, these corridors should maintain sufficient widths to preserve the habitat within which they occur, as well as the experiential nature that Greenways should present to their users. Figure 12 shows the minimum widths recommended for Greenways in the City of Seguin.

Acceptable Uses within Greenways include:

- Segregated Trails
- Shared Use Trails
- Wildlife Viewing Stations
- Rest Areas

Figure 13 displays a transect of potential greenway uses in Seguin.

	Minimum Width (feet)		Minimum Width (feet)
AREAS		NODES	
Conservation	200	Local	-
Farm	200	Regional	-
Ranch	200		
Riverside	100	CORRIDORS	
		Core Approachway	60
COMMUNITIES		Town Approachway	200
Town Core	60	Town Corridor	200
City Center	60	Portal Approachway	200
Central Township	100		
Emergent Residential	200		
Rural Residential	200		
Employment	200		
University	100		

Figure 12. Greenway Minimum Widths.

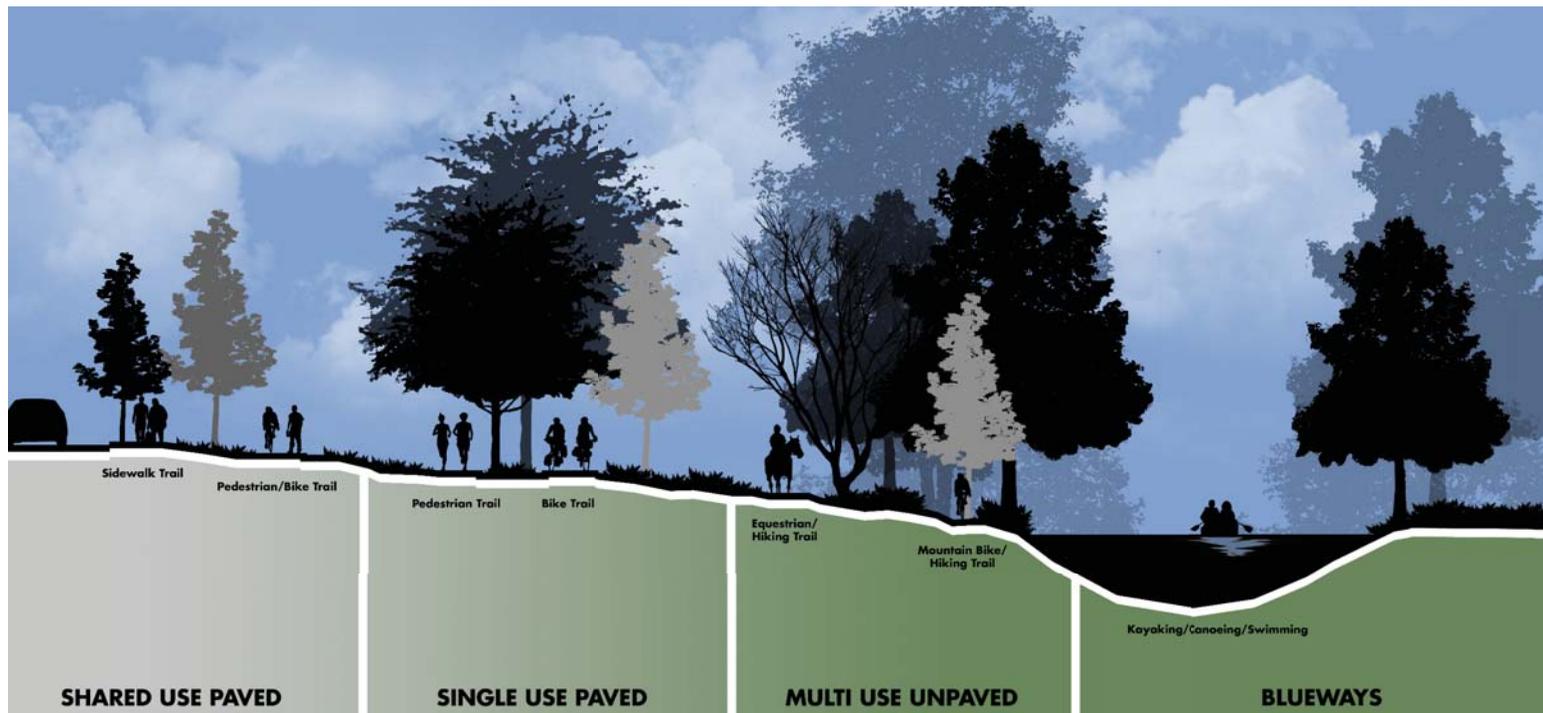


Figure 13. Transect of Greenway Uses.



TYPE C: DESIGNATED NATURAL AREAS

Most natural spaces found within a city are quickly sacrificed in response to the needs associated with urban growth and development. By creating Designated Natural Areas within the City of Seguin, the natural spaces that distinguish this community and reinforce its historic identity can be enjoyed and appreciated by current residents, and preserved for the enjoyment and appreciation of future generations. Such Designated Natural Areas will also enhance environmental quality, as these native ecological systems provide needed vegetative coverage for the City. This vegetative coverage protects and enhances air quality as well as stormwater management. Due to the expected increase in development within the City of Seguin, such Designated Natural Areas will help to preserve and enhance the ecological fabric unique to the City of Seguin.

Because such land must be purchased by the City over time, a plan was created that identifies several sites that are recommended for use as Designated Natural Areas. These are viable areas that not only preserve the natural habitat, but facilitate surface stormwater management at critical points along the Guadalupe river valley. These sites should be targeted and acquired separately, with the intention of purchasing the designated area in its entirety before considering addition of new lands in another recommended location on the map. This ensures that sufficient area is provided for viable habitat preservation, and that edge conditions (where development and natural areas interface) are kept to a minimum. To minimize edge effect and maximize internal space, Designated Natural Areas must retain a minimum width at any and all points of 1200 feet.

Finally, habitat preservation within Designated Natural Areas requires appropriate use of adjacent lands. Other Open Space uses (parks, trails,

etc.) are acceptable adjacent uses, as are any existing land uses at the time of designation, agricultural lands, and residential estate lands (according to the designations in the current zoning code). Other uses may be acceptable upon approval by Council.

Figure 14 represents the sites in Seguin that are recommended for acquisition as Designated Natural Areas.

The Network of Public Open Spaces identified in this Plan is recommended for service of the population estimated for the Planning Horizon of 78,000 people identified in this report. It is comprised of three types of Open Spaces: Parks, Corridors, and Designated Natural Areas. Collectively, these forms comprise a network of lands where the Seguin community can enjoy interaction with the surrounding environment and access space for recreational activity, ensuring preservation of quality of life not only for the community today, but also for future generations. Figure 15 illustrates the network of the Seguin Open Space Plan in its entirety.

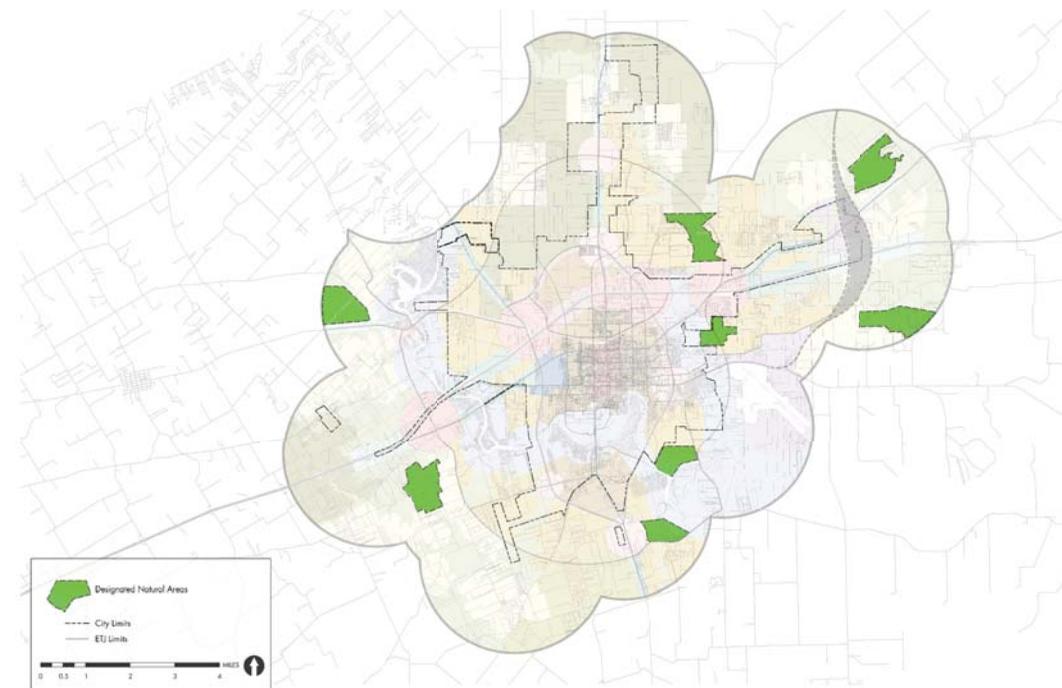


Figure 14. Recommended Designated Natural Areas in Seguin.



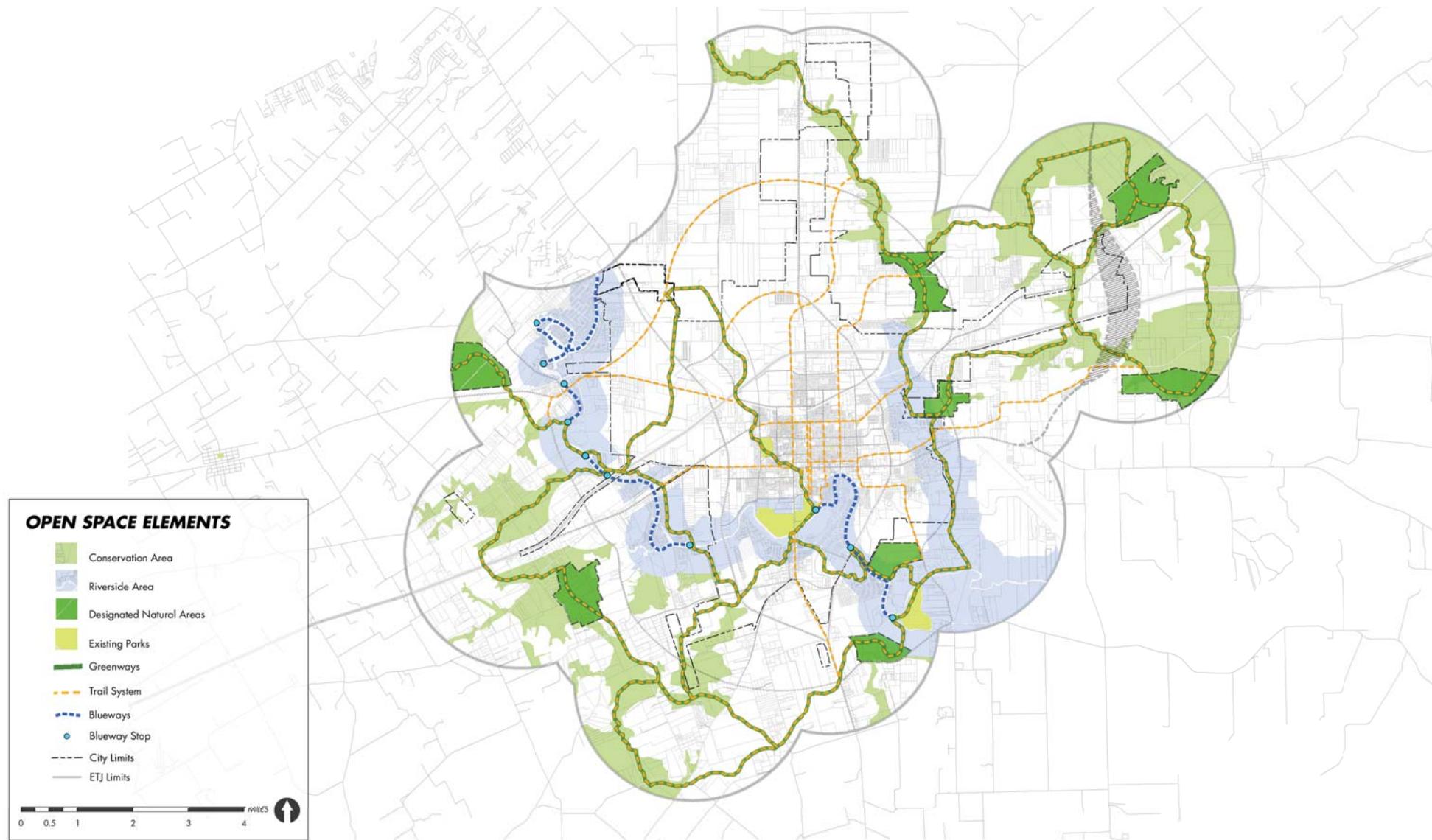


Figure 15. The Seguin Open Space Plan.



PART TWO: CREATING PUBLIC OPEN SPACES

The network of public open spaces as described in Part One of the Open Space Plan enhances community quality of life by providing opportunities for recreation, community connectivity, and interface with the natural world. The creation of such a network depends largely upon the City's ability to create these spaces. The creation of public open spaces requires three general types of actions: designation, funding, and management. Critical to the formulation of a healthy and viable open space network is the creation of procedures and policies that the City will use for the future designation of Public Open Space. Such designations typically involve the purchase of lands for public use, through the expenditure of public funds. It subsequently involves site management activity related to installation, maintenance, monitoring, and enforcement. By defining policies and precedents for designation, funding, and management, Seguin can actualize a plan for the creation of the Public Open Space Network as defined in Part One of the Open Space Plan. Therefore, Part Two of the Open Space Plan will target three critical areas for implementation: defining, funding, and managing the Open Space Network.

There are four key components regarding creation of a network of public open spaces that are addressed here. They include:

- Locating the elements of the Public Open Space Network
- Acquiring Public Open Spaces
- Managing Public Open Spaces
- Accessing the Public Open Space Network

LOCATING THE ELEMENTS OF THE PUBLIC OPEN SPACE NETWORK

To establish public open spaces in the City of Seguin, it is important to target specific areas that will form a coherent network, rather than isolated patches with limited ability to service the community/environment at large. Because of this, it is important to establish mechanisms for the designation of lands to be incorporated as part of the Public Open Space Network. The following are recommendations for locating Public Open Spaces in Seguin.

Criteria for locating Designated Natural Areas (DNAs):

- Designated Natural Areas shall be located at strategic catchment areas in the Guadalupe River Valley, to enhance surface stormwater management.
- Designated Natural Areas shall seek to preserve dense tree stands and critical habitat patches.

- Designated Natural Areas shall be located so as to envelope existing habitat patches in undeveloped areas within the Seguin ETJ.
- Designated Natural Areas shall be spatially configured so as to minimize edge conditions and increase internal protected space. (Minimize the ratio of edge to area).
- The Network of Open Spaces grows out of the collection of eight recommended sites for Designated Natural Areas indicated in the Seguin Open Space Plan. Therefore, selection of a location for any Designated Natural Area should align with one of those sites identified in this Open Space Plan.

Criteria for locating Greenways:

- Greenways shall create corridors of natural fabric throughout Seguin.
- Greenways shall serve as non-vehicular travel routes for Seguin.
- Greenways shall access Parks and DNAs.
- Greenways shall connect a point of origin to a point of destination, where at least one such point is another type of open space (a park, a DNA, or another greenway)
- Greenways shall service at least one of the land use districts classified as a "Community".
- Greenways shall establish routes for non-vehicular (pedestrian, bike, equestrian) movement throughout the City.
- Greenways may be created along existing utility easements, abandoned rail lines, and other abandoned public rights-of-way.

Criteria for locating Parks:

- Public transit shall service Neighborhood and Community Parks.
- Parks shall be located according to area of service recommendations presented in this Plan. Figure 16 indicates the service standards for each type of park.
- Park locations shall correspond to the primary intent and function of the land use districts of Seguin. Figure 17 identifies parks permitted for each district of the Land Use Plan.

Park Type	Standard	Service Guidelines		
		Area	Size	Population
Block	0.3 acres/1000 people	< 1/4 mile radius	< 1 acre	< 4,000 people
Neighborhood	2 acres/1000 people	1/4 - 1/2 mile radius	15+ acres	< 5,000 people
Community	7 acres/1000 people	1 - 2 mile radius	25+ acres	> 5,000 people

Figure 16. Park Service Standards.

	Block Parks	Neighborhood Parks	Community Parks
AREAS			
Conservation			█
Farm			
Ranch			
Riverside	█	█	█
COMMUNITIES			
Town Core	█		
City Center	█		
Central Township	█	█	█
Emergent Residential	█	█	█
Rural Residential		█	█
Employment		█	█
University	█	█	█
NODES			
Local	█		
Regional	█		
CORRIDORS			
Core Approachway	█		
Town Approachway		█	█
Town Corridor		█	█
Portal Approachway			█

Figure 17. Recommended Parks by District in Seguin.

ACQUIRING PUBLIC OPEN SPACES

Funding is a critical component in the acquisition of land for public open space. Although there are current measures outlined for parkland dedication, there are other funding mechanisms recommended for acquisition of land for public open spaces. A discussion of current measures and means of expanding the funding strategy is included, as well as additional measures recommended to facilitate acquisition of lands for development of the Public Open Space Network.

Current Measures. Park Land Dedication Requirements. As future development plans are created within the City or within its Extraterritorial Jurisdiction, a percentage of land area within the development plan must be reserved as Open Space. At the developer's request, compensation may be made to the City Open Space Fund in lieu of designation of land within the particular property in question.

Expanding the Funding Strategy for Open Space. Because funding can quickly become a constraint to the development of a Network of Public Open Spaces, this Plan contains a list of several funding mechanisms that can be implemented in the designation of open spaces. A strategy for accessing these funds must capitalize on as many sources as possible. Some of these funding sources have been identified here, classified as Local, State, Federal, or Private sources (references for these sources can be found in Appendix C).

Local sources:

- Bond referendums
- Capital Improvement Plans
- Trust Funds
- Donations
- Adopt-A-Trail/Open Space Sponsorship
- Volunteer Programs
- Estate Donations

State sources:

- Water Management Funds

Federal sources:

- National Scenic Byways Program, Transportation Equity Act of the 21st Century (TEA-21)
- Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- Community Development Block Grant Program (CDBG)
- Land and Water Conservation Fund (LWCF) Grants

- Conservation Reserve Program
- Watershed Protection and Flood Prevention (Small Watersheds) Grants
- Urban and Community Forestry Assistance Program
- Small Business Tree Planting Program
- Economic Development Grants for Public Works and Development of Facilities
- National Recreational Trails Program

Private Foundations and Corporations:

- World Wildlife Fund Innovative Grants Program

Preserving Targeted Natural Areas for Future Designation.

Lands indicated as targets for creation of Designated Natural Areas in Seguin will be acquired gradually over time as funding becomes available to the City for purchase of these lands. Development pressures can often absorb such properties for urban uses, thereby hindering the ability to create a network of open spaces to be enjoyed by the Community. To preclude the loss of opportunity for purchase of such lands, policies should be developed by the City placing a moratorium upon all lands identified as Designated Natural Areas in this Public Open Space Plan. All permits relating to development of these properties should be delayed a minimum of 120 days, allowing the City the option to leverage funds and purchase for public use.

Equitably Distributing the Public Burden. There are geographically designated areas within the City of Seguin and its Extra-Territorial Jurisdiction that will be designated for public use. To prevent disproportionate burden of public interest in regard to public access to lands, an ordinance should be passed that amends the subdivision code, so as to permit density bonuses for all development activity within lands with restrictions due to habitat protection and conservation measures. It is recommended that, in such cases, average density levels be permitted across entire property areas, so that higher densities may be achieved in areas that are not environmentally sensitive, and those areas that are environmentally sensitive can be preserved from development. Such density bonuses would be separate and in addition to any park land dedication requirements in place for residential development.

Provisions for Creation of Open Spaces in Redevelopment Zones.

In urbanized areas, there is an increased need for public open spaces (due to higher population densities), yet there is also a decreased amount of land available for use as open space (due to existing built fabric

and higher land valuation). To provide increased open spaces in such areas, standards for redevelopment projects should be defined, so that park land dedication requirements apply to non-residential projects, in addition to residential projects. Such dedications should be based on leasable square footage, as this is directly correlated to employment counts. In other words, the amount of land that should be dedicated as public open space should be proportionate to the employment values of a non-residential project.

Finally, policies should be adopted in the form of ordinances that more consistently align with the Open Space Plan. Therefore, an ordinance should be developed that amends the parkland dedication policy, so that funds acquired by cash-in-lieu of parkland dedication may be used to create Corridors and Designated Natural Areas as well. That ordinance should define procedures regarding appropriation of those funds, so that equitable portions of those funds are appropriated to each category of Open Space (Park, Greenway, and DNA) defined for the City of Seguin.

MANAGING THE PUBLIC OPEN SPACE NETWORK

The current policies that pertain to management of public park lands should be amended so as to also direct the management of Greenways and Designated Natural Areas. To effectively manage the Open Space Network in its entirety, the following organizational structure should be defined as a modification of existing offices, rather than the creation of new offices. Therefore, the "Park" policy documents should be redefined/amended to "Parks and Open Space" policy documents, so that funding, creation, and management of the various components of the Open Space Network can be governed consistently and equitably. Core components that should be addressed include: authority/offices/appointments, definitions, funding/finance, procedures for dedication, management, and enforcement. This would call for amendments of all ordinances within the City Code that speak to Parks in Seguin.

Management of Designated Natural Areas. As habitat preservation is the primary objective in establishing DNAs in Seguin, establishing partnerships for the creation and management of these areas is often beneficial. There are many land trusts that manage conservation lands, via conservation easements, in Guadalupe County. Establishing conservation easements for the DNAs of Seguin ensures that they will perpetually serve the community as areas of habitat protection. Transfer of these properties to a designated land trust alleviates the burden of



management, while fulfilling the objective of preservation. The following is a list of Land Trusts that engage in conservation activities in Guadalupe County (references for these sources can be found in Appendix C).

Local Land Trusts Active in Habitat Conservation:

Cibolo Conservancy
Green Spaces Alliance of South Texas
Guadalupe-Blanco River Trust
The Nature Conservancy, Central Texas Chapter

Texas Land Trusts Active in Habitat Conservation:

American Farmland Trust
Conservation Fund
Ducks Unlimited, Inc.
Native Prairies Association of Texas
Texas Land Conservancy
The Nature Conservancy (Texas headquarters)
The Trust for Public Land (Austin)
Texas Parks and Wildlife Foundation

Nationwide Land Trusts Active in Habitat Conservation:

National Wild Turkey Federation
Quail Unlimited
Wildlife Land Trust, Humane Society

ACCESSING THE PUBLIC OPEN SPACE NETWORK

In order for the Open Space Network to be utilized and enjoyed by all, it is necessary to establish and maintain clear and convenient access to Open Spaces. The following are key elements of providing this accessibility:

- Points of access to all public open spaces shall be clearly marked.
- Parks shall be accessed by both vehicular (streets) and non-vehicular (trails) transportation routes.
- All Greenway segments shall contain at least one persistent trail type, to reinforce the primary function of Greenways: connectivity.
- All Trails shall be designed according to American Association of State Highway and Transportation Officials (AASHTO) standards.



4.3 the future thoroughfare plan

The Future Thoroughfare Plan is a key component of the vision expressed in the Planning Framework produced by resident and property owner participants in the Planning Process.

The recommended Future Thoroughfare Plan seeks to accommodate future trip demand (target year trip projections: 2047) in a City-wide thoroughfare system that:

- Pushes the downtown area collectors through to Interstate 10, Highway 123 By-pass, and Highway 46 (the highways that comprise the “Inner Loop” discussed below), in order to provide greater east/west and north/south movement capacity within the older, built parts of Seguin.
- Makes full use of the future State Highway 130.
- Creates a couplet using Austin Street and River Street to provide greater north/south movement capacity to and from the City core (increasing north/south capacity in the existing street system that serves the downtown core).
- Creates “relief points” in the overall system so that the 2047 road volumes between any two relief points do not exceed the planned road capacity.
- Creates an Inner Loop that provides needed relief points and provides cross connections within the older, built City. The Inner Loop also provides multiple points of connection for the constrained older grid and relieves the constraints and discontinuities in the existing City grid by circumscribing the grid and connecting its end points (the extended downtown area collectors discussed above).

- Creates an Outer Loop that provides needed relief points at regional highway intersections and provides cross town connections within the areas of newer growth.
- Increases overall road capacity in the built areas and new residential/non-residential growth areas to accommodate 2047 traffic volumes.
- Create points of “nodal hubbing” about the city core that reinforce the centrality of the core, balance commercial land use, and energize new development.
- Makes full use of the proposed Highway 130 to attract development to downtown and the southern part of the City.
- Recognizes the City of Seguin in its form and configuration by relieving the growing constriction imposed by its existing City Grid.
- Gathers the capacity potential of separate State Highways and Interstate 10 and integrates them within a City-wide system that transforms bypasses into central corridors that reinforce local identity and local movement.

Accommodating Future Growth

As Seguin grows, the existing City grid will continue to experience greater congestion because of:

- Internal discontinuities
- The transference of internally generated and incoming traffic volumes to limited through streets (such as Highway 90)
- The lack of needed cross town movement
- Older and undersized streets (relative to emerging demand)
- Convergence of regional roadways onto a fewer number of through town corridors

A system with such restrictions will attain its capacity well before the City of Seguin fully develops. Therefore, the Future Thoroughfare Plan must seek to create a system that relieves this potential limitation and balances city flow through a series of connecting loops and continuity connections that create a system network. This lack of overall system, frequent discontinuities, and capacity restrictions will make future trip volumes (generated by the “build-out” population) flow into too few streets. Therefore, a coherent system becomes operationally impossible for the City of Seguin at a certain point in its development without dramatic changes to the existing street network. Resolution of this emerging impasse and transition to a larger



system with greater capacity that is less dependent on the Interstate and regional Highways becomes the greatest planning challenge facing Seguin as it prepares for future growth.

Traffic capacity is an essential element of the Thoroughfare Plan. The system is intended to have an overall operational capacity that can accommodate future trip volumes placed upon the Seguin System by both internally generated and externally generated trip demand. The Future Thoroughfare Plan is comprised of street classifications that when fully developed will provide overall capacity that allows the system to optimize as it transitions to function as a Hub and Spoke System. Capacities are associated with the street classifications contained in the Seguin Thoroughfare Plan (Figure 6). The magnitude of capacity for each road type is partially determined by the level of service at which that street operates. The Level of Service (LOS) is the ability of a signalized intersection to accommodate traffic. Level of service "C" is the most often recommended level of service for suburban communities. However, as a City grows and urbanizes, this level of service is extremely costly to maintain. Levels of Service are generally defined in the adjacent chart.

Accommodating future growth requires a thoroughfare system that contains sufficient lane capacity to move trip volumes generated by the assumed 2047 build out. Assumed land use build out in each of Seguin's 44 traffic cells establishes an anticipated 24 hour Average daily Trip Volume. The total trip volume in any cell can be reduced to reflect the extent to which public transit and mixed land use densities relieve necessary vehicular trips. Due to mixed use regional and local nodes (shown in the Land Use Plan) and public transit (shown on the Mobility Plan later in this section), average daily trip volumes associated with the 2047 build out were reduced between 30% and 50% depending on the level of transit service and the level of nodal clustering anticipated. The following Trip Volume Plan (Figure 3) shows the anticipated 2047 trip volumes allocated to roadways of the Seguin Thoroughfare System. Some of these trip volumes allow the construction of a narrower street section than will ultimately be needed when total build out is attained.

Figure 4 identifies the streets (not including the Core Area Streets discussed below) that are affected/extended/widened/realigned by the Future Thoroughfare Plan, while Figure 5 shows each of the system elements and the street width necessary at the 2047 build out and the more distant ultimate build out.

LEVELS OF SERVICE		
Level of Service	Description	Stopped Delay per Vehicle at Intersection (seconds)
A & B	Virtually no delays at intersection with smooth progression of traffic flow. Generally an operation without congestion, where all the vehicles clear the intersection in one signal cycle.	Less than 15 seconds
C	Slight to Moderate delays at intersection with satisfactory progression of the traffic flow. Occasional light to moderate congestion with occasional back-ups on streets at critical points in the thoroughfare system or critical approach lanes.	15.1 to 25.0 seconds
D	Forty percent probability of delays of one cycle or more at every intersection. No progression of traffic movement from the intersection with 90 percent probability of being stopped at every intersection experiencing "D" conditions. Significant congestion on critical approaches, but the intersection is functional. Vehicles required to wait more than one cycle during short peaks. No long standing lines formed.	25.1 to 40.0 seconds
E	Heavy condition. Delays of two or more cycles probable. No progression. 100 percent probability of stopping at intersections experiencing "E" conditions. Blockage of intersection may occur if the traffic signal does not provide for protected turning.	40.1 to 60.0 seconds
F	Unstable flow. Heavy congestion. Traffic moves in forced condition. Three or more cycles to pass through intersection. Total breakdown with stop and go operation.	More than 60.1 seconds

Figure 1. Levels of Service.

DAILY SERVICE VOLUME RANGES			
Roadway Type	Level of Service "C"	Level of Service "D"	Level of Service "E"
8-D (Arterial)	41,000 to 47,000	47,000 to 52,000	52,000 to 58,000
6-D (Arterial)	31,000 to 35,000	35,000 to 39,000	39,000 to 44,000
4-D (Collector)	21,000 to 23,000	23,000 to 26,000	26,000 to 39,000
4-UD	17,000 to 18,000	18,000 to 21,000	21,000 to 23,000
2-UD	6,000 to 8,000	8,000 to 9,000	9,000 to 10,000

Figure 2. Daily Service Volume Ranges.



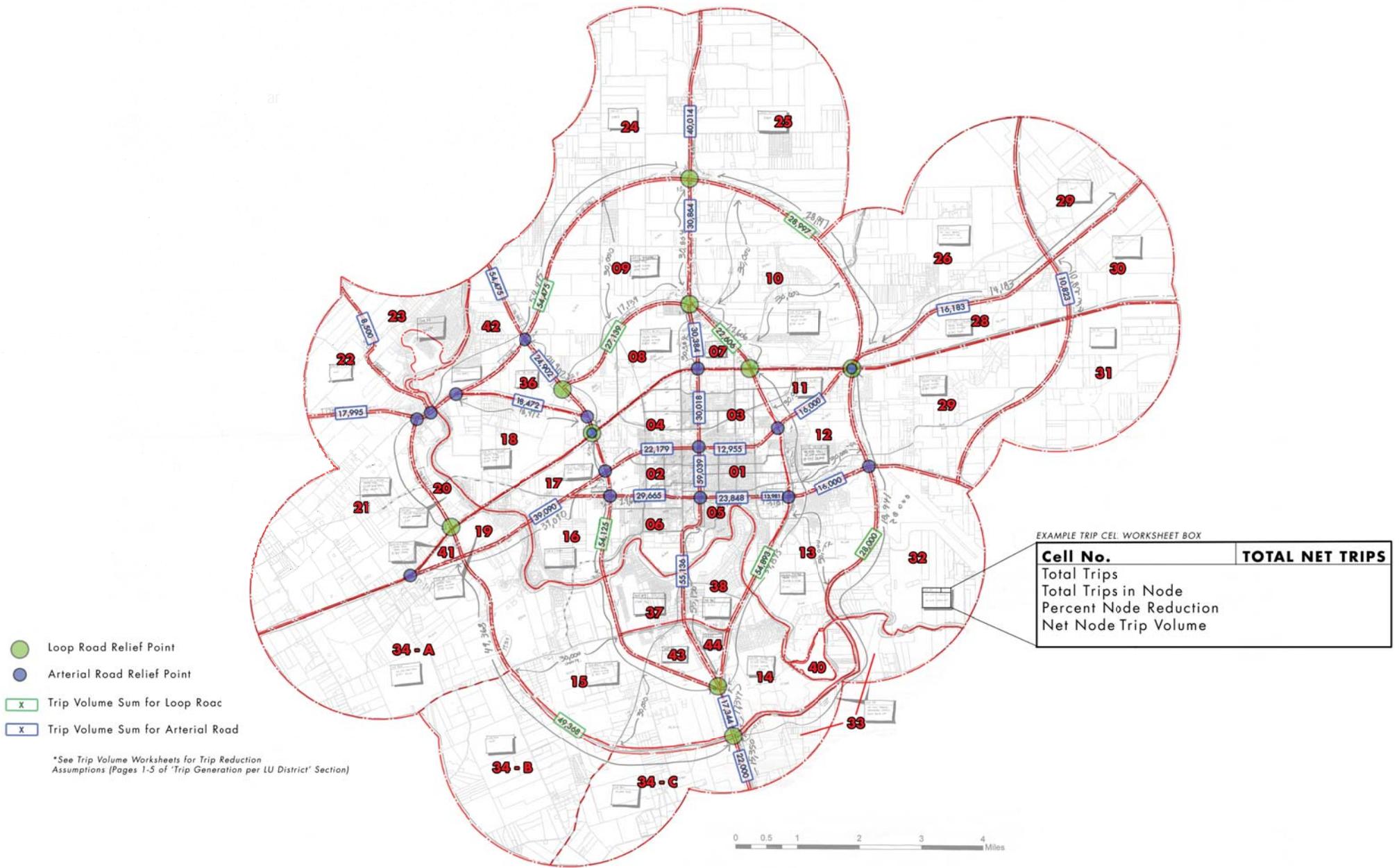


Figure 3. The Seguin Thoroughfare Trip Volume Plan.

Creating Legibility and a System Framework: A Hub and Spoke System

The creation of an operational system that preserves the qualities of Seguin's "small town feel" and which has the potential capacity to accommodate future growth without overburdening neighborhood streets is a challenge facing the future City. Therefore, a Future Thoroughfare Plan has been envisioned that will allow portions of the currently restricted/segmented pattern to evolve into a more fluid "Hub and Spoke" distribution and maintain the historic grid without overburdening its capabilities. The hub and spoke system is an old and commonly used system design in many cities. In a hub and spoke design the center of the system is linked to a peripheral loop by a network of radiating streets. This type of system will relieve emerging problems in older areas as well as other parts of the City. Independent loops gather traffic and allow that traffic to return to the City center via an increased number of radiating arterials, improved interstate interchanges, couplet streets, and the outward extension of central City streets (now hindered by discontinuities within the older grid). As a result, all out-lying parts of the future City are linked in a way that reinforces the City center. Consequently, the economic forces supported by these roadways converge rather than disperse and thereby create important nodal points within the system. Like major intersections along the beltway around many cities (including Dallas, Baltimore, and Washington, D.C.) these points concentrate economic energy and create nodal centers for future development. Without such value differentiations, commercial development will continue to gravitate to Interstate 10 and other regional corridors.

At a more regional level, the hub and spoke system links neighboring communities in a single pattern of inter-city movement. It was the hub and spoke system that forced Paul Revere's famous ride to pass through Lexington on his way to Concord. The hub and spoke system asserts that all routes of travel do not have to have the same level of desirability (the physical implication of the grid). It concentrates development so that desirable routes connect desirable places. The grid disperses development and maintains that desirable routes must also be dispersed. This design ignores the behavioral aspect of travel and gives the form of the City over to operational functions of the street design. By evolving to a hub and spoke system, Seguin will effectively expand its operational capacity (without overburdening the existing grid) by expanding the limited number of "pass through" highway routes and connecting them within a larger system that serves Seguin (and not just through movement). Also, Seguin will have concentrated land uses with destination significance so that desirable routes connect to desirable places.

There are three proposed loops and key proposed street extensions in the Future Thoroughfare Plan:

- **Loop One** (herein referred to as the **Inner Loop**) circumscribes the City Core and Older City Area on its north, south, east and western sides. This is an important conceptual cornerstone of the proposed Thoroughfare Plan because it provides relief points for older roadways carrying traffic to and from the City Core and Older City Area so that the length of roadway from core area relief points (at downtown throughways) to any loop road relief point (at the Inner Loop) is scaled to the potential trip demand it will likely serve in target year 2047. Because of its traffic gathering and cross movement function, portions of the Inner Loop (from SH 46 around the southern side of the City and then north along Highway 123, under Interstate 10, to a northerly connection with SH 46) should reserve enough right of way to accommodate future widening to a 6 lane-divided thoroughfare. The Inner Loop has two functions:
 - Establish a point of connection for improved continuities within the older city grid.
 - Provide cross town movement between regional highways, thereby integrating them within a coherent system.
- **Loop Two** (hereinafter referred to as the **Outer Loop**) connects distant areas of future northern and southern development (northern/southern sectors of Seguin, north of Interstate 10, and south of the Nolte Island Recreational Area) to Interstate 10, as well as connects radiating and improved highways that carry traffic to and away from the downtown core. The Outer Loop has two functions:
 - First, it supplements the limited capacity of the Inner Loop.
 - Second, it gathers traffic from northern growth areas (both residential and commercial) and offers a variety of operationally comfortable routes into the City core as well as access to Interstate 10. This outer loop also carries trip volumes generated by development to the north and south so that such volumes do not overload Seguin streets within the existing older areas.

The total acreage of developable land in northern and southern Seguin represents a potential population that would easily overload existing local roadways if this population had to flow to currently isolated Highways or through older areas to reach Interstate 10 or the business center. Therefore, this second outer loop is essential to preserving the "small town" feel of Seguin and its quality of life.

• **Loop Three** (hereinafter referred to as the **Union Pacific Loop**) serves the most intensive growth areas north and south of Interstate 10 and the Inner Loop, inside the Outer Loop. Cross town movement will be most needed here in the short term (east/west movement from I-10 to the Inner Loop west of Highway 123) and in the long term due to the concentration of three major Regional Nodes. Trip volumes from these nodes will require that streets extending north of the Inner Loop have a cross connection between the Inner Loop and the Outer Loop. The Union Pacific Loop has two functions:

- Serve regional nodes along Interstate 10 and local nodes along the Inner Loop.
- Serve emergent residential areas north of Interstate 10 and inside the Outer Loop.

The key components of Seguin's Future Thoroughfare Hub and Spoke Plan, by phase as they relate the physical development of the City, are:

1. Creation of an Inner Loop that ties the radiating pattern of regional highways together and makes them spokes serving an inner rim within a hub and spoke system.

- a. Initiative #1: Make a fluid connection between Highway 46 and Highway 123, south of the Guadalupe (at their current point of confluence on Business 123) so that a continuous flow from Highway 46 to Highway 123 can be accomplished (and vice versa).
- b. Initiative #2: Reserve future right of way along Highway 46 so that the Inner Loop can be ultimately widened to 6 lanes with a thematic median and limited access road connections. Recommended right of way is 180 feet.
- c. Initiative #3: Create a northerly (north of Interstate 10) connection between Highway 123 and Highway 46 (starting at the point where Highway 123 and Business 123 converge and extending to Highway 46 at a point in the proximity of Adobe Vista Street and Geronimo airport).
- d. Initiative #4: Creation of a standard intersection at the meeting of Highway 123 and the Highway 123 Bypass (north of I-10).



2. Creation of an Outer Loop that ties the radiating pattern of regional highways together and makes them spokes serving an outer rim of a hub and spoke system.

- a. Initiative #1: Make a fluid connection between FM 725 and Highway 123 (south of the downtown core) beginning at Leissner School Road and sweeping in a southeasterly direction to a point of intersection with Highway 123 at FM 477.
- b. Initiative #2: Acquire the right of way along FM 725 to widen this future portion of the Outer Loop to a 6 lane rural parkway with variable median (minimum right of way is 180 feet).
- c. Initiative #3: Extend the Outer Loop east of Highway 123 (to Interstate 10) along FM 477 to a point of intersection with Capote Road, then northward on Capote Road until crossing the Guadalupe River, then split off from Capote Road, creating a new road section that crosses Highway 90 Alternate at Auxiliary Airport Road, then continue to the intersection of Interstate 10 and Highway 90. Acquire the necessary right of way for future widening of this loop section to a 6 lane divided rural parkway (minimum 180 feet).
- d. Initiative #4: Extend the Outer Loop north of Interstate 10 to an intersection with Highway 123 about ¼ mile south of County Road 120. Acquire the necessary right of way for future widening of this Loop section to a 6 lane divided rural parkway (minimum 180 feet).
- e. Initiative #5: Extend the Outer Loop west of Highway 123, curving southward, intersecting State Highway 46 at County Road 104, then continue southwest and intersect FM 78 at Bridge Road, then continue southwest along FM 78 to a point of intersection with FM 725. Acquire the necessary right of way for future widening of this Loop section to a 6 lane divided rural parkway (minimum 180 feet).

3. Creation of limited access intersections with both the Loop Roads and the regional highways that radiate from and pass through the older center of Seguin.

- a. Initiative #1: Create a controlled access road connection between the Outer Loop and Highway 123 (north of the Guadalupe River), Highway 46, Highway 78, Interstate 10, Highway 90, and Highway 123 (south of the Guadalupe River).
- b. Initiative #2: Creation of controlled access road connections between the Inner Loop and Highway 123 (north of the Guadalupe River), Interstate 10, and Highway 123 (south of the Guadalupe River).

4. Create an east/west connection (future Union Pacific Loop) between I-10 (east of Highway 123) and the Inner Loop (west of Highway 123) that serves development north and south of Interstate 10 and the Inner Loop (inside the Outer Loop).

- a. Create a portion of the Union Pacific Loop beginning at the Inner Loop (west of Highway 123) and continuing in a southeasterly direction and intersecting I-10 at Fleming Street.
- b. Create a portion of the Union Pacific Loop along the north side of the Union Pacific Railroad right of way between Interstate 10 (at Fleming Street) and the existing Seideman Street.
- c. Continue the portion of the Union Pacific Loop along Seideman Street as a 4 Lane undivided arterial, then continue along the north side of the Union Pacific Railroad right of way to the Inner Loop (east of Business 123)
- d. Extend the portion of the Union Pacific Loop from the Inner Loop (east of Business 123) in a northeasterly direction to I-10 (east of Highway 123).
- e. When future development requires an expansion of the thoroughfare system, continue the Union Pacific Loop north of Interstate 10 (along White Oak Street) making a connection with County Road 108 and then intersecting with Highway 123 (north of Interstate 10).
- f. When future development requires an expansion of the thoroughfare system, continue the Union Pacific Loop west of Highway 123 (north of Interstate 10) along CR 108 to CR 105, then continuing west of CR 105 (as a new road) and turning south to a point of intersection with the Inner Loop at the point of beginning.

Accommodating Increased Vehicular Trips Outside the City Center

As Seguin grows existing streets will need to be extended and new streets will need to be added in order to accommodate the increased traffic volumes that future growth generates. The Future Thoroughfare Plan extends elements of the core system (discussed below) into areas beyond the Inner Loop in order to engage emergent growth zones with the overall thoroughfare system. These roadway extensions reinforce the hub and spoke system with secondary spokes that supplement the major arterial spokes comprised of regional highways. These secondary spokes have two primary functions:

- Connect the two loops so that primarily residential traffic can flow to employment centers and shopping districts located along the loop parkways as well as access regional highways leading away from the City.
- Allow flow from emergent residential areas directly into the City Core.

Key components of the Seguin Outer Loop Area Capacity Enhancement Plan are described below by type of improvement:

1. Extend Core Area north/south and east/west collectors beyond the Inner Loop.

- a. Extend Hidalgo Street north across the Inner Loop to CR 105, connecting the City Core to the Outer Loop.
- b. Extend Campbell/6th Street north to the Union Pacific Loop, and when future development requires, continue Campbell/6th north to the Inner Loop, creating a connecting between the City Core and Inner Loop.
- c. Extend Guadalupe Street north across Business 123 and the Inner Loop, connecting the City Core to the Outer Loop near CR 111.
- d. Extend Heideke Street north across the Inner Loop, connecting the City Core to the Outer Loop (along CR 102A, CR 103, and FM 20)
- e. Extend FM 725 from South Guadalupe Street (Business 123), across the Inner Loop connecting the central downtown corridor to the Outer Loop.
- f. Extend FM 467 from South Guadalupe Street (Business 123), across the Inner Loop, connecting the central downtown corridor to the Outer Loop.

2. Extend Court Street east and north to the Employment Centers and SH 130 to facilitate access/egress to employment and enhance the economic environment of the downtown area with increased traffic centrality.

- a. Extend Court Street east of Highway 123 and turn it north as a new road (forming a conventional intersection with the further westward extension of Court Street), making a connection with the SH 130 and Interstate 10 intersection.

3. Create an orderly relationship between the regional highways that radiate from the Seguin core area and the Loop Road components of the thoroughfare system.

- a. Designate Highways 123, 46, and 90 as well as FM 78 between the Seguin ETJ Limits and the Outer Loop as a Rural Approach, generally treated as indicated in the following Roadway Transect.
- b. Designate Highways 123, 46, and 90 as well as FM 78 between the Outer Loop and the Inner Loop as a Town Approach, generally treated as indicated in the following Roadway Transect.
- c. Designate Business 123, Highway 90, and Business 90 between the Inner Loop and the Downtown Core as a Core Approach, generally treated as indicated in the following Roadway Transect.
- d. Designate the Outer Loop as a Rural Parkway, generally treated as indicated in the following Roadway Transect.
- e. Designate the Inner Loop as an Urban Parkway, generally treated as indicated in the following Roadway Transect, with the exception of the portion between Highway 46 and Highway 123 (north of I-10) which is to be designated as a Rural Parkway.
- f. Designate the Austin Street/River Street Couplet as the Downtown Couplet as generally shown in the following Roadway Transect.

A Hierarchy of Streets: Defining the Thoroughfare Network System

In order to prepare the City of Seguin for future trip demands that will be placed upon its streets and roadways (from both internal and external growth), it is necessary to establish a hierarchical pattern of movement that operates as a system (when completed) and is comprised of streets that have system-related purposes/capacities/functions. The hierarchical system defines the role of each street within it and this role translates into specific design standards for that street (pavement section, lane widths, traffic management, right of way). The description of role and assignment

of standards is called the Functional Classification and attributes of each classification should apply to all newly constructed streets within the City and to those built streets where conformance with the classification can reasonably be achieved.

The typical Functional Classification System consists of a range of streets with related purpose. A street purpose within the system will vary from those streets providing access to adjacent properties to those whose primary purpose is to provide broader mobility and operation. Access means movement to property(s) within the neighborhood (e.g. garage to street), while mobility refers to longer trips from local streets to more distant destinations (e.g. neighborhood to work). Therefore, some streets distribute access to many properties and others collect traffic for fluid conveyance to common destinations. Therefore local streets which perform well at providing access to many properties have the capability to accommodate slow, incremental, generally non-directed movement (the type of movement necessary for numerous, closely associated points of ingress/egress). Mobility Streets (typically arterials and collectors) permit higher travel speeds and more directed movement. With higher speeds and larger traffic volume/capacities, these streets function well for longer trips to common destinations but function poorly as local access streets. Thereby, the various streets function collectively (each according to its best capabilities) to make an overall system of movement. However, the higher traffic volumes on mobility streets also make them attractive for commercial development. As a result, many mobility streets throughout the country are plagued by “strip” commercial land uses which place access demand on the roadway and diminish its volume, speed, and capacity characteristics. When this occurs, various forms of access management become necessary. These include:

- Deceleration Lanes
- Turn Lanes
- Limited Curb Cuts
- Limited Median Cuts
- Forced Turn Lanes

Mobility Streets fall into three general classifications: Parkways, Arterials, and Collectors. Parkways are thematic roadways with controlled access that provide cross connection between Arterials. Arterials (Major Arterials and Arterials) carry longer trips and should form continuous links that carry traffic through sub-areas and to major points of destination or distribution. Collectors supplement the Arterial network and are intended to distribute traffic between the arterials and local access streets. As a result, they are not intended to carry trips for long distances but should have some

level of continuity so that points of connection are well distributed over the arterial network.

Local Streets (sometimes called Neighborhood Streets) should be developed between collectors so that traffic is generally routed around and not through these areas. Local streets should have some level of continuity so that they are not burdened by bottlenecks and concentrated collection points due to long cul-de-sacs. However, these patterns of continuity should have a horizontal alignment that discourages “cut through” trips.

Couplets are a special street designation for two one-way streets (usually Arterials or Collectors) that work in combination as a single street. Opposing directional flows on each of the two streets create a shared street section that allows the individual lane capacity of the two streets to be combined.

In accordance with the above system element descriptions, the Thoroughfare System for Seguin will have Parkways (controlled access Major Arterial), Major Arterials, Arterials, Major Collectors, Collectors, the Austin/River Couplet, and Local Streets. Freeways and Highways are typically under the strict jurisdiction of other agencies (such as the Texas Department of Transportation). Interstate 10 and SH130 are examples of such corridors. However, each of these (and others) plays an important part in the overall operation of Seguin's system. Therefore, right of way and improvement requirements are proposed that will have to be addressed through the appropriate jurisdiction.

Figure 8 describes the most important characteristic of each classification and its intended use. A thematic roadway plan, however, was developed as an overlay to provide continuity between the different functional classifications. The thematic elements are based on appropriate design characteristics for that roadway within the overall thoroughfare system. The seven thematic roadway types are indicated in Figure 3 (see Thematic Thoroughfare Types for Seguin on pages 154-155), with corresponding captions providing greater detail.





Figure 4. Thematic Roadways Plan.

Figure 5. Thematic Thoroughfare Types for Seguin.

RURAL



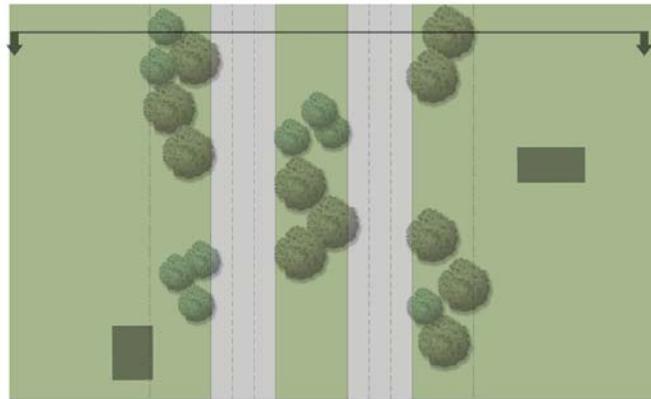
RURAL APPROACH



RURAL PARKWAY



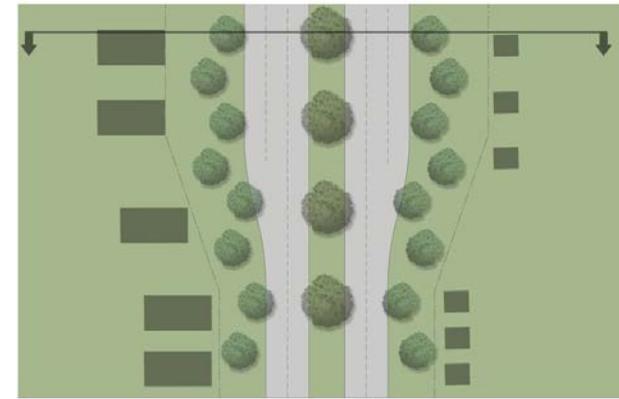
TOWN APPROACH



RURAL APPROACH



RURAL PARKWAY



TOWN APPROACH

The streets designated as Rural Approach introduce Seguin as a distinct place of arrival by visually separating the city from the fringe context of adjacent activities. The Rural Approach seeks to convey a largely undeveloped condition with undisturbed land forms and drifted plant communities. Buildings are randomly placed, relative to the road. Fences are a rural, transparent variety, if present at all. Trees are naturally clustered and accompanied by understory growth, punctuating the agrarian landscape characteristic of the Seguin area. The road is a divided section, with a wide median, so that the pavement width apparent to any car is rural in scale. Natural tree drifts occasionally cross the road, so that the road does not define the landscape form. In Rural Approach Streets, no free-standing commercial signage is permitted within 200 feet of the right-of-way.

Parkways are intended to be experiential pathways. Therefore the dynamics of movement, encounters with landforms, and changes in corridor definition are important in effecting experience along these pathways. The Rural Parkway should have horizontal and vertical undulation that creates a wide and variable median. The divided lanes should not be parallel for any great distance, so that the landforms and natural landscape are more influential on the design and the driving experience. Trees should be planted in drifts, which can flow across the roadway, and should exhibit a degree of vertical complexity. Buildings should be sited without reference to the road, and the rolling ground plane should continue in the median. Distinctive natural features, such as a pond or significant tree stand, should be preserved to make the Rural Parkways unique. In Rural Parkways, no free-standing commercial signage is permitted within 200 feet of the right-of-way.

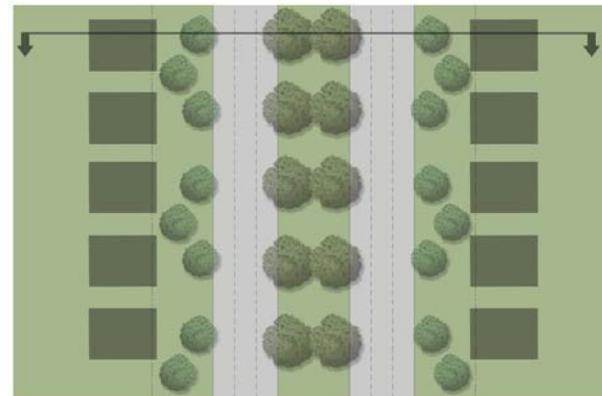
The Town Approach Streets initiate the visual sequence that ultimately terminates at the downtown square. The Town Approach Streets transition from the rural street character of the Rural Approach to the more urban character of the Core Approach. Within the Town Approach, drifted trees transition to a more organized geometry of offset pairs, and the landscaping in the median becomes a regular geometry of uniformly spaced trees in a linear formation. This announces the forthcoming urban condition, and responds to the introduction of a narrower median. Buildings begin to establish a more orthogonal relationship to the street, while landscaping is still generous between the buildings and the street. Interfacing site landscape has a more ornamental character. Street lighting is more closely spaced, using the thematic City light and luminaire standard.



Figure 5. Thematic Thoroughfare Types for Seguin (continued).



URBAN PARKWAY

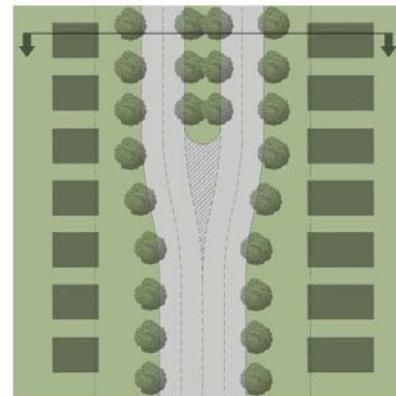


URBAN PARKWAY

Urban parkways are the street type found along the Inner Loop. As a parkway, the road has an experiential function. Here, that function is urban identity. The distinct identity of this parkway is conveyed through organized geometries of regularly spaced, paired trees, and an orthogonal relationship of buildings to the street. Thematic urban parkway lighting standards, uniformly spaced and placed so that banner arms display banners to the street, are characteristic of Urban Parkways, as are distinctive exit signs and way-finding signs that identify key destinations by name.



**CORE APPROACH
6LN/4LN**

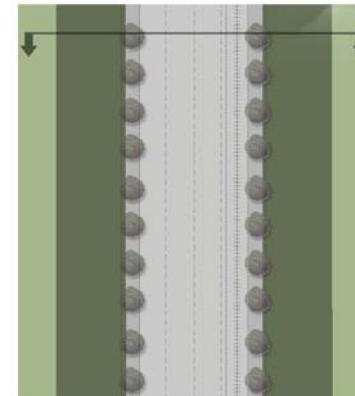


**CORE APPROACH
6LN/4LN**

The Core Approach directs traffic to the point of arrival in Downtown Seguin. As such, the Core Approach visually culminates the approach sequence, transitioning from suburban to urban. Trees are placed in strict uniformity. Buildings have an orthogonal relationship to the street, with small to non-existent yard interface. Thematic lighting is more closely spaced, and equipped with banner arms. Directional and interpretive signage is brought to the street, along with information kiosks. Decorative sidewalks and crosswalks also characterize the Core Approach Streets.



**DOWNTOWN
COUPLET**

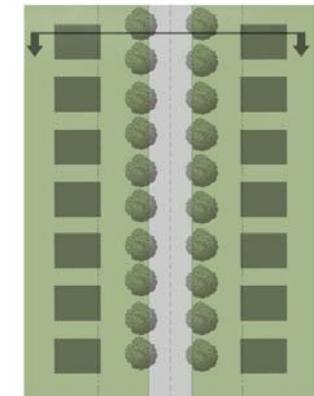


**DOWNTOWN
COUPLET**

The Downtown Couplet is the combined function of River Street and Austin Street, functioning in a couplet configuration. The couplet is a variation of the Core Approach, so attributes of the Core Approach are evident here as well. Trees are uniformly placed, and buildings maintain a strict orthogonal relationship to the street. The yard interface is minimal if existent at all. Thematic lighting is closely spaced, and equipped with banner arms. Directional and interpretive signage is mounted to thematic standards, and informational kiosks, decorative sidewalks, and decorative crosswalks are also incorporated.



**URBAN
COLLECTOR**



**URBAN
COLLECTOR**

Urban Collectors are the general streets of downtown, and are distinguished by uniform/orderly tree placement. Buildings are arrayed in strict orthogonal relation to the street, with little to no yard interface. Closely spaced thematic lighting is found in the commercial areas, while intersection lighting alone is found in residential areas. Directional, informational, and interpretive signage is found within the street space of Urban Collectors.

Functional Classification and Planning Guidelines					
Classification	Function	Intersection Spacing	Median Cut Spacing	Speed Limit	Comments
Parkway	Primary long distance conveyance to limit the total number of “pass through” trips.	½ mile minimum	Emergency access only	55	Provide a pathway alternative for potential future development in Guadalupe County to access Interstate 10 without overburdening the existing streets.
Major Arterial	Moderate distance, inter-community traffic conveyance with greatest volume capacity. Land access should be concentrated to intersection locations as much as practical.	1200 feet minimum	600 feet minimum	45	The backbone of the street system that provides the major radial links to the above described parkway loop roads and Interstate 10.
Arterial	Moderate distance, inter-community traffic conveyance with intermediate volume capacity. Land access should be limited to a minimum spacing	1000 feet	600 feet	40	Primary linkages between Major Arterials and to key destinations within the system
Major Collector	Collect and distribute traffic between local streets, collector streets, and the Arterial network as well as provide inter-neighborhood movement. Land access should be limited where possible.	600 feet minimum	600 feet minimum	35	Should not become over burdened by land access (where possible) and should not be used for the same long trip connections intended for arterials and major arterials.
Collector	Collect and distribute traffic between local streets and the Arterial network as well as provide inter-neighborhood movement. Land access is permitted but should be more limited than local streets. Should have sidewalk collectors.	600 feet minimum	600 feet minimum	35	Can be residential streets that collect traffic from several local streets within a single community.
Austin/River Couplet	Creation of a traffic pattern within the Historic core that increases ingress/egress capacity, allows on-street parking, and pedestrian use of the right of way edges.	Typical downtown block length	N/A	25	Key component to creating destination attributes within the Downtown Core.
Local Street	Land access and sidewalk movement.	250 feet	N/A	25	Cut through traffic should be discouraged through horizontal alignment design or other traffic calming devices.

Figure 6. Roadway Classifications.



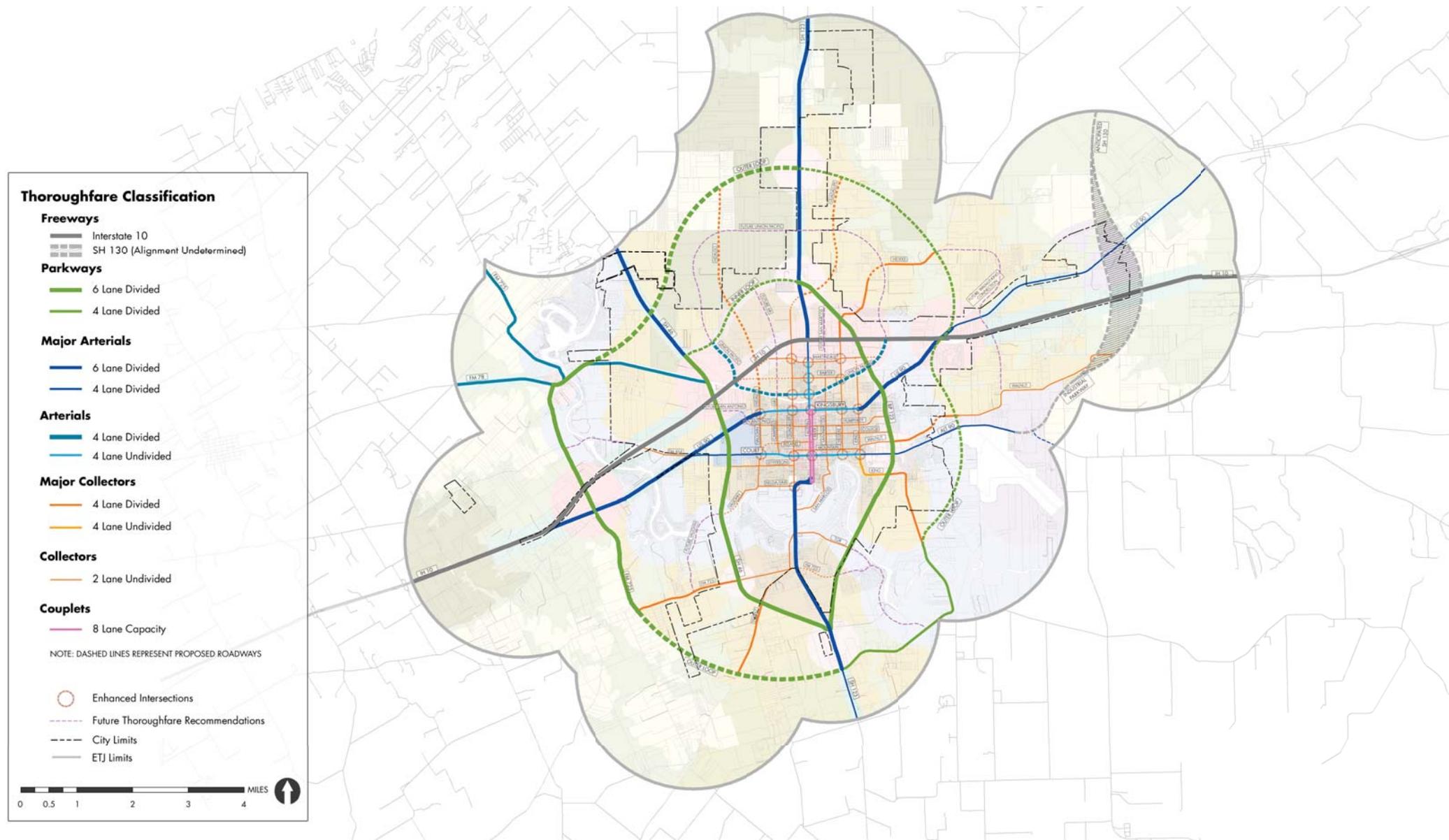


Figure 7. The Seguin Thoroughfare Plan.

Street Segments

1. The west Outer Loop from Highway 123 (north of I-10) to Highway 123 (south of I-10)
2. The east Outer Loop from Highway 123 (south of I-10) to Highway 123 (north of I-10)
3. The Inner Loop from its intersection with Highway 46 to its intersection with Business 123 (south of I-10) along Highway 123 to its intersection with Business 123 (north of I-10)
4. The Inner Loop from it intersection with Highway 123 (north of I-10) to its merger with Highway 46
5. The Union Pacific Loop from I-10 (east of Highway 123) to its merger with existing Seideman Street.
6. The Union Pacific as it continues along existing Seideman Street
7. The Union Pacific Loop from existing Seideman Street to its intersection with the Inner Loop (west of Highway 123)
8. Highway 123 from the ETJ Limit to the Outer Loop (north of I-10)
9. Highway 123 from the Outer Loop to its intersection with the Inner Loop (north of I-10)
10. Business 123 from the Inner Loop to I-10 (north of I-10)
11. Business 123 from I-10 to Martindale Street (north of downtown)
12. Business 123 from Martindale Street to Kingsbury Street
13. Business 123/South Guadalupe Street from its merger with the Austin/River Couplet to its intersection with the Inner Loop (south of downtown)
14. Highway 123/South Guadalupe Street from the Inner Loop to its intersection with the Outer Loop (south of downtown)
15. Highway 123 south of the Outer Loop (south of downtown)
16. Highway 46 from the ETJ Limits to its intersection with the Outer Loop (north of downtown)
17. Highway 46 from the Outer Loop to its confluence with the Inner Loop (north of downtown)
18. Highway 90 from I-10 to its intersection with the Outer Loop (west of downtown)
19. Highway 90 from the Outer Loop to its intersection with the Inner Loop (west of downtown)
20. Highway 90 from the Inner Loop to its intersection with Vaughan Street
21. Highway 90 from Vaughan Street to North King Street
22. Highway 90 from North King to its intersection with the Inner Loop (east of downtown)
23. Highway 90 from the Inner Loop to its intersection with the Outer Loop (east of downtown)
24. Highway 90 from the Outer Loop to the ETJ Limits (east of downtown)
25. Court Street from its merger with Highway 90 to its intersection with the Inner Loop (west of downtown)
26. Court Street from the Inner Loop to its intersection with Vaughan Ave. (west of downtown)
27. Court Street from Vaughan Ave. to its intersection with North King Street
28. Court Street from North King Street to its intersection with the Inner Loop (east of downtown).
29. Court Street from the Inner Loop to its intersection with the Outer Loop (east of downtown)
30. Court Street and the Court Street extension from the Outer Loop to its intersection with the SH 130 Bypass
31. FM 78 from the ETJ Limits to its intersection with the Outer Loop
32. FM78 the Outer Loop to its intersection with the Inner Loop
33. FM 725 from the ETJ Limits to the Outer Loop
34. The extension of Hidalgo Street from its intersection with I-10 to its intersection with the Outer Loop (along CR 105)
35. The extension of Guadalupe Street from its intersection with I-10 (along CR 101) to its intersection with the Outer Loop
36. The extension of Heideke from its intersection with I-10 (along CR 102A & CR 103) to its merger with FM 20, to its intersection with the Outer Loop.
37. The extension of Walnut Street from its intersection with the Inner Loop to its intersection with SH 130 (along CR 204)
38. The extension of FM 464 from the intersection of Court Street and Highway 90 to its intersection with I-10
39. Extension of FM 725 from Business 123/S. Guadalupe (south of downtown) to the Inner Loop/SH 46
40. Extension of FM 725 from Inner Loop/SH 46 to the Outer Loop
41. Extension of FM 725 from Business 123/S. Guadalupe (south of downtown) to the Inner Loop/Highway 123 Bypass
42. Extension of FM 467 from Business 123/S. Guadalupe (south of downtown) to the Inner Loop/SH 46
43. Extension of FM 467 from the Inner Loop/SH 46 to the Outer Loop

Street Segment	Street Name	Road Classification	Recommended Right of Way Width	2047 Pavement Width	Buildout Pavement
1	Outer Loop	Parkway	180'	72'	72'
2	Outer Loop	Parkway	180'	48'	72'
3	Inner Loop	Parkway	180'	72'	72'
4	Inner Loop	Parkway	180'	48'	72'
5	Union Pacific	Arterial	120'	48'	48'
6	Union Pacific	Arterial	120'	48'	48'
7	Union Pacific	Arterial	120'	48'	48'
8	Highway 123	Major Arterial	180'	72'	72'
9	Highway 123	Major Arterial	180'	72'	96'
10	Business 123	Major Arterial	180'	72'	96'
11	Business 123	Major Arterial	120'	48'	72'
12	Business 123	Arterial	80'	44'	44'
13	Business 123	Major Arterial	180'	72'	72'
14	Business 123	Major Arterial	180'	72'	72'
15	Business 123	Major Arterial	120'	48'	72'
16	SH 46	Major Arterial	180'	72'	72'
17	SH 46	Major Arterial	180'	72'	72'
18	Highway 90	Major Arterial	180'	72'	72'
19	Highway 90	Major Arterial	180'	72'	72'
20	Highway 90	Major Arterial	180'	72'	72'
21	Highway 90	Arterial	80'	40'	40'
22	Highway 90	Major Arterial	180'	72'	72'
23	Highway 90	Major Arterial	180'	72'	72'
24	Highway 90	Major Arterial	180'	48'	48'
25	Court St.	Major Arterial	120'	48'	48'
26	Court St.	Major Arterial	120'	48'	48'
27	Court St.	Arterial	80'	44'	44'
28	Court St.	Major Arterial	120'	48'	48'
29	Court St.	Major Arterial	120'	48'	48'
30	Court St.	Major Arterial	120'	48'	48'
31	FM 78	Arterial	180'	48'	48'
32	FM 78	Arterial	180'	48'	48'
33	FM 725	Arterial	180'	48'	48'
34	Hidalgo St.	Major Collector	120'	48'	48'
35	Guadalupe St.	Major Collector	120'	48'	72'
36	Heideke St.	Major Collector	120'	48'	72'
37	Walnut St.	Major Collector	120'	48'	72'
38	FM 464	Collector	120'	24'	48'
39	FM 725	Collector	120'	24'	48'
40	FM 725	Major Collector	120'	24'	48'
41	FM 725	Collector	120'	24'	48'
42	FM 467	Collector	120'	24'	48'
43	FM 467	Major Collector	120'	24'	48'

Figure 8. Thoroughfare Elements by Street Segment.



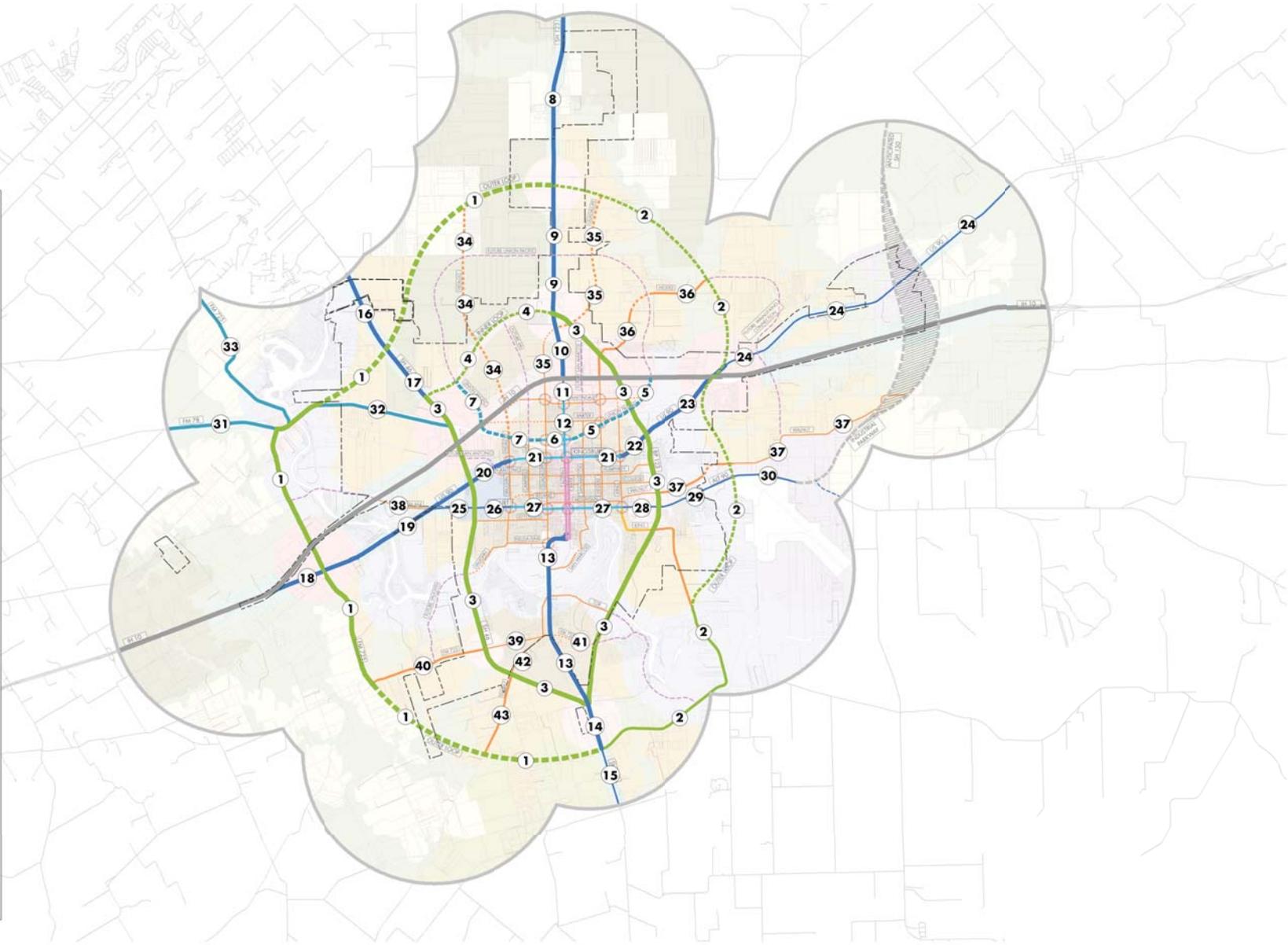
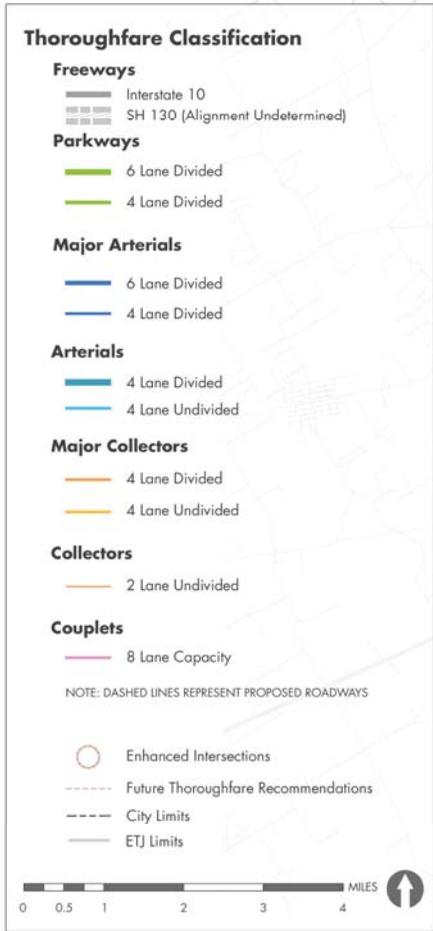


Figure 9. Map of Street Segments.

Accommodating Increased Vehicular Trips within the City Center

Existing grid discontinuities and limited right of way width has created a condition within the inner city and core city that is unable to accommodate increased traffic resulting from growth. Continued economic viability of the downtown area depends (in a large part) on the relationship between the central business area and the overall movement patterns of the City. Key to this relationship is the sustained central position of downtown in this system. In addition, increased residential growth within the core area (including the University) at a density higher than the present density, will generate more daily trips. As a result, increased traffic capacity is needed within the existing gridded street network. The greatest limitation to capacity is the large number of core area streets (east/west and north/south) that do not extend all the way from Highway 123 to Highway 46 or from Court Street to Interstate 10. Therefore, it will be necessary to connect streets that are currently off-set or complete streets that fail to make a complete connection, in order to achieve greater network continuity. Also, it will be necessary to relieve the incremental traffic controls that disrupt efficient movement. This would include location of stop signs at in-coming streets as well as coordination of signal lights. This will give priority to movement along designated connectors. Also included as a capacity increasing measure are key intersection improvements (e.g. designated turn lanes) that relieve congestion resulting from cars endeavoring to make right or left hand turns from a travel lane. Finally, the limited capacity of two streets can be combined to create greater capacity in a couplet configuration (where the two streets work together by carrying traffic in opposing directions between two points of confluence). Increased connectivity and operational efficiency will make more capacity available to the core area mobility system.

Key components of Seguin Core Area Capacity Enhancement Plan are described below by type of improvement:

1. Create a central movement spine that can accommodate increased traffic to and from a vibrant downtown core that uses Austin Street and River Street in a Couplet configuration.

- a. Create merger improvements that will tie Austin and River Street together at Highway 90 (Kingsbury Street north of Court Street) and at W. Klein Street (south of Court Street).
- b. Designate Austin Street as a southbound element of the Austin/River Street Couplet.

- c. Designate River Street as a northbound element of the Austin River Street Couplet.

2. Create East/West Collectors that provide core area access to the Inner Loop and access to downtown via the Austin Street/River Street Couplet.

- a. Designate Martindale as an east/west collector between Hidalgo Street and Union Pacific Loop (east of Highway 123)
- b. Designate Baxter as a collector between the intersection of Union Pacific Loop and I-10 (west of I-10) and Union Pacific Loop (east of Highway 123)
- c. Designate Kingsbury Highway as an east/west major arterial between Highway 46 and Vaughan/Hidalgo Street.
- d. Designate Kingsbury Highway as an east/west arterial between Vaughan/Hidalgo Street and King Street.
- e. Designate Kingsbury Highway as an east/west major arterial between King Street and Highway 123.
- f. Connect E. Cedar Street, E. Humphries Street, and San Antonio Avenue as a designated east/west collector between Kingsbury Street (west of Vaughan/Hidalgo Street) and Highway 123.
- g. Designate College Street as a collector between the Austin/River Couplet and Highway 123.
- h. Extend Ireland Street along Dibrell and Medlin Streets to merge with Hidalgo Street and intersect with Court Street (west of SH 46)
- i. Connect E. Walnut Street to Mountain Street as a designated east/west collector between Highway 123 and Guadalupe Street.
- j. Designate Court Street as an east/west major arterial between SH 46 and Vaughan Street..
- k. Designate Court Street as an east/west arterial between Vaughan Street and King St.
- l. Designate Court Street as an east/west major arterial between King Street and Highway 123.
- m. Designate Jefferson Street as a collector between Guadalupe Street and Highway 46.
- n. Connect Nelda/Fair Street, Burges Street, and a new roadway extension from Burges to Highway 46 as a designated collector between South Guadalupe Street and Highway 46.

3. Create North/South Collectors that provide access to Court Street, Interstate 10, and the east/west collectors from points north and south of Court Street.

- a. Connect the above described extension of Burges Street to Highway 46, Burges Street, and Vaughan Street as a designated north/south collector between Interstate 10 and Highway 46 (south of Jefferson Street).
- b. Extend the Burges/Vaughan Street Collector south through Max Starcke Park along Boenig Street, and River Drive as a designated north/south collector between Court Street and South Guadalupe Street.
- c. Connect 6th Street and Campbell Street as a designated north/south collector between Court Street and Kingsbury Street.
- d. Extend Guadalupe Street north of Interstate 10 to make a connection with Business 123 as a designated north/south collector between the Guadalupe River and Highway 123 (north of Interstate 10).
- e. Create a Couplet by combining the road capacity of Austin Street and River Street between Kingsbury Street and W. Klein Street. This couplet will function as an increased capacity portion of the Austin Street Throughway between the Inner and Outer Loops.
- f. Designate San Marcos Street as a north/south collector between Baxter Street and Court Street, and extend San Marcos as a north/south collector between Court Street and Business 123 along Hampton Street, Klein Street, south River Street.
- g. Designate Heideke Street as a north/south collector between Court Street and Interstate 10.
- h. Designate the combined Eastwood Street/South King Street as a designated north/south collector between Kingsbury Street and Highway 123 (south of Court Street).

4. Intersection enhancement that will allow turning vehicles to exit the travel lane of key collectors.

- a. Provide left turn lanes along the Martindale Collector at its intersection with Heideke Street, Austin Street, and Guadalupe Street.
- b. Provide left turn lanes along the Baxter Collector at its intersection with Heideke Street and Austin Street.
- c. Provide left turn lanes along the Kingsbury Street Collector at its intersection with the King/Eastwood Collector, Heideke Collector, Austin/River Couplet, and Guadalupe Collector.
- d. Provide left turn lanes along the Court Street Collector at its intersection with the King/Eastwood Collector, Heideke Collector, Austin/River Couplet, and Guadalupe Collector.
- e. Provide left turn lanes along the Burges/Vaughan Collector at its intersection with Court Street.



- f. Provide left turn lanes along the Guadalupe Collector at its intersection with the Burges/Nelda/Fair Collector, the Court Street Collector, the Kingsbury Collector, and the Northern Loop.
- g. Provide left turn lanes along the Austin Street Collector at its intersection with the Court Street Collector, the Kingsbury Collector, and the Northern Loop.
- h. Provide left turn lanes along the Heideke Street Collector at its intersection with the Court Street Collector and the Kingsbury Collector.

5. Coordinated operation enhancements that will improve the efficiency of designated Collectors.

- a. The Martindale Collector, the Baxter Collector, and the Jefferson Collector are secondary east/west collectors.
- b. The Kingsbury Collector, the Cedar/Humphries/San Antonio Collector, the College Collector, the Ireland Collector, the Mountain/Walnut Collector, the Court Street Collector, and the Burges/Nelda/Fair Collector are primary east/west collectors.
- c. The 6th Street/Campbell Street Collector, and the River/Hampton/San Marcos Collector are secondary north/south collectors.
- d. The Burges/Vaughan Collector, the Guadalupe Street Collector, the Austin Street Collector, the Heideke Collector, and the King/Eastwood Collector are primary north/south collectors.
- e. When a secondary collector intersects with a primary collector, the secondary collector shall yield to the primary flow.
- f. When a secondary collector intersects another secondary collector, the north/south collector shall yield to the east/west flow.
- g. When a primary collector meets a primary collector a traffic light shall regulate intersection flow with east/west movement along Kingsbury and Court being facilitated by synchronized traffic lights and north/south movement along Austin being facilitated by synchronized traffic lights.

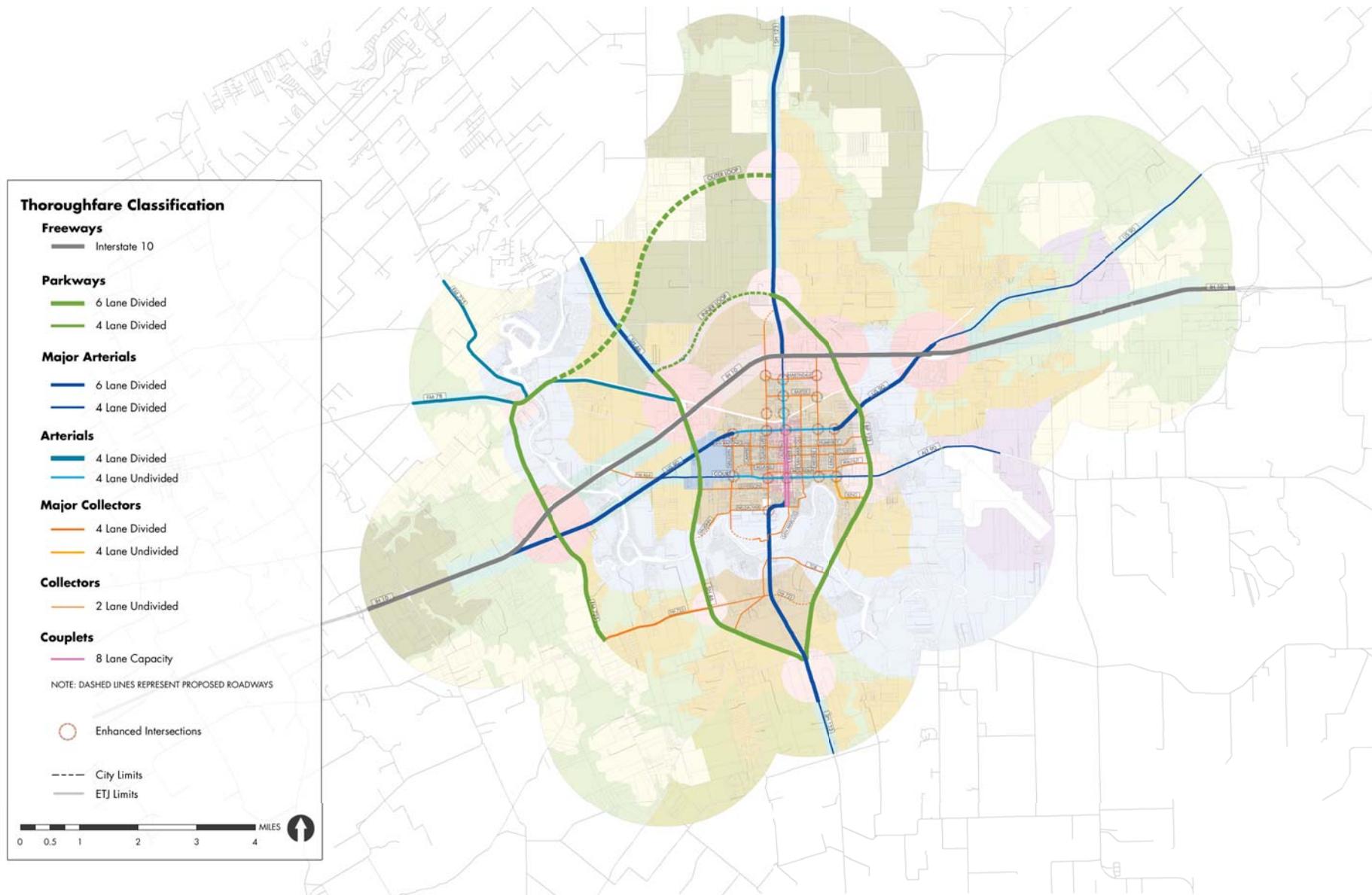


Figure 10. The Seguin Thoroughfare Plan - Phase 1. This initial phase of the Thoroughfare Plan designates existing major roadways according to their functional classification and targets specific improvements in the inner city area that will improve traffic flow and relieve congestion, including building new roadways and key intersection enhancements to complete a maneuverable grid. The northwest portions of the Outer and Inner Loop system should be constructed at this time to create relief points for major roadways leading into Seguin from the north and west, thus establishing the first components of the “Hub and Spoke” system.



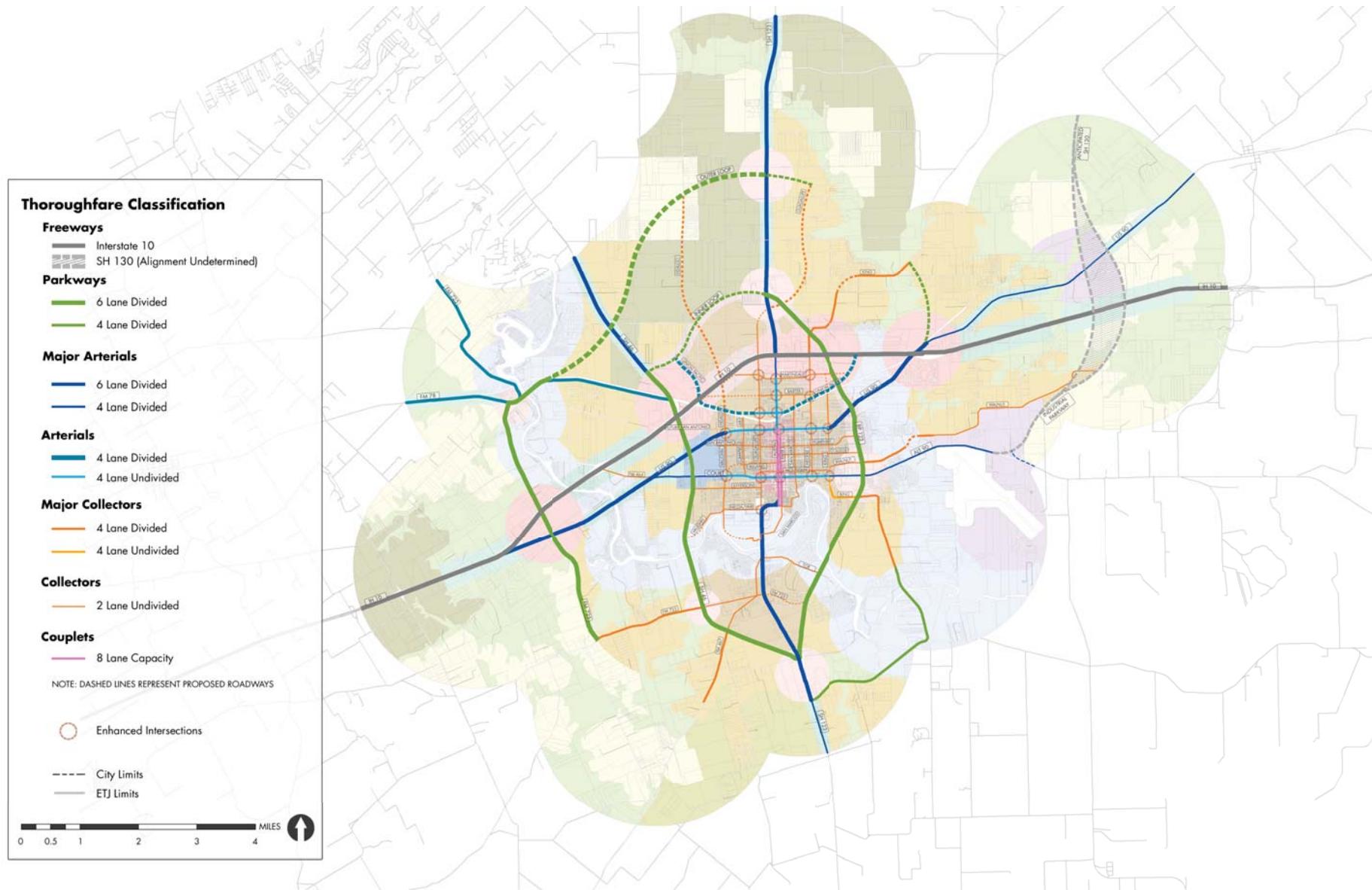


Figure 11. The Seguin Thoroughfare Plan - Phase 2. This second phase of the Thoroughfare Plan lays the foundation for future growth by completing portions of the Outer Loop and building Major Collectors that pass through emerging residential communities, which will serve as “spokes” to and from the Inner city. The inner city grid system should be completed, as well as the initial portion of the Union Pacific Loop from I-10 (east of Highway 123) to the Inner Loop (west of Business 123).

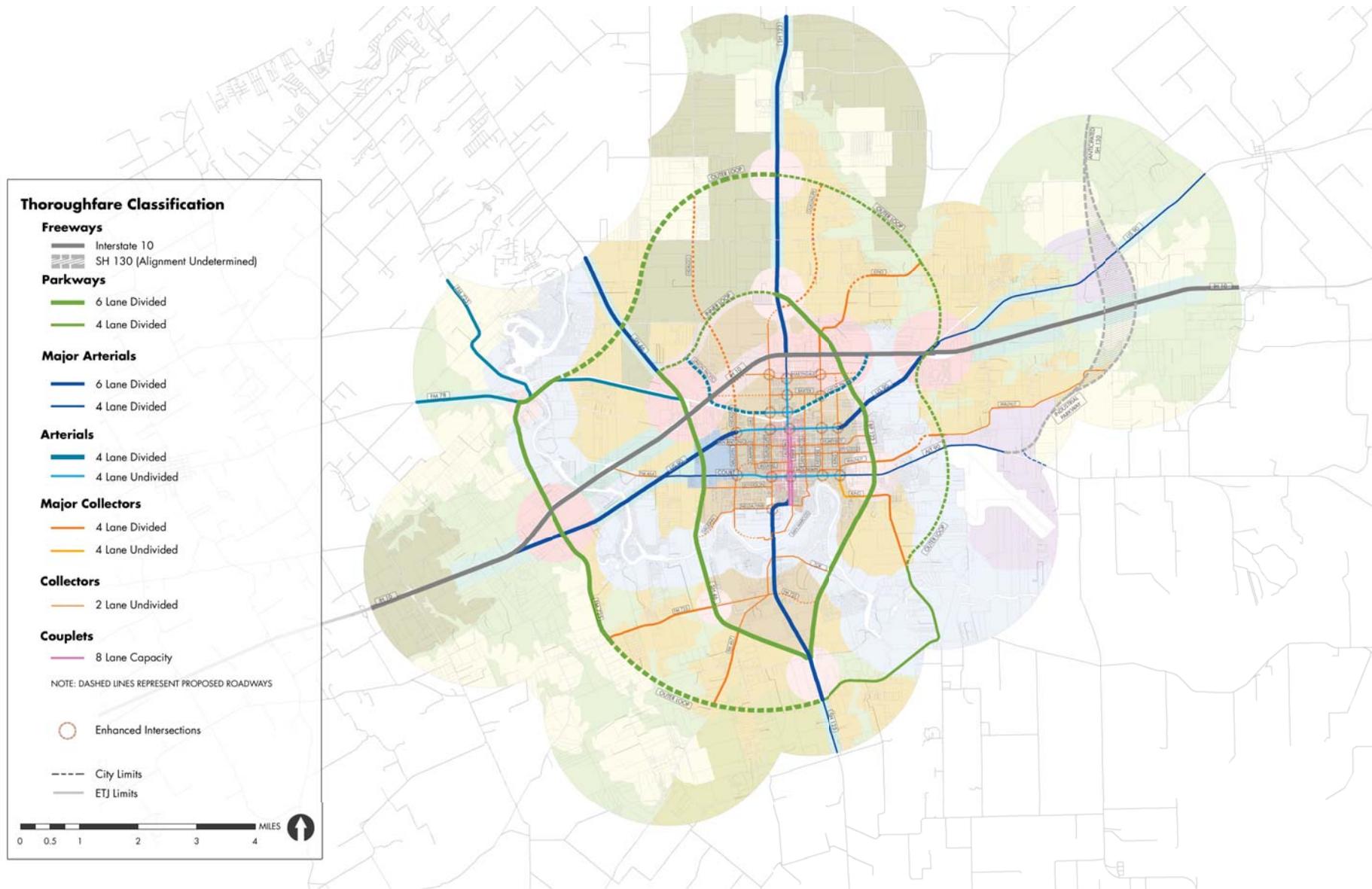


Figure 12. The Seguin Thoroughfare Plan - Phase 3. The third phase of the Thoroughfare Plan completes the "Hub and Spoke" system of Seguin by completing the final sections of the Outer Loop to serve the growing Emergent Residential Communities in the northeast and southwest, and to accommodate the increased traffic generated by Regional Nodes.



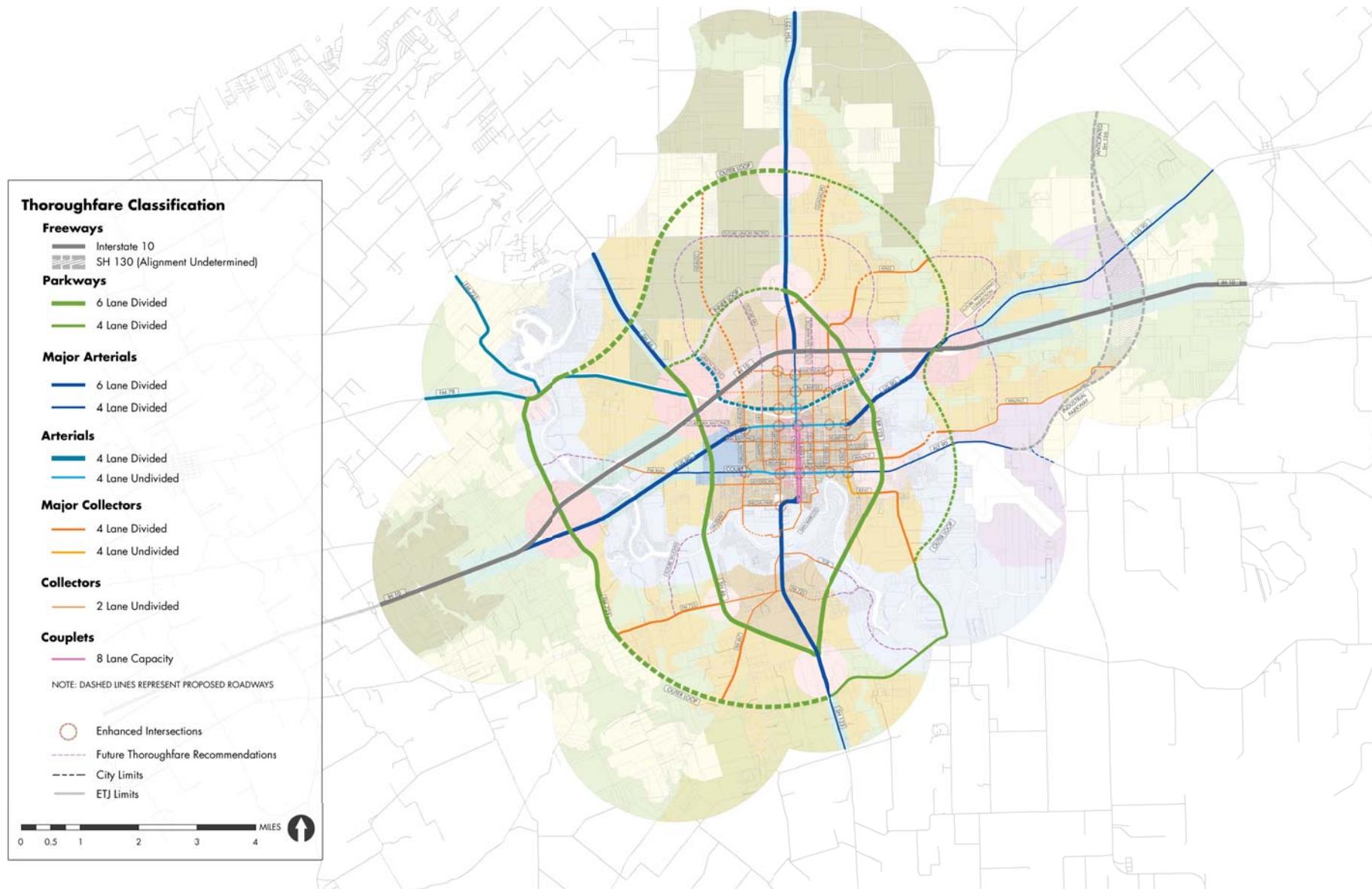


Figure 13. The Seguin Thoroughfare Plan - Phase 4. As Seguin continues to grow beyond the planning horizon of 2047, it is important to preserve the logical system that has been established in this Thoroughfare Plan by making recommendations for future roadway locations that coincide with the strategies and ideas put forth today. These roadways (indicated by the dashed purple line) are not included in the trip volume calculations and should be classified appropriately as development occurs.

Reducing Trips: Public Transit and Reintroducing the Trolley

As Seguin grows, attracts more core area visits, and realizes development of the downtown core, sufficient trip demand for inter connection among various activity nodes should evolve that could support a trolley type conveyance. The proposed trolley discussed below is the first phase of a multi-phased public transit strategy that will:

1. Strengthen Downtown: Reintroduction of the Trolley. In the early part of the 20th century, Seguin's downtown area was distinctly more urban than it is today. Holding commercial and circulation dominance over the form of the City, downtown was served by a Trolley that ran between Seguin's train station (near Austin Street and New Braunfels Street) and the central business district (downtown). This trolley symbolized and reinforced a vibrancy which could only be found at the heart of the City. As a first phase of Seguin's Public Transit Strategy, it is recommended that the trolley connection between the train station (now the Station District) and downtown be restored. This will serve as an economic development initiative to give downtown (and the Station District) an advantage of identity and thereby attract more visitor related spending venues (restaurants, entertainment, etc.). The trolley will also serve as a Vehicular Trip Reduction initiative to facilitate less trip volumes on already crowded downtown streets (as downtown develops). It is likely that the earlier train tracks that served the original trolley line remain beneath subsequent paving and street repair. If such is the case, these tracks can potentially be reused as the track width has remained constant for most of the 20th century (4 feet, 8 inches).

The new trolley should be a restored historic trolley (available from many cities including the McKinney Ave Transit Authority in Dallas) that runs along a route between the Historic Train Station Area (the Station District) and Seguin's downtown, using Austin Street for the south bound leg and River Street for the north bound leg. This would reinforce the earlier recommended couplet function of Austin and River Streets and facilitate redevelopment of River Street for uses that supplement and serve both the Station District and downtown (e.g. Bed and Breakfast Houses, etc.).

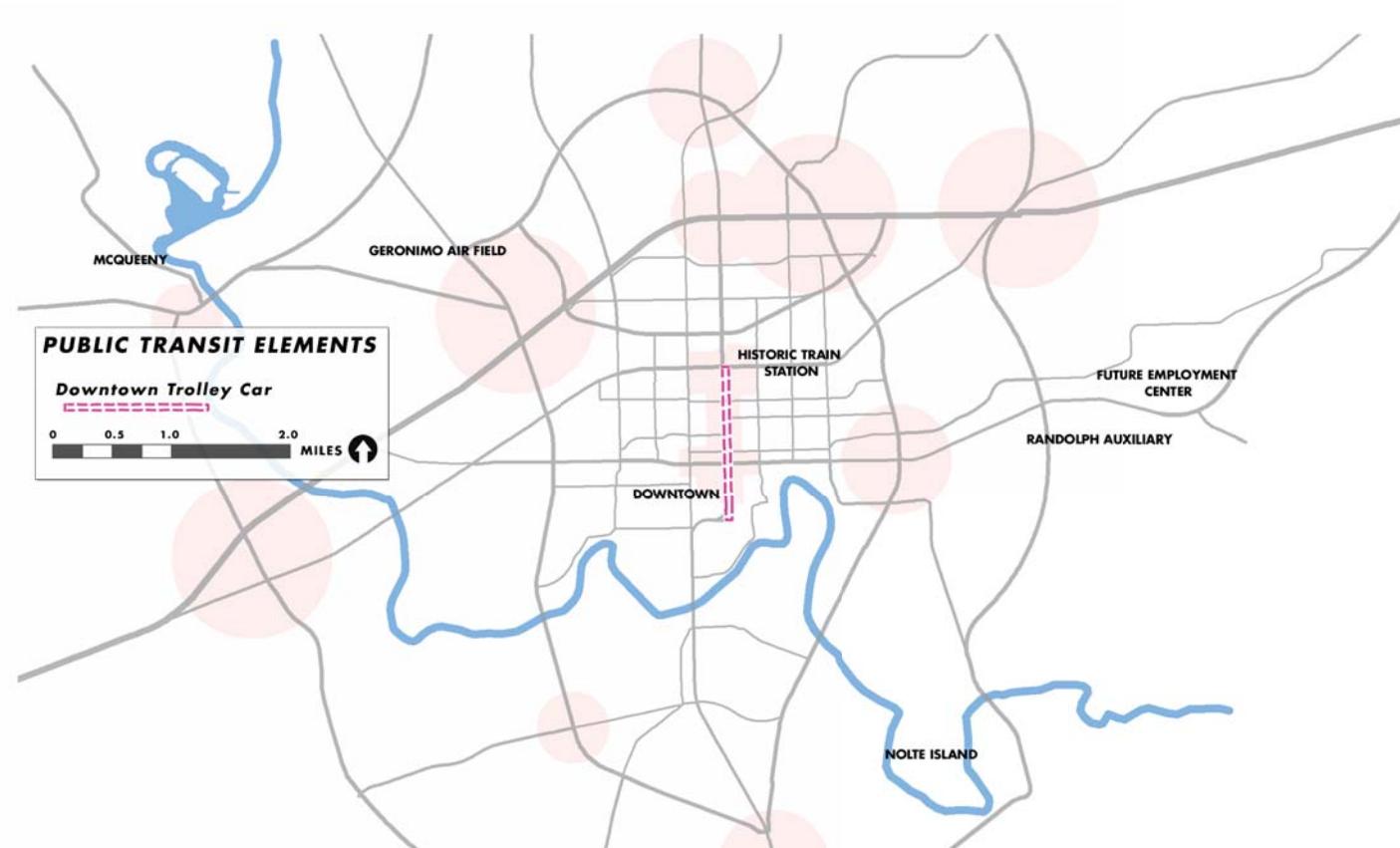


Figure 14. The Seguin Public Transit Plan - Phase 1. Reintroduce the trolley to downtown Seguin in a route that connects the Station District with downtown to encourage economic development.



2. Serve the Core: Facilitate Movement within the Older City. Growth of Seguin will also mean growth of the City's core area (including the Transition District, the Walnut Creek Districts, the Jefferson District, and the University District, as well as areas south of the River and inside the Inner Loop). Growth in these areas will have significant impact on already busy streets. Therefore an initial public transit plan is needed for this area. The proposed plan has four components:

- a. A Western Bus Loop that starts at the Trolley Station (Station District), runs south through downtown to the intersection of Business 123 and the Inner Loop, then west and north along the Inner Loop to the intersection with Highway 90 (Kingsbury Street), then east along Highway 90 to its point of beginning at the Trolley Station.
- b. An Eastern Bus Loop that starts at the Trolley Station (Station District), runs south through downtown to the intersection of Business 123 and the Inner Loop, then east and north along the Inner Loop to the intersection with Highway 90 (Kingsbury Street), then west along Highway 90 to its point of beginning at the Trolley Station.
- c. A University/Downtown/Retail bus link along Court Street that runs from Texas Lutheran University to the local commercial node at Court Street and Highway 123, making a stop at the downtown Courthouse Plaza. This link could be a "Hop-a-Bus" type service that can make frequent stops within this busy corridor.
- d. A Northeastern Bus Loop that starts at the Trolley Station (Station District), runs north to the intersection of Business 123 and the Inner Loop (north of I-10), then south along the Inner Loop (Highway 123) to the intersection with Highway 90 (Kingsbury Street), then west along Kingsbury Street to its point of beginning at the Trolley Station.

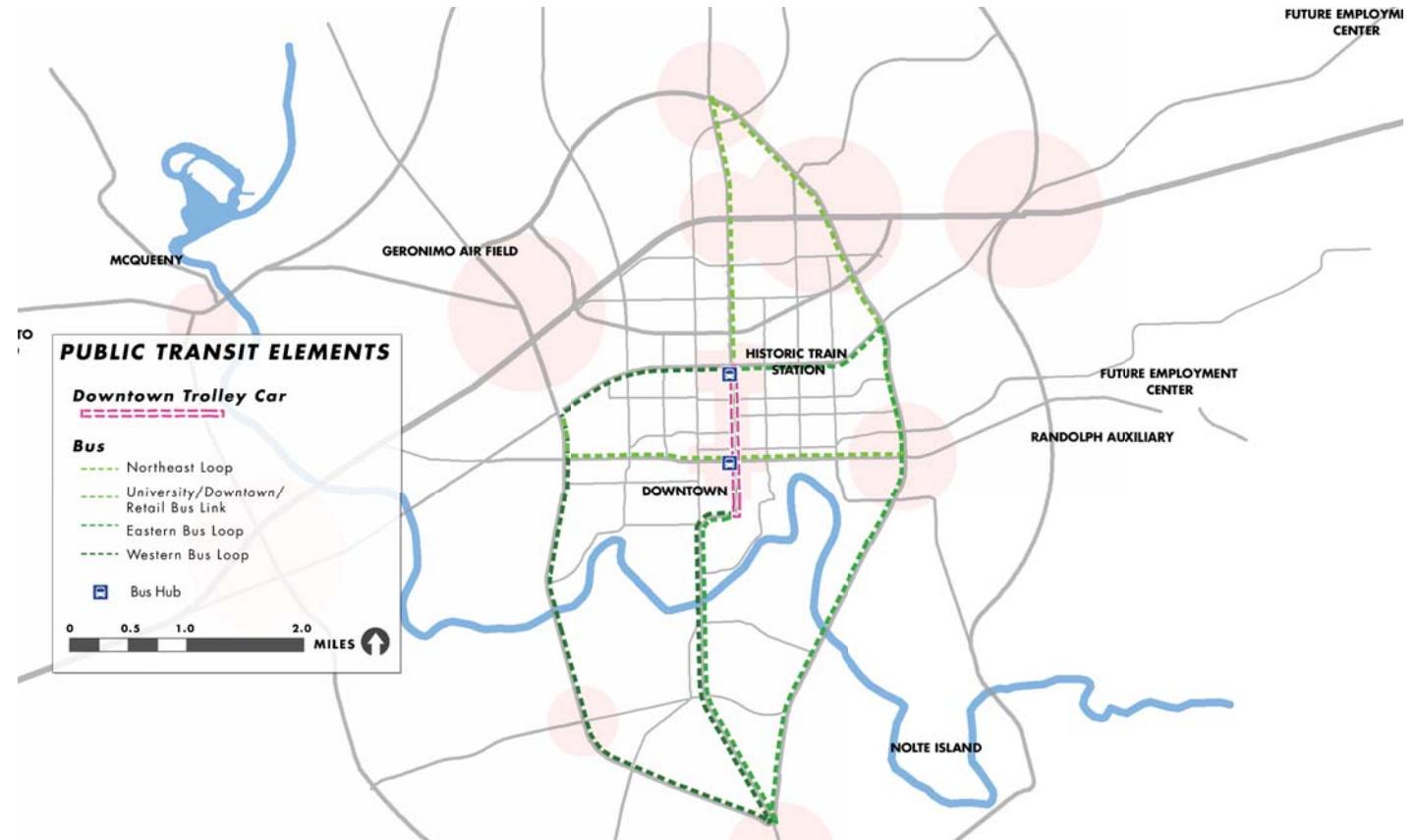


Figure 15. The Seguin Public Transit Plan - Phase 2. Establish four distinct bus loops to serve Seguin's core neighborhoods and alleviate traffic congestion in these neighborhoods and downtown.

PUBLIC TRANSIT ELEMENTS

Downtown Trolley Car

Bus

- Northeast Quadrant Loop
- Northwest Quadrant Loop
- Southeast Quadrant Loop
- Southwest Quadrant Loop
- University Loop
- Hidalgo Loop
- Guadalupe Loop
- Geronimo Creek Loop
- Randolph Loop
- SH 130 Loop
- McQueeney Loop

Rail

- Commuter Rail to San Antonio
- Airport
- Bus Hub
- Areas of Urban Concentration

0 0.5 1.0 2.0 MILES

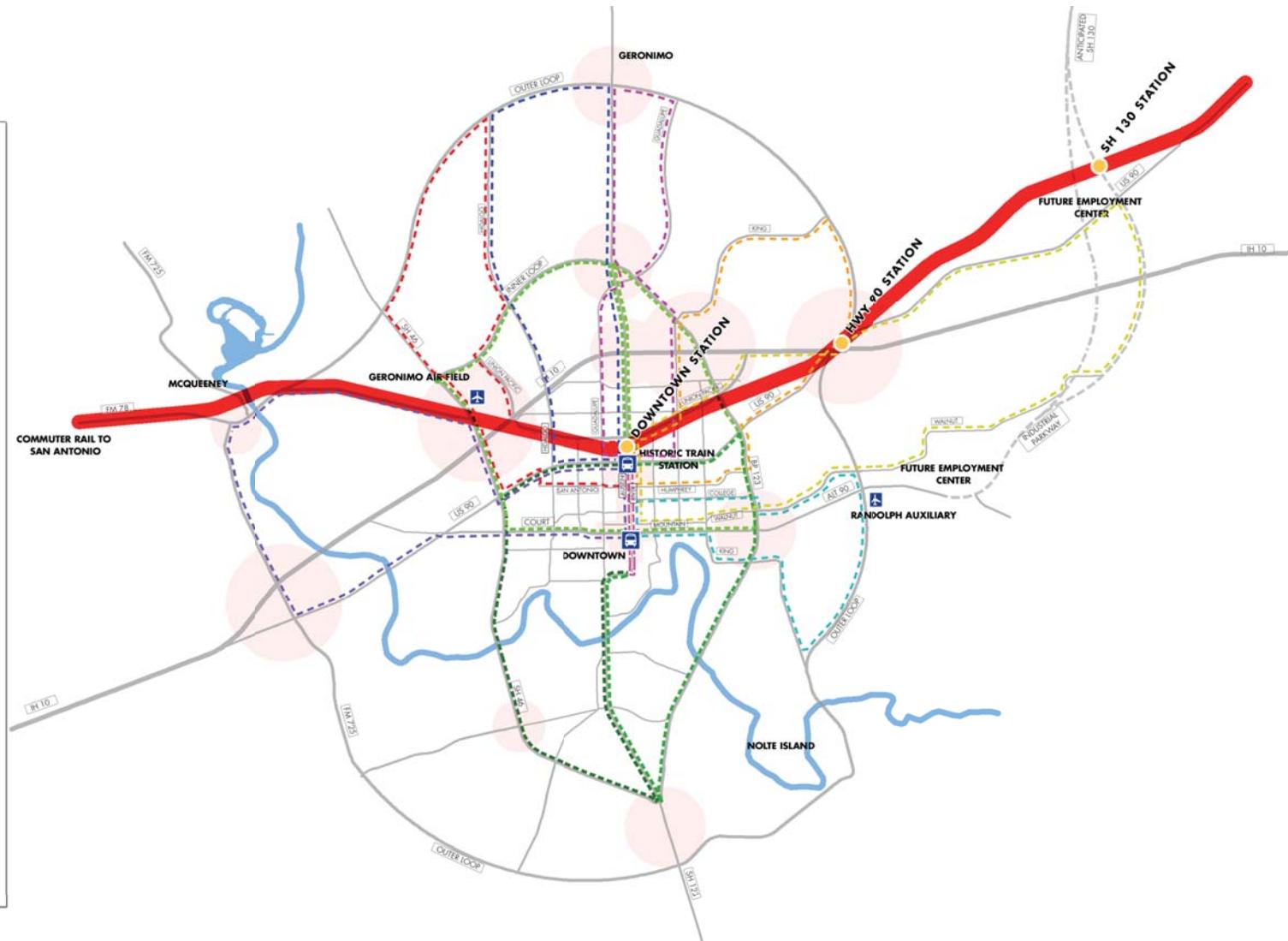


Figure 16. The Seguin Public Transit Plan - Phase 3. Expand the Phase 2 bus service to encompass outlying areas of new growth, and partner with surrounding communities to provide commuter rail service to regional nodes, employment centers, downtown, and other cities.



3. Serve the City: Facilitate Movement within Seguin (Intra-city) and to its neighbors (Inter-city). Street sizes recommended in the Seguin Future Thoroughfare Plan anticipate (and necessitate) “Vehicular Trip Reductions” derived from execution of a City-wide Public Transit initiative. The City-wide Public Transit initiative makes use of Commuter Rail, Bus service, and the downtown Trolley. In addition to the transit initiatives discussed above, the remaining Public Transit initiatives are as follows:

a. Provide expanded Bus Service through increased Bus Routes that serve areas of new growth north of Kingsbury Street and beyond the Inner Loop. The Phase III Public Transit Plan shows numerous bus routes serving portions of Seguin north of Kingsbury Street (all the way out to the Outer Loop including the SH 130 Employment Area as well as the major Regional nodes shown on the Land Use Plan), south of downtown (all the way out to the outer Loop), west of Highway 46 (all the way out to the Outer Loop), and east of Highway 123 (all the way out to the Outer Loop and including the Randolph Employment Area). Recommended Bus Routes are shown on Figure 16. More specifically, these Bus Routes include:

i. Northerly Bus Service is comprised of a series of Bus Loops that start and return to the Trolley Station. Northerly Bus Loops include:

1. The University Loop
2. The Hidalgo Loop
3. The Guadalupe Loop
4. The Geronimo Creek Loop

ii. Easterly Bus Service is comprised of a series of Bus Loops that start and return to either the Trolley Station or the Downtown Plaza. Easterly Bus Loops include:

1. The Randolph Loop
2. The SH 130 Loop
3. The Northeast Quadrant Loop

iii. Southerly Bus Service is comprised of a series of Bus Loops that start and return to the Downtown Plaza. Southerly Bus Loops include:

1. The Southeast Quadrant Loop
2. The Southwest Quadrant Loop

iv. Westerly Bus Service is comprised of a series of Bus Loops that start and return to either the Trolley Station or the Downtown Plaza. Westerly Bus Loops include:

1. The McQueeney Loop
2. The Northwest Quadrant Loop

b. Provide Commuter Rail Service to neighboring Cities through shared use of the Southern Pacific Rail Line. The location of the Commuter Rail Line coincides with the location of major Regional Nodes, Employment centers, and the Business Core as shown on the Land Use Plan. This provides a unique opportunity to tie commuter rail directly to destinations able to most benefit from such service. Commuter service to Regional Nodes, Employment Centers, and the Business Core can be accomplished through three Commuter Rail Stations. These Stations are:

- i. Downtown Station located at historic Train Station/ Trolley Stop.
- ii. Highway 90 Station located at the intersection of the rail line, I-10, and the Outer Loop.
- iii. SH 130 Station located at the intersection of the rail line, SH130, and I-10.

Conclusion

The proposed Future Thoroughfare Plan for Seguin creates a local and overall system that protects the existing older road network. The Future Thoroughfare Plan accomplishes the following:

- Preserves the existing City form
- Preserves existing elements of the City system
- Improves current street continuity
- Provides cross town connection between major arterials
- Reinforces the importance of the Seguin City center
- Connects outlying areas of development with the overall City fabric
- Creation of a comprehensible legibility that aids orientation and identity
- Relieves the potential traffic burden on older local streets imposed by growth and development adjacent to the City
- Offers a phased approach to the future system

In the final analysis, Seguin’s Future Thoroughfare Plan provides greater lane capacity and it combines elements of the existing thoroughfare framework with an overall system design for the future.



4.4 the infrastructure plan

Any long-range economic development strategy for Seguin must include a clear plan for the provision of water, wastewater, and drainage facilities.

Any long-range economic development strategy for Seguin must include a clear plan for the provision of water, wastewater, drainage, and electrical facilities. The current population of Seguin is 26,000 people. As stated previously in this Plan, the projected populations in 2017 and 2047 are 34,000 and 78,000 people, respectively. Despite the projected populations, the City of Seguin currently has very distinct service areas for water, wastewater, and electricity. These service areas are represented on Figures 1, 2, and 3. Thus, even as the population increases, the City of Seguin may not be providing infrastructure support to meet these increases.

Service areas are controlled and monitored by the Texas Commission on Environmental Quality (T.C.E.Q.). Cities have Certificates of Convenience and Necessity (CCN) that define their service areas and that are issued by the T.C.E.Q. A CCN authorizes a utility to provide water or sewer service to a specific area and obligates the utility to provide continuous and adequate service to every customer who requests service in that area. The relative

capacities for future growth of various infrastructure components for water are based on the projected population within the existing CCN only. This is because the City is completely surrounded by other entities and legally cannot serve areas without consent from those entities (Figure 1). Thus, even though the population in 2017 is 34,000 people, the City may only be providing water service to 30,000. The relative capacities for future growth of various infrastructure components for sewer are based on the projected population as a whole for the entire City. This is because the City has additional area in which to acquire CCN within the E.T.J. (Figure 2). Thus, it is assumed that the population in 2017 is 34,000 people and the City is providing sewer service for 34,000 people.

The Comprehensive Plan and impact fee study should correlate between each other for future development and infrastructure needs in order to best serve the growth of the City. Both studies determine a land use plan that will help guide the future growth of the City. The City of Seguin most

recently updated its impact fees for water and sewer in 2005. The water portion was updated again in 2007 due to the Schertz/Seguin Water Supply Corporation beginning to charge its own impact fee. The capacity analysis, land use plan, and population projections were not changed in the revision. The capacity analysis for all sewer and water infrastructure is based on a living unit equivalent (LUE). The LUE is a derivative measurement intended to establish a common measurement unit for all types of land uses. An LUE is equivalent to the amount of demand typically produced by a single-family residence using a ¾" water meter. Demand is directly calculated by population and translated into LUEs. Thus, an LUE is not a unit usage statistic per se, but rather a translation of such statistics into a common denominator. It is standard practice to use a LUE as a measurement in capacity analysis for impact fee studies and comprehensive plans.

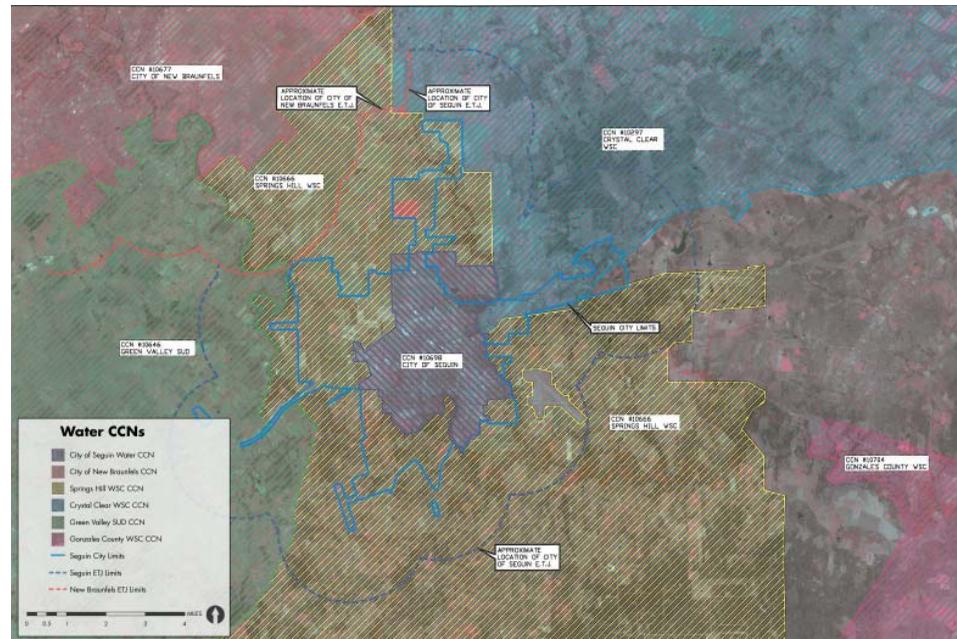


Figure 1. Seguin Area Water Certificates of Convenience and Necessity.



Figure 2. Seguin Area Sewer Certificates of Convenience and Necessity.

WATER

The water needs of Seguin will ultimately be supplied by Schertz/Seguin Water Supply Corporation, Spring Hill Water Supply Corporation, Green Valley Water Supply Corporation, and Crystal Clear Water Supply Corporation. The City currently purchases treated groundwater from the Schertz/Seguin Water Supply Corporation. By contract, the City is entitled to 50% of the groundwater from the wells and treated groundwater from the Nixon Water Treatment Plant. The City provides potable groundwater to residents within its current CCN. In addition to the groundwater, the City also has water rights from the Guadalupe Blanco River Authority (G.B.R.A.) to use the Guadalupe River for a source of surface water supply. All current and future citizens of Seguin outside the City's current CCN will be supplied potable water from the other entities listed above. Each entity has a responsibility to provide adequate facilities to produce, transport, and treat a potable water supply per T.C.E.Q.

The population data used herein is based on the established populations previously set forth in this Plan. The City has 7,716 various sized water meters in service at this time. Based on the various water meter sizes (meters larger than 3/4" will count for more than one LUE) and the total number

of each, the total LUEs used for comparison was 9,151. The conversion factors (LUEs per meter) are a standard from the American Water Works Association (AWWA). These are based on continuous duty maximum flow rate in gallons per minute derived from AWWA C700-C703. Figure 4 lists the number of each type of water meter in Seguin and illustrates how the total number of LUEs (9,151) was obtained.

As previously discussed, the City of Seguin is limited to future water service growth within its current CCN area. Based on this existing area, conservative estimates were calculated to determine the future population per LUE for 2017 and 2047. Based on the land use plan, the population per LUE between today and 2017 is estimated to be 3.50 people per LUE. In addition, the population per LUE between 2017 and 2047 is estimated to be 10.00 people per LUE. This would correlate to 11,437 LUEs in 2017 and 15,837 LUEs in 2047 for the City. These LUE numbers are based on the City retaining its existing CCN area and not expanding it to service any additional area. In summation, as the City continues to grow, little or no water service will be provided to the additional citizens by the City because most of the growth will occur outside the existing CCN and will be served by other entities. Thus the total population per LUE would increase over time.

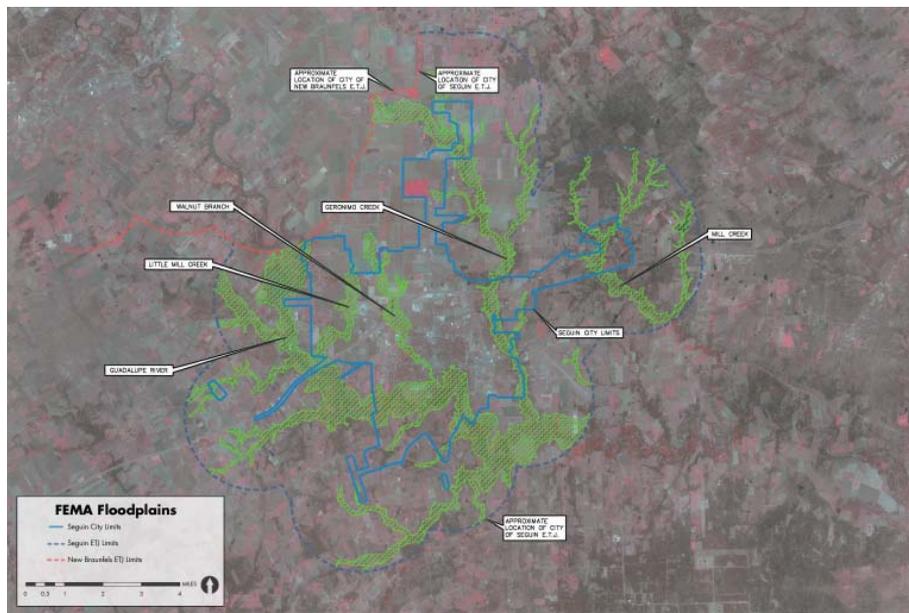


Figure 3. Seguin Area FEMA Floodplains.

METER SIZE	LUEs per Meter	Number of Meters	Number of LUEs
5/8"	0.667	0	0
3/4"	1	7,251	7,251
1"	1.667	171	285
1-1/4, 1-1/2"	3.333	87	290
2"	5.333	163	869
3"	10.667	24	256
4"	16.667	12	200
6"	33.333	8	267
Total		7,716	9,151

2008 Population per LUE: 2.84

Figure 4. Seguin Living Unit Equivalent (LUE) Calculation Table.

Water Supply

The Schertz/Seguin W.S.C. currently has eight wells in service capable of producing approximately 13.824 million gallons per day (MGD). Per the agreement between Seguin and Schertz, only half of this production is available to the City of Seguin at any given time. Thus, for engineering purposes, this study will assume 6.912 MGD existing supply available for Seguin. In addition to the groundwater, the City also has water rights from the Guadalupe Blanco River Authority (G.B.R.A.) to use the Guadalupe River for a source of surface water supply. The City is allowed to use 7,000 acre feet a year from the River (6.249 MGD). The City also purchases 1,000 acre feet per year from G.B.R.A., bringing the total water available from the Guadalupe River to 7.142 MGD. Based on data provided by City personnel, the average groundwater usage per LUE is 412 gallons per day. The peak groundwater usage per LUE is 696 gallons per day.

T.C.E.Q. requires a minimum ground water capacity of 0.6 gallons per minute (gpm) per LUE. Based on the City's total number of LUEs of 9,151, the City would need 7.906 MGD of water supply. The City currently has 6.912 MGD available for groundwater (Figure 5). However, since the City also has an additional 7.142 MGD (8,000 acre feet) of surface water available, it is in compliance with T.C.E.Q. requirements. The City only serves Tyson Foods and the Rio Nogales Power Plant with surface water.

For future growth, the Schertz/Seguin W.S.C. has secured rights to a total of 20,000 acre feet of groundwater rights in Gonzales County. This is equivalent to 17.854 MGD total and 8.927 MGD total for the City of Seguin.

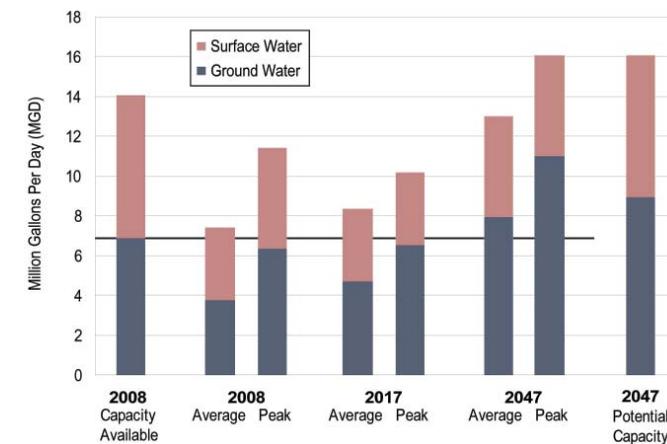


Figure 5. Seguin Current and Future Water Availability and Usage.



In addition, preliminary discussions have begun for water right purchases within Guadalupe County for 10,000 additional acre feet of groundwater supply. Schertz/Seguin W.S.C. has leased properties for future wells in Guadalupe County. They are applying to the County for permission to drill wells and utilize capacity of approximately 10,000 acre feet of water. The same water usage per LUE shown above is projected for the future LUEs. The future water usage for the surface water remains unchanged since the City still primarily only serves two establishments with surface water. The City also wishes to continue to serve primarily groundwater to its citizens. The 10,000 acre feet of water from Guadalupe County is also not represented in Figure 5 due to uncertainty of the volatile water rights in Central Texas. Based on this information the City will need to assist and/or encourage Schertz/Seguin W.S.C. in obtaining the additional 10,000 acre feet of groundwater rights and necessary infrastructure improvements to continue to provide groundwater to its service area in 2047.

Water Treatment

The Schertz/Seguin W.S.C. currently has one groundwater treatment plant. This plant is expected to treat all of the existing water wells and proposed future water wells to meet the 20,000 acre feet per year limit in Gonzales County. The treatment plant has a capacity of approximately 17.28 MGD. Per the agreement between Seguin and Schertz, only half of this treatment capacity is available to the City of Seguin at any given time. Thus, for engineering purposes, this study will assume 8.64 MGD existing supply available for Seguin. The average and peak quantities treated by the



groundwater plant is equal to the water supply from the groundwater plant described above. The plant is referred to as the Nixon Water Treatment Plant.

In addition to the Nixon Water Treatment Plant, the City also has a surface water treatment plant located within the City on the Guadalupe River that has a capacity of 11.60 MGD. The plant is referred to as the Starcke Park Water Treatment Plant. The City has the means to blend treated groundwater and surface water in the distribution system to meet peak demands and special purposes throughout the year. To date, the City has rarely had to use this means to meet water demands. Less than 10% of the time during the summer months has the City had to blend water in order to meet demand. The City has determined that residential customers should be served with groundwater in lieu of surface water or blending. The Starcke Park water plant currently treats water only for use by Tyson Foods and the Rio Nogales Power Plant. The average water treated for these industrial users is 3.63 MGD. The peak water treated for them is 5.03 MGD.

T.C.E.Q. requires a minimum treatment capacity of 0.6 gpm per LUE. With 9,151 LUEs currently, the City would need 7.906 MGD of treatment capacity. The City currently has 8.64 MGD treatment capacity at the Nixon Water Treatment Plant. In addition, the City also has 11.60 MGD of treatment capacity at the Starcke Park Water Treatment Plant. The existing capacities and actual usages are shown in Figure 6.

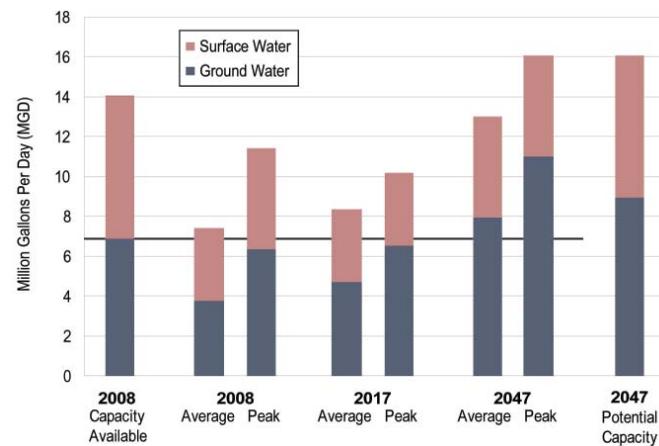


Figure 6. Seguin Current and Future Water Treatment Capacity and Usage.

The Schertz/Seguin W.S.C. has no capital improvements to increase the capacity of the existing Nixon treatment plant at this time. If water rights are acquired in Guadalupe County, an additional treatment plant will be constructed. The City of Seguin has no capital improvements to increase the capacity of the existing Starcke Park water treatment plant at this time. Based on future growth and the average and peak capacities required, the City of Seguin will possibly be deficient in meeting peak flows required by the groundwater treatment plant in 2047. However, these peaks will not be seen at the Nixon plant since the maximum amount of water available to the City from the wells will have already been exceeded. Thus, the new treatment plant will have to be constructed to meet this additional flow requirement.

Pumping Capacity

The Schertz/Seguin W.S.C. pumps potable water from the Nixon water treatment plant to the City of Seguin. The City then pumps the water into the distribution system and to the various elevated tanks throughout town. The City has an existing high service pumping capacity of 14.40 MGD. This is based on the pumping capacity at the Starcke Park water treatment plant. Currently, the Starcke Park water treatment plant has four 2,500 gpm high service pumps. These pumps do not currently pump surface water to the distribution system, but they can be operated this way. They are only used to distribute groundwater received from the Schertz/Seguin W.S.C. The Starcke Park plant has an additional four 2,000 gpm high service pumps to pump surface water to Tyson Foods and Rio Nogales Power Plant. The pumping capacity at the Nixon Water Treatment Plant was not included in the total pumping capacity shown in Figure 7. The Schertz/Seguin W.S.C. control these pumps. The Nixon plant has four 3,000 gpm high service pumps and a high service pumping capacity of 17.28 MGD.

T.C.E.Q. requires that the City provide capacity for 2 gpm per LUE or 1,000 gpm total pumping capacity with one pump out of service and the ability to meet peak hourly demands. Based on the current LUEs (9,151), a capacity of 26.35 MGD would be needed to meet the first criteria, which the City cannot currently meet. However, the City can currently meet the second

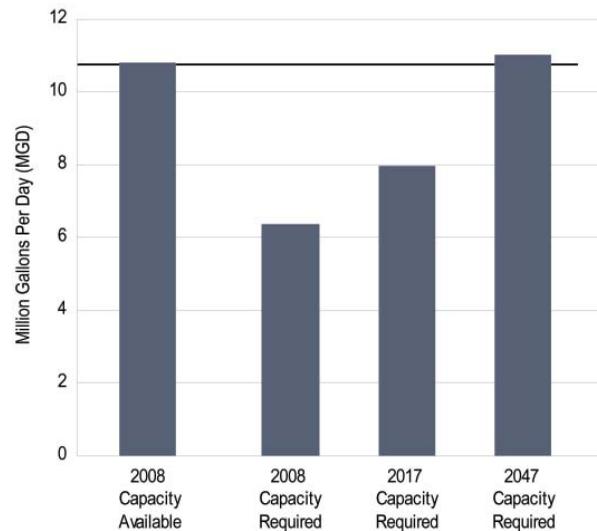


Figure 7. Seguin Current and Future Water Pumping Capacity and Usage.

criteria, as the estimated peak hourly demand is 6.37 MGD and the City has 10.80 MGD pumping capacity (3 – 2,500 gpm pumps), with one pump out of service.

It should also be noted that the City has one additional high service pump station located along SH 123 Bypass. This pump station delivers water from the Lucille elevated tank to the Continental elevated tank. The pump station has three 500 gpm high service pumps. This pump station was not included in the total capacity since it currently serves a small portion of City and a small elevated tank. If the elevated tank is upsized at a future date, then the pump station would need expanding as well.

The City of Seguin has no capital improvements planned to increase the capacity of the existing booster pumps for the groundwater and surface water systems at this time. If water rights are acquired in Guadalupe County, an additional treatment plant will be constructed and subsequent booster station by Schertz/Seguin W.S.C. Based on future growth and the peak capacities required, Seguin will possibly be deficient in meeting peak flows required in 2047. It should be noted that the City of Seguin does have plans to increase the size of the existing high service pumps located along S.H. 123 Bypass if and when a new elevated tank is constructed in this portion of town.

Ground Storage

The City has three main ground storage reservoirs. The total existing ground storage capacity is 3.14 million gallons (MG). At the Starcke Park



water treatment plant there is a 3.0 MG ground storage tank. The high service pump station previously mentioned that pumps water from the Lucille elevated tank to the Continental elevated tank has two 70,000 gallon ground storage tanks. The ground storage capacity at the Nixon water treatment plant, which is a 2.0 MG tank, was not included in the overall capacity. Engineering standard practice is to have 100 gallons per LUE for ground storage capacity. Based on the existing LUEs (9,151), 0.9151 MG of ground storage is required, which is easily met by the City's existing 3.14 MG ground storage capacity.

Based on the future LUEs (11,437 LUEs in 2017 and 15,837 LUEs in 2047) and the engineering standard described above, the City should have sufficient capacity to serve the future population. For 2017, 1.1437 MG of ground storage is required, and for 2047, 1.5837 MG of ground storage is required. These requirements can be met by the City's currently existing ground storage capacity.

Despite having sufficient ground storage capacity for future populations, additional ground storage may be required in areas of specific development or to meet specific needs. An example would be if the City increased the high service pump station size along S.H. 123 Bypass, the existing Continental ground storage may be required to be increased for a functional system. The City has no immediate plans for capital improvement projects to construct new reservoirs or increasing the size of existing ground storage reservoirs.



Elevated Storage

The City has four elevated tanks located throughout the City. The Lucille and Kingsbury tanks have a capacity of 1.0 MG each. The Ireland tank has a capacity of 0.5 MG and the Continental tank has a capacity of 0.15 MG. The City has a total existing elevated storage capacity of 2.65 MG. T.C.E.Q. requires 100 gallons per LUE for elevated storage capacity. Based on the existing LUEs of 9,151, 0.9151 MG of elevated storage is required. This is easily met by the City's existing 2.65 MG elevated storage capacity.

Based on the future LUEs (11,437 LUEs in 2017 and 15,837 LUEs in 2047) and T.C.E.Q. requirements described above, the City should have sufficient capacity to serve the future population. For 2017, 1.1437 MG of elevated storage is required, and for 2047, 1.5837 MG of elevated storage is required.

Despite having sufficient elevated storage capacity for future populations, additional elevated storage may be required in areas of specific development or to meet specific needs. An example would be if the City had a large development near the extents of its service area and a certain pressure or quantity of water was required that could not be met by the existing system. The City has plans for capital improvement projects to construct a new elevated tank on C.H. Matthies Jr. to better service the western portion of the City. In addition, another new elevated tank is proposed to replace the existing Continental elevated tank to increase capacity in the north portion of the City.



Distribution System

The City has an extensive distribution system consisting of water main sizes ranging from 2" to 24". Engineering standard practice is to have 1.5 gallons per minute per LUE for distribution system capacity. The 30" and 42" transmission mains from the Schertz/Seguin W.S.C. have not been included in the City's distribution system capacity because they are not used for distribution purposes. Based on the existing LUEs (9,151), 19.766 MGD of capacity is required (or 2,160 gallons per LUE). The City has an existing distribution system capacity of 22.066 MGD. However, this capacity does not necessarily mean the City has an excess of capacity. Some areas within the City and the outlying areas are deficient or have no distribution at all. In addition, existing pressure in some areas may not be adequate for fire protection.

Based on the future LUEs (11,437 LUEs in 2017 and 15,837 LUEs in 2047) and engineering standards described above, the City will not have sufficient capacity to serve the future population (Figure 8). For 2017, 24.704 MG of capacity is required, and for 2047, 34.208 MG of capacity is required.

The City has plans for numerous capital improvement projects to construct additional distribution system lines to better service the City.

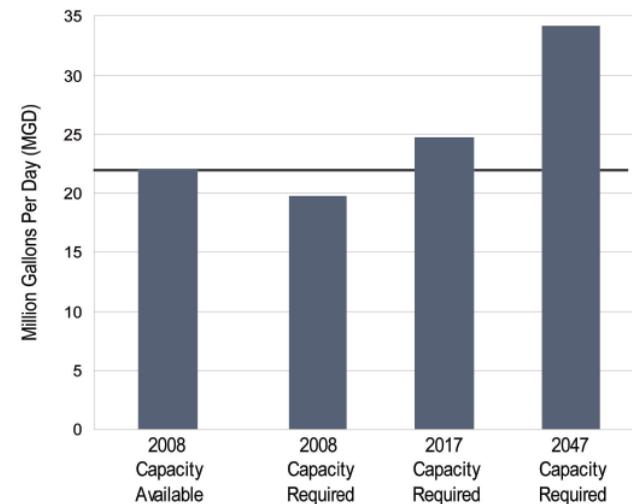


Figure 8. Seguin Current and Future Water Distribution Capacity and Usage.

Future Considerations

As shown in the above section, the City of Seguin has substantial water system infrastructure capacity to handle most of the projected growth. For elevated and ground storage capacities the City can serve populations up to the year 2047 and still meet State requirements. For water supply and treatment the City can serve populations up to 2047 for the average usage. For peak demands, the City will have to determine if Schertz/Seguin W.S.C. will obtain additional capacities or if the City must find its own, in order to continue to serve primarily groundwater to its citizens. The City has ample surface water rights and treatment capacity to serve the future demands if blending of the water is considered an option in the future. For pumping capacity, the City can meet estimated flows close to the year 2047. Regarding the distribution system, the City can meet existing needs, but will need to provide additional capacity to meet the needs of the future populations in 2017 and 2047.

A larger concern than being able to meet the infrastructure capacity requirements for its current service area and projected populations within this area is how to deter or enhance development based on the land use plan without having control of the utilities. The City's water service area is completely surrounded by other entities (Figure 1). As the City continues to grow and expand its city limits and population, developments will have to rely on other sources of water infrastructure capacities and capabilities. As the City has no control over the infrastructure provision to new development, the City is unable to entice future commercial/industrial users or deter unwanted development within future green space or open lands. The City should begin looking into ways to acquire additional CCN service area for its water system. CCN can be acquired through litigation, purchase, or transfer. The City should highlight key areas currently not within its CCN according to its land use plan. These areas may consist of nodes, green space, or residential areas.

The City currently has a Capital Improvements Project list for the next ten years. Figure 9 shows layouts and locations of the proposed projects.

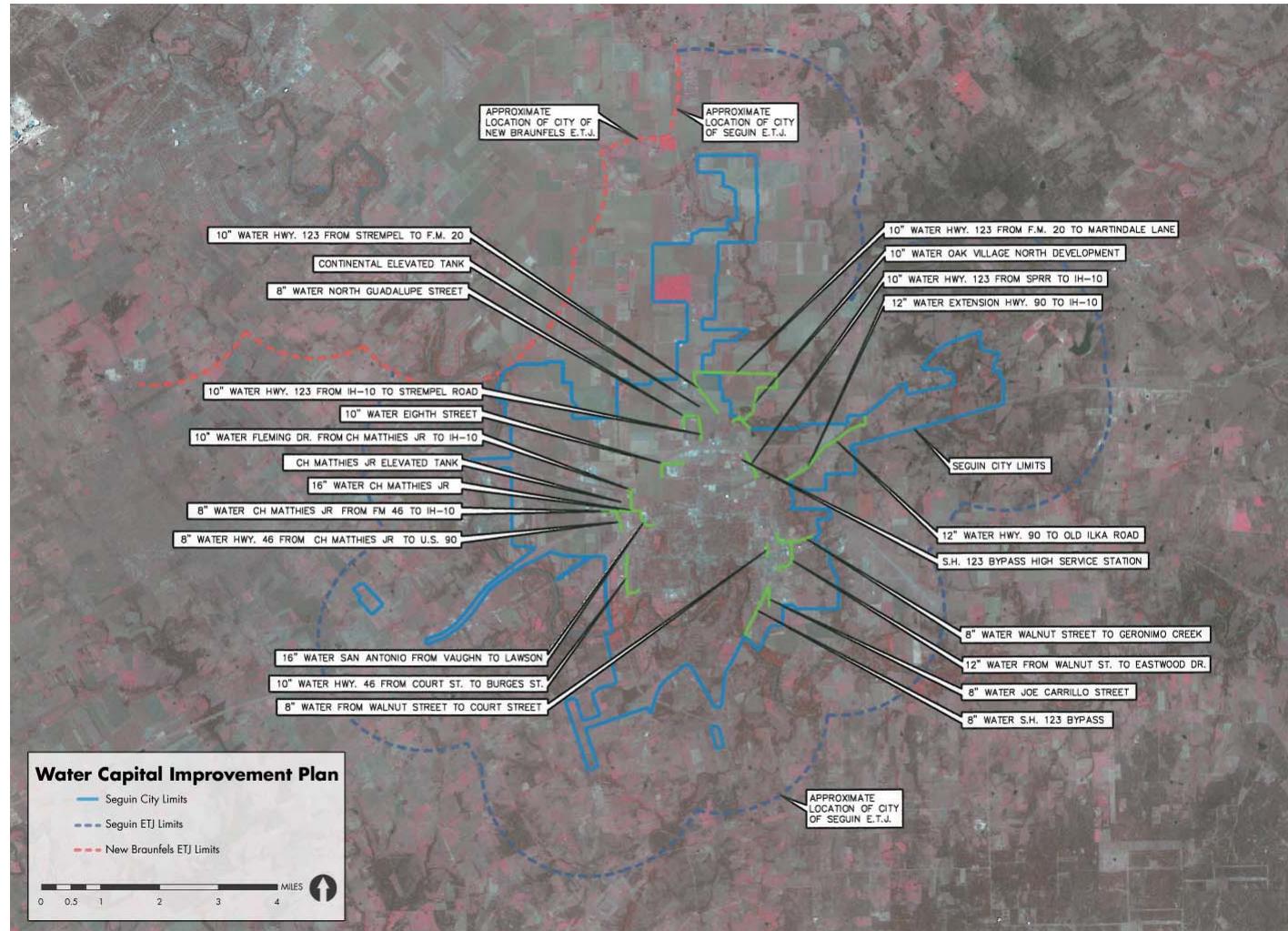


Figure 9. Seguin Area 10-Year Water Capital Improvement Plans.



SEWER

Wastewater is a significant and influential infrastructure system because the cost of a wastewater system is most affected by the capability of the wastewater to flow by gravity. Therefore, the need to secure right-of-ways along low elevations (along creeks, drainage ditches, etc.) is critical to implementation of a gravity system. The City of Seguin is divided into four primary watersheds that will provide the framework upon which a future wastewater system will be planned. These watersheds are:

1. The Little Mill Creek Basin: This basin flows north to south west out of City limits, into the Guadalupe River.
2. The Walnut Branch Basin: This basin flows north to south from the northwest part of the City through the center part, into the Guadalupe River.
3. The Geronimo Creek Basin: This basin flows north to south east along the eastern portion of the City limits, into the Guadalupe River. The Geronimo Creek basin extends north up to IH-35 in New Braunfels.
4. The Area South of the Guadalupe River: This basin flows south to north towards the Guadalupe River.

The City of Seguin currently owns and operates the collection system and treatment plants within the Walnut Branch and Geronimo Creek basins. The City owns and operates the collection system while the Guadalupe Blanco River Authority (G.B.R.A.) owns and operates the treatment plant for the area south of the Guadalupe River. Currently little or no sewer service is provided to the Little Mill Creek basin. The portion which is served, is pumped back to the Walnut Branch basin collection system.

As previously stated and shown in Figure 2, the City of Seguin has a limited CCN for sewer. However, unlike the water CCN, no entity has claimed large tracts of sewer CCN surrounding the City. The City currently services areas outside of its existing CCN by means of gravity mains, lift stations, and force mains. The City is allowed to service these areas because no one has claimed this area. However, if an entity did claim these areas, the existing LUEs would be continued to be served by the City, but all new LUEs would be served first by that entity. In other words, if this were to occur any additional capacity in the existing system in these areas would go unutilized.

All current and future citizens of Seguin outside the City's current CCN will have to be on septic systems unless the City extends collection systems to serve them. As noted above, the City can continue to expand its collection system outside its CCN boundary, but if it is claimed by another entity,

the City will lose rights to add any additional LUEs to their system in that particular area. If the City chooses to expand its CCN they will be obliged to extend sewer to those residents that require it, which could require significant capital improvements.

The population used for the following calculations is based on the established populations previously set forth in this Plan. Based on the actual number of sewer service connections (6,361) and a similar conversion as shown in Figure 4, the City has 7,544 LUEs for sewer.

As previously discussed, the City of Seguin is not limited to future growth within its current sewer CCN area. Based on the existing and available areas, conservative estimates were calculated to determine the future population per LUE for 2017 and 2047. Based on the land use plan, the population per LUE between today and 2017 is estimated to be 3.50 people per LUE. In addition, the population per LUE between 2017 and 2047 is estimated to be 3.00 people per LUE. This would correlate to 9,830 LUEs in 2017 and 24,497 LUEs in 2047 for the City. These LUE numbers are based on the City retaining its existing CCN area and expanding it to service additional area.

Wastewater Treatment

The City of Seguin currently operates two wastewater treatment plants. The Geronimo Creek treatment plant and the Walnut Branch treatment plant are located north of the Guadalupe River. The G.B.R.A. Springs Hill wastewater treatment plant is located south of the River. Although the City owns or operates the collection system and lift stations south of the River, it does not own and operate the wastewater treatment plant. The permitted flow is set by the T.C.E.Q. for all the treatment plants. The capacity of the treatment plants is based on the design average flow per day. The overall capacity and the average flow for 3 consecutive months at each of the

three plants are shown in Figure 10. Historically the flow rate split between the two wastewater treatment plants is 65% to Walnut Branch and 35% to Geronimo Creek. This flow split will be used for the remainder of the calculations within this section.

Of the 6,361 total sewer connections for the City, 421 connections (499 LUEs) are from the system south of the River. It is important to keep these connections and flows separate since they will affect the future capital improvements differently. Thus average flows divided by the current LUEs gives an average flow of 504 gallons per day per LUE for the system north of the River and 301 gallons per day per LUE for the system south of the River. The reason for the difference in flows between the two systems is because the majority of the connections south of the River are residential. Engineering standards assume 3 people per household and/or LUE. T.C.E.Q. design standards stipulate 100 gallons per day per person and/or LUE. The system north of the River has more commercial and industrial users that contribute to a higher average flow. Currently, a large portion of the 504 gallons per day per LUE for the north system can be attributed to industrial users such as Tyson Foods and Rio Nogales Power Plant. For conservative projections, this number was used for future demand, anticipating that additional industrial users will be established in the City.

Of the future LUEs (9,830 LUEs in 2017 and 24,497 LUEs in 2047) stated previously, 650 LUEs in 2017 and 1,620 LUEs in 2047 would be south of the River. Based on the average flow per LUE described above for each system, the City and G.B.R.A. will not have sufficient capacity to serve the future population (Figure 11). For 2017, north of the River (9,180 LUEs), 4.63 MG of capacity is required, and south of the River (650 LUEs), 0.20 MG of capacity is required. For 2047, north of the River (22,877 LUEs), 11.53 MG of capacity is required, and south of the River (1,620 LUEs), 0.49 MG of capacity is required.

Wastewater Treatment Facilities	2008 Capacity Available	2008 Average Flow	Number of Sewer Connections	Number of LUEs	Average Flow/LUE
North of Guadalupe River			5940	7045	504 gallons/day/LUE
Geronimo Creek WWTP	2.31 MGD	1.35 MGD			
Walnut Branch WWTP	4.90 MGD	2.20 MGD			
South of Guadalupe River			421	499	301 gallons/day/LUE
Spring Hill WWTP	0.30 MGD	0.15 MGD			
City of Seguin Total	7.51 MGD		6361	7544	

Figure 10. Seguin Wastewater Treatment Facilities.

The City has future plans for improvement projects to expand the existing treatment plants to better service the City and meet future flow rates. . . The City should also consider purchasing the Springs Hill treatment plant from G.B.R.A. in the future to help dictate growth and development south of the Guadalupe River.

Lift Stations

The City currently operates numerous sewer lift stations (19 at the time of this Plan). Lift stations are constructed to serve areas that cannot gravity flow sewage to the wastewater treatment plants. Fourteen of these lift stations are located north the River and are as follows:

- Unity (620 gpm)
- Glen Cove (120 gpm)
- Crossroads (400 gpm)
- Nolan Street (100 gpm)
- Water Plant (120 gpm)
- Wave Pool (120 gpm)
- Friesenhahn Road (300 gpm)
- Continental (120 gpm)
- Chisolm Trail (300 gpm)
- Burges Street (150 gpm)
- Jim Barnes (600 gpm)
- Jud's (300 gpm)
- Navarro (475 gpm)
- Mill Creek (300 gpm)
- Guadalupe Drive (100 gpm)
- Country Club (120 gpm)

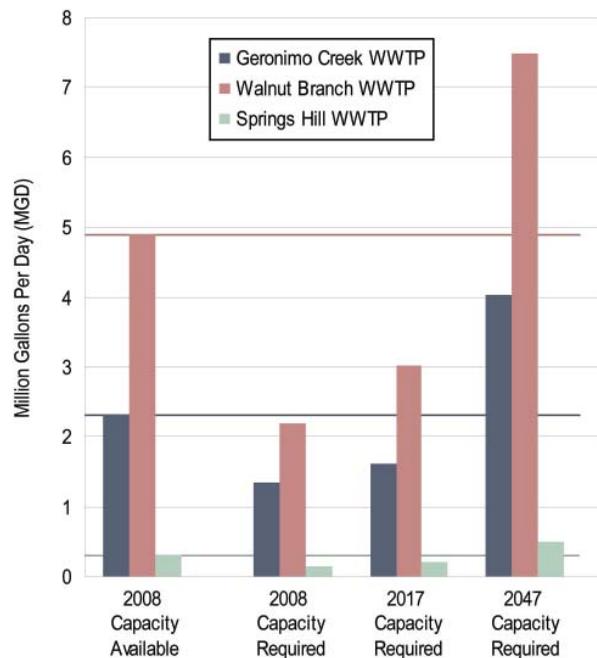


Figure 11. Seguin Current and Future Wastewater Capacity and Usage.

Five of the lift stations are located south of the Guadalupe River and are as follows:

- Sutherland Springs (120 gpm)
- River Oak Drive (120 gpm)
- Nagel Street (100 gpm)
- Guadalupe Drive (100 gpm)
- Country Club (120 gpm)

It is estimated that the total pumping capacity of the existing lift stations is 6.60 MGD.

Lift stations are designed to carry peak wastewater flows. Assuming that 504 and 301 gallons per day per LUE are the average flow (as determined in the previous section), a factor of 3 is applied to get the peak flow. The estimated peak flow is 1,512 gallons per day per LUE north of the River. This makes the estimated demand on the north lift stations 10.652 MGD. The estimated peak flow is 903 gallons per day per LUE south of the River. This makes the estimated demand on the south lift stations 0.451 MGD. Currently, the demand on the north lift stations is greater than the capacity of the lift stations (Figure 12). This may require further study by the City.

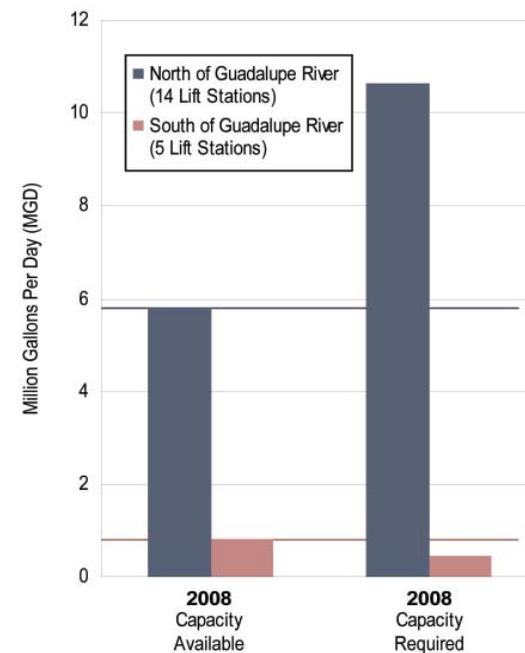


Figure 12. Seguin Current Lift System Capacity and Requirements.

However, peak flows are a conservative measure calculated to determine the worst case scenario, not day to day operating. In addition, each of the lift stations is equipped with two pumps that can operate together to meet the peak flows if necessary. The pumping capacities listed above for each lift station are based on only one pump in service, a design standard. In addition, the 10.652 MGD is representative if all flow was going to lift stations and then being pumped to the wastewater treatment plants. Both the Walnut Branch and Geronimo Creek WWTPs are fed by large gravity lines that are not fed by lift stations. Thus, not all of the peak flow is passing through a lift station.

Flows for the future LUEs were not compared to the existing lift stations since in practice, lift stations are installed to serve localized areas or cross between multiple drainage basins. As development occurs farther out from the collection system, the City should investigate the possibility to create larger regional lift stations in lieu of small localized lift stations. This would help manage and keep operations and maintenance costs to a minimum over time. This should be done at the time that future developments occur within the land use plan. The City should discuss the possibility with developers to oversize the local lift station to serve a greater area.



Collection System

The City has an extensive collection system consisting of gravity sanitary sewer main sizes ranging from 6" to 24". The collection system is designed based on peak flow rates. In previous sections, a peak flow rate was determined for the systems north and south of the River. For this section, the flow rate determined for the north system will be utilized. The current peak demand is 1,512 gallons per day per LUE. This requires a capacity of approximately 11.41 MGD. The City of Seguin has a current collection system capacity of 12.69 MGD. However, this capacity does not necessarily mean the City has an excess of capacity. Some areas within the City and the outlying areas are deficient or have no collection system at all.

Based on the future LUEs (9,830 LUEs in 2017 and 24,497 LUEs in 2047) and engineering standards described above, the City will not have sufficient capacity to serve the future population (Figure 13). For 2017, 14.86 MG of capacity is required and for 2047, 37.04 MG of capacity is required.

The City has plans for numerous capital improvement projects to construct additional collection system lines to better service the City. These are discussed further in the future considerations section.

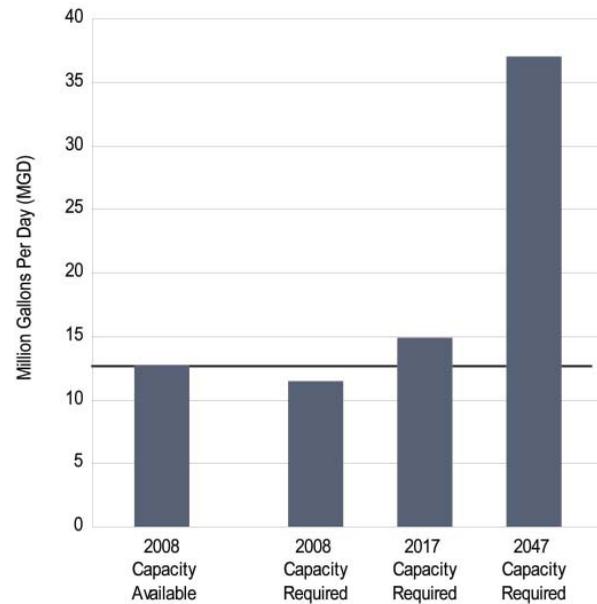


Figure 11. Seguin Current and Future Wastewater Capacity and Usage.



Future Considerations

As discussed above, the City of Seguin has substantial infrastructure capacity to handle most of the projected growth. For wastewater treatment capacities, the City can serve populations up to 2017 and still meet State permitted requirements. For lift station capacity the City will need future lift stations to serve localized areas. In addition, the City should work with developers to establish regional lift stations to minimize the number of future stations that are required. For the collection system, the City can meet existing needs, but will need to provide additional capacity to meet the needs of the future populations in 2017 and 2047.

There is a larger concern for the City than being able to meet the infrastructure capacity requirements for its current service area and projected populations within this area. If the City does not want to expand its current service area, it must consider how to deter or enhance development based on the land use plan without control of the utilities. Currently the City is serving a much larger area than its service area depicts (Figure 2). This is allowed since that area is not claimed by another entity and no one presently can offer sewer service. However, if another entity chose to obtain the areas not serviced, the City would lose its control on development through sewer service. As the City continues to grow and expand its city limits and population, developments may have to rely on other sources for sewer infrastructure capacities and capabilities if another entity creates a CCN around or near the City. The City having no control of the infrastructure needs of new development leaves them helpless in enticing future commercial/industrial users. It also leaves them helpless in deterring unwanted development within future green space or open lands. The City should begin looking into ways to acquire additional CCN service area for its sewer system. CCN can be acquired through litigation, purchase, or transferred. The City should highlight key areas currently not within its CCN according to its land use plan. These areas may consist of nodes, green space, or residential areas.

The City currently has a capital improvements project list for the next ten years. Figure 14 shows layouts and locations of the proposed projects.

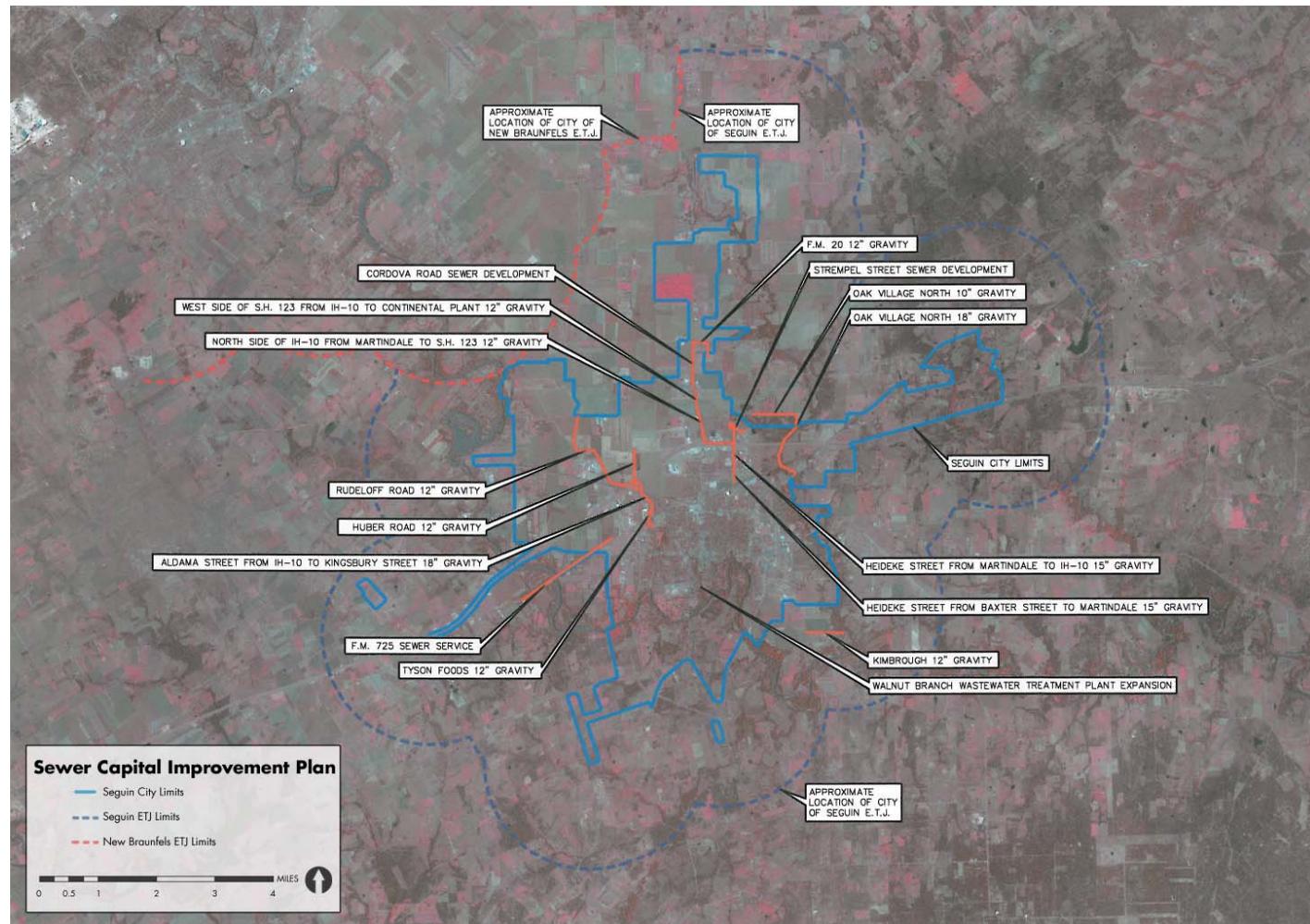


Figure 14. Seguin Area 10-Year Sewer Capital Improvement Plans.



DRAINAGE

The City has not conducted a drainage system analysis. The overall topography of the City is generally flat and gently slopes to each of the major basins or directly to the Guadalupe River. The City currently has ordinances that require all new development to detain post-development runoff to pre-development runoff rates for the 2, 10, 25, 50 and 100 year storm events. The City ordinances must be met by any development within the City's E.T.J. Storm sewer systems for new developments are required to be designed to carry the 100 year storm events. Most of the City's existing infrastructure (storm sewer) is designed to carry storm events less than the 10 year. All state (TxDOT) systems are designed to carry a minimal storm event of 25 years.

Two large drainage basins encompass the majority of the existing City limits. As discussed in the sewer section, there are four large drainage basins that encompass the City's E.T.J. and proposed land use plan. Walnut Branch runs along the west side of the City and converges with the Guadalupe River near the Walnut Branch wastewater treatment plant. It extends north of the City to Lake McQueeney. Walnut Branch has been improved throughout the years between New Braunfels Street and the River. It varies between a manmade earthen channel, concrete lined channel, and natural earthen channel. The City is currently in the process of designing flood control detention ponds north of New Braunfels Street and IH-10. These ponds are being designed to keep the 100 year flood event within the banks of the existing Walnut Branch channel south of New Braunfels Street. In addition, the ponds will reduce the 100 year floodplain within portions of the City. Walnut Branch is an intermittent stream from the Police Station north to Lake McQueeney. However, south of the Police Station to the Guadalupe River constant water flows in it due to underground springs.

Another major drainage area is Geronimo Creek. Geronimo Creek runs along the east side of the City limits. Geronimo Creek is a natural creek that has not been improved. It extends from the City of New Braunfels to the Guadalupe River. Many areas along the creek are prone to flooding and this will worsen as future development occurs upstream. The City cannot enforce detention requirements or preventive measures outside of its E.T.J. Since Geronimo Creek has such a large watershed, continued development within Guadalupe County and from IH-35 to Seguin will cause a larger burden. Some areas of the floodplain have risen by seven feet in the last twenty years. Unchecked development will cause flooding to existing homes and businesses, not to mention creating areas that will not be developable in the future. The City should begin to investigate measures to contain flood events within the existing channel banks to alleviate existing flooding and help to encourage future development. Currently, Guadalupe

County is in the process of beginning a watershed study of Geronimo Creek and its affect on the City and surrounding areas.

Another drainage area is Little Mill Creek. Little Mill Creek runs along the west side of the City just outside the City limits. Little Mill Creek is a natural creek that has not been improved. It extends from the north end of the City to the Guadalupe River. Little Mill Creek is an intermittent stream throughout its entire length. Many areas along the creek are prone to flooding during large rain events. Little Mill Creek watershed extends beyond the City E.T.J., and the City of Seguin cannot enforce detention requirements or preventive measures outside of its E.T.J. Unchecked development will cause flooding to existing homes and businesses, not to mention creating areas that will not be developable in the future. The City should begin to investigate measures to contain flood events within the existing channel banks to alleviate existing flooding and help to encourage future development.



Future Considerations

The City has plans for improvement projects to better service the City's drainage areas and meet future drainage runoff rates. Figure 15 shows some of the proposed capital improvement projects for the next 10 years. Since the City of Seguin is considered a substantially developed city, it is difficult to design projects that will help solve drainage problems throughout the City. Most problems are localized to certain areas and require independent study and solutions to mitigate. The City may consider a drainage program in the future to accomplish these many projects or reserve funds annually to begin addressing the localized problems.

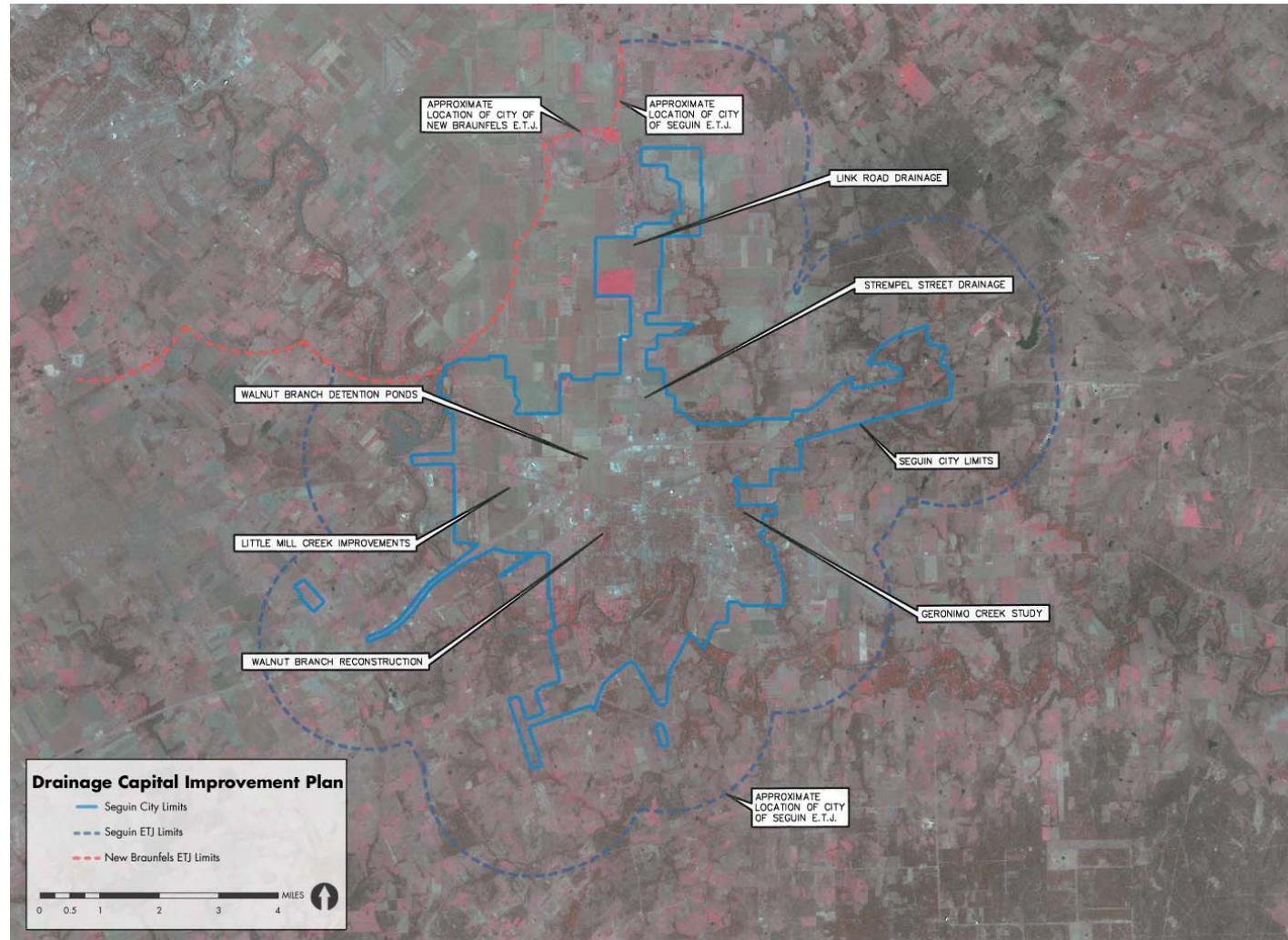


Figure 15. Seguin Area 10-Year Drainage Capital Improvement Plans.



4.5 the housing plan

The Seguin Housing Plan addresses quality of life issues related to housing or housing areas such as neighborhoods and communities.

Housing is one of the primary functions of a City. Most of the quality of life issues challenging the future of cities like Seguin address housing or housing areas such as neighborhoods and communities.

The primary housing issues that need to be addressed in Seguin are:

1. The shift in the nature of community from historically more urban, grid patterns to newer, more suburban, picturesque patterns. This will tend to cellularize the City into autonomous projects and thereby erode the cohesive small town quality that now distinguishes Seguin.
2. Fulfill required open space designations in older and newer neighborhoods.
3. Housing rehabilitation and infrastructure repair/improvement in older residential areas.
4. Neighborhood conservation in areas being inundated by traffic and non-residential development.
5. Dispersion of low to moderate income and public housing throughout the city instead of spatial isolation in specific geographic areas.
6. Increasing the housing options available to the present and future residents of Seguin.
7. Preservation of lower density single family housing in new growth areas of the City.
8. The transition of secondary home enclaves to primary home communities and the differing expectation of service and community infrastructure that such a transition imposes.
9. Housing encroachment upon important river and creek ways and the growing conflict between housing and flooding.

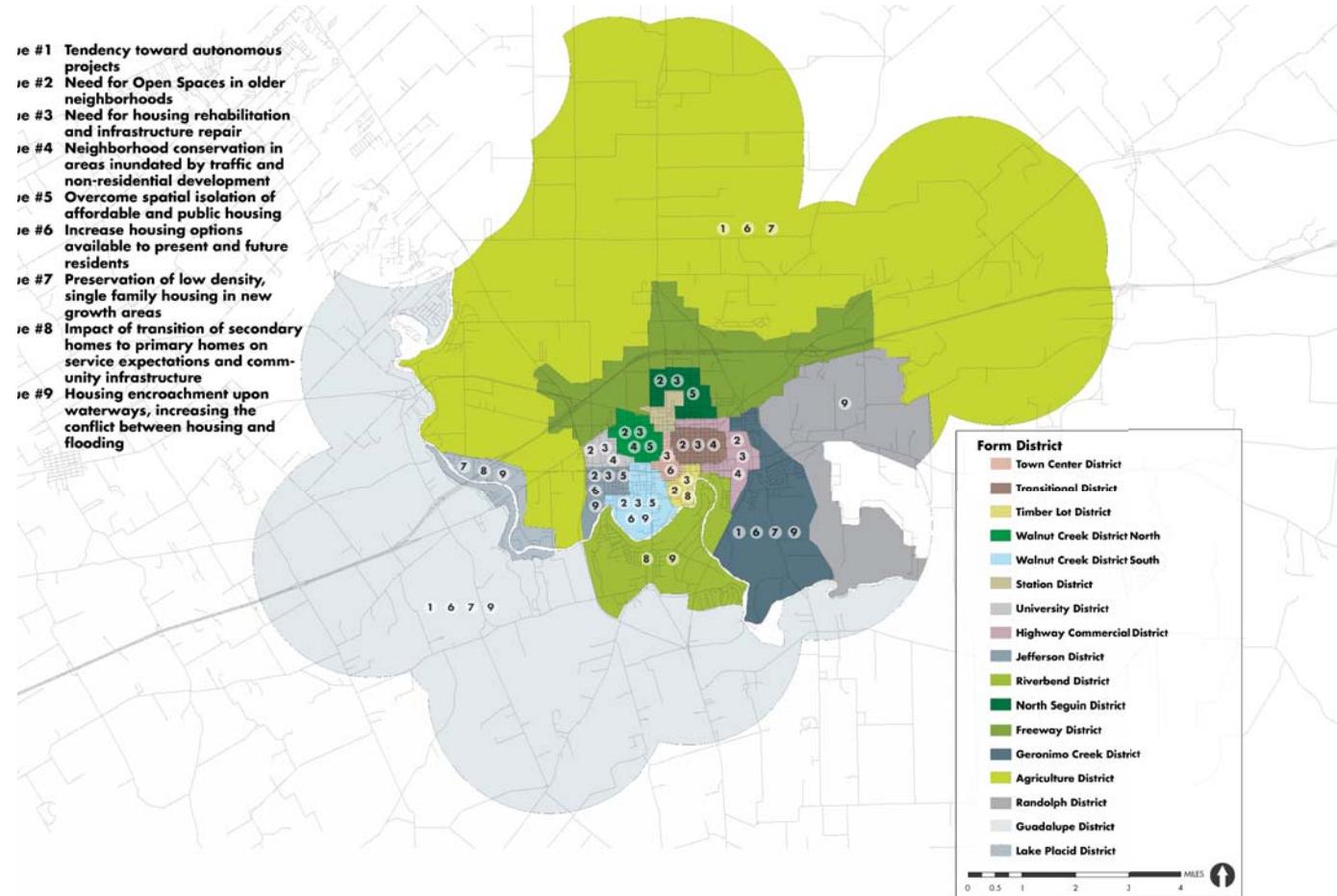


Figure 1. Seguin Housing Issues.

Based on the above specified issues, there are seven housing strategy initiatives that should be simultaneously executed to improve existing housing, enhance housing opportunities, and nurture better neighborhoods. These Housing Strategy Initiatives are:

1. Neighborhood Conservation. A Neighborhood Conservation Initiative is applicable to those generally older, identifiable housing districts that are recognized as a neighborhood and are facing an emerging threat to that identity. Neighborhood Conservation is a package of physical and programmatic applications intended to stabilize change, arrest intrusion, restore the physical fabric, and promote the preservation and perpetuation of distinctive visual qualities. Cities such as Dallas have a Neighborhood Conservation designation that places a conservation overlay upon the existing zoning classifications, establishes design guidelines and development standards, and creates a design review body that reviews development/redevelopment/new construction proposals.

2. Historic Preservation and Design Continuity. The Historic Preservation and Design Continuity Initiative is applicable to older and historically significant neighborhoods (as well as commercial areas) that are under present or emerging threat and merit preservation. Historic Preservation and Design Continuity is a package of physical and programmatic applications intended to restore/enhance the public domain and recognize the historic structures and districts of Seguin. This initiative can also regulate the design of repair/remodeling/reconstruction/reuse projects to preserve historically important architectural features and visual continuities.

3. Housing Rehabilitation and Maintenance. The Housing Rehabilitation and Maintenance Initiative is applicable to generally older neighborhoods where patterns of unit deterioration, lot neglect, and public domain aging are evident but local resident ownership is still dominant. The Housing Rehabilitation and Maintenance Initiative is a targeted set of physical and programmatic applications intended to facilitate individual home repair/maintenance, lot clean up, and code compliance as well as implement needed street and infrastructure repairs/improvements. The primary purpose of this initiative is to prevent some older housing areas from attaining a magnitude of disrepair/deterioration that establishes a pattern of transition/abandonment.

4. Transition Stabilization and Selective Redevelopment. The Transition Stabilization and Selective Redevelopment Initiative is applicable to generally older areas where the pattern of transition is well

advanced. Indicators of such transition include structure vacancies, lot vacancies, absentee ownership, deteriorating maintenance, non-conforming use encroachment, and frequent code violations. The Transition Stabilization and Selective Redevelopment Initiative is a package of targeted physical and programmatic applications intended to enforce applicable codes and ordinances, provide assistance for maintenance and repair by local owners, facilitate lot assembly, and promote/facilitate lot redevelopment in conjunction with other equity creation programs (such as Habitat for Humanity).

5. Site Design Guidance. The Site Design Guidance Initiative is applicable to areas where individual lot development (rather than community/neighborhood project development) is pervasive. These areas include most of the Guadalupe River and Geronimo Creek frontage where individual lots are acquired/subdivided and individual custom homes are built for individual clients. Other areas include portions of Seguin and its ETJ where natural assets provide a special attraction for individualized construction. In such locations, the interest of the individual lot owner has a great deal of effect on the interest of the City with regard to flood control, preservation of natural features, and public access to limited recreational resources. Therefore, it is important that continued site development be guided by guidelines and standards that allow individual lot development in ways that protect natural assets and hydrologic function. The Site Design Guidance Initiative is a programmatic application that imposes specific site development guidelines and standards through a natural corridor/natural asset overlay.

6. Development Design Guidance. The Development Design Guidance Initiative is applicable where community, project, and neighborhood development is most active. These areas include all areas of new residential growth. In such areas it is important that the City of Seguin establish development practices that will protect the City's quality of life, move the growing fabric of the City toward a more holistic and integrated form, and establish neighborhoods that are more sustainable (environmentally and socially). Recognition of park set asides, roadway provision, school site allocation, street alignment design, appropriate monumentation, appropriate use of landscape materials, mixture of housing options, and natural feature/corridor preservation become important aspects of development design that should distinguish Seguin from neighboring cities. The Development Design Guidance Initiative is a programmatic application that sets development guidelines and standards implemented through zoning and subdivision ordinances.

7. Housing Quality Assurance. The technology of building construction is rapidly changing in the face of increased costs of labor and construction materials. Certain innovations have allowed housing providers to offer much greater levels of comfort and luxury to the entire housing market. However, some materials do not endure and their pervasive and/or inappropriate use contributes to a housing stock that will face problems of maintenance and deterioration in a few years. This of course imposes greater burden upon the City to remediate premature cycles of transition associated with building fabric deterioration. The Housing Quality Assurance Initiative is a programmatic application imposed upon all areas of the City where housing is being built, reconstructed, restored, remodeled, and/or repaired. Housing Quality guidelines and standards should be contained in a separate Housing Quality Ordinance that is implemented through the City's building permit process.



Housing Initiatives

1. Neighborhood Conservation
2. Historic Preservation and Design Continuity
3. Housing Rehabilitation and Maintenance
4. Transition Stabilization and Selective Redevelopment
5. Site Design Guidance
6. Development Design Guidance
7. Housing Quality Assurance*

*Applies to all Districts

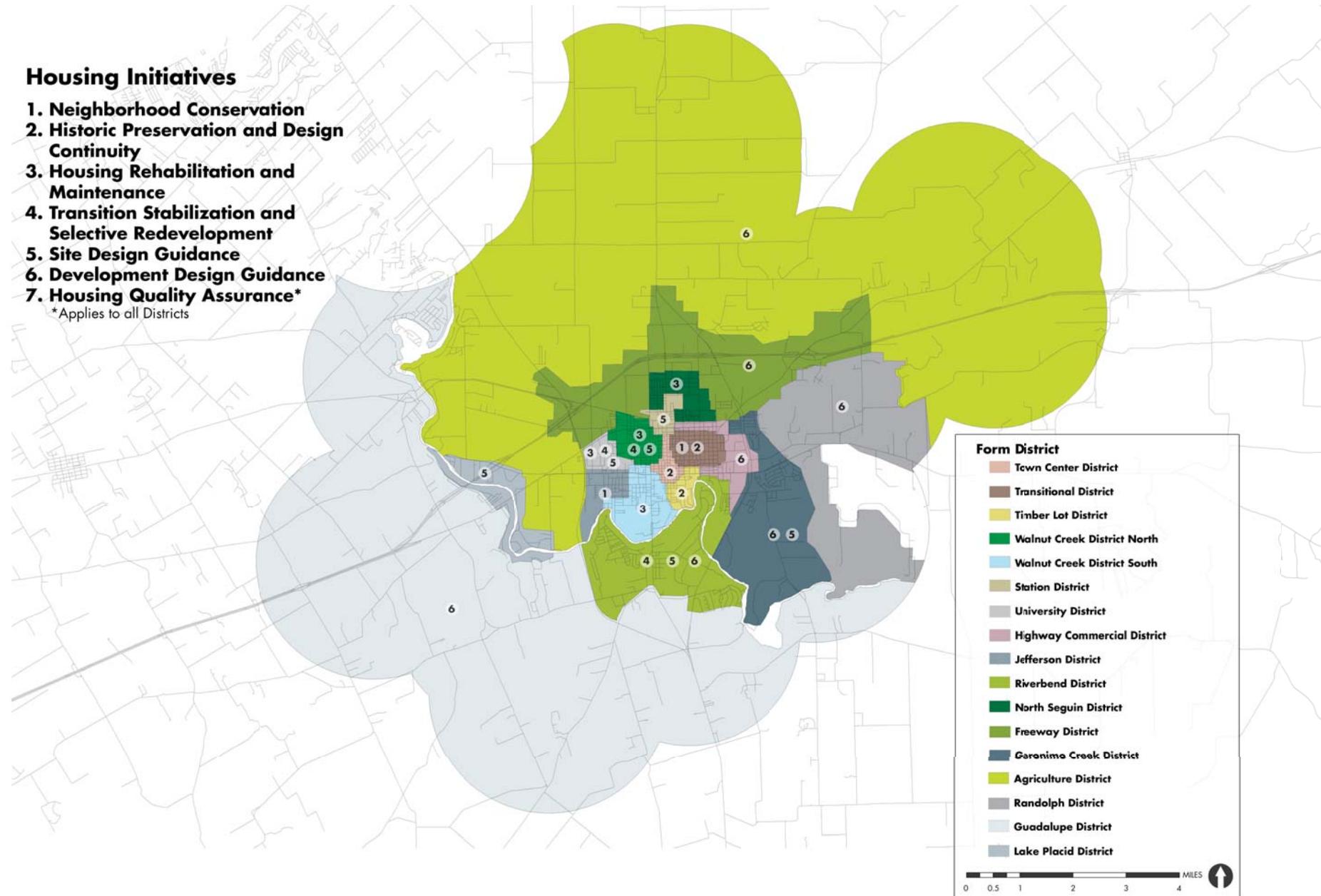


Figure 2. Seguin Housing Initiatives.



4.6 the public facilities plan

The Seguin Public Facilities Plan addresses services that are population driven, including emergency services and schools, in order to help Seguin be prepared to meet the needs of future residents.

Introduction

The Facilities Plan for Seguin addresses Emergency Services (Police and Fire) and Schools. However, a City's facilities can also include cultural centers and libraries. Emergency Services and Schools are population driven because they are sized and distributed to conform to a standard of performance measured by the people served (e.g. response time and classrooms per capita). Cultural Centers and Libraries are quality of life driven because they are sized and distributed as a function of the collection or the performance company they host. Responsibility for collections and performance companies are usually beyond the preview of City Government (especially in smaller Cities) and responsibility for such things typically falls to civic/cultural organizations and/or philanthropic individuals/institutions (such as the Stark family in Orange, Texas). For this reason, The Seguin Comprehensive Plan is concerned with facilities that are population driven.

Adequate provision of population driven facilities is a key feature influencing how a City is viewed as a potential host for relocating industry. It is also a growing concern of Seguin's citizenry as population growth will quickly stress current service capability and affect Seguin's image as a desirable place to live. Also, in-migrating population (coming from other population centers) will likely bring a higher expectation of service than current residents demand. Therefore, Seguin must view its provision of emergency services and schools in the light of national standards so that Seguin's level of service is consistent with other cities across the country.

A City's services must be uniformly allocated to all its residents and a city's ability to respond to emergencies equally available to all residents. Therefore, certain social/demographic characteristics of a community/neighborhood may necessitate additional service support in order to provide equal availability and uniform allocation. The following description of Police, Fire, and Schools presets a plan intended to provide the desired equal availability and uniform allocation in conformance with national standards that will make Seguin competitive with other cities (nationally) when it comes to the provision of emergency services and schools.

Police and Fire Service

Recent events ranging from natural disasters to violent events have illustrated how important a City's police and fire protection can be. The standards by which these ordinary protections are provided influence the perception of a City's quality of life and the common realities of individual home and business owners. These common realities include insurance availability/rates as well as marketability/rentability of homes and rental units/space. In addition, revitalization initiatives recommended in this plan can be negatively affected if uncertainty about emergency services becomes established in the market place. These pragmatic associations with the provision of emergency services make them an important part of any economic development strategy. The Police and Fire Plan (Figure 1) illustrates the distribution of these facilities within the recommended 2047 build out and is more specifically described below.



Fire Service. Fire locations are based on response time as a function of distance from any potential emergency call. The need to get large equipment to any potential fire within a given time and the need to house and maintain large equipment in somewhat centralized stations means that fire stations must be decentralized and moved closer to the points of service (served within a specified time frame). National standards suggest that the desired response time is 5 minutes which equates to 1.5 miles on ordinary city roads. This distance can be somewhat extended when densities are particularly low meaning that travel would be easier and the number of probable fires reduced (as a result of fewer houses within the service area). This 1.5 miles (5 minutes response time) defines a "service area" and these services areas are the basic planning unit for projecting the future fire facility needs of Seguin.



The nature of Fire Department calls illustrates the reason that response time is such a critical factor in Fire Facility planning. According to the Fire Protection Association, the majority (58%) of Fire Department calls concern medical aid, as follows:

- Medical aid 58%
- Fires 9.4%
- False Alarms 10.4%
- Mutual Aid 3.8%
- Other 13.5%
- Other hazardous conditions 3.0%

The adjacent plan graphic shows fire service areas distributed over the future 2047 City. The red circles indicate existing fire stations and reveal that higher density and older areas of the city are well covered with more than one station able to respond to a fire within the standard response time (indicated by the overlap of red circles). Green circles indicate proposed staffed stations in lower density areas outside the historic city center. There are some areas here that will not fall within the response time distance from a station but the low density and large amount of conservation area or farm/ranch area identified in the land use plan would make more fire stations costly and this is an issue the City must address as these areas develop in the future. There are a total of ten City fire stations, between the existing and proposed stations, needed to provide adequate service protection.

The light green circles indicate existing volunteer fire stations which supplement the service of staffed stations and provide protection in lower density areas. This is not atypical. Among cities of 100,000 to 249,999 persons, it is common for at least one department to be all volunteer. There are currently two volunteer fire stations within the Seguin ETJ, which supplement the proposed ten City fire stations.

The number of fire stations recommended gives Seguin reasonable coverage and keeps the total number of fire fighters per 1000 population close to the national mean for the southern region cities having a population less than 99,999. The National Fire Protection Association (NFPA) survey of fire departments for the U.S. (1997) shows the mean number of career fire fighters per 1000 population for the western region of the United States is 0.86 per 1000, or about 67 fire fighters for Seguin's future population of 78,000. The average number of fire fighters per station is approximately five for each engine company and six for each ladder company. For the 12 recommended stations (including the volunteer stations), approximately 66 firefighters would be needed in Seguin.



Figure 1. Seguin Police and Fire Plan.



Police Service. “The FBI reports that in 1998, municipal police departments had an average of 2.4 sworn officers per 1000 population and an average of 3.1 law enforcement employees (sworn and civilian) per 1000 population” (Municipal Benchmarks Second Edition, Sage Publications, 2001). However, US Department of Justice breaks this down further for cities with a population ranging from 50,000 to 99,999. For these smaller cities the average number of sworn officers per 1000 population would be 1.8 or 140 sworn officers for Seguin in 2047 (projected population 78,000). Maintaining a standard number of sworn officers per 1000 population will give greater assurance that Seguin is protected at a level that:

- Does not expose the homes and businesses of Seguin to disproportionately high insurance costs.
- Enhances the view of Seguin to business and home buyers seeking to relocate to the City.
- Strengthens existing older neighborhoods and provides greater assurance of security.

National trends are for one main Police Facility to serve the entire city and support the required staff. In Seguin’s case, such a facility should be centrally located near older neighborhoods, preferably within or near the downtown core.

Schools

Schools are the responsibility of our school board but the City plays a significant role in attaining school sites as the City develops. In addition, schools (including at the university level) play an important role in preparing the future population as a skilled work force. This can help attract higher wage jobs to the City, and other similar goals of the Comprehensive Plan

School Type	School Needed per Capita	Current Number of Schools	Schools Needed in 2015	Schools Needed in 2047
Elementary	1 school/ 5000 people	7	6	16
Middle	1 school/ 16,000 people	2	2	5
High	1 school/ 24,000 people	1	2	4

Figure 2. Seguin ISD Schools Plan.

can be met. Therefore, it is important that the Comprehensive Plan identify the likely number of schools that will be needed for the future population so that a fair distribution of this responsibility can be accomplished.

The school facilities plan is a chart (Figure 2) showing the recommended number of schools for the 2015 and 2047 populations. With the projected population of 30,000 in 2015, Seguin is close to meeting or currently exceeds the necessary schools. For this near future scenario, the City

should focus its efforts on ensuring that the existing schools are adequately meeting students’ needs and begin preparations for the construction of a new high school. However, with the population of 78,000 projected for 2047, Seguin will need to construct new schools at each educational level. Figure 3 is a plan showing the location of current schools within the Seguin ISD, which clearly demonstrates the geographical areas of the City that are currently lacking proximity to schools.

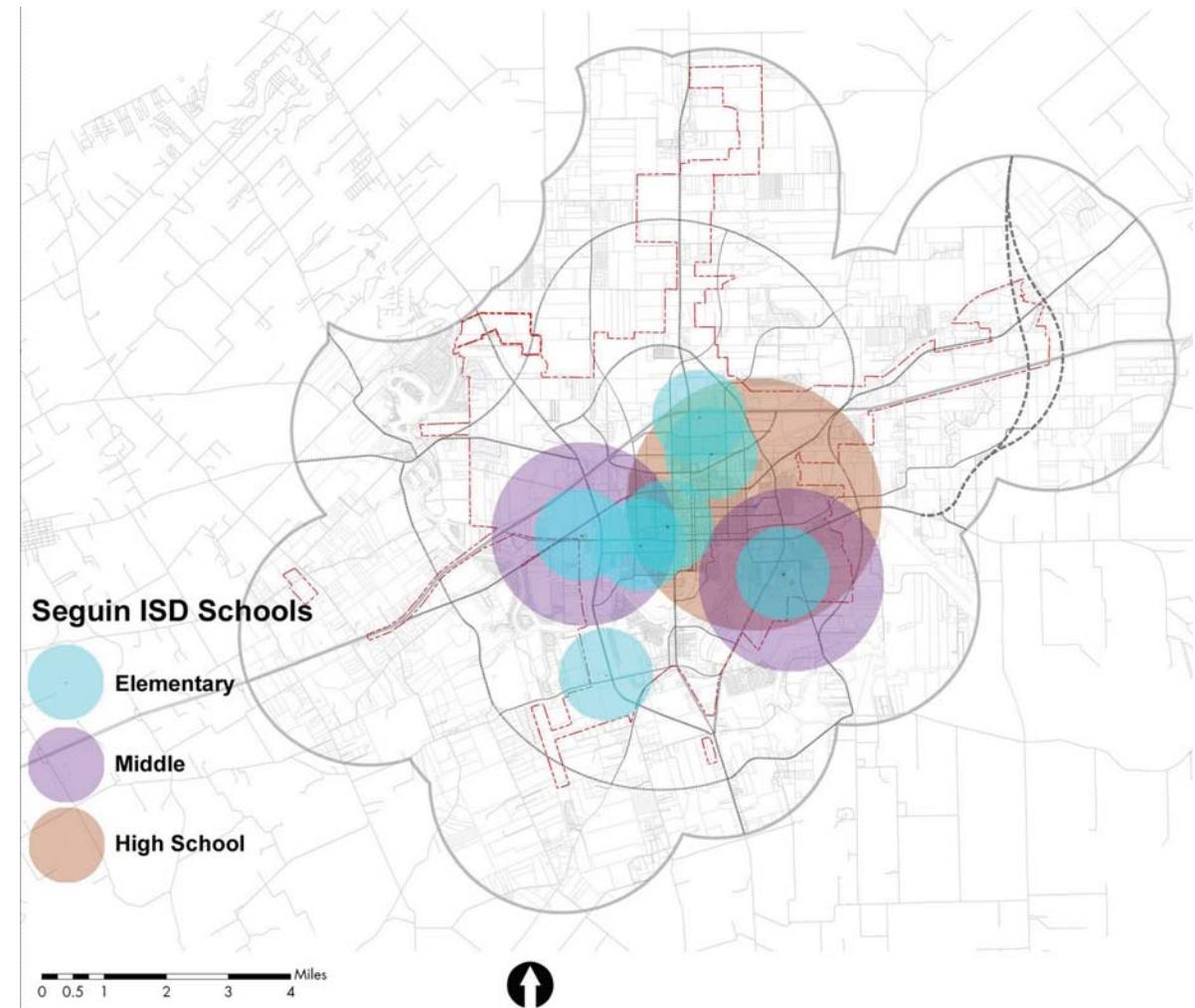


Figure 3. Current Seguin ISD Schools Map.



4.7 workshop 3 summary

The Seguin Comprehensive Master Plan process has included three Open Public Workshops. Workshop #3 focused on the components of the Comprehensive Plan Document.

Workshop #3 was the last workshop in the formal Planning Process. The participants had an opportunity to view and comment on the plan components developed in response to goals, objectives, and vision statements from Workshops #1 and #2. The plan components presented in Workshop #3 included:

- The Land Use Plan
- The Open Space Plan
- The Thoroughfare Plan
- The Housing Plan
- The Infrastructure Plan
- The Facilities Plan

Unique to Workshop #3 was the role of the facilitators in the presentation. Prior to Workshop #1, facilitators were identified to lead breakout groups within the workshop format. These facilitators met separately with the Consultant Team and City Staff prior to each Workshop, to discuss methods of presentation and Workshop Format. In Workshop #3, rather than lead smaller breakout sessions, several members of the facilitator group assisted in presentation of the Plan Elements.

The third workshop began with a review of the planning process, and presentation of the visioning statements that emerged in Workshop #2. The ten Visioning Statements, which were expressed in response to a presentation of the Planning Framework, included:

1. In the City of Seguin, future development patterns should create an attractive and legible physical form for the City.
2. In the City of Seguin, connections and transitions between uses should be defined in the various areas of the City.
3. In the City of Seguin, a community structure which acknowledges and incorporates affordable housing should be established.
4. In the City of Seguin, a regulatory process, with elements such as a design review committee, should be defined that addresses form-related issues, defines preservation standards for historically significant elements in the City, and improves code enforcement.
5. In the City of Seguin, mobility should be enhanced through defined pedestrian trails, the reintroduction of public transportation, and the improvement of east-west traffic routes.

6. In the City of Seguin, visibility from the freeway should be improved by creating meaningful portals, as well as freeway entries and exits that acknowledge anchor attractors and are visually appealing in their design.
7. In the City of Seguin, the streetscape should be enhanced using defining elements such as lights, signage, public art, and monumentation.
8. In the City of Seguin, natural elements should be incorporated as physical transition areas, roadside enhancements, and mechanisms for storm water management throughout the City.
9. In the City of Seguin, park lands and open spaces should be utilized as a means of strengthening community solidarity.
10. In the City of Seguin, existing open spaces in undeveloped portions of Seguin should be preserved.

Following this review of the Planning Framework and the subsequently expressed Vision Statements, the individual plan components were presented in detail, illustrating their compatibility with the Planning Framework (the Planning Framework is the consensus document for the Comprehensive Plan, serving as the template for all of the individual plan components). Therefore, each individual plan component was compared to the Planning Framework during the presentation, so that participants can verify the intent of each component, and the symmetry of that component with the Community Goals, as gathered through the process of public participation utilized in the formulation of this Comprehensive Plan.

Breaks were incorporated at strategic points throughout the presentation, so as to provide participants the opportunity to review the plan graphics in greater detail. Four members of the consultant team were present to address individual questions at this time. This allowed participants in the planning process to challenge, question, and propose revisions to the plan documents as prepared by the Planning Team.

The presentation of the **Land Use Plan** focused on the creation of districts as a means of dealing with the complexities of Seguin's current and historic patterns of development. The Land Use Plan, which was designed utilizing land use districts rather than zoning nomenclature (land use and zoning fulfill separate functions for a City, and therefore must be distinct elements), consists of 17 districts. These districts, which reconcile future visioning with historic trends and current needs, include Areas, Communities, Nodes,

and Corridors. The Land Use Plan also seeks to economically balance residential and non-residential uses to provide a sufficient tax base to support the quality of life and quality of service needed in the future. The proposed Land Use Plan was accepted by workshop participants.

The **Open Space Plan** presentation focused on the establishment of a network of public open spaces that consists of three core components: Parks, Corridors, and Designated Natural Areas. The three types of recommended parks were presented, with standards for each park type. Corridors were also classified, with a description of function of each type. Finally, Designated Natural Areas were identified for Seguin, along with a discussion of core elements of a preservation strategy for public lands. The proposed Open Space Plan was accepted by workshop participants.



The presentation of the **Thoroughfare Plan** centered upon the creation of a hub and spoke pattern of loops, intended to distribute the trip volumes associated with growth of the city by 2047. A general phasing strategy was also presented, addressing recommended improvements for the current thoroughfare system, those associated with the Planning Horizon, and those that would be necessary for the ultimate Build-Out scenario. Public transit was then addressed as a gradually phased element. Initial phases of developing a public transit system centered on the reintroduction of a trolley to connect the Historic Downtown District to the Station District. Recommended intersection enhancements in the central areas of the City were also presented. The proposed Thoroughfare Plan was accepted by workshop participants.

The **Housing Plan** was developed for Seguin, based on the original districts defined in the Form Assessment of the City. These form districts are defined in general by the neighborhood character of Seguin, and therefore speak well to housing. In the Housing Plan, a series of Housing Issues is identified, as well as a list of recommended Housing Initiatives to resolve these Issues. The proposed Housing Plan was accepted by workshop participants.

The **Infrastructure Plan** was developed based upon the Assessments conducted of existing capacities, and their ability to meet future needs of the City. Elements presented in this plan include: water, wastewater, and drainage. The proposed Infrastructure Plan was accepted by workshop participants.

The **Facilities Plan** was developed based on projections of growth in the Seguin area. The primary components of the Facilities Plan included police and fire facilities and schools. The Plan is a diagrammatic representation of the ability to service the Seguin area, based on existing facilities, and recommendations for inclusion of future facilities as the population grows. The proposed Facilities Plan was accepted by workshop participants.

Following presentation of all plan components, and breakout sessions for detailed review, a corporate question and answer period was held. Next steps were then discussed in the plan process, which included review and revisions, Council/Commission presentations, and final plan adoption.

