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Chapter 1 History

History of Navasota

The site was first named Hollandale for Francis Holland, who bought land in the area in 1822. In 1832 a Georgia planter named Daniel Arnold moved to the vicinity. In 1848 James Nolan set up some tents nearby, and by 1852 he had built a log cabin that became a stage stop. The site was a natural crossroads, as it was located near the spot where the La Bahía Road crossed the Navasota River, and about halfway between Anderson and Washington-on-the-Brazos. By the mid-1850s four stage lines had established stops in the vicinity. The settlement name was changed to Navasota (for the river) in 1854, when a post office was established there. After September 1859, when the Houston and Texas Central Railway built into the town, Navasota became even more important as a shipping and marketing center for the surrounding area. By 1865 the population was about 2,700.

By 1884 about 2,500 people were living in Navasota, and in addition to the oil mill the town had five churches, two flour mills, several steam-powered cotton gins, a bank, an opera house that could seat 1,000, and a newspaper, the Navasota Tablet. A telephone company began operating there in 1885; that same year the town gained another railroad connection when the Gulf, Colorado and Santa Fe built through. In the late 1880s the town contracted for its first water system and electrical lights. By 1896 four weekly newspapers were being published in Navasota, and the town had grown to a population of about 3,500.

The International-Great Northern became the town’s third railroad in 1900, and for the next three decades Navasota continued to grow as a shipping and marketing center for cotton, livestock, lumber, and produce. Its population increased from 3,857 in 1900 to 5,128 by 1930; in 1930, 175 businesses were reported in the town. Though the number of businesses in Navasota declined slightly during the Great Depression, by 1940 its population had grown to 6,138. During the 1940s the town declined as the farms surrounding it were mechanized and consolidated, and by 1950 only 4,976 residents remained. Hoping to reverse this trend, in 1952 local businessmen began to organize the Navasota Industrial Foundation. The foundation, which later drew tax dollars for its support, worked with some success to attract new industries to the area.

The population grew from 4,937 in 1960 to 5,026 by 1970 and to 5,971 by 1980. Residents also organized to revitalize the downtown area, and in 1980 Navasota was one of five Texas cities selected for the National Main Street program sponsored by the National Trust for Historic Preservation. During the mid-1980s the Texas Department of Corrections built the minimum-security Wallace Pack prison just outside of town. Though many in Navasota had opposed the prison, the facility produced hundreds of new jobs. Many businesses suffered during the late 1980s, when the oil industry collapsed; one employer alone laid off more than 650 workers. Though the new jobs brought by the prison helped to offset some of the worst effects of the economic downturn, city officials again became concerned that young people would
have to move elsewhere for employment. In 1990 the Census counted 6,296 people in Navasota. The population grew to 6,789 in 2000.

**Historical Analysis**

The City of Navasota has over 100 historic sites that are an asset to the image of the city as shown in the maps below. The historical sites start and cluster around downtown (Map 1-1). The Navasota Commercial Historic District (Map 1-2) is located within the city core which is indicated below. The district is listed in the National Register of Historic Places. This district is roughly bounded by Holland, 9th, La Salle, and Brule Streets.

Map 1-1: Historical Sites Distribution  
Map 1-2: Navasota Commercial Historic District

There are 75 contributing buildings in this district, a majority are limestone and brick, which date from the third quarter of the 19th to the early 20th centuries and are vernacular in character. Some of the buildings reflect a late Victorian influence dating from the early 20th Century and others reflect elements of the Renaissance Revival Style from the late 19th Century. Outside of this district there are also two other structures in the city that are listed in the National Register of Historic Places.

**Sources**

John Leffler, “NAVASOTA, TX,” Handbook of Texas Online, Published by the Texas State Historical Association.

Texas Historical Commission
Chapter 2 Demographics

Population Update

Population analysis

From Table 2-1, it is evident that Navasota saw a lot of growth between 1960 and 2010, growing from a population of 4,937 in 1960 to 7,049 in 2010. The average change per year is 422. Fluctuating historic growth trends show Navasota’s rapid growth between 1970 and 1980, followed by periods of steady slower growth. These trends were similar to those seen in Texas.

Table 2-1: Population Analysis, Navasota, TX: 1960-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Average Change Per Year</th>
<th>Percent Change Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>4,937</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>5,111</td>
<td>174</td>
<td>3.40%</td>
</tr>
<tr>
<td>1980</td>
<td>5,971</td>
<td>860</td>
<td>14.40%</td>
</tr>
<tr>
<td>1990</td>
<td>6,296</td>
<td>325</td>
<td>5.16%</td>
</tr>
<tr>
<td>2000</td>
<td>6,789</td>
<td>493</td>
<td>7.26%</td>
</tr>
<tr>
<td>2010</td>
<td>7,049</td>
<td>260</td>
<td>3.69%</td>
</tr>
<tr>
<td>Average</td>
<td>422</td>
<td></td>
<td>6.78%</td>
</tr>
</tbody>
</table>

Source: U.S. Census

The City of Navasota shows similar trends as Grimes County and Texas in terms of population growth by race. However, the composition is quite different. While the Hispanic population makes up the largest race in Navasota, Whites, Hispanics, and Blacks actually have almost equal shares of the total population in the city. This is quite different from the county and state. For Whites, Grimes County has a larger share (60.64 percent of the total population) than both Texas (45.33 percent) and Navasota (30 percent). By taking advantage of having a large and increasing Hispanic population, Navasota has great potential to develop more Hispanic retail businesses and restaurants.

Population growth projection

Navasota’s population is expected to grow steadily over the next 30 years. Much of this growth can be attributed to the projected increase in the Hispanic population during this time, as the Black population remains stable, and only small growth is seen in the population of other groups. The White population is projected to decrease rapidly. Figure 2-1 below demonstrates the three growth trends per decade starting in 1960 and ending in 2030.
Historical Trend

Both Navasota and Grimes County have seen many changes in growth trends over time. There was a rapid increase of population in 1970s, following a generally slow, but steady population increase over the last thirty years. Navasota accounted for 43.97 percent of Grim es County’s population in 1980, but the city’s percentage of county population has continued to decrease since then. The historical populations of the city, as well as Grimes County and the state, are shown in Table 2-2 below.

Table 2-2: Historical Population Trends—Navasota, Grimes County & Texas, 1960-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Navasota City</th>
<th>Percentage</th>
<th>Grimes County</th>
<th>Percentage</th>
<th>Texas</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>4,937</td>
<td></td>
<td>12,709</td>
<td></td>
<td>9579677</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>5,111</td>
<td>3.40%</td>
<td>11,855</td>
<td>-7.20%</td>
<td>11198655</td>
<td>14.46%</td>
</tr>
<tr>
<td>1980</td>
<td>5,971</td>
<td>14.40%</td>
<td>13,580</td>
<td>12.70%</td>
<td>14225512</td>
<td>21.28%</td>
</tr>
<tr>
<td>1990</td>
<td>6,296</td>
<td>5.16%</td>
<td>18,828</td>
<td>27.87%</td>
<td>16986510</td>
<td>16.25%</td>
</tr>
<tr>
<td>2000</td>
<td>6,789</td>
<td>7.26%</td>
<td>23,552</td>
<td>20.06%</td>
<td>20851820</td>
<td>18.54%</td>
</tr>
<tr>
<td>2010</td>
<td>7,049</td>
<td>3.69%</td>
<td>26,604</td>
<td>11.47%</td>
<td>25145561</td>
<td>17.08%</td>
</tr>
</tbody>
</table>

Source: U.S. Census

“The significantly increased production of crude oil and natural gas during the early 1980s may explain the rapid growth of population in Grimes County at that era. During the same period lignite coal was also heavily mined in the area. Manufacturing increased between 1967 and 1982 and most of the plants were located in the City of Navasota. Navasota began to exercise a dominant influence over the economic, social, and political life of Grimes County, and consequently, the population grew from 4,937 in 1960 to
5,971 by 1980. The revitalization in downtown area spurred other economic opportunities within Navasota such as the development of the Wallace Pack minimum-security prison outside of the city limits in the early 1980s. The new facility brought new economic diversity to the area and helped ease jobs lost from the collapse of the oil industry in the late 1980’s. In 1990, Navasota’s population was 6,296, and the city had established itself as an agribusiness center for the surrounding area.” (Navasota Comprehensive Plan, 2004)

Current trend

According to the most recent U.S Census data (2010), Navasota has a population of 7,049, of which 2,704 are Hispanic, 2,141 are Black, 2,115 are White, and 89 are defined as Other. The U.S. Census defines Other by Asian alone, American Indian alone, an unnamed non-Hispanic race alone, and two or more non-Hispanic races. Out of the city’s population, the male-to-female ratio was skewed towards females at 53.86 percent compared to 46.14 percent. Much of this is due to the large number of women age 70 and up; however, the female population exceeds the male population in almost every age group.

Navasota shows similar trends to Grimes County and Texas in terms of population growth by race. However, the composition is quite different. While the Hispanic population makes up the largest race in Navasota, the White, Hispanic, and Black populations actually have almost identical shares of total population in the city. It is quite different at the county and state levels. Regarding the White population, Grimes County has a larger share (60.64 percent of the total population) than both Texas (45.33 percent) and Navasota (30 percent).

Figure 2-2: Navasota Racial Distribution

Source: U.S. Census
There is a high concentration of Navasota’s White population residing in the eastern census blocks of the city. The community’s Hispanic and Black populations are more dispersed throughout the city, but both have a large presence in the southern Census blocks of the city. Maps representing these findings can be found in the Appendix.

The median age of citizens in Navasota is 32.9 years old, which is close to the state level (33.6 years). As Figure 2-3 (below) demonstrates, the vast majority of the population is 60 years old and younger, which is nearly equally distributed between all working age groups (20-60) in 2010. There is a large percentage of the population that is school age (0-19) and this percentage is equally distributed amongst males and females. With a heavy concentration of school age population, Navasota may have enough labor force to attract business in the future. Those over 50-years-old make up 26.33 percent of the population. Above the age of 60, the population dramatically decreases, especially for males compared to females.

![Figure 2-3: Population by Age & Sex: 2010](image)

Source: U.S. Census

### Educational attainment

Educational attainment for both Navasota and Grimes County gave numbers that could be considered shocking. The number of students enrolled in schools between 2000 and 2010 dropped by nearly 25 percent over all categories, whether it was nursery school or in college. Navasota’s school age population is served by the Navasota Independent School District. This school district of approximately 3,000 students contributes to the 61.7 percent of Navasota’s population 25 years and older that have at least a high school diploma. This percentage is more than 10 percent lower than Grimes County (77.16 percent) and Texas (81.07 percent). Meanwhile, almost 40 percent of the Navasota’s population aged 25 years and
older has lower than a high school education. Since the population is growing, it would seem logical that there would be more students enrolled in school. More work is needed to determine what caused the drop in school enrollment. The city’s educational attainment for the population 25 years and older can be seen in Table 2-3.

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Navasota Male</th>
<th>Navasota Female</th>
<th>Grimes County Male</th>
<th>Grimes County Female</th>
<th>Texas Male</th>
<th>Texas Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 9th grade</td>
<td>16.3</td>
<td>17.6</td>
<td>8.9</td>
<td>8.5</td>
<td>9.7</td>
<td>9.3</td>
</tr>
<tr>
<td>9th to 12th grade, no diploma</td>
<td>22.2</td>
<td>20.5</td>
<td>15.3</td>
<td>12.6</td>
<td>9.7</td>
<td>9.1</td>
</tr>
<tr>
<td>High school graduate (or equivalency)</td>
<td>31.8</td>
<td>36.2</td>
<td>40.5</td>
<td>41.4</td>
<td>25.4</td>
<td>25.6</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>18.1</td>
<td>10.7</td>
<td>17.7</td>
<td>19.3</td>
<td>22.1</td>
<td>23.1</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>4.3</td>
<td>1.3</td>
<td>7.2</td>
<td>5.9</td>
<td>6.2</td>
<td>6.9</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>4.9</td>
<td>9.2</td>
<td>7.3</td>
<td>8.1</td>
<td>17.7</td>
<td>17.8</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>2.3</td>
<td>4.5</td>
<td>3.1</td>
<td>4.1</td>
<td>9.2</td>
<td>8.2</td>
</tr>
</tbody>
</table>

Source: 2006-2010 American Community Survey

Population Change based on Migration

In 2010, Navasota’s population represented 26.5 percent of Grimes County’s population. The population forecast completed by the Texas State Demographer shows that from 2010 to 2015, the county is expected to grow 4.6 percent in five years, which would gradually decline to 0.18 percent from 2025 to 2030.

<table>
<thead>
<tr>
<th>Data</th>
<th>Population</th>
<th>Percentage Change</th>
<th>Total Population Change</th>
<th>Births</th>
<th>Deaths</th>
<th>International Immigration</th>
<th>Net Domestic Migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>24,219</td>
<td>2.8</td>
<td>667</td>
<td>411</td>
<td>318</td>
<td>44</td>
<td>496</td>
</tr>
<tr>
<td>2002</td>
<td>24,736</td>
<td>2.1</td>
<td>517</td>
<td>335</td>
<td>272</td>
<td>36</td>
<td>379</td>
</tr>
<tr>
<td>2003</td>
<td>25,016</td>
<td>1.1</td>
<td>280</td>
<td>327</td>
<td>237</td>
<td>29</td>
<td>128</td>
</tr>
<tr>
<td>2004</td>
<td>25,209</td>
<td>0.8</td>
<td>193</td>
<td>331</td>
<td>243</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>2005</td>
<td>25,350</td>
<td>0.6</td>
<td>141</td>
<td>328</td>
<td>225</td>
<td>33</td>
<td>-28</td>
</tr>
<tr>
<td>2006</td>
<td>25,639</td>
<td>1.1</td>
<td>289</td>
<td>333</td>
<td>212</td>
<td>33</td>
<td>115</td>
</tr>
<tr>
<td>2007</td>
<td>26,046</td>
<td>1.6</td>
<td>407</td>
<td>365</td>
<td>183</td>
<td>28</td>
<td>221</td>
</tr>
<tr>
<td>2008</td>
<td>26,273</td>
<td>0.9</td>
<td>227</td>
<td>345</td>
<td>221</td>
<td>29</td>
<td>43</td>
</tr>
<tr>
<td>2009</td>
<td>26,422</td>
<td>0.6</td>
<td>149</td>
<td>356</td>
<td>245</td>
<td>28</td>
<td>-72</td>
</tr>
<tr>
<td>2010</td>
<td>26,604</td>
<td>0.7</td>
<td>182</td>
<td>70</td>
<td>47</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>2011</td>
<td>26,887</td>
<td>1.1</td>
<td>283</td>
<td>291</td>
<td>195</td>
<td>47</td>
<td>97</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of the Census, Real Estate Center at Texas A&M University

Note: Decade years represent April 1, Census data, not the mid-year estimates.
The majority of the population growth in Grimes County has been the result of the natural growth, international immigration and domestic migration. Domestic migration is the difference between domestic in-migration to an area and domestic out-migration from the same area during a specified time period. Since 2008, the county has experienced slow and even negative growth in terms of domestic migration. This may be the consequence of declining economic growth or new job opportunities around the area, which is also reflected by the increasing unemployment rate during that time. International immigration has continued declining from 2000 to 2010 but increased in 2011.

Population growth projection

Navasota’s population is expected to grow rapidly over the next thirty years. According to the U.S. Census, the overall population of Navasota grew about 7.26 percent from 1990 to 2000 and 3.69 percent from 2000 to 2010. Projections show an even greater increase from 2010 to 2030. By multiplying average household size between 1990 and 2010 with the number of housing units in 2010 and the average growth rates between 1990 and 2010, Navasota’s population has been forecasted for the next three decades. An alternate, medium growth scenario is based on the population growth trend from 1960 to 2010. Finally, a third growth scenario uses data from the U.S. Census Bureau, along with the Texas State Demographer’s Ratio-Share method for Texas and Grimes County, to show the future population.

Table 2-5: Projected Population Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>High Growth</th>
<th>Medium Growth</th>
<th>Low Growth</th>
<th>Known Population</th>
<th>Projected Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>4,937</td>
<td>4,937</td>
<td>4,937</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>5,111</td>
<td>5,111</td>
<td>5,111</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>5,971</td>
<td>5,971</td>
<td>5,971</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>6,296</td>
<td>6,296</td>
<td>6,296</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>6,789</td>
<td>6,789</td>
<td>6,789</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>7,049</td>
<td>7,049</td>
<td>7,049</td>
<td>Known Population</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>7,510</td>
<td>7,305</td>
<td>7,338</td>
<td>Projected Population</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>8,002</td>
<td>7,570</td>
<td>7,576</td>
<td>Projected Population</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>8,525</td>
<td>7,845</td>
<td>7,696</td>
<td>Projected Population</td>
<td></td>
</tr>
<tr>
<td>2030</td>
<td>9,083</td>
<td>8,130</td>
<td>7,710</td>
<td>Projected Population</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Census, Texas State Demographer

Using this information, Navasota’s estimated population in 2030 ranges from 7,710 to 9,083. The growth rates reinforce the need for proper planning of future economic, housing, and community development. Figure 2-4 below demonstrates the growth per decade starting in 1960 on through 2030.
Racial growth rates and fluctuations in Navasota are also areas to be considered while planning for the future. As seen in the chart below, the Hispanic population within Navasota has been growing since 1990, and it will continue to do so for the next three decades. By 2030, the Hispanic population will account for most of the population within the city. The Black population in Navasota will remain nearly the same while the White population will decrease proportionately. These racial growth rates are calculated based on the linear growth trend. It is important to note that the Hispanic population was not calculated prior to 1990 due to unavailability of data.
Map 2: At Navasota Population Density by Block

Navasota Block Total Population (2010)
Navasota Block
Black Population
(2010)

Map 2-A2: Navasota Black Population Concentration: 2010
Navasota Block

Navasota Blocks
White Population
- 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 228

Navasota City Limit

Map 2-A4: Navasota White Population Concentration: 2010
Chapter 3 Economy

Introduction

Before a community can intelligently develop strategies for economic development, it should understand the nature of the local economy and the area’s strengths and weaknesses as a location for economic activity. Analysis, therefore, is an essential element of the strategic planning process. It provides a factual basis for economic development goal setting and strategy development.

This economic analysis will examine economic performance and condition in terms of five indicators: employment, unemployment, income, earnings, and tax.

The year 1990 or 2000 was set as the base year, depending on the data released by the Bureau of Economic Analysis, and the year 2010 as launch year. Future target year projections and the economic development plan will be based on analysis of the base year and launch year.

In order to identify what is special about the local economy, Texas was used as the comparison area. Because of data limitation at a city scale, county level data was used to represent the city.

The analysis addressed such critical questions as the following:

- What is the current condition of the local economy?
- Compared to the state, how has the local economy been performing? Has economic performance strengthened or slackened over time?
- What is the underlying structure of the local economy? Which industries account for the area’s economic performance and condition?
- Which local factors or resources appear to be in the strongest competitive position? Which is the weakest?
- What local factors or resources appear to be supporting industry competitive advantage? What factors may be inhibiting it?
- How are larger trends affecting the area’s locational assets or liabilities?

The information resulting from this type of analysis can be used to identify steps that a community might take to maximize strengths or minimize weaknesses in order to enhance prospects for economic growth.
The purpose of this analysis is not to reveal the ultimate “fix” for the local economy, but to support rational and informed discussion about economic problems and possible solutions in order to reach consensus on preferred policy options.¹

**General Employment Conditions**

<table>
<thead>
<tr>
<th></th>
<th>Grimes County</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total growth rate</strong></td>
<td>47.9%</td>
<td>54.6%</td>
</tr>
<tr>
<td><strong>Compound annual growth rate</strong></td>
<td>1.98%</td>
<td>2.20%</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis

Employment indicates local economy’s ability to retain and create jobs. Over the entire 1990-2010 period, Grimes County had seen rapid employment growth; the growth rate was very close to the state overall employment growth rate which was much higher than for Grimes County. This indicates that the county’s economy had been growing very fast and is very dynamic.

The graphics below show this time period divided into two phases, with the period around 2008 as a watershed. From 1990 to 2008, Texas as a whole had seen continuous employment growth, while Grimes County had experienced a considerable employment downturn from 1998 to 2002. Employment growth stagnated since global financial crisis, but neither Grimes nor Texas as a whole was affected much in terms of employment, no considerable employment decline happened since the crisis.

**Figure 3-1: 1990-2010 Total Employment Summary for Grimes Texas**

![Graph showing employment growth from 1990 to 2010 for Grimes and Texas]
Local Basic and Non-Basic Industry Analysis

The location quotient is a ratio that compares the percentage of employment locally to the percentage of employment in that industry in a reference (state or US) economy. It is calculated as follows:

$$LQ_i = \frac{e_i}{e}/\left(\frac{E_i}{E}\right)$$

- Where: $e_i$ = local employment in industry $i$
- $e$ = total local employment
- $E_i$ = state employment in industry $i$
- $E$ = state total employment

Location quotient (LQ) method divides industry sectors into basics and non-basics. Basic industries in a community are those industries produce goods and services more than local consumption and export excess production to bring income into the local economy; non-basic industries produce goods and services all for local consumption or even cannot meet local demand thus need to import such goods and services. Local industries with an LQ greater than 1.0 indicate a greater production of goods and services than can be consumed locally, making the excess a production.
When an industry has an LQ greater than 1.25, it can be regarded as potential exporter. Local industry location quotients from 2001 to 2010 are calculated in the following table:

Table 3-2: 2001-2010 Local Industry Location Quotients

<table>
<thead>
<tr>
<th>Grimes County Industry Location Quotient</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm employment</td>
<td>7.78</td>
<td>8.06</td>
<td>8.11</td>
<td>8.25</td>
<td>8.28</td>
<td>8.44</td>
<td>8.34</td>
<td>8.13</td>
<td>7.99</td>
<td>8.03</td>
</tr>
<tr>
<td>Nonfarm employment</td>
<td>0.83</td>
<td>0.84</td>
<td>0.85</td>
<td>0.85</td>
<td>0.86</td>
<td>0.86</td>
<td>0.87</td>
<td>0.87</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td>Private nonfarm employment</td>
<td>0.75</td>
<td>0.75</td>
<td>0.76</td>
<td>0.77</td>
<td>0.77</td>
<td>0.79</td>
<td>0.79</td>
<td>0.81</td>
<td>0.81</td>
<td>0.81</td>
</tr>
<tr>
<td>Agriculture, forestry, fishing and hunting</td>
<td>(D)</td>
<td>4.28</td>
<td>3.49</td>
<td>2.83</td>
<td>2.61</td>
<td>2.49</td>
<td>2.42</td>
<td>4.98</td>
<td>5.19</td>
<td>5.21</td>
</tr>
<tr>
<td>Mining, quarrying, and oil and gas extraction</td>
<td>0.71</td>
<td>0.75</td>
<td>0.74</td>
<td>0.76</td>
<td>0.25</td>
<td>0.27</td>
<td>0.29</td>
<td>0.32</td>
<td>0.39</td>
<td>0.47</td>
</tr>
<tr>
<td>Utilities</td>
<td>2.65</td>
<td>4.28</td>
<td>5.11</td>
<td>5.33</td>
<td>5.53</td>
<td>5.42</td>
<td>5.08</td>
<td>5.12</td>
<td>5.33</td>
<td>5.21</td>
</tr>
<tr>
<td>Construction</td>
<td>0.96</td>
<td>0.98</td>
<td>1.09</td>
<td>1.19</td>
<td>1.18</td>
<td>1.19</td>
<td>1.17</td>
<td>1.12</td>
<td>1.04</td>
<td>1.03</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2.02</td>
<td>1.84</td>
<td>1.63</td>
<td>1.73</td>
<td>1.93</td>
<td>2.21</td>
<td>2.14</td>
<td>2.37</td>
<td>2.37</td>
<td>2.52</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.43</td>
<td>0.49</td>
<td>0.50</td>
<td>0.63</td>
<td>0.65</td>
<td>0.67</td>
<td>0.75</td>
<td>0.68</td>
<td>0.69</td>
<td>0.79</td>
</tr>
<tr>
<td>Retail trade</td>
<td>0.74</td>
<td>0.73</td>
<td>0.74</td>
<td>0.67</td>
<td>0.64</td>
<td>0.65</td>
<td>0.65</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>0.59</td>
<td>0.61</td>
<td>0.62</td>
<td>0.61</td>
<td>0.75</td>
<td>0.78</td>
<td>0.77</td>
<td>0.72</td>
<td>1.02</td>
<td>0.99</td>
</tr>
<tr>
<td>Information</td>
<td>(D)</td>
<td>0.23</td>
<td>0.23</td>
<td>0.26</td>
<td>0.32</td>
<td>0.32</td>
<td>0.20</td>
<td>0.25</td>
<td>0.22</td>
<td>0.23</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.41</td>
<td>0.46</td>
<td>0.44</td>
<td>0.46</td>
<td>0.50</td>
<td>0.50</td>
<td>0.53</td>
<td>0.48</td>
<td>0.47</td>
<td>0.47</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>0.58</td>
<td>0.57</td>
<td>0.71</td>
<td>0.70</td>
<td>0.61</td>
<td>0.61</td>
<td>0.75</td>
<td>0.92</td>
<td>0.83</td>
<td>0.80</td>
</tr>
<tr>
<td>Professional, scientific, and technical services</td>
<td>0.58</td>
<td>0.50</td>
<td>0.50</td>
<td>0.57</td>
<td>0.58</td>
<td>0.58</td>
<td>0.57</td>
<td>0.50</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>(D)</td>
<td>0.26</td>
<td>0.37</td>
<td>0.34</td>
<td>0.40</td>
<td>0.43</td>
<td>0.13</td>
<td>0.04</td>
<td>0.00</td>
<td>0.17</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>(D)</td>
<td>0.10</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.12</td>
<td>0.18</td>
<td>0.19</td>
<td>0.23</td>
<td>0.27</td>
<td>0.30</td>
<td>0.30</td>
<td>0.24</td>
<td>0.24</td>
<td>0.24</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.56</td>
<td>0.56</td>
<td>0.57</td>
<td>0.53</td>
<td>0.45</td>
<td>0.42</td>
<td>0.47</td>
<td>0.48</td>
<td>0.46</td>
<td>0.46</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.99</td>
<td>0.87</td>
<td>0.93</td>
<td>0.85</td>
<td>0.90</td>
<td>0.87</td>
<td>0.93</td>
<td>0.87</td>
<td>0.82</td>
<td>0.79</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.40</td>
<td>0.41</td>
<td>0.57</td>
<td>0.52</td>
<td>0.50</td>
<td>0.47</td>
<td>0.44</td>
<td>0.46</td>
<td>0.55</td>
<td>0.50</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>0.71</td>
<td>0.78</td>
<td>0.80</td>
<td>0.84</td>
<td>0.83</td>
<td>0.82</td>
<td>0.81</td>
<td>0.79</td>
<td>0.80</td>
<td>0.77</td>
</tr>
<tr>
<td>Government and government enterprises</td>
<td>1.28</td>
<td>1.33</td>
<td>1.31</td>
<td>1.31</td>
<td>1.36</td>
<td>1.33</td>
<td>1.30</td>
<td>1.24</td>
<td>1.23</td>
<td>1.23</td>
</tr>
</tbody>
</table>

Footnotes: Industries are classified by North American Industry Classification System (NAICS). (D) Unable to calculate due to limited data. Highlighted figure was calculated based on data from OnTheMap.

According to the principles addressed above, the table shows that, on the whole, Grimes County can be regarded as a farm-based economy. For the past three years the percentage of farm employment locally has been much higher than the percentage in Texas as a whole, indicating that they are definitely local basic industries.

In nonfarm employment section, other basic industries are “Utilities,” “Manufacturing,” “Construction,” and “Government and government enterprises.” Special statistics worth noting include:
• Despite Navasota being marketed as the Blues Capital of Texas the table shows that the LQ of this industry (arts, entertainment, and recreation) has been declining in recent years and has remained a local non-basic industry; therefore, a future cultural plan needs to determine how to strengthen local blues music character to attract tourism to Navasota.

• The utilities industry LQ has been continuously increasing from 2001 to 2010, even after the 2008 global financial crisis. This industry is an asset to the local economy and needs to be addressed in the future economic development plan to keep this strength so that it will remain a local income generator. The same is true for the manufacturing industry.

• The construction industry has slightly exceeded the threshold of basic industry since 2003 and started to decline since 2008, probably because of the downturn of the real estate market. The transportation and warehousing industry has grown remarkably during this period as well, which is attributable to the expansion of Navasota’s airport in recent years; it could be a potential basic industry.

Conversely, when the LQ is lower than 0.75, local demand for a specific product is not being met within a trade area, and consumers must go elsewhere to meet their needs, creating what is called business leakage. These industries include:

• Mining, quarrying, and oil and gas extraction
• Retail trade
• Information
• Finance and insurance
• Professional, scientific, and technical services
• Management of companies and enterprises
• Administrative and waste management services
• Educational services
• Health care and social assistance
• Accommodation and food services

Except for “mining, quarrying, and oil and gas extraction”, which is a resource based industry, the city needs to develop the more leakage industries. Solutions may include, but are not limited to: marketing these industries to the public for potential local entrepreneurship, providing economic incentive for creating these industries, and communicating with franchises to set-up a business in the city.
Shift-Share Analysis for Local Industries

The shift-share analysis partitions local employment into three components:

State share (SS) reflects trends in the larger economy of which the area is a part; it measures how many jobs would have been created if the local industry had grown at the same rate as the whole state’s economy. It is calculated as follows:

\[ SS_i = e_i^{2001} \left(\frac{E_i^{2010}}{E_i^{2001}} - 1\right) \]

Industrial Mix (IM) reflects industry-specific factors; it measures the influence of difference between the growth rate for the industry across the state and the overall state growth rate on local industry. It is calculated as follows:

\[ IM_i = e_i^{2001} \left(\frac{E_i^{2010}}{E_i^{2001}} - \frac{E^{2010}}{E^{2001}}\right) \]

Local factors (LF) reflects local influences on industry performance; it measures how many jobs would have been gained/lost if local employment in an industry had changed at the same rate as employment in the industry statewide. It is calculated as follows:

\[ LF_i = e_i^{2001} \left(\frac{e_i^{2010}}{e_i^{2001}} - \frac{E_i^{2010}}{E_i^{2001}}\right) \]

- Where: \( e_i \) = local employment in industry i
- \( E_i \) = state employment in industry i
- \( E \) = state total employment

SS plus IM plus LF equals the change in local employment. Calculating percentages for each of these components helps you to understand what proportion of jobs is attributable to each component. Local employment changes from 2002 to 2010 shift-share break down are calculated in the following table:

Table 3-3: Local Employment Changes from 2002-2010 Shift-share Break Down

<table>
<thead>
<tr>
<th>Industry</th>
<th>Grimes County (e)</th>
<th>Texas (E)</th>
<th>Shift Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2010</td>
<td>2002</td>
</tr>
<tr>
<td>Total employment</td>
<td>10221</td>
<td>12219</td>
<td>12263136</td>
</tr>
<tr>
<td>Farm employment</td>
<td>1844</td>
<td>1811</td>
<td>274417</td>
</tr>
<tr>
<td>Nonfarm employment</td>
<td>8377</td>
<td>10408</td>
<td>11988719</td>
</tr>
<tr>
<td>Private nonfarm employment</td>
<td>6406</td>
<td>8292</td>
<td>10211671</td>
</tr>
<tr>
<td>Agriculture, forestry, fishing and hunting</td>
<td>133</td>
<td>243</td>
<td>56378</td>
</tr>
<tr>
<td>Mining, quarrying, and oil and gas</td>
<td>136</td>
<td>148</td>
<td>217062</td>
</tr>
</tbody>
</table>
The table shows that the percentage of farm employment locally is much higher than the percentage in state of Texas as a whole, but both local and state farm employment has declined from 2001 to 2010. The state farm industry growth rate is lagging behind the growth rate for the state’s entire economy, which suggests that farming in Texas will not be a promising industry in the future.

On the whole, nonfarm employment growth is attributable to the state’s economy boom. This is because the state share accounted for most of the local nonfarm employment growth in this ten-year period. The overall local nonfarm industries have performed better than the state since the local factors component is positive.

According to the data released in the table, in all nonfarm industries, the local weak industries are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>2001</th>
<th>2010</th>
<th>2001-10</th>
<th>2010-01</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction</td>
<td>21</td>
<td>387</td>
<td>284</td>
<td>437</td>
<td>48</td>
</tr>
<tr>
<td>Utilities</td>
<td>191</td>
<td>239</td>
<td>53515</td>
<td>53626</td>
<td>-31</td>
</tr>
<tr>
<td>Construction</td>
<td>691</td>
<td>812</td>
<td>842230</td>
<td>922121</td>
<td>114</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1520</td>
<td>1886</td>
<td>988666</td>
<td>874993</td>
<td>251</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>204</td>
<td>370</td>
<td>497340</td>
<td>548926</td>
<td>34</td>
</tr>
<tr>
<td>Retail trade</td>
<td>832</td>
<td>861</td>
<td>1375579</td>
<td>1419381</td>
<td>-111</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>226</td>
<td>433</td>
<td>447036</td>
<td>508828</td>
<td>37</td>
</tr>
<tr>
<td>Information</td>
<td>54</td>
<td>46</td>
<td>277393</td>
<td>234258</td>
<td>9</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>228</td>
<td>349</td>
<td>592721</td>
<td>875365</td>
<td>38</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>201</td>
<td>387</td>
<td>420295</td>
<td>565738</td>
<td>33</td>
</tr>
<tr>
<td>Professional, scientific, and technical services</td>
<td>302</td>
<td>397</td>
<td>718125</td>
<td>913179</td>
<td>50</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>12</td>
<td>17</td>
<td>55661</td>
<td>115289</td>
<td>2</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>61</td>
<td>62</td>
<td>750085</td>
<td>934722</td>
<td>10</td>
</tr>
<tr>
<td>Educational services</td>
<td>24</td>
<td>44</td>
<td>163111</td>
<td>217711</td>
<td>4</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>488</td>
<td>542</td>
<td>1039305</td>
<td>1377681</td>
<td>80</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>133</td>
<td>157</td>
<td>184116</td>
<td>232323</td>
<td>22</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>275</td>
<td>423</td>
<td>810627</td>
<td>986366</td>
<td>45</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>469</td>
<td>533</td>
<td>722426</td>
<td>804343</td>
<td>77</td>
</tr>
<tr>
<td>Government and government enterprises</td>
<td>1971</td>
<td>2116</td>
<td>1777048</td>
<td>2013197</td>
<td>325</td>
</tr>
</tbody>
</table>

Footnotes: Industries are classified by North American Industry Classification System (NAICS).

Source: U.S. Bureau of Economic Analysis, highlighted data was retrieved from OnTheMap.
Among them, “mining, quarrying, and oil and gas extraction,” “professional, scientific, and technical services,” “health care and social assistance,” and “arts, entertainment, and recreation” have positive IM which indicates that they are strong statewide industries. “Utilities,” “construction,” “manufacturing,” “wholesale trade,” “transportation and warehousing,” and “other services, except public administration” industry have negative IM but positive LF, which indicates that they are weak statewide industries but are faster at the local level. These industries could remain or become local income generators in the future. “Government and government enterprises” is a special case industry compared to the others. While it is a local income generator with a high LQ, this industry is weak at the state and local levels. The reason is because most of its employment is through agencies in the federal government or the U.S. military.

The most promising local industry is in utilities, even though Texas` utilities industry is lagging behind the growth of other industries. Because it has been growing much faster than the state, the reason of this outstanding growth will be analyzed when evaluating local major employers.

Local Major Employers

The City of Navasota includes 521 employers, of which 106 establishments employed over 10 employees, including 20 establishments employing over 50 employees and 7 establishments with over 100 employees. There are 415 establishments that employed fewer than 10 workers.

Table 3-4: Local Top 10 Employers

<table>
<thead>
<tr>
<th>Employers</th>
<th>Employee Size</th>
<th>Primary NAICS Description</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criminal Justice Department</td>
<td>350</td>
<td>Legal Counsel &amp; Prosecution</td>
<td>Government and government enterprises</td>
</tr>
<tr>
<td>Luther Unit</td>
<td>350</td>
<td>Legislative Bodies</td>
<td>Government and government enterprises</td>
</tr>
<tr>
<td>Navasota Independent School District</td>
<td>183</td>
<td>Elementary &amp; Secondary Schools</td>
<td>Educational services</td>
</tr>
<tr>
<td>John C WEBB Elementary School</td>
<td>150</td>
<td>Elementary &amp; Secondary Schools</td>
<td>Educational services</td>
</tr>
<tr>
<td>Ergo Genesis LLC</td>
<td>120</td>
<td>Wood Office Furniture Manufacturing</td>
<td>Manufacturing</td>
</tr>
</tbody>
</table>
Footnotes: Industries are classified by North American Industry Classification System (NAICS).
Source: “Jin_Navasota_Economy”

It is notable that the educational service industry and health care and social assistance industry are local non-basic industries even though they are major local employment holding industries. Of the ten largest local major employers, six of them belong to these two industries. The future economic development plan will need to address efforts on these industries to maintain jobs.

Since four out of ten local major employers are in the educational services industry, the city and the school district have been thinking of how to keep those educational service employees in the local community instead of commuting (most of them do not live in the community). Increasing housing is a possible way to do so, meanwhile providing market need for real estate and rental and leasing industry. Also, because the educational services industry is a local non-basic industry, creating technical schools based on current educational facilities could provide future opportunities to create more jobs and provide training for a local labor force.

Local/Regional Unemployment Analysis

Table 3-5: Annual Employment Rate

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grimes County</td>
<td>5.3</td>
<td>4.6</td>
<td>6.0</td>
<td>5.2</td>
<td>4.7</td>
<td>5.5</td>
<td>6.5</td>
<td>5.1</td>
<td>4.9</td>
<td>7.2</td>
<td>5.4</td>
</tr>
<tr>
<td>Texas</td>
<td>6.4</td>
<td>7.0</td>
<td>7.6</td>
<td>7.2</td>
<td>6.6</td>
<td>6.1</td>
<td>5.8</td>
<td>5.4</td>
<td>4.9</td>
<td>4.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Grimes County</td>
<td>5.6</td>
<td>7.7</td>
<td>8.2</td>
<td>7.0</td>
<td>6.1</td>
<td>5.4</td>
<td>4.7</td>
<td>5.2</td>
<td>8.5</td>
<td>8.8</td>
<td>7.9</td>
</tr>
<tr>
<td>Texas</td>
<td>5.0</td>
<td>6.4</td>
<td>6.7</td>
<td>6.0</td>
<td>5.4</td>
<td>4.9</td>
<td>4.4</td>
<td>4.9</td>
<td>7.5</td>
<td>8.2</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Labor Statistics

Unemployment indicates local economy’s ability to use human resources efficiently. From 1990 to 2000, Grimes County’s annual unemployment rate had been very volatile, with five more swings than the state,
suggesting an unstable economy. From 2000 to 2011, Grimes County’s annual unemployment rate has changed to follow the state unemployment trend.

The most recent economic downturn and global financial crisis resulted in an increasing unemployment rate; it is a local weakness that Grimes County’s unemployment rate was higher than the state every year during this period.

2010 was a turning point for both the state and local economy, as the economy started to recover and unemployment started to decline. Also, for the first time in this period, the local employment rate was on the same level as the state, which indicates that from 2010 to 2011, Grimes County has created jobs proportionally more than the state as a whole. It is an opportunity that the local community is recovering faster than the state.

Figure 3-3: Grimes County Unemployment Rate from 1990-2010

![Grimes County Unemployment Rate from 1990-2010](image)

Figure 3-4: Texas Unemployment Rate from 1990-2010

![Texas Unemployment Rate from 1990-2010](image)
Local/Regional Future Labor Force Analysis

This labor force analysis addresses the 25-44 age cohort, particularly, since this group contains the greatest share of the labor force. Decreases over time in this group, especially when similar changes are not occurring statewide, can be an indication that people are moving out of an area they consider to be a poor labor market. The City of Navasota and the state population cohorts for ages 25-44 in 2000 and 2010 are listed in the following table:

Table 3-6: 25-44 Age Cohort Population for 2000 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navasota</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>Total</td>
<td>Age Cohort</td>
</tr>
<tr>
<td>City of</td>
<td>6,789</td>
<td>1,811</td>
</tr>
<tr>
<td>Navasota</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>20,851,820</td>
<td>6,384,321</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (2000/2010)

The table shows that the population of this age cohort in both the city and state has declined proportionally from 2000 to 2010. Navasota’s 25-44 age cohort percent was less than Texas average in both 2000 and 2010, and as to the absolute number, it actually declined while the state has seen absolute growth within the 10 years period. This is an indication that people are moving out of the city. In the future, such a poor labor market will be an obstacle to local economic development.

Income

Table 3-7: Local/Regional Median Household Income and Household Buying Power Analysis

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of</td>
<td>26,990</td>
<td>37,262</td>
</tr>
<tr>
<td>Navasota</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>39,927</td>
<td>49,646</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (2000/2010)

The table above shows that local median household income is far less than the state in both 2000 and 2010. From 2000 to 2010, it has grown 38.1 percent locally and 24.3 percent statewide; the local growth rate is much higher than the state.

In order to determine how the household buying power changed during the 10-year period, an adjustment for inflation was made to convert the money in 2010 to the money value in 2000. With the help of a calculator provided by the American Institute for Economic Research, the $37,262 local median
household income in 2010 is equal to $29,420.07 in 2000, roughly $2,500 higher than 2000 median household income. Therefore, local household buying power has significantly increased during the ten-year period. As for the state, the $49,646 median household income in 2010 is equal to $39,197.80 in 2000; it is actually lower than the median income in 2000, which means household buying power has decreased statewide from 2000 to 2010. This could be regarded as a local strength to draw people to back Navasota.

Table 3-8: Grimes County and Texas Total Personal Income Analysis

<table>
<thead>
<tr>
<th></th>
<th>Grimes County</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total growth rate</td>
<td>225.8%</td>
<td>223.8%</td>
</tr>
<tr>
<td>Compound annual growth rate</td>
<td>6.08%</td>
<td>6.05%</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis

Area income indicates revenues circulating within the economy from all sources. According to the most recent data released by the Bureau of Economic Analysis in 2010, Grimes County total personal income was $774,097,000 which represented an increase of $536,508,000 when compared to the 1990 total personal income. For statewide personal income, the total of $294,401,407,000 for the year 1990 and $953,253,880,000 for the year 2010 shows an increase of 658,852,473,000.

From 1990 to 2010, Grimes County’s personal income growth rate was higher than for the state, which is a local strength. Both Grimes County and Texas have seen continuous and rapid growth in personal income before 2008 financial crisis; even during the year the financial crisis broke out, Grimes County did not see personal income decline, while statewide personal income declined.

Figure 3-5: Grimes Texas Total Personal Income Analysis
Total personal income is a widely used measure of regional economic health while per capita income is generally used to compare the relative well-being of residents across areas (not accounting for differences in area cost of living). 3

According to the most recent data released by the Bureau of Economic Analysis for 2010, Grimes County’s per capita personal income was $29,050 which represented an increase of $16,452 when compared to the 1990 per capita personal income. Statewide per capita personal income increased $20,487, from $17,260 in 1990 to $37,747 in 2010.

From 1990 to 2010, the county and state per capita personal income growing trend has followed its total personal income growing trend; Grimes County’s per capita personal income growth rate was much higher than the state, but the absolute growth was much lower.
Figure 3-7: Grimes Texas Per Capita Personal Income

Figure 3-8: Texas Per Capita Personal Income

Source: U.S. Bureau of Economic Analysis
Earnings

Table 3-10: Grimes County and Texas Earnings by Place of Work Analysis

<table>
<thead>
<tr>
<th></th>
<th>Grimes County</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total growth rate</td>
<td>192.9%</td>
<td>216.7%</td>
</tr>
<tr>
<td>Compound annual growth rate</td>
<td>5.52%</td>
<td>5.93%</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis

Earnings by place of work indicate the quality of jobs in a local economy. According to the most recent data released by the Bureau of Economic Analysis for 2010, Grimes County’s earnings by place of work was $437,258,000 which represented an increase of $287,956,000 when compared to the 1990 earnings by place of work. For statewide earnings by place of work, the total of $232,624,698,000 for the year 1990 and $736,614,249,000 for the year 2010 shows an increase of $503,989,515,000.

From 1990 to 2010, Grimes County earnings by place of work growth rate were lower than the state, and its growth had been unstable after 2001, while the state as a whole had seen continuous growth until the 2008 financial crisis.

Figure 3-9: Grimes Texas Earnings by Place of Work

Source: U.S. Bureau of Economic Analysis
Net earnings by place of residence is an important component of total local personal income and the amount of wealth available for purchases of goods and services. In combination with employment data, it can also provide insight on local wage structure and the relative concentration of employment in high and low paying industries.3

According to the most recent data released by the Bureau of Economic Analysis for 2010, Grimes County net earnings by place of residence was $465,396,000 which represented an increase of $330,836,000 when compared to the 1990 net earnings by place of residence. For statewide net earnings by place of residence, the total of $209,161,567,000 for the year 1990 and $663,765,616,000 for the year 2010 shows an increase of $454,604,049,000.

From 1990 to 2010, unlike earnings by place of work, Grimes County’s net earnings by place of residence growth rate were higher than the state which demonstrated that local household buying power had grown faster than the state. Compared to another target area, Gonzales County, its growth had been more stable.
Figure 3-11: Grimes Texas Net Earnings by Place of Residence

Figure 3-12: Texas Net Earnings by Place of Residence

Source: U.S. Bureau of Economic Analysis
<table>
<thead>
<tr>
<th>Employment by place of work (number of jobs)</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total employment</strong></td>
<td>10485</td>
<td>12211172</td>
<td>102221</td>
<td>10349</td>
</tr>
<tr>
<td><strong>Farm employment</strong></td>
<td>1976</td>
<td>295737</td>
<td>1844</td>
<td>274417</td>
</tr>
<tr>
<td><strong>Nonfarm employment</strong></td>
<td>8509</td>
<td>11915435</td>
<td>8377</td>
<td>11988719</td>
</tr>
<tr>
<td><strong>Private nonfarm employment</strong></td>
<td>6599</td>
<td>10180769</td>
<td>6406</td>
<td>10211671</td>
</tr>
<tr>
<td>Agriculture, forestry, fishing and hunting</td>
<td>(D)</td>
<td>51076</td>
<td>133</td>
<td>56378</td>
</tr>
<tr>
<td>Mining, quarrying, and oil and gas extraction</td>
<td>141</td>
<td>231204</td>
<td>136</td>
<td>217062</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td>120</td>
<td>52802</td>
<td>191</td>
<td>53515</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>698</td>
<td>849097</td>
<td>691</td>
<td>842230</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1847</td>
<td>1067074</td>
<td>1520</td>
<td>988666</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>189</td>
<td>51134</td>
<td>204</td>
<td>497340</td>
</tr>
<tr>
<td>Retail trade</td>
<td>866</td>
<td>1362006</td>
<td>832</td>
<td>1375579</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>230</td>
<td>455145</td>
<td>226</td>
<td>447036</td>
</tr>
<tr>
<td>Information</td>
<td>(D)</td>
<td>300123</td>
<td>54</td>
<td>27393</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>202</td>
<td>577127</td>
<td>228</td>
<td>592721</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>204</td>
<td>409155</td>
<td>201</td>
<td>420295</td>
</tr>
<tr>
<td>Professional, scientific, and technical services</td>
<td>359</td>
<td>719728</td>
<td>302</td>
<td>718125</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>(D)</td>
<td>46468</td>
<td>12</td>
<td>55661</td>
</tr>
<tr>
<td>Administrative and waste mgmt. services</td>
<td>(D)</td>
<td>745256</td>
<td>61</td>
<td>750085</td>
</tr>
<tr>
<td>Educational services</td>
<td>16</td>
<td>150842</td>
<td>24</td>
<td>163111</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>479</td>
<td>993304</td>
<td>488</td>
<td>1039305</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>146</td>
<td>172506</td>
<td>133</td>
<td>184116</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>275</td>
<td>797762</td>
<td>275</td>
<td>810627</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>421</td>
<td>688960</td>
<td>469</td>
<td>722426</td>
</tr>
</tbody>
</table>
Tax Revenue Analysis

The economic base section of the comprehensive plan provides an inventory of population, income, employment, and tax policy characteristics of Navasota. To improve the city’s economic prosperity, this section should be used in conjunction with the associated document, the Navasota Economic Development Plan. The information was obtained from Federal, state, and local authorities, including the U.S. Census Bureau, Texas Workforce Commission, Texas State Comptroller’s Office and citizen interviews.

Taxable Sales

Taxable sales are often indicative of the health of local economies and communities. An analysis of the taxable sales generated by industry through a period of time provides an understanding of what the traditional strengths and weaknesses are within an economy. It is also important to understand the larger context of economic events that have occurred at the national and state level to interpret the performance and impact on industries at the local level.

According to the Texas State Office of the Comptroller, Navasota currently collects a 1.375 percent tax on all taxable sales within the city, which resulted in $1.3 million in revenue generated in the 2012 fiscal year. This is a standard tax rate and matches the rate that cities of similar sizes are using throughout the state.

Navasota also has a 4B Economic Development Corporation that collects a 0.125 percent tax on all taxable sales and generated $131,500 in revenue in 2012 between January and November. This is the only 4B EDC in Grimes County. The Texas State Office of the Comptroller specifies that this tax revenue can be used to pay "for land, buildings, equipment, facilities, targeted infrastructure and improvements for:

- professional and amateur sports and athletic facilities, tourism and entertainment facilities, convention facilities and public parks;
- related store, restaurant, concession, parking and transportation facilities;
- related street, water and sewer facilities; and
- affordable housing.

To promote and develop new and expanded business enterprises that create or retain primary jobs, a Type B EDC may fund:

- public safety facilities;
- recycling facilities;
- streets, roads, drainage and related improvements;
- demolition of existing structures;
- general municipally owned improvements; and
- Maintenance and operating costs associated with projects.
Type B EDCs also may seek voter approval to spend Type B sales tax funds for a water supply, water conservation program or to clean up contaminated property.” (Texas State Office of the Comptroller)

While the country as a whole experienced an economic downturn starting in late 2007 and continuing through mid-2009 (National Bureau of Economic Research, 2012), Navasota and the state of Texas in general were able to avoid the same recessional effects. As seen in Figure 3-13, Navasota experienced continual upward trending in the value of total taxable sales total through the last ten years. In 2008, during the heart of the U.S. recession, Navasota actually experienced a sharp increase in total taxable sales which corresponded to a boom within the wholesale trade industry. While the 2008 increase returned to historical values by 2009, Navasota has continued to experience continual growth within its taxable sales and averaged 2.99 percent growth per year between 2002 and 2011. The state of Texas experienced an average annual growth rate of 2.67 percent during the same period.

![Figure 3-13: Navasota Taxable Sales Trends for the Top 5 Industries](image)

The top five industries to generate taxable sales for Navasota over the past 10 years are Retail Trade, Accommodation/Food Services, Wholesale Trade, Real Estate/Rental and Leasing, and Manufacturing. These industries are defined by the North American Industry Classification System (NAICS) and can be found at the website [http://www.census.gov/cgi-bin/SSSD/NAICS/NAICSrch?chart=2012](http://www.census.gov/cgi-bin/SSSD/NAICS/NAICSrch?chart=2012).

Retail trade, the largest generator of taxable sales, experienced the lowest growth rate of the top five industries for Navasota. During the previous ten years Retail Trade taxable sales generation remained effectively level with a small overall growth rate of 2.79 percent. The remaining four industries all produce a significantly lower amount of taxable sales, but grew at a much faster rate between 2002 and 2011 than Retail Trade. Real Estate/Rental and Leasing experienced the largest rate of growth during the past ten years, expanding by over 1,200 percent. While that is an extraordinary growth rate, the success of the industry in Navasota must be tempered with the knowledge that between 2002 and 2011 Real Estate/Rental
and Lea
sing experienced an increase in yearly taxable sales generation of $6.5 million. By comparison, the Wholesale Trade industry experienced an increase of $8.4 million during the same period, but only saw a rate of growth of 742 percent because it was a stronger industry in 2002 than Real Estate/Rental and Leasing.

During the 2002 through 2011 timeframe, Navasota experienced a decline in the performance of five industries:

- Information
- Other services (except public administration)
- Professional, scientific, and technical services
- Finance and insurance

The Finance and insurance industry has not reported any taxable sales generated within Navasota since the 2008 Fiscal year.

Another perspective from which to look at Taxable Sales Revenue is through the diversification of Taxable Sales Industries. If a city has a diverse range of industries contributing to the taxable sales generated, it will be better prepared to weather an economic downturn in any one industry. Over the past ten years Navasota received over 60 percent of its sales tax revenue from Retail Trade. In total, seven industries contribute at least one percent of the taxable sales for the city. The top two industries, retail trade & accommodations and food Services account for 77 percent of the taxable sales while, wholesale trade, real estate and rental & leasing, and manufacturing account for 19 percent of taxable sales. Figure 3-14 illustrates the industrial diversity of Navasota as an averaged percentage that each industry has contributed to taxable sales generation from 2002 to 2011. Only the industries contributing one percent or more of taxable sales are displayed separately. There are four industries that are collected under the category “other industries” that individually contributed no more than 0.75 percent to the taxable sales generated.

Figure 3-14: Percentage of Sales Tax by Industry for the City of Navasota

Source: Texas Office of the Comptroller
Navasota's two strongest industries, retail trade & accommodation and food services, are partially reliant upon the disposable income levels of individuals for revenue generation. Within stable and growing economies these industries can experience significant growth and allow a city to increase its taxable sales, thereby leveraging the success of the economy into success for the city and its residents through upgrades to city services and infrastructure projects. However, both of these industries are likely to experience fluctuations similar to the overall economy, meaning that during periods of economic instability these industries typically decline. In industries such as wholesale trade, real estate and rentals & leases, and manufacturing, there exists a less direct reliance on disposable income. These industries have the ability to withstand minor fluctuations within the economy better than the two strongest industries. When combined in the proper ratios, these types of industries together can provide city with a stable taxable sales source which has the ability to grow with the economy.

**Local and Regional Comparisons**

In order to truly gauge the performance of Navasota's economy, it is necessary to compare its performance to that of similar cities (both is size and geographic location), the region, and the state. By comparing two similar sized cities in close geographical proximity, it is possible to see whether the cities have experienced similar economic fortunes or if one has fared better than another. For this exercise, Navasota will be compared to Hempstead, TX, which is a town of 5,770 persons (2010 U.S. Census Bureau) located 20 miles south of Navasota. Both cities are located relatively close to the Houston Metropolitan Area, but are still geographically remote from any major urban areas.

As can be seen in Figure 3-15, Hempstead's taxable sale base is significantly less diverse than Navasota, with 95 percent of its taxable sales coming from the retail trade and accommodations & food services industries. Figure 3-16 shows the simultaneous decline between the national economic recession and the retail trade industry in Hempstead. Due to the fact that this industry accounts for three quarters of all taxable sales generated, the amount of Hempstead's total taxable sales has a direct relationship with the performance of the retail trade industry.

![Figure 3-15: Percentage of Sales Tax by Industry for the City of Hempstead](image)

Source: Texas Office of the Comptroller
It is also useful to compare Navasota to Grimes County in general. As of the 2010 Census, Grimes County had a population of 26,604, with Navasota as its largest city. Figure 3-17 shows the total amount of taxable sales for Grimes County from 2002 through 2011 as well as the taxable sales for Navasota’s top five industries. In 2006, Grimes County experienced a sharp spike in retail trade followed by a precipitous decline in 2007. This impacted the total taxable sales of Grimes County, but one should note that the spike in wholesale trade that Navasota experienced in 2008 is mirrored in Grimes County and it helped arrest the decline of taxable sales generation in the county.

Source: Texas Office of the Comptroller

Figure 3-17: Grimes County Taxable Sales Trends for the Top 5 Industries (Adjusted to present day value)
In general, the state of Navasota’s economy in the regional context can be best judged by Figure 3-18, which shows how the growth of Navasota’s taxable sales outpaced both Grimes County and the nearby city of Hempstead.

Figure 3-18: 10-year Rate of Growth (Total Taxable Sales)

![Figure 3-18: 10-year Rate of Growth (Total Taxable Sales)](image)

Taxable Property

Property tax analysis provides another avenue for assessing the health of a community and ensures that a city is receiving the proper amount of revenue. Table 3-13 shows the property tax data for the years 2002 through 2011. During this period, no less than 95 percent of the annual property taxes have been collected. Because it is highly unlikely that any year would see a 100 percent collection rate of all taxes owed, a 5 percent delinquency rate is acceptable.

Table 3-13: City of Navasota Property Tax Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Certified Taxable</th>
<th>Tax Value</th>
<th>Tax Rate</th>
<th>Uncollected Balance As of September 30, 2012</th>
<th>Percent Uncollected As of September 30, 2012</th>
<th>Percent Collected As of September 30, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 &amp; prior</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2002</td>
<td>$167,043,350.00</td>
<td>46.78%</td>
<td>$781,428.98</td>
<td>$8,274</td>
<td>1.06%</td>
<td>98.94%</td>
</tr>
<tr>
<td>2003</td>
<td>$171,908,909.00</td>
<td>46.78%</td>
<td>$804,189.88</td>
<td>$9,739</td>
<td>1.21%</td>
<td>98.79%</td>
</tr>
<tr>
<td>2004</td>
<td>$179,334,059.00</td>
<td>45.35%</td>
<td>$813,279.96</td>
<td>$9,347</td>
<td>1.15%</td>
<td>98.85%</td>
</tr>
<tr>
<td>2005</td>
<td>$188,674,759.00</td>
<td>45.68%</td>
<td>$860,922.93</td>
<td>$11,857</td>
<td>1.38%</td>
<td>98.62%</td>
</tr>
<tr>
<td>2006</td>
<td>$195,048,490.00</td>
<td>45.81%</td>
<td>$893,517.13</td>
<td>$13,960</td>
<td>1.56%</td>
<td>98.44%</td>
</tr>
<tr>
<td>2007</td>
<td>$222,816,557.00</td>
<td>41.38%</td>
<td>$922,014.91</td>
<td>$16,966</td>
<td>1.84%</td>
<td>98.16%</td>
</tr>
<tr>
<td>2008</td>
<td>$248,961,430.00</td>
<td>41.00%</td>
<td>$1,020,741.86</td>
<td>$23,868</td>
<td>2.34%</td>
<td>97.66%</td>
</tr>
<tr>
<td>2009</td>
<td>$255,560,546.00</td>
<td>48.39%</td>
<td>$1,241,819.81</td>
<td>$31,763</td>
<td>2.56%</td>
<td>97.44%</td>
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<tr>
<td>2010</td>
<td>$260,576,404.00</td>
<td>48.31%</td>
<td>$1,258,844.61</td>
<td>$41,313</td>
<td>3.28%</td>
<td>96.72%</td>
</tr>
<tr>
<td>2011</td>
<td>$267,100,601.00</td>
<td>48.35%</td>
<td>$1,291,431.41</td>
<td>$56,530</td>
<td>4.33%</td>
<td>95.62%</td>
</tr>
<tr>
<td>2012</td>
<td>$280,573,518.00</td>
<td>48.74%</td>
<td>$1,367,515.33</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: Grimes County Appraisal District
Another indicator of communal economic health related to Taxable Property is the ratio of land value to appraised value for single-family homes. The ratio acts as an indicator of two different factors: housing condition and market values. Properties that are well constructed and properly maintained will have lower ratios as land values are a smaller portion of the total value. As the condition of the property declines so does the appraised value; thus, the land value becomes a large percentage of the total value.

A study conducted by Cristina Odenborg of the Texas Target Cities Program in the spring of 2012 assessed the ratio of land value to appraised value for single-family homes in Navasota. The complete report is provided in Appendix 3-A2. Ms. Odenborg’s findings are that the average ratio for Navasota single-family homes is 21.9 percent. Any ratio less than 28 percent is considered a well maintained property. On average Navasota residents are economically healthy enough to maintain their properties.

Sources


Appendix

3-A1: Table

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
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<td>Grimes</td>
<td>Texas</td>
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<td>Texas</td>
<td>Texas</td>
<td>Texas</td>
</tr>
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<td>13012291</td>
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<td>13500280</td>
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<td>12195</td>
</tr>
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Footnotes: Industries are classified by North American Industry Classification System (NAICS). (D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the total.

Source: U.S. Bureau of Economic Analysis, highlighted data was retrieved from OnTheMap.

3-A2: Navasota Appraisal Ratios by Cristina Odenborg

Insight into the condition of single-family residential housing of Navasota, as well as any possible economic conditions impacting home values, can be evaluated by utilizing Grimes County Appraisal District appraisal data. One method is to evaluate the ratios of land values to total appraised value. This report provides the ratio of land value to total value for single-family residential properties in sub-areas based on percentages.

Introduction

The ratio of land value to total value can be utilized as an indicator for single-family residential properties. The ratio acts as an indicator of two different factors: housing condition and market values. Properties that
are well constructed and properly maintained will have lower ratios as land values are a smaller portion of the total value. As the condition of the property declines so does the appraised value; thus, the land value becomes a large percentage of the total value.

Ratios under 28% indicate properties that are in good condition and are properly maintained. Ratios between 28% and 34% suggest that the levels of maintenance are unsuitable and that there is possible deterioration. Ratios from 34% to 40% indicate low levels of maintenance. These properties are beginning to experience redevelopment pressures. Properties within these ratios begin to have negative impacts upon the adjacent properties and the neighborhood. Ratios over 40% indicate properties that are excellent for redevelopment.

The other condition that these ratios indicate is market driven trends. Development of adjacent properties can have the effect of raising neighborhood land values. Although site improvements may be in good condition and being properly maintained, it is possible for ratios to increase based upon ongoing development. It is important to assess the condition of the properties to determine if housing conditions are declining or if the market is increasing land values. Increasing land values and higher ratios can indicate an area that has potential for redevelopment even though properties are well maintained.

From the appraisal data obtained from the Grimes County Appraisal District, the property ratios using the land value and the total market value were computed. The total market value is the price for which the property would sell. The following figures provide a ratio of land value to total market value for single family homes in each sub-area based on percentages. One limitation I found was the vast amount of single-family residential properties located in Navasota. To overcome this limitation, I divided Navasota into five sub-areas. Since each sub-area has a varied number of single-family residential properties, I will compare the sub-areas by percentages rather than by a lot-by-lot basis. Another limitation to consider is that lot size could not be determined. Because of this, some ratios may be higher because of larger lot sizes, which do not necessarily mean that the property is deteriorating.

Below is a map of the City of Navasota divided into five sub-areas:
Sub-area 1 consists mostly of residential properties towards the center and agriculture towards the edges of the city. A couple of lots are zoned for utilities in sub-area 1.
Property Ratios

There are a total of 243 single-family residential properties located in sub-area 1. Sixty-five percent have a ratio of less than 28%, 10% have a ratio between 28% and 34%, 4% have a ratio within 34% to 40%, and 21% have a ratio of more than 40%. The average property ratio for sub-area 1 is 27%. For the most part, the properties in this sub-area are well-maintained. However, 35% of the properties have an appraisal ratio of more than 28%, which means that properties in this area are experiencing some deterioration and possibly pressures of redevelopment. One-fifth of the properties, those that have an appraisal ratio of more than 40%, in the area are prime locations for redevelopment since the land value is a bigger percentage of the total value. These single-family residential properties, that have a ratio above 28%, invite special attention to avoid further deterioration. This sub-area has the highest average property ratios among the five sub-areas. However, this could be due to the fact that some of the lot sizes in this sub-area are larger than those in other sub-areas.

Sub-Area 2

Sub-area 2 consists mostly of residential areas. Lots toward the center of town are zoned for commercial uses and public facilities. Parks are distributed throughout this area, as well.
Property Ratios

There are a total of 534 single-family residential properties located in sub-area 2. Eighty-seven percent of these properties have a ratio of less than 28%, 6% have a ratio between 28% and 34%, 1% have a ratio within 34% and 40%, and 6% have a ratio of more than 40%. The average property ratio for sub-area 2 is 20%. This indicates that the residential properties are for the most part in good condition in this area. There should be no particular concern due to property ratios in this sub-area.

Sub-Area 3

The majority of sub-area 3 is residential properties. The west edge of this sub-area is a railroad track while the east edge is comprised of commercial lots.

Property Ratios

There are a total of 728 single-family residential properties located in sub-area 3. Eighty-five percent of these properties have a ratio of less than 28%, 4% have a ratio between 28% and 34%, 3% have a ratio
within 34% and 40%, and 8% have a ratio of more than 40%. The average property ratio for sub-area 3 is 20%. This means that the residential properties in this area are properly maintained, and there should be no concern due to property ratios in this sub-area.

Sub-Area 4

Sub-area 4 is characterized by residential properties, especially manufactured or mobile homes. The east edge of this area is a railroad track and heavy industrial lots, and the north boundary consists of commercial retail.

Property Ratios

There are a total of 476 single-family residential properties located in sub-area 4. Seventy-seven percent of these properties have a ratio of less than 28%, 6% have a ratio between 28% and 34%, 5% have a ratio within 34% and 40%, and 12% have a ratio of more than 40%. The average property ratio for sub-area 4 is 23%. Overall, the properties in this area are in good condition and well-maintained. However, 12% of the properties have a ratio above 40%, which means there is possible deterioration and pressures of redevelopment occurring in this area. This could be because of the large number of manufactured and mobile homes located in this area; however, not all manufactured homes are considered dilapidated.
The south boundary of sub-area 5 is commercial lots while the northwest portion of this area is mainly rural residential properties and agriculture. A few lots are zoned for public facilities. The residential lots are located closer to the center of the city. This area has the least amount of residential properties in Navasota. However, there is a large amount of unimproved land that can be used for residential once improved.

Property Ratios

There are a total of 193 single-family residential properties located in sub-area 5. Eighty-one percent of these properties have a ratio of less than 28%, 6% have a ratio between 28% and 34%, 3% have a ratio within 34% and 40%, and 10% have a ratio of more than 40%. The average property ratio for sub-area 5 is 26%. This area is characterized mainly by well-maintained properties. 19% of the residential properties have a ratio of more than 28%. This could mean that the landowners have under-utilized their land, and thus, the total value is not worth as much as those adjacent parcels.
Chapter 4 Cultural Identity

Navasota is a city with both a sizable amount of history linking it to the past and current history being made. It is officially designated by the state as “The Blues Capital of Texas” and hosts an annual festival in celebration. Navasota also has a previous history of ranching and farming that give it the character of old Texas. Today it is known as a regional shopping destination and downtown district. These factors make it a unique city in the Central Texas region; a place for families, artists, and travelers.

Museums and Points of Interest

Navasota’s many historic museums, places, and monuments celebrate its history as a Texas city, significant events throughout the years, and touchstones in the area’s culture. The Mance Lipscomb Statue located just off of the main road into the downtown district pays tribute to the blues legend who hailed from the city. Navasota is also working with the family of musician Joe Tex to erect a statue in his honor as well. The Hannibal Boone Organization in the city manages many of the historic events and preservation effort in Navasota.

- La Bahia Trail: Trail blazed by the Spanish in the late 1600s in pursuit of LaSalle. Its historical marker is located at the intersection of LaSalle St. and Brule Dr.

- Horlock History Center: Victorian house and museum which is used on an as needed basis. The building serves as Navasota’s historical depository for Grimes County artifacts and is the home to the Navasota Tourism and Economic Development Center.

- LaSalle Statues: Two bronze statues given to Navasota by the French Government in 1930. One sits along East Washington Avenue and the other was recently moved to August Horst Recreation Park. The statues honor Rene Robert Cavelier Sieur de LaSalle, who was killed near Navasota in 1687.

- Veterans of Foreign Wars Memorial: Memorial with public walkway honoring Grimes County residents who have died in all ways.

http://tx-navasota.civicplus.com/images/pages/N110/DSC_2418%201.jpg
• Downtown District: Area of buildings on and around Washington Ave. Many local businesses operate in the historic buildings along the street, and it serves as a main car and pedestrian thoroughfare for the city. The district is registered with the National Historic Commission.

• Railroad Street: Street connecting to Washington Ave. which goes along the Union Pacific railroad track that runs North-South through Navasota. Currently Noto’s Auto Parts and The Wood Factory are the main operating businesses occupying the buildings there.

• Mance Lipscomb Statue: Bronze statue honoring the late Texas bluesman who called Navasota home. It depicts Lipscomb sitting down with his acoustic guitar in hand. The statue can be seen from the road entering downtown from the north and is a fixture of Mance Lipscomb Park.

http://www.navasotabluesfest.org/images/page_images/mance20statue.jpg

See the Urban Design chapter for maps showing the location and layout of Navasota’s historic points within the city.

Historic Homes

Being one of the older communities in Texas, Navasota contains many older homes which have remained in the city and consequently marked the area’s passage through time. These homes represent the Navasota that once was and still remains alive through the spirit they provide. Many of the homes listed below are Texas Historic Landmarks.

• Robert A. Horlock House: Host site of the Horlock History Center. The house is a two-and-a-half story cottage built in 1892 and is open for tours.

• Steele House: Listed under both the National Registry and Texas Historic Commission
- Joseph Brooks Home
- Evans House
- Foster Home
- R.B.S. Foster Home
- Rosanna Ward Grimes and Jesse Grimes
- Home of Lt. Gov. George D. Neal
- Norwood House
- Sangster House
- Henry Schumacher Home
- Steele House
- Templeman House
- Terrell House
- Jesse Youens Home
- The Sangster House
Historic Buildings

Navasota contains many historic buildings that have hosted business and church congregations over its history. Some of them are contained within the Navasota Commercial Historic District, a nationally registered historic area which covers the center downtown core. Most of these buildings are also registered with the Texas Historic Commission.

- P.A. Smith Hotel: A prominent building on Railroad Street, it is also listed on the National Registry of Historic Buildings

http://farm1.static.flickr.com/221/498750639_3bf718f95a.jpg

- First Baptist Church of Navasota
- Old First National Bank of Navasota
- First Presbyterian Church of Navasota
- First United Methodist Church of Navasota
- Site of Freeman Inn
- The Giesel House
- Leake Building
- Lee Tabernacle Methodist Church
Navasota wants to “provide incentives wherever possible to protect, preserve, and maintain the City’s heritage.” Currently the city needs to evaluate and make suggestions for improving grant programs. An Economic Development Policy that would address the use of reinvestment zones for the downtown district is also in the works.

**Unique and Key Businesses**

While many regionally and nationally recognizable retail stores and restaurants have moved into Navasota as it has grown, the city also has many older (and some newer) businesses which have an original character to them and provide Navasota with unique qualities that cannot be found in other regional cities. These places have given Navasota the reputation as a shopping destination for people all across the state, and are assets which the city must utilize in order to achieve economic development and cultural identity. As Navasota grows and attracts more retail along Highway 6, the city must find the right balance between bringing in retail names and protecting local establishments in the community. The following are just a few of the highlights in the city.

- **The Wood Factory**: Specialty woodshop that creates historically accurate millwork pieces. Run by owner Dean Arnold with shop located along Railroad St.
- **The French Market**: Manages sales spaces for vendors and imports genuine European furniture for sale. Attracts shoppers from all over the state of Texas.
- **Kookken Home Furnishings**: Furniture store offering local-style furnishings.
- **Ruthie’s Bar-B-Q**: BBQ restaurant located further west on Washington St. from downtown in a old house.
- **Retreat Hill Winery and Vine**: Winery located in Greater Navasota which has operated since 2009. Tastings and tours for the public are available as part of the Texas Bluebonnet Wine Trail.

- Purple Possum: Winery located near the Bridle Ridge Airport.

- Westwick Antiques: Antique shop located in an old Victorian home which opened in 2007. Features a variety of antiques for sale from different dealers operating as a co-op.

- Martha’s Bloomers: Home and garden store located on Highway 6 that has achieved acclaim from Southern Living magazine in their series of 50 Top Shops of the South (November 2010).

- Tokoly Company Consignment: Home, garden, and antique store offering a wide variety of products.

- Granny’s Corner Antiques: Antique store nearby the Grimes St. Joseph Health Center.

- Navasota Blues Alley: Store on Washington Ave. which sales many kinds of collectables and hosts a free exhibit area of blues history antiquities. The alley which runs next to the side of the building connects to Mance Lipscomb Park behind the store.
Tejas Antiques: Antique store in the heart of the downtown district.

Wrangler Steakhouse: Restaurant along Highway 6 specializing in steaks and southern cooking.

The Corner Café: Local small café located on the corner across from city hall. Sometimes features live music on a small stage area inside by local performers.

Places of Interest

Recreation centers provide citizens and visitors of Navasota with places to spend time and improve their quality of life, and parks serve as community capital which add to the city’s culture and should be preserved for everyone’s benefit. According to Navasota’s stated future city vision, one of its goals is to “promote a community with an aesthetically pleasing environment.”

Sunny Furman Theatre: Operated by the Navasota Theatre Alliance, this company produces and performs productions throughout the year. It is a well known theatre company and attracts regional visitors from the surrounding areas.
Miller’s Theatre: One-screen movie theatre built in 1929 that runs current movies. This kind of movie theatre is very unique in the modern era of large multiplexes and has a niche appeal for moviegoers.

Mance Lipscomb Park: Park honoring the late bluesman which features a statue in his honor.

See the community facilities chapter for more local parks and amenities.

People

Navasota is the current and former home of many regional artists and musicians, some of whom have achieved national recognition for their work. These people from the past and present help provide a unique atmosphere for the city.

Mance Lipscomb: Famous blues musician who is the symbol of Navasota’s history with the music. Born and died in Navasota; in between he performed across the region and was an important fixture for the folk revival movement of the 1960s.

Joe Tex: Soul singer in the mid 1960s who mixed a variety of styles in his music. Gained notoriety after repeating winning competitions at the Apollo Theater in Harlem, New York.
• Leon Collins: Local painter whose works have been featured in exhibits in major U.S. Cities as well as internationally. His art can be found on display or for sale all over Navasota. On a given day you might see him working on the sidewalk along Washington Ave.

• Christopher Stubblefield: Barbeque Restaurateur born in Navasota. His famous Stubb’s restaurant in Lubbock hosted many blues and other music legends before burning down. Today it has been relocated to Austin and continues to receive acclaim.

• Blind Willie Johnson: Influential bluesman born around the Brazos Valley. Many of his songs became blues standards and have received cover treatment from a variety of musicians.
• Texas Alexander: Blues singer born in nearby Jewett, Texas who worked with several bluesmen in the early 1900s. Known for his bold deep voice, he recorded records for regional labels in the state.

• Jerry Jericho: Texas country musician from the 1950s.

• Dean Arnold: Owner of The Wood Factory shop on Railroad St.

• Russell Cashman: Owner of Blues Alley store and museum on Washington Ave.

(Information taken from the Texas State Historical Association)

Annual Events

The City of Navasota hosts unique festivals and events annually and sometimes more often in order to bring the community together and attract tourists to the area. Chief among is the Navasota Blues Festival. The city is currently working on creating other events to make Navasota more of a destination on a year-round basis.

• Navasota Blues Festival: Blues festival held every year during the month of August at the air-conditioned Grimes County Expo Center facility. Live music is featured on both days and scholarships in memory of Mance Lipscomb are awarded to local Navasota High School students in their senior year. A 5K Run is also held on the morning of the second day around the festival to raise money for local youth organizations.

• Farmer’s Market: Held every Saturday opposite of Railroad St. by Washington Ave., the market allows local farmers to bring their produce and other goods and sell them to the community. This kind of community event is simple to organize and provides small economic benefits while also helping to bring people together.

http://bloximages.chicago2.vip.townnews.com/navasotaexaminer.com/content/tncms/assets/v3/editorial/f/9e/f9e4d3ac-9781-11e0-8bd9-001cc4e03286/4df901b43b4d9.preview-300.jpg

• Candle Ceremony: Annual ceremony held at the Veterans of Foreign Wars Memorial to honor the memory of fallen soldiers.
Tourism

Navasota is looking to increase tourism from visitors from both the Central Texas and Houston areas as well as out-of-state visitors. Its connections to artists both in years past and currently working in the city give it a unique atmosphere compared to most downtowns. It also has a nationally recognized downtown district that could be strengthened with the help of reinvestment for both existing business and new shops and restaurants. The city is lacking businesses for nightlife during times other than festivals, and those kinds of bars and restaurants could extend the daily hours of downtown, making it more attractive for visitors.

The city is currently working on an Economic Development plan, which includes the creation of a TIRZ (tax increment reinvestment zone) for Navasota’s downtown, as well as working with a retail coach to develop a retail plan for attracting bigger stores for key properties along Highway 6 outside of downtown.

The city is also in the process of creating a new branding and image to market itself by. Currently the slogan of Navasota is “So much, so close!” It was originally intended to symbolize the many amenities that Navasota provides, as well as its proximity to visitors from other large cities in Texas. The words themselves, however, are somewhat ambiguous and possibly send mixed messages to people who see it.

Another way to attract more visitors to the downtown district is to renovate and dress up the alleyway next to the Blues Alley store. This space would connect Washington Avenue to Mance Lipscomb Park comfortably for pedestrians. Currently it is only utilized during festivals, but it has the potential to become a more permanent fixture for the city. Some simple suggestions could include murals depicting Navasota’s art and cultural history, as well as soft lighting to provide a level of comfort and safety for people walking through it.

Sources

Notes from Sarah Korpita

Biographical information from the Texas State Historical Association (http://www.tshaonline.org)
Chapter 5 Housing

Overall Housing Market

Navasota’s location is an important factor that must be considered when determining the viability of developing new housing. Proximity to the Bryan-College Station area and to Houston are each influential in the area’s future growth.

Another factor to consider in the demand for housing in Navasota is the current supply of multifamily housing, the current demand, and how much people are willing to pay to live in those complexes. Current estimates show that Navasota currently has a total of 480 multifamily units, with an additional 41 units located in other areas of Grimes County. Of those 480 units in Navasota, 195 are in complexes of at least five units. Just eight apartment complexes have been identified within the city limits and, although none have been built during the last decade, Magnolia Plaza apartments underwent a substantial renovation that was completed in 2011. This complex consists of 60 units for low-income households.

A larger supply of Navasota’s housing stock is comprised of single-family, detached units, which has experienced more recent growth than the city’s multifamily market. In particular, the Stone Ridge housing subdivision was started by Stylecraft Builders in 2008 off North LaSalle Street, and consists of 72 single-family homes ranging between $130,000 and $210,000. According to the builder, just 18 lots remain available in this development as of November 2012.

Commingled with much of the city’s single-family housing is a substantial inventory of mobile/manufactured homes. About 287 mobile homes are located within the city limits, with many situated in older neighborhoods. The city’s zoning ordinance no longer permits mobile homes to be installed in the city, except in planned unit developments designed for this type of housing. Sunset Park is a new example of a planned development for mobile homes, consisting of 62 lots off Laredo Street in the northern portion of the city. According to the developer’s website, five of the lots have sold as of November 2012.

Housing Values

Residential properties in Navasota and surrounding areas have a wide array of values. Prices range from well under $100,000 to over $1,000,000, although the vast majority of homes are valued between $50,000 and $100,000, as evidenced in Figure 5-1. In fact, nearly three-fourths of Navasota’s housing is valued at under $100,000. Just 3.3 percent of homes are valued at over $200,000. The median home value for Navasota is $74,700 (2006-2010 American Community Survey 5-year average), compared to $89,400 for Grimes County and $123,500 for Texas.
There were a total of 2,805 housing units within the City of Navasota, according to 2010 data from the U.S. Census. Based on available data, the city experienced a net increase of 144 housing units (5 percent) between 2000 and 2010, outpacing the population growth of Navasota during that time (3.8 percent). However, between 1990 and 2010 the city’s 12 percent population growth matched the 12 percent growth in housing inventory, indicating that long-term housing demand has kept pace with the city’s population growth.

Single-family housing dominates the city’s housing market, representing 63.7 percent of all housing stock—both attached and detached. This estimate is slightly less the statewide share of single-family housing units (68.2 percent in 2010). Multifamily housing (consisting of two or more units) in Navasota constitutes 22.3 percent of the total housing stock. Navasota also has a significant share (13.3 percent) of mobile/manufactured homes. Figure 5-2 illustrates the relative shares of single-family, multifamily and mobile/manufactured homes for Navasota, Grimes County, and Texas.

Source: 2006-2010 ACS Estimates

Housing Availability
Housing Density and Household Size

The City of Navasota has an average housing density of about 352 units per square mile, or less than one housing unit per acre. The county’s housing density is substantially lower, at just under 13.5 units per square mile or .02 housing units per acre. Texas’ housing density is about 37 dwelling units per square mile or .06 units per acre.

The city experiences slightly larger household sizes compared with the county and state (2.81 persons per household within the city, compared to 2.65 for the county and 2.75 for Texas). Household size in Navasota has remained fairly constant since at least 1990.

Table 5-1: Household Size, 2010

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Source: U.S. Census (2010 SF2 Data)
Housing Occupancy Status

As the 2010 Census indicates, there are 2,805 housing units in Navasota, of which 2,432 units are occupied (86.7 percent). Of those occupied units, 1,462 are owner-occupied (60.1 percent) and 970 are renter occupied (39.9 percent). The vacancy rate in 2010 was 13.3 percent. Of the 373 vacant units in 2010, roughly one-third of them were available for rent and 15 percent were for sale. About 39 percent of the vacant units were unclassified, which may include uninhabitable housing. Navasota has a higher share of renters than the surrounding county but is similar to the state share. However, the city’s vacancy rate is between that of the state and county, and its homeownership rate is below both Grimes County and Texas’ rates.

Figure 5-3: Housing Occupancy Status, 2010

Source: U.S. Census (2010 SF1 Data)

Rental Housing

Fair market rents as established by the U.S. Department of Housing and Urban Development indicate that, while Grimes County rents actually decreased for smaller units from 2012 to 2013, while increasing slightly for three- and four-bedroom units. The fair market rent for a zero-bedroom unit (efficiency or studio) fell nearly 15 percent, from $528 in 2012 to $452 in 2013. One-bedroom units decreased in rent by about 12 percent, from $579 in 2012 to $511 in 2013, while rents for two-bedroom apartments decreased by less than one percent, from $645 to $639. Rent for three-bedroom apartments increased by 1.4 percent to $927 per month. According to the 2010 Census, the median rent for all unit types in Navasota was $554 per month, compared to $630 for Grimes County and $786 for Texas. Assuming renters must earn three times the rent to qualify, a household must gross at least $19,944 annually to afford the median rent in Navasota.
Table 5-2: Fair Market Rents for Grimes County (in Dollars)

<table>
<thead>
<tr>
<th>Grimes County</th>
<th>0 BR</th>
<th>1 BR</th>
<th>2 BR</th>
<th>3 BR</th>
<th>4 BR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$528</td>
<td>$579</td>
<td>$645</td>
<td>$840</td>
<td>$865</td>
</tr>
<tr>
<td>2012</td>
<td>$528</td>
<td>$579</td>
<td>$645</td>
<td>$840</td>
<td>$865</td>
</tr>
<tr>
<td>2013</td>
<td>$452</td>
<td>$511</td>
<td>$639</td>
<td>$852</td>
<td>$927</td>
</tr>
</tbody>
</table>

Source: U.S. Dept. of Housing and Urban Development (HUD)

Housing Affordability

Housing affordability is an index that measures the percentage of annual income that a family spends on housing costs, including utilities. The housing affordability gap is the difference between 30 percent of a family’s annual income and the combined cost of utilities and rent or mortgage payment.

For owner-occupied units, about 23.9 percent of households are cost burdened, meaning that they spend at least 30 percent of their income on housing costs. The cost burden for homeowners in Navasota is slightly higher than that of Texas; about 25.7 percent of owner-occupied households statewide are paying at least 30 percent of their income for housing.

As shown in Figure 5-4, the rate of burden for renter households in Navasota is at 51.2 percent. Nearly half of renters in Texas (48.8 percent) are experiencing a housing cost burden. On the other hand, a greater share of renters in Navasota pay less than 15 percent of their income on housing expenses compared with the state.

Figure 5-4: Housing Costs as a Share of Income for Renter Households, 2010
More than 18.6 percent of families in Navasota have incomes below the poverty rate, a number that has decreased by nearly 22 percent since 2000 and by 26.5 percent since 1990. However, the poverty rate is still significantly higher than for Grimes County (12.4 percent) and for Texas (13.0 percent). While specific housing data is not available for those families living below the poverty line, it can be assumed that their housing cost burden is very significant. It is also unclear whether the poverty rate has decreased due to a relative accumulation of wealth among families previously in poverty or due to an outmigration of those families.

Public Housing

According to the Navasota Housing Authority, the City of Navasota operates just one public housing complex containing 50 units. Additionally, only four private owners of rental housing accept Housing Choice Vouchers that allow low-income residents to locate rental housing on the private market. The low number of public housing units and available vouchers suggests a need for other affordable housing options; however, other privately-owned multifamily complexes exist in Navasota that are targeted toward low-income households, including at least one exclusively for elderly and/or disabled persons.

Physical Housing Conditions

In October 2012 a windshield survey was conducted in Navasota, a method of assessing housing conditions for existing properties within the community. The purpose of measuring housing conditions is to identify areas where capital improvements or other redevelopment may be necessary to strengthen the investments and quality of life of their residents.

As shown in Appendix A, parcels were identified by their overall physical conditions as excellent, good/average, poor/deteriorated, or dilapidated/vacant. The majority of excellent or good/average properties are located in the neighborhood generally bounded by Navasota Intermediate School to the west, Highway 6 to the east, Stacey Street to the north and East Washington Avenue to the south. Other pockets of high quality housing are found east of downtown and in the far southwest region of the city. Poorer quality housing was found to be concentrated along the Piedmont Road corridor in the north, the South LaSalle St corridor to the south, as well as in areas west of downtown. Generally, neighborhoods with high concentrations of deteriorated or dilapidated housing also comprise a significant proportion of mobile/manufactured housing. These areas are also characterized by their poorer infrastructure, including deteriorating streets and a lack of curbs with integral gutters.

Future Housing Needs

The City of Navasota boasts an affordable housing stock when compared to other cities as well as the state. However, pressure from the growing oil/gas products industry could limit future housing availability; thus, solutions to meeting future demand are vital.

Future growth projections estimate that Navasota will increase in population by between 9 and 30 percent through the year 2030. To provide suitable housing in line with these growth projections, the housing inventory will need to increase by between 250 and 840 housing units during the same time period. There are many strategies that can be employed to direct this housing growth and are discussed below.

Infill development is one method to increasing the number of housing units in an efficient manner, taking advantage of existing infrastructure such as streets and utilities. This type of development on existing vacant
lots or through replacing dilapidated housing would also serve to stabilize property values in core neighborhoods.

Accessory dwelling units (ADUs) are a form of infill development that may be appropriate for medium- to large-sized lots in Navasota. Defined as secondary housing units (either attached or detached from the main housing unit) on the same property, ADUs are ideal for one- or two-person households such as an elderly parent or adult child, temporary worker, college student, live-in nanny, or young professional. ADUs typically assist in providing affordable housing in neighborhoods close to downtown or other desirable amenities. The number of existing ADUs in Navasota is unknown, although it is likely that such structures exist in established neighborhoods with large homes (such as along East Washington Avenue).

Another housing opportunity can be found in Navasota’s downtown. Redeveloping space above retail in downtown to housing would help improve Navasota’s core while helping to mitigate the unwanted effects of sprawl that are prevalent in other communities. Further, this type of downtown housing is considered ideal for growing segments of the population, such as young professionals, empty nesters, and Navasota’s thriving artist community. Limited examples of downtown loft housing can be found on Farquhar Street across from the U.S. Post Office.
Chapter 6 Land Use

Introduction

Land use planning involves the arrangement of land in order to ensure the compatibility of different land uses. Proper land use is vital to promote public health, safety, morals, and the general welfare of the city. Planning for future and existing land use is also essential for successful growth management and sound financial decision-making. Both private and public land must be planned for because they help to ensure the timely and efficient location of public services, utilities, streets, schools, and other important community amenities. Land use plans also help protect the rights of private property. To plan effectively, it is necessary not only to understand the existing structure of the city, but also to determine where future development will take place. A possible population increase must be related to where development will actually occur, and this should make it easier to budget for the facilities necessary to serve the increasing population.

Methodology

A land use survey of the City of Navasota was completed in 2004. The land uses for each parcel were coded, with the primary use taking precedent over minor accessory uses. The land units used for the survey were legal property parcels derived from the Grimes County Central Appraisal District’s plat maps. The survey illustrated that the city limits of Navasota encompass roughly 4,128 acres, 3,239 of which are platted land parcels. The City of Navasota also controls an additional 10,998 acres of land within its extraterritorial jurisdiction (ETJ). The city limits of Navasota can be viewed on Map 1. The ETJ extends roughly one mile around the city limits. Due to the nature of the land use data collection and survey the following area and percentage numbers are based on the parcelized land area, not the overall city limit area. This means that land such as streets, water bodies and other non-parcelized land uses are not represented in the statistics presented here.

Land use classification

From the land use survey done in 2004, the outcomes are shown on Map 6-2 and the Table 6-1 displaying land use classifications.
<table>
<thead>
<tr>
<th>Land Use</th>
<th>Classifications</th>
</tr>
</thead>
</table>
| Residential    | - Single-Family Residential  
                 - Duplex Residential  
                 - Multi-Family (Tri/Four-plexes, Duplexes, Apartments)  
                 - Group Quarters (Nursing Home, Assisted Living)  
                 - Mobile/Manufactured Home                                                                                                                                  |
| Commercial     | - Commercial Retail/Trade/Service (Banks, Stores)  
                 - Commercial Office (Realty /Professional Offices)  
                 - Commercial Other (Body Shops, Driving Ranges, etc)                                                                                                    |
| Industrial     | - Commercial-Industrial (Warehouse Sales)  
                 - Light Industrial (Assembly Line)  
                 - Heavy Industrial (Pipe Fabrication, etc)                                                                                                               |
| Public/Semi-Public | - Public (City Building, Schools, Library, Cemetery, ems)  
                 - Transportation (Air, Parking as a primary use)  
                 - Streets  
                 - Railroad (Railroad Facilities)  
                 - Utilities/Communications (Telecommunications, Waste Water Treatment)  
                 - Semi-Public (Religions Institutions, Hospital)                                                                                                         |
| Downtown       | - Mixed Use  
                 - Residential/Retail  
                 - Residential/Office  
                 - Retail/Office  
                 - Mixed-Use Other  
                 - Retail/Vacant  
                 - Office/Vacant  
                 - Downtown Public/Semi-Public  
                 - Entertainment (Theater, Tavern, Night-Club, Restaurant)  
                 - Retail  
                 - Office  
                 - Residential  
                 - Vacant                                                                                                                                                |
| Open Space/Park | - Parks  
                 - Ball Fields  
                 - Drainage Facility (Detention Pond)  
                 - Golf Course                                                                                                                                             |
| Agriculture    | - Agriculture (As the primary use)                                                                                                                                                                               |
| Unimproved     | - Rural (Residential development on lots of > 5 acres, may contain other minor uses)  
                 - Unimproved (may include land with abandoned or vacant structures)                                                                                   |
Land use

The percentages of existing land use in 2004 for the City of Navasota are displayed in Table 6-2. The uses are listed in terms of the acreage for each land use classification as well as the classification’s percentage of the city’s total land area.

Table 6-2: Existing Land Use by Units and Acreage of City Total in 2004

<table>
<thead>
<tr>
<th>Land Use Classification</th>
<th>Within City Limit</th>
<th>Within ETJ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acreage</td>
<td>Percent</td>
</tr>
<tr>
<td>Residential</td>
<td>1036</td>
<td>32.36%</td>
</tr>
<tr>
<td>Commercial</td>
<td>129</td>
<td>4.03%</td>
</tr>
<tr>
<td>Industrial</td>
<td>76</td>
<td>2.37%</td>
</tr>
<tr>
<td>Public &amp; Semi-Public</td>
<td>201</td>
<td>6.28%</td>
</tr>
<tr>
<td>Downtown</td>
<td>352</td>
<td>0.61%</td>
</tr>
<tr>
<td>Open Space</td>
<td>352</td>
<td>10.99%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1388</td>
<td>43.35%</td>
</tr>
<tr>
<td>Total</td>
<td>3201.64</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Residential

The combined single-family, duplex, multifamily, group quarters, mobile/manufactured homes and rural residential developments constitute roughly 32.36 percent of land use within the city limit of Navasota. Of this percentage, 51.50 percent is single-family, 0.48 percent is duplex, 3.87 percent is multifamily, 0.39 percent is group quarters, 10.45 percent is used for mobile/manufactured homes, and 33.30 percent is rural residential. The land included rural residential developments that were over five acres in size as well as unimproved land that may have included abandoned structures.

Commercial

Approximately 4.03 percent of land in the city is used for a variety of commercial purposes. These uses include office space, retail, body shops, driving ranges, motels, and many more. These commercial properties are located primarily along North and South LaSalle streets and State Highway 6.

Industrial

Industrial property equals approximately 2.37 percent, or 76 acres, of the city’s land use. In addition, approximately 570 acres of the land in the ETJ are in one of the three industrial classifications. These classifications allow for uses such as warehouse sales, assembly, fabrication, and accessory railroad storage. These land uses are primarily located in the industrial park south of the city limits, which accounts for approximately 83 percent of the industrial land uses in the ETJ.
Public/Semi-Public/Institutional

The public institutional areas make up roughly 6.28 percent of the city’s parcelized land area, with 74 percent consisting of city buildings, schools, a public library, cemeteries, utilities, and other city facilities. The remaining 26 percent includes religious institutions as well as medical facilities. A more thorough analysis of the public/institutional aspects of Navasota can be found in the Community Facilities section.

Downtown

In order to highlight the importance and uniqueness of Navasota’s downtown, this area was treated as a separate land use. Overall the downtown area encompasses roughly 20 acres, less than one percent of the total city area. The downtown area is divided into more specific categories which revealed:

- 27 percent of downtown is vacant
- 13 percent is residential use
- 16 percent is office space
- 7 percent is retail
- 19 percent is an entertainment use
- 10 percent is public or semi-public use
- 2 percent is some type of mixed use

(The detailed typology of the downtown uses is listed in Table 6-1.)

Open Space

Roughly 11 percent of the City of Navasota is comprised of open space. Of this percentage 9.6 percent is city parks, 89 percent is golf course land, and less than one percent is individually owned and dedicated to drainage.

Agriculture

Agriculture accounts for 43.35 percent of the land use in Navasota. This classification focuses on ranching and agriculture as the primary activities. The majority of the land from this category is located outside of the city limits.

Unimproved

Approximately 38 percent of Navasota was classified as vacant or unimproved property. The majority of the vacant land is located on the outer edges of the city limits, found principally in large tracts of land. However, numerous vacant lots can be found in mostly residential areas to the east and south of the developed portion of the city.
Zoning and Land Use Review

From the field survey done in fall 2012, the new development areas in Navasota are shown in the following pictures. Based on the 2004 land use plan, the future land use is show in Map 6-3.

North corner and Highway 6 corridor in Navasota, TX

The north corner of Navasota is mainly characterized by agricultural and unimproved property that is ripe for development along the highway 6 corridor. It is understood from the city officials that annexation will occur in the near future, however there is a significant portion of vacant land within the current city limits that should be taken advantage of. The highway 6 corridor is peppered with commercial development, though more is likely to come in the future based on the assumption that the land’s proximity to highway 6 increases its commercial value due to high visibility and ease of access.
Navasota has approximately 105 acres vacant, unimproved land along highway 6 that extends down into the current residential areas located south of downtown. This vacant land seems well suited for prime commercial and residential development. There are billboards (picture no 4) illustrating such potential development, which helps to illustrate the perceived demand for this property.
Navasota land use map is 2004 data, according to the 2012 tax roll parcel map, there are some changes in the land's purpose. The map indicates an example of changing of land use across Highway 6, the developed corridor of Navasota city. The top right map is 2004 land use and the bottom right map is updated land use map based on field survey. This newly developed area serves as an example of what the highway 6 corridor will probably experience in the near future.
Nonconformity

Land use and zoning go hand-in-hand in advancing the safety and health of a city. Land use should conform with proper zoning in order to create cohesive areas within the city. However, nonconformity is evident based on the tables below (see Tables 6-3 to 6-8). Each table lists out the current land use found in each zone. The number of parcels per land use is provided, as well as the land use proportion to the entire zone. These data were developed by using GIS to overlay each zone independently with the current land use map. The land use was then clipped and the layers' attribute tables exported and summarized in subtotal tables. This method allows for greater accuracy than a visual analysis. In addition, the nonconformity is
quantified and can be used by the City of Navasota to address the issue by exactly locating the nonconformity per zone. Please refer to the 2004 zoning map (see Map 6-4) and the accompanying maps (see Maps 6-5 to 6-10) for visual representation of nonconformity per zone.

Table 6-3: Single-Family Residential Zoning – 2004 Land Use

<table>
<thead>
<tr>
<th>Land Use</th>
<th># of Parcels Per Land Use</th>
<th>Proportion of Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Res.</td>
<td>1133</td>
<td>77.3%</td>
</tr>
<tr>
<td>Duplex Res.</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Multifamily Res.</td>
<td>5</td>
<td>0.3%</td>
</tr>
<tr>
<td>Group Quarters</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mobile Home</td>
<td>13</td>
<td>0.9%</td>
</tr>
<tr>
<td>Commercial Retail</td>
<td>11</td>
<td>0.8%</td>
</tr>
<tr>
<td>Public Facilities</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Semi-Public</td>
<td>41</td>
<td>2.8%</td>
</tr>
<tr>
<td>Transportation</td>
<td>5</td>
<td>0.3%</td>
</tr>
<tr>
<td>Utilities</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>DT Semi-Public</td>
<td>5</td>
<td>0.3%</td>
</tr>
<tr>
<td>DT Residential</td>
<td>5</td>
<td>0.3%</td>
</tr>
<tr>
<td>Park</td>
<td>36</td>
<td>2.5%</td>
</tr>
<tr>
<td>Drainage</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Agricultural</td>
<td>4</td>
<td>0.3%</td>
</tr>
<tr>
<td>Rural</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Unimproved</td>
<td>200</td>
<td>13.7%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1465</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 6-4: Multi-Family Residential Zoning – 2004 Land Use

<table>
<thead>
<tr>
<th>Land Uses</th>
<th># of Parcels Per Land Use</th>
<th>Proportion of Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Res.</td>
<td>705</td>
<td>38.3%</td>
</tr>
<tr>
<td>Duplex Res.</td>
<td>20</td>
<td>1.1%</td>
</tr>
<tr>
<td>Multifamily Res.</td>
<td>31</td>
<td>1.7%</td>
</tr>
<tr>
<td>Land Use</td>
<td># of Parcels Per Land Use</td>
<td>Proportion of Zone</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Single Family Res.</td>
<td>458</td>
<td>33.2%</td>
</tr>
<tr>
<td>Multifamily Res.</td>
<td>6</td>
<td>0.4%</td>
</tr>
<tr>
<td>Group Quarters</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Mobile Home</td>
<td>124</td>
<td>9.0%</td>
</tr>
<tr>
<td>Commercial Retail</td>
<td>191</td>
<td>13.9%</td>
</tr>
<tr>
<td>Commercial Office</td>
<td>29</td>
<td>2.1%</td>
</tr>
<tr>
<td>Commercial Other</td>
<td>30</td>
<td>2.2%</td>
</tr>
<tr>
<td>Commercial Industrial</td>
<td>45</td>
<td>3.3%</td>
</tr>
<tr>
<td>Light Industrial</td>
<td>11</td>
<td>0.8%</td>
</tr>
<tr>
<td>Public Facilities</td>
<td>9</td>
<td>0.7%</td>
</tr>
<tr>
<td>Semi-Public</td>
<td>27</td>
<td>2.0%</td>
</tr>
<tr>
<td>Utilities</td>
<td>3</td>
<td>0.2%</td>
</tr>
<tr>
<td>Land Use</td>
<td># of Parcels Per Land Use</td>
<td>Proportion of Zone</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Single Family Res.</td>
<td>50</td>
<td>22.2%</td>
</tr>
<tr>
<td>Mobile Home</td>
<td>17</td>
<td>7.6%</td>
</tr>
<tr>
<td>Commercial Retail</td>
<td>11</td>
<td>4.9%</td>
</tr>
<tr>
<td>Commercial Other</td>
<td>2</td>
<td>0.9%</td>
</tr>
<tr>
<td>Commercial Industrial</td>
<td>29</td>
<td>12.9%</td>
</tr>
<tr>
<td>Light Industrial</td>
<td>5</td>
<td>2.2%</td>
</tr>
<tr>
<td>Heavy Industrial</td>
<td>11</td>
<td>4.9%</td>
</tr>
<tr>
<td>Semi-Public</td>
<td>2</td>
<td>0.9%</td>
</tr>
<tr>
<td>Railroad</td>
<td>63</td>
<td>28.0%</td>
</tr>
<tr>
<td>Utilities</td>
<td>5</td>
<td>2.2%</td>
</tr>
<tr>
<td>Unimproved</td>
<td>30</td>
<td>13.3%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>225</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 6-7: Central Business District Zoning – 2004 Land Use

<table>
<thead>
<tr>
<th>Land Use</th>
<th># of Parcels Per Land Use</th>
<th>Proportion of Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Retail</td>
<td>8</td>
<td>4.4%</td>
</tr>
<tr>
<td>Land Use</td>
<td># of Parcels Per Land Use</td>
<td>Proportion of Zone</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Single Family Res.</td>
<td>3</td>
<td>3.7%</td>
</tr>
<tr>
<td>Commercial Retail</td>
<td>3</td>
<td>3.7%</td>
</tr>
<tr>
<td>Commercial Office</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Heavy Industrial</td>
<td>4</td>
<td>4.9%</td>
</tr>
<tr>
<td>Public Facilities</td>
<td>31</td>
<td>38.3%</td>
</tr>
<tr>
<td>Semi-Public</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Railroad</td>
<td>1</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Table 6-8: Public Use Zoning – 2004 Land Use
<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilities</td>
<td>2</td>
<td>2.5%</td>
</tr>
<tr>
<td>Park</td>
<td>5</td>
<td>6.2%</td>
</tr>
<tr>
<td>Rural</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Unimproved</td>
<td>29</td>
<td>35.8%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>81</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Map 6-7: 2004 Land Use found in General Business Zoning
Map 6-8, 2004 Land Use found in Central Business District Zoning
Map 6-9: 2004 Land Use found in Light Industry Zoning
Conclusion

A large portion of the city’s total land area remains undeveloped. The undeveloped area will easily accommodate projected population growth for Navasota. Perhaps the only unusual aspect of Navasota’s current land use is that most of the area’s industrial activities are located outside of the city limits.
Chapter 7 Environment

Introduction

The City of Navasota enjoys well-draining soils and historically good air quality. The city can benefit from well-draining soils in flooding events as long as the soils are not paved over. The main water body running through the city is Cedar Creek. This creek has been classified as impaired due to elevated levels of bacteria. The Navasota River is not within the city limits but lies within the extraterritorial jurisdiction of Navasota. This water body is larger and classified as a primary contact recreation use but also listed on the state’s list of impaired water bodies. There is no public access to the Navasota River from the City of Navasota and all of the land on the river’s banks is privately owned. The primary source of impairment for both of these water bodies is likely to come from non-point sources such as urban storm water runoff and agricultural storm water runoff. The tall-grass prairies that historically dominated the region have mostly been converted to cropland and other agricultural operations. The habitat is fragmented into small patches and invasive species provide a threatening level of competition to native species. A strategic plan to address the fragmentation of the habitat and the invasive species concerns is necessary to protect the remaining natural resource assets of Navasota.

Climate

Navasota experiences a relatively high amount of rain annually with an average of 43 inches (Table 7-1, Figure 7-1). The highest month for precipitation is typically May. The drainage class for soils in the area is generally very good. However, as the city continues to expand flooding may arise as permeable surfaces are paved over. Specific policies and programs should be created to minimize impermeable surfaces in the area.

Navasota is located in a warm climate with average maximum temperatures of around 80 degrees Fahrenheit and a maximum recorded temperature of 112 degrees Fahrenheit (Table 7-2). The warmest month is typically August and the coolest is typically January. As the city expands, Navasota should take care to maintain greening efforts to minimize Urban Heat Island effects. Water supply issues will also need to be addressed as the city expands and the effects of climate change are felt.

Precipitation

June is historically Navasota’s wettest month. The following table displays the average monthly annual precipitation for Navasota (Table 7-1).

<table>
<thead>
<tr>
<th>Month</th>
<th>Precipitation (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>43</td>
</tr>
<tr>
<td>January</td>
<td>3.5</td>
</tr>
<tr>
<td>February</td>
<td>2.5</td>
</tr>
<tr>
<td>March</td>
<td>3.5</td>
</tr>
<tr>
<td>April</td>
<td>3.5</td>
</tr>
<tr>
<td>May</td>
<td>4.5</td>
</tr>
<tr>
<td>June</td>
<td>4.5</td>
</tr>
<tr>
<td>July</td>
<td>2.5</td>
</tr>
<tr>
<td>August</td>
<td>2.5</td>
</tr>
<tr>
<td>September</td>
<td>4.5</td>
</tr>
<tr>
<td>October</td>
<td>4.5</td>
</tr>
</tbody>
</table>
Table 7-2: Navasota Historical Temperature Information

<table>
<thead>
<tr>
<th></th>
<th>Minimum Recorded</th>
<th>Maximum Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmest Month</td>
<td>August</td>
<td>112 (September 2000)</td>
</tr>
<tr>
<td>Coolest Month</td>
<td>January</td>
<td>3 (December 1989)</td>
</tr>
<tr>
<td>Annual Average Minimum</td>
<td>54.42</td>
<td></td>
</tr>
<tr>
<td>Annual Average Maximum</td>
<td>79.75</td>
<td></td>
</tr>
</tbody>
</table>

Source: The Weather Channel

Air Quality

The EPA Air Quality Index is based on five major air pollutants: ozone, particles, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The scale ranges from 0 to 500 with 0 to 50 being considered “good” air quality. Navasota’s historical air quality has consistently been classified as “good”, with a score under 50 on the Air Quality Index. Air quality in the area has fallen during recent years.

Soils

Navasota sits on clay or mud soils. Most of the city sits on soils that are considered to be moderately well draining, which, if used responsibly, can help to mitigate flooding issues in the future. The map below displays the distribution of well-draining and moderately well-draining soils throughout Navasota (Map 7-1).
The segment of the Navasota River that runs just outside the western city boundary is classified as a primary contact recreation (PCR) use by the Texas Commission on Environmental Quality (TCEQ) (see Map 7-2). According to the Texas Surface Water Quality Standards, PCR includes “activities that are presumed to involve a significant risk of ingestion of water (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, and the following whitewater activities: kayaking, canoeing, and rafting).” (Texas Surface
Water Quality Standards, 307.3 (a) (47)). Public access points for the residents in the area are limited due to the lack of public land along the banks of the river near Navasota. However, in the summer of 2012, TCEQ performed a recreational use attainability analysis and observed six individuals wading and swimming in the river. During the field study, the TCEQ also interviewed residents and “identified 17 personal instances of people engaging in PCR activities, swimming being the most common” (TCEQ, 2012). Therefore, there is some interest in the recreational opportunities that the Navasota River provides. The public safety concern must be addressed first before residents are encouraged to participate in PCR activities in the river.

The Brazos River Authority characterizes Cedar Creek as a “small sluggish and intermittently stagnant creek in a lowland area with little flow or mixing of water” (see Map 7-2). These characteristics often result in conditions that are not suitable for supporting general uses. The creek is used for waste water outfall toward the southwestern section of its flow. The creek is unclassified by TCEQ. A small body of water exists near the intersection of the creek with the eastern boundary of the city. The body of water is used for environmental education purposes. A trail system exists alongside the creek. Another creek within the southern extraterritorial jurisdiction (ETJ) is Sandy Creek, which rises in southwest Grimes County three miles east of Navasota (see Map 7-2).
Ground Water

All drinking water in Navasota comes from the Carrizo-Wilcox aquifer. Due to the current state of the aquifer, Navasota will have an adequate supply of water through the year 2050 if the current level of water consumption and acquisition remains constant. Any drilling, well, completion, or plugging projects in or around the city should take care to not contaminate the aquifer.
Map 7-3: Carrizo-Wilcox Aquifer and Recharge Zones
Although Navasota does not rely on good surface water quality for drinking purposes, poor water quality is a public safety concern for recreational purposes. The Navasota River could possibly be used as a valuable recreational resource, but first an assessment of the water quality will be necessary. The Navasota River runs through two eco-regions, the Texas Blackland Prairie and the East Central Texas Plains. Most of the river’s water quality is good, except for certain segments. In 2002, the segment that runs along the western border of Navasota was placed on the 303 (d) list. This is a catalogued list of impaired waters which do not meet the standard bacteria levels set by TCEQ. It remains on the most recent list, the 2010 Texas Clean Water Act section 303 (d) list, for elevated bacteria levels.

The TCEQ standard for primary contact recreation use is a mean criterion of 126 CFU/100mL. A water quality monitoring site has been established by the Brazos River Authority and has been active since 2007 (Table 7-3). There have been large fluctuations in the levels of bacteria in the six-year monitoring period (Figure 7-2). The most significant bacteria monitoring event occurred in March 2012, when more than 24,000 mpn/100ml were recorded1 (Figure 7-2, 7-3). This unusually high level of bacteria could be the result of a particular set of consequences such as a flooding event or unscheduled discharge. Despite the cause, a plan to clean the river and avoid such events in the future needs to be a priority for environmental improvement and would more easily be achieved through partnerships.

Currently, there is little to no urban development along the Navasota River near the City of Navasota. A vegetation buffer runs along most of this segment. The most likely source of E.coli might be storm water runoff from agricultural lands and livestock and faulty septic systems. A vegetation buffer naturally absorbs some of the nutrients and sources of E. coli from entering the stream segment. There are only about five homes, two churches, and two businesses on septic systems within the city limits but the number of septic systems in the extraterritorial jurisdiction along the river is unknown. Cities upstream from Navasota may also be another source of pollution worth investigating.

Other water quality parameters that are important to monitor are conductivity, dissolved oxygen, and nutrient levels. The water quality monitoring site on the segment near Navasota has been monitored for

1 EPA: 1 cfu (colony forming units)= 1 mpn (most probable number)
these parameters since 2007. The average dissolved oxygen levels are appropriate and can sustain most aquatic life (Table 7-3). The nutrient parameter measures the amount of nitrogen entering the water body. Figure 7-2 demonstrates the fluctuation of nutrients entering the stream segment throughout the six-year period, although the Brazos River Authority reports that nutrient levels commonly exceed concern levels. Nutrient levels increase algal growth that decrease levels of dissolved oxygen and may become deadly for aquatic life. According to the EPA “conductivity levels of inland fresh waters that support good mixed fisheries have a range between 150 and 500 uMhos/cm @ 25 degrees.” Significant changes in conductivity could indicate a discharge or some other source of pollution entering the stream (EPA). In 2010 and 2011, the levels of conductivity were higher than the ideal but in 2012 it has decreased to better levels (Figure 7-5). Best management practices and up-to-date wastewater facilities can ameliorate these sharp increases in conductivity.

Table 7-3: Water Quality Trend for the Navasota River

<table>
<thead>
<tr>
<th>Date of Testing</th>
<th>E. coli (MPN/100ml)[1]</th>
<th>Nutrients</th>
<th>Dissolved Oxygen (mg/L)</th>
<th>Conductivity (uMhos/cm @ 25C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/25/2012</td>
<td>18</td>
<td>No Data</td>
<td>6.3</td>
<td>363</td>
</tr>
<tr>
<td>03/20/2012</td>
<td>&gt;24000</td>
<td>No Data</td>
<td>6.4</td>
<td>204</td>
</tr>
<tr>
<td>12/19/2011</td>
<td>440</td>
<td>No Data</td>
<td>8.8</td>
<td>821</td>
</tr>
<tr>
<td>09/27/2011</td>
<td>210</td>
<td>2.50</td>
<td>4.5</td>
<td>561</td>
</tr>
<tr>
<td>08/24/2011</td>
<td>No Data</td>
<td>No Data</td>
<td>7</td>
<td>388</td>
</tr>
<tr>
<td>07/12/2011</td>
<td>1</td>
<td>6.84</td>
<td>5.9</td>
<td>879</td>
</tr>
<tr>
<td>06/29/2011</td>
<td>No Data</td>
<td>No Data</td>
<td>4.4</td>
<td>559</td>
</tr>
<tr>
<td>04/26/2011</td>
<td>No Data</td>
<td>No Data</td>
<td>7.2</td>
<td>920</td>
</tr>
<tr>
<td>04/11/2011</td>
<td>30</td>
<td>6.70</td>
<td>7.7</td>
<td>775</td>
</tr>
<tr>
<td>02/23/2011</td>
<td>No Data</td>
<td>6.44</td>
<td>8.1</td>
<td>744</td>
</tr>
</tbody>
</table>

[1] uMhos/cm = micromhos per centimeter (µmhos/cm) Conductivity is affected by temperature: the warmer the water, the higher the conductivity. For this reason, conductivity is reported as conductivity at 25 degrees Celsius (25 C).
<table>
<thead>
<tr>
<th>Date</th>
<th>No Data 1</th>
<th>No Data 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/19/2011</td>
<td>680</td>
<td>No Data</td>
<td>8.8</td>
<td>443</td>
</tr>
<tr>
<td>12/28/2010</td>
<td>No Data</td>
<td>No Data</td>
<td>10</td>
<td>691</td>
</tr>
<tr>
<td>10/27/2010</td>
<td>No Data</td>
<td>No Data</td>
<td>6.8</td>
<td>1210</td>
</tr>
<tr>
<td>10/19/2010</td>
<td>110</td>
<td>14</td>
<td>8.6</td>
<td>1060</td>
</tr>
<tr>
<td>06/29/2010</td>
<td>42</td>
<td>1.36</td>
<td>5.2</td>
<td>431</td>
</tr>
<tr>
<td>04/07/2010</td>
<td>59</td>
<td>0.97</td>
<td>6.5</td>
<td>472</td>
</tr>
<tr>
<td>01/07/2010</td>
<td>130</td>
<td>1.34</td>
<td>11.2</td>
<td>483</td>
</tr>
<tr>
<td>10/01/2009</td>
<td>88</td>
<td>1.45</td>
<td>6.5</td>
<td>614</td>
</tr>
<tr>
<td>04/22/2009</td>
<td>370</td>
<td>0.1</td>
<td>5.2</td>
<td>316</td>
</tr>
<tr>
<td>01/20/2009</td>
<td>30</td>
<td>5.54</td>
<td>11.3</td>
<td>599</td>
</tr>
<tr>
<td>10/07/2008</td>
<td>54</td>
<td>5.34</td>
<td>7.4</td>
<td>624</td>
</tr>
<tr>
<td>07/16/2008</td>
<td>26</td>
<td>No Data</td>
<td>4.45</td>
<td>536</td>
</tr>
<tr>
<td>04/22/2008</td>
<td>730</td>
<td>0.48</td>
<td>6.32</td>
<td>490</td>
</tr>
<tr>
<td>01/16/2008</td>
<td>68</td>
<td>2.32</td>
<td>10.07</td>
<td>574.4</td>
</tr>
<tr>
<td>10/24/2007</td>
<td>360</td>
<td>2.71</td>
<td>8.36</td>
<td>498.4</td>
</tr>
</tbody>
</table>

Source: Texas Commission on Environmental Quality

[1] EPA: 1 cfu (colony forming units)= 1 mpn (most probable number); MPN: a method to determine the approximate number of viable cells in a given volume of sample.
Figure 7-2: E. coli levels for the Navasota River

Figure 7-3: Dissolved Oxygen levels for the Navasota River
Figure 7-4: Nutrient levels for the Navasota River

Figure 7-5: Average Conductivity levels for the Navasota River
Bacteria impairments also exist in Cedar Creek. The municipal discharge into the creek, in conjunction with the creek’s natural characteristics, is the most probable causes of the impairment. The creek runs through downtown from east to west just north of the central business district (CBD) and will also be affected by urban sources of pollution such as storm water runoff and pet waste. Storm water from storm sewers and storm water in open ditches and channels will go directly to Cedar Creek or the west tributary of Grassy Creek. Currently, Navasota does not have a storm water plan to seriously address issues that may result from storm water runoff pollution. However, new developments are required to perform a drainage study to meet certain requirement.

There are a number of sources that could be responsible for the degraded state of these segments. The EPA reports that non-point sources like “organic matter from agricultural operations, excess herbicides and insecticides from agricultural lands and residential areas, sediment from improperly managed construction sites, crop and forest land, and eroded stream banks, overflow of wastewater treatment facilities, septic system failures, pet waste and oils, grease and chemicals from urban runoff have been reported by states to be the leading cause of water quality problems.” Non-point sources are difficult to address because they do not have a “discernible, confined and discrete conveyance”, as opposed to easily identifiable point sources, and must be permitted. There is one permitted industrial discharge permit within the city limits. This permit belongs to the International Paper Company and is located on the northeastern side of town, 0.35 miles north of Cedar Creek. Due to the heavy reliance on groundwater, any wells that are no longer in use should be properly plugged and destroyed. Wells that are not properly plugged allow contaminated surface and shallow groundwater to enter the aquifer which is relied on for safe drinking water. As aquifers become contaminated, private and public wells owners will need to resort to deeper, more costly wells or expensive water treatment systems to ensure safe drinking water for the Navasota community. There are a number of structures, land uses and properties that can contribute to the contamination of the water system through
spills, leaks and seepage. The location of these potential sources of contamination (PSOC) should be inventoried and future PSOC's should be sited away from water sources.

Ecosystem

Eco-regions

Navasota is a part of the Blackland Prairie natural ecological region. This region was traditionally covered with tall-grass prairies “dominated by tall-growing grasses such as big bluestem, little bluestem, indiangrass, and switchgrass (Texas Invasives).” The region was coined Blackland Prairie due to its rich, black, highly productive clay soils. Very few characteristics of the native prairie sites are evident in the region. The high yielding soils encouraged early settlers to grow food on the land. Today, most of the land has been devoted to cropland and other agricultural purposes such as livestock grazing. Habitat for native species has also decreased as a result of urban expansion. Most of the habitat and natural areas exist as small patches scattered throughout the region with little connectivity.

Prime Wildlife Habitat

The habitat for a variety of wildlife species such as small game animals, songbirds, waterfowl, shorebirds, and white-tailed deer occurs mostly along the riparian zones. Wildlife habitat also occurs along steep slopes where cultivation is not possible. Some of the plant species that make up this habitat includes species such as eastern red cedar, Ashe juniper, cedar elm, Texas persimmon, elbowbush, deciduous holly, live oak, and other woody species. To a much smaller extent, Navasota falls into the Floodplain and Low Terraces eco-region. This eco-region was originally characterized of bottomland forests containing Bur Oak, Shumard Oak, sugar hackberry, elm, ash, eastern cottonwood, and pecan but most have been converted to cropland and pasture.

The landscape of the area today can be easily characterized as a Post Oak woods, forests, and grassland mosaic. The Navasota area supports several different species of elm, holly, hickory and maple trees among others. Additionally the area enjoys an assortment of native wildflowers such as Bluebonnet, Indian Paint Brushes and Little bluestem.

There is minimal vegetation habitat within the Navasota city limits. One of the largest patches of habitat exists as a riparian zone along the southwestern portion of Cedar Creek, crosses the western city border and connects with the Navasota River (Map 7-4). Another sizeable patch is located along Route 508 on the northwestern part of town. The last patch is smaller than the previous two and can be located in the southeastern part of town. The habitat that remains in the city limits is fragmented. The patches located closest to the Navasota River would become more ecologically valuable by creating a natural corridor to connect them to each other and the Navasota River. Outside the city limits, in the extraterritorial jurisdiction (ETJ), the vegetation buffer along the Navasota River creates a riparian zone and prime wildlife habitat. The largest habitat patch exists in the northern portion of the ETJ. The habitat continues into another jurisdiction, which means the size of the patch is even larger than can be seen on Map 7-4. A partnership with neighboring jurisdictions to preserve this habitat using a variety of available tools would create a source of valuable and highly needed habitat in the area.
Endangered Species

There are a number of federally listed and state listed species in the Grimes County Area. In addition to endangered or threatened species, there are also species which are considered rare because they're rarely found throughout their natural range. The Texas Parks and Wildlife Department maintains a list of Rare, Threatened, and Endangered Species of Texas and their habitat needs. Species may be listed as state threatened or endangered and not federally listed (Texas Parks and Wildlife). Table 7-4 includes species that are part of the federal list and the state list as well. The species that are of greatest concern are listed as federally endangered and also considered endangered in the state; they include the Whooping Crane, Red-cockaded Woodpecker, Interior Least Tern, Red Wolf, and the Navasota Ladies’-tresses. The protection and conservation of the Navasota ladies’-tresses is even more important because this plant is unique to the Navasota area and does not occur anywhere else. The Navasota ladies’-tresses habitat includes openings in Post Oak Savannah woodlands, along intermittent streams, and other suitable hydrological factors.
### Table 7-4: Endangered Species of Grimes County

<table>
<thead>
<tr>
<th>Birds</th>
<th>Reptiles</th>
<th>Mammals</th>
<th>Plants</th>
<th>Mollusks</th>
<th>Fishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henslow's Sparrow</td>
<td>Louisiana pine snake</td>
<td>*Red wolf</td>
<td>*Navasota ladies' tresses</td>
<td>Smooth pimpleback</td>
<td>Blue sucker</td>
</tr>
<tr>
<td>Sprague's Pipit</td>
<td>Texas horned lizard</td>
<td>Southeastern myotis bat</td>
<td>Branched gay-feather</td>
<td>False spike mussel</td>
<td>Sharpnose shiner</td>
</tr>
<tr>
<td>Peregrine Falcon</td>
<td>Alligator snapping turtle</td>
<td>Plains spotted skunk</td>
<td>Navasota false foxglove</td>
<td>Texas fawnsfoot</td>
<td></td>
</tr>
<tr>
<td>American Peregrine Falcon</td>
<td>Timber/Canebrake rattlesnake</td>
<td>**Louisiana black bear</td>
<td>Texas meadow-rue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arctic Peregrine Falcon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Whooping Crane</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bald Eagle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood Stork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Red-cockaded Woodpecker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-faced Ibis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Interior Least Tern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Species is listed as federally endangered and listed on the state list as endangered

**Species is listed as federally threatened and listed on the state list as threatened

Source: Texas Parks and Wildlife Department

**Invasive Species**

It is important to be aware of the invasive species in the natural areas of Navasota for a number of reasons. For example, invasive plants compete with native wildflowers for resources. Native wildflowers of Texas are
a tourist attraction in the spring. Not addressing the invasive species issue can kill off many native wildflowers and impact area tourism. According to Master Naturalist Judy Deaton whom collects invasive species data for the Invaders of Texas program, the most common invasive species in the Navasota area includes Johnson grass, Bastard cabbage, Chinese privet and Chinaberry trees. However, the exotic grasses that are heavily used in agriculture, such as Bermuda grass, in conjunction with development patterns played a large role in the decline of the natural grasslands that historically characterized the region. The decline of the tall grass prairies initiated the loss of native bird species in the region. Currently the Texas A&M Forest Service is doing extensive work on invasive species in Texas and could serve as a valuable resource to address invasive species issues in Navasota. Table 7-5 lists the plants that have been identified as the major and most threatening invasive species in the Blackland Prairies eco-region.

Table 7-5: Invasive Species for the Blackland Prairie Ecoregion

<table>
<thead>
<tr>
<th>Invasive Species</th>
<th>Latin Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bastard cabbage</td>
<td>Rapistrum rugosum</td>
</tr>
<tr>
<td>Giant reed</td>
<td>Arundo donax</td>
</tr>
<tr>
<td>Johnson grass</td>
<td>Sorghum halepense</td>
</tr>
<tr>
<td>Chinese tallow tree</td>
<td>Triadica sebifera</td>
</tr>
<tr>
<td>King Ranch bluestem</td>
<td>Bothriochloa ischaemum var. songarica</td>
</tr>
<tr>
<td>Field bindweed</td>
<td>Convolvulus arvensis</td>
</tr>
<tr>
<td>Bermuda grass</td>
<td>Cynodon dactylon</td>
</tr>
<tr>
<td>Chinaberry tree</td>
<td>Melia azedarach</td>
</tr>
<tr>
<td>Redtip photinia</td>
<td>Photinia x fraseri</td>
</tr>
<tr>
<td>Heavenly bamboo</td>
<td>Nandina domestica</td>
</tr>
<tr>
<td>Pincushions</td>
<td>Scabiosa atropurpurea</td>
</tr>
<tr>
<td>Chinese privet</td>
<td>Ligustrum sinense</td>
</tr>
</tbody>
</table>

The feral pig is an invasive animal that is causing a large amount of damage in the state of Texas. They are distributed throughout much of Texas and generally inhabit the same range as white-tailed deer. They negatively affect water quality, other wildlife communities, plant communities and domestic crops and
livestock operations. If residents notice an increasing number of feral pigs in the area, different strategies to remove them or reduce their numbers are strongly advised.

Sources

EPA: http://water.epa.gov/type/rls/monitoring/vms59.cfm
Gary Johnson from Navasota Public Works
tables of causes of impairment for Navasota watershed:
EPA: http://www.epa.gov/owow_keep/NPS/whatis.html
Idaho Deaprtment of Natural Resouces
TPWD: http://www.tpwd.state.tx.us/huntwild/wild/species/exotic/
TPWD: http://www.tpwd.state.tx.us/landwater/land/habitats/cross_timbers/ecoregions/blackland.phtml
Chapter 8 Hazards

Introduction

The Draft Grimes County Hazard Mitigation Plan 2010-2015 states that their vision is in “reducing or eliminating the long-term risk of loss of life and property from...natural disasters” (Draft Grimes County Hazard Mitigation Plan 2010-2015, p. 3). By incorporating an evaluation of hazards within the comprehensive plan the community can:

- Guide future land use planning and
- Bring an awareness of hazards to the community.

Several goals in the hazard mitigation plan describe the need to generate public awareness by local community leaders. In part, incorporating an evaluation of hazards within the comprehensive plan is another way to generate this public awareness.

Historical Review

There are several hazards that affect the City of Navasota. Between 1960 and 2010 there have been 126 natural disasters in Grimes County, including 10 types of hazards such as wind, lightning, hurricane/tropical storm, tornado, winter weather, hail, flooding, heat, severe storm/thunder storm, and drought. There have been three 'major events' between 1960 and 2010, which are specified as Hurricane Carla, Hurricane Edith, and Tropical Storm Allison. There have also been two Presidential Disaster declarations since 1965 in Grimes County: flooding in 1994 and Hurricane Ike in 2008 (Grimes County Hazard Mitigation Plan 2010-2015).

Since 1960, nearly 30 percent of all hazards have been wind-related events to severe storms or thunderstorms (Figure 8-1). Twenty percent of all hazards have been related to flooding (Figure 8-1). Flooding is more of a problem in Grimes County as compared to the state of Texas (Figure 8-2).

Figure 8-1: Percentage of Hazard Types in Grimes County between 1960-2010

- Drought
- Flooding
- Hail
- Hail - Severe Storm/Thunder Storm
- Heat
- Hurricane/Tropical Storm
- Hurricane/Tropical Storm - Tornado
- Lightning
- Severe Storm/Thunder Storm
- Severe Storm/Thunder Storm - Wind
- Tornado
- Wind
- Winter Weather
These hazards pose a threat to economic progress in the area. Grimes County has suffered some of the greatest property and crop loss compared to other counties in the state (Map 8-1). Ninety-six percent of all property loss has come from hurricanes and tropical storms (Appendix, Table 8-A1, Figure 8-A1). Seventy-five percent of all crop damage has been due to drought (Appendix, Table 8-A2, Figure 8-A2).
Map 8-1: Economic Losses from Hazards in Texas 1960-2009

Total Losses (Property and Crop)
- 11,881,027 - 51,015,282
- 51,015,283 - 80,607,107
- 80,607,108 - 136,887,521
- 136,887,522 - 246,224,973
- 246,224,974 - 1,799,912,260

Source: SHELDUS v. 8.0
Classification: Quantiles
Losses adjusted to 2009 Dollars
Hazards also pose a threat to loss of life. As seen in Figure 8-3, wind-related severe storms and thunderstorms have caused the most injuries in the county, while flooding has caused the most deaths.

Figure 8-3: Number of Injuries and Fatalities by Hazard Type in Grimes County from 1960-2010

The Grimes County Emergency Manager and the Navasota Fire Chief both stated that flooding and hazardous materials are hazards which pose the greatest threat to Navasota (personal communication, October 2, 2012).

Social Vulnerability and Hazards

It is important to understand that not all people within the county or within Navasota are affected the same way by hazards. Certain populations are more vulnerable than others. Socially vulnerable populations have a more difficult time coping with, resisting and absorbing impacts, and recovering from disasters. Socially vulnerable populations typically have limited access to resources. Some vulnerable groups have socially-constructed limitations to the access of resources, such as new residents to the country and community, females, and racial minority groups. Other vulnerable populations may be physically limited to the access of resources, such as low income earners, children, and elderly. Great attention must be paid to populations which have multiple social vulnerability characteristics. These groups are generally disadvantaged, marginalized, and underserved within communities and the onset of disaster impact only exacerbates social struggles (Fothergill 2004). Disasters do not uniformly impact a community (Fothergill 2004). Communities must understand the spatial distribution of socially vulnerable populations, not to discourage or continue to marginalize these populations, but to inject appropriate resources and services to more rapidly recover from disaster impacts.

Census Tract 1801.01, which is primarily on the west side of Navasota, has several indicators which point to socially vulnerable areas (Appendix, Table 8-A3). Tract 1801.01 is much more vulnerable in Navasota compared to the Texas average (see Appendix, Table 8-A3). This area has high rates of female-headed households with children, people 65 years and over, and grandparents responsible for grandchildren (see Appendix, Table 8-A3). Low educational attainment is found throughout this tract and may point to limited
physical and financial resources to recover from disasters. Special preparedness and response efforts will need to be made for this area. The Fire Chief identified homes south of Spur 515 and around FM 379 as particularly vulnerable areas (personal communication, October 2, 2012).

**Critical Facilities**

Critical facilities are an important component for emergency response and disaster recovery. These essential facilities should not be placed in hazardous areas. These facilities are mapped in relation to the floodplain and hazardous materials (see Floods and Hazardous Materials Sections). The Grimes County Hazard Mitigation Plan 2010-2015 (p. 30) has defined critical and essential facilities as:

- Facilities critical to normal and emergency response operations in the area (fire stations, police stations, and the EOC)
- Infrastructure and facilities critical to community survivability or continuity of community services (transportation facilities; post offices; radio station and other communication facilities; electrical transmission and distribution; water and wastewater treatment),
- Facilities needed to assist vulnerable populations during and after a disaster (schools, hospitals, residential care facilities), and
- Facilities in which key government functions take place (sheriff’s office, county courthouse, town halls).

It is important to note that the Navasota Independent School District (NISD) has an emergency management plan and are incorporated into the city emergency management plan (Jason Katkoski, personal communication, October 23, 2012). The fire chief and school district has all necessary plans for emergency preparedness and response (Jason Katkoski, personal communication, October 23, 2012).

**Progress Report on Goals**

The following are an update on the progress of emergency management and hazards-related goals and objectives as set forth by the city.

- Navasota strives to maintain high quality fire services and facilities by providing fire prevention education (pre-k through 5th grade) and some adult and business education. The fire chief has expressed a desire to expand public education to offer more programs, but is currently at budgetary and personnel limits. The fire department plans to upgrade the fire station and to make it more efficient and professional (Jason Katkoski, personal communication, October 23, 2012).

- Navasota strives to be a community that is safe from hazards. An objective of the city is to install sirens in the correct quantity and location. In the past sirens were not successful and the city has no current policies or budgetary item to address this objective. Currently the city is using a community call back system called Connect CTY (Jason Katkoski, personal communication, October 23, 2012).

- Another objective is to use the National Oceanic and Atmospheric Administration (NOAA) “All Hazards” radios for early warning. There is a strong desire to develop a community program to get
these throughout the community similar to our smoke detector program, but there are currently no financial or personnel resources to address the objective (Jason Katkoski, personal communication, October 23, 2012).

- Another city objective is to designate “safe places” or public buildings that can serve as shelter from severe storms and tornados. In order to tackle this objective the structural stability of buildings throughout the CBD will need to be analyzed (Jason Katkoski, personal communication, October 23, 2012).

- The Emergency Management Plan conducts a hazard identification analysis every 5 years, as well as the Hazard Mitigation Plan. This is a state and federal requirement but unfortunately Navasota is restricted by the Council of Governments (COG) where the plan has been awaiting final approval from the state and FEMA for nearly three years (Jason Katkoski, personal communication, October 23, 2012).

- An objective of the City is to have effective communication among the city’s employees through the use of two-way radios. Currently there is radio communication between the police department and fire department, but Public Works (PW) and other departments are not in radio communication with public safety. Proper funds should be allocated and training should be conducted to accomplish this objective (Jason Katkoski, personal communication, October 23, 2012).

- Navasota has created an Emergency Action Plan in Annex A & B, which coordinates with police and fire departments to inform and direct the public on what to do in the event of an emergency. Particular attention has been paid to Navasota’s schools and the CBD. This is a state and federal mandate (Jason Katkoski, personal communication, October 23, 2012).

- The city has created an emergency management plan for the CBD, which has identified safe areas and evacuation routes within Annex E. This is a state and federal mandate (Jason Katkoski, personal communication, October 23, 2012).

- The city has set a goal to practice each segment of its emergency management plan twice per year. This does not appear to be a realistic goal and a more appropriate goal may be to conduct an exercise annually or once every two years. Currently, fire and police staff participate in exercises throughout the region (Jason Katkoski, personal communication, October 23, 2012).

**Hurricanes/Tropical Storms**

Tropical storm force winds are strong enough to tip over a bus and pose a potential threat anytime they are present. Emergency personnel should take great care in preparation for tropical storms and hurricanes. As mentioned, hurricanes and tropical storms have made up 96 percent of all property damage in the county. Tropical Storm Allison in 2001 caused the most property damage in the county, even though the city of Navasota received minimal impact (Figure 8-4). While the county was affected, the Navasota Fire Chief stated that the city of Navasota was not affected by Tropical Storm Allison (personal communication, October 2, 2012). Regardless, it is apparent that Navasota is exposed to high frequency rates of hurricanes and tropical storms. During Tropical Storm Ike, the city of Navasota experienced widespread power loss. The Fire Chief explained this was primarily due to the fact that Navasota receives power by transmission lines from Beaumont (personal communication, October 2, 2012). Backup power is received from Willis,
but they were also affected during the storm. A part of the city’s hazard mitigation action items are to purchase generators at each of the shelter sites within the community to help combat this vulnerability. The Fire Chief stated that Hurricane Alicia caused widespread damage in the City of Navasota, similar to that of Tropical Storm Ike (personal communication, October 12, 2012).

Figure 8-4: Hurricane/Tropical Storm Property damage from 1960 - 2010

Floods

As previously mentioned, flooding makes up 20 percent of all hazards in Grimes County. There have been 27 flood events within Grimes County from 1960-2010. Flooding is ranked the highest in terms of economic loss for Grimes County (Grimes County Hazard Mitigation Plan). The county hazard mitigation plan has classified flooding as the only “major severity of impact [that] may result in injuries or illnesses that result in permanent disability, complete shutdown of critical facilities for at least two weeks, or more than 25 percent of property destroyed or with property damage” (Grimes County Hazard Mitigation Plan, p. 33). Because of this, flooding will be analyzed to determine guiding principles for future land use.

Portions of the City of Navasota have been built within the Federal Emergency Management administration (FEMA) 100-year designated floodplain. By definition, areas within a 100-year floodplain respectively have a one percent chance in a given year of being inundated (Zone A and AE).

There are two segments of floodplains running through Navasota. One is along Cedar Creek which runs through downtown (Map 8-2). The 100-year floodplain is 0.1 mile wide at both sides of the creek. The other significant portion of floodplain is south of town where little development occurs. The development along Spur 515 floods frequently. It is in the best interest of people and their properties for the city to guide development away from this floodplain.
There has been a notable increase in property damage since 1990 in the county (Appendix, Figure 8-A6). Between 1960 and 1990, there was only $3,500 in property damage in the county. Between 1990 and 2010 there has been more than $4 million in damage in the county to floods. Development inside the floodplain places people and property in harm’s way. Map 8-2 displays development inside the floodplain in relation to socially vulnerable populations. The city should allocate extra resources in these areas and take mitigation actions along these segments of the floodplain. Some of the structures that are exposed to flood loss in the city are critical facilities. The following map (Map 8-3) displays the critical facilities that lie within flood zones. Several critical facilities lie within or very near the floodplain, including Navasota Intermediate School, Navasota Medical Center, Head Start, the police department, city hall, the post office, and the fire department. These facilities should take concerted efforts to mitigate hazards. Response and recovery plans should be generated to reduce the impact of flooding. It is recommended that future development does not occur in floodplains.
The City of Navasota is a participating community in the National Flood Insurance Program and the Community Rating System (CRS). This allows the community’s residents to purchase flood insurance at reduced rates. There are 43 policies in effect, totaling nearly $4.5 million in coverage (Grimes County Hazard Mitigation Plan, 2010-2015). NFIP will not insure structures which have undergone several flood events. The city of Navasota has two Repetitive Loss Structures and zero Severe Repetitive Loss structures, having claimed more than $59,000 in insurance monies. These structures are at risk of losing flood insurance policies because of the frequency of flooding. This kind of designation is an indicator of flood risk in the community.

There are a total of 77 dams and two high level dams in Grimes County, the latter of which human loss of life, economic, environmental, and lifeline loss is expected upon a breach. These dams include the Gibbons Creek Mine dam, which is less than 20 miles away, and the Yarboro Dam, which is less than 10 miles away. Emergency Action Plans have been developed by these dam owners. The dam locations will not affect future land use decisions in the City of Navasota. Flooding is a significant threat to Navasota, and it should guide future land use decisions.

The following are flood mitigation action items that are planned to take place between 2010 and 2015:

- A storm water pump at Foster Street to improve drainage during flooding.
• Reduce flooding along Buckingham Lane
• Acquire properties adjacent to Cedar Creek north of Brule Drive
• Conduct a drainage study of Sandy Creek Tributary
• Conduct a drainage study of Cedar Creek and remove obstructions to reduce downtown flooding
• Erosion Control and Storm Sewer Installation of Milroy Terrace
• Clean and line Cedar Creek downstream of the railroad trestle
• Clean and line Cedar Creek upstream of the railroad trestle
• Remove abandoned railroad trestle reduce or eliminate downtown flooding
• Provide awareness program and assistance to local building owners within the historic downtown

The City of Navasota has taken on planning efforts to reduce the vulnerability to hazards. Since 1985, Navasota has screened all building permits for flood hazards, requiring mitigation plans for new structures within the floodplain. According to the Grimes County Hazard Mitigation Plan, the city has a FEMA community rating systems plan, a watershed protection plan, master drainage and storm water plan, comprehensive plan, and capital improvements plan (Grimes County Hazard Mitigation Plan 2010-2015). City officials have verified that there is not a current watershed protection plan or storm water plan. It should be noted that the Grimes County Hazard Mitigation Plan for 2010-2015 is still in draft form. Efforts should be made to develop these plans and improve the existing plans.

Hazardous Material

Texas has a total of 63,156 hazardous facilities throughout the state, significantly more than any other state in the country. Likewise Navasota is exposed to hazardous facilities throughout the community. Figure 19 displays the toxic sites within the Navasota city limits and the ETJ. These are a combination of 2011 Tier II sites and potential sources of contamination (PSOC). Tier II sites have 10,000 pounds or more of hazardous materials on site, or 500 pounds of extremely hazardous materials on site. These sites pose a threat to people and property (Appendix, Table 8-A5). According to the fire chief, a 1000-foot protection buffer is recommended around these sites. In planning for future land use growth, it is prudent to discourage development within 1000 feet of such hazardous sites. All future development or redevelopment plan must include this information to avoid future hazards. The Navasota fire chief explained that NOV Tuboscope is planning to double chemical capacity within the coming year. The fire department is developing new plans to properly understand this new threat. In Figure 19 above, you can see there are several critical facilities within the 1000-foot protection buffer. Specifically the Navasota Medical Center, the police department, city hall, and the post office are within 1000 feet of Tier II sites. These facilities should take particular care with frequent training and exercises to prepare to respond to these hazards.

Potential sources of contamination (PSOC) within the city limits have also been identified in Map 8-4. Some of the sources include landfills, brownfields, permitted industrial and hazardous waste sites, and waste water outfalls. The location of these sites is mapped in relation to homes, water wells, and the floodplain (Figure
Although some sites such as Tier II sites pose a greater threat to public safety, it is important to know the exact location of all of the potential sources of contamination to address spills, leaks and other forms of contamination from these sources. The Emergency Management Plan has established chemical spill scenarios throughout the city and along the railroad within Annex Q & S of the plan.

The analysis for Navasota demonstrated the presence of 101 potential sources of contamination (PSOC) within the city limits, of which ten were categorized as Tier II sites. It is also important to know the PSOC situation within the extraterritorial jurisdiction (ETJ) to mitigate hazards for future development. Currently, Navasota has five potential sources of contamination and six Tier II sites within the boundaries of the ETJ (Map 8-4). There are 20 PSOCs found within the floodplain with two designated as Tier II sites. There are 914 parcels and two public well sites within the 1000-foot protection buffer (Map 8-4). The location of PSOCs in relation to residential uses, water supplies, ecologically-sensitive areas and flood prone areas should be considered more thoroughly for future development planning.

Map 8-4: Potential Sources of Contamination

Other Hazards

Some of the other hazards that pose a threat to Navasota include wind, severe storms, hail, and winter weather. These are explained in the historical review of hazards of the county earlier in this chapter.

Drought and fire are hazards of specific interest. The Texas Forest Service has designated Grimes County as low risk to wildfires. The Navasota fire department has battled five wildfires since 2005, primarily due to
debris burning (Grimes County Hazard Mitigation Plan 2010-2015). The emergency manager’s website has several links and recommendations for the public in terms of fire, including Firewise Plants for Landscaping, the Ready, Set, Go! Program, the Ready, Set, Go! Personal Wildfire Action Plan, and the Living on the Edge- Urban Wildland Interface.

Since 1960, there have been three drought periods in 1996, 1998, and 2000 (Appendix, Figure A8). This data does not include the drought impact of 2011. Regardless, drought has caused severe agricultural economic loss, with nearly $24.5 million in damage for the county between 1960 and 2010.

According to the Grimes County Hazard Mitigation Plan, the city currently has completed the Department of Justice terrorism vulnerability assessment as a way to prepare for terrorist acts. The fire and police department participate in regional exercises to adequately train for such an event.

**Land Suitability Overlay**

It is important for city officials to be aware of the areas in their cities that are not optimal for future development. There are a number of factors that can be included in a land suitability analysis. The land suitability analysis developed for this section only takes into consideration environmental and hazard factors. The analysis should not be used as the only tool to determine areas that are suitable and not suitable for future development. The layers that were used in this analysis were poorly drained soils (Map 8-5), habitat area (Map 8-6), flood zone (Map 8-7), and hazardous material protection buffers (Map 8-8). The areas in the darkest shade of green represent areas where development is not encouraged (Map 8-9). The lighter shade of green is also not recommended but is more suitable than the areas covered in the darkest green.

Development on poorly drained soils is not encouraged because of the increased potential for flooding damage during a hazard event. The development of habitat areas made up of a variety of vegetation types is also not encouraged to provide environmental protection and recreational use for the residents of Gonzales. Because hazardous materials pose a threat to public health, the fire chief has designated 1000-foot evacuation buffers around the sites with 10,000 pounds of chemicals or more. Future development is discouraged to occur within these 1000-foot buffers. Future development is also discouraged in the floodplain because of the increased chance of loss of life and property damages within the floodplain during a hazard event.

The combination of these factors demonstrates future development in the City of Navasota is not ideal in the center of the city mainly in part to the floodplain and the proximity to hazardous chemical sites. The addition of development in these areas would increase the number of people at risk to flooding and chemical materials. Development of land along the Navasota River is also discouraged because of the combination of existing habitat and the floodplain. If the city plans future development in this area, the land may be better suited for parkland or other similar low-impact uses. Land along Cedar Creek in the southwestern section of the city and part of the ETJ should also be avoided because of the floodplain and existing habitat.
Map 8-5: Avoid Poorly Drained Soil
Map 8-6: Avoid Fragmentation of Habitats
Map 8-7: Avoid Floodplains
Map 8-8: Avoid Hazardous Materials
Map 8-9: Areas to Discourage Future Development
Sources

U.S. Census Bureau, http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
Grimes County Hazard Mitigation Plan 2010-2015
Navasota Emergency Action Plan
# Appendix

Table 8-A1: Grimes County Property Damage (USD) by Hazard Type (Adjusted to 2010 USD) from 1960-2010

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Total Property Damage</th>
<th>Percentage of Property Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>2541062.81</td>
<td>0.53%</td>
</tr>
<tr>
<td>Flooding</td>
<td>4212206.75</td>
<td>0.89%</td>
</tr>
<tr>
<td>Hail</td>
<td>689579.14</td>
<td>0.15%</td>
</tr>
<tr>
<td>Hail - Severe Storm/Thunder Storm</td>
<td>108695.65</td>
<td>0.02%</td>
</tr>
<tr>
<td>Heat</td>
<td>13997.76</td>
<td>0.00%</td>
</tr>
<tr>
<td>Hurricane/Tropical Storm</td>
<td>459306981.5</td>
<td>96.70%</td>
</tr>
<tr>
<td>Hurricane/Tropical Storm - Tornado</td>
<td>3607503.64</td>
<td>0.76%</td>
</tr>
<tr>
<td>Lightning</td>
<td>8695.65</td>
<td>0.00%</td>
</tr>
<tr>
<td>Severe Storm/Thunder Storm</td>
<td>1190476.19</td>
<td>0.25%</td>
</tr>
<tr>
<td>Severe Storm/Thunder Storm - Wind</td>
<td>2061343.86</td>
<td>0.43%</td>
</tr>
<tr>
<td>Tornado</td>
<td>261831.01</td>
<td>0.06%</td>
</tr>
<tr>
<td>Wind</td>
<td>582344.33</td>
<td>0.12%</td>
</tr>
<tr>
<td>Winter Weather</td>
<td>380401.66</td>
<td>0.08%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>474965120</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Figure 8-A1: Grimes County Property Damage by Hazard Type from 1960-2010

Table 8-A2: Grimes County Crop Damage (USD) by Hazard Type from 1960-2010

<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Crop Damage - 2010</th>
<th>Percent Crop Damage - 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>24421463.96</td>
<td>75.40%</td>
</tr>
<tr>
<td>Flooding</td>
<td>166866.56</td>
<td>0.52%</td>
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<tr>
<td>Hail</td>
<td>781.25</td>
<td>0.00%</td>
</tr>
<tr>
<td>Hail - Severe Storm/Thunder Storm</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Heat</td>
<td>1399776.32</td>
<td>4.32%</td>
</tr>
<tr>
<td>Hurricane/Tropical Storm</td>
<td>1404393.11</td>
<td>4.34%</td>
</tr>
<tr>
<td>Hurricane/Tropical Storm - Tornado</td>
<td>3607503.64</td>
<td>11.14%</td>
</tr>
<tr>
<td>Lightning</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Severe Storm/Thunder Storm</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Hazard Type</td>
<td>Texas</td>
<td>Grimes</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>32390986.96</td>
<td>100.00%</td>
</tr>
<tr>
<td>Tornado</td>
<td>10869.57</td>
<td>0.03%</td>
</tr>
<tr>
<td>Severe Storm/Thunder Storm - Wind</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Winter Weather</td>
<td>1379332.55</td>
<td>4.26%</td>
</tr>
<tr>
<td>Wind</td>
<td>0</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Table 8-A3: Socially Vulnerable Indicators in Navasota Compared to State Average

<table>
<thead>
<tr>
<th>Household by</th>
<th>Texas</th>
<th>Grimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female householder, no husband present, with family</td>
<td>14.5%</td>
<td>21.4</td>
</tr>
<tr>
<td>With own children under 18 years</td>
<td>8.7%</td>
<td>16.7</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Householder living alone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 years and over</td>
<td>7.3%</td>
<td>14.3</td>
</tr>
<tr>
<td>Grandparents responsible for grandchildren</td>
<td>43.1%</td>
<td>74.1</td>
</tr>
</tbody>
</table>

### SCHOOL ENROLLMENT

<table>
<thead>
<tr>
<th>Nursery school, preschool</th>
<th>6.0%</th>
<th>2.6</th>
<th>2.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>5.8%</td>
<td>12.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Elementary school (grades 1-8)</td>
<td>43.1%</td>
<td>32.3</td>
<td>53.4</td>
</tr>
<tr>
<td>High school (grades 9-12)</td>
<td>20.5%</td>
<td>37</td>
<td>23.3</td>
</tr>
</tbody>
</table>

### EDUCATIONAL ATTAINMENT

<table>
<thead>
<tr>
<th>Less than 9th grade</th>
<th>9.7%</th>
<th>17.7</th>
<th>2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th to 12th grade, no diploma</td>
<td>9.6%</td>
<td>22.5</td>
<td>9.7</td>
</tr>
<tr>
<td>High school graduate (includes equivalency)</td>
<td>25.6%</td>
<td>34.9</td>
<td>46.6</td>
</tr>
</tbody>
</table>

Table 8-A4: Grimes County Total Economic Loss to Floods by Decade from 1960-2010

<table>
<thead>
<tr>
<th>Range</th>
<th>Quantity</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960-1969</td>
<td>0</td>
<td>$</td>
<td>-</td>
</tr>
<tr>
<td>1970-1979</td>
<td>1</td>
<td>$ 3,516.17</td>
<td>$</td>
</tr>
<tr>
<td>1980-1989</td>
<td>0</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1990-1999</td>
<td>13</td>
<td>$3,703,964.21</td>
<td>$166,866.56</td>
</tr>
</tbody>
</table>
Table 8-A5: Hazardous Material Sites in Navasota and ETJ, 2011

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navasota High School</td>
<td>30.42469500</td>
<td>-96.04452090</td>
</tr>
<tr>
<td>Navasota Intermediate School</td>
<td>30.42469500</td>
<td>-96.04452090</td>
</tr>
<tr>
<td>Webb Elementary</td>
<td>30.398808</td>
<td>-96.07865800</td>
</tr>
<tr>
<td>Navasota Head Start</td>
<td>30.4006955</td>
<td>-96.08059650</td>
</tr>
<tr>
<td>Castles of Sand and Shells Child</td>
<td>30.3952312</td>
<td>-96.08044030</td>
</tr>
<tr>
<td>Navasota Intermediate School</td>
<td>30.393769</td>
<td>-96.08545230</td>
</tr>
<tr>
<td>Grimes Saint Joseph Health Center</td>
<td>30.3922553</td>
<td>-96.07674560</td>
</tr>
<tr>
<td>Navasota Nursing and Rehabilitation Center</td>
<td>30.3945081</td>
<td>-96.07755050</td>
</tr>
<tr>
<td>Navasota Medical Center</td>
<td>30.390084</td>
<td>-96.08630100</td>
</tr>
<tr>
<td>Fire Department</td>
<td>30.3766982</td>
<td>-96.08216210</td>
</tr>
<tr>
<td>Police Department</td>
<td>30.3877636</td>
<td>-96.08745260</td>
</tr>
<tr>
<td>US Post Office</td>
<td>30.386475</td>
<td>-96.08775640</td>
</tr>
<tr>
<td>City Hall</td>
<td>30.3877365</td>
<td>-96.08749690</td>
</tr>
</tbody>
</table>

Table 8-A6: Grimes County Total Economic Loss from Drought between 1960-2010

<table>
<thead>
<tr>
<th>Begin Date</th>
<th>End Date</th>
<th>Property Damage</th>
<th>Crop Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/1/1998</td>
<td>8/31/1998</td>
<td>1333333.33</td>
<td>9,733,333.33</td>
</tr>
<tr>
<td>5/1/1996</td>
<td>5/31/1996</td>
<td>603864.74</td>
<td>3,019,323.67</td>
</tr>
<tr>
<td>6/1/1996</td>
<td>6/30/1996</td>
<td>603864.74</td>
<td>6,038,647.35</td>
</tr>
<tr>
<td>9/1/2000</td>
<td>9/30/2000</td>
<td>0</td>
<td>5,630,159.61</td>
</tr>
</tbody>
</table>

(Adjusted to 2010 US)
Chapter 9 Transportation

Introduction

The present document focuses on the condition of the transportation system in the City of Navasota. Navasota is located in Grimes County on a bend of the Navasota River, but the river flow does not allow transportation. Vehicular travel is accommodated mainly via Business State Highway 6 and Highway 105 (Washington Avenue), which go directly through town. The city is also the center of four Farm-to-Market roads, a municipal airport and two railroad lines that operate daily routes through downtown.

Street Classification

Traditional Classification

A roadway’s functional classification describes the importance placed on either the mobility or accessibility of its users. Mobility is a measure of the ease and speed of movement, while accessibility is a measure of access to bordering land uses. These two traits have an inverse relationship with each other; as one increases the other decreases. Since the Federal Aid Highway Act of 1973, all surface transportation legislation has mandated use of a functional classification system (Pickett, 2001). For decades, this system has provided a framework for highway design and has helped assign jurisdictional responsibility of roadways in line with its role in serving the mobility and accessibility of its users. The system maintains a minimum of design standards and provides a basis for evaluation of present performance and future needs and for apportioning limited financial resources among different roadways. In Texas, roadways are classified by the state’s Department of Transportation (TxDOT) as either urban or rural and then further defined as part of the following hierarchy:

- Principal arterial (freeway and other): Movement-focused (high mobility, limited access)
- Minor arterial: Connects principal arterials (moderate mobility, limited access)
- Collectors: Connects local streets to arterials (moderate mobility, moderate access)
- Local roads and streets: Access-focused (limited mobility, high access)

In Navasota, there is one Principal Arterial Freeway:

- State Highway 6

There are two other Principal Arterials:

- Washington Avenue (Highway 105 West)
- Highway 105 East

There are several Minor Arterials:

- Blackshear Street
● Farm to Market Road (FM) 379
● FM 3090
● Highway 90
● LaSalle Street (Business State Highway 6)
● Piedmont Road
● Spur 515

Collectors are:
● Church Street
● Foster Street
● Leon Street
● McAlpine Street
● Montgomery Road
● State Highway 6 Feeder Road
● Teague Street
● Victoria Avenue

Local roads include any other street not yet listed.

While many miles of the city’s road network function in line with their classification, several roads classified as collectors or arterials span contexts that vary throughout their lengths. For instance, Washington Avenue and LaSalle Street are functionally classified as two of the city’s major thoroughfares though they also serve the important purpose of the downtown’s main streets.
Classification by Thoroughfare Type

Assigning roadways into one of three functional classes, though direct, often leaves out important variables that matter to the safety, convenience, and enjoyment of road users. As noted above, the context of roadways that TxDOT acknowledges is very basic - roadways can either be urban or rural, and rural areas are considered to be all of those under the 5,000 population threshold. Recently, planners, municipalities, and state departments of transportation are giving greater thought to the context of land use surrounding streets. In an effort to bring together a sense of place and roadway design, questions are being asked about the proper number of access points on roads, changes in land use over time, and the compatibility of designed roadway speeds with surrounding uses.
Freeways, expressways and parkways function at high speeds (45 mph+), where access is controlled, perhaps by grade separation, and pedestrian use is restricted.

Rural Highways function at high speeds (45 mph+) and while designed for carrying traffic, do give access to adjacent property in rural areas.

Boulevards are medium-speed (35 mph or less), usually attract high ridership and are used by all modes of through and local traffic: vehicles, bicyclists and pedestrians. Boulevards serve as routes for primary goods movement and emergency response and yet are walkable. Curb parking is encouraged. A variation, multiway boulevards, carries through-traffic on a central roadway while allowing parking, pedestrian and bicycle access on parallel lanes separated by landscaped islands.

Avenues are low-to-medium-speed (25-35 mph) and are generally shorter and narrower than boulevards. Their chief function is access to adjacent land, so they serve as primary routes for bicyclists and pedestrians while also still being used for local goods movement. Curb parking is the norm.

Streets function as walkable, low-speed (25 mph) connectors within and between residential neighborhoods their adjacent districts. Streets may serve as the “main street” of commercial and mixed-use districts. Curb parking is emphasized and goods movement is restricted to deliveries.

Rural Roads function at low-to-medium speed (25-35 mph) in rural areas with a focus on serving abutting property.

Alleys or Rear Lanes are very low-speed (5-10 mph) driveways behind properties that direct vehicles to parking, secondary units or other rear uses and utility easements.

The two images below depict Washington Avenue, one of Navasota’s principal arterials. On a map which shows the functional classification of roadways in the city, these two sections of the street are in the same category despite the fact that the surrounding land use, speed limit, and trip purpose are vastly different. In

---

### Figure 9-1: Relationship between Functional Classification and Thoroughfare Type

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Freeway/Expressway/Parkway</th>
<th>Rural Highway</th>
<th>Boulevard</th>
<th>Avenue</th>
<th>Street</th>
<th>Rural Road</th>
<th>Alley/Rear Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Arterial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor Arterial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Institute of Transportation Engineers (2010)
the urban core, Washington Avenue is bounded by commercial shops, wide sidewalks and on-street parking, with vehicles traveling at 30 mph. One mile to the southwest, Washington Avenue is flanked by wide shoulders and residences sited on large lots. Vehicles on this section travel much faster, 55 mph, than the area with commercial around it.

In addition to its functional classification, taking into account the context of a roadway would allow the city to better plan for appropriate design criteria and physical roadway configurations as development and maintenance of the existing and future street network occurs.

Images 9-1 & 9-2: Washington Avenue: Thoroughfare Types

Washington Avenue is functionally classified as a principal arterial but the photos shows the very different contexts the roadway travels through, from boulevard (left) to rural highway (right). Source: Google Maps (Image Date: May 2011)

Right of Way

Right-of-way (ROW) encompasses all elements of a street including the lanes of travel, any parking lanes, shoulders, median, landscape strips, sidewalks and utilities. Navasota requires ROW ranging between 50 and 80 feet for all new street development. Within this, pavement must be a minimum of 28 to 50 feet wide. Table “Street Type/ ROW” shows the ROW and pavement width as required by the city’s current code of ordinances.

<table>
<thead>
<tr>
<th>Street Type</th>
<th>Right-of-Way (in feet)</th>
<th>Pavement Width (in feet)</th>
<th>Remaining footage (for sidewalk, landscape, curb &amp; gutter, utility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial streets</td>
<td>&lt;70</td>
<td>≥46</td>
<td>≤24</td>
</tr>
<tr>
<td>Parkways and boulevards</td>
<td>≥80</td>
<td>≥25 per directional lane</td>
<td>about 30 (with a required median)</td>
</tr>
<tr>
<td>Arterial (major thoroughfare)</td>
<td>≥80</td>
<td>≥50</td>
<td>about 30</td>
</tr>
<tr>
<td>Collector</td>
<td>≥60</td>
<td>≥38</td>
<td>about 22</td>
</tr>
<tr>
<td>Residential</td>
<td>≥50</td>
<td>≥28</td>
<td>about 22</td>
</tr>
</tbody>
</table>

Source: City of Navasota Code of Ordinances
Daily Traffic

Current Average Annual Daily Counts

The average annual daily traffic volume for all major highways and arterials was obtained from the Statewide Planning Map produced by the Texas Department of Transportation (TxDOT). Data includes counts for every year between 2007-2010. In the right-hand column of the table is the percentage change over the four years, calculated taking into consideration only traffic counts for 2007 and 2010, which helps illuminate overall trends in local traffic numbers. However, counts for intermediate years are shown as a reference of minor fluctuations in the traffic amount for each street section.

According to the results, only State Highway 6 and Washington Avenue experienced traffic growth. On the contrary, Business State Highway 6, which provides direct access to downtown Navasota as LaSalle Street, experienced some of the most pronounced negative change. This means there was considerably less traffic going into Navasota in 2010 than in 2007. Farm to Market roads 379, 3090, and 1227 have also experienced traffic decreases. It is important to point out that even with these shifts in traffic behavior, the road system is not congested.

The following table illustrates specific counts for each road section in Navasota available from TxDOT for the last four years.

Table 9-2 Navasota AADT

<table>
<thead>
<tr>
<th>Street</th>
<th>From</th>
<th>To</th>
<th>DTV 2007</th>
<th>DTV 2008</th>
<th>DTV 2009</th>
<th>DTV 2010</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Ave.</td>
<td>City Limit</td>
<td>FM 1227</td>
<td>6,400</td>
<td>5,900</td>
<td>6,300</td>
<td>6,600</td>
<td>3.12%</td>
</tr>
<tr>
<td>Spur 515</td>
<td>Hwy 6S</td>
<td>Co Rd 420</td>
<td>5,200</td>
<td>4,900</td>
<td>4,900</td>
<td>4,600</td>
<td>-11.53%</td>
</tr>
<tr>
<td>Spur 515</td>
<td>Co Rd 420</td>
<td>Hwy 6</td>
<td>5,700</td>
<td>5,400</td>
<td>5,400</td>
<td>5,300</td>
<td>-7.02%</td>
</tr>
<tr>
<td>Blackshear St</td>
<td>N LaSalle St</td>
<td>Piedmont Rd</td>
<td>3,200</td>
<td>2,500</td>
<td>2,900</td>
<td>2,500</td>
<td>-21.87%</td>
</tr>
<tr>
<td>FM 1227</td>
<td>Washington Ave.</td>
<td>Buckingham Ln.</td>
<td>5,300</td>
<td>4,600</td>
<td>4,400</td>
<td>4,600</td>
<td>-13.20%</td>
</tr>
<tr>
<td>FM 1227</td>
<td>Buckingham Ln.</td>
<td>FM 379</td>
<td>4,100</td>
<td>3,600</td>
<td>3,500</td>
<td>3,300</td>
<td>-19.51%</td>
</tr>
<tr>
<td>FM 3090</td>
<td>Piedmont Rd</td>
<td>Hwy 6</td>
<td>2,800</td>
<td>2,100</td>
<td>2,300</td>
<td>2,200</td>
<td>-21.42%</td>
</tr>
<tr>
<td>FM 379</td>
<td>FM 1227</td>
<td>Hwy 6S</td>
<td>3,500</td>
<td>3,000</td>
<td>3,200</td>
<td>2,900</td>
<td>-17.14%</td>
</tr>
<tr>
<td>Hwy 6</td>
<td>City Limit</td>
<td>Spur 515</td>
<td>18,300</td>
<td>19,600</td>
<td>16,400</td>
<td>19,700</td>
<td>7.65%</td>
</tr>
<tr>
<td>Hwy 6</td>
<td>Spur 515</td>
<td>Washington Ave.</td>
<td>27,000</td>
<td>25,000</td>
<td>23,000</td>
<td>29,000</td>
<td>7.40%</td>
</tr>
<tr>
<td>Hwy 6</td>
<td>City Limit</td>
<td>Hwy 6S</td>
<td>28,000</td>
<td>30,000</td>
<td>23,000</td>
<td>27,000</td>
<td>-3.50%</td>
</tr>
<tr>
<td>Hwy 6</td>
<td>Hwy 6S</td>
<td>FM 3090</td>
<td>22,000</td>
<td>25,000</td>
<td>20,000</td>
<td>24,000</td>
<td>9.01%</td>
</tr>
<tr>
<td>Hwy 6S</td>
<td>FM 379</td>
<td>City Limit</td>
<td>3,200</td>
<td>2,700</td>
<td>2,500</td>
<td>2,600</td>
<td>-18.75%</td>
</tr>
<tr>
<td>Hwy 6S</td>
<td>FM 739</td>
<td>Spur 515</td>
<td>5,500</td>
<td>5,000</td>
<td>4,300</td>
<td>4,600</td>
<td>-16.36%</td>
</tr>
<tr>
<td>N LaSalle St</td>
<td>Washington Ave.</td>
<td>Blackshear St.</td>
<td>9,600</td>
<td>8,000</td>
<td>8,600</td>
<td>9,400</td>
<td>-2.08%</td>
</tr>
<tr>
<td>N LaSalle St</td>
<td>Blackshear St</td>
<td>Boulder St</td>
<td>6,500</td>
<td>5,500</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>N LaSalle St</td>
<td>Boulder St</td>
<td>Hwy 6S</td>
<td>4,000</td>
<td>3,100</td>
<td>3,100</td>
<td>3,600</td>
<td>-10%</td>
</tr>
<tr>
<td>Washington Ave.</td>
<td>City Limit</td>
<td>Hwy 6</td>
<td>12,200</td>
<td>12,200</td>
<td>-</td>
<td>12,000</td>
<td>-1.63%</td>
</tr>
<tr>
<td>Washington Ave.</td>
<td>Hwy 6</td>
<td>Elm St</td>
<td>12,800</td>
<td>12,100</td>
<td>-</td>
<td>13,000</td>
<td>1.56%</td>
</tr>
<tr>
<td>Washington Ave.</td>
<td>Elm St</td>
<td>N LaSalle St</td>
<td>10,400</td>
<td>-</td>
<td>-</td>
<td>10,700</td>
<td>2.88%</td>
</tr>
</tbody>
</table>

Source: TxDOT Statewide Planning Map.
Non-motorized Counts

Non-motorized counts of travelers were performed at the intersection of Washington Avenue and LaSalle during lunchtime on October 9, 2012. There was almost no pedestrian or bicycle traffic at the selected time and location.

Traffic Incidents

Data on traffic incidents for Grimes County is collected on a regular basis by the Texas Department of Transportation. Table 9-3 depicts the total counts for fatal crashes and fatalities, which shows a steady average value for incidents. All fatal incidents occurred on Farm to Market roads, U.S., and State Highways.

The City of Navasota itself shows a decrease in total crashes involving commercial motor vehicles but an increase in those involving private vehicles. Table 9-4 shows a detailed account of these crashes, which are categorized by type of crash and type of vehicle involved. It is notable that even with the decrease in commercial vehicle crashes, fatalities and serious injuries did increase. Fortunately this is a phenomenon that no other commercial vehicle crash category presented. Privately owned vehicles show an increase in crashes involving minor injuries or no injuries at all. It is important to point out that not all incidents are reported to TxDOT. Incidents investigated after the fact or that did not occur on federal or state roads are not included in TxDOT records. For this reason the information above is complemented with local police department records. Records for the last four years were provided showing a total of 115 incidents to date for 2012. Last year closed with 162 total traffic incidents similar to the 158 on record for 2010. This indicates that the present year is in-line with trends observed in previous years.

Table 9-3: Fatal Crashes and Fatalities by Road Type for Grimes County

<table>
<thead>
<tr>
<th>Road Type</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatal Crashes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatalities</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>US and State Highways</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal Crashes</td>
<td>7</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Fatalities</td>
<td>8</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Farm to Market Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal Crashes</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Fatalities</td>
<td>5</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>County Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal Crashes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatalities</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>City Street</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal Crashes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fatalities</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: TxDOT Traffic Incidents Reports and Statistics.

Table 9-4: Non-fatal Traffic Incidents for the City of Navasota

<table>
<thead>
<tr>
<th>Category</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal Crashes (Private vehicle)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fatal Crashes (Commercial vehicle)</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Fatalities (Private vehicle)</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fatalities (Commercial vehicle)</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Serious Injury Crashes (Private vehicle)</td>
<td>15</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Serious Injury Crashes (Commercial vehicle)</td>
<td>11</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Serious Injuries (Private vehicle)</td>
<td>22</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Serious Injuries (Commercial vehicle)</td>
<td>18</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>Other Injuries Crashes (Private vehicle)</td>
<td>23</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Other Injuries Crashes (Commercial vehicle)</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other Injuries (Private vehicle)</td>
<td>31</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>Other Injuries (Commercial vehicle)</td>
<td>13</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Non-injury crashes (Private vehicle)</td>
<td>62</td>
<td>76</td>
<td>85</td>
</tr>
<tr>
<td>Non-injury crashes (Commercial vehicle)</td>
<td>33</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Other crashes (Private vehicle)</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other crashes (Commercial vehicle)</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total crashes for private vehicles</td>
<td>103</td>
<td>119</td>
<td>133</td>
</tr>
<tr>
<td>Total crashes for commercial vehicles</td>
<td>51</td>
<td>29</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: TxDOT Traffic Incidents Reports and Statistics.

Road Characteristics

The information for this section was compiled from data provided by the City of Navasota and TxDOT, as well as a windshield survey conducted by members of the Texas Target Cities research team on October 9, 2012.

Road Conditions

A thorough catalogue of existing road conditions is helpful in scheduling road maintenance and can lead to better-informed decisions regarding future development. Road conditions were scored based on the presence of several factors, including potholes, obvious cracks, and large patches in the road as well as the appropriateness of lane width and general quality of the road surface. Each road received a score from 5 (best) to 1 (worst). Original assessments were made by the Texas Target Cities research team during a windshield survey conducted in 2003. A street-by-street update of road condition data was conducted via Google Street View (images were dated 2007 to 2011) and during the windshield survey in October 2012.

Table 9-5: Road Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Length in Miles</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (best condition)</td>
<td>2.17</td>
<td>2.59%</td>
</tr>
<tr>
<td>4</td>
<td>10.47</td>
<td>12.51%</td>
</tr>
<tr>
<td>3</td>
<td>29.56</td>
<td>35.32%</td>
</tr>
<tr>
<td>2</td>
<td>29.29</td>
<td>35.00%</td>
</tr>
<tr>
<td>1 (worst condition)</td>
<td>12.20</td>
<td>14.58%</td>
</tr>
<tr>
<td>Total</td>
<td>83.69</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Existing road surfaces in Navasota can be classified into four categories: concrete, asphalt, gravel, and dirt and are illustrated in Table 9-6: Surface Materials. Asphalt, the surface type most common in the present street network, is a good pavement material based on its lower cost and greater ease of repair than concrete surfaces. It is not as durable as concrete, but this can be offset by the generally less time-consuming construction process of asphalt roads. Most remaining roads are concrete. The various surface types of adjacent streets could be leading to inconsistent road maintenance in parts of the city, as shown by the previous section on surface conditions.

**Table 9-6: Surface Materials**

<table>
<thead>
<tr>
<th>Material</th>
<th>Length in Miles</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>8.68</td>
<td>10.37%</td>
</tr>
<tr>
<td>Asphalt</td>
<td>66.96</td>
<td>80.01%</td>
</tr>
<tr>
<td>Gravel</td>
<td>6.56</td>
<td>7.84%</td>
</tr>
<tr>
<td>Dirt</td>
<td>1.49</td>
<td>1.78%</td>
</tr>
<tr>
<td>Total</td>
<td>83.69</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Road Capacity

Road capacity can be explained as the maximum vehicle flow rate in a period of time on a segment of roadway. It implies the “supply” of the road for an urban system. After considering the number of lanes, proportion of trucks in the traffic stream, width of the roadway, and terrain type, road capacity of each principal and minor arterial in Navasota is determined (see the following table).

After comparing with the Average Annual Daily Traffic data (also shown in the following table), and considering no noticeable observed difference between peak hour and off-peak hour traffic volumes, we can conclude that the overall traffic condition of the city is satisfactory without obvious congestion. Washington Avenue (Highway 105 West), Blackshear Street, FM 379, and FM 3090 are currently greatly under capacity. LaSalle Street, Piedmont Road, and Spur 515 can also meet the demand of current traffic volume. State Highway 6, Highway 105 East, and Highway 90 may need improvement in road capacity to better meet the current high demand.
Table 9-7: Arterial Roadways Capacity

<table>
<thead>
<tr>
<th>Roadway Name</th>
<th>Capacity (veh/h)</th>
<th>Comparing with DTV in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principal Arterial Freeway</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Highway</td>
<td>4500</td>
<td>24000-29000</td>
</tr>
<tr>
<td><strong>Other Principal Arterials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington Avenue (Highway 105 West)</td>
<td>9600</td>
<td>6600</td>
</tr>
<tr>
<td>Highway 105 East</td>
<td>4500</td>
<td>10500</td>
</tr>
<tr>
<td><strong>Minor Arterials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackshear Street</td>
<td>2548</td>
<td>2500</td>
</tr>
<tr>
<td>Farm to Market Road (FM) 390</td>
<td>2548</td>
<td>2900</td>
</tr>
<tr>
<td>FM 3090</td>
<td>2800</td>
<td>2200</td>
</tr>
<tr>
<td>Highway 90</td>
<td>3478</td>
<td>13800</td>
</tr>
<tr>
<td>LaSalle Street</td>
<td>2800</td>
<td>3600-9400</td>
</tr>
<tr>
<td>Piedmont</td>
<td>2800</td>
<td>3090</td>
</tr>
<tr>
<td>Spur 515</td>
<td>2800</td>
<td>4600-5300</td>
</tr>
</tbody>
</table>

Curb and Gutter

Curbs and gutters provide storm water drainage and are a desired feature to maintain the condition of the roadways. The windshield survey results indicate that about half of the streets in Navasota lack curb and gutter amenities.

Street Lighting

Street lighting helps drivers, pedestrians, and bicyclists travel more safely and contributes to a safer neighborhood environment overall. Results of the windshield survey show that this is an area needing improvement. Over half of the streets have the problem of absence of streetlights, and special attention needs to be paid to the outskirts of the city.
State and City Projects

Currently, TxDOT is working to construct frontage roads along State Highway 6, from 0.9 miles north of FM 3090 to 0.5 miles south of Spur 515. TxDOT also plans to widen State Highway 105W from Navasota to Montgomery, TX. For the project details, see the following table.

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Highway</th>
<th>Work From</th>
<th>Work To</th>
</tr>
</thead>
<tbody>
<tr>
<td>005003090 V2</td>
<td>SH 6</td>
<td>0.41 MILE NORTH OF FM 3090</td>
<td>0.5 MILE SOUTH OF SP 515 / SH 105</td>
</tr>
<tr>
<td>005003089 V2</td>
<td>SH 6</td>
<td>0.9 MILE NORTH OF FM 3090</td>
<td>0.25 MILES SOUTH OF SP 515 / SH 105</td>
</tr>
<tr>
<td>033801054 V2</td>
<td>SH 105</td>
<td>THE NAVASOTA CITY LIMITS</td>
<td>0.355 MILE W. OF THE MONTGOMERY CL</td>
</tr>
<tr>
<td>Work Description:</td>
<td>Work Description:</td>
<td>Work Description:</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>CONSTRUCT FRONAGE ROADS</td>
<td>CONSTRUCT FRONAGE ROADS</td>
<td>WIDEN ROADWAY</td>
<td></td>
</tr>
</tbody>
</table>

Parking

Parking availability throughout the City of Navasota was originally documented during site visits by the Texas Target Cities research team in 2003-2004. Data was updated during a windshield survey of the entire city and a site visit to the downtown core on October 9, 2012. Though the width of pavement, especially of residential streets, is ample enough for “yield parking” on the street, only the portions of roadways striped for parking spaces were recorded as providing parking. In summary, only in downtown and around Church Street are there designated public parking spaces. Over 320 striped spaces are distributed across seven blocks surrounding Church Street. This includes designated on-street parking and public lots. Among 16 blocks in the downtown area, there are over 520 striped spaces, also including designated on-street parking and public lots. Location and usage of parking observed during the site visit is shown in the Map 9-3 “Downtown Parking Survey.” With the exception of the two small lots behind Blues Alley (on Duke Street) where all 13 parking spaces were in use, capacity ranged from empty to two-thirds full.
Navasota currently does not have a fixed route for public transportation. Demand/response and para-transit service are provided through "The District," formerly known as Brazos Transit District. Navasota Cab & Courier and several other taxi companies in Bryan/College Station also provide taxi service for Navasota.

**Bus Service**

The District is the general public transportation provider for demand-response transit service in Grimes County. The agency operates fixed routes, waterway cruisers, para-transit service, demand/response, and park & rides. Currently, the only such service available for the City of Navasota is the bus service option. In order for a passenger in Navasota to receive service, they must contact The District 24 hours prior to when such service is needed to give the dispatcher notice of their origin and destination. If a vehicle is available, it is dispatched with service cost varying based upon service points. If a passenger is traveling within the same county the price is $2.00, while the cost for inter-county travel is $2.50.

Bus service to Dallas and Houston, TX is available through Greyhound Bus Lines, which stops in Navasota at the Circle H Store located at the intersection of Highway 105 East and State Highway 6. The store sells bus tickets daily from 5:30 a.m. until 10:00 p.m.
Taxi

Navasota Cab & Courier Company, established in 2012, provides taxi service via a single four-person capacity vehicle. Rides begin at $3 and customers are charged an additional $0.50 per half-mile. The company expects to expand its service, but several taxi companies in the Bryan/College Station area are available to residents and visitors of Navasota in the meantime. These include Maroon Cab and BCS Taxi.

Pedestrian and Bike Facilities

The City of Navasota has a clear lack of pedestrian and bicycle facilities and no short-term projects for such facilities on the horizon. The city has two main sources of bicycle traffic: local and cross-country. Due to its geographic location, Navasota is host to at least four bicycle cross-country routes: the Southern Tier, the Washington on the Brazos National Park Trial, the BP MS 150 Houston to Austin and the Houston Bike Club: Navasota Wagon Trail Ride. Bicycle traffic from these events is not being sufficiently accommodated by the city’s current infrastructure.

In general, the city streets also lack appropriate accommodations for pedestrians. A few streets downtown, including Washington Avenue and those adjacent to it, do offer wide sidewalks and pleasant amenities for pedestrian traffic. However, these streets have insufficient safe crossing options and could further benefit from improvements which would add more shade. The redevelopment of city hall and the retrofitting and improvement of surrounding streets included in it made the area more cohesive and ADA-compliant, but did not include any bicycle amenities.

It is important to address this issue because the 2010 Brazos Valley Health Status Assessment classified 81.7 percent of the Grimes County population as obese. The same report includes an accompanying survey focusing on community issues, the results from which also expressed citizen concern over having poor access to safe places to practice physical activity and inconvenient public transportation. Since Navasota’s population density makes most public transportation unviable, considerations and infrastructure for non-motorized transportation modes become even more important.

Sidewalks

It is evident from the sidewalk map that the downtown area provides relatively adequate sidewalks. However, sidewalk barely exists in other areas.
In order to develop a more pedestrian-friendly community, two current problems should be taken into consideration:

- The sidewalks are not well connected. It is common to find sidewalks that are incomplete, or interrupted by parking lot; sidewalks that are only on one side; or, sidewalks that switch from one side to the other side without crosswalks. These are not only inconvenient but also pose safety issues to pedestrians.

- The quality of the sidewalks needs improvement. Bigger sidewalks with higher quality pavement make walking easier, and better sidewalk design techniques such as grass buffers and tree shading make pedestrians feel safer as well as offer a more pleasant walking experience.

Map 9-4: Sidewalk

Bike Routes and Bike Parking Availability

The City of Navasota does not have designated bike routes or complementary infrastructure and amenities. Ideas for an integrated Bike and Pedestrian Comprehensive Plan that would include these features have been discussed prior to this report, but no official document has been produced to date.
An initial effort is necessary in order to establish the need for this kind of infrastructure and as a base for resource allocation. A basic layout of the system would facilitate the identification of possible funding alternatives. Bicycle parking requirements, promotion and educational strategies must also be included.

Since bike lanes are better suited for secondary streets, they would not interfere with traffic flow in major thoroughfares. This approach also provides for a safer, more inclusive biking environment.

Inclusion of bike lanes can be used along streets where a reduction in speed is desired. Increased liveliness, strengthening of community ties, and fewer vehicle crashes are other documented benefits of bike lane construction. In commercial areas, studies have shown higher property values and increased foot traffic (Rosales, 2009).

Trails

The city has one recreational trail. Cedar Creek Park Trail is a mile-and-a-half long trail connecting a series of facilities from Hillside Park to Mance Lipscomb Park. It was originally funded through a Texas Park and Wildlife Recreation Grant, and it is under the city parks and recreation department jurisdiction. Its basic function is to provide a footpath that could bring pedestrians and bicyclists from the northeast to Downtown Navasota while connecting parks like Victoria Park and Cleveland Park with the city’s pavilions. Cedar Creek Trail is almost entirely paved with concrete slab but also utilizes some existing sidewalks in order to connect the full circuit. Current signage for the trail is scarce, and since its traffic is low the trail is not well recognized by citizens of Navasota. In addition to improved way-finding, the trail could benefit from better promotional effort, locally and regionally.

Connections to Public Facilities

The purpose of pedestrian and bicycle facilities is to link together community facilities and public spaces. In Navasota special attention should be given to connecting Navasota ISD establishments on Brosing Avenue, Neal Street, and East Washington Avenue. The facilities on East Washington Avenue include a new junior high and high school across Highway 6. Since the residential core of the city is on the west side of the highway, there is a substantial student pedestrian flow along Washington Avenue, and a crosswalk and sidewalks are not provided under the underpass. TxDOT has formulated possible solutions to this that are being considered for implementation. Connectivity to roads leading up to this intersection, however, is not being considered in the possible solutions.

Parks and green spaces like Hillside Park, Veterans Park, and Pecan Lakes Golf Course are also important outdoor venues to connect. The latter especially lacks an accessible connection to the rest of the city, which probably undermines its performance as a public space.

Navasota’s two main streets are U.S. and State highways, meaning they are under TxDOT jurisdiction and imply an elevated level of private and commercial traffic. As exemplified by Map 11-1, community facilities in Navasota are scattered and most of them do not front major thoroughfares. This last consideration encourages the development of a pedestrian and bicycle network on these smaller and safer streets. The Navasota creek has the potential to be developed as a greenway connected to Washington Avenue through pedestrian alleys and providing an inviting, pedestrian-friendly public space.
**Freight and Railroad**

**Railroads**

The City of Navasota is served by two Class 1 railroads: the Burlington Northern Santa Fe (BNSF) Railway Company and Union Pacific (UP) Railroad. Each of these rail lines originates in other areas and travels through Navasota. There is currently no passenger rail service along these two rail lines. The nearest passenger rail station, located in Houston, TX, is approximately 60 miles away.

Union Pacific has two rail lines that run through the city: the Navasota Subdivision rail line and the Eureka Subdivision rail line. The Navasota Subdivision rail line is approximately 100 miles long with end points at Spring Junction and Valley Junction. Although this rail line has a terminus point in Navasota, it continues to run northwest towards Bryan/College Station. It is a single-track railroad with limited sidings and normally carries rail traffic inbound towards Houston, TX. The Navasota Subdivision averages 15-20 trains daily. The Eureka Subdivision rail line operates from the outskirts of Houston through Harris County adjacent to US 290 toward the City of Hempstead and adjacent to Highway 6 towards Navasota. The Eureka Subdivision averages 5-10 trains daily.

The BNSF Railway Company operates one rail line through the city: the Conroe Subdivision. The Conroe Subdivision runs from Silsbee, TX, through Conroe, TX to Somerville, TX where it joins with the BNSF Galveston Subdivision.

**Railroad Crossings**

According to the Federal Railroad Administration, there are 18 at-grade crossings located in the City of Navasota. A grade crossing is a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at the same level. Table X below shows the number of railroad crossings in the city along with what type of traffic warning devices. All railroad crossings are equipped with Constant Warning Time Circuitry. This circuitry allows for the warning time to be adjusted to the speed of the oncoming train. The Federal Railroad Administration minimum warning time is 20 seconds, however, this time could change based on circumstances at the crossing. A 'Railroad Quiet Zone Engineering Report' was completed in September 2012 by O’Malley Engineers, L.L.P. This process resulted in four options for the city’s consideration.

Option 1 treats all 17 crossings between Blackshear Street and Courtney Road with the most cost effective safety treatments. Due to federal regulations, this would create limitations on streets and create new traffic patterns. However, this option would completely eliminate the train horn from the downtown area. In order to maintain existing traffic patterns, wayside horns will be used in Option 2 instead of medians. Wayside horns will be used at three crossings while the remaining 14 crossings are the same as Option 1. The wayside horns will eliminate the need for changing existing traffic patterns and gives the most flexibility for motorists driving downtown. Option 3 eliminates two railroad crossings - FM 379 and Courtney Road - and applies the same traffic pattern arrangement in Option 1. These two railroad crossings were eliminated due to the lack of people in this area compared to Downtown. Option 4 also eliminates these two rail crossings and applies the traffic pattern and crossing treatments used in Option 2.
### Table 9-9: Navasota Grade Crossings

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Crossing No.</th>
<th>Railroad</th>
<th>Warning Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>024280X</td>
<td>BNSF</td>
<td>Stop Signs and Private Crossing Sign</td>
</tr>
<tr>
<td>US 0255</td>
<td>024281E</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Washington St</td>
<td>024283T</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>McAlpine St</td>
<td>024284A</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Johnson St</td>
<td>024289J</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Lee St</td>
<td>024280D</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>LP 0508</td>
<td>024282S</td>
<td>BNSF</td>
<td>Cantilever Flashing Lights and Gates</td>
</tr>
<tr>
<td>Courtney Rd</td>
<td>024289M</td>
<td>BNSF</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>LP 0508</td>
<td>430132W</td>
<td>UP</td>
<td>Cantilever Flashing Lights and Gates</td>
</tr>
<tr>
<td>Blackshear St</td>
<td>743248N</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Washington St</td>
<td>743251W</td>
<td>UP</td>
<td>Cantilever Flashing Lights and Gates</td>
</tr>
<tr>
<td>McAlpine St</td>
<td>743252D</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Holland St</td>
<td>743253K</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Johnson St</td>
<td>743254S</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Lee St</td>
<td>743255Y</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>FM 0379</td>
<td>743257M</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
<tr>
<td>Courtney Rd</td>
<td>430131P</td>
<td>UP</td>
<td>Flashing Lights and Gates</td>
</tr>
</tbody>
</table>

### Hazardous Materials Movement

The most significant hazardous material threat in Navasota comes from the presence of the railroad lines. According to the Office of Hazardous Material Safety, there has been only one recorded hazardous material incident in Navasota. Although there has been only one incident, many residents, businesses, and schools are located near hazardous material routes. According to the city’s marketing/communication director, Corey Johnson, “some 30 trains a day go through town.” Information on what and how much hazardous material travel through the City of Navasota is not available due to information restrictions enforced by the Department of Homeland Security under 49 CFR parts 15 and 1520.

The city also experiences a high volume of truck traffic along several major thoroughfares: State Highway 6, State Highway 105, State Highway 90 and the city truck route. State Highway 6 is a primary corridor between Houston and Dallas and it poses a significant threat of a hazardous related incident. A serious hazardous materials release on the highway is less likely than on the railroad. Specific materials carried and quantity could also not be obtained due to Homeland Security measures. The impact of a hazardous spill is dependent upon the material being carried and the location of the incident.

### Aviation

#### Navasota Municipal Airport

The Navasota Municipal Airport is located approximately 2 miles southwest of Downtown Navasota on Highway 105 West. It is an unattended public-use General Aviation (GA) airport owned by the City of Navasota. The airport is part of the Federal Aviation Administration (FAA) Airport System and TxDOT’s Texas Aviation Commission (TAC) Airport System.
The airport maintains one 75-foot by 5,003-foot asphalt paved runway with a full-length parallel taxiway. This runway was expanded in May 2012 through grant funding from the Texas Department of Transportation (TxDOT) Aviation Division. TxDOT provided approximately 90 percent of the grant funding for the runway extension, full-length parallel taxiway, runway lighting, beacon light and security fencing. The runway is limited to an axle weight of 12,000 pounds. These improvements will serve not only propeller-driven aircraft but also allow private and corporate jets to utilize the airport. The airport is also qualified for night operations through a remote control lighting system.

Currently, there are 32 aircraft based at the airport, with approximately 86 aircraft operations a week. Currently there is no fuel station facility located on the airport. However, the airport facility has a 6,000-gallon tank that is not in service. The City of Navasota will need to apply for an additional grant in order for the fuel station to be completed. There are approximately 15 fully-occupied individual hangars and one set of ten nested Tee hangars at the airport. Since improvements were completed, there has been a waiting list for clients to build hangars at the airport.

In 2005, an Economic Impact Study for the Navasota Municipal Airport was prepared by Wilbur Smith Associates for TxDOT. This study reported that the airport supported 12 jobs with a payroll of $200,000. The annual visitors that arrive at the airport bring $80,000 in direct output to the local economy. The airport produces a combined $647,000 total economic output through direct and secondary impacts.

The closest regional-commercial passenger service is provided by Easterwood Airport, located approximately 22 miles to the north in College Station. The closest major domestic/international airport is at Bush Intercontinental Airport (IAH), approximately 65 miles to the southeast of Navasota in Houston.

Navasota Heliport

The Grimes St. Joseph Health Center Heliport is the only heliport located in Navasota. It is located just south of Washington Avenue between downtown Navasota and the Highway 6 Bypass. It is privately owned through Navasota Regional Hospital and is operational for medical purposes. The heliport is constructed of concrete with a wind indicator and edge lights.

Sources


Chapter 10 Infrastructure

Potable Water and Water Management

The City of Navasota has identified a number of priority areas that require discussion from the perspective of an infrastructure framework. First, in the area of potable water and water management, the city has specified eight objectives for future growth and maintenance:

- Navasota should inventory all existing water lines and maintain an accurate digital and hard copy map of existing and proposed water lines.
- Water lines that are currently not up to design code or pose leakage problems should be upgraded.
- The city should assure adequate water supply and distribution flow for both fire-fighting and consumer needs.
- Extensions of water mains and distribution lines should be provided to new developments in the city.
- Navasota should encourage infill development to fully utilize existing water mains and distribution lines in the city limits.
- The city should concentrate the extension of water mains and distribution lines in those areas identified as areas of greatest growth.
- Users outside the city limits should be required to pay appropriate fees for water use.
- Navasota should coordinate the location and expansion of the number of wells with local land use plans and necessary government organizations.

Based upon the water management map provided below, as well as conversations with city officials, the city is either meeting or expected to meet the majority of these objectives at a satisfactory level in the upcoming years. Extensive commercial development, in either of the predicted growth areas, will likely result in an increased demand on water supply and could strain existing resources. If Navasota is successful in attracting large scale retailers to either of the proposed growth regions, additional infrastructure would likely be necessary to facilitate and maintain that investment.
Sanitary Sewer and Waste Management

The city has identified fifteen specific objectives regarding the sanitary sewer and waste management systems:

• Navasota should monitor and record daily average sanitary sewer wastewater flowage levels of service.

• The city should project future wastewater needs and provide necessary infrastructure based on population growth and industry demand.

• All industrial users should be strongly encouraged to project annual demand for services based on their respective future land use plans and projects requiring additional use.

• New developments within the city limits should be required to tie onto existing sanitary sewer lines.

• The city should encourage development in areas of existing sanitary sewer lines.
• Navasota should encourage the use of alternative wastewater treatment in areas outside of the city limits.

• Accurate hard and digital copies of maps with both the existing and proposed sanitary sewer systems should be updated and maintained.

• The sanitary sewer system should be extended to all areas within the city limits.

• The city should require all areas on septic systems within the city limits to convert to the sanitary sewer system.

• Navasota should evaluate the need for additional wastewater facilities on an annual basis.

• All existing sanitary sewer lines should be maintained and monitored.

• Storm water sewer lines should be installed within the city limits along with appropriate curb and gutter improvements where currently none exist.

• The city should replace inadequate storm water sewer lines with construction of curb and gutter improvements.

• All new roadway and building construction should be required to incorporate storm water management.

• Navasota should maintain a relationship with outside entities to secure solid waste removal from the city.

Based upon accounts provided by the Public Works department in conjunction with the Street Superintendent, the City of Navasota does not have an extant map of storm water and drainage systems. This could prove problematic in the near future as flooding does still pose a moderate threat to the Navasota environment, both built and natural; as such, it would be recommended that the city compile a listing of existing storm sewage pathways and develop a comprehensive sanitary sewage implementation plan, as a number of the objectives detailed below would require such guiding documents. Although it is difficult to assess progress for many of these categories, without a defined storm water and drainage plan to provide context and direction it is highly unlikely that these goals are being met.

Currently waste management services are contracted through Republic Services, Inc., which is expected to meet needs adequately as demand for services increases. The city of Navasota provides a once per month curbside yard waste collection for our residential customers at no charge. The city does not conduct a Household Hazardous Waste event locally. However, the city does promote the twice per year Household Hazardous Waste collection event sponsored by the BVSWMA landfill. The event is free and open to all Brazos Valley residents in the 7-county region. The City of Navasota promotes the event by placing flyers on community bulletin boards, Facebook, and through utility bill mail-outs. Several city officials have mentioned the possibility and the predisposition towards the construction of a new wastewater treatment facility. Although growth is expected in the region, the existing facility is only operating at 50 percent capacity which would not likely justify expansion or additional facilities unless other undisclosed factors are taken into account.
Recycling Programs

There are three objectives that have been identified regarding the advancement of recycling programs in the area:

• The city should initiate recycling through distribution of recycling bins to residences and businesses in addition to the promotion of a recycling program.

• A recycling pick up should be added to existing solid waste collection.

• Illegal disposal of garbage should be prevented through violation citations.

Currently the major recycling activity is coordinated through the Navasota Annual City Spring Cleanup Week. The Navasota Annual City Spring Cleanup is scheduled in conjunction with Keep America Beautiful’s GREAT AMERICAN CLEANUP campaign. City of Navasota residential households are encouraged to participate in this free cleanup program. The cleanup efforts are intended to help beautify.
area neighborhoods and develop a cleaner, more livable community. Items accepted in this collection include:

- Small quantities of wood and lumber. (No construction or remodeling debris)
- Metal, steel, tin, cast iron and scrap metal items
- Car and lawnmower batteries
- Large bulky items such as stoves, bedsprings, mattresses, furniture, couches and refrigerators, air conditioners (Freon containing appliances must have a certification tag from a certified appliance technician that the Freon was safely removed or the item will not be accepted.)
- Paper and security sensitive documents for shredding (Saturday only)
- Used motor oil up to 5 gallons per household
- Tires - Only 8 car passenger tires or light-duty truck tires per household. Tires must be between 15” and 22”. (No tires on rims or foam filled tires will be accepted)

In 2012, 292 residents participated. The City of Navasota disposed of 55.72 tons of junk and debris. A total of 422 tires were collected and recycled, 2,600 pounds of security sensitive paper was shredded and recycled. Five tons of metal recycled. In 2011, 483 residents participated. The city of Navasota disposed of 104.68 tons of junk and debris. A total of 1,180 tires were collected and recycled, 1,500 pounds of security sensitive paper was shredded and recycled. Nearly eight tons of metal was recycled.

In addition, in 1997, the Navasota Compost Center was created as a means to provide yard waste recycling services for residents of the city of Navasota. The recycle station was made possible through support from the Navasota City Council, and funded through grant monies by the Texas Commission on Environmental Quality (TCEQ). In January 2005, the city changed the facility’s name to the Navasota Recycle Station as recycling services were expanded to accept paper, aluminum cans, glass, cardboard, and plastic through a partnership with the city’s solid waste contractor, Republic Services, Inc. In 2011, 720 tons of yard waste was recycled into compost.

Oil, Gas, and Electrical Management

Regarding oil, gas and electrical systems, the majority of information is currently privately held and unavailable to the city due to privacy concerns. Although the City of Navasota does have information regarding power lines through Entergy, both the phone lines and internet availability information has not been released to city officials, and as such, the city does not have a comprehensive view of those areas. However, the map of electrical lines does indicate a thorough knowledge of both the current infrastructural environment, as well as an early emphasis on planning for future needs as demonstrated in the map below. Information relating to gas lines was not currently available. The five objectives below relate to both oil and gas, as well as to electrical systems planning:

- Navasota should project future gas and electricity needs and provide necessary infrastructure based on population increase, industry demand, and impacts of growth.
• The city should update and maintain accurate hard and digital copies of maps with existing and proposed gas and electricity lines.

• Gas lines not currently code compliant or posing potential leakage problems should be upgraded.

• A relationship should be maintained with outside providers to secure better service to the citizens.

• Navasota should coordinate with the utility providers to relocate lines underground in order to improve the safety and aesthetic quality of Downtown.
Chapter 11 Community Facilities

Introduction

Community facilities are important to maintain the health, safety, and wellness of a community’s constituents. The quality of life for an individual can certainly be affected by the number of facilities in a community, whether they are health services, fire and police protection, or even educational opportunities. Park and recreational facilities are also necessary to promote an active lifestyle. Community facilities can also lead to an increase in tourism from numerous entertainment options, education, and sporting facilities. This can also lead to an increase sense of pride in one’s community. Each community is unique and Navasota should be proud of its facilities that offer its residents plenty to enjoy. This pride also helps revive cultural activities unique to Navasota, especially its art and music history.

Navasota has numerous community facilities scattered throughout the city. These include municipal government, police services, fire services, parks and recreation, schools and health services.

Municipal Government

The Navasota municipal government has a total of 76 full-time staff members and 11 more employed on a part time basis. The municipal court also offers its citizens a place to have their matters heard and filed with the City of Navasota. The municipal government employment has decreased since 2004, and continues to have adequate space for its current employees. However, with the downtown revitalization, as well as the retail business that the community wishes to pursue, the population will continue to grow and this may eventually lead to a need for more space. Listed below are the primary municipal buildings of Navasota as well as their addresses.

- City Hall, 200 E. McAlpine Street;
- Library, 1411 East Washington Avenue;
- Police Department, 200 E. McAlpine Street;
- Public Works, 221 South Railroad Street; and
- City Garage, 520 Malcolm Street.
Police Services

The mission of the Navasota Police Department is to serve and protect with dedication and pride. They emphasize working in partnership with the community to improve the quality of life for all of the residents.

The police department employs 29 people including officers. This number is higher than in 2010, when they employed 27 people with 19 of those being officers. The department should continue to see growth as the population grows.

The table below shows the number of crime incidents in Navasota each year starting in 2001. According to this data, Navasota has a higher crime index than the U.S. and most of the surrounding area, with the exception of Hempstead and Bryan.

Table 11-1 Crime Occurrence per Year; 2001-2010

<table>
<thead>
<tr>
<th>Type</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murders</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Rapes</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Robberies</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>7</td>
<td>11</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Assaults</td>
<td>30</td>
<td>21</td>
<td>20</td>
<td>30</td>
<td>24</td>
<td>23</td>
<td>31</td>
<td>28</td>
<td>31</td>
<td>64</td>
</tr>
<tr>
<td>Burglaries</td>
<td>44</td>
<td>85</td>
<td>79</td>
<td>86</td>
<td>81</td>
<td>107</td>
<td>75</td>
<td>68</td>
<td>74</td>
<td>44</td>
</tr>
<tr>
<td>Thefts</td>
<td>180</td>
<td>237</td>
<td>294</td>
<td>346</td>
<td>328</td>
<td>292</td>
<td>247</td>
<td>209</td>
<td>181</td>
<td>170</td>
</tr>
<tr>
<td>Auto Thefts</td>
<td>8</td>
<td>11</td>
<td>10</td>
<td>18</td>
<td>13</td>
<td>21</td>
<td>21</td>
<td>11</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Arson</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: City-Data.com

Crime rates in Navasota have steadily declined with the growth of the police force, as the crime index is now at the lowest point since 2008. It is also important to note the significant decline in property crime such as burglaries, thefts, and auto thefts. These numbers were at an all-time high in 2006 but have all decreased in years since.

According to the current police chief the biggest problem in Navasota is drug activity, focused primarily on the west end of the city. This includes PCP, marijuana, and powders (i.e. cocaine). Also, even though the burglary and theft numbers are trending downward they still account for 73% of the total crime, as of 2010.

Fire Services

The Navasota fire department was formed in 1886 by a group of local businessmen in need of an organized department to handle the city’s fire and emergencies. They were originally called the Navasota Fire Boys with a Hook and Ladder Company and Hose Company.
The mission of the Navasota fire department is to serve the citizens of Navasota by protecting life, property, and the environment through prevention, education, rescue, and suppression services. Currently, the fire department protects roughly 14,000 people living in a 175 square mile area. The total staff includes 12 career firefighters and 20 volunteers, all of whom are on call 24 hours a day, seven days a week. This crew of workers provides service not only to the City of Navasota, but also a large portion of Grimes County. Ten unique apparatuses support them in order to protect the community. These apparatuses include a parade vehicle, a special operations trailer, a Suburban, three engine trucks, one booster, and one each of ladder, rescue, and tanker.

Also under control of the fire department is the Office of Emergency Management (OEM). This office was created in 1996, allowing Navasota to have its own Emergency Management Plan. The main goal of the office is to plan and prepare for emergencies that may occur including hurricanes, tornados, train derailments, and other disasters.

**Library Services**

The Navasota Public Library provides services for all Grimes County residents. Located in the library for community use are six computers, a photo copier, and community bulletin. There are a total of 43,393 books, 3,756 audio materials, and numerous other videos and databases held within the library's catalog.

**Parks and Recreation**

The Parks and Recreation Department oversees multiple facilities and parks throughout the city. The facilities in this department are broken down into five main categories. They include athletic facilities, community facilities, neighborhood parks, mini parks, and special use facilities. Below is a definition of each sub-department as well as a listing of all the facilities under each one.

**Athletic Facilities:** These are single purpose facilities usually comprised of athletic fields and courts. They are ideally on larger and fewer sites located strategically throughout the community.

- August Horst Recreation Park: Located on the western part of the city near Pecan Lakes Golf Club.
- Logan Soccer Complex: Also located in the western part of the city near Pecan Lakes Golf Club.
- Skate Park: Located directly across the street from the Parks and Recreation staff offices. In 2005, a group of skaters approached the Parks and Recreation Advisory Board with a petition for a public skate park. After four years, several fundraisers, two grants, and a land donation Navasota contracted with a company in Austin to begin development and construction of a public concrete skateboard park. This park is entirely free to the public and open daily following park hours. The official opening date for the park was Saturday, March, 27, 2010.
Community Facilities: These are facilities that are open to the public for events including educational, recreational, and cultural programs.

- Navasota Center: This facility includes one computer lab, one arts and crafts room, three classrooms, one game room, one event room, and one banquet hall. Besides being open to the public for events, the Center also hosts a variety of events including adult continuing education courses, fitness classes, computer classes, senior citizens programming, after school programs, as well as other community events.

- Navasota Municipal Pool: This pool is located behind Brule Park at the corner of Brule and Stadium drives. Some of the amenities of the pool include a basketball goal, volleyball net, lap swimming, and additional pool toys. Navasota Municipal Pool also hosts many community activities including pool parties, community swims, holiday swimming events, swimming lessons, water aerobics, physical education courses, and swim meets.

- August Horst Pavilion: A pavilion that provides numerous amenities for any occasion. Site amenities include picnic tables, BBQ Pits, restrooms, electricity and water, and partially enclosed structure (40 feet x 70 feet).

- R.V. Park Pavilion: A small R.V. park with a pavilion located at the site. There are a total of ten R.V. spots with electric hook-ups, water, and dump stations. Other site amenities include restrooms, shower, small covered pavilion, and picnic tables.

Neighborhood Parks: These are considered integral pieces to the park framework in Navasota. They are located centrally in the city and are easily accessible by trail, sidewalk, or low volume residential streets.

- Cleveland Park: Site amenities include slide, swing set, stationary toys, basketball court, and Boy Scouts of America Hut.

- Hillside Park: Site amenities include ponds, picnic tables, benches, trails, bridge, and trees.

- Patout Park: Site amenities include pond, benches, picnic tables, and bridge.

- Victoria Street Park: Site amenities include swing set, slide, stationary toys, picnic tables, benches, trails, and trees.

- West Virginia Park: Site amenities include benches, swing set, climbing apparatus, and a basketball court.

Mini-Parks: Created to provide two essential purposes for the city. One is to provide back yards in high residential areas with play equipment and/or picnic tables. Also, serves as an open space and rest area for shoppers and visitors.

- Brule Mini Park: Site amenities include playscape, picnic tables, trees/shade, adjacent to pool.
- Ketchum Mini Park: Site amenities include playscape, swing set, climbing apparatus, stationary toys, benches, picnic tables, and a small covered pavilion.

- Mance Lipscomb Park: Site amenities include covered pavilion, picnic tables, and benches.

- Manley Mini Park: Site amenities include fitness obstacle course and benches.

- Mockingbird Mini Park: Site amenities include small covered pavilion, picnic tables, trees, and playscape.

- Stacey Street Park: Site amenities include picnic tables and BBQ pit.

Special Use Facilities: Special permits must be issued for the Navasota Recreational Vehicle Park. This park contains ten R.V. spaces with full hook-ups, which include water, electricity, and sewer. Five spaces have 30 amp electrical hook-ups and five spaces have both 50 amp and 30 amp electrical hook-ups. These permits are reviewed and approved by the Parks and Recreation Department.

Source: City of Navasota website http://www.navasotatx.gov

Table 11-2: Navasota Existing Recreational Facilities

<table>
<thead>
<tr>
<th>Athletic Facilities</th>
<th>Community Facilities</th>
<th>Neighborhood Parks</th>
<th>Mini Parks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseball Fields</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball Goals</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Benches</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BBQ Pits</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Concession Stands</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving Range</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing Structure</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Football Field</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Golf Holes</td>
<td>✅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavilion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation Space</td>
<td>✅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picnic Tables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playground Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playscape</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrooms</td>
<td></td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>Skate Park</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soccer Field</td>
<td>✅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Softball Fields</td>
<td>✅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming Pools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tennis Courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volleyball</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: City of Navasota Website

**Educational Facilities**

The public school system is under the jurisdiction of the Navasota Independent School District. There are five public schools in the ISD. There are a total of 403 staff members throughout the district, and the pupil to teacher ratio is 14 to 1.

John C. Webb Elementary School is located at 1605 Neal Street and has 864 students enrolled. High Point Elementary School, located at 11937 East Highway 105, has a total of 302 students enrolled. Navasota Intermediate School, located at 203 Brosig Avenue, has a total of 329 enrolled students. Navasota Junior
High School is located at 9038 Highway 90 South and has a current enrollment of 604 students. Finally, Navasota High School is located at 9238 Highway 90, and has a current enrollment of 810 students.

Table 11-3: School Enrollment for Navasota ISD

<table>
<thead>
<tr>
<th>Schools</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>John C. Webb Elementary</td>
<td>864</td>
</tr>
<tr>
<td>High Point Elementary</td>
<td>302</td>
</tr>
<tr>
<td>Navasota Intermediate</td>
<td>329</td>
</tr>
<tr>
<td>Navasota Junior High</td>
<td>604</td>
</tr>
<tr>
<td>Navasota High School</td>
<td>810</td>
</tr>
<tr>
<td>Total</td>
<td>2909</td>
</tr>
</tbody>
</table>

Source: City-Data.com

There is also a learning center named The Carver Learning Center, which serves as an alternative learning center for students in the sixth through twelfth grades. Currently the Center has a total of 29 enrolled students and offers programs in adult education as well as English as a Second Language (ESL) courses.

Since 2004, most of the schools have kept a consistent student enrollment. John C. Webb was the only school to dramatically increase their enrollment, almost doubling their total from 2004. This dramatic increase has not significantly hurt the teacher to pupil ratio.

Health Services

Existing health services include the Grimes Saint Joseph Health Center, Navasota Medical Center, three dental offices, and an optometrist`s office. The Grimes Saint Joseph Health Center is located at 210 S. Judson Street. It is a 25-bed critical access hospital offering a Level IV Trauma Center, inpatient, outpatient, and day surgery services. Some additional services include 24-hour emergency care, fitness and wellness, imaging, laboratory services, occupational therapy, and physical therapy. There are a total of 7,338 annual visits at a rate of 0.84 patients per hour.

The Navasota Medical Center is a clinic offering multidisciplinary services to the community. It is located at 501 East Washington Avenue. It also services as a training facility for Texas A&M University Health Science Center. They provide services that include internal medicine and family practice. There are three different dental offices located in three unique parts of town. There is now an orthodontist present in the community, as well as an optometrist. There are still no ophthalmologists` offices located within the city. Due to Navasota`s proximity to College Station, many patients visit facilities and physicians in the Bryan/College Station area.
Sources


City of Navasota Website. (2012). “City Departments”.


Great Schools. (2012). “Navasota Schools”.


Navasota Medical Center. (2012). “About NMC”.

City Data. (2012). “Navasota, Texas”.


Chapter 12 Urban Design

Visual Analysis

The city was divided into six districts to be analyzed. Within these six districts certain elements were inventoried to gain a better understanding of what the city has to offer in terms of visual resources. The elements that were inventoried were along the street corridors and included condition of the street, presence of a sidewalk, and landscaping along these corridors. The combinations of these elements help foster a better urban image as someone drives or walks along a street. Poor streets, lack of vegetation, and lack of access in terms of walkability can hinder the image of the city and give a negative impression to individuals. This negative impression is unfortunate and should be avoided, so that a better, more refreshing image for the city can be portrayed. Following is the map of the districts inventoried followed by a SWOT analysis for each district.

Map 12-1: City Districts for Visual Analysis
District 1

| Strengths | ● Nearby creek  
|           | ● There are a lot of historic buildings that could display the quality of the area  
|           | ● Pre-existing shops |
| Weakness  | ● Poor pedestrian links to downtown  
|           | ● Poor maintenance on historic buildings  
|           | ● Ownership – single ownership/fragmented and private |
| Opportunities | ● Employing downtown development programs would be beneficial for the whole city  
|           | ● Opportunity to provide a gateway into the city  
|           | ● Potential to encourage pedestrian tourist trail  
|           | ● Opportunity to create mixed-use developments |
| Threats   | ● Constraints on local authority spending  
|           | ● Current economic circumstance – limited investment |

District 2

| Strengths | ● Entrance of Navasota connecting Highway 6 to the downtown area  
|           | ● Strong residential presence  
|           | ● Most streets are in decent condition |
| Weakness  | ● Vehicle-dominated streetscape design throughout the area  
|           | ● Lack of sidewalk and connectivity throughout the area  
|           | ● Lack of signage  
|           | ● Lack of landscape design |
| Opportunities | ● Identify entrance of the city  
|           | ● Improve the streetscape design where allowed  
|           | ● Improve pathway linkages between neighborhoods |
| Threats   | ● Future development and design may conflict with historical assets or atmosphere of the area  
|           | ● Increase of non-vehicular infrastructure could be unused if not promoted |

District 3

| Strengths | ● Entrance of Navasota connecting Highway 6 to the downtown area  
|           | ● Farmland |
| Weakness  | ● Vehicle-dominated streetscape design on Blackshear Street  
|           | ● Small amount of public art  
|           | ● Lack of landscape design  
|           | ● Pathway linkages do not connect through the neighborhoods  
|           | ● No sense of historical preservation and reuse of historical buildings |
### District 4

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify entrance of the city</td>
<td>• Future development and design may conflict with historical assets or atmosphere of the area</td>
</tr>
<tr>
<td>• Improve streetscape design of major arterial roads and edge conditions along State Loop 508 and Blackshear Street</td>
<td>• Increased traffic flow may impact the quality of the neighborhood</td>
</tr>
<tr>
<td>• Improve pathway linkages between neighborhoods and the Navasota Intermediate School</td>
<td>• Two historical markers in the district: Mickelborough Building and Terrell House</td>
</tr>
</tbody>
</table>

### Strengths

- Small stream crosses along the area bringing a diverse image to the city
- Existing sidewalks partially connect neighborhoods
- Washington Avenue connects the downtown area to the airport

### Weakness

- Train route segregates the neighborhood causing a poor edge to the area and poses questions to the safety of the community
- Small amount of public art
- Lack of landscape design
- Pathway linkages do not connect through the neighborhoods

### Opportunities

- Potential area to design greenway environment and sense of a downtown

### Threats

- Increased traffic flow may impact the quality of the neighborhood

### District 5

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Entrance of Navasota, with a connection to Highway 6 as well as the municipal airport</td>
<td>• The mobile home area could cause the city to have a poor image and affect aesthetics</td>
</tr>
<tr>
<td>• Existing sidewalks partially connect neighborhoods</td>
<td>• Factory development could cause the city to have a poor image and affect aesthetics</td>
</tr>
<tr>
<td>• Washington Avenue connects the downtown area to the airport</td>
<td></td>
</tr>
</tbody>
</table>

### Strengths

- Entrance of Navasota, with a connection to Highway 6 as well as the municipal airport
- Existing sidewalks partially connect neighborhoods
- Washington Avenue connects the downtown area to the airport

### Weakness

- Trails segregate the neighborhoods and create divisive edge conditions
- Small amount of public art
- Lack of landscape design
- Pathway linkages do not connect through the neighborhoods

### Opportunities

- Design a community center around the Baptist Church
- Catholic Mission can be a future historical site

### Threats

- The mobile home area could cause the city to have a poor image and affect aesthetics
**District 6**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Entrance into Navasota coming from South Highway 6</td>
<td>• Highway 6 could continue to expand and affect property value</td>
</tr>
<tr>
<td>• Agriculture area and open land for development</td>
<td>• Poor road conditions</td>
</tr>
<tr>
<td></td>
<td>• Lack of landscape</td>
</tr>
<tr>
<td></td>
<td>• Poor property upkeep</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Perfect gateway to promote the city on Highway 6</td>
<td>• Lack of city image</td>
</tr>
<tr>
<td>• Connect this area of the city of downtown</td>
<td>• Poor neighborhoods</td>
</tr>
</tbody>
</table>

**Current Navasota Streetscape**

After research and analysis, it is apparent that Navasota lacks any sort of unified sense of streetscape as shown in the images below. The city’s main roads, La Salle Street and Washington Avenue, are essentially the hubs of the community. Shops, restaurants, and businesses line these main streets. A majority of the shops “downtown” offer only a select variety of businesses focusing on antiques and resale. A resident said that Navasota lacks appeal and character, with there only being one area of interest throughout the entire community. Navasota has begun a slight redevelopment phase on McAlpine Street with the addition of the new city hall. In keeping with the historical nature of the city, designers kept the original look of the building. The landscape and streetscape surrounding city hall is probably some of the best in the city; however, it still lacks purpose and design for creating a new urban area. Deteriorating streets along with misuse as well as a lack of pride for the community has affected the overall nature of Navasota. The city should study and look at the City of Bryan and what they have done recently to revitalize their downtown and create a new urban space. Navasota is thriving with opportunity and has the resources to make the city more appealing due to the diversity of the citizens, along with the history and feel of a small Texas town. The first step is to redevelop and redesign the blocks surrounding La Salle Street and Washington Avenue.

Images 12-1, 12-2, 12-3: Streetscapes
Ornamentation

The City of Navasota is rich both in history and historical assets. Historic resources in Navasota are important to the quality of life by giving it a sense of place. By analyzing and identifying the feature of historical architecture in downtown and the surrounding residential neighborhoods, the city can have a better understanding of the special building context, which can be used to further study urban design. After gathering information from the Texas Historical Commission, this section will categorize each type of building and will point out its features.

The element of ornament and decoration plays a key role in creating a pleasing and memorable city. Therefore, the reason to identify ornament and decoration is to develop a more delightful city. Looking in depth at the principle of embellishment will aid us from making further mistakes (Urban Design, 1999).

According to the idea of Kevin Lynch’s legible city, a city will be easily visualized in the “mind’s eye” since it has clearly defined, easily recognized and distinctive perceptual structure (Kevin Lynch, 1960). Thus, it is better to understand the different type of Navasota’s architecture first. To better understand the historical buildings and their special ornaments and decorations, the following section contains a comprehensive analysis of some aspects of the local architecture.

Category of Architecture Style

In the City of Navasota there are five types of building styles: Victorian, 19th Century Vernacular, Romantic, and Colonial. Following is a brief summary for each style of architecture, and examples of the buildings in Navasota that fit in each style.
Victorian Style Features

- Steeply pitched roof of irregular shape, usually with dominant front-facing gable
- Textured singles to avoid smooth-walled appearance
- Partial or full-width asymmetrical porch, usually one story high and extended along one or both side walls
- Asymmetrical façade
- Types of Victorian style: Second Empire, Queen Anne, Stick, Shingle and Richardsonian Romanesque

Joseph Brooks Home  Terrell House  Leake Building

Norwood House  Templeman House  Sangster House

19th Century Vernacular Style Features

- Simple in form and plan, with little or no ornamentation
- Prevalent types are the rectangular, wood-frame, two-story, fronted gabled dwelling and “L” shaped wood frame, one story, gabled roof dwelling.
Evans House

Romantic Style Features

- Gothic Revival
  - Steeply Pitched Roof
  - Grouped Chimneys
  - Pinnacles, Battlements, and shaped parapets
  - Quatrefoil and Clover Shaped Windows
  - Asymmetrical Flood Plan
- Types of Romantic style: Greek Revival-style, Gothic-style, and Italianate

Colonial House Style Features

- Architecture is very symmetrical and square
- Decorative crown above front door
- Narrow side windows flanking the front door
- Paired chimneys
A clear look at the decorations and ornaments shows that these beautiful and delicate buildings all have their own stories (see Table 12-1). Therefore, preserving historical buildings is essential to understanding the city’s heritage and reinforcing a strong city image. By reusing existing buildings in Navasota, not only can the image of the city be visualized but also economic benefits accrue, as both tourism and retail activity should increase. The list of building information was gathered from http://atlas.thc.state.tx.us/.

Table 12-1: List of Architecture Types in Navasota

<table>
<thead>
<tr>
<th>Architecture Style</th>
<th>Name</th>
<th>Architect/ Builder</th>
<th>Built Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victorian-style</td>
<td>Joseph Brooks Home</td>
<td>Joseph Brooks</td>
<td>1870s</td>
</tr>
<tr>
<td></td>
<td>First Presbyterian Church of Navasota</td>
<td>N/A</td>
<td>1876</td>
</tr>
<tr>
<td></td>
<td>Leake Building</td>
<td>Walter J./Julia C. Peterson</td>
<td>1873</td>
</tr>
<tr>
<td>Queen Anne-style</td>
<td>Norwood House</td>
<td>Ernest Lord</td>
<td>1898</td>
</tr>
<tr>
<td></td>
<td>Sangster House</td>
<td>Ernest Lord</td>
<td>1902</td>
</tr>
<tr>
<td></td>
<td>Terrell House</td>
<td>Elizabeth Owen</td>
<td>1897</td>
</tr>
<tr>
<td></td>
<td>Templeman House</td>
<td>Ward B.</td>
<td>mid-1890s</td>
</tr>
<tr>
<td>19th-century vernacular-style</td>
<td>Evans House</td>
<td>Newlyweds John Thomas/ Maude Martin Evans</td>
<td>1894</td>
</tr>
<tr>
<td>Colonial Revival and Shingle-style</td>
<td>Foster Home</td>
<td>Mattie Brigance Foster</td>
<td>1900</td>
</tr>
<tr>
<td></td>
<td>The Giesel House</td>
<td>R.H. Giesel</td>
<td>1860</td>
</tr>
<tr>
<td>Atlantic-style</td>
<td>R.B.S. Foster Home</td>
<td>Malcolm Camp</td>
<td>1859</td>
</tr>
<tr>
<td>Eastlake and Stick-style</td>
<td>Robert A. Horlock House</td>
<td>Robert Augustus Horlock</td>
<td>1890s</td>
</tr>
<tr>
<td></td>
<td>Steele House</td>
<td>J.E. Watkins</td>
<td>1800s</td>
</tr>
<tr>
<td>Gothic Revival-style</td>
<td>Lee Tabernacle Methodist Church</td>
<td>N/A</td>
<td>1896</td>
</tr>
<tr>
<td>Renaissance Revival</td>
<td>Old First National Bank of Navasota</td>
<td>James Davern</td>
<td>1880s</td>
</tr>
</tbody>
</table>

Source: Texas Historical Commission
Green Dimensions

The city’s parks, parkways, and natural features provide a strong framework of maintaining and improving every citizen’s quality of life. The following section provides a physical inventory of existing parks, open spaces throughout the city, including their availability and location (Map 12-2). The section also offers several specific suggestions for recreation facilities and parks.

Map 12-2: Inventory of City Amenities

Parks and Facilities Today

The City of Navasota provides 19 parks and facilities in total, among them, three are athletic facilities, four are community facilities, five are neighborhood parks, six are mini parks, and the last is an R.V. park. Information of parks and facilities are provided in the previous chapter.

Considering half a mile is a comfortable walking distance for people, the following map displays the service coverage using 1/2 mile buffers around all parks and facilities within the city limits. Overall, the City of Navasota has provided a considerable amount of parks and related facilities. However, the
provided facilities obviously cluster in the southwestern corner, so the accessibility to athletic facilities is limited for a majority of citizens.

Map 12-3: Parks and Facilities with a 1/2 Mile Buffer

Therefore, in order to improve the current situation, it is suggested that the city:

- provide high quality neighborhood facilities for active recreation such as field games, court games, play equipment, and

- enhance connectivity and linear recreation.

Sources


Red Wings south and historic properties survey, retrieved on Oct. 11, 2012 from
http://www.redwing.org/images/content/files/planning/south_survey_report_1b.pdf
## Chapter 13 SWOT Analysis

### Strengths

| History | • Strong core of historic sites  
|         | • Historic sites on the National Register of Historic Places and the Texas Historic Commission |
| Demographic, Economic, and Cultural | • Steady population growth since 1960  
|                                      | • Large youth population  
|                                      | • Rapidly increasing Hispanic population  
|                                      | • Unique shops and historic downtown district  
|                                      | • Stable employment since the financial crisis  
|                                      | • Local household buying power has increased from 2000-2010, while Texas as a whole has decreased  
|                                      | • Growth rates for personal income per capita personal income, and net earnings by place of residence were higher than state average from 1990 to 2010  
|                                      | • Top industries include Retail Trade, Accommodation/Food Services, Wholesale Trade, Real Estate/Rental and Leasing, and Manufacturing  
|                                      | • Taxable sales generation has increased at a faster annual rate than the state average  
|                                      | • Real Estate/Rental and Leasing businesses have increased taxable sales by 1,200% since 2002  
|                                      | • Wholesale trade industry has increased taxable sales by 748% since 2002. |
| Housing | • Relatively high housing affordability  
|         | • Housing is convenient to major state highway (Highway 6)  
|         | • Architectural character along Washington Avenue corridor |
| Land Use | • Historical downtown  
|          | • Industrial district  
|          | • Close to Texas A&M University  
|          | • Golf course  
|          | • Undeveloped land |
| Environment and Hazards | • Stock of undeveloped land is useful for future growth  
|                           | • Permeability of the soils is beneficial during flooding events  
|                           | • Little to no urban development adjacent to the Navasota River and vegetation buffer along its banks that provides some protection from pollutants  
|                           | • City of Navasota is committed to improving flood and hazard conditions  
|                           | • Relatively few air quality concerns |
| Transportation | • Improved municipal airport with capacity to serve jets  
|                | • Street improvements within the downtown core, specifically surrounding the new city hall  
<p>|                | • City staff support for alternative transportation |</p>
<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Permeability is beneficial during flooding events</th>
</tr>
</thead>
</table>
| Community Facilities | Park system, total of 5 parks with 6 mini parks  
|                    | Centrally located municipal offices  
|                    | Great public works and city hall buildings  
|                    | Park improvement program to help identify needs and methods of financing the improvements of the park through grants, user fees, loans, etc.  
|                    | Crime rates are steadily declining, and at the lowest crime index since 2008 |
| Urban Design | Good areas to focus on where amenities can be added  
|                | Historic themes could be used in new building designs to help maintain a historic theme for the city  
|                | Street corridors are in decent condition, with plenty of vegetation along the corridors |

**Weaknesses**

| History | Aging stock of buildings can be burdensome to bring to code  
|         | Could potentially turn off potential buyers due to increasing costs |
| Demographic, Economic, and Cultural | Significant drop in school enrollment between 2000 and 2010  
|                                       | Nearly 40% of the population aged 25 years and older have not completed high school  
|                                       | Slow and even negative growth of domestic migration since 2008  
|                                       | Vacant downtown buildings  
|                                       | Lack of restaurants in downtown  
|                                       | Lack of college/higher education center  
|                                       | Unemployment rates have been higher than state average since 1998  
|                                       | Per capita personal income is lower than state average as of 2010  
|                                       | Five industries have seen declining taxable sales generation since 2002: Information,  
|                                       | Other Services (Except Public Administration), Professional/Scientific/Technical Services, and Finance/Insurance business categories are shrinking  
|                                       | 60% of all taxable sales generated are from retail trade |
| Housing | Poor infrastructure in residential areas  
|         | Few housing options for lowest-income households  
|         | High number of mobile/manufactured houses in city neighborhoods, many of which are in poor or deteriorating condition |
| Land Use | A number of nonconformities within the city  
|          | Developed/developable areas within the flood plain and draining zones not suitable for development |
| Environment and Hazards | Central business district is located within the floodplain  
|                        | Downtown is plagued with flooding, posing a concern for the growth and development of the central business district  
|                        | Drainage in the downtown may not be sufficient to deal with flooding problems  
<p>|                        | Navasota River and Cedar Creek are impaired water bodies as a result of elevated levels of bacteria |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging infrastructure in the city</td>
<td>Setup of the city’s electric power sources is problematic during hazard events</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>City lacks infrastructure for non-motorized transportation</td>
</tr>
<tr>
<td></td>
<td>At-grade railroad crossings in some neighborhoods impede mobility for residents without a car. Some residents view the crossings as unsafe.</td>
</tr>
<tr>
<td></td>
<td>Roadway maintenance is inconsistent</td>
</tr>
<tr>
<td></td>
<td>Parts of the city lack street lighting, specifically the outskirts and some older neighborhoods</td>
</tr>
<tr>
<td></td>
<td>Pedestrians lack safe street-crossings in the downtown, specifically across Washington Avenue</td>
</tr>
<tr>
<td></td>
<td>Airport does not provide fuel service</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>Aging infrastructure</td>
</tr>
<tr>
<td></td>
<td>Electric power setup is problematic during hazard events</td>
</tr>
<tr>
<td><strong>Community Facilities</strong></td>
<td>Connectivity of the parks, streets, education facilities</td>
</tr>
<tr>
<td></td>
<td>Bike and pedestrian lanes throughout the city</td>
</tr>
<tr>
<td></td>
<td>EMS services may not be adequate once expansion occurs. No designated station within city limits. Relies on Brenham and BCS for any mass casualty incident.</td>
</tr>
<tr>
<td></td>
<td>Drug activity, primarily focused on the west side of the city</td>
</tr>
<tr>
<td><strong>Urban Design</strong></td>
<td>Lack of design for an inconsistent image for the city</td>
</tr>
<tr>
<td></td>
<td>No safe connections between corridors for pedestrians</td>
</tr>
<tr>
<td><strong>Opportunities</strong></td>
<td>Implement programs to help showcase the history of the city</td>
</tr>
<tr>
<td></td>
<td>Festivals could be used to bring people into the city</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>Celebrate Hispanic festival during Cinco de Mayo</td>
</tr>
<tr>
<td></td>
<td>Enough labor force to attract business in the future due to a heavy concentration of school age population</td>
</tr>
<tr>
<td></td>
<td>Potential use of vacant downtown buildings</td>
</tr>
<tr>
<td></td>
<td>Growth of industrial park area and occupancy</td>
</tr>
<tr>
<td></td>
<td>Strong and growing utilities industry, growing transportation and warehousing industry</td>
</tr>
<tr>
<td></td>
<td>Strong housing market from employees working at local major employers</td>
</tr>
<tr>
<td><strong>Demographic, Economic, and Cultural</strong></td>
<td>Large number of available vacant lots for infill development</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>Downtown area offering many opportunities to promote a mix of uses</td>
</tr>
<tr>
<td></td>
<td>Space for businesses, art and boutiques, and lofts to offer more choices</td>
</tr>
<tr>
<td></td>
<td>Large areas of undeveloped land providing opportunities for infill</td>
</tr>
<tr>
<td></td>
<td>Sections already zoned as industrial districts can be used to attract industry within the city</td>
</tr>
</tbody>
</table>
Environment and Hazards
- Opportunity to develop in hazard free areas and promote environmental quality in future land use decisions
- Ability to establish policies and regulations that will protect new and existing residents from hazards, natural and manmade (hazardous chemicals)
- Recreational opportunities through potential public access to the Navasota
- Improvement of water quality in the Navasota River and Cedar Creek through partnerships with river authorities, state institutions and other organizations

Transportation
- Parking infrastructure in the downtown is generally available but could be utilized more efficiently with the implementation of more progressive policies toward parking
- Sidewalks along Washington Avenue are well equipped with pedestrian amenities but could better serve pedestrians with improvements to street-crossings
- Airport could serve as a location for potential business opportunities

Infrastructure
- Access to Navasota River can provide recreational opportunities

Community Facilities
- Adding more mini parks in the city
- Increasing bike and pedestrian paths to help with the connectivity of all parks and neighborhoods
- Adding a fire station to the city to help meet the needs of the growing population and expanding area once it occurs

Urban Design
- Improve corridors to cater to pedestrians and enhance the beauty of the city
- Could help to calm traffic and increase safety

Threats

History
- Difficulties and expenses of altering historic buildings
- Maintaining the urban image while keeping up older building stock
- Susceptibility of older building materials to harmful forces

Demographic, Economic, and Cultural
- Population ratio of city to county has declined since 1980.
- Growth of Bryan/College Station area could steal away economic opportunities
- Farm industry as a top basic industry is declining.
- Poor labor market, 25-44 age cohort is moving out of Navasota.

Housing
- Rapid deterioration of historic properties
- Possible flooding
- Possible chemical hazards from truck/rail spills

Land Use
- Vacant and empty lots
- Losing population and business to College Station

Environment and Hazards
- Potential hazards such as flooding, hurricanes/tropical storms, and wind-related severe storms
- Continued development in the floodplain
- Uncontrolled development outside city boundary where control is limited
- Environmental impact of suburban sprawl in the south of Navasota
- Health concerns associated with hazardous material spills, along routes and in facilities
- Fragmentation of wildlife habitat and lack of connectivity between habitat patches
- Continued habitat loss through development in environmentally sensitive areas and endangered species habitats
- Invasive species threatening the existence of native species
- Decline of the rare and endangered Navasota Ladies Tresses’

<table>
<thead>
<tr>
<th>Transportation</th>
<th>Consistently heavy traffic, especially 18-wheelers and HAZMAT trucks, uses Washington Avenue as a primary thoroughfare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>Continued development in the floodplain and outside city boundary</td>
</tr>
<tr>
<td>Community Facilities</td>
<td>Future annexation on neighboring land may strain fire and police stations resources charged with providing service to those areas</td>
</tr>
<tr>
<td>Urban Design</td>
<td>Possibility of having an inconsistent urban image because of uncontrolled sprawl could lead to loss of historic character</td>
</tr>
</tbody>
</table>
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Executive Summary

Strategic Growth

Planners have the ability to influence land use planning as a means to improve quality of life. Whether it is providing adequate infrastructure, housing needs, employment opportunities, retail space, recreational space, or providing safety from harm, a city should strive to continually improve its ability to provide needed services. Navasota currently has an opportunity to grow strategically toward a better future. Strategic growth entails a diverse mix of residential, commercial, industrial, research and development, and recreational spaces that meets the needs and desires of the current population and future population. It takes into consideration existing infrastructure and future infrastructure necessary to meet future demand. A plan to grow strategically also addresses flood concerns for existing developments and in the planning of new developments. A city that wants to grow strategically develops a plan for annexing land through informed and deliberate land use decisions. Strategic growth also realizes the value in redeveloping existing developments to better suit community needs, improve quality of life and incorporate a consistent urban image.

It is important for Navasota to annex certain portions of its Extraterritorial Jurisdiction (ETJ) to control the surrounding land uses and promote cohesive and contiguous development around the city. The basic objective for annexation is to control land uses in order to protect Navasota’s environmentally sensitive areas, natural and cultural resources, and to preserve the small town character of Navasota. There are a few strategic areas for annexation. Some parcels located at the east side of the industrial development have the potential to support a ‘research and design’ (R&D) development utilizing the existing industrial facilities and the rail line. The city should also consider annexing the unincorporated lands located along the Navasota River. This area has the potential to be developed as a recreation area to serve its current population, attract future residents of Navasota and bring in tourists from the region.

Navasota’s land use decisions have profound impacts on more than the physical landscape of the city. Future land use decisions affects economic and community development, urban image, environmental quality and the overall social fabric of Navasota. Implementing a strategic growth approach for future land use decisions will help Navasota grow into the future regional attraction it aspires to be. The future land use section presents key areas where urban expansion, revitalization and conservation are recommended. The area located on the intersection of Highway 6 and 105 can be considered as one of Navasota’s primary gateways. A small area plan developed for this area highlights the residential, commercial and recreational potential that exists in the southeastern gateway of Navasota. The northern section of Navasota is reimagined in the future land use plan into a recreational and residential haven. The winding Navasota River in the northern reaches of the city is transformed into an asset for local residents.
and a regional attraction. The existing industrial area to the south of the city is enhanced with a proposal for an adjacent research and development park. A plan to revitalize and add value to the current land uses located in the Downtown District is created, while the need and potential for economic development along Highway 6 is addressed in the Future Strategic Growth Area 3: Highway 6 Commercial Corridor.

To achieve strategic growth in Navasota, viable solutions for infrastructure challenges such as aging and faulty water and sewer lines must be created and implemented to ensure public and environmental health are protected. Strategies to protect groundwater from contamination are important to maintain good drinking water quality for the city's residents. The city must also calculate appropriate levels of water service. With plans for future growth along Highway 6 and potential annexation and urban expansion areas, future infrastructure needs must be reevaluated. One of the most pressing concerns is the need for a solution to the capacity and efficacy of the current wastewater treatment system. A financial strategy that incorporates funds from a Capital Improvement Program and external grants can be used to address Navasota's infrastructure needs and concerns. It would be economically beneficial to Navasota if development and redevelopment efforts occurred in areas where infrastructure currently exists, but extension of services to prime urban expansion areas must also be considered.

A pressing issue for the city is a comprehensive drainage study, particularly assessing flooding conditions along Sandy Creek and Cedar Creek tributaries. A proper study should yield specific stormwater management solutions. As a way to lessen the impact on existing stormwater infrastructure, all new developments should maintain or reduce impacts on existing stormwater systems. This can be achieved through curb and gutter installations, impact fees, policies, and amendments to zoning maps. Zoning map amendment recommendations would have floodplains zoned for the least intensive land use possible. The city can also relocate structures or acquire properties that are within the floodplain. A program that would help homeowners and increase hazard mitigation strategies in the community would include participation in the National Flood Insurance Program's Community Rating System. Preparedness efforts should be made in coordination with the city, county, and state offices of Emergency Management. Proper training and equipment would allow for a more informed and prepared community.

**Housing, Economic & Community Development**

The conservative growth expected in Navasota over the next two decades presents unique challenges for economic development, housing, and community development. As a result, particular attention should be given to strengthening existing business and industry while bolstering a growing arts and music community. Housing development should be targeted in areas with ready access to retail and services with a greater attention to architectural detail and energy efficiency. Community amenities should be designed to enhance residents’ quality of life while building a highly educated workforce.
To reach desirable economic and community development specific economic development tactics must be employed such as launching a business incubator program, developing studio space downtown for artists, and working with the Navasota Industrial Park to increase the city's economic base. Housing strategies include creating incentives for developers to build quality affordable housing, establishing architectural standards, and adopting building practices that reduce energy use and environmental impact. The city is also advised to use the following community development approaches: reviving an open-air public market in the downtown area, involving community stakeholders in the improvement of local education, and working to ensure the basic needs of Navasota’s residents are met.

**Historic Preservation**

Currently, no comprehensive historic preservation program exists for Navasota. However, Navasota does have 30 locations that have been designated as historical sites by either the Texas Historical Commission or the National Registry of Historic Places. The presence of these historical assets needs to be emphasized to create a strong sense of community identity and to strengthen the local economy.

In order to properly emphasize the historical sites present within Navasota, the city needs to develop and implement a historic preservation program that will protect and rehabilitate the historical sites and districts. In order to accomplish this goal, Navasota must first review, update, and execute the existing Navasota Historic Preservation Action Plan with the direct oversight of city council, focusing efforts on the Downtown Commercial Historic District initially.

Additionally, Navasota must develop and maintain interest in its historic structures from both the public, private and government interests. By setting a priority on the historic assets within the city, Navasota will create an identity for the city that community members will identify with and tourists from around the region will be attracted to.

Navasota must also strive to provide economic incentives for owners of historic sites to protect, preserve, and maintain the heritage that reflects the city’s history. This action goes hand-in-hand with maintaining public interest in the historic structures.

Finally, Navasota must update and then maintain an accurate Historic Resources Survey for the city. By implementing a regular schedule of reviews and updates, the city will ensure that historic structures are accounted for in state and federal registries and further develop the sense of identity, which is being established within Navasota.

**Downtown Revitalization**

In order to revitalize and strengthen the downtown district, an official district boundary has been established. This boundary area is delimited to the northeast by Frazer Street, across
Washington Avenue and following Lasalle Street to the southeast; to the South by Holland Street; to the West by 10th Street and finally to the Northwest by Cedar Creek.

Within the newly defined boundaries, Navasota will take advantage of underutilized spaces to further the “pocket park” strategy that has been implemented in other areas of the city. Cedar Creek will be redeveloped as an urban scale park that will provide venues for large community gatherings, performances, exhibitions and night activities. Near City Hall, a youth-oriented playground will help ensure diversity in downtown open spaces and also serve as an opportunity to increase storm water management capacity without upsetting recent public work developments. Lastly, the vacant lot on 10th Street will be redeveloped into a community park that will serve as a central location for large community events such as “Home for the Holidays”.

Finally, the downtown district will promote enhanced vertical mixed-use development, allowing for retail and commercial uses on the ground floor of buildings while encouraging residential and office uses for second story spaces. This will be accomplished using a segregated access strategy that allows for retail entrances from the storefronts while presenting access to the upper floors through frontage road access. Frontage road access will be made possible by enhancing the walkability and human scale of existing alleyways, promoting a connected and pedestrian friendly downtown district.

**Urban Image**

A city’s urban image speaks volumes about the city’s history, its residents and the way they imagine themselves in the present and future. A city never has one identity and therefore it can be difficult to choose an overarching urban image. However, a unified urban image can be beneficial for a small city like Navasota to brand and market itself to outsiders and create a sense of place for city residents. Therefore, the Urban Image section of the comprehensive plan will present alternative scenarios and themes for the city to use in creating a cohesive environment while catering to the needs and interests of the public. These scenarios were created from preexisting qualities and features found within the city, highlighting Navasota’s culture, history and assets. It will be important to expand these scenarios from downtown to all areas of the city. The incorporation of different visions resulted in the following three alternative scenarios:

- The Blues and Arts Capital takes after the progressive artistic nature the city currently offers as well as being the home of late Blues musician Mance Lipscomb.

- The Revival of Navasota aims to redevelop the city and bring it back to its historic beginnings. The small town charm will be kept as well as the City’s legacy.

- The International Marketplace focuses on the changing demographics of the city and focuses on increasing interests of other nationalities to come to Navasota to trade or shop.

One of these alternative scenarios should be selected and implemented throughout the city to provide a strong image and cohesive development to unify the city identity. This will be achieved
through the use of different elements such as: landscape designs, public furniture, building façades, architecture, streetscapes, lighting fixtures, gateways, signage, and public areas of interaction. Ultimately, Navasota will be provided with three options and directions for city development in the future to provide a positive and lasting image for the city.

**Transportation**

The purpose of this section of the comprehensive plan for the City of Navasota is to provide for the future transportation needs of the City. This section of the document proposes short and long-term improvements to the road network to solve existing problems and to facilitate planned growth. To promote orderly development of the road network, a Future Transportation Plan has been created.

This plan considers existing land use conditions, proposed future land use, and projected population growth within the city to guide needed transportation system expansion. Some recommendations call for the construction of new streets while other underutilized streets could be reconfigured and converted to other roadway classifications.

This plan recommends that for all new road expansions, construction should coincide with actual proposed development. Due to ever changing conditions, information gathered by transportation reviews and updates should be provided to the city in an annual report. This procedure will ensure that the community is well informed of the current conditions of the transportation network so that issues can be dealt with in a timely manner. Safe and efficient mobility for the citizens of Navasota is the ultimate goal of this section.
Acknowledgment

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The work completed in this comprehensive plan update used research collected by a previous applied planning class as well as design concepts, market study analyses and transportation analyses from other College of Architecture students. The students that participated in this project come from a wide range of PhD, Masters and Bachelors programs in the College of Architecture. Short biographies of the team of students that focused on the update for the comprehensive plan this semester is listed below. All of the names of the contributors are as follows:

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Chapter 1 Strategic Growth
Strategic Growth: Introduction

Navasota has the ability to grow in a strategic way that will have beneficial impacts on all aspects of city life such as housing, commerce, environment and urban image. Annexation decisions made by Navasota should be made with a clear vision of how annexed areas will grow. The annexation section of this chapter proposes priority annexation areas that will allow the city to have more control over land uses in the extraterritorial jurisdiction. These areas were chosen in order to protect Navasota’s environmentally sensitive areas, highlight natural and cultural resources, and to preserve the small town character of Navasota. Future land use recommendations are also presented in this chapter. The future land use recommendations should be used to make zoning map amendments and revisions. Particular areas within the city limits have been identified as deserving special attention. A vision for these areas has been presented in three separate small area plans in the following parts of the city: Southeastern Commercial District, Downtown and Highway 6 Commercial Corridor. Future land use, annexation and small area plan recommendations have all been made keeping in mind the city’s goals and objectives for infrastructure and flood management. The Infrastructure and flood management sections in this chapter also lay out key actions that the city must take to maintain and enhance the public’s health, safety and welfare.

Annexation-Growth Management

The strategic growth management plan provides context for future annexations of unincorporated land by city of Navasota and establishes strategies to ensure these new areas of the city meet the goals and objectives identified in the Comprehensive Plan. The strategic growth management plan is intended to manage the rate of growth so the city maintains its small town character. In order to truly evaluate Navasota’s future growth and land use, it is necessary to consider the areas outside the city limits.

The city of Navasota’s extraterritorial jurisdiction (ETJ) is an area of 10,998 acres of land that surround 4,128 acres of platted city land and 3,239 acres of unplatted land within the city limits, characterized by a mix of mostly agricultural (6,712 acres) and some residential areas (2,721 acres) in the rural setting. The ETJ extends roughly around one mile around the city limits.

Importance of Extraterritorial Jurisdiction
Extraterritorial boundaries can be considered as community assets. The main reason for Navasota to annex these areas is to realize the economic potential and have full control over the land uses around the area. Some areas of the Navasota’s ETJ (specifically land at the intersection of Highway 6 and 105) can be considered the ‘gateway’ for the community. The city should also consider land along the Navasota River, which has the potential to be developed as a recreation area to serve its current residents and also to attract future residents. In order to create a cohesive and contiguous development, Navasota should consider annexing some areas of the ETJ in order to manage growth and serve the future citizens of Navasota with utilities and other services.

**Annexation Overview**

Annexation Policy as explained in the Texas Local Government Code, Chapter 43:

To be annexed, the land must be contiguous to the city limits, unless the land is owned by the city. As a home rule city subject to Chapter 43 in the Texas Local Government Code, Navasota may implement annexations in one of two ways:

- **Full purpose annexation:** Requires the city to provide full municipal services including emergency response, public facilities, and maintenance of roadways and storm water/drainage services. The city enforces all ordinances and assesses property and sales taxes.

- **Limited purpose annexation:** The city enforces planning, zoning, and health and safety ordinances. The property owners do not pay property taxes to the city and city does not provide police or fire protections, roadway maintenance and other related services. The city must annex an area for full purpose after three years of limited purpose annexation, unless a majority of the affected landowners and the city agree to extend the deadline.

The annexation can be initiated either by the property owners or the city.

**Overall growth strategy of Navasota**

The general growth strategy for the city of Navasota was developed after a detailed analysis of demographic and future trends. Other factors that have contributed to the annexation policies are environmentally sensitive areas around the city, transportation improvements, and infrastructure that will connect the city with the surroundings.
Future growth within existing city limits

Navasota should direct growth to undeveloped or vacant land within the city limits before annexing new areas as well as provide capital facilities that encourage new residential and commercial development and capture tax dollars from the retail sector. The city should channel new retail and commercial areas based on the retail master plan along Highway 6 and downtown. The growth should be created in a way that corresponds to the priority areas shown in the annexation map (See Figure 1 - 1).

Figure 1 - 1: Proposed Priority Areas for Annexation.
Future growth within the city’s ETJ

Annexation of ETJ areas is important for the city to properly plan for continued development once the inventory of developable land within the city limits is substantially depleted. Growth should be encouraged outside the city limits when adequate capital facilities are not available for further development.

**Basic objectives of annexation**

- Controlling the location, density and rate of growth
- Providing public facilities and infrastructure
- Preserving the small town character of Navasota
- Protecting Navasota’s environmentally sensitive areas
- Protecting Navasota’s natural and cultural resources
- Providing alternative housing options and other community facilities to the current and future residents of Navasota.

**Future Growth scenario in the City’s different plans**

Future growth scenarios in the City’s existing plans have been identified and analyzed to decide the priority areas that the City should consider annexing in the next 10-20 years. The following section includes different growth scenarios identified in different plans provided by the City. The retail master plan, provided by Burditt Land Place Consultants of Conroe (BLPC), has identified the potential areas of retail growth along Highway 6 whereas the City’s previous version of comprehensive plan (2005-2015) has identified priority areas of growth in the ‘Future Land Use section’ of the plan.

**Retail Master Plan**

The Commercial Design Guideline section of the ‘Retail Master Plan’, prepared by Burditt Land Place Consultants of Conroe (BLPC) (See Appendix_ Retail Master Plan), has identified the following areas as priority areas for future growth:

- Undeveloped land zoned as residential and commercial within the ETJ boundary, encompassing an area of about a mile beyond the city limits.
- Land north on Highway 6 and east on Highway 105
- Land located on the southwest corner of Highway 6 and Highway 90
- Land located at the west end of Washington Avenue

Comprehensive Plan 2005-2015

**Future Land Use** - The ETJ areas are designated as Planning Area 5 in the ‘Future Land Use’ section (Section 17) of the ‘2005-2015 Comprehensive Plan of Navasota’ (See Figure 1 - 2). The land uses, as described in the ‘Existing Land Use Map’ of this plan, are mostly agricultural, rural and undeveloped land, with few single family dwellings on some parcels. A few areas are shown as ‘Commercial Industrial’, an area on the south shown as ‘Heavy Industrial’, and some other parcels shown as ‘Commercial Retail’ and ‘Commercial Other’.

In the ‘Planned Land Use Map (See Figure 1 - 2) of the same section, the majority of agricultural and rural land has been shown as ‘low density single family residential’; the entire south portion of the ETJ has been designated as ‘Industrial’ and some parcels located between Interstate Drive and Highway 6 shown as ‘Research and Development’. Some other parcels located along the northwest corner of Highway 6 have been shown as ‘Redevelopment’.
Figure 1 - 2: Existing and Planned land use as identified in 2005-2015 Comprehensive Plan +
The ‘2005-2015 Navasota Comprehensive Plan’ also included the following four areas as priority areas for annexation (See Figure 1-3).

The city has annexed a portion of the identified land since the approval of the 2005-2015 plan, but did not specifically follow the prioritization recommended in the plan.

- **Area 1**: The land east of Highway 6, parts of which have already been annexed, although not in a uniform manner.

- **Area 2**: The area located south of the current city limits between the area designated as industrial park and Highway 6. This area has existing infrastructure which will reduce future development cost in this area. This has been identified as a prime site for a gateway. However the existing zoning does not match the proposed uses.

- **Area 3**: Land south of the current city limits between the industrial park and the airport. This area has been identified as a future industrial park.

- **Area 4**: Land north of the airport has been identified as preserved land to be used for land use control for the purpose of airport mitigation and aesthetic control.
Figure 1 - 3: Priority areas for annexation as identified in 2005-2015 Comprehensive Plan
Proposed priority areas for annexation

In order to create uniform land uses and cohesive development along the urban edge, the city of Navasota should consider annexing the following areas (See Figure 1 - 1) in the next five years in a process of limited and full purpose annexation discussed before.

**Priority Area 1**: Encompasses an area located between Courtney Drive and Interstate Drive (South Hollister Drive) that is adjacent to the industrial area of Navasota and intersected by the Navasota rail line. This area has the potential to be developed as a ‘research and development’ area, as identified in the ‘Planned Land Use Map’ of the 2005-2015 Navasota Comprehensive Plan, utilizing the existing facilities of the industrial development and the rail line. The employment density map (See Appendix B: Strategic Growth Maps), based on 2010 Census, shows that a higher percentage of employment is concentrated on the southeast corner of the city limits and so the City should consider annexing these areas to support the existing growth of employment along these areas.

**Priority Area 2**: Encompasses an area located between the northwest corner of the city limits and the Navasota River, currently designated as ‘Rural’ in the ‘Existing Land Use Map’ in the ‘2005-2015 Comprehensive Plan’. This area has the potential to be transformed into a recreation area utilizing the river for water related activities, such as canoeing, kayaking, etc.

**Priority Area 3**: Encompasses an area surrounded by the west end of Navasota city limits and the Navasota River. The area is shown as ‘Rural’ in the ‘Existing Land Use Map’ and as ‘Medium Density Single Family’ in the ‘Planned Land Use Map’ of 2005-2015 Comprehensive Plan(See Figure 1-3)

However satellite imagery shows that some parts of this area have been subdivided for a residential development, which suggests the area’s potential demand for residential growth. Because of the area’s proximity to the river and also supporting the current growth trend, we suggest this area to be fully annexed for a low-density residential development in the next five years so that the city can collect taxes from these properties.

Regulatory context for annexation plan 2013

The annexation plan for the City of Navasota should be consistent with city’s Comprehensive Plan and should demonstrate the following considerations:
- Promote efficient growth by encouraging development in urban areas where Figure B - 1).

- Reduce sprawl by encouraging compatible infill development and reducing inappropriate conversion of undeveloped land into sprawling, low-density development that contradicts the small town feel of Navasota.

- Preserve environmental resources by promoting resource conservation and managing growth in environmentally sensitive areas (See Error! Reference source not found.).

Annexation Goals, Objectives and Action Items

Goal 1: Create planning and design policy for the ETJ to encourage continuous and cohesive development inside and outside the city limits.

Objective 1.1: Create policy guidelines for the ETJ by suggesting growth management priority areas.

Action 1.1.1: Annex priority areas identified in the annexation plan.

Action 1.1.2: Preserve areas located within 100-year floodplain as identified in the Land Suitability Map (See Appendix Error! Reference source not found.) by creating an Environmental Resource Zone (ERZ) that protects the residents of Navasota from a wide range of flood occurrences and thus regulates development growth within those areas.

Action 1.1.3: Preserve the riparian zone along the Navasota River to protect sensitive wildlife habitats by limiting development within the zone identified in the ‘Environmentally Sensitive Area’ map. (See Appendix Error! Reference source not found.)

Action 1.1.4: Preserve primary areas sensitive for drainage issues to limit development within those areas.

Case Study: City of Tucson, Arizona- It has adopted an Environmental Resource Zone (ERZ) to protect the riparian habitat along 100-year floodplain. The ERZ regulates development on parcels along specific washes that contain or may contain critical riparian habitat (City of Tucson, AZ).

Goals 2: Encourage efficient growth within existing city limits before pursuing further annexation.

Objective 2.1: Create a phased annexation plan that will permit the city to impose land use controls through full-service and limited-service annexation.
Action 2.1.1: Adopt a phased annexation plan as part of the Comprehensive Plan.

Action 2.1.2: Adopt full service annexation policies that conform to the comprehensive planning period.

Action 2.1.3: Adopt limited service annexation policies to be effective for three years before annexing for full purpose.

Action 2.1.4: Control the provision of public utilities to influence the location, timing and extent of growth in order to achieve desired land uses compatible with the Comprehensive Plan.

Objective 2.2: Establish land use policies that encourage cost-effective development.

Action 2.2.1: Refrain from using a standard zoning holding district classification on newly annexed land.

Action 2.2.2: Plan for future land uses for areas within the ETJ, and update the zoning map at the time of annexation.

Goal 3: Promote new development that is compatible with existing land uses.

Objective 3.1: Promote development on undeveloped and vacant properties within the city limits that conforms to the zoning designated in the Comprehensive Plan and while also promoting continuous growth outside the city limits.

Action 3.1.1: Identify the nonconformity of land uses existing in the growth management priority areas.

Action 3.1.2: Adopt specific policies to create a contiguous pattern of land uses solving the problem of existing nonconformity.

Action 3.1.3: Designate land adjacent to railroad right of ways for compatible uses, such as light industrial, warehousing, or commercial.

Action 3.1.4: When annexing agricultural land for development, offer non-annexation agreements as explained in the Texas Local Govt. Code (See Appendix Texas Municipal Codes) to owners of the properties zoned as ‘agricultural’ and ‘rural’.

Action 3.1.5: If the development on the northwest corner of the city contains 100 or more separate residential lots or tracts to be included in the annexation plan and be annexed for full purpose annexation, then see the special requirements in the Appendix Texas municipal Codes.

Objective 3.2: Identify rural areas that can be preserved for open space and agricultural purposes.
Action 3.2.1: Preserve open space and rural areas with the help of a resource conservation policy by a series of land use regulations and incentives designed to minimize inappropriate development and avoid the fragmentation of farmland by creating unnecessary subdivisions of land.

**Case Study: Montgomery County, Maryland** - The County Council and Planning Board adopted a master plan with following policies to preserve the farmland of the ‘Agricultural Reserve’ created in 1980 (The Maryland National Capital Park and Planning Commission) (The Maryland National Capital Park and Planning Commission):

- **Rural Density Transfer Zone (RDT)**
  
The zoning district created to preserve the agricultural preservation areas and also to limit residential development to one dwelling unit per 25 acres, although individual lots can be as small as one acre.

- **Rural Zone and Rural Cluster Zone (R and RC)**
  
The two other primary zoning districts within the ‘Agricultural Reserve’ where residential development is limited to no more than one dwelling unit per 5 acres. In the rural cluster zone, individual lots can be as small as one acre.

- **Transfer of Development Rights (TDR)**
  
  A mechanism to provide equity compensation to landowners in the RDT zone and the farmlands within the ‘Agricultural Reserve’ are restricted with a permanent conservation easement.

**Goal 4: Promote development in newly annexed areas that is economically beneficial for the community.**

**Objective 4.1:** Evaluate the tax base of areas located in the city’s ETJ before annexation.

  Action 4.1.1: Prior to annexation, perform a fiscal impact analysis (FIA) to determine the development potential of an area.

**Objective 4.2:** Maximize the allocation of retail and wholesale trade when expanding the commercial sector along future retail corridors to broaden the commercial tax base.

  Action 4.2.1: Adopt the Retail Master Plan prepared by Burditt Land Place Consultants of Conroe (BLPC) (See Appendix_Retail Master Plan), as the basis of land use decisions for commercial zoning.

  Action 4.2.2: Identify and Implement tax incentive policies for industries generating highest taxable sales (See Appendix_'Tax Revenue Analysis, Page 45,
State of the Community Report’) along the areas identified in the Retail Master Plan.

Action 4.2.3: Revise the current zoning ordinance to reflect future land uses identified in the Comprehensive Plan.

Goal 5: Promote the health and safety of citizens by addressing unique land use situations with appropriate and specific policies.

Objective 5.1: Discourage incompatible land uses, with special attention to commercial and light industrial uses within residential land use designations. The insertion of a buffer zone (specifically for the industrial area to the south of the Navasota city limits) into the zoning ordinance would facilitate an appropriate screen between residential and non-residential uses.

Action 5.1.1: Evaluate the buffering requirement in zoning and subdivision ordinances and adopt an implementation policy for buffer zones.

Action 5.1.2: Create a portfolio of accepted and recommended site designs for various areas that will be developed as residential subdivisions.

Recommendations

Though the overall demographic and employment growth rate of the city is slow compared to other home rule cities of Texas, Navasota is a unique city with its natural and cultural resources and also its close proximity to the major metropolitan area of Houston. Annexing unincorporated lands is an important strategy for Navasota to control surrounding land uses for long range planning in order to link the metropolitan growth centers with Navasota’s existing resources and extended businesses.

Prior to annexation, the city should coordinate with property owners for the logical extension of infrastructure and services to the proposed development. However, the overall annexation process must be economically feasible for the city; therefore, we suggest annexing the priority areas first in a process of limited to full-purpose annexation in the next five years with the help of the action items and funding sources identified in the previous sections. The city should also consider extending the current city limits further to the areas along the Navasota River bank, which, if improved and preserved, has the potential to be a recreation destination for people from surrounding cities and counties and thus becoming a regional attraction in the future.

Future Land Use: Introduction
The future land use decisions made by the city today will have impacts on all dynamics of city life. The 2012 proposed zoning map (See appendix figure: Navasota 2012 Proposed Zoning) was used as a base map in place of an existing land use map. The future land use map developed in this section fills in the gaps where zoning has not been assigned in order to suggest appropriate or advantageous land uses (See Figure 1 - 5). The recommendations presented in this section should serve as a guideline for making zoning ordinance amendments as needed. Within the land use map, the city has been divided into the following strategic growth areas:

- Strategic Growth Area 1: Downtown District
- Strategic Growth Area 2: Southeastern Commercial District
- Strategic Growth Area 3: Highway 6 Commercial Corridor
- Strategic Growth Area 4: Northern Residential and Recreation District
- Strategic Growth Area 5: Industrial District

Small area plans have been developed for the Downtown District, the Southeastern Commercial District and the Highway 6 Commercial Corridor. The small area plans present the potential that exists in these particular parts of the city. The Industrial District includes a proposed annexation area. Compatible land uses are suggested for the annexed land that is in close proximity to the industrial park. The Northern Residential and Recreation District is adjacent to another priority annexation area and includes plans for a recreational area that would attract regional visitors and provide better access to open space and recreational opportunities for Navasota residents.

**Future Strategic Growth**

The future strategic growth map used the 2012 proposed zoning map that is currently being developed by Burditt Consultants LLC to inform future growth. The map illustrates where particular land uses would be most suitable for Navasota’s future strategic growth. The future strategic growth map should be used by the city of Navasota to make amendments to the zoning map. The land use types on the map should be translated into appropriate zoning districts. Zoning district recommendations have been made for specific priority areas. Any land use recommendations that fall outside the city limits in the future strategic growth map may be included in a future annexation map, but are not currently priority areas.

The colors on the map designate the main use, but not the only use. More specific definitions for these land use types are within (Table 1 - 1). All areas in color are expected to grow or be developed within the next 30 years. All other areas are
designated in tan and are considered unimproved lands, meaning they are not facing development pressure.

Table 1 - 1: Land Use Classification

<table>
<thead>
<tr>
<th>Type</th>
<th>Main Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low-Density Residential</strong></td>
<td>- Single-Family Residential</td>
</tr>
<tr>
<td></td>
<td>- Rural Residential</td>
</tr>
<tr>
<td><strong>High-Density Residential</strong></td>
<td>- Duplex Residential</td>
</tr>
<tr>
<td></td>
<td>- Multi-Family (Tri/Four-plexes, Duplexes, Apartments)</td>
</tr>
<tr>
<td></td>
<td>- Group Quarters (Nursing Home, Assisted Living)</td>
</tr>
<tr>
<td></td>
<td>- Mobile/Manufactured Home</td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td>- Commercial Retail/Trade/Service (Banks, Stores)</td>
</tr>
<tr>
<td></td>
<td>- Commercial Office (Realty /Professional Offices)</td>
</tr>
<tr>
<td></td>
<td>- Commercial Other (Body Shops, Driving Ranges, etc.)</td>
</tr>
<tr>
<td><strong>Industrial</strong></td>
<td>- Commercial-Industrial (Warehouse Sales)</td>
</tr>
<tr>
<td></td>
<td>- Light Industrial (Assembly Line)</td>
</tr>
<tr>
<td></td>
<td>- Heavy Industrial (Pipe Fabrication, etc.)</td>
</tr>
<tr>
<td></td>
<td>- Railroad (Railroad Facilities)</td>
</tr>
<tr>
<td><strong>Park/ Public Use</strong></td>
<td>- Parks/open space</td>
</tr>
<tr>
<td></td>
<td>- Public (City Building, Schools, Library, Cemetery, ems)</td>
</tr>
<tr>
<td></td>
<td>- Transportation (Air, Parking as a primary use)</td>
</tr>
<tr>
<td></td>
<td>- Utilities/Communications (Telecommunications, Waste Water - Treatment)</td>
</tr>
<tr>
<td></td>
<td>- Semi-Public (Religions Institutions, Hospital, Schools)</td>
</tr>
<tr>
<td><strong>Unimproved</strong></td>
<td>- Agriculture</td>
</tr>
<tr>
<td></td>
<td>- Other rural land uses</td>
</tr>
<tr>
<td><strong>Research and Development</strong></td>
<td>- Research Facilities (product development, technological development)</td>
</tr>
<tr>
<td></td>
<td>- Industrial support services</td>
</tr>
</tbody>
</table>
Figure 1 - 4: Future Strategic Growth
Area 1: Urban Core
In order to revitalize and strengthen the downtown district, an official district boundary has been established. This boundary area is defined to the northeast by Frazer Street, across Washington Avenue to Lasalle street; to the South by Holland Street; to the West by 10th Street and finally to the Northwest by Cedar Creek.

The land use within the downtown district is already mixed-use, but primarily commercial. It is recommended to actively increase the vertical mixed-use zoning
with segregated access for ground floor business on main thoroughfares while second and third floor tenants will enter via secondary roadways.

Within the small area plan, it is recommended to increase the amount of community parks and improve the walkability of the district by enhancing the alleyways through beautification projects. The end result of this plan will be a downtown district with attractive parks for community activity that are connected to a thriving mixed-use center through pedestrian-friendly design.

The Urban Core is an important economic and cultural district within Navasota. The future land use is addressed in more detail within the Downtown Revitalization section as well as a small area plan for the downtown.
Area 2: Southeast Commercial District
The southeastern corner of Navasota is an area of great potential. Visitors and highway travelers are first introduced to Navasota at the intersection of Highway 6.
and 105/515. This gateway is an opportunity to attract out-of-towners to enter and enjoy Navasota and not just drive through the city on Highway 6. Currently, land uses in the area include some residential along 105/515 and light industrial and commercial along the east and west feeder of Highway 6. Despite the high visibility and prime location, the current commercial along Highway 6 in the southeastern corner is not ideal for attracting visitors, travellers and motorists. However, there are two gas stations, one on the east feeder and the other on the west feeder of Highway 6 that bring in some motorists off the highway and into the town.

There are also very large parcels of land that are undeveloped and unimproved in this area. Currently single family and multifamily residential neighborhoods surround the commercial land uses along Highway 6. For green space, a small park with baseball fields is located next to the single-family residential neighborhood. A larger public park is being proposed to provide sufficient amenities and space for all the existing and future residential neighborhoods. To complement the existing land uses and zoning, more low-density multifamily housing is being proposed adjacent to the future public park. Commercial land uses are suggested for future development along Highway 6 and 105. The commercial land use that falls outside of the city limits on the map should be developed after all portions of this plan have been executed, but the ETJ land should be included in the next annexation plan update.
Southeastern Commercial District Small Area Plan

Figure 1 - 7: Small Area Concept
The location and boundary of the small area plan for the southeastern corner was chosen for a variety of reasons. The large parcel of land (approximately 300 acres), which is the focus of the small area plan, is located along the west feeder of Highway 6 and owned by one realtor and one private landowner. The owners have expressed interest in an attractive mixed-use development for the parcel. Another advantage of this parcel is that approximately half of it is located outside of the floodplain while the other half, located in the floodplain, includes a 12-acre lake and a densely vegetated area that can be used for recreational purposes. The combination of these factors increases the potential of this area and presents an opportunity for a unique mixed-use area that would provide economic development and enhance the quality of life for city residents.

The small area concept for the southeastern corner is a tool to help visualize the possibilities that exists in this area. The concept represents a bold plan for one of Navasota’s gateways, which should be used to inspire and attract developers. A development of this size and scope may be in the long-term plans for the city. There are limitations to the concept that must be noted. The concept may exceed the current and projected demand for retail. Including more retail than will be supported by the resident population and visitors can have negative consequences such as lowering land value. Calculations of the appropriate mix, balance and amount of retail, housing and recreation for the small area must be performed with the owners and developers during the design phase of the development. Despite these limitations, there are some recommendations that should be incorporated into any design concept for this small area. The following sections will discuss the zoning, housing, commercial and recreation recommendations.
Zoning

Figure 1 - 8: Area 2 Existing Zoning

To support the goal of a mixed-use development in the southeastern corner of the city, the zoning ordinance should be amended to allow for and encourage the type of development that is desired. Currently, the zoning that exists within the boundaries of the small area plan is B-2 General Business District along the Hwy 6 feeder, and B-1 General Commercial District along Highway 105/515. It is recommended that a Planned Unit Development (PUD) District be assigned to the part of the small area where development is to occur and assign the recreation area as a Public Use (PU) District. Assigning public use to the recreation area is important because it will encourage low impact development in the floodplain. To further ensure the open space is retained and strategic flood management is achieved, action items from the Flood Management section should be implemented.
The PUD District in this area can provide the city with the flexibility to partner with developers interested in developing an attractive and unique mixed-use center. Design standards and conditions that enhance public benefit should be added to the PUD district article in the zoning ordinance. The design standards should provide additional public benefits not found in other zoning districts such as:

- Open space or natural resource protection requirements
- Design standards that reflect the community’s character and fits in with the surroundings
- A wide range of affordable housing types
- Higher housing density
- Flexibility on parking requirements

Planned Unit Developments provide flexibility for developers and can be an excellent tool for strategic growth for the city. PUDs allow city staff to welcome mixed-use designs while improving the sustainability of buildings, infrastructure, and natural systems. However, PUDs can have the opposite effect if developed and administered carefully. Flexibility should not be given on all zoning standards and the overarching goals of the comprehensive plan should not be compromised. It must noted that the PUD approval process is usually more difficult for staff and the Planning and Zoning Commission members due to the negotiation of standards and the coordination of the comprehensive goals and the proposed development. The process will take more effort and time but if successful can result in a future development that provides Navasota with economic, environmental and social benefits.

For examples of possible design standards for a Planned Unit Development District, read the model Planned Unit Development Ordinance developed by the Minnesota Pollution Control Agency. ([http://www.crplanning.com/pdfs/susdo6_09/pud.pdf](http://www.crplanning.com/pdfs/susdo6_09/pud.pdf))

**Housing**

The selected small area site is intended to be a low-density residential development that maintains the small town character of the neighborhood. New single family development has been considered at the west side of our small area boundary for single family residences, similar to lot sizes existing around the neighborhood. This housing is expected to attract future buyers due to the site’s close proximity to natural features, soccer fields, a community center to the north and neighborhood scale retail and services on the east side of the development.

Multifamily residential development has been considered due to increasing employment growth around the area and future demand for affordable housing. The development closest to the neighborhood retail is envisioned to be two and three stories in height. This development should step down in scale as it gets closer to
existing single-family detached housing and will have greater setbacks from the street to accommodate proper landscaping and sidewalks.

Figure 1 - 9: Area 2 Multifamily Housing Example

Source: Architects Orange

Commercial

Figure 1 - 10: Destination Retail Example

Source: Dorsky + Yue International

The small area site presents a great commercial opportunity, as this large area is undeveloped and owned by a single owner. The vision for the parcels along Highway 6 is a major regional attraction with popular and attractive destination retail shops and unique local shops and eateries. The layout of the development has been envisioned in an inviting manner so that people can explore the area’s recreational amenities bounded by natural features while also having the opportunity to explore the neighborhood scale retail along the proposed collector street parallel to Highway 6. The shops and services along the collector street could include locally serving amenities such as pharmacies, banks, dry cleaners, nail salons, small-scale grocery stores and more. Professional offices such as lawyers, insurance companies, dentists and other specialists could also be encouraged in the neighborhood retail section of the development.
Figure 1 - 11: Neighborhood Retail Example

Source: Green Street Partnership, Inc.

Recreation

The site contains a small water body at the northwest corner of the development surrounded by a large green space. This area is envisioned as a recreational area for public use. The water body can act as a bio-retention pond as it rests on a floodplain. The surrounding green space can serve as a disc golf course and can also be part of a citywide hike and bike trail. Two soccer fields are proposed at the intersection of Montgomery road and 515 attracting residents from the neighborhoods on both sides as well as the entire community. The hike and bike trail would connect the soccer field with the retention pond area and the existing baseball fields to the north of the pond. The recreational area would not only serve as an amenity to the adjacent communities but it would also increase neighboring property values and provide a destination recreational space for local residents and visitors.

Figure 1 - 12: Recreational Amenities Example
Area 3: Northeast Commercial Corridor

Figure 1 - 13: Future Strategic Growth Area 3: Northeast Commercial Corridor
The most notable growth should continue along Washington Ave. and Highway 6. The commercial development along Washington Ave. adjacent to the high school and middle school could accommodate larger retail stores. This commercial development would also be at the intersection of a proposed minor arterial providing adequate...
connectivity east of Navasota (see Transportation section). Residential development similar to the existing adjacent residential development would be appropriate here.

Commercial development is proposed in other areas along Highway 6. These commercial developments could accommodate large retail stores and business-related activities.

Figure 1-14: Highway 6 Commercial District Walmart Example

For the small area plan being proposed for the southwest corner of E. Washington Avenue and Highway 6, the site is being reimagined as an urban-scale mixed-use gateway. Because the existing Walmart store is not sized to accommodate the future expected growth of Navasota and the surrounding areas, the proposal is to replace the
41,000 square foot store with a 55,000 square foot location. To accommodate the expected parking demand of the larger store and additional retail pad sites, the building is to be constructed with rooftop parking available as overflow.

Just west of the proposed Walmart structure would be reserved for a mixed-use project with apartments on the upper level(s) and limited retail and office space on the lower level. The architecture of the mixed-use structure would blend with the style of the Walmart as shown in the illustration.

Additionally, the site of the Walmart to be replaced at the south end of the area can be redeveloped with a smaller retail building of up to 20,000 square feet, with limited parking in front. This could serve a number of retail needs, such as a pharmacy or office supply store.

The existing automotive dealership on Washington Avenue would likely choose to relocate to a highway-fronted location where its use is more appropriate, and where they are likely to see even greater success.
Area 4: Northern Residential and Recreation District

Figure 1 - 15: Future Strategic Growth Area 4: Northern Residential and Recreation District
Low-density residential development has been proposed in north Navasota. This area is the largest area designated for future residential growth and could provide roughly 200 housing units. A park is proposed within the residential area along Highway 6 because it is currently heavily vegetated with an existing retention pond on site. This residential and recreation space would be ideal development of a master-planned
community. The linear greenway through the residential area is currently a utility right-of-way and it is suggested that this also be used as a part of the master hike-and-bike trail throughout the city (see Transportation section).

The next most dominating feature of this area is the proposed park just west of the city. This park would primarily remain natural, preserving the rural feel of Navasota, but would provide needed flood mitigation opportunities for the city (See Flood Management section). This park would provide public recreational activities for the city and would significantly increase the property values of adjacent residential areas. The park would have regional significance with access to the Navasota River (see Parks and Recreation section-needs anchor to this section). Water recreational activities, such as fishing, canoeing, and kayaking, as well as hiking and biking would dominate this open space. With the installation of a boat ramp within the park, a 10-mile boat ride would take you to Washington State Park. Coordination with this park would allow for regional recreation activities.

The other proposed green spaces are currently heavily vegetated. This area could remain public rural open space, with relatively little maintenance required. The open space north of the city along the Navasota River could provide another opportunity to access the river (see Parks and Recreation section). If another public boat ramp were installed, a 3-mile boat ride would take you to the proposed park west of the city.

Commercial development would be most appropriate at the northern gateway into the community. This could help service recreational activities and tourists participating in recreational activities. This area would also be seen from Highway 6 and should serve as a landmark upon entering Navasota. Commercial development might also continue along Highway 6 and accommodate larger retail stores.
Area 5: Southern Industrial District

Figure 1 - 16: Future Strategic Growth Area 5: Southern Industrial District

The predominant land use feature in Area 5 is the industrial park to the south of Navasota. As a result, many of the land use recommendations were influenced by the proximity to the industrial area. The location of the industrial park is an asset to the city and can be used to further economic growth. The land use to the west of the
existing industrial park has been designated as industrial to allow for future expansion of the industrial park. The proposed future land use adjacent to the park is a future research and development (R&D) park that would create jobs and attract young professionals to Navasota. The R&D park would be located in an annexation priority area for the city and would therefore receive infrastructure within three years of annexation. The presence of infrastructure and proximity to the industrial park would make this area very attractive to developers and investors.

A road that runs from east to west, just north of the industrial park is being proposed in the transportation plan. Future land use recommendations along the new road are commercial and high-density residential. Commercial land uses along this road could serve the adjacent high-density residential as well as the low-density residential to the north while also providing services to the workers of the industrial and R&D parks. The future park/public use designation north of the low-residential land use is included to provide green space for the residential neighborhoods and increase property values.

Figure 1 - 17: Example of Research and Development Park (R&D)

Urban Infrastructure: Introduction

Access to efficient infrastructure is one of the means in which cities ensure the public’s health, safety and welfare. In this section, urban infrastructure will cover water, sewer, solid waste, electricity and gas. A variety of sources have informed the goals, objectives and recommendations for the future infrastructure plans of Navasota. Some of these sources include Navasota’s 2004 Comprehensive Plan, State of the Community report, Navasota’s 2012-2015 Strategic Directions document, conversations with city staff, and public input.
In the State of the Community report, it was found that the city is either meeting or expected to meet the majority of the water supply objectives laid out in the 2004 Comprehensive Plan. However, it was also noted that extensive commercial development might lead to an increase in demand and strain existing water resources. The City of Navasota has expressed interest in increasing their share of commercial development, specifically along Highway 6. An increase in water and sewer infrastructure will be necessary if the growth does occur. Moreover, the City will need to proactively supply infrastructure to the priority areas of urban expansion to attract commercial development. Ensuring that residents and businesses have access to infrastructure within the city limits should be coupled with ensuring the safety and efficiency of the existing infrastructure.

The most recent water quality report is from 2011 and demonstrated that Navasota’s drinking water quality is not in violation of any state standards. Navasota relies entirely on groundwater sources for drinking water. Therefore, it is important for Navasota to be aware of the availability and quality of water in the aquifer as well as proactively prevent groundwater contamination. Most of Navasota’s groundwater wells range from 265-272ft. According to the director for the groundwater conservation district that corresponds to Navasota, the Blue Bonnet Groundwater Conservation District, there is not a strong likelihood that contaminants in surface water sources will percolate through the soil and contaminate the groundwater. However, Director Zack Collins emphasizes that the most likely source of contamination will usually occur at the wells, due to problems such as bad casings. Efficient testing and treatment of the groundwater source can help mitigate contamination concerns.

The necessity and capacity of additional or improved wastewater treatment should be an infrastructure priority for the city. Although the wastewater treatment plant has been calculated to operate at 50 percent capacity, wastewater from south Navasota and the east feeder cause issues during heavy rainfall. Excess groundwater and stormwater (infiltration and inflow) that enters the sewer system add to the stress placed on the wastewater treatment plant during rainfall events. Aging infrastructure in need of maintenance or replacement is usually the cause of most infiltration and inflow problems.

Electrical improvements to the existing plant were made recently, but other improvements to the system, such as the Hollister lift station capacity issue must also be addressed. A new plant to accept wastewater from the eastern and southern parts of the city as well as new development is being considered by the Public Works Department. The wastewater is currently discharged into Cedar Creek, which has been placed on TCEQ's list of impaired waters due to high levels of bacteria. A study to determine if the treated wastewater is causing the impairment may be necessary if other sources are not determined. A number of objectives and action items are
recommended to ensure proper quantity and quality of sewer infrastructure for Navasota's future.

Solid waste removal is currently meeting demand and is expected to adequately meet an increase in demand through 2030.

Despite providing residents with the minimum service they require, the City Council may want to gauge the resident's interests in a recycling program. A number of recycling pilot programs have been used throughout the country and may be the best approach to measure residents’ response to recycling.

The following section will present goals and objectives that have been derived from city officials, Navasota residents and the Target Texas Program team members. This section will also provide a list of action items that can be implemented to achieve the goals and objectives. Examples of places that have implemented these actions are attached to the action items.

**Infrastructure Goals, Objectives and Action Items**

**Goal 1:** Develop and maintain an adequate water supply, treatment, and distribution system which meets the existing and projected needs of the service area in an efficient, economical, and environmentally sensitive manner.

*Objective 1.1:* Replace aging and faulty water mains.

Action 1.1.1: Conduct a survey of all water lines and identify water lines in most urgent need of replacement by the end of 2013. Annually conduct this survey.

Action 1.1.2: By 2014, develop a Capital Improvement Program (CIP) to set aside annual funding for the maintenance and replacement of faulty and aging water mains and distribution lines.

*Objective 1.2:* Guide development to areas of the city with existing water lines and to areas where water lines are being underutilized.

Action 1.2.1: Provide incentives in the form of fee waivers to encourage new developments to build in areas with existing infrastructure. (see Figure 1-18).

Action 1.2.2: Use financial tools and marketing tools mentioned in the City of Navasota Economic Development Policy to attract new businesses to the areas in town where water lines are underutilized. (see Figure 1-18)
Objective 1.3: Extend water mains and distribution lines to all areas of the city where development occurs and to priority urban expansion areas within the next five years.

   Action 1.3.1: Include infrastructure projects in the annual CIP budget that will supply areas in the city with water service that are currently not served. (See Figure 1-19).

   Action 1.3.2: Extend water mains to areas identified as urban expansion priority areas within the next five years. (See Figure 1-18).

Goal 2: Protect water supply quantity and quality.

Objective 2.1: Identify the need for additional water wells by the end of 2013, and devise a strategy to address water supply needs.

   Action 2.1.1: The Public Works Department should determine the number of additional wells necessary for future growth according to population and growth projections and the annexation and future land use recommendations by the end of 2013. (See Annexation and Future Land Use Recommendations—needs an anchor to that section)

   Action 2.1.2: The Public Works Department should identify the appropriate locations for additional wells within three years of Comprehensive Plan adoption.

   Action 2.1.3: The Public Works Department will obtain any necessary easements to secure the location of future water wells; easement acquisition funding will come from the CIP budget.

Objective 2.2: Ensure the groundwater supply is protected from contamination and overdevelopment.

   Action 2.2.1: The Public Works Department should work with the Grimes County Health Department to inspect septic systems within the city boundaries; faulty system owners will be asked to repair their system or tie into the existing sewer system within an appropriate timeframe.

   Action 2.2.2: The planning staff should partner with the Grimes County AgriLife Extension Agents by the end of 2013 to offer Navasota residents and surrounding area residents, biannual septic system education workshops to minimize the impact of leaking septic systems on the groundwater supply.

Case Study: AgriLife Extension for Hays County: They held a free "Homeowner Maintenance of Septic Systems Workshop” to teach homeowners about the operation and maintenance of their on-site septic systems. Some topics include: importance of maintaining the treatment system, septic/trash tank operation,
how home activities affect the treatment system, tips for maintaining a septic tank and aerobic treatment unit, how the soil-treatment unit works, wastewater treatment and water resource protection.

Goal 3: Develop and maintain an adequate wastewater collection and treatment system that meets existing and projected needs as well as lessens negative environmental impacts.

Objective 3.1: The city should project future wastewater needs and provide necessary infrastructure based on population growth and industry demand on an annual basis.

Action 3.1.1: Determine the facility upgrades necessary for providing adequate service to current residents and future residents while meeting or exceeding federal and state standards.

Action 3.1.2: Add wastewater infrastructure upgrades to the annual CIP budget as needed or the capital cost of an additional wastewater facility when it has been determined to be necessary.

Action 3.1.3: Apply for state and federal grant and loan programs to assist in funding wastewater treatment projects, such as the Clean Water State Revolving Fund. (see details in infrastructure funding sources section)

Objective 3.2: Minimize leakages, stoppages and overflows to protect human and environmental health.

Action 3.2.1: Identify likely sources of infiltration and inflow using sewer system evaluation surveys (SSES) such as smoke tests, closed circuit television (CCTV) inspection, and dye testing every three years.

Action 3.2.2: Seek the help of a consultant to model existing flows and to project future flows in the system using flow modeling techniques.

Case Study: King County, Washington – The county and the local agencies use flow monitoring data and other data to model existing flows and project future flows. The main purpose of the modeling is to determine the condition of the conveyance system and to measure its long-term capacity to convey existing and projected wastewater flows.

Action 3.2.3: Include maintenance and replacement of broken pipes, manholes, and joint connections in the annual CIP budget.

Action 3.2.4: Maintain a record of overflows in a GIS map to track where they occur, the severity of overflow and where repetitive problems exist; use information for targeted education of residents within repetitive and severe overflow areas.
Case Study: Dallas’ Cease the Grease Education Initiative – It aims to proactively reduce overflow incidences. The Grease Abatement program identifies residential areas and businesses that have a high incidence of grease related overflows and provides educational tools and information to those particular areas.

Action 3.2.5: The Public Works Department should initiate a public education campaign to reduce excess stormwater from entering the sewer system (inflow).

Example: King County, Washington has provided its residents with a rain garden handbook and other online stormwater catchment strategies to redirect stormwater or reclaim it for gardening.

Objective 3.3: Ensure all developed areas within the city limits are receiving sanitary sewer service and extend infrastructure to priority growth areas.

Action 3.3.1: Extend sanitary sewer lines to all developed areas within the city limits within 5 years of Comprehensive Plan adoption.
Figure 1 - 20)

Action 3.3.2: Extend sanitary sewer lines to the areas in the city designated as urban expansion areas. (see
Objective 3.4: As required by law, all annexed properties should tie into the existing sanitary sewer system within three years of annexation.

Objective 3.5: The city should guide development to areas with existing sanitary sewer lines.

Action 3.5.1: Provide developers with financial incentives for developing in areas that have existing sanitary sewer lines such as impact fee waivers. (see
Objective 3.6: Extend the WWTP operations to include a reclaimed water station, allowing bulk water sales of effluent to be used by contractors during construction.

Action 3.6.1: Apply for the Advanced Water Treatment and Pilot and Demonstration Project Grants through the Bureau of Reclamation to install a water reclamation station (see infrastructure funding sources for more details).

Case Study: Los Angeles Department of Water and Power Groundwater Replenishment Treatment Pilot Study - They received $600,000 in Reclamation funding with a total project cost of $2,274,099. The Los Angeles Department of Water and Power will address the technical and economic viability of groundwater replenishment in the City of Los Angeles. Groundwater replenishment sends advanced treated recycled water to spreading basins to percolate underground and become part of the groundwater supply for future use.

Goal 4: Provide high quality solid waste removal services for city residents and businesses.

Objective 4.1: Include a recycling program with the solid waste removal services.

Action 4.1.1: Promote the Navasota Recycle Station through distribution of recycling bins to residences and businesses.

Action 4.1.2: Develop a recycling pilot program to test the feasibility and response from the city residents.

Action 4.1.3: Contact Brazos Valley Council of Governments and inquire about grants available through their solid waste program funded by TCEQ (see infrastructure funding sources section).

Goal 5: Ensure Navasota residents have access to safe, efficient and reliable natural gas, electric and broadband services.

Objective 5.1: Navasota should project future natural gas needs and provide necessary infrastructure based on population increase, industry demand, and impacts of growth every five years.

Objective: 5.2: The Public Works Department should work with a GIS analyst to maintain up-to-date and accurate existing as-built maps and proposed gas line maps.
**Objective 5.3:** Gas lines that pose leakage problems or that are not code compliant should be replaced.

Action 5.3.1: Perform regular maintenance and inspection on gas lines.

Action 5.3.2: Include gas line maintenance and replacements on the annual CIP budget.

**Objective 5.4:** Maintain a relationship with outside electricity and broadband providers to secure better service to the city's residents.

Action 5.4.1: Gauge Navasota residents' interest on the installation of fiber optic for faster broadband service and as a way to attract business to the community through public meetings, surveys included in their water bill, and an online survey.

Case Study: Bryan, TX and Monroe, GA – They are examples of smaller communities that have publicly owned networks with very competitive prices and superior service. Monroe, GA never borrowed or bonded to build out its network but instead formed partnerships with local interests and progressed its network slowly. The initial costs of construction were paid with the city's capital investment fund.

Action 5.4.2: Develop a regular schedule to meet with electricity and broadband providers to express needs of residents and coordinate for future growth.
Figure 1 - 18: Navasota Underutilized Infrastructure Areas and Infrastructure Expansion Areas
Figure 1 - 19: Navasota Developed Areas without Public Water
Figure 1 - 20: Navasota Developed Areas without City Sewer Service
Recommendations

Navasota’s infrastructure currently meets its residents needs but it does not fully meet all the goals that have been identified by the city, public and Target Texas Team. The drinking water supply and treatment is adequate but aging and faulty water lines must be replaced. Sewer pipes and connection that are damaged, cracked and aging also pose issues of infiltration and inflow, causing stress on the wastewater treatment system. It is highly recommended that Navasota develop a Capital Improvement Program to address many of the infrastructure projects that must be completed to continue supplying adequate services to the city’s residents. One of the most urgent projects that must be addressed is how to manage the amount of wastewater from the southern and eastern portions of the city during rainfall and flooding events. There are a number of solutions that could alleviate the influx of water and stress on the system. All options should be considered but technical data such as sewer system evaluation surveys and funding capabilities should inform the final decision. A new wastewater treatment facility could be utilized to treat the wastewater in the southern and eastern portion of the city as well as new development. However, if the nexus of the problem lies with the amount of infiltration and inflow that enters the system during rainfall and flooding than the most appropriate solution may be a concentrated effort of pipe system updating.

The City has acknowledged the importance of guiding development to areas where existing infrastructure exists in their subdivision ordinance and their goals and objectives.
**Figure 1 - 18** highlights areas throughout the city where development, redevelopment and infill should be guided. These areas were chosen using the following criteria:

- Infrastructure exists (water alone, sewer alone and water and sewer combination)
- Not within the floodplain
- Not in critical habitat areas
- Outside of 1000-foot potential source of contamination (sites with chemical materials) buffer
- High density land use types: B-1, B-2, M-1, M-2, R-3
- Low density census block groups

Although this is a good start towards identifying areas where existing infrastructure exists and underutilized, there are limitations to the data. Limitations to this data include infrastructure, parcel and density GIS files that may not be up to date. It is recommended that the city maintain current infrastructure maps in digital and hard copy formats to identify the areas where development, redevelopment and infill should be encouraged. There are also priority areas in the city where infrastructure should be extended to accommodate future growth and development. These areas are identified as prime urban expansion areas within city limits and outside of city limits (priority annexation areas).

All city residents should be supplied with water and sewer services.
Figure 1 - 19and
Figure 1 - Identify specific areas within the city limits that do not seem to have access to city water and sewer. Septic system can cause human and environmental health concerns if not managed and maintained properly. In an attempt to mitigate potential negative effects, infrastructure should be proposed for all areas within the city limits where significant development exists and where services are needed and wanted by city residents.

**Funding Sources**

Identifying funding sources to help fund the implementation of the Navasota Comprehensive Plan is an essential step towards reaching the goals outlined in the plan. The following sources include federal, state, local and private funds. Some programs are variable from year-to-year and some programs may not have available funds every fiscal year. The city staff should revisit the funding options at the beginning of each year and assign departments with the task of applying for funds that would further the implementation of the city’s goals.

**Clean Water State Revolving Fund (CWSRF)**

*Grantor: State of Texas*

**Purpose:** This program provides low-interest loans that can be used for planning, design, and construction of wastewater treatment facilities, wastewater recycling and reuse facilities, collection systems, storm water pollution control, nonpoint source pollution control, and estuary management projects.

**Eligibility:** The program is open to a range of borrowers including municipalities, communities of all sizes, farmers, homeowners, small businesses, and nonprofit organizations. Project eligibility varies according to each state’s program and priorities. Loans for wastewater treatment plant projects are only given to political subdivisions with the authority to own and operate a wastewater system.

**Funding limitations:** The program offers fixed and variable rate loans at subsidized interest rates. The maximum repayment period for a CWSRF loan is 30 years from the completion of project construction. Mainstream funds offer a net long-term fixed interest rate of 1.30% below market rate for equivalency loans (project adheres to federal requirements) and 0.95% for non-equivalency (project adheres to state requirements) loans. Disadvantaged community funds may be offered to eligible communities with principal forgiveness of 30%, 50%, or 70% based upon the adjusted annual median household income and the household cost factor.

**Economically Distressed Areas Program**

*Grantor: Texas Water Development Board (TWDB)*

**Purpose:** Program provides financial assistance for water and wastewater services in economically distressed areas where present facilities are inadequate to meet residents’ minimal needs. The program also includes measures to prevent future substandard development.

**Eligibility:** Projects must be located in an area that was established as a residential subdivision as of June 1, 2005, has an inadequate water supply or sewer services to meet minimal residential needs and a lack of financial resources to provide water supply or sewer services to satisfy those needs. All political subdivisions, including cities, counties, water districts, and nonprofit water supply corporations, are eligible to apply for funds. The applicant, or its designee, must be capable of maintaining and operating the completed system.

**Funding limitations:** Financial support is in the form of grant or combination of a grant and a loan. The program does not fund ongoing operation and maintenance expenses, nor does it fund new development.


**Regional Water Supply and Wastewater Facilities Planning Program**

*Grantor: Texas Water Development Board (TWDB)*

**Purpose:** The program provides funds for studies and analyses to evaluate and determine the most feasible alternatives to meet regional water supply and wastewater facility needs, estimate the costs associated with implementing feasible regional water supply and wastewater facility alternatives, and identify institutional arrangements to provide regional water supply and wastewater services for areas in Texas. All proposed solutions must be consistent with applicable regional or statewide plans and relevant laws and regulations. A water conservation plan must be included in the proposed plan.

**Eligibility:** Political subdivisions, such as cities, counties, districts and authorities created under the Texas Constitution with the legal authority to plan, develop, and operate regional facilities are eligible applicants. Additional applicants include any interstate compact commission to which the State is a party and any nonprofit water supply corporation created and operating under Texas Civil Statutes Article 1434a.
Funding limitations: Funds are in the form of grants. Applicants must provide evidence of local matching funds on or before the date specified for negotiation and execution of a contract. Funds are generally limited to 50% of the total cost of the project, except that the board may supply up to 75% of the total cost to political subdivisions under certain conditions. Funds will be released only as reimbursement of costs actually incurred for approved activities. In-kind services may be substituted for any part of the local share if certain criteria are met.


Water and Environmental Programs

Grantor: United States Department of Agriculture (USDA)

Purpose: Program provides financial assistance for drinking water, sanitary sewer, solid waste and storm drainage facilities in rural areas and cities and towns of 10,000 or less. Technical assistance and training is also available to assist rural communities with their water, wastewater, and solid waste problems.

Eligibility: Public bodies, non-profit organizations and recognized Indian Tribes

Funding limitations: Financial assistance is provided in various ways including direct or guaranteed loans, grants, technical assistance, research and educational materials. Different amounts of assistance exist depending on the project type and financial tool the participant is seeking.


Advanced Water Treatment Pilot and Demonstration Grant

Grantor: Bureau of Reclamation

Purpose: The program aims to encourage pilot and demonstration projects that address technical, economic and environmental viability of treating and using brackish groundwater, seawater, impaired waters or otherwise create new water supplies within a specific locale.

Eligibility: An eligible applicant is a State, Indian tribe, irrigation district, water district, or other organization with water or power delivery authority. Applicants must also be located in the western United States or Territories as identified in the Reclamation Act of June 17, 1902, as amended and supplemented; specifically: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington,
Wyoming, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands.

**Funding limitations:** The grants are made available through cost-shared funding on a competitive basis. Funding is subject to availability in the fiscal budget.


**Regional Solid Waste Grants Program**

*Grantor: Brazos Valley Council of Governments and Texas Commission of Environmental Quality (TCEQ)*

**Purpose:** Grants are awarded to regional and local governments for municipal solid waste (MSW) management projects. TCEQ allocates the funds to the council of governments that provides technical and financial assistance to municipalities for MSW projects.

**Eligibility:** Local and regional governments may apply

**Funding limitations:** Funding availability and quantities will vary every fiscal year. Applications must be made through the corresponding council of government.


**Flood & Hazard Management: Introduction**

Various hazards pose great risk to the City of Navasota. Flooding, in particular, is a recurring and persistent problem that can be addressed through land use planning and strategic growth. The Navasota River and its tributaries, Cedar Creek and Sandy Creek, are prone to flooding existing developments. A diverse portfolio of flood mitigation strategies is needed to reduce flood impacts on the community. The State of the City Report showed the limited street and stormwater infrastructure throughout the city. A greater investment in adequately sized stormwater drains and storm and gutter infrastructure can help alleviate these problems. Structures that exist in the floodplain which experience frequent floods can be acquired or retrofitted. Acquiring property can be done through the National Flood Insurance Program and FEMA Grants (see Funding Sources). Retrofitting structures could include the elevation of structures above flood levels or using floodproofing materials as indicated in NFIP Building Standards. There has also been little investment of soft management solutions, such as retention and detention ponds, bioretention swales, and other water absorption techniques. Navasota has a great opportunity to provide
flood mitigation strategies and recreation spaces for residents. The open spaces proposed in the Future Land Use Plan should incorporate these various techniques.

Figure 1 - 21: Bioretention

Image retrieved from landperspectives.wordpress.com

Bioretention swales can slow the flow of water into the downstream water bodies. This would be a particularly good solution for new developments, particularly those east and northeast of the city.
Figure 1 - 22: Curb and Gutter: Storm and gutter infrastructure is an effective way to quickly drain flood waters from floodprone areas.

Source: Image retrieved from www.kimley-horn.com
Figure 1 - 23: Retention Ponds
Retention ponds can be installed in proposed recreational areas and future development areas as a way to catch stormwater onsite, reducing flood impacts downstream. Retention ponds can also be used to quickly catch waters from flood prone areas and slowly release that water downstream.

Figure 1 - 24: Detention Pond
Detention ponds are similar to retention ponds, but are designed to fully drain flood waters. Detention ponds can be vegetated and passive recreational space, or they can be active recreational space as seen in the depressed soccer fields above.

**Flood Management Goals, Objectives, and Action Items**

**Goal 1: Develop flood management solutions for the entire city.**

**Objective 1.1:** A Master Drainage Plan should be developed under contract with the City within three years of the Comprehensive Plan’s adoption.

- **Action 1.1.1:** The Navasota Public Works department should contract or update an accurate digital and hard copy map of the existing stormwater sewer system.
- **Action 1.1.2:** A drainage study of Sandy Creek Tributary should be conducted.
- **Action 1.1.3:** A drainage study of Cedar Creek should be conducted.
- **Action 1.1.4:** A Retention Pond Plan with the focus on soft management solutions should be developed.

**Objective 1.2:** New development should maintain or reduce the impact on existing stormwater systems.

- **Action 1.2.1:** Within one year of the adoption of the Comprehensive Plan, the City should adopt a policy that new roadways and structures must incorporate curb and gutter stormwater management practices.
- **Action 1.2.2:** The City should impose impact fees on new developments that increase the demand on existing stormwater systems.
- **Action 1.2.3:** Within three years of the adoption of the Comprehensive Plan, the City should create a policy that all proposed developments must demonstrate, through construction documents and on-site inspections, that all stormwater will be captured and retained or detained onsite to reduce the impact on existing stormwater systems.
- **Action 1.2.4:** Within three years of the Comprehensive Plan’s adoption, the City should amend the zoning map and plan floodplain areas for the least intensive land use.

**Objective 1.3:** The City should provide incentives to raise or relocate structures or acquire properties that exist in the floodplain.
Action 1.3.1: Track all structures and properties that are impacted by flood hazards and prioritize properties with the most risk.

Action 1.3.2: Develop a program to provide low interest loans to properties within the floodplain for retrofit purposes.

Action 1.3.3: Based on 1.3.1 and within three years of the plan’s adoption, develop a plan to purchase structures within the floodplain with fee simple purchase land acquisition.

Action 1.3.4: Within three years of the plan’s adoption, begin collecting data and gathering needed documentation in order to apply for the National Flood Insurance Program’s Community Rating System (CRS).

Action 1.3.5: Within five years of the plan’s adoption, apply for and maintain status within the National Flood Insurance Program’s Community Rating System (CRS), which provides discounts on insurance premiums for flood mitigation actions.

Objective 1.4: Plan floodplain areas for the least intensive land use.

Action 1.4.1: Provide density bonuses for proposed developments that have floodplain areas on site but limit structures within the floodplain.

Action 1.4.2: Within one year of the plan’s adoption, enact a policy to locate public facilities only outside of floodplains.

Action 1.4.3: The City should downzone the floodplain to reduce development density of land to five acre or larger parcels.

Action 1.4.4: Work with landowners within the floodplain and a qualifying conservancy to determine if there is an opportunity to create a conservation easement within the floodplain, which would provide a federal income tax deduction on the land.

Action 1.4.5: Create a Transfer of Development Rights Program (TDR), to preserve the rural character of the city while providing compensation to landowners that participate.

Objective 1.5: The Public Works Department should work in collaboration with the Transportation Department and the Office of Emergency Management to develop a Capital Improvement Plan to address the following flood mitigation concerns, within five years of the adoption of the comprehensive plan.

Action 1.5.1: Replace inadequate storm water sewer lines with the construction of curb and gutter improvements.
Action 1.5.2: Add a stormwater pump at Foster Street to improve drainage during flooding.

Action 1.5.3: Reduce flooding along Buckingham Lane based on recommendations of the Stormwater Management Plan.

Action 1.5.4: Acquire properties adjacent to Cedar Creek north of Brule Drive.

Action 1.5.5: Install erosion control and storm sewers at Milroy Terrace.

Action 1.5.6: Clean and line Cedar Creek downstream of the railroad trestle.

Action 1.5.7: Clean and line Cedar Creek upstream of the railroad trestle.

Action 1.5.8: Remove the abandoned railroad trestle to reduce or eliminate downtown flooding.

Action 1.5.9: Provide a floodplain awareness program and assistance to local building owners within the historic downtown.

Goal 2: The City should work with the Office of Emergency Management to adequately prepare and effectively communicate with staff and citizens before, during, and after a hazard event.

Objective 2.1: The City should take concerted efforts to prepare the Central Business District (CBD) for hazard events.

Action 2.1.1: The City should bi-annually inspect key stormwater inlets and outlets and clear debris if it obstructs or blocks water movement.

Action 2.1.2: The building inspector and fire chief should determine the structural stability of buildings throughout the CBD within two years of the comprehensive plan’s adoption, to designate “safe places” which can serve as shelter from severe storms, tornadoes, and other hazards.

Objective 2.2: City staff should be adequately prepared for an emergency event.

Action 2.2.1: The Office of Emergency Management should train and provide technical assistance to staff persons on the emergency management plan procedures to make staff persons aware of their roles and responsibilities once every two years.

Action 2.2.2: Two-way radios should be purchased and distributed to key city personnel within five years of the Comprehensive Plan’s adoption.

Action 2.2.3: National Oceanic and Atmospheric Administration (NOAA) “All Hazards” radios should be purchased and installed for early warning within seven years of the Comprehensive Plan’s adoption.
**Objective 2.3:** Citizens should be adequately prepared for an emergency event.

**Action 2.3.1:** The Office of Emergency Management should develop an educational and outreach program with the city and the school district within five years of the Comprehensive Plan’s adoption.

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**Funding Sources**

**Pre-Disaster Mitigation Program**

*Grantor: Federal Emergency Management Agency (FEMA)*

*Purpose:* This program assists local governments in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program.

*Eligibility:* In order to be eligible the City must be in good standing with the National Flood Insurance Program.

*Funding Limitations:* This grant should be used for hazard planning activities but cannot be used for major flood control projects, warning systems, engineering designs, feasibility studies not integral to proposed projects, generators not integral to a proposed project, phased or partial projects, flood studies or mapping, or response and communication equipment.


**Community Rating System**

*Grantor: FEMA*

*Purpose:* The National Flood Insurance Program’s Community Rating System (CRS) is a voluntary incentive program which provides discounts on individual homeowner flood insurance when a jurisdiction implements floodplain management activities. Many of the activities within CRS are already being performed in Navasota. Taking advantage of this program can open the door to various other grant opportunities.

Flood Mitigation Assistance (FMA) Grants

_Grantor: Texas Water Development Board (TWDB)_

**Purpose:** The Flood Mitigation Assistance (FMA) provides grants to assist communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP.

**Funding Limitations:** The Texas Water Development Fund helps fund wastewater and flood control projects.


Texas Water Development Board’s Flood Protection Planning Grant

Provides grants to communities to evaluate structural and nonstructural solutions to flooding.

USDA Natural Resources Conservation Service (NRCS) – Emergency Watershed Protection (EWP) Program

_Grantor: U.S. Department of Agriculture (USDA)_

**Purpose:** Provides financial assistance for flood debris removal; streambank stabilization and restoration; repairing conservation practices.

Preparedness (Non-Disaster) Grants

_Grantor: FEMA_  

**Purpose:** Provides state and local governments with preparedness program funding in the form of Non-Disaster Grants to enhance the capacity of state and local emergency responders to prevent, respond to, and recover from a weapons of mass destruction terrorism incident involving chemical, biological, radiological, nuclear, and explosive devices and cyber attacks. To apply, go to Grants.gov.

Assistance to Firefighters Grants (AFG)

**Purpose:** The primary goal of the Assistance to Firefighters Grants (AFG) is to meet the firefighting and emergency response needs of fire departments and nonaffiliated
emergency medical service organizations. Since 2001, AFG has helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training and other resources needed to protect the public and emergency personnel from fire and related hazards.

Landowner Incentive Program (LIP)

**Grantor: Texas Parks and Wildlife Department (TPWD)**

**Purpose:** The program offers project cost-sharing for projects that positively impact the valuable riparian areas and watershed in Texas. Projects showing the greatest benefit to targeted watersheds will receive priority as do projects offering long-term protection, long-term monitoring and greater than the required minimum landowner contribution.

**Eligibility:** Eligible parties include private, non-federal landowners wishing to enact good conservation practices on their lands in targeted eco-regions. Targeted eco-regions may change from year to year.

**Funding limitations:** Contracts will require a minimum of 25% landowner contribution (in-kind labor, materials, monetary, etc.).


Conservation Reserve Program (CRP)

**Grantor: Natural Resource Conservation Service (NRCS)**

**Purpose:** Provides financial assistance to agricultural landowners in establishing approved conservation practices. The goals of the CRP program are to reduce water runoff and sedimentation, protect groundwater and help improve conditions of lakes, rivers, ponds and streams.

**Eligibility:** Agricultural landowners

**Funding limitations:** Eligible participants can receive annual rental payments based on the agriculture rental value of the land and cost-share assistance for up to 50 percent of the participant’s costs in establishing approved conservation practices.


Wetlands Reserve Program

**Grantor: Natural Resources Conservation Service (NRCS)**
Purpose: Provides technical and financial support to landowners with their wetland restoration efforts. The program aims to offer landowners the opportunity to protect, restore, and enhance wetlands on their property.

Eligibility: Lands that are eligible under this program include: wetlands farmed under natural conditions, farmed wetlands; prior converted cropland; farmed wetland pasture; certain lands that have the potential to become a wetland as a result of flooding; rangeland, pasture, or forest production lands where the hydrology has been significantly degraded and can be restored; riparian areas which link protected wetlands; lands adjacent to protected wetlands that contribute significantly to wetland functions and values; and wetlands previously restored under a local, State, or Federal Program that need long-term protection.

Funding limitations: For permanent easements, 100% of easement value and 100% of the restoration costs will be funded. For 30-year easements, 75% of the easement value and up to 75% of the restoration costs are funded. For an agreement to restore wetlands without an easement, up to 75% of the restoration costs will be funded. A 30-year contract is available for tribal land and funding allocation is up to 75% of the restoration costs.


Agricultural Water Enhancement Program (AWEP)

*Grantor: Natural Resources Conservation Service (NRCS)*

Purpose: Provides financial and technical assistance to agricultural producers to implement agricultural water enhancement activities on agricultural land to conserve surface and ground water and improve water quality.

Eligibility: Individual producers are not eligible. Eligible partners include: Federally recognized Indian Tribes, States, units of local government, agricultural or silvicultural associations or other groups of such producers and other nongovernmental organization with experience working with agricultural producers. Agricultural land must be in AWEP approved project areas.

Funding limitations: Eligible entities or organizations form multi-year partnership agreements with NRCS to promote ground and surface water conservation. Financial assistance changes every fiscal year depending upon appropriations and agency priorities.
More information:

Chapter 2 Housing, Economic and Community Development
Housing

To keep up with anticipated growth, the city will need to allow for construction of between 250 and 840 housing units by 2030. The goals in the Housing subsection below will be applicable regardless of the number of units built.

Goals and Objectives

Goal 1. Create a spectrum of quality housing opportunities.

Objective 1.1 - Encourage development of housing that is accessible to a mix of price ranges.

Action 1.1.1 - Establish an incentive program for developers to include integrated affordable housing in market-rate communities throughout the city. Possible incentives could include:

- Density bonuses allow a developer to build more units than would otherwise be allowed in the existing zoning designation when a specified number of affordable units are included. Typically allowing greater building heights or reduced setbacks does this.

- Reduced unit sizes allow a developer to build units of smaller size (square footage) than allowed in the existing zoning, often used in conjunction with density bonuses.

- Fast-track permitting guarantees developers a shorter timeline to gain project approvals when a specified number of affordable units are included.

- Reduced fee structure waives certain fees for developers that include a specified number of affordable units.

Objective 1.2 - Establish minimum architectural/design standards to ensure new one- to four-family homes and renovated structures are constructed in a manner that creates value, maintains community character, and attracts future investment.

Action 1.2.1 - Develop an architectural/design guidebook for builders and homeowners that outlines and illustrates the minimum and recommended architectural standards required for compliance in Navasota; to minimize
opposition from residents, it is recommended that standards not be applied retroactively.


**Action 1.2.2** - Establish architectural/design guidelines for the modification of residential structures for the purpose of increasing accessibility to persons with disabilities, while retaining the existing character of the home and surrounding neighborhood; a guide has been developed by The Center for Universal Design at North Carolina State University and can be accessed at [http://www.ncsu.edu/www/ncsu/design/sod5/cud/pubs_p/docs/residential_remodelinl.pdf](http://www.ncsu.edu/www/ncsu/design/sod5/cud/pubs_p/docs/residential_remodelinl.pdf).

**Objective 1.3** - Adopt building codes and practices that minimize energy use in new buildings and substantially reduce energy use in renovated structures.

**Action 1.3.1** - Evaluate existing energy reduction guidelines for residential buildings, such as Energy Star, and, within one year, adopt the program most appropriate for Navasota.

**Action 1.3.2** - Adopt the most current version of the International Building Code (2012) within one year and establish a schedule that ensures timely adoption of updated building codes in the future.

**Action 1.3.3** - Develop programs and/or ordinances that encourage alternative/renewable energy sources including solar, wind, and geothermal.

*Case Study: City of Plano Smart Energy Loan Program-* this program provides homeowners with local financing for energy technology or efficiency improvements in their home, such as for solar panels or Energy Star-rated appliances; information on the program can be located at [http://www.plano.gov/index.aspx?NID=1378](http://www.plano.gov/index.aspx?NID=1378).
Objective 1.4 - Develop and/or adopt guidelines for new development and renovations that minimize the negative environmental effects of construction and building operations.

Action 1.4.1 - Evaluate existing green building programs, such as LEED (Leadership in Energy and Environmental Design) or the National Association of Home Builders’ Green Building Program, and, within one year, adopt the program most appropriate for Navasota.

Action 1.4.2 - Establish minimum environmental guidelines for building operations, including curbside recycling pickup for all single-family and multifamily housing and water conservation through low water landscaping.

Action 1.4.3 - Require city building inspectors and building officials to become LEED Accredited Professionals (LEED-AP) within 24 months of adoption of the Comprehensive Plan and within 12 months of employment for new hires.

Funding sources for action items above can be found at: http://www.epa.gov/greenbuilding/tools/funding.htm

Objective 1.5 - Target residential development in areas of high opportunity to ensure residents of all incomes and abilities can access key employment, retail and activity centers.

Action 1.5.1 - Establish a series of targeted development zones and reduce barriers to development in those areas, such as through fee reductions/waivers, accelerated project review and density bonuses, or by establishing a vacancy fee program to motivate redevelopment of underutilized properties (see
Figure 2 - 1).
Figure 2 - 1: Priority Redevelopment & Future Development Areas
Action 1.5.2 - Encourage mixed-use projects in the downtown area and along major thoroughfares, including East Washington Avenue and North LaSalle Street. These projects shall be pedestrian-oriented, neighborhood scale buildings that enhance the identity of the surrounding community.

Action 1.5.3 - Promote infill development on vacant and underutilized sites in high opportunity areas, including the development of secondary residential units (accessory dwelling units) on single-family lots.

Action 1.5.4 - Provide opportunities for live-work development along major thoroughfares, including East Washington Avenue and North LaSalle Street.

Objective 1.6 - Preserve and rehabilitate historic and architecturally significant residential properties.

Action 1.6.1 - Develop an architectural guidebook for owners of historic structures which outlines and illustrates the minimum architectural standards required for compliance in Navasota.

Action 1.6.2 - Establish a small repair revolving loan program to support the rehabilitation of historic and architecturally significant residential properties.

Case Study: Historic Homeowners Roof Deferred Loan Program (Mobile, Alabama)- this program provides forgivable loans to low- to moderate-income homeowners for the repair or replacement of roofing on historic homes; details of the program can be accessed at http://mobilehd.org/news.html?detail=1&news_id=662.

Goal 2. Strengthen the network of quality rental housing in Navasota.

Objective 2.1 - Ensure that rental housing developments are well managed and operated.

Action 2.1.1 - Boost code enforcement efforts among rental communities and provide continuing education to landlords on maintenance standards.

Objective 2.2 - Promote the rehabilitation of outdated or poorly maintained rental housing.

Action 2.2.1 - Provide technical and financial support to landlords looking to upgrade rental properties while maintaining affordability.

Case Study: Good Landlord Program (Ogden, Utah)- The city provides incentives to landlords who actively maintain their property as well as take measures to
keep properties free of criminal activity. Landlords who complete a training
course and comply with the program requirements can receive discounts on the
disproportionate impact fees based on the police and fire services provided to
rental properties. Details of the program can be accessed at

Community Development

The future of Navasota is highly dependent on the quality of life it can provide to its
residents. This hinges, ultimately, on the quality of education that is provided to youth
and adults in the community and building a strong sense of belonging within the
community. The goals in the Community Development subsection directly address
these needs.

Goals and Objectives

Goal 1. Foster a strong sense of local community among existing and future
residents.

Objective 1.1 – Create local activity centers that promote regular interaction
between residents.

Action 1.1.1 - Promote and expand the current farmers market.

Action 1.1.2 - Create a marketing strategy that promotes an open-air market
(signage).

Action 1.1.3 – Invest in infrastructure that connects (within a ¼-mile walking
distance) the open-air market to the downtown area and promotes the feeling of
pedestrian safety. Reuse abandoned or vacant property.

Case Study: First Monday Canton, TX - A small Town of 3,500 people have a
monthly flee/Farmers market that attracts thousands of venders from around
the nation. http://firstmondaycanton.com/

Case Study: Projects for Public Spaces, Public Market Program – this program
fosters the role of public markets in reconnecting local economies and
communities and to support the pivotal role markets play in supporting public
health and local food systems. http://www.pps.org/reference/reference-
categories/markets-articles/
Currently, Navasota has a small farmers market, of four to five vendors, that sell produce at 310 E. Washington, on Saturday at 8:00 am till 12:30 pm. The vendors informed us that there used to be more people that would show up to buy and sell but the market has suffered from lack of signage and not having a permanent location.

Figure 2 - 2: Navasota’s Farmer’s Market.

Farmer Markets are a great way to build interest in what being grown and created in the community. It is also a way of bringing the local community together and having an interaction between different groups. These markets can also be good for the economy. The potential economic impacts of public markets and farmers markets include direct benefits (e.g. profits to business owners in the market, job creation, sales and real estate tax revenues, etc.) and indirect benefits (e.g. stimulating development downtown, enhancing the park and waterfront as a place, farmland preservation, etc.). The “Project for Public Spaces” (non-profit organization; http://www.pps.org/) conducted a study of open-air markets around the county and discovered that 60% of customers said that they visited additional stores only on the day that they visited the market. A recent study conducted by Iowa State University for the Iowa Farmers’ Market
Association reports that farmers markets in the state contributed up to $20 million in sales to the economy and created another $12 million in direct and indirect economic activity (Project for Public Spaces).

The City of Navasota should commit to supporting the community's farmers market by promoting it with signage, listing the market as an attraction on the cities website, and creating a permanent location. This location should be located within walking distance of the downtown.
Figure 2 - 3: Empty Pavilion.

A location that we noticed while doing a site visit is an empty pavilion that is at the corner of N Lasalle St. and Brule St. This location seems ideal because of its connection to the Cedar Creek hike and bike trail and is within walking distance from the downtown.

Goal 2. Establish Navasota as a key educational center.

Objective 2.1 - Actively recruit a technical college to locate in Navasota.

Objective 2.2 - Strengthen the role of public education in Navasota.

Action 2.2.1 - Create a coalition of local and regional stakeholders to develop community-based strategies for improving educational performance and attainment
Case Study: Greater Waco Community Education Alliance (Waco, TX) – this alliance of stakeholders from many sectors of the local community work together to engage citizens in bolstering the educational achievement of Waco’s youth. Information on the Alliance’s work can be found at http://www.educatewaco.com/index.php

Objective 2.3 - Attract an arts and music training festival or workshop.

Action 2.3.1- Establish a new local arts/music festival that offers hands-on music training, while complementing existing festivals like Blues, Bluebonnets & BBQ and Navasota Blues Fest.

Case Study: Chautauqua Institution and Chautauqua Music Festival (Chautauqua, New York)- this institute combines a fine arts and music school with an annual summer festival that draws over 100,000 visitors to the lakeside town of just 4,400 residents. Information can be found at http://www.ciweb.org and http://music.ciweb.org

Case Study: Kerrville Folk Festival (Kerrville, Texas)- an annual music festival that attracts over 30,000 guests from around the world that are interested in listening to, and learning about, folk music. Information can be found at http://www.kerrville-music.com

Attracting a community college or technical college can help communities build their economy. Community colleges can serve as an economic catalyst by providing employers with an educated and trained workforce. Higher paying jobs generally require higher education. A company that might move to Navasota will look for a local workforce that has the skills they require.

Also, there is a direct correlation between students who receive degrees or certificates beyond a high school diploma and the level of income they achieve. There are an increasing number of jobs that require an associate degree such as nurses, police officers, and other first responders. All of these professions can receive their education primarily through community colleges. Reaching out to school, like Blinn Community College, to open a satellite campus in Navasota is a way of fulfilling this goal.

Creating a music festival (in addition to the Blues festival) that offers opportunities for musicians to work with people that are interested in learning music moves Navasota away from a place where music is heard to a place where music is made. Bringing singers and songwriters that specialize in music of many different styles including traditional folk, bluegrass, acoustic rock, blues, country, jazz, and Americana is another way of supporting the vision of Navasota as an arts and music capital. These musicians can play concerts and hold workshop to teach and spread the culture of music. Events like Chautauqua
music festival and Kerrville folk festival are great examples and are a great way of bringing tourism and interest in Navasota.

Goal 3. Provide a full range of public and human services that meet the needs of current and future residents.

Objective 3.1 - Evaluate the food security of at-risk populations and work to increase healthy food access for local residents.

Action 3.1.1 - Work with local group (e.g. Churches) or companies to establish a grocery delivery service for persons without regular transportation access.

Action 3.1.2 - Determine the need for a local food bank and pursue a nonprofit organization to spearhead the effort.

Objective 3.2 - Develop strategies to provide transitional housing opportunities for the homeless, persons at risk of homelessness and others with special needs.

Action 3.2.1 – Conduct a homeless persons count to assess the need for homeless care within Navasota.

Objective 3.3 - Improve the range of available health services within Navasota.

Action 3.3.1 - Partner with regional nonprofits to determine whether local health needs can be met with existing resources

Parks and Recreation

While Navasota has recreational space throughout the community, a diverse array of activities is lacking. Currently the city has no access to the Navasota River. As seen in Strategic Growth: Future Land Use and Figure 1-4

A park located west of the city could provide a public boat ramp for kayaking, canoeing and fishing. This park can be relatively low maintenance, with dirt roads and trails, but can also provide flood mitigation opportunities through the construction of retention or detention ponds. A second boat ramp could be constructed north of the city within the conservation easement along the Navasota River (Figure 2-5). It is approximately three miles between proposed boat ramps which could act as a regional attraction. The boat ramp at the west city park is approximately 10 miles to Washington State Park. Coordination with this park could yield a significant regional draw for boating activities.

Other opportunities lie in a master hike and bike trail throughout the city. These trails could be dirt bike routes with little maintenance. Proper signage would be a valuable...
installation effort for continued use of such recreational facilities. Also, there are limited opportunities to play soccer within the city and the construction of two soccer fields southwest of the city could provide this amenity. The soccer fields could be constructed in depressed basins as a way to detain flood waters. Diversification, choices, and access are all strategies the city should keep in mind when planning parks and recreational facilities.
Figure 2 - 4: Future Parks within Navasota.
Figure 2 - 5: Example of the entrance to the park west of town and conservation easement to the Navasota River north of town.

Source: www.123rf.com

**Goals, Objectives, Action Items**

**Goal 1:** The city should provide a diverse array of recreational activities within the city.

**Objective 1.1:** The city should acquire park land.

   Action 1.1.1: The city should work with landowners to designate new park land as a conservation easement.

   Action 1.1.2: The city should work with landowners to acquire park land through the transfer of development rights.
Action 1.1.3: The city should purchase land outright with the assistance of grants.

Action 1.1.4: The city should downzone floodplains for the least intensive use to provide recreational spaces for citizens.

Objective 1.2: The city should provide a master hike and bike trail throughout the city.

   Action 1.2.1: The city should prioritize trails segments and incorporate them into the capital improvement budget.

   Action 1.2.2: Construct low maintenance hike and bike trails.

   Action 1.2.3: Provide hike and bike trail signage along paths or streets.

Objective 1.3: The city should provide water recreational opportunities.

   Action 1.3.1: The city should contract for the design and construction of a public boat ramp. One should be placed at the park west of the city and another at the conservation easement north of the city along the Navasota River.

Objective 1.4: The city should provide children’s recreational activities downtown.

   Action 1.4.1: The city should construct a children’s playground with grant assistance.

Objective 1.5: The city should incorporate more active sporting facilities.

   Actions 1.5.1: The city should construct two soccer fields southwest of the city to provide more active recreational use within the city.

Funding Sources

Oaks and Prairies Joint Venture with the Texas Parks and Wildlife Department

Grantor: Oaks and Prairies Joint Venture with the Texas Parks and Wildlife Department

Purpose: This organization provides assistance in obtaining conservation easements.

More information:
Small Community Grants

Grantor: Texas Parks and Wildlife Department

Purpose: This grant was created to meet recreation needs. The grant provides 50% matching grant funds to eligible municipalities and counties. Funds must be used for development or acquisition of parkland.

Eligibility: Must be a small Texas community with a population of 20,000 and under. Eligible projects include ball fields, boating, fishing, and hunting facilities, picnic facilities, playgrounds, swimming pools, trails, camping facilities, beautification, restoration, gardens, sports courts and support facilities.

More information: http://www.tpwd.state.tx.us/business/grants/trpa/

Indoor Recreation Grants

Grantor: Texas Parks and Wildlife Department

Purpose: This grant provides 50% matching grant funds to construct recreation centers, nature centers and other indoor recreation-related buildings.

Eligibility: For municipalities, counties, MUDs and other local units of government with populations less than 500,000.

Limitations: The master plans submission deadline is at least 60 days prior to the application deadline. Award notifications occur the following January.

More Information: Please download the Indoor Recreation Grant Application.
http://www.tpwd.state.tx.us/business/grants/trpa/

Outdoor Recreation Grants

Grantor: Texas Parks and Wildlife Department

Purpose: This grant provides 50% matching grant funds to acquire and develop parkland or to renovate existing public recreation areas.
Eligibility: For municipalities, counties, MUDs and other local units of government with populations less than 500,000. Eligible sponsors include cities, counties, MUDs, river authorities, and other special districts.

Limitations: Projects must be completed within three years of approval. (The master plans submission deadline is at least 60 days prior to the application deadline).

More information: For complete information on this grant, please download the Outdoor Recreation Grant Application; http://www.tpwd.state.tx.us/business/grants/trpa/

Community Outdoor Outreach Program (CO-OP) Grants

Grantor: Texas Parks and Wildlife Department

Purpose: The CO-OP grant helps to introduce under-served populations to the services, programs, and sites of Texas Parks & Wildlife Department.

Eligibility: Grants are awarded to non-profit organizations, schools, municipalities, counties, cities, and other tax-exempt groups.

Limitations: This is not a land acquisition or construction grant; this is only for programs.

More information: http://www.tpwd.state.tx.us/business/grants/trpa/

Recreational Trail Grants

Grantor: Texas Parks and Wildlife Department

Purpose: TPWD administers the National Recreational Trails Fund in Texas under the approval of the Federal Highway Administration (FHWA). This federally funded program receives its funding from a portion of federal gas taxes paid on fuel used in non-highway recreational vehicles.

Eligibility: Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors.

Limitations: The grants can be up to 80% of project cost with a maximum of $200,000 for non-motorized trail grants and currently there is not a maximum amount for motorized trail grants (call 512-389-8224 for motorized trail grant funding availability).

More information: http://www.tpwd.state.tx.us/business/grants/trpa/

Boating Access Grants
Grantor: Texas Parks and Wildlife Department

Purpose: For the construction of public boat ramp facilities throughout Texas.

Eligibility: Local government sponsors must make an application, provide the land, provide access to the proposed boat ramp, supply 25% of the development costs, and accept operation and maintenance responsibilities for a minimum 25-year period.

Limitations: This grant program provides 75% matching grant funds. These funds are allocated annually through the federal Sport Fish Restoration Act.


Economic Development

A multifaceted approach to economic development will be required to ensure Navasota’s economic viability. Both small local business development and bolstering the city’s manufacturing and industrial sectors will likely be key to achieving this viability.

Goals and Objectives

Goal 1. Encourage new small business development while strengthening existing local businesses.

Objective 1.1 – Establish a local business development organization that will support entrepreneurs in the creation of new business.

Action 1.1.1 - Evaluate the viability of a separate Chamber of Commerce for Navasota.

Action 1.1.2 – Develop and implement small business incubator programs within the city.

Wikipedia defines business incubator programs as “designed to support the successful development of entrepreneurial companies through an array of business support resources and services, developed and orchestrated by incubator management and offered both in the incubator and through its network of contacts.”

Refer to “Texas Business Incubators Directory” for the arts-related business incubator programs:

Case Study: Houston Arts Alliance (HAA) Incubator & Accelerator Programs - offers resident incubator and infrastructure investment programs for the arts. More information can be found at http://www.houstonartsalliance.com/programs/for-arts-organizations/intensive-services

Case Study: McAllen Chamber of Commerce Creative Incubator (McAllen, Texas) - provides low-fee studio space as well as legal and technical assistance for artists. Information can be found at http://www.exploremcallen.com/culture/finearts/mcaincubator.aspx

Action 1.1.3 – Actively coordinate with the U.S. Small Business Administration Houston District Office to provide information on small business loans, grants, bonds and other financial assistance for prospective business owners.

Action 1.1.4 – Actively coordinate with the Texas Center for Rural Entrepreneurship to assist entrepreneurs in starting and growing business ventures by linking them with the resources and technical assistance they need to be successful.

Objective 1.2 – Encourage the centralization of certain unique and strong business establishments within Navasota.

Action 1.2.1 - Identify unique retail businesses already succeeding in Navasota and find ways to attract similar businesses in order to establish a regional retail identity.

An excellent example of such an opportunity is the French Market, located on Washington Avenue. During a survey of business owners, the European furniture business owner indicated that most of their customers are from outside the community, because Navasota is known as a provider for the niche market pursuing high-end European furniture. As this identity already has a foothold in Navasota, similar retail could more easily be attracted to the city.

Action 1.2.2 - Partner with the tenants of the Navasota Industrial Park to evaluate the condition of rail infrastructure and identify opportunities for improvement/growth.

Goal 2. Enhance Navasota’s economic viability by improving recreational, cultural, and lodging amenities.
Objective 2.1 – Establish downtown-located studios for artists and strengthen the local identity as an arts and/or Blues capital.

Action 2.1.1 - Identify publicly-owned vacant downtown buildings to repurpose as studio space for artists and musicians

Action 2.1.2 - Increase the frequency of music festivals and related events to boost tourism.

Objective 2.2 - Promote Navasota's historic structures and character.

Action 2.2.1 - Identify and increase utilization of programs aimed at renovating and protecting historic structures.

Action 2.2.2 – Evaluate and select strategies to generate revenue through the use of historic properties, such as through bed & breakfast facilities, loft housing, etc.

Goal 3. Strengthen local basic and growing industries.

Objective 3.1 - Strengthen the manufacturing industry.

Action 3.1.1 - Improve communications infrastructure within Navasota's industrial areas by introducing fiberoptic cables or other high-speed networking.

Action 3.1.2 - Improve the quality of the local workforce by providing technical training, employment counseling, and supportive social services.

Objective 3.2 - Strengthen the economic viability of the transportation and warehousing sectors.

Action 3.2.1 - Evaluate the viability of expanding the Navasota Municipal Airport to accommodate larger cargo/freight planes and, eventually, commercial passenger flights.
Chapter 3 Downtown Revitalization
Introduction

Navasota does not currently have an established historic preservation program, but have many historic assets within the city that should be preserved and utilized for cultural education and economic development. Included within these historic assets are the Navasota Downtown Historic District, recognized in the National Registry of Historic Places; the P.A. Smith Hotel; and, the Old First National Bank of Navasota. A complete listing of historic properties is included in Appendix 1, Historic Resources Survey.

In 2009, Navasota created a Historic Preservation Action Plan in conjunction with the Texas Historical Commission’s Visionaries in Preservation Program which outlined goals and actions for the preservation and enhancement of culturally significant places and properties within Navasota. A copy of this plan can be found in Appendix 2. While some of the objectives identified within this plan have been accomplished, there are many actions yet to be completed.

In order to cultivate a unique city image that strengthens the sense of community and local economy, preserving, enhancing and promoting the recognized historical assets of the community is paramount. To this end, the Navasota Historic Preservation Action Plan should be updated and fully implemented. Additionally, the Historic Preservation Ordinance called for on page 15 of the Action Plan (Appendix 2) should be initially limited to the Downtown Historic District as identified in the National Registry of Historic Places, with a clause allowing for voluntary inclusion of places outside of the downtown district through the use of a “floating zone”, which residents can opt-in to and their property is immediately protected by the Historic Preservation Ordinance.

Goals and Objectives

Goal 1: Develop and implement a Historic Preservation Program.

Objective 1.1: Update and execute the existing Navasota Historic Preservation Action Plan

Action 1.1.1: The Historic Landmark Commission should comprehensively review and update the Historic Preservation Action Plan as required.
Action 1.1.2: The Navasota City Council should approve the revised plan and oversee the implementation of the plan.

Objective 1.2: Update and maintain the Navasota Historic Resources Survey

Action 1.2.1: The HLC shall review and update the Historic Resources Survey, identifying possible additions to the list.

Action 1.2.2: A schedule of updates to the historic resources survey should be created to ensure all potential historic structures will eventually be considered for designation. (Maintaining an updated and comprehensive inventory of the downtown’s historic properties is the foundation of a successful, ongoing preservation program.)

Goal 2: Enhance public, private and governmental interest in Navasota’s historic structures.

Objective 2.1: Develop educational programs and marketing media to promote downtown historic preservation and advertise the historic resources

Action 2.1.1: Create an educational framework for owners of historic structures about the value and benefits of preserving the properties.

Action 2.1.2: Develop an electronic mailing list of historic property owners and businesses and send updates on preservation issues/events

Action 2.1.3: Make a toolkit of educational and outreach material available through public facilities such as the Navasota Library and the Horlock History Center.

Action 2.1.4: Improve the current visitor center, staffed by volunteers, to provide information to visitors about Navasota’s historic resources (e.g. historic walking tours).

Action 2.1.5: Utilize technologies such as an Internet website to advertise the city’s rich historical assets.

Objective 2.2: Preserve the character of the building stock while providing the opportunity to be used at full capacity.
Action 2.2.1: Review existing historical resources survey and update the list to include additional building stock as necessary into the Historic Preservation Program to regulate development and prevent speculation.

Goal 3: Provide incentives to the private sector to encourage and support the maintenance and rehabilitation of the city’s heritage.

Objective 3.1: Establish a financial support system to stimulate renovation of privately owned buildings.

Action 3.1.1: Establish a facade improvement program to encourage and assist historic property owners for façade upgrades and exterior maintenance.

Action 3.1.2: Create a low-interest loan program to support stabilization/rehabilitation projects, as well as identify federal, state, county, and local funding to support these programs.

Action 3.1.3: Investigate the feasibility of utilizing tax abatements as listed in the Navasota Economic Development Policy to aid in the preservation and redevelopment of Downtown.

Action 3.1.4: The city should investigate programs such as Tax Increment Financing (TIF) and Enterprise Zones as tools to aid in the preservation and redevelopment of Downtown.

Financial Incentives

The municipality should consider providing incentives to offset additional expenditures that may be necessary to comply with this preservation effort. Incentives could encourage otherwise skeptical property owners to participate in historic preservation and be more receptive to regulation. The City should provide flexible and diverse incentive programs to accommodate the eclectic nature of the community’s resources.

Facade loan/grant program - If implemented, property owners can apply for no interest loans, low-interest loans and grants to be used for exterior rehabilitation, preservation, and the restoration of historic properties. Additionally, grant programs are available for facade improvements to buildings within the CBD that are consistent with the Secretary of Interior’s Standards for Rehabilitation. The
City of Navasota can provide for these programs through other city revenue sources in addition to applying for financial assistance from the U.S. Department of Housing and Urban Development for a Community Development Block Grant. Emphasis should be placed on commercial structures for economic development reasons.

A similar program can be found at the Urban Redevelopment Authority of Pittsburgh. Their program details listed below:

The program will provide three-year loans at zero percent interest to eligible owners with properties in downtown. Monthly installments are paid directly to the program office. The loan is to be matched by private investment. The level of investment varies with the amount of the total project cost. The loan amount is based on the eligible costs and will be determined as follows:

-Funding limits are based on legal addresses and customer entrances. This program will fund 50 percent of total project costs, not to exceed a maximum amount of $5,000. Loans will be allocated according to building profile:

-The lesser of 50 percent of the total project budget or $2,000 per property storefront, as well as $1,000 per upper floor.

http://www.ura.org/business_owners/facade_program.php

Capital Access Fund: Office of the Governor Economic Development and Tourism - This program may be a great resource for Main Street businesses that have difficulty qualifying for a low-interest loan due to an unfavorable credit rating. The Texas Capital Access Fund was designed as a public/private partnership between the State of Texas and lending institutions to assist “near bankable” businesses in accessing the capital they need. Small businesses are priorities of the program; however, there is also an emphasis placed on childcare providers and businesses located in enterprise zones. This loan does not have a maximum amount. Information on the program can be found at

http://www.governor.state.tx.us/divisions/ecodev/ed_bank/cap_access

Small Business Administration (SBA): Small Business Administration Loans - The SBA has a variety of financing options for small businesses that may be located in Main Street communities. These financing options include long-term loans for machinery and equipment, a general working capital loan, a revolving line of credit, or a micro-loan. One of the most common SBA loans is the 7(a) Loan Guarantee Program that
provides loans to small businesses unable to secure financing on reasonable terms through normal lending channels. Information can be found at

http://www.sba.gov/financing/indexloans.html

TIFs - Tax Increment Financing permits tax agencies (e.g. NISD, City of Navasota, Grimes County) to apply potential increases in taxes as a result of redevelopment toward public improvements such as infrastructure. Therefore, the property owner can utilize this revenue to pay off bonds that have been issued for capital improvements. Such capital improvements can also include Downtown streetscape enhancements, parking, street furniture, lighting, and other redevelopment projects deemed appropriate by the affected taxing agencies.

Property tax abatements - An abatement program may be desirable as an alternative to TIF to combat the perception that improvements will needlessly raise ad valorem property taxes. A time-limited program of this type can drastically reduce property taxes paid by income-producing buildings and owner-occupied homes.

The current tax abatement verbiage included within the Navasota Economic Development Policy calls for the exemption of city taxes for improvements over $2,000 made to properties located in downtown. The tax exemption can be granted for a period of up to five (5) years from the date of substantial completion of the restoration or renovation. The tax exemption is not a tax freeze. This means that, while improvements to the property may be exempt, the increase in base value of the land and improvements may increase for the entire area and therefore taxes may still increase. Each tax exemption application is reviewed by the dedicated department in Navasota and then forwarded to City Council for final approval. With City Council approval, the increased value to the structure due to the renovation or restoration will be exempt from city taxation.

Property tax deferrals - Under this program, the taxes resulting from an increase in assessed value from the rehabilitation of a historic structure are deferred for a specified period of years or until sale of the property. The deferral allows for the recapture of the property taxes due over the period of the deferral. The deferral functions as a no-interest loan to the property owner in the amount of the property taxes resulting from the improvement of the historic property.
Continued evaluation of the incentive programs would assure effective use of funds. Other grant and loan programs are identified in Appendix 3.
Chapter 4 Downtown Revitalization
Introduction

Navasota does not have an official downtown boundary. In order to facilitate the revitalization in the city core, a new boundary was determined for Downtown Navasota. The proposed downtown area is delimited to the northeast by Frazer Street, across Washington Avenue and following Lasalle Street to the southeast; to the south by Holland Street; to the West by 10th Street and finally to the northwest by Cedar Creek.

The new downtown designation focuses around the section of Washington Avenue classified as a Main Street road (see Future Transportation Plan). This new designation is based on blocks with a consistent urban form, land use and building density.

The proposed downtown comprises 14 micro blocks, eight alleys, nine streets, and three underutilized open spaces. The 14 micro blocks are divided by the local roadway system (see Future Transportation Plan). The three open spaces refer to the vacant areas that have great potential to be developed for recreational purposes, but are currently underutilized as parking lots or sites for community activities. The present status and future use of the three open spaces will be discussed below.
Goals and Objectives

Goal 1. Promote a downtown district with a strong sense of community.

Objective 1.1: Develop community spaces with an aesthetically pleasing environment.

Action 1.1.1: Create a downtown district sidewalk master plan.

Action 1.1.2: Develop an urban fixtures ordinance specifying types of lighting and urban furniture allowed in the public right-of-way.

Action 1.1.3: Revise code of ordinances to ensure it includes guiding principles for new development in terms of cohesive building materials, colors, appropriate scaling and urban features.

Action 1.1.4: Introduce street trees at a maximum interval of 300 yards.
Action 1.1.5: Design and install a new Wayfinding signage system for the downtown.

**Objective 1.2:** Increase vegetation and shade options within the downtown district.

Action 1.2.1: Develop a Navasota street tree planting policy.

Action 1.2.2: Devise an urban greening program with emphasis on major streets and urban corridors.

**Goal 2:** Provide incentives to the private sector to encourage economic and employment growth within the downtown district.

**Objective 2.1:** Promote the activity of well-established services and commercial uses.

Action 2.1.1: Establish a workforce program to encourage downtown business to hire locally and maximize the benefit of the rehabilitation projects to local labor.

The City can schedule free work training for local residents. Meanwhile, it can reimburse contractors and subcontractors for hiring individuals who take the training or register in the Navasota workforce development program. Alternatively, instead of reimbursement, the city can provide certain tax incentives to businesses based on the number of local residents hired. Individuals hired must be referred from the program.

Action 2.1.2: Encourage downtown businesses to expand operational hours during certain days each month

The government can coordinate with local business owners to extend business hours during event days. If the event receives positive feedback, the business owner may consider expanding operational hours on a consistent basis.

Action 2.1.3: Encourage adaptive reuse of the historic buildings.

Navasota should maintain a database of vacant buildings or floors in downtown. Owners who are willing to rent it to artists, artisans and craftspeople at a reduced rate can benefit from tax incentives. This can increase tourism and retail shopping in the downtown area and maximize use of historic buildings.

**Goal 3:** Promote a mix of activities in the downtown area that would attract visitors and community members.
**Objective 3.1:** Revitalize Railroad Street into an upscale entertainment district.

Action 3.1.1: Actively recruit “bed and breakfast” lodging businesses.

Action 3.1.2: Actively recruit restaurants.

**Objective 3.2:** Encourage the establishment of downtown businesses that promote a local feel.

**Goal 4:** Provide quality open space and recreational facilities that help consolidate downtown as an activity center.

**Objective 4.1:** Enhance the scenic character of Cedar Creek.

Action 4.1.1: Repair the creek infrastructure.

Action 4.1.2: Implement a creek-cleaning program.

Action 4.1.3: Restore and redevelop deteriorated or underutilized waterfront areas into compatible uses.

Action 4.1.4: Encourage new development to include design elements that highlight views of the creek and promote pedestrian access.

**Objective 4.2:** Connect downtown open space with other recreational facilities through the development of leisure trails or urban bike routes.

Action 4.2.1: Identify existing and potential open spaces within the downtown district.

Action 4.2.2: Design and implement a downtown bicycle route.

**Active Living**

**Existing Public Space**

Previous reports mentioned how public and recreational spaces in the downtown area are lacking or not properly equipped. The construction of the new city hall introduced a good measure of green space into the downtown, but its continuity can be ensured by applying the “pocket park” strategy already used throughout the city.
Cedar Creek and its surrounding area have been identified as one of three possibilities for public and recreational spaces within downtown. The other two locations include a vacant lot to the west of city hall at the intersection of West Farquhar Street and McAlpine Street as well as a large open area on the corner of 10th Street and McAlpine Street.

The following map shows the existing public space within the new Downtown boundary. Together, after being renovated, the three suggested projects can account for up to approximately 220,000 square feet of additional public space within the city’s core that could help anchor the reintroduction of other activities.

Figure 3 - 2: Downtown Existing Public Space

Downtown Master Plan
The Downtown Master Plan is an overarching urban revitalization effort. Buildings in the downtown area are situated around eight alleyways that have fallen into disuse. These spaces can be used to connect sidewalks on Washington Avenue to McAlpine Street and Brule Drive while creating alternative points of access to buildings facing Main Street.

Figure 3 - 3: Downtown Master Plan for Public Space

In the master plan, alleyways are turned into pedestrian pathways between the activities on Washington Avenue and existing and future destinations in the
surrounding areas. Since these alleys are lined by large undecorated walls, they present an excellent opportunity for street art such as murals. Sponsoring artists to take part in an alley beautification project allows for both the creation of a new city attraction and a showcase for local artists.

The following three figures illustrate how Navasota might create a unique identity within its downtown district. The pictures show existing buildings within Navasota’s downtown with full-size mural art overlaid upon the current blank walls.

Improving pedestrian connectivity and access around downtown requires activity nodes to attract them. With this in mind, three small-scale projects were identified within the Downtown Master Plan.

Figure 3 - 4: Mural Example on 10th Street.

Source: City of Philadelphia Mural Arts Program, Photo by Rosie Lin.

Figure 3 - 5: Mural Example on Alley off of Washington Avenue.
Source: City of Philadelphia Mural Arts Program, Photo by Rosie Lin.

Figure 3 - 6: Mural Example on 10th Street.
Cedar Creek Park

The proposed Cedar Creek Park is intended to provide an appropriate space for community activities steered towards musical and theatrical performances as well as leisure activities. This urban scaled park will function as the backbone of Main Street activities as well as an endpoint for the city's park system.

The park limits are defined by Lasalle Street to the east, Railroad Street to the west, the back of the buildings on Washington Avenue and the end of the right-of-way on the north. It will provide an inviting venue for large community gatherings, performances, exhibitions and evening activities.

Cedar Creek, as it exists now, will need to undergo two primary renovation projects to enhance the inviting nature of the area. The projects include assessment, and repair where necessary, of the existing retaining walls surrounding the creek and selective excavation of accumulated silt from the creek bed.

Among the features to be included are storm water management systems, landscaping, appropriate lighting and urban fixtures.

Figure 3 - 7: Cedar Creek Conceptual Site Plan
Community Park

The vacant lot on 10th Street has been used in recent years for pop-up fairs, farmers markets and the like. Provision of infrastructure outlets and urban fixtures would cement the location for community gatherings.

Figure 3 - 8: Event Venue Conceptual Site Plan
Children’s Playground

The introduction of a youth-oriented playground helps ensure diversity in downtown open spaces. Designing the appropriate space to accommodate children’s activities provides families the opportunity to linger in the downtown and introduces options for new community activities. The children’s park will be located west of City Hall next to the City Facilities office, thus extending the open space of City Hall and adding character to the “civic center” of Navasota.

The playground site would also provide an opportunity to address another challenge identified within the downtown district. Currently, during heavy rainfalls the recently developed roadways near City Hall experience significant accumulation of water runoff within minutes. This possibly indicates an inability of the existing storm water sewer system to handle the necessary capacity of peak rainfall runoff. A potential solution for increasing the capacity of the local storm water sewer system includes the installation of a large enclosed storm water reservoir underneath the playground.
that collects the nearby storm water runoff in sufficient capacity to eliminate roadway ponding.

Figure 3 - 9: Children’s Playground Conceptual Site Plan

Connection plan to other urban spaces.

The introduction of vertical mixed-use zoning within downtown buildings requires different types of access into built structures. To accomplish this, the downtown district will implement a segregated access strategy. The commercial spaces on the ground floor of buildings along Washington Avenue, Lasalle Street and Railroad Street will retain their street front access.

Access to second and third levels, when occupied for other uses, will be located on other roads. McAlpine Street and Brule Drive will create a second frontage for buildings along high pedestrian traffic streets like Washington Avenue. They will accommodate access for less intensive uses including services, offices or residential use. Alleyways will be used for the same purpose as long as access points are well integrated to the pedestrian purpose of the alley.
Chapter 5 Urban Image


Introduction

For a city to be fruitful and flourish there needs to be a complimentary mix of appropriate infrastructure and land uses as well as showcasing the beauty of the city through the image they portray to the rest of the world. Within this section of the comprehensive plan there are goals, objectives, actions, and policies that apply to the urban image and design for the city of Navasota. These items are recommendations that have been developed to be geared to enhance and help showcase the beauty of Navasota to the world. Ideas dealing with the history, branding, landscaping, and atmosphere of the city are discussed and illustrated below. These ideas will help illustrate an idea of the beautiful enhancements that can be used and incorporated by Navasota to foster an image for the city that showcases the hidden beauty that Navasota has to offer.

Goals and Objectives

Goal 1: Revitalize and expand upon the historic resources of the city to emphasize its historical importance to increase interest among residents & visitors.

Objective 1.1: Establish a historic theme/design palette that can be implemented through the city.

Action 1.1.1: Develop a harmonious plan that balances the extensive history of Navasota and the ever-changing environment of the city in order to create a more comprehensive community image.

Action 1.1.2: Provide standards and parameters for historical elements throughout the city (streetscape, building aesthetics, and overall city image) in the City’s design guidelines in order to create a more cohesive city image.

Action 1.1.3: Use the same theme/design as an entrance or gateway into the city to provide a glimpse of what to expect inside the city.

Refer to the alternative scenarios section for detailed design guidelines

Objective 1.2: Incorporate Navasota’s historic culture into community and regional events as well as local attractions.
Action 1.2.1: Develop a self-guided walking tour of the city featuring Navasota’s historical highlights such as its historic homes, buildings and storefronts.

- Create a map that indicates a suggested path to the historic points of interest, along with introductions and historic stories.
- Develop a pamphlet that provides in-depth information on the historical sites within the walking tour, to be distributed in conjunction with the existing tourists’ guide.
- The design of the route of the historic tour should refer to and follow the future bike/pedestrian friendly corridors.

Action 1.2.2: Integrate Navasota’s historic background into existing community festivals to promote the city’s identity; for example, encourage festival patrons to dress in old-fashioned clothing or by the use of old-fashioned tools and machines.

Objective 1.3: Re-use and renovate existing, aging building stock.

Action 1.3.1: Use the alternative scenarios to create design standards for the preservation and renovation of building facades.

Action 1.3.2: Provide a visual of how the city once stood in earlier years as well as development through the years with the varying types of architecture to show the public and community the potential Navasota has to return to historical prominence.

Action 1.3.3: Provide gradual façade and structural improvements to all historical buildings (residential, public, private) throughout the city to bring them back to their prominence.

Refer to the alternative scenarios section for detailed design guidelines

Goal 2: Incorporate formal or informal landscape design where applicable and appropriate to the urban design throughout the city.

Objective 2.1: Use tree lined streets to establish important corridors and help showcase areas of interest.

Action 2.1.1: Use ornamental trees and formal design to designate areas the city sees fit to showcase to users (i.e. downtown).

Refer to the alternative scenarios section for detailed design guidelines
**Objective 2.2:** Design nature themed walking paths within neighborhoods to create a sense of comfort, peace, and exploration to encourage walking.

Action 2.2.1: Utilize natural materials (e.g. gravel, mulch) for walking paths.

Action 2.2.2: Design non-linear (meandering) paths.

Refer to the alternative scenarios section for detailed design guidelines

**Objective 2.3:** Establish gateway markers at each major entrance into the city and into specific districts within the city.

Action 2.3.1: Entrances into the city and districts within the city should correspond with the branding requirements of the city

Action 2.3.2: Use landscape elements and urban fixtures to emphasize and bring attention to each individual area.

Action 2.3.3: Develop a comprehensive landscape and urban fixtures guideline corresponding to proposed alternative scenarios and set forth within the proposed landscape and urban fixtures policies recommended below.

Refer to the alternative scenarios section for detailed design guidelines

**Objective 2.4:** Future parks and plazas should be evaluated and designed throughout the city for easier accessibility, if not currently.

Action 2.4.1: Parks and plazas should be easily accessed by residents and visitors using different transportation forms such as sidewalks for walking or bicycle lanes for bicycles.

*Policy 2.4.1.1:* The distance between residential areas and any future parks should not exceed 0.5 miles, or a 10 minute walk.

*Policy 2.4.1.2:* The parks and plazas should have entrances that illustrate its intended use to the users.

*Policy 2.4.1.3:* The design of parks and plazas need to follow ADA regulations to allow accessibility to everyone.

*Policy 2.4.1.4:* Every park should provide sufficient parking based on acreage of the park, such as 1 parking space per 1/2 acre of park space.
Action 2.4.2: Implement way-finding techniques for locating parks and plazas.

Policy 2.4.2.1: Develop a map illustrating where parks and plazas are located within the city and include it as an appendix to existing tourists’ guidance.

Policy 2.4.2.2: Connect parks and plazas with easily identifiable and convenient walking paths.

Policy 2.4.2.3: Install signage at each public park and plaza displaying the park and plaza network, allowing users to locate and orient themselves.

Refer to the alternative scenarios section for detailed design guidelines

Objective 2.5: Reinvigorate areas with great potential for community interaction.

Action 2.5.1: Develop greening programs in areas of interest as seen fit by the city that would benefit from any renovation/upkeep that is needed.

Policy 2.5.1.1: Establishing a program to renovate the creek in the downtown area to enhance its incorporation with residents and visitors as well as upkeep so that the area stays in a condition that is safe for individuals to interact with.

Objective 2.6: Establish design policies that would benefit the urban image of the city.

Action 2.6.1: Develop and implement a landscape design policy.

Policy 2.6.1.1: Implement policy to include the use of a variety of trees within the city limits, a ratio based on parking spaces to trees, requirements and setbacks on where plant material can be planted on certain land uses, and landscape design standards for planting along different classification of street corridors.

Action 2.6.2: Develop and implement an urban fixtures policy.

Policy 2.6.2.1: Implemented policy could include types of urban fixtures to use within the city limits, have adjustments for certain districts if said district requires a different theme or look, and requirements and setbacks on where and how urban fixtures can be located.

Goal 3: Showcase the family-oriented atmosphere currently offered by the city.
Objective 3.1: Develop an inviting community that would encourage families to stay by improving the living environment

Action 3.1.1: Develop a complete street project that could improve the quality of streets. It includes the coherent design of crosswalks, traffic signs, etc.

Action 3.1.2: A comprehensive street lighting plan should be developed. The style, brightness, and density of streetlights should be cohesive within the downtown area.

Objective 3.2: Develop a strong and safe community atmosphere.

Action 3.2.1: Utilize CPTED (Crime Prevention Through Environmental Design) measures to further increase Navasota’s existing sense of safety in its public spaces.

Policy 3.3.2.1: Provide adequate street lighting and improved lighting design throughout the city, especially within downtown, taking design cues from City Hall.

Policy 3.3.2.2: Public open spaces such as neighborhood parks should be designed so as to be visually open and allow easy surveillance from the street and nearby residents.

Policy 3.3.2.3: In order to make people enjoy nighttime activities more comfortably, more police should be assigned to public spaces.

Action 3.2.2: Establish government open days; invite residents to visit police department and fire department.

Objective 3.3: Make Navasota a destination that is attractive for families by building a more aesthetic community.

Action 3.3.1: Create a comprehensive green corridor or pedestrian-friendly network that could largely connect mini-parks and recreation places within the city.

Policy 3.3.1.1: Build a cohesively designed green corridor along the creek that is accessible to local residents and visitors.
**Policy 3.3.1.1:** Design of the green corridors should follow the landscape ordinance and identified city image.

**Action 3.3.2:** Add signs and instructions throughout the city with coherent material, size, color, and fonts to guide people using the park system.

**Action 3.3.3:** Establish design guidelines that are consistent with the identified city image.

Refer to the alternative scenarios section for detailed design guidelines

**Goal 4:** Create a “brand” that can be developed and implemented throughout the city by using cultural elements to facilitate a theme and/or identity for the city.

*Objective 4.1:* Highlight the arts that the city currently offers and expand upon them.

**Action 4.1.1:** Infill vacant buildings to develop an art center in the downtown area, which includes the exhibition of Navasota’s art history and current art. Some possible art center locations include, but are not limited to:

- Brosig Avenue Structure. This area is close to schools, which brings the benefits of involving and educating the young students as well as creating the artistic atmosphere around the city.
- North Cleveland Street Structure. The development could be incorporated with the nearby creek. A cohesive feeling of recreation and art would create a pleasant environment for not only residents but also tourists.

- The historic buildings along Railroad Street. Reuse of these historic buildings would combine the utilization of historic and artistic resources while reducing the negative influence of the railroad.

  Action 4.1.2: Designate a workshop area within downtown where artisans and scholars can demonstrate, share and communicate their particular skills and knowledge.

  Action 4.1.3: Build an art wall that allows both professionals and young artists (including school kids) to create murals.

Objective 4.2: Promote city-wide events to enhance Navasota's identity.

  Action 4.1.2: Designate a workshop area within downtown where artisans and scholars can demonstrate, share and communicate their particular skills and knowledge.

  Action 4.1.3: Build an art wall that allows both professionals and young artists (including school kids) to create murals.

Figure 4-1: Example of Art Wall.
Action 4.2.1: Utilize the existing farmers market to provide better public interaction and community involvement.

Policy 4.2.1.1: Promote the farmers market by passing out flyers, setting up signs, and highlighting events in city’s website.

Policy 4.2.1.1: Encourage bands and musicians to play at the farmers market.

Policy 4.2.1.1: Attract more merchants and food vendors to the farmers market by commercials and other means.

Action 4.2.2: Expand publicity for the Navasota Blues Festival to surrounding cities through additional TV and Newspaper commercials. The commercials should emphasis the theme of art or history.

Action 4.2.3: Develop an annual Antiques Festival. This festival will provide an opportunity for patrons to exhibit and trade any type of antiques.

Objective 4.3: Capitalize on the potential of the railroad and Cedar Creek as defining city landmarks.

Action 4.3.1: Beautify the railroad right-of-way along Railroad Street by planting low-maintenance plant material.

Action 4.3.2: Incorporate the idea of an art wall and art center; create an art-themed area or corridor along the railroad.

Action 4.3.3: Cedar Creek should be renovated and maintained as a community park.

Refer to the alternative scenarios section for detailed design guidelines

Objective 4.4: Encourage the establishment of locally-owned businesses and/or unique shops within the downtown district.

Action 4.4.1: Encourage downtown merchants to park to the rear of their businesses by providing more parking at the rear of buildings, thus creating additional customer parking along Washington Avenue.

Action 4.4.2: Develop an entertainment/restaurant area within the downtown district that utilizes existing city historical features or vacant historic buildings. The possible locations include, but are not limited to:

- 10th Street
- Farquhar Street
- South La Salle Street

Action 4.4.2: Create a tourist guide of the city, including a special directory of downtown and historical attractions, including local businesses.

Alternative Scenarios

Introduction
The purpose of this section is to provide the City of Navasota with alternative scenarios and themes to create a cohesive city image while catering to the needs and interests of the public. These scenarios were developed using the existing features found within the city, focusing on the historical culture of Navasota, and unifying the image of the downtown district and that of surrounding areas of the city. The intent of the suggested alternative scenarios is not an attempt to change the city; instead, it is a major opportunity to emphasize the innate strengths of the community.

The three scenarios are: The Blues and Arts Capital of Texas, a Historic Revival of Navasota, and an International Marketplace.

- The Blues and Arts Capital takes after the progressive artistic nature the city currently offers as well as being the home of late Blues musician Mance Lipscomb.
- The Revival of Navasota aims to redevelop the city and bring it back to its historic beginnings. The small town charm needs to be kept as well as the City's legacy.
- The International Marketplace focuses on the changing demographics of the city while increasing interests of other nationalities to come to Navasota to trade or shop.

These alternative scenarios encompass the entire city and provide powerful imagery and cohesive development strategies to strengthen the city brand. This has been achieved through the use of different landscape designs, specialized public furniture and accessories, unique building façades and architecture, aesthetic streetscapes, complimentary lighting fixtures, distinctive gateways and signage, and inviting community spaces. Ultimately, Navasota is provided with three visions of the city brand which can guide city development into the future.

Alternative Scenario 1: Arts & Blues Capital of Texas

Introduction

As home to the annual Blues Festival, Mance Lipscomb's birthplace, famous artists such as Leon Collins and Molly Bee, and the Navasota Blues Alley Museum; the city of Navasota already has a substantial foundation to build upon in cementing its reputation as the Blues Capital of Texas.

Alternative Scenario 1 looks to take Navasota's sterling reputation for Blues music and use it as an anchor to additional types of music such as bluegrass and Tejano. In conjunction with developing the musical culture of Navasota, this scenario also promotes Navasota's growth in the artistic field by emphasizing local artists, street art, alley murals, and many other strategies.

Design Guidelines

- Gateway
A gateway provides visitors with their first impression of a city. It should be conspicuous and express the defining brands of the city. An eye-catching sign with Navasota’s name, elements of blues/art, and splendid lights could draw people’s attention. Alternatively, a statue that gives people a sense of music would also help to build the city image of art and blues.

Figure 4 - 2: Example of gateway sign and gateway statue

A giant saxophone or trumpet could easily catch people’s attention, as shown in [Figure: examples of saxophone statues]. In addition, a sign displaying “Navasota: Capital of Blues” should also be placed near the gateway sign.

Another alternative would be to place different styles of musical instruments along the main entrance roads to downtown such as North Lassalle Street. This could lead the way to the city and provide additional aesthetic value to the road.

Figure 4 - 3: Example of saxophone statues and statue placement.

Source: http://www.behance.net/gallery/StartupNation/55527
- Urban Fixtures

The design of urban fixtures should reflect the city’s theme, which will enhance both visitors’ and citizens’ feelings of art. For example, “Blues” benches that greet visitors with “Welcome to the Blues Capital”; or place some new-technique street benches that can play music so that people can sit on the street and enjoy the art environment.
Figure 4 - 4: Examples of urban fixture.


- Street lights

Street light fixtures are elements that help to build the city image, but are often overlooked when developing design standards for a location. Street lights within the downtown district and along Washington Avenue could be used to emphasize Navasota’s sense of art. An example of this would be to place streetlights with banners along streets within downtown.

Figure 4 - 5: Example of street light.
Alleyway Renovation

One of the unique, but underutilized, elements in Navasota is its alleys. Alleys could be a significant and outstanding cultural element within the city. Navasota should use these existing resources to develop another unique characteristic within its downtown.

Incorporating art and the feelings evoked by the music of Navasota (Blues, bluegrass, Tejano, etc.) will make Navasota’s alleys into pedestrian paths that are explored by tourists and locals alike. Murals could be allowed to draw on the walls of each alley. Those murals are not limited to professionals’ artwork; students and art lovers could also have the opportunity to join in creating art.

The design of these alleys is not limited to murals alone. Many other elements introduced into the alleys will give people a unique experience. For example, benches incorporated into the art wall, or old-style streetlights embedded in the walls can add a third dimension to the murals and enhance the attraction of the alleys.

Figure 4 - 6: Example of street light.

Figure 4 - 7: Alley wall Mural.
Figure 4 - 8: Artistic Bench


Figure 4 - 9: Decorative light fixtures.

Source: http://brandihoman.com/2012/09/05/la-boca/
Figure 4 - 10: Street Performance


Alternative Scenario 2: Historic Revival

*Introduction*
Navasota has a rich and deep history that is extremely important to revitalizing the city’s downtown. The purpose of this scenario is to embrace Navasota’s cultural roots, emphasizing its vibrant history between the 1850’s and 1920’s, and celebrate the driving factors in the city’s foundation. This would keep the “small town charm” of Navasota, which many residents want to maintain, while carving out a niche identity within central Texas.

*Design guidelines*

- **Gateways**
  
The style of gateways for this scenario focuses on presenting the city’s history to visitors. They could emphasize the era in which Navasota was founded, highlight transformational events in Navasota’s history, or describe the stories that shaped who Navasota is today.

  **Figure 4 - 11: Examples of historic gateways**

  ![Examples of historic gateways](http://members.virtualtourist.com/m/736c8/b89d2/; http://members.virtualtourist.com/m/736c8/b89d2/;)

- **Architecture**

  Architectural features significantly contribute to the old-town feeling that is trying to be established. Architecture is one of the most obvious urban elements that tell the story of a city. Navasota has over 30 recognized historic buildings that already speak to its rich history. These buildings should be protected and restored when necessary.
Newly-built or renovated buildings within identified districts should be complementary to the historic atmosphere in place.

Figure 4 - 12: Examples of architecture


- Urban Fixtures

Street benches and trash receptacles are among the urban fixtures that can be installed either by the city or by private business owners. The theme for these fixtures should draw either from the era in which Navasota was founded, such as the wooden bench shown below, or draw inspiration from surrounding historical architectural features. Both approaches, when correctly applied, will enhance the experience of a historic Navasota.

Figure 4 - 13: Old style benches
Figure 4 - 14: City images on street benches

- Lighting

Streetlights as urban fixtures should convey a sense of Navasota's history, either through era-specific design or by complementing surrounding historic architecture. Light fixtures simulating old-fashioned gas lamps are one creative idea for memorable street lighting within downtown.

Figure 4 - 15: Example of streetlights

- Signage
Street signage carved into building facades is a creative idea for producing a historically authentic feeling in the signage system of the city. Some other historic elements can also be used here.

Figure 4 - 16: Examples of street signage

Source: http://ephemeralnewyork.wordpress.com/2012/05/24/faded-street-signage-of-an-older-manhattan/;

Alternative Scenario 3: International Marketplace

Introduction

Navasota has experienced a dramatic change in its demographic composition over the last decade. More importantly, with the advantage of being geographically centered between Houston and Texas A&M University, where almost 10% of students are international (Enrollment Profile Fall 2012, 2012), Navasota has the opportunity to capitalize on this nearby interest and attract the different and changing demographics of not only the city, but also the region. An international marketplace would serve as an educational tool to those unfamiliar with the different nationalities that reside in the city while increasing interest in the city among a variety of tourists.

Design guidelines
- Gateways

The international marketplace imbues a feeling of diversity and vitality. Innovative, non-traditional gateways would emphasize the energy and adventure that one could expect when visiting Navasota. Also, placing flags or LED signs along entrance roads will lead visitors to the city and give a sense of arrival.

Figure 4 - 17: Example of gateways

![Gateway Example](http://www.flickr.com/photos/17121683@N00/4407605698/)


Another alternative is to place national flags from different countries spaced along the main entrance. This alternative is simple and would not only draw people's attention, but also give a sense of diversity.

Figure 4 - 18: National Flags Display.
- **Urban Fixtures**

To create an international atmosphere, various design elements could exist at the same time. One tack that could be taken would be to paint national flags or identities from other countries on the street benches.

**Figure 4 - 19: Example of benches**


- **Street Lighting**

The international marketplace is inclusive and vital. Hence, more green and diverse elements could be included.

**Figure 4 - 20: Examples of streetlights**
- Building Facades

When talking about the international marketplace, one thinks of diversity. One way to create a diverse community in terms of city image is to construct buildings that utilize different architecture styles. In order to create an orderly look, it is wise to locate similar-style buildings close to each other. For example, create "Mexico Town", "Little Italy", "Chinatown" etc.

Another way is to encourage colorful and changing facades throughout the city, which could also create a feeling of diversity.

Figure 4 - 21: Example of colorful facades

Source: http://www.ehow.com/list_7272681_hotels-willemstad-netherlands-antilles.html;
http://www.kelownacapnews.com/lifestyles/201679581.html
Gateway Locations

The image below highlights the proposed locations to place gateways as people enter Navasota. Additionally, small scale gateways could be erected near the entrances to specific districts within the city.

Figure 4 - 22: Locations for gateways

Source: Google Earth

Streetscape Suggestions

Suggested streetscapes for Navasota’s main street, Washington Avenue, are displayed below. The concept behind these streetscapes is to create a safe and pedestrian-friendly community. They attempt to enhance the safety of pedestrians and automobiles by widening sidewalks and creating barriers between transportation modes, encourage bicycle transportation within the downtown through the establishment of bike lanes, and assist the city in experiencing sustainable development, which leads to prolonged perceptions of community desirability.

Figure 4 - 23: Example of streetscape
Figure 4-24: Example of streetscape in Residential Areas

Figure 4 - 25: Example streetscape for street intersections.

Source: http://www.iee-stream.com/projects_belgium.html

Suggestions for Plazas, Parks and Green spaces
The following images are examples illustrating different elements to implement when designing plazas, parks, and green spaces. The elements are free-flowing and incorporate naturalistic elements such as open fields, informal design, dirt/mulch trails, indirect seating, and meandering paths.

Figure 4 - 26: Examples of appropriate landscaping styles.

Source: http://www.studiodma.com/projects/ucsb-parking-concept/
Introduction

The purpose of this section of the comprehensive plan for the City of Navasota is to provide for the future transportation needs of the City. This section of the document proposes short and long-term improvements to the road network to solve existing problems and to facilitate planned growth. To promote orderly development of the road network, a Future Transportation Plan has been created.

Figure 5 - 1: Navasota Future Transportation Map.
Roadway Classifications

The transportation system for the City of Navasota has been divided into five separate categories: Freeways, Major Arterials, Minor Arterials, Main Streets, and Local Streets, which together form a hierarchy providing a safe, efficient, and effective urban circulation system for all kinds of users.

Figure 5 - 2: Functional Street Classification System Example
As discussed in the Transportation section of the State of the Community Report, some of the existing road classifications for streets in Navasota are not the best fit for the actual conditions and uses of the road. We have used a combination of both the state’s roadway classifications through the Department of Transportation (TxDOT) as well as research of other kinds of classification systems to create a better model for the future of Navasota.

Freeways

Freeways are at the highest level of the classification system because they offer the highest level of mobility for users with limited points of access. Freeways are grade-separated from other roads with multiple lanes and center lane divisions between oncoming traffic. They carry a large volume of non-local traffic to move people over long distances between urban areas at high speeds. The typical speed range for Freeways is between 55 and 70 miles per hour, although many Freeways in Texas now have a maximum speed limit of 75 miles per hour. Access to and from freeways is limited to interchanges along with entry and exit ramps.

Figure 5-3: Freeway Example.
Source: Google Maps

Major Arterials

Major Arterials are the connections between Freeways and lower levels of street classification. Because they are the only roads that have full access with Freeways, the limited land access they provide help to minimize congestion and distribute traffic to other roads. Major Arterials accommodate for movement between other urban areas with fewer connections to smaller roads (Forbes, 1999). Signalization should be provided at intersections with feeder roads to Freeways, Minor Arterials, and Main Streets, as well as local streets where warranted by traffic flows and safety concerns. Because of the types of land uses along these roads in Navasota, speed limits for Major Arterials should be between 50 and 55 miles per hour, even though state standards could allow them to be higher.
Figure 5.4: Major Arterial Example.

Source: Google Maps

Major Arterials

Major Arterials are the connections between Freeways and lower levels of street classification. Because they are the only roads that have full access with Freeways, the limited land access they provide help to minimize congestion and distribute traffic to other roads. Major Arterials accommodate for movement between other urban areas with fewer connections to smaller roads (Forbes, 1999). Signalization should be provided at intersections with feeder roads to Freeways, Minor Arterials, and Main Streets, as well as local streets where warranted by traffic flows and safety concerns. Because of the types of land uses along these roads in Navasota, speed limits for Major Arterials should be between 50 and 55 miles per hour, even though state standards could allow them to be higher.
Figure 5 - 5: Major Arterial Example.

Source: Google Maps

Minor Arterials

Minor Arterials offer similar levels of mobility to Major Arterials in providing connections between higher and lower level roads. They link cities and large towns with other traffic generators, accommodating traffic traveling longer distances (Forbes, 1999). While still providing for mobility for through traffic, Minor Arterials have more connections to Main Streets and Local Streets than higher classifications. Speed limits for Minor Arterials should allow for a comfortable transition between Major Arterials and lesser roads in the hierarchy, making the recommended designation between 40 and 45 miles per hour.
Main Streets

According to Forbes’ (1999) report on Urban Roadway Classification, a Main Street offers primary uses for walking, cycling, parking, and circulation. The design of the street allows for some through traffic but puts more of an emphasis on safe intersections and pedestrian access than Arterial roads. The elements of this type of street include wide sidewalks, a maximum of two lanes of travel for vehicles, and parking lanes along the side of the roadway. This is not an official classification in TxDOT's hierarchy of roads, but such a designation is needed in a city with the size and circulation levels of Navasota, particularly in the downtown corridor. The Main Street classification offers an additional set of guidelines on top of TxDOT's classification in order to provide for more active pedestrian centers. The recommended speed limit for this classification of road is 35 to 40 miles per hour.
Local Streets

Local Streets provide direct access from adjacent land to Main and Arterial Streets. They provide the most access to residential and commercial uses for short distances at the lowest speeds. Local Streets, like Main Streets, should not only serve cars but also make considerations for pedestrians and bicycles. Traffic calming measures such as provisions for parked cars, narrower lanes, street trees, and sidewalks should be employed as traffic calming measures in residential developments. To ensure safe pedestrian access, through traffic should be discouraged on Local Streets, while heavy truck traffic should be prohibited on them. Speed limits for this classification need to be between 30 and 35 miles per hour for roads that act more as collectors, while residential streets should have a maximum speed limit of 25 or 30 miles per hour.
Figure 5-8: Local Streets Example.

Source: Google Maps

**Functional Street Classification System for Navasota**

The street system in Navasota was analyzed and classified as following:

Figure 5-9: Functional Classification

<table>
<thead>
<tr>
<th>Traditional Classification</th>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway</td>
<td>State Highway 6</td>
<td>State Highway 6</td>
</tr>
</tbody>
</table>
| Major Arterial             | Washington Avenue (Highway 105 West)
                           | Highway 105 East | FM 3090
                           |                     | Blackshear Street |
                           |                     | Spur 515           |
                           |                     | FM 379            |
| Minor Arterial | Blackshear Street  
|               | FM 379            
|               | FM 3090           
|               | LaSalle Street (Business State Highway 6 )  
|               | Piedmont Road     
|               | Spur 515          |
|               | LaSalle Street (Business State Highway 6 )  
|               | Judson Ave        
|               | Gibbs St.         |
| Main Street   | E Washington Avenue  
|               | (Judson Ave – 5th Street) |
| Local Street  | Church Street      
|               | Foster Street     
|               | Leon Street       
|               | McAlpine Street   
|               | Montgomery Road   
|               | State Highway 6 Feeder Road  
|               | Teague Street     
|               | Victoria Avenue   |
|               | Church Street      
|               | Foster Street     
|               | Leon Street       
|               | McAlpine Street   
|               | Montgomery Road   
|               | State Highway 6 Feeder Road  
|               | Teague Street     
|               | Victoria Avenue   |

**Recommended Roadway Design Standards**

Roadway design standards are the principles and guidelines used to provide a basis for roadway construction. They are necessary to ensure that the network of streets will safely, efficiently and effectively serve the traveling public. Additionally, they allow for the orderly development of adjacent lands as well as the transportation network.

**Level of Service "C"**
The Highway Capacity Manual published by the Transportation Research Board (http://www.trb.org) categorizes roadway systems by their level of service. The level of service is based on maneuverability, delays, and speeds. As the volume and the number of signalized intersections increases, the level of service decreases. The City of Navasota should at minimum try to attain a level of service “C”, which would allow for an acceptable amount of maneuverability and safe roadways when they are not at full capacity. While a higher level of service would be better for circulation, a “C” level is standard for most urban and rural highways.

Alignment Characteristics

The safety and efficiency of a roadway system is highly affected by alignment characteristics of the roads and the manner in which they connect to each other. A sharp bend in the road could cause unsafe turns leading to crashes, while two or more streets that meet at a poorly aligned intersection will create unsafe sightlines and potential circulation problems. Some of the characteristics to be concerned about include curves or bends, road geometry, driveway access points, and non-grid patterned city blocks. Some areas that may require new alignment include the intersections of Montgomery Street & SPUR 515 and Washington Avenue & LaSalle Street.

Access Management

Access management provides for a means to manage, maintain, and transform access for land uses while simultaneously preserving traffic, safety, capacity, and speed on the road network now and in the years ahead. Access management also evaluates the suitability of a given site development from an access standpoint, while identifying the need to preserve through traffic. It addresses congestion, capacity loss, and accidents on roadways. Access management also helps to achieve a balance between traffic movement and access to land uses by carefully controlling the location, type, and design of access points and street intersections. Figure 5 - 10 below shows the number of possible vehicle-vehicle and vehicle-pedestrian conflict points at a four-way intersection. This diagram is to illustrate the importance of well-planned and safely designed access management solutions. The basic overall principles for access management are to minimize the access point conflicts and provide for a safer traveling environment.
Some alternative solutions for the City of Navasota to improve its access management would be to restrict the access regarding alleyways, and to connect the frontage roads along Highway 6. In addition, it is recommended that the City designate all alleyways between Washington Avenue and Cedar Creek be limited to one-way traffic. To facilitate future development and existing commercial uses, the incomplete frontage road of Highway 6 from Washington Avenue to FM 3090 should be constructed. This segment is the only access road within the city limits not yet built. Communication between the City and TxDOT will be needed to address this problem to relieve the safety concerns of existing businesses using direct access to the Freeway.

**Proposed Roadways and Extensions**

Several new roadways and street extensions have been recommended for the city. The recommendations are displayed in Future Transportation Map, refer to Figure 5-1. When development of these roadways cannot be accomplished through platting, the City should allocate resource for their timely construction. However, whenever development of land identified on the Future Transportation Map is proposed, the city should acquire as much land and/or fees as it may legally procure through the platting process.

**Street Extensions**
Blackshear Street: The proposed major arterial would act as a critical connection between west and east sides of the whole city. Currently, Blackshear Street starts from the west end of Piedmont Avenue and ends prior to the railroad. The proposed roadway extends the road across the railroad until the city boundary. It would promote new development in the west end of the city.

Dove Crossing Lane: It currently connects Dove Trail and Highway 6. The proposed road aims to provide a west/east connection between east loop and Highway 6. The road will extend eastbound to the newly proposed east loop.

Manley Street: This minor arterial connects S Lasalle St. and Highway 6 that would provide the city with an east/west connection south of Washington Avenue. Manley Street currently runs from W Farquhar St to Horlock Ave. The proposal expands the east end until intersects it with Highway 6. This extension aims to benefit the surrounding residential area and utilize the recreational area.

North and South Judson Avenue Extension: The proposed roadway would extend Judson Avenue in northern and southern directions. The north and south extensions would act as minor arterial that parallel Highway 6 for local traffic. The northern extension would continue northward past Maple Drive and intersect with the proposed Northern Collector at its midpoint. The southern extension would extend south past Grimes Street and connect with SPUR 515 at the new Montgomery Street intersection.

Stacey Street and Waco Street: This minor arterial connects Piedmont Avenue and Highway 6 that would provide the city with an east/west connection north of Washington Avenue. The existing roadway travels west from Highway 6 frontage road ending at the intersection with McNair Ave. The proposal calls for extending Stacey Street across Cedar Creek to connect with Waco St. Existing educational facilities and residential uses will benefit from this extension.

New Roadways

East Loop: The proposed east loop is located outside of city limits, but within the city Extraterritorial Jurisdiction (ETJ). It provides a north/south connection between FM 3090 and Highway 105E. The east loop will begin at approximately Highway 105E and County Road 446. Extend to the north until intersects with Washington Avenue, and continues expand northbound to FM 2090. This loop will benefit the surrounding
residential, encourage new development, and give traffic another alternative arterial to travel north/south.

South Loop: A southern loop is currently being proposed by the Texas Department of Transportation (TxDOT). The loop will begin at approximately Universal Street and South LaSalle Street (South Business 6). The southern loop will stretch westward outside the city limits, but within the ETJ, and will meet the proposed Blackshear Street at the city limit. This expansion would require the construction of two overpasses for grade separation at the intersection of the southern loop and FM 379, and the intersection of southern loop and Blackshear Street.

Bicycle and Pedestrian Modes

Bicycle

Navasota currently does not have any designated bike lanes or bike paths. However, the grid street network, the suitable city size, as well as the flat topography and the fairly mild weather gives biking the opportunity to become an alternative to driving. Encouraging biking will benefit the community in terms of health, economy, environment, etc. In addition, at least four bicycle cross-country routes go through Navasota but there is no sufficient bike facility to support those events. So, bicycle facilities should be provided to accommodate and attract more bicyclists.

Future bicycle and trail planning in Navasota should be oriented towards making viable connections into downtown, school area, and park area. A comprehensive bike and pedestrian plan should be developed within 1-2 years. It should indicate where the routes will be, how they will be connected, and what purpose will they serve. Depends on their locations and purposes, two types of bike lanes are recommended to use in Navasota.

- Off-street bike lanes are strictly dedicated to cyclists. They are separated from automobiles by physical barrier. They are safer, can support higher riding speed and easier to accommodate cyclists that have different experience levels. Also, they are usually accommodated by landscape design, which enhance the city’s street view. However, this type of bike lane requires additional construction and right-of-way. They might also required to reduce the automobiles’ speed. Streets that are wide enough and have heavy traffic could use this type of bike lanes, such as Washington Ave.

- On-street bike lanes share roads with automobiles and they are separated by paint lanes. There are potential conflicts between automobiles and bicycles in
terms of right-of-way and right turns. However, this is the bike lane type that is most commonly used because they are easier to build. American Association of State highway and Transportation Officials (AASHTO) has a Guide for the Development of Bicycle Facilities (AASHTO, 1999), which describes the details of bike lane paint markings.

Figure 5 - 11: Off-street and On-street bike lanes


Adequate bike parking should be provided accordingly. Bike parking can accommodate the bicyclists’ need, encourage more bicycling, and also, it provides the community with more orderly appearance. Bike parking should follow the following rules. (APBP, 2002)
1. *Convenient and accessible.* Bike parking should be easily accessed and used by bicyclists. At the same time, it should not cause conflicts with pedestrians and cars. For example, it should not be placed in the middle of sidewalks or at a building's entrance.

2. *Easy to find.* Bike parking should be noticeable that bicyclists could easily find them and park their bikes.

3. *Secure.* It will be helpful if bike parking is located in the vision of passers-by or surrounding activities.

Some typical bike racks are shown in Figure 5 - 12. However, only those bike racks that have support on bike frame, can prevent bike wheels from tipping over, and allow both back-in and front-in parking with U-lock are recommended. For example, “A” and inverted “U”.


Pedestrian

Attractiveness of walking as an alternative transportation mode is largely based on the sense of safety, convenience, and comfort in the pedestrian environment. Most areas of Navasota do not have sufficient sidewalk connections between neighborhoods and destinations. This will force pedestrians to walk in the streets or shoulders, making walking somewhat dangerous.

Most people will not choose to walk if they perceive the environment to be hazardous and uncomfortable. There are several approaches that Navasota can use to promote the walking environment.

- For the streets that already have sidewalks, improve the quality of sidewalks.
- Connectivity of sidewalk network should be the most significant consideration.
- Special attention should be paid to the routes between homes and schools.
- Well-designed sidewalks will enhance the safety and encourage people to walk. For example, add street furniture and adopt some landscape design.
- In addition, many of the traffic calming techniques that discussed in this chapter can help to promote a pedestrian-friendly environment.

- Also, adequate lighting is important for night activities. Street lighting designed for automobiles is usually not adequate for pedestrians. The street lighting around city hall areas already has a fairly good lighting system, lighting design over the whole city, especially within downtown, should be cohesive with this area.

- Detailed design guidelines please refer to Urban Image Chapter.

Figure 5 - 13: Examples of well-designed sidewalks
Figure 5 - 14: Katy Trail

Source: [http://www.richpatterson.net/images/katytrailjog1.jpg](http://www.richpatterson.net/images/katytrailjog1.jpg)

**Additional Transportation**

**Freight Transportation**

Navasota currently has issues with truck traffic going into and through the city using the arterial roads. While the industrial businesses who manufacture pipe and other goods are located just south of the city limits along a marked truck route, trucks continue to be observed traveling along Washington Ave. right in the middle of downtown Navasota. These specific trucks could possibly be traveling towards Conroe to the East and Brenham to the West or further, thereby having no need to stop in Navasota itself. Regardless of the source, this causes traffic problems with smaller vehicles on the road as well as pedestrians and cyclists needing to cross the street.

The current truck route in Navasota is on State Highway 515 in the southern part of the city. This road is in fair condition with one lane in each direction and a turn lane in
the middle. The arterial connects drivers to small, poorly maintained local roads in the industrial area, allowing those businesses access to Highway 6 and a route to Houston. However, to get to the western part of Navasota from this area, drivers must take La Salle St. (Business 6) or FM 1227 northbound to Washington Ave. and then turn West. While 1227 avoids the downtown area, La Salle brings truck traffic to downtown rather than around it, which means that changes in the road hierarchy are needed.

The proposed future road network for Navasota puts in place, by either new construction or improvements of existing roads, a series of major arterial roads that will allow trucks to bypass downtown Navasota, helping increase circulation and accessibility for users of all modes. This will include an upgrade of FM 1227 to Major Arterial, construction of an extension of the industrial road west of Hwy 515 connecting to Washington Ave. west of Catherine St., an extension and upgrade of Blackshear St. to the same connection point at Washington, and a new minor arterial east of Navasota connecting FM 3090, Hwy 90, and Hwy 105 before the reach Highway 6. These arterial designations will provide for a safer and more efficient network.

There is a chance that Highway 249 from the North Houston/Tomball area will be extended westward in the coming years towards Navasota. Currently the project is funded, and construction could begin on the portion from Magnolia to Navasota as soon as 2 years from now. There is no defined route at this point, but a preferred route is posted on TxDOT's website. If the route did reach Navasota then it could mean more truck and general traffic overall though the region.

In addition to these arterial roads, communication of the new truck route will be crucial in determining if it is actually used. This needs to be done both through proper signage and contact with area industrial businesses so that drivers using trucks will utilize them. While working with local truck users will help spread information formally, proper and clearly visible signage will direct through traffic to the proper arterial roads and keep them away from the Main Street segment of Washington Ave.

Transit Services

The City of Navasota currently is not at a level that requires a fixed route public transportation service. The current service provided by "The District" is sufficient for para-transit service. While current needs are being met, staff reevaluation and public involvement should be used to gauge demand and desire for a future increased level of service. The City should maintain current relations with The District to facilitate future services.

Rail Transportation
Recently, there has been interest in providing high-speed rail service as well as other services from the Houston area. It is suggested that the City remain involved and current with these proposals.

Freight rail runs through the city’s downtown from north to south and depending on the time of day, it can cause minor congestion. However, intersections could be improved to increase safety features for both pedestrians and automobiles.

**Air Transportation**

The City is currently in the process of creating an Airport Development Plan, in addition to the strategies and specifications included in it, the present documents suggest improving its accessibility to ensure proper use.

*Figure 5 - 15: Airport Access Road*

Source: Google Maps and [www.shutterstock.com](http://www.shutterstock.com)

Access to the airport is limited by a single access point, lack of signage or reference to it within the city road network. This access is Fairway Drive, a two lane non-striped 22 ft wide street, which for now cover the demand. However, further development of the airport facilities will require a proper access point that can accommodate increase traffic. Widening the existing lanes from 11 ft to a minimum of 12 ft will ensure better access not only to the airport facilities but also to the City’s Golf Course and RV park that also use the road as an access point.
Additional paved shoulders should be added eventually to complete the road and make it into a minor arterial. Considering the airport to be big scale public infrastructure and a possible major source of city revenue, this classification is given anticipating future levels of traffic. As discussed in the Urban Design section of this plan, the city should implement a wayfinding system, that includes directions to the airport in from all access points to the City. The construction of an gateway in the intersection of Fairway Drive and Washington Avenue (US 105) would show drivers when they have arrived at the airport.

Figure 5 - 16: Examples of Airport Signage.

Source: [www.shutterstock.com](http://www.shutterstock.com)

The recent expansion of the runway opens the possibility for increase use of the airport facilities. In such case, two main strategies should be implemented. The securement of safety areas and protection zones both on the ground and in the air plus the addition of facilities and amenities to service new users. Access to the airport is limited by a single access point, lack of signage or reference to it within the city road network. This access is Fairway Drive, a two lane non-striped 22 ft wide street, which for now cover the demand. However, further development of the airport facilities will require a proper access point that can accommodate increase traffic. Widening the existing lanes from 11 ft to a minimum of 12 ft will ensure better access not only to the airport facilities but also to the City's Golf Course and RV park that also use the road as an access point.

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Development on the north side of Washington Avenue shows pressure to extend the city towards the airport. Zoning around the airport should be revised to include compatible land uses and allow development while ensuring future safety needs around the runway.

Finally in an effort to continue increasing the client base for Navasota’s airport, the City could actively pursue the installation of a Fixed Based Operator. In order to support the effort to improve airport service other infrastructure currently missing like proper sewage and weather monitoring should also be included. In the long term, the construction of an appropriately size terminal would offer users amenities and others services which would help drive private aviation away from nearby airports and into Navasota.

**Traffic Calming**

There is a concern in Navasota about speeding and heavy traffic. In order to make the city more pedestrian and bicycle friendly, traffic calming measures are introduced in an attempt to enhance bicyclist and pedestrian safety and preserve the character and livability of the city. When a traffic calming measure is implemented successfully, it can be effective and self-enforcing.

**Texture Pavement**

Texture and colored pavement usually comes with an uneven surface which involves the use of stamped pavement or alternate paving materials. It can be used to emphasize either an entire intersection or a pedestrian crossing with the purpose of reducing vehicle speeds. If being placed at an intersection, it can calm two streets at once. Meanwhile, with good design, it can also have positive aesthetic value.

Figure 5 - 17: Example of Paving Texture for Traffic Calming
Neckdowns can reduce the roadway width with the curb extensions at intersections. In this way, they can shorten crossing distances for pedestrians and make pedestrians more visible in a crosswalk. Meanwhile, they can effectively reduce the traffic speed, especially for right turning vehicles. Though they will also take some on-street parking space, protected on-street parking bays will be created instead.

Figure 5 - 18: Example of Good Neckdowns.
Speed Humps

Speed humps are rounded raised areas placed across the roadway and generally applied to low-volume residential streets. They are generally 10 to 14 feet long (in the direction of travel). Common speed hump shapes are parabolic, circular, and sinusoidal. They are relatively inexpensive and effective in slowing travel speeds for all vehicles. But they are not proper for major roadways or primary emergency vehicle routes.

Figure 5 - 19: Example of Speed Humps.

Source: www.skyscrapercity.com

Speed Tables

Speed tables are flat-topped speed humps. They usually appear at raised areas of roadway higher than the surrounding roadway approaches. The long flat fields give speed tables higher design speeds. They are good for locations where low speeds are desired but a somewhat smooth ride is needed for large vehicles. Meanwhile, they are relatively low-cost and easy to test.

Figure 5 - 20: Example of Speed Tables.
Narrowed Lanes

Lanes can also be physically narrowed by providing medians for access control, bike lanes, on-street parking, transit stops, and landscaping. It is also inexpensive to do simple roadway restriping to achieve roadway narrowing. Narrowed lanes can provide a more subtle calming effect than other physical calming methods. Drivers naturally go more slowly when navigating a narrow travel lane. It is noteworthy that narrowed lanes should incorporate provisions for bicyclists, or they may increase motor vehicle/bicycle conflicts.

Figure 5 - 21: Narrowed Lanes Example.
Landscaping

Landscaping here is used to create vertical obstructions to reduce the perceived openness on streets which can help to reduce speeds. Landscaping of shoulders and medians can result in the perception of a reduced travel lane width and lower travel speed. Meanwhile, it can be a means of improving aesthetics and introducing green streets concept.
Figure 5 - 22: Welcoming Urban Landscape Example.

Source: conservationofbiodiversity.wordpress.com

Goals and Objectives

Goal 1: Maintain and upgrade the roadway infrastructure of the City of Navasota.

Objective 1: The condition of the substandard roadways should be improved to have a minimum level of service "C".

Action 1: Identify the needs for curb and gutter installation on existing streets.

Objective 2: Stay informed about the current state of the roadway infrastructure.

Action 1: Conduct a new windshield transportation survey and update existing GIS data.

Action 2: Revise and update the Thoroughfare Plan in association with the revision of the Comprehensive Plan for Navasota.

Goal 2: Provide a safe route for heavy and hazardous vehicles passing through Navasota.
Objective 1: Navasota should encourage the Texas Department of Transportation (TxDOT) to complete the proposed "South Loop" and "West Loop" as shown in the thoroughfare plan.

Action 1: Support TxDOT’s proposal of the southern loop and communicate the recommended alignment as proposed in the City’s Thoroughfare Plan.

Objective 2: The City should redesign the existing truck route from the residential areas of the City to the "South loop" and "West Loop" once they have been constructed.

Goal 3: Improve the traffic and parking conditions in and around Downtown Navasota.

Objective 1: Navasota should coordinate the traffic signals on Washington Avenue.

Action 1: Coordinate with TxDOT to time the traffic signals along Washington Avenue.

Objective 2: The City should coordinate with TxDOT to improve the conditions of state owned and maintained streets and intersections.

Action 1: Coordinate with TxDOT in providing curbs and gutters on the remaining parts of Washington Avenue exiting Downtown towards the west.

Objective 3: The intersection of Washington Avenue and LaSalle Street should be redesigned to reduce congestion and provide for a safer intersection.

Action 1: Begin work with TxDOT to initiate construction of the realignment of the Washington Avenue and LaSalle Street intersection.

Goal 4: Incorporate the use of access management into future developments.

Objective 1: Navasota should connect the feeder road along the east side of Highway 6 between Washington Avenue and FM 3090.

Action 1: Begin working with TxDOT to connect the frontage road on the eastside of Highway 6 from Highway 90 to FM 3090.

Objective 2: The City should incorporate means of access management to new developments and redevelopments to address future transportation problems.

Action 1: Begin construction on the Montgomery Street realignment and extension as development indicates.
Action 2: Begin to purchase right of way for the northern and southern Judson Avenue extensions.

Action 3: Begin to purchase the right of way for the South Loop extension as development indicates.

Action 4: Begin to purchase the right of way for the East Loop as development indicates.

Goal 5: Provide a transportation system that embraces the use of bicycles and walking.

Objective 1: Navasota should encourage pedestrian activity in Downtown by adding sidewalks for new developments.

Action 1: Conduct public hearings with TxDOT on the proposed redesign of the Washington Avenue and LaSalle Street intersection.

Action 2: Identify the various types of trails – multi-purpose trail, serving recreation needs (for instance along a natural feature), or connector trail, serving transportation purposes. Paving standards and other design features should be adopted for construction of both types.

Action 3: The alleyways between Washington Avenue and the Cedar Creek parking lot should be designated as pedestrian alleys.

Objective 2: The City should connect newly developed residential areas to nearby schools, parks, and commercial areas through sidewalks and bike lanes.

Action 1: Existing hike and bike trails should be marked with adequate signs.

Action 2: All new residential developments should be required to have sidewalks.

Action 3: Using charrette and other workshop techniques to map out possible linkages to put in trails, bike paths, pedestrian crossings, and sidewalk improvements.

Goal 6: Provide for a safe and adequate airport.

Objective 1: The City should ensure that Airport facilities meet all applicable standards.

Action 1: Navasota should protect Federal Aviation Administration (FAA) -mandated safety areas, runway protection zones, and other clear areas to the maximum extent possible.
Action 2: Land uses should be restricted on lands adjacent to airport facilities through height restrictions, obstruction limits, and other zoning techniques.

Objective 2: A meteorological facility should be constructed.
Action 1: Begin installation of airport automated weather service.

Objective 3: The Airport’s Development Plan should be adopted.
Action 3.1: Navasota should construct an adequately sized airport terminal.
Action 3.2: The adopted Airport Development Plan should be re-evaluated after 5 years.
Action 3: The City should ensure the Airport is reflected in local development and transportation plans.

Objective 4: Implement a management system and appropriate infrastructure to stimulate business activity.
Action 1: Navasota should finalize the details for the inclusion of a Fixed Based Operator (FBO) in their Airport.
Action 2: The City should install sewer infrastructure to the airport in conjunction with future Industrial Park development.

Action Agenda

Year 1

- Coordinate with TxDOT to time the traffic signals along Washington Avenue.
- Support TxDOT's proposal of the southern loop and communicate the recommended alignment as proposed in the City's Thoroughfare Plan.
- Identify the needs for curb and gutter installation on existing streets.
- All new residential developments should be required to have sidewalks.
- Navasota should protect Federal Aviation Administration (FAA) -mandated safety areas, runway protection zones, and other clear areas to the maximum extent possible.
- Land uses should be restricted on lands adjacent to airport facilities through height restrictions, obstruction limits, and other zoning techniques.

Year 3
- Improve the condition of substandard roadways to function at the minimum level of service "C".

- Coordinate with TxDOT in providing curbs and gutters on the remaining parts of Washington Avenue exiting Downtown towards the west.

- Begin construction on the Montgomery Street realignment and extension as development indicates.

- Begin to purchase right of way for the northern and southern Judson Avenue extensions.

- Begin working with TxDOT to connect the frontage road on the eastside of Highway 6 from Highway 90 to FM 3090.

- Identify the various types of trails – multi-purpose trail, serving recreation needs (for instance along a natural feature), or connector trail, serving transportation purposes. Paving standards and other design features should be adopted for construction of both types.

- Navasota should finalize the details for the inclusion of a Fixed Based Operator (FBO) in their Airport.

- Existing hike and bike trails should be marked with adequate signs and advertised among citizens.

**Year 5**

- Conduct public hearings with TxDOT on the proposed redesign of the Washington Avenue and LaSalle Street intersection.

- Conduct a new windshield transportation survey and update existing GIS data.

- Navasota should construct an adequately sized airport terminal.

- The City should install sewer infrastructure to the airport in conjunction with future Industrial Park development.

- The adopted Airport Development Plan should be re-evaluated after 5 years.

**Year 7**

- Begin work with TxDOT to initiate construction of the realignment of the Washington Avenue and LaSalle Street intersection.

- Begin to purchase the right of way for the South Loop as development indicates.

- Begin installation of airport automated weather service.
Year 10

- Begin to purchase the right of way for the East Loop as development indicates.

- Revise and update the Thoroughfare Plan in association with the revision of the Comprehensive Plan for Navasota.
Chapter 7 Implementation
Introduction

The following section of the Navasota Comprehensive Plan has been developed to summarize the recommended implementation tools that will ensure the future growth of Navasota enhances the quality of life of its residents. Strategic growth, creative and effective economic tools and an attractive urban image are ideal to transforming Navasota into a community that is well known and regarded throughout the region and the State of Texas.

The ideas, strategies, tools and recommendations presented earlier were derived from and are an integral part of the goals, objectives and action items. The objectives and action items for each section of the plan were developed from a list of goals developed by the city and the refined by the Target Texas Program team. Each goal has specific objectives that should be met to ultimately reach the goal. Actions items represent the steps that can be taken to meet the objectives. Action items and objectives will specify a responsible party, timeline, funding source and example when appropriate.

Some of the action items require funding while others are policy driven and may require changes to regulatory documents such as the zoning ordinance and subdivision ordinance or the creation of ordinances such as a historic preservation ordinance. Other action items may not require funding or policy but rather the creation of partnerships, adoption of certain behaviors and initiation of activities by different departments in the city. These types of action items do not burden the city’s budget but are an equally important part in the continuous improvement of the City of Navasota. When actions do entail a monetary cost, funding sources and strategies for these action items are suggested in the form of grants, loans, financial tools and the development of a Capital Improvement Plan among other sources.

The implementation table below should be used as a guide to develop a comprehensive approach for the future growth for the city. The table is organized by the following sections:

- Strategic Growth: Flood Management, Infrastructure, Annexation and Future Land Use
- Economic and Community Development: Economic Development, Housing, Community Development, Parks and Recreation
- Downtown Revitalization & Historic Preservation
Each objective is followed by their respective actions items. The table also indicates who the most likely responsible party will be for each action item. This may require alteration if the city deems it necessary. For best results, the timing column represents approximately when the action item should be initiated and implemented. The following column answers whether the action item will be an ongoing action or if it will only need to be performed once. It will be important for the city to know which actions are regulatory in nature. This information is broadly displayed in the implementation table but the reader should refer to the respective sections in which the action is found to learn more. Finally, the table displays the potential source of funding that can be used to carry out the actions and achieve the associated objectives. As mentioned before, not all actions will require a funding source and therefore this column may be blank for some of the actions.
<table>
<thead>
<tr>
<th>Objective #</th>
<th>Actions</th>
<th>Responsible Party</th>
<th>Timing</th>
<th>Other Regulatory Strategy</th>
<th>Funding Source</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Strategic Growth</strong></td>
<td></td>
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<tr>
<td>Flood Management 1.1</td>
<td>1.1.1: The Savannah Public Works department should construct or update an accurate digital and hard copy map of the existing stormwater sewer system.</td>
<td>Public Works Department</td>
<td>X</td>
<td>Yes</td>
<td>Texas Water Development Board’s Flood Protection Grant</td>
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<td></td>
<td>1.1.2: A drainage study of Sandy Creek Tributary should be conducted.</td>
<td>Contracted by the Public Works Dept.</td>
<td>X</td>
<td>No</td>
<td>Texas Water Development Board’s Flood Protection Grant</td>
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<td></td>
<td>1.1.3: A drainage study of Cedar Creek should be conducted.</td>
<td>Contracted by the Public Works Dept.</td>
<td>X</td>
<td>No</td>
<td>Texas Water Development Board’s Flood Protection Grant</td>
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<td>1.1.4: A Regional Flood Plan with the focus on soft management solutions should be developed.</td>
<td>Contracted by the Public Works Dept.</td>
<td>X</td>
<td>No</td>
<td>Texas Water Development Board’s Flood Protection Grant</td>
</tr>
<tr>
<td>Flood Management 1.2</td>
<td>1.2.1: Within one year of the adoption, new roadways and structures should incorporate curb and gutter stormwater management practices.</td>
<td>Planning Office</td>
<td>X</td>
<td>Yes</td>
<td>Flood Mitigation Assistance Grant, Texas Water Development Fund</td>
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<td>X</td>
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<td>1.2.2: The city should impose impact fees on new developments that increase the demand on existing stormwater systems.</td>
<td>Planning Office</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
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<td>1.2.3: Within three years of the adoption of the Comprehensive Plan, the city should create a policy that all proposed developments must demonstrate, through construction documents, that all stormwater will be captured and retained or detained onsite to reduce the impact on existing stormwater systems.</td>
<td>Planning Office</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
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<td>1.2.4: Within three years of the Comprehensive Plan’s adoption, the city should amend the zoning map and plan floodplain areas for the least intensive land use.</td>
<td>Planning Office, Planning and Zoning Commission</td>
<td>X</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Flood Management 1.3</td>
<td>1.3.1: Track all structures and properties that are impacted by flood hazards and prioritize properties with the most risk.</td>
<td>Planning Office, Office of Emergency Management</td>
<td>X</td>
<td>No</td>
<td>Texas Water Development Board’s Flood Protection Planning Grant</td>
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<td>1.3.2: Develop a program to provide low interest loans to properties within the floodplain to retrofit homes.</td>
<td>City</td>
<td>X</td>
<td>Yes</td>
<td>Flood Mitigation Assistance Grant</td>
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<td>1.3.3: Based on 1.3.1 and within three years of the plan’s adoption, develop a plan to purchase structures within the floodplain with fee simple purchase land acquisition.</td>
<td>City</td>
<td>X</td>
<td>Yes</td>
<td>Texas Water Development Board’s Flood Protection Planning Grant, Flood Mitigation Assistance Grants</td>
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<td>1.3.4: Within three years of the plan’s adoption, begin collecting data and gathering needed documentation in order to apply for the National Flood Insurance Program’s Community Rating System (CRS).</td>
<td>Planning Office, Public Works Dept.</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Other Regulatory Strategy</td>
<td>CIP</td>
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<tr>
<td>1.3.2.1.1</td>
<td>Build dry structures at edges of floodplains and in flood hazard areas.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.2</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.3</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.4</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.5</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.6</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.7</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>1.3.2.1.8</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.9</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>1.3.2.1.10</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
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<tr>
<td>1.3.2.1.11</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.12</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.13</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.14</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.15</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.16</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.17</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.18</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.19</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.20</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.21</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.22</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.23</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.24</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.25</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.26</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.27</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.28</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.29</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.30</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.31</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.32</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.33</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.34</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.35</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.36</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.37</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.38</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.39</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.40</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.41</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.42</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.43</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.44</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.45</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.46</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.47</td>
<td>Expand floodplain development to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.48</td>
<td>Expand occupancy density within the floodplain to low density and low impact.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.49</td>
<td>Reduce impervious area from development along the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.3.2.1.50</td>
<td>Increase stormwater detention and retention in the floodplain.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Ongoing?</td>
<td>Zoning Ordinance</td>
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</tr>
<tr>
<td>1.5.8</td>
<td>Remove the abandoned railroad culverts to reduce or eliminate downtown flooding</td>
<td>Public Works Department</td>
<td>Short Term (&lt;5) X</td>
<td>No</td>
<td>X</td>
</tr>
<tr>
<td>1.5.9</td>
<td>Provide an awareness program and assistance to local building owners within the historic downtown.</td>
<td>Office of Emergency Management</td>
<td>X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Flood Management 2.1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.1.1</td>
<td>The city should bi-annually inspect key stormwater inlets and outlets and clear debris if it is obstructs or blocks water movement.</td>
<td>Public Works Department</td>
<td>X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2.1.2</td>
<td>The Building Inspector and Fire Chief should determine the structural stability of buildings throughout the CBD within two years of the Comprehensive Plan’s adoption to designate “safe places” which can serve as shelter from severe storms, tornados, and other hazards.</td>
<td>Building Inspector and Fire Chief</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flood Management 2.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.1</td>
<td>The Office of Emergency Management should train and provide technical assistance to staff personnel on the emergency management plan procedures to make staff personnel aware of their roles and responsibilities once every two years.</td>
<td>Office of Emergency Management</td>
<td>X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2.2.2</td>
<td>Two-way radios should be purchased and distributed to key city personnel within two years of the Comprehensive Plan’s adoption.</td>
<td>Office of Emergency Management</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.3</td>
<td>The use of National Oceanic and Atmospheric Administration (NOAA) “All Hazards” radios should be purchased and installed for each warning within seven years of the Comprehensive Plan’s adoption.</td>
<td>Office of Emergency Management</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flood Management 2.3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.3.1</td>
<td>The Office of Emergency Management should develop an educational and outreach program with the City and the School District within five years of the Comprehensive Plan’s adoption.</td>
<td>Office of Emergency Management</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure 1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.1</td>
<td>Conduct a survey of all water lines and identify water lines in most urgent need of replacement by the end of 2013. Annually conduct this survey.</td>
<td>Public Works Department</td>
<td>X X X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>1.1.2</td>
<td>By 2014, develop a Capital Improvement Program (CIP) to set annual funding for the maintenance and replacement of faulty and aging water mains and distribution lines.</td>
<td>Public Works Department</td>
<td>X X X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Infrastructure 1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1</td>
<td>Provide incentives in the form of low-interest loans to encourage new developments to be built in areas with existing infrastructure.</td>
<td>Planning Office, Development Committee</td>
<td>X X Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Ongoing?</td>
<td>Zoning Ordinance</td>
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<tr>
<td>1.2.2.</td>
<td>Use financial tools and marketing tools mentioned in the City of Navasota’s Economic Development Policy Report to attract new businesses to the areas where water lines are underutilized.</td>
<td>Planning Office, Development Committee</td>
<td>X X X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Infrastructure 1.3</td>
<td>Include infrastructure projects in the annual CIP budget that will supply areas in the city with water service that are currently not served.</td>
<td>Public Works Department, Planning Office</td>
<td>X X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>1.3.2.</td>
<td>Extend water mains to areas identified as urban expansion priority areas within the next five years.</td>
<td>Public Works Department, Planning Office</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Infrastructure 2.1</td>
<td>The Public Works Department should determine the number of additional wells necessary for future growth according to population and growth projections and the amendment and future land use recommendations by the end of 2013.</td>
<td>Public Works Department, Development Committee, City Manager</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2.1.2.</td>
<td>The Public Works Department should identify the appropriate locations for additional wells within three years of Comprehensive Plan adoption.</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2.1.3.</td>
<td>The Public Works Department will obtain any necessary easements to secure the location of future water wells; easement acquisition funding will come from the CIP budget.</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Infrastructure 2.2</td>
<td>The Public Works Department should work with the Grimes County Health Department to inspect septic systems within the city boundaries; facility system owners will be asked to repair their systems or tie into the existing sewer system within an appropriate timeframe.</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2.2.2.</td>
<td>The planning staff should partner with the Grimes County Agriculture Extension Agent by the end of 2013 to offer Navasota residents and surrounding area residents, biannual septic system education workshops to minimize the impact of failing septic systems on the groundwater supply.</td>
<td>Public Works Department</td>
<td>X X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Infrastructure 3.1</td>
<td>Determine the facility upgrades necessary for providing adequate service to current residents and future residents while meeting or exceeding federal and state standards.</td>
<td>City Manager, Development Committee, Public Works Director, Utility Superintendent, and Plant Operators</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Ongoing?</td>
<td>Zoning Ordinance</td>
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<tr>
<td>3.1.2</td>
<td>Add wastewater infrastructure upgrades to the annual CIP budget as needed or the capital cost of an additional wastewater facility when it has been determined to be necessary.</td>
<td>Public Works Department, Planning Office</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3.1.3</td>
<td>Apply for state and federal grant and loan programs to assist in funding wastewater treatment projects, such as the Clean Water State Revolving Fund.</td>
<td>Planning Office</td>
<td>X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Identify likely sources of infiltration and inflow using sewer system evaluation surveys (SEES) such as smoke tests, closed circuit television (CCTV) inspection, and dye testing every three years.</td>
<td>Public Works Department</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Seek the help of a consultant to model existing flows and to project future flows in the system using flow modeling techniques.</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3.2.3</td>
<td>Include maintenance and replacement of broken pipe, manholes, and joint connections in the annual CIP budget.</td>
<td>Public Works Department</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Maintain a record of overflows in a GIS map to track where they occur, the severity of overflow and where repetitive problems exist; use information for targeted education of residents within repetitive and severe overflow areas.</td>
<td>Public Works Department</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.2.5</td>
<td>The Public Works Department should initiate a public education campaign to reduce excess stormwater from entering the sewer system (inflows).</td>
<td>Public Works Department</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.3.1</td>
<td>Extend sanitary sewer lines to all developed areas within the city limits within 5 years of Comprehensive Plan adoption.</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3.3.2</td>
<td>Extend sanitary sewer lines to the areas in the city designated as urban expansion areas.</td>
<td>Planning Office, Development Committee, Public Works Department</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>3.4.1</td>
<td>As required by law, all annexed properties should tie into the existing sanitary sewer system within three years of annexation.</td>
<td>Planning Office, Development Committee, Public Works Department</td>
<td>X</td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>3.5.1</td>
<td>Provide developers with financial incentives for developing in areas that have existing sanitary sewer lines such as impact fee waivers.</td>
<td>Planning Office, Development Committee</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Land Use (Yes or No)</td>
<td>Capital Improvement Budget</td>
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</tr>
<tr>
<td>Infrastructure 3.6</td>
<td>1. Create a comprehensive water treatment plan</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Infrastructure 4.1</td>
<td>1. Develop and implement a recycling program</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Infrastructure 5.1</td>
<td>1. Implement a comprehensive solid waste management plan</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Infrastructure 5.2</td>
<td>1. Improve the public works facilities</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Infrastructure 5.3</td>
<td>1. Implement a comprehensive maintenance and inspection plan</td>
<td>Public Works</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Infrastructure 5.4</td>
<td>1. Implement a comprehensive planning and development plan</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Land Use 1.1</td>
<td>1. Implement a comprehensive land use plan</td>
<td>Planning Office, City Manager</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
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<td>Zoning ordinance</td>
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<tr>
<td>1.1.2</td>
<td>Preserve areas located within 100 year floodplains as identified in the Land Suitability Map (See Appendix SG, Land Suitability Analysis Map) by creating an Environmental Resource Zone (ERZ).</td>
<td>Planning Office, Development Committee, City Council</td>
<td>X</td>
<td>X</td>
<td>No</td>
</tr>
<tr>
<td>1.1.3</td>
<td>Preserve the riparian zone along the Navasota River to protect sensitive wildlife habitats.</td>
<td>Planning Office, Development Committee, City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>1.1.4</td>
<td>Preserve primary areas sensitive for drainage issues to limit development within those areas.</td>
<td>Planning Office, Development Committee, City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>2.1.1</td>
<td>Adopt a phased annexation plan as part of the Comprehensive Plan.</td>
<td>City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>2.1.2</td>
<td>Adopt full service annexation policies that conform to the comprehensive planning period.</td>
<td>City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>2.1.3</td>
<td>Adopt limited service annexation policies to be effective for three years before annexing for full purpose.</td>
<td>City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>2.1.4</td>
<td>Control the provision of public utilities to influence the location, timing and extent of growth in order to achieve desired land uses compatible with the Comprehensive Plan.</td>
<td>Planning Office, Development Committee, City Council</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Refrain from using a standard zoning holding district classification on newly annexed land.</td>
<td>City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Plan for future land uses for areas within the CTP and update the zoning map at the time of annexation.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Identify the nonconformity of land uses that exist in the growth management priority areas.</td>
<td>City Council</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Adopt specific policies to create a contiguous pattern of land uses solving the problem of existing nonconformity.</td>
<td>Planning Office</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Designate land adjacent to railroad right of ways for compatible uses, such as light industrial, warehousing, or commercial.</td>
<td>Planning Office</td>
<td>X</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>3.1.4</td>
<td>When annexing agricultural land for development, offer non-annexation agreements as explained in the Texas Local Govt. Code.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>No</td>
</tr>
<tr>
<td>3.1.5</td>
<td>Adopt special requirements as stated in the Texas Local Govt. Code for properties, specifically located at the northwest parts of the city, containing 100 or more residential lots.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>No</td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
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</tr>
<tr>
<td>Annexation &amp; Future Land Use 3.2</td>
<td>3.2.1. Preserve open space and rural areas with the help of a resource conservation policy by a series of land use regulations and incentives designed to minimize inappropriate development and avoid the fragmentation of farmland by creating unnecessary subdivisions of land.</td>
<td>City Council</td>
<td>X</td>
<td>No</td>
<td>County level or Regional Grants by partnering with a Community Based Organization (CBO).</td>
</tr>
<tr>
<td>Annexation &amp; Future Land Use 4.1</td>
<td>4.1.1. Prior to annexation, perform a fiscal impact analysis (FIA) to determine the development potential of an area.</td>
<td>City Council</td>
<td>X</td>
<td>Yes</td>
<td>Amenity improvement fund</td>
</tr>
<tr>
<td>Annexation and Future Land Use 4.2</td>
<td>4.2.1. Adopt the Retail Master Plan prepared by Burditt Land Place Consultants of Coeur (RLPC) (see Appendix, Retail Master Plan), as the basis for land use decisions for commercial zoning.</td>
<td>City Council</td>
<td>X</td>
<td>No</td>
<td>City Budget, Capital Improvement Budget</td>
</tr>
<tr>
<td></td>
<td>4.2.2. Identify and implement tax incentive policies for industries generating highest taxable sales (see Appendix, ‘Tax Revenue Analysis, Page 45, State of the Community Report”) along the areas identified in the Retail Master Plan.</td>
<td>Planning Office, Development Committee</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>4.2.3. Revise the current zoning ordinance to reflect future land uses identified in the Comprehensive Plan.</td>
<td>Planning Office, Development Committee</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Annexation &amp; Future Land Use 5.1</td>
<td>5.1.1. Evaluate the buffering requirement in zoning and subdivision ordinances and adopt an implementation policy for buffer zones.</td>
<td>City Council</td>
<td>X</td>
<td>No</td>
<td>City Budget (CIP)</td>
</tr>
<tr>
<td></td>
<td>5.1.2. Create a portfolio of accepted and recommended site designs for various areas that will be developed as residential subdivisions.</td>
<td>Planning Office, Development Committee</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1.1.4. Actively coordinate with the Texas Center for Rural Entrepreneurship to assist entrepreneurs in starting and growing business ventures by linking them with the resources and technical assistance they need to be successful.</td>
<td>Planning Office, Development Committee</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
</tr>
<tr>
<td>Economic Dev. 1.2</td>
<td>1.2.1. Identify unique, successful retail businesses in Navasota to establish a regional retail identity.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td>City Budget</td>
</tr>
<tr>
<td></td>
<td>1.2.2. Partner with the tenants of the Navasota Industrial Park to evaluate the condition of rail infrastructure and identify opportunities for improvement growth.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td>Capital Improvement Budget</td>
</tr>
<tr>
<td>Economic Dev. 2.1</td>
<td>2.1.1. Identify publicly-owned vacant downtown buildings to repurpose as studio space for artists and musicians.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td>City Budget</td>
</tr>
<tr>
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</tr>
<tr>
<td>Economic 2.3</td>
<td>2.1.2. Increase the frequency of music festivals and related events to boost tourism.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Economic 3.1</td>
<td>3.1.1: Improve communications infrastructure within Navasota’s industrial areas by introducing fiber optic cables or other high speed networking.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Economic 3.2</td>
<td>3.2.1: Evaluate the visibility of expanding the Navasota Municipal Airport.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Housing 1.1</td>
<td>1.1.1: Establish an incentive program for developers to include integrated affordable housing in market-rate community throughout the city.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Housing 1.2</td>
<td>1.2.1: Develop an architectural/design guidebook for builders and homeowners.</td>
<td>Planning Office, Building Officials</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Housing 1.3</td>
<td>1.3.1: Evaluate existing energy reduction guidelines for residential buildings, such as Energy Star, and within one year adopt the program most appropriate for Navasota.</td>
<td>Planning Office, Building Officials, City Council</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Housing 1.4</td>
<td>1.4.1: Establish institutional building programs, such as LEED or the MIEB Green Building Program, and within one year adopt the program most appropriate for Navasota.</td>
<td>Planning Office, Building Officials, City Council</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
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</tr>
<tr>
<td>Housing 1.5</td>
<td>1.4.2: Establish minimum environmental guidelines for building operations, including curbside recycling for all SF and MF housing and water conservation through low water landscaping.</td>
<td>Planning Office, Building Officials, City Council</td>
<td>X</td>
<td>No</td>
<td>X</td>
</tr>
<tr>
<td>Housing 1.5</td>
<td>1.4.3: Require city building inspectors and building officials to become LEED-AP certified within 34 months of comprehensive plan adoption and within 12 months of employment for new hires.</td>
<td>Building Officials, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 1.5</td>
<td>1.5.1: Establish a series of targeted development zones and reduce barriers to development in those areas, such as through fee reductions/waivers, accelerated project review and density bonuses, or by establishing a vacancy fee program to motivate redevelopment of underutilized properties.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 1.5</td>
<td>1.5.2: Encourage mixed-use projects downtown and along major thoroughfares that are pedestrian-oriented and neighborhood scale.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 1.5</td>
<td>1.5.3: Promote infill development on vacant and underutilized sites in high opportunity areas, including development of ADUs on SF lots.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 1.5</td>
<td>1.5.4: Provide opportunities for live-work development along major thoroughfares.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 1.6</td>
<td>1.6.1: Develop an architectural guidebook for owners of historic structures.</td>
<td>Planning Office, Historical Committee, Building Officials</td>
<td>X</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Housing 1.6</td>
<td>1.6.2: Establish a small repair revolving loan program to support the rehabilitation of historic and architecturally significant residential properties.</td>
<td>Planning Office, Historical Committee, Building Officials</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 2.1</td>
<td>2.1.1: Boost code enforcement efforts among rental communities and provide continuing education to landlords on maintenance standards.</td>
<td>Building Officials, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
<td>Housing 2.2</td>
<td>2.2.1: Provide technical and financial support to landlords looking to upgrade rental properties while maintaining affordability.</td>
<td>Planning Office, Building Officials, City Council</td>
<td>X</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Community Development 1.1</td>
<td>1.1.3: Promote and expand the current farmers market.</td>
<td>Public Works Department, Planning Office, Economic Development</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
</tr>
<tr>
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</tr>
<tr>
<td>1.1.2</td>
<td>Create a marketing strategy that promotes an open-air market, for example by staging events.</td>
<td>Public Works Department, Planning Office</td>
<td>Short Term (&lt;1)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1.1.3</td>
<td>Invest in infrastructure that connects the open-air market to the downtown area and promotes the feeling of pedestrian safety.</td>
<td>Public Works Department, Planning Office</td>
<td>Mid Term (1-5)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2.1.2</td>
<td>Actively recruit a technical college to locate in Navasota.</td>
<td>Public Works Department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.1</td>
<td>Create a coalition of local and regional stakeholders to develop community-based strategies for improving educational performance and attainment.</td>
<td>Board of Education</td>
<td>Long Term (&gt;10)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2.3.1</td>
<td>Attract arts and music training festival or workshop programs.</td>
<td>Public Works Department, Planning Office, Economic Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.1</td>
<td>Work with local group (e.g., Churches) or companies to establish a grocery delivery service for persons without regular transportation access.</td>
<td>Public Works Department, Planning Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.2</td>
<td>Determine the need for a local food bank and pursue a nonprofit organization to handle the effort.</td>
<td>Public Works Department, Planning Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Conduct a homeless person count to evaluate whether there is a need for a homeless shelter.</td>
<td>Planning Office, Police Department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.1</td>
<td>Work with regional nonprofits to determine whether local health needs can be met with existing resources.</td>
<td>Public Works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.1</td>
<td>The city should work with landowners to designate the land as a conservation easement.</td>
<td>Planning Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.2</td>
<td>The city should work with landowners to acquire park land through the transfer of development rights.</td>
<td>Planning Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.3</td>
<td>The city should purchase land outright with the assistance of grants.</td>
<td>Planning Office, City Council</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.4</td>
<td>The city should downzone floodplains for the least intensive use to provide recreational spaces for citizens.</td>
<td>Planning Office, City Council</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.1</td>
<td>The city should prioritize trail segments and incorporate them into the capital improvement budget.</td>
<td>Planning Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>1.2.1</td>
<td>Construct low maintenance bike and bike trails.</td>
<td>Planning Office, Public Works Dept.</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>1.2.3</td>
<td>Provide bike and bike trail signage along paths or streets.</td>
<td>Planning Office, Public Works Dept.</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Parks &amp; Rec 1.3</td>
<td>The city should contract for the design and construction of a public boat ramp. One should be placed at the park west of the city and another at the conservation easement north of the city along the Navasota River.</td>
<td>Planning Office, City Council, Public Works Dept.</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Parks &amp; Rec 1.4</td>
<td>The city should construct the design and build of a children’s playground with grant assistance.</td>
<td>Planning Office, City Council, Public Works Dept.</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Parks &amp; Rec 1.5</td>
<td>The city should construct two soccer fields southwest of the city to provide more active recreational use with in the city.</td>
<td>Planning Office, City Council, Public Works Dept.</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Downtown Revitalization**

<table>
<thead>
<tr>
<th>Downtown Revitalization 1.1</th>
<th>Actions</th>
<th>Responsible Party</th>
<th>Timing</th>
<th>Ongoing?</th>
<th>Zoning Ordinance</th>
<th>Subdivision Ordinance</th>
<th>CIP</th>
<th>Other Regulatory Strategy</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>Create a downtown district sidewalk master plan.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>1.1.2</td>
<td>Create an ordinance on urban fixtures specifying types of lighting and urban furniture provided by the city and types of privately owned urban furniture allowed in the public right of way.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
<td></td>
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<td></td>
<td>N/A</td>
</tr>
<tr>
<td>1.1.3</td>
<td>Revise code of ordinances to ensure it includes guiding principles for new development in terms of cohesive building materials, colors, appropriate scaling and urban features.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
<td></td>
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<td>N/A</td>
</tr>
<tr>
<td>1.1.4</td>
<td>Introduce a street tree at a maximum interval of 300 yards.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TexDOT-Keep Texas Beautiful Governor’s Community Achievement Award</td>
</tr>
<tr>
<td>1.1.5</td>
<td>Design and install a new way-finding and signage system for the downtown.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
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<td></td>
<td>City Budget</td>
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</tbody>
</table>

**Downtown Revitalization 1.2**

<table>
<thead>
<tr>
<th>Downtown Revitalization 1.2</th>
<th>Actions</th>
<th>Responsible Party</th>
<th>Timing</th>
<th>Ongoing?</th>
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<th>CIP</th>
<th>Other Regulatory Strategy</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.1</td>
<td>Create a Navasota city street tree planting policy.</td>
<td>Planning office</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
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<td>N/A</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Devise an urban greening program with emphasis on major streets and urban corridors.</td>
<td>Public Works Department, Planning office</td>
<td>Mid Term</td>
<td>No</td>
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<td>TexDOT-Keep Texas Beautiful Governor’s Community Achievement Award</td>
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**Downtown Revitalization 2.1**

<table>
<thead>
<tr>
<th>Downtown Revitalization 2.1</th>
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</thead>
<tbody>
<tr>
<td>2.1.1</td>
<td>Establish a workforce program to encourage downtown businesses to hire locally and maximize the benefit of the rehabilitation projects to local labor.</td>
<td>Economic Development Corporation</td>
<td>Mid Term</td>
<td>No</td>
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<tr>
<td>2.1.2</td>
<td>Encourage businesses in the downtown to expand operational hours during certain days each month and encourage adaptive reuse of the historic buildings.</td>
<td>Economic Development Corporation</td>
<td>Mid Term</td>
<td>No</td>
<td></td>
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<td>N/A</td>
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<tr>
<td>Objective #</td>
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</tr>
<tr>
<td>Downtown Revitalization 3.1</td>
<td>3.1.1: Actively recruit “Bed and Breakfast” style lodging businesses</td>
<td>Economic Development Corporation</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Downtown Revitalization 4.1</td>
<td>4.1.1: Repair the creek infrastructure</td>
<td>Public Works Department</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
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</tr>
<tr>
<td>Downtown Revitalization 4.2</td>
<td>4.2.1: Identify existing and potential open spaces within the downtown district</td>
<td>City Council</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Historic Preservation 1.1</td>
<td>1.1.1: The Historic Landmark Commission should comprehensively review and update the Historic Preservation Action Plan as required.</td>
<td>Historic Landmark Commission</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
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<tr>
<td>Historic Preservation 1.2</td>
<td>1.2.1: The HLC shall review and update the Historic Resources Survey, identifying possible additions to the list</td>
<td>Historic Landmark Commission</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
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</tr>
<tr>
<td>Historic Preservation 2.1</td>
<td>2.1.1: Create an educational framework for owners of historic structures about the value and benefits of preserving the properties</td>
<td>Historic Landmark Commission, Chamber of Commerce</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
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<tr>
<td></td>
<td>2.1.2: Develop an electronic mailing list of historic property owners and businesses and send updates on preservation issues/events</td>
<td>Historic Landmark Commission, Chamber of Commerce</td>
<td>X</td>
<td>Yes</td>
<td>N/A</td>
<td></td>
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<tr>
<td></td>
<td>2.1.3: Make a tool kit of educational and outreach material available through public facilities such as the Navasota Library and the Historic History Center</td>
<td>Marketing Department</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
<td></td>
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<tr>
<td>2.1.4</td>
<td>Improve the current visitor center, staffed by volunteers, to provide information to visitors about Navasota’s historic resources (e.g., historic walking tours)</td>
<td>City Manager, Marketing Department</td>
<td>X</td>
<td>No</td>
<td></td>
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<td></td>
<td>Texas Historical Commission Heritage Tourism Grants</td>
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</tr>
<tr>
<td>2.1.5</td>
<td>Utilize new technologies such as a multi-media Internet website to advertise the rich historical assets.</td>
<td>Marketing Department</td>
<td>X</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td>Texas Historical Commission Heritage Tourism Grants</td>
<td></td>
</tr>
<tr>
<td>Historic Preservation 2.2</td>
<td>Review existing historical resources survey and update the list to include additional building blocks as necessary into the Historic Preservation Program to regulate development and prevent speculation.</td>
<td>Historic Landmark Commission</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Historic Preservation 3.1</td>
<td>Encourage mixed-use projects in the downtown area and along major thoroughfares. These projects shall be pedestrian-oriented, neighborhood scale buildings that enhance the identity of the surrounding community.</td>
<td>Economic Development, Marketing Department</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
<td></td>
<td></td>
<td>N/A</td>
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</tr>
<tr>
<td>3.1.2</td>
<td>Establish a façade improvement program to encourage and assist historic property owners for façade upgrades and exterior maintenance.</td>
<td>City Council, Economic Development</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>CDBG</td>
<td></td>
</tr>
<tr>
<td>3.1.3</td>
<td>Create a low-interest loan program to support stabilization/rehabilitation projects, as well as identify federal, state, county, and local funding to support these programs.</td>
<td>City Council, Economic Development</td>
<td>X</td>
<td>No</td>
<td></td>
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<td></td>
<td>Capital Access Fund: Office of the Governor Economic Development and Tourism, Small Business Administration Loans</td>
<td></td>
</tr>
<tr>
<td>3.1.4</td>
<td>Investigate the feasibility of utilizing tax abatement listed in the Navasota Economic Development Policy to aid in the preservation and redevelopment of Downtown.</td>
<td>City Council, Economic Development</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>N/A</td>
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</tr>
<tr>
<td>3.1.5</td>
<td>City should investigate programs such as Tax Increment Financing (TIF) and Enterprise Zones as tools to aid in the preservation and redevelopment of Downtown.</td>
<td>City Council, Economic Development</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>N/A</td>
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</tbody>
</table>

**Transportation**

<p>| Transportation 1.1 | Identify the needs for curb and gutter installation on existing streets. | City Council, Public Work Department (Street Maintenance Division) | X      | No       |                  |                       |     | N/A                      |
| Transportation 1.2 | Conduct a new windshield transportation survey and update existing GIS data. | City Council, Planning Office | X      | No       |                  |                       |     | City Budget              |
| 1.2.2      | Revise and update the Thoroughfare Plan in association with the revision of the Comprehensive Plan for Navasota. | Planning Office, Transportation Division | X      | No       |                  |                       |     | City Budget              |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Transportation 2.1</td>
<td>2.1.1: Support TxDOT's proposal of the southern loop and communicate the recommended alignment as proposed in the City's Thoroughfare Plan</td>
<td>Planning Office, Transportation Division</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>Yes</td>
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<td>TxDOT, Texas Mobility Fund</td>
</tr>
<tr>
<td>Transportation 3.1</td>
<td>3.1.1: Coordinate with TxDOT to time the traffic signals along Washington Avenue.</td>
<td>Planning Office, Transportation Division</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td>TxDOT</td>
</tr>
<tr>
<td>Transportation 3.2</td>
<td>3.2.1: Coordinate with TxDOT in providing curbs and gutters on the remaining parts of Washington Avenue exiting downtown towards the west.</td>
<td>City Council, Public Work Department (Street Maintenance Division)</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>TxDOT</td>
</tr>
<tr>
<td>Transportation 3.3</td>
<td>3.3.1: Begin work with TxDOT to initiate construction of the realignment of the Washington Avenue and LaSalle Street intersection.</td>
<td>Planning Office, Transportation Division</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td>TxDOT</td>
</tr>
<tr>
<td>Transportation 4.1</td>
<td>4.1.1: Begin working with TxDOT to connect the frontage road on the eastside of Highway 6 from Highway 90 to FM 390.</td>
<td>Planning Office, Transportation Division</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td>TxDOT, Texas Mobility Fund</td>
</tr>
<tr>
<td>Transportation 4.2</td>
<td>4.2.1: Begin construction on the Montgomery Street realignment and extension as development indicates</td>
<td>Planning Office, Transportation Division</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td>City Budget</td>
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<tr>
<td>Transportation 5.1</td>
<td>5.1.1: Conduct public hearings with TxDOT on the proposed redesign of the Washington Avenue and LaSalle Street intersection.</td>
<td>Planning Office, Public Works Department</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
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<tr>
<td></td>
<td>5.1.2: Identify the various types of trails - multi-purpose trail, serving recreation needs (for instance along a natural feature), or connector trail, serving transportation purposes. Paving standards and other design features should be adapted for construction of both types.</td>
<td>Planning Office, Public Works Department (Street Maintenance Division), Park and Recreation Department</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>N/A</td>
</tr>
<tr>
<td></td>
<td>5.1.3: The alleyway between Washington Avenue and the Cedar Creek parking lot should be designated as pedestrian alley.</td>
<td>Planning Office, Public Works Department (Street Maintenance Division), Park and Recreation Department</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
</tr>
<tr>
<td>Transportation 5.2</td>
<td>5.2.1: Existing bike and bike trails should be marked with adequate signs.</td>
<td>Planning Office, Public Works Department (Street Maintenance Division), Park and Recreation Department</td>
<td>Short term (&lt;3)</td>
<td>X</td>
<td>No</td>
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<td></td>
<td>City Budget, Recreational Trails Program</td>
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<tr>
<td>Objective #</td>
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<tr>
<td>5.2.2:</td>
<td>All new residential developments should be required to have sidewalks.</td>
<td>Planning Office, Planning and Zoning Commission</td>
<td>X</td>
<td>No</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Private Fund</td>
</tr>
<tr>
<td>5.2.2:</td>
<td>Using charrette and other workshop techniques to map out possible linkages to put in trails, bike paths, pedestrian crossings, and sidewalk improvements.</td>
<td>Planning Office, Public Works Department, Park and Recreation Department</td>
<td>X</td>
<td>No</td>
<td></td>
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<td></td>
<td>City Budget</td>
</tr>
<tr>
<td>Transportation 6.1</td>
<td>Navasota should protect Federal Aviation Administration (FAA) - mandated safety areas, runway protection zones, and other clear areas to the maximum extent possible.</td>
<td>Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
</tr>
<tr>
<td>Transportation 6.2</td>
<td>Begin installation of airport automated weather service.</td>
<td>Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>City Budget</td>
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<tr>
<td>Transportation 6.3</td>
<td>Navasota should construct an adequately sized airport terminal.</td>
<td>Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>City Budget, Airport Improvement Program</td>
</tr>
<tr>
<td>Transportation 6.4</td>
<td>The adopted Airport Development Plan should be re-evaluated after 5 years.</td>
<td>Planning Office, Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
</tr>
<tr>
<td>Urban Image</td>
<td>The City should ensure the Airport is reflected in local development and transportation plans.</td>
<td>Planning Office, Navasota Municipal Airport</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
</tr>
<tr>
<td>Urban Image</td>
<td>Navasota should finalize details to provide a Fixed Based Operator (FBO) at the Airport.</td>
<td>Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
</tr>
<tr>
<td>Urban Image</td>
<td>The City should install sewer infrastructure to the airport in conjunction with future Industrial Park development.</td>
<td>Planning Office, Navasota Municipal Airport, Navasota Public Works Department</td>
<td>X</td>
<td>No</td>
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<td>City Budget, Airport Improvement Program</td>
</tr>
<tr>
<td>Urban Image</td>
<td>Develop a harmonious plan that balances the extensive history of Navasota and the ever changing environment of the city in order to create a more comprehensive community image.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
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<td>N/A</td>
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<tr>
<td>1.2.1: Provide standards and parameters for historical elements throughout the city (streetscape, building aesthetics, and overall city image) in the city's design guidelines in order to create a more cohesive city image.</td>
<td>Planning Office, City Council, Historical Landmark Commission</td>
<td>X</td>
<td>No</td>
<td>X</td>
<td></td>
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<td>N/A</td>
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<tr>
<td>1.2.2: Integrate Navarita's historic background into existing community festivals to promote the city's identity; for example, encourage festival patrons to dress in old-fashioned clothing and display old-fashioned tools and machinery.</td>
<td>City Council, Historical Landmark Commission</td>
<td>X</td>
<td>No</td>
<td>X</td>
<td></td>
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<td>City Budget</td>
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</tr>
<tr>
<td>1.3.1: Use the alternative scenarios to create design standards for the preservation and renovation of building facades.</td>
<td>Planning Office</td>
<td>X</td>
<td>No</td>
<td></td>
<td></td>
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<td>N/A</td>
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<tr>
<td>1.3.2: Provide a visual of how the city once stood in the earlier years as well as development through the years with the varying types of architecture to show the public and community the potential of Navarita's past to return back to its historical prominence.</td>
<td>Planning Office, Historical Landmark Commission</td>
<td>X</td>
<td>No</td>
<td>X</td>
<td></td>
<td></td>
<td>N/A</td>
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<tr>
<td>1.3.3: Provide gradual facade and structural improvements to all historical buildings (residential, public, private) throughout the city to bring them back to their prominence.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>X</td>
<td>Yes</td>
<td></td>
<td></td>
<td>Texas Historical Commission, Texas Preservation Trust Fund, CDBG, private funding</td>
<td></td>
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</tr>
<tr>
<td>2.1.1: Use ornamental trees and formal design to designate areas the city can't fit to showcase to users (i.e. downtown).</td>
<td>Planning Office, Parks &amp; Recreation</td>
<td>X</td>
<td>Yes</td>
<td>X</td>
<td></td>
<td></td>
<td>CDBG</td>
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<tr>
<td>2.2.1: Utilize natural materials (e.g. gravel, mulch) for walking paths.</td>
<td>Planning Office, Parks &amp; Recreation</td>
<td>X</td>
<td>No</td>
<td></td>
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<td>City Budget</td>
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<tr>
<td>2.2.2: Design non-linear (meandering) paths.</td>
<td>Planning Office, Parks &amp; Recreation</td>
<td>X</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
<td></td>
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</tr>
<tr>
<td>2.3.1: Entrance into the city and districts within the city should fall in line with the branding requirements of the city.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
<td>X</td>
<td></td>
<td></td>
<td>N/A</td>
<td></td>
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</tr>
<tr>
<td>2.3.2: Use landscape elements and urban fixtures to emphasize and bring attention to the novel area the individual is entering.</td>
<td>Planning Office, City Council, Parks &amp; Recreation</td>
<td>X</td>
<td>No</td>
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<td>City budget, CDBG</td>
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<td>2.3.3: Develop a comprehensive landscape and urban fixtures guideline corresponding to the proposed alternative scenario and set forth within the proposed landscape and urban fixtures policies recommended below.</td>
<td>Planning Office, City Council, Parks &amp; Recreation</td>
<td>X</td>
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<tr>
<td>Objective #</td>
<td>Actions</td>
<td>Responsible Party</td>
<td>Timing</td>
<td>Ongoing? (yes or no)</td>
<td>Zoning Ordinance</td>
<td>Subdivision Ordinance</td>
<td>CIP</td>
<td>Other Regulatory Strategy</td>
<td>Funding Source</td>
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<tr>
<td>Urban Image 2.4</td>
<td>2.4.1. Parks and plazas should be easily accessed by residents and visitors using different transportation forms such as sidewalks for walking or bicycle lanes for bicycles.</td>
<td>Planning Office, Parks &amp; Recreation</td>
<td>X</td>
<td>No</td>
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<td>CBDR, TPWD grants</td>
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<tr>
<td>Urban Image 2.5</td>
<td>2.5.1. Develop greening programs in areas of interest as seen fit by the city that would benefit from any renovation/upkeep that is needed.</td>
<td>City Council</td>
<td>X</td>
<td>No</td>
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<td>TPWD grants</td>
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<tr>
<td>Urban Image 2.6</td>
<td>2.6.1. Develop and implement a landscape design policy</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
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<td>X</td>
<td>CBDR, City Budget</td>
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<tr>
<td>Urban Image 3.1</td>
<td>3.1.1. Develop a complete street project that could improve the quality of streets. It includes the coherent design of crosswalks, traffic signs, etc.</td>
<td>Planning Office, City Council</td>
<td>X</td>
<td>No</td>
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<td>X</td>
<td>CBDR, City Budget</td>
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<td>Urban Image 3.2</td>
<td>3.2.1. Focus on security to increase Navasota's existing sense of safety among the community.</td>
<td>Planning Office; City Council, Police Department</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Urban Image 3.3</td>
<td>3.3.1. Create a comprehensive green corridor or pedestrian-friendly network that could largely connect mini parks and recreational areas within the city.</td>
<td>Planning Office, Parks &amp; Recreation</td>
<td>X</td>
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<td>X</td>
<td>CBDR, TPWD grants</td>
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<tr>
<td>Urban Image 4.1</td>
<td>4.1.2. Designate a workshop area within downtown where artists and scholars can demonstrate, share and communicate their particular skills and knowledge.</td>
<td>Planning Office, Public Work Department</td>
<td>X</td>
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<td>CBDR</td>
<td>Texas Commission on the Arts funds</td>
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<td>4.1.3. Build an art wall that allows both professionals and young artists (including school kids) to create murals</td>
<td>Planning Office, Public Work Department</td>
<td>X</td>
<td>No</td>
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<td>CBDR</td>
<td>Texas Commission on the Arts funds</td>
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<td>Objective #</td>
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<td>Urban Image 4.2</td>
<td>4.2.1: Utilize the existing farmers' market to provide better public interaction and community involvement.</td>
<td>Planning Office, Public Work Department</td>
<td>X</td>
<td>X</td>
<td>Private funding, City budget</td>
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<td>4.2.2: Expand publicity for the Navasota Blues Festival to surrounding cities through additional TV and Newspaper commercials.</td>
<td>Planning Office</td>
<td>X</td>
<td>X</td>
<td>City budget, RHED, Private fund</td>
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<td>4.2.3: Develop an annual Antique Festival. This festival will provide an opportunity for patrons to exhibit and trade any type of antiques.</td>
<td>City Council, Historic Landmark Commission, Planning Office</td>
<td>X</td>
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<td>City budget, RHED, Private fund</td>
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<td>Urban Image 4.3</td>
<td>4.3.1: Beautify the railroad right-of-way along Railroad Street by planting low-maintenance plant material.</td>
<td>Planning Office, Park &amp; Recreation</td>
<td>X</td>
<td>No</td>
<td>City budget</td>
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<td>4.3.2: Incorporate the idea of an art wall and art center; create an art-themed area or corridor along the railroad.</td>
<td>Planning Office, Park &amp; Recreation</td>
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<td>No</td>
<td>City budget, RHED, Private fund</td>
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<td>4.3.3: Cedar Creek should be renovated and maintained as a community park.</td>
<td>Planning Office, Park &amp; Recreation</td>
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<td>Urban Image 4.4</td>
<td>4.4.1: Encourage downtown merchants to park to the rear of their businesses.</td>
<td>Planning Office</td>
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<td>4.4.2: Develop an entertainment/restaurant area within the downtown district that utilizes existing city historical features or vacant historic buildings.</td>
<td>Planning Office, City Council, Economic Development</td>
<td>X</td>
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<td>4.4.3: By including special business within a tourist guide of the city, it would allow tourists to understand and love local businesses.</td>
<td>Planning Office, City Council, Economic Development</td>
<td>X</td>
<td>No</td>
<td>N/A</td>
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Sources


Appendix A: Navasota Community Survey 2012
2012 NAVASOTA COMMUNITY SURVEY

QUESTIONNAIRE & AGGREGATE RESULTS

FIELD DATES: November 19 - December 6, 2012
SAMPLE SIZE: N=45 (7 Responses Recorded by City of Navasota, 38 responses collected through conversations with community members in both the Downtown district and various city commercial establishments)
MARGIN OF ERROR: ± 11.07%

1. Why do you live in Navasota?
   Multiple Response Categories Allowed per Respondent

   Employment ................................................................. 42%
   Family ....................................................................... 27%
   Cost of Living ............................................................ 16%
   Grew up in Navasota ................................................... 16%
   Proximity ..................................................................... 7%
   Atmosphere ............................................................... 4%
   Community ................................................................. 4%
   Beauty ......................................................................... 2%
   Things to Do ............................................................. 2%
   N/A ............................................................................ 4%

2. Do you commute outside of Navasota to your job (if so, to where)?

   Yes .............................................................................. 44%
   No.............................................................................. 56%

   If yes (% of respondents who answered ‘yes’),
   College Station ......................................................... 55%
   Conroe ................................................................. 10%
   Houston ................................................................. 10%
   Anderson ................................................................. 5%
   Bryan ................................................................. 5%
   Hempstead .............................................................. 5%
   Millican ..................................................................... 5%
   “North of Navasota” .................................................. 5%

3. For what reasons do you usually drive outside of Navasota (excluding work)?
Multiple Response Categories Allowed per Respondent

Groceries ................................................................. 84%
Shopping ............................................................... 73%
Dining ................................................................. 27%
Visiting Family ..................................................... 13%
Entertainment ....................................................... 9%
Doctor Visits ......................................................... 2%
Meetings ............................................................... 2%
Recreation ............................................................. 2%
Health Food ........................................................... 2%

4. What existing services/facilities would you like Navasota to improve?

Multiple Response Categories Allowed per Respondent

Shopping (Commercial/Retail/Groceries) ...................... 87%
Dining ..................................................................... 16%
Roads and Road Quality ......................................... 13%
Downtown ............................................................. 13%
Parking .................................................................. 4%
Traffic Lights ........................................................ 2%
N/A ...................................................................... 4%

5. Are there any services/facilities not currently in Navasota that you would like to have?

Commercial/Retail Stores ........................................ 93%

Of those: 62% (26 respondents) specifically request greater diversity of grocery options

Curbside Recycling ................................................ 2%
N/A ...................................................................... 2%

6. What are the three best things about living in Navasota?

Multiple Response Categories Allowed per Respondent

People/Community ............................................... 76%
Environment (Natural, Locality) ............................... 51%
Traffic ................................................................. 47%
Housing Market .................................................... 29%
Proximity to Large Cities ........................................ 29%
Quietness ............................................................. 27%
Culture ................................................................. 9%
Volunteer Groups .................................................. 2%
Code Enforcement ............................................... 2%
Local Newspaper .................................................. 2%
Churches ............................................................. 2%
7. What are the three things you most want to change about Navasota?

Multiple Response Categories Allowed per Respondent

Shopping.................................................................71%
Job Opportunities .......................................................62%
Roads.......................................................................31%
Downtown...................................................................31%
Dining Availability ....................................................31%
Lack of Privacy in a Small Community .........................9%
Police and Security......................................................9%
Housing Market..........................................................7%
Higher Education Opportunities.................................4%
Quality of Schools ......................................................4%
Resistance to Change ..................................................2%

8. In one sentence, what do you think Navasota should be in the future?

See Addendum 1 for full responses – answers to this question only collected in City of Navasota results

Rate Navasota on the following issues:

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<tr>
<th>Very Satisfied</th>
<th>Somewhat Satisfied</th>
<th>Satisfied/ Dissatisfied</th>
<th>Somewhat Dissatisfied</th>
<th>Very Dissatisfied</th>
<th>No Answer</th>
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<td>9. General Appearance (Streets/Buildings Neighborhoods)</td>
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<td>TOTAL SATISFIED ..................................................20%</td>
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<td>TOTAL DISSATISFIED...............................................33%</td>
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| 10. The Reputation of your City |
| 33%                          | 27%                | 13%                     | 7%                    | 4%               | 16%        |
| TOTAL SATISFIED ..................................................60% |
| TOTAL DISSATISFIED...............................................11% |

| 11. Shopping Convenience for Everyday Needs and Errands |
| 0%                          | 4%                 | 7%                      | 58%                   | 16%              | 16%        |
| TOTAL SATISFIED ..................................................4% |
| TOTAL DISSATISFIED..................................................73% |

| 12. Safety of your Neighborhood |
| 29%                          | 27%                | 16%                     | 9%                    | 4%               | 16%        |
| TOTAL SATISFIED ..................................................56% |
| TOTAL DISSATISFIED..................................................13% |
13. Quality of Schools in your Area
18%  40%  13%  9%  4%  16%
TOTAL SATISFIED ..........................................................58%
TOTAL DISSATISFIED .....................................................13%

14. Environment in Which to Raise Children
16%  33%  22%  13%  0%  16%
TOTAL SATISFIED ..........................................................49%
TOTAL DISSATISFIED .....................................................13%

15. Affordable For-Sale Housing
33%  33%  11%  4%  2%  16%
TOTAL SATISFIED ..........................................................67%
TOTAL DISSATISFIED .....................................................7%

16. Homeownership Assistance
4%  22%  40%  4%  13%  16%
TOTAL SATISFIED ..........................................................27%
TOTAL DISSATISFIED .....................................................18%

17. Residential Improvements
13%  31%  4%  27%  9%  16%
TOTAL SATISFIED ..........................................................44%
TOTAL DISSATISFIED .....................................................36%

Rate Navasota on the following issues:

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18. Senior Centers
TOTAL SATISFIED ..........................................................27%
TOTAL DISSATISFIED .....................................................18%

19. Youth Centers
18%  27%  27%  9%  4%  16%
TOTAL SATISFIED ..........................................................44%
TOTAL DISSATISFIED .....................................................13%
20. Parks and Community Centers
27%  29%  22%  4%  2%  16%
TOTAL SATISFIED ............................................56%
TOTAL DISSATISFIED ...........................................7%

21. Health Care Facilities
18%  27%  27%  9%  4%  16%
TOTAL SATISFIED ............................................44%
TOTAL DISSATISFIED ...........................................13%

22. Drainage
13%  24%  13%  24%  9%  16%
TOTAL SATISFIED ............................................38%
TOTAL DISSATISFIED ...........................................33%

23. Water/Sewage Service
16%  22%  22%  13%  11%  16%
TOTAL SATISFIED ............................................38%
TOTAL DISSATISFIED ...........................................24%

24. Open Space
36%  22%  22%  4%  0%  16%
TOTAL SATISFIED ............................................58%
TOTAL DISSATISFIED ...........................................4%

25. Environmental Quality
11%  16%  40%  13%  4%  16%
TOTAL SATISFIED ............................................27%
TOTAL DISSATISFIED ...........................................18%

26. Safety from Hazards (Flooding, Wind, Hurricanes, Etc.)
18%  27%  18%  4%  18%  16%
TOTAL SATISFIED ............................................44%
TOTAL DISSATISFIED ...........................................22%

Rate Navasota on the following issues:

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27. Street Lighting
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28. Sidewalks
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29. Fire and Police Services
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30. Street Conditions
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32. Small Business Support
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33. Job Creation
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34. Job Retention
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Addendum 1:

Respondent 1: “I think navasota should be the place to live, work and play”

Respondent 2: “A groovy hip artsy town where people enjoy both the town and the beautiful country.”

Respondent 3: “Stay a small town atmosphere”

Respondent 4: N/A

Respondent 5: N/A

Respondent 6: N/A

Respondent 7: “Navasota should be a place where people can raise their children with a good quality of life.”
Appendix B: Strategic Growth Maps
Figure B - 1: Navasota 2012 Proposed Zoning
Figure 6 - 2: Employment Density Map
Figure 6-3: Existing Infrastructure Map
Figure 6.4: Environmentally Sensitive areas
Figure 6 - 5: Land Suitability Analysis Map
the purposes of deciding which procedures apply to the annexation of a particular area. Certain types of area are exempt from the plan requirement. For example, if an area contains fewer than 100 residential dwellings, the area is not required to be placed in an annexation plan. Also, if the land is annexed by petition of area landowners or voters, the area is not required to be in a plan.

This paper is meant to be a brief primer on annexation in Texas. For a free, full paper on municipal annexation that includes detailed information and sample forms, please visit www.tml.org, click on Legal, Land Use and Building Regulations, “Annexation in Texas – Paper.”
MUNICIPAL ANNEXATION IN TEXAS

"THE BASICS"

Comprehensive Guide Available at www.tml.org

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Texas Municipal League
1821 Rudderford Lane, Suite 400
Austin, Texas 78754
512-231-7400

-Updated March 2012-

Table of Contents: The Three Questions of Annexation

1. Why does the city want to annex? ................................................................. 2
2. Does the city have authority to annex? ....................................................... 3
3. What annexation procedures must a city follow? ..................................... 4
The Three Questions of Annexation

Is annexation really that complicated? It depends. A better word for it might be tedious. The Municipal Annexation Act of 1963 (now found in Chapter 43 of the Texas Local Government Code) has been amended so many times over the years to address specific situations that it is sometimes hard to understand. That being said, there are essentially three questions to ask when annexing any piece of property.

1. **Why does the city want to annex?** The TML Legal Department largely advises on the annexation process from a legal rather than a policy standpoint, but it is critical for a city to understand the reasons behind an annexation to explain it to the current city residents and those targeted for annexation. Most cities annex for two basic reasons: (1) to control development; and/or (2) to expand the city’s tax base. Each city should carefully consider the pros and cons of annexation, and also have an understanding of whether it is necessary, prior to annexing. There are numerous city officials and planning and law firms in Texas with expertise in this area, and cities should take advantage of their expertise.

The following is a brief review of the most basic elements of municipal finance and intergovernmental relations:

**Cities (city taxpayers) pay for a wide array of services and facilities that benefit entire regions and the entire state.** For example, it goes without saying that such basic activities as mail delivery couldn’t take place if cities don’t construct and maintain streets. The economy of Texas would crumble without city investments in the basic infrastructure upon which business and industry rely. Cities are centers of employment, health care, entertainment, transportation, and merchandising used by non-city-residents throughout the region. This means that cities must support public safety services and a physical infrastructure sufficient to serve a daily influx of visitors from throughout the metropolitan region.

**Most states recognize that cities should be assisted in making these expenditures that benefit entire regions and the whole state.** Virtually every state transfers state-generated revenue to cities to assist in the provision of services and facilities. They do this in recognition of the fact that cities (city taxpayers) are making expenditures that benefit all residents of the state. For example, all populous states give a portion of state gasoline tax revenue to cities to assist in street construction and repair. Many states share vehicle registration revenue or motor vehicle sales tax revenue with cities. A survey conducted by the National League of Cities found that cities across the nation receive 13 percent of their revenue from state aid.

**In Texas, there is virtually no state aid to cities.** Take a look at a municipal budget and try to find a revenue line item called “Transfer from State” or “State Financial Assistance.” While such line items are common in other states, they’re generally not present in Texas.
But Texas has allowed cities to annex. Cities have used that authority to bring adjacent areas into the city and into the system through which cities finance the services and facilities that benefit the region and state.

To erode or eliminate municipal annexation authority without considering the issues of municipal revenue and intergovernmental relations would cripple cities and city taxpayers. If annexation authority were to be eliminated, Texas would become the only state in the nation that denies both state financial assistance and annexation authority to its cities. Opponents of annexation cannot point to a single state that has restricted annexation authority without implementing fiscal assistance programs under which the state helps cities pay for the infrastructure on which the entire state depends.

2. Does the city have authority to annex? Once a city has decided that it wants to annex property, the first step is to determine whether it has the authority to annex. To determine a city’s authority, one must understand the fundamental difference between a general law city and a home rule city. Volumes have been written on the differences between the two. For purposes of brevity, and as a basic rule of thumb, the following statement will suffice:

A home rule city (usually over 5,000 population) may do anything authorized by its charter that is not specifically prohibited or preempted by the Texas Constitution or state or federal law; A general law city (usually under 5,000 population) has no charter and may exercise only those powers that are specifically granted or implied by statute.

The previous statement is very generalized, but it serves to illustrate the fundamental difference between the two types of cities for all purposes, including annexation. Annexation authority is discussed in detail later, but as a general rule the authority to annex is found in Subchapter B of Chapter 43 of the Local Government Code. For example, Section 43.021 authorizes a home rule city to annex according to its charter, and most home rule charters authorize annexations without consent. On the other hand, general law cities, for most annexations, must receive a request from landowners or voters prior to annexing. Some exceptions allow general law cities to annex without consent, but those are very limited. The bottom line for general law cities is that the legislature has seen fit to severely limit when they can annex.

Requirement to offer development agreement. Section 43.035 of the Texas Local Government Code should be the first place a city looks when it decides to annex because the section prohibits a city from annexing an area that is appraised for ad valorem tax purposes as agricultural, wildlife management, or timber management unless the city offers a development agreement to the landowner that would:

- guarantee the continuation of the extraterritorial status of the area; and
- authorize the enforcement of all regulations and planning authority of the city that do not interfere with the use of the area for agriculture, wildlife management, or timber.
A landowner may either: (1) accept the agreement; or (2) decline to make the agreement and be subject to annexation. An annexation that is completed without offering an agreement is void. The intent of the law is to allow a landowner who truly intends to continue using his land for agriculture, wildlife management, or timber management to remain outside of a city’s limits. It is not meant to allow development that subverts municipal regulations.

**Requirement that area be in the city’s ETJ.** An area to be annexed must be within the city’s extraterritorial jurisdiction (ETJ), and the area to be annexed cannot be located within the ETJ of another city.

**Authority to annex unilaterally (without consent).** Most home rule charters in Texas, read in conjunction with Chapter 43 of the Local Government Code, provide for unilateral (non-consensual) annexation by home rule cities.

Chapter 43 also provides the statutory authority for general law cities to annex, and Section 43.033 of the Texas Local Government Code is the only major exception to the rule that general law cities may annex only by petition (consensual). That section allows for unilateral annexation by a city with a population between 1,000 and 5,000 if the city: (1) is providing the area with water or sewer service; and (2) the area: (A) does not include unoccupied territory in excess of one acre for each service address for water and sewer service; or (B) is entirely surrounded by the city and the city is a type A general-law city. Other specific provisions may allow a general law city to annex without consent, but they are very limited.

**Authority to annex by petition (with consent).** All cities are authorized to annex a sparsely occupied area on petition of the area’s landowners, if the area meets certain requirements. In addition, general law cities may annex inhabited areas if the majority of the qualified voters of the area are in favor of becoming part of the city.

3. **What annexation procedures must a city follow?** The provisions that give a city the power or authority to annex are generally codified in Subchapter B of the Texas Local Government Code and in the charter of a home rule city. However, the procedures that a city must follow for an annexation are codified in Subchapters C (plan annexations — three-year process) or C-1 (exempt annexations — much shorter process) of the Local Government Code. What subchapter to follow is based on whether or not the area must be included in an annexation plan. The procedures prescribed by Subchapters C or C-1 must be followed for every annexation of any type. They generally require the preparation of a service plan that spells out the level of municipal services an area will receive upon being annexed. The services must be similar to what current residents receive. In addition, they provide for notice of the annexation and notice of hearings that must be held on the service plan.

**Annexation Plan.** Every city in Texas was required to adopt an annexation plan on or before December 1, 1999. The term “annexation plan” is a term of art, and is adopted for
the purposes of deciding which procedures apply to the annexation of a particular area. Certain types of area are exempt from the plan requirement. For example, if an area contains fewer than 100 residential dwellings, the area is not required to be placed in an annexation plan. Also, if the land is annexed by petition of area landowners or voters, the area is not required to be in a plan.

This paper is meant to be a brief primer on annexation in Texas. For a free, full paper on municipal annexation that includes detailed information and sample forms, please visit www.tml.org, click on Legal, Land Use and Building Regulations, “Annexation in Texas – Paper.”
Appendix D: Navasota Comprehensive Plan 2004: Future Land Use
SECTION 17 - FUTURE LAND USE

Introduction

The purpose of this section is to recommend how and where the City of Navasota should grow. Planned growth should provide a safe, healthy and pleasing environment for the citizens of Navasota. Planning can mitigate conflicts between different land uses, consider long-term impacts on transportation and public infrastructure, and promote the general harmony and efficiency of land development. The plan should guide land use decisions. In addition, the goals of this section will suggest viable opportunities for the economic growth of Navasota through its land use patterns.

Goals & Objectives

Goal #1: Establish land use policies that encourage cost-effective development.

- **Objective 1**: Navasota should encourage infill, structure rehabilitation, and redevelopment to take advantage of the existing infrastructure and transportation.
- **Objective 2**: The costs of new infrastructure and services should be evaluated before annexing unincorporated land.
- **Objective 3**: The City should refrain from using a standard zoning holding district classification on newly annexed land. Rather, the City should plan future land uses for areas within its Extraterritorial Jurisdiction (ETJ), and apply the appropriate permanent zoning classification at the time of annexation.

Goal #2: Promote the health and safety of the citizens through addressing unique land use situations with appropriate and specific policies.

- **Objective 1**: Navasota should zone and plan flood plain areas for the least intensive land use.
Section 17 - Future Land Use

- **Objective 2:** Citizens should be advised and encouraged to purchase flood insurance for existing developments within the 100-year flood plain.
- **Objective 3:** The City should allow development of lands in the flood plain only when the property owner builds according to city approved technical standards to avoid harm to people and property.
- **Objective 4:** Lands adjacent to railroad right of ways should be used for compatible uses, such as light industrial, large-lot residential, warehousing, or commercial.
- **Objective 5:** Navasota should prohibit new manufactured homes in areas that are zoned for Single Family Residential or Multi-Family Residential, allowing them only in Manufactured Housing Districts as proposed in the Future Housing section (Section 10).
- **Objective 6:** Structures that pose a safety or health threat to the public should be condemned.

**Goal #3: Promote a community with an aesthetically pleasing environment**

- **Objective 1:** Standards for existing historic property uses should be developed and enforced as identified in the Future Historic Resources section (Section 22).
- **Objective 2:** The City should schedule more “Clean Up Days” throughout the year to encourage citizens to participate in rehabilitation (exterior painting and repairs, landscaping, trash removal) on their properties.
- **Objective 3:** Navasota should encourage rehabilitation projects in the downtown area as mentioned in the Future Urban Image section (Section 24).
Section 17 – Future Land Use

**Goal #4:** The City should promote new developments that are beneficial for the community and compatible with existing uses.

- **Objective 1:** Navasota should discourage incompatible land uses, with special attention to commercial and light industrial uses within residential land use designations. The insertion of a buffering section into the zoning ordinance would facilitate an appropriate visual screen between residential and non-residential uses.

- **Objective 2:** The City should create a portfolio of acceptable and recommended site designs for various areas that will be developed as residential subdivisions.

**Goal #5:** The City should promote the Future Land Use Plan and require zoning to be consistent with it.

- **Objective 1:** The Comprehensive Plan should be adopted.

- **Objective 2:** The City should review the Comprehensive Plan periodically, and revise if necessary.

- **Objective 3:** Navasota’s zoning system should be modified to be consistent with the Comprehensive Plan.

**Revised Land Use Classifications**

For purposes of this section of the Comprehensive Plan, the following land use classifications were utilized:

**Central Business District**

The Central Business District (CBD) maintains its historic boundaries in the Future Land Use Plan. This district includes the land uses located along Washington Avenue and the current boundaries are identified on Map 17.1.

**Commercial**

The Commercial land use category is for land dedicated to non-industrial business uses, including retail sales, office, service, and entertainment facilities. These types
Light Industrial
The Light Industrial category includes, but is not limited to assembly, automotive body shops, and other light industrial processes. This less intensive industrial classification can also permit other nonpolluting businesses and services.

Heavy Industrial
The Heavy Industrial category is intended for high intensity land uses such as manufacturing, fabrication, and industrial uses that are likely to produce high levels of disturbance, such as noise, vibrations, and/or odors. Heavy Industrial activities are likely to be regulated by state or federal law.

Public Use
The Public Use category includes areas intended for public and semi-public use. Examples of these uses can include schools, churches, fraternal organizations, government buildings, and hospitals.

Residential
There are five recommended categories of residential land use. The aim of these recommended categories is to preserve areas of existing single family homes while also offering opportunities for increased housing options. A description of each class follows.

Neighborhood Density Single-Family Residential
The first residential land use category is Neighborhood Density Single-Family Residential. This classification consists of traditional single-family homes with a maximum lot size of 7,200 square feet. Neighborhood Density Single Family Residential includes land planned for single-family residential purposes and accessory uses. Homes that are located on such lots create a density that is found in traditional neighborhoods throughout the country. This category is designed to accommodate sufficient, suitable residential neighborhoods protected from incompatible land uses.
Section 17 – Future Land Use

Medium Density Single-Family Residential
The second residential land use category is Medium Density Single-Family Residential. This classification consists of traditional single-family homes, with one-acre minimum lot sizes. Land use in this category is designed to provide for detached single-family residential homes located on large lots. This type of residential development minimizes the need for municipally based water and wastewater systems.

Agricultural/Residential
The third new residential land use category is Agricultural/Residential. The goal of this land use classification is to retain a rural land use character. This land use category requires a minimum lot size of five acres. The majority of land uses in Navasota’s ETJ have been designated Agricultural/Residential (Map 17.1), and upon annexation should be zoned in accordance with this classification.

This classification utilizes different infrastructure standards from those associated with regular urban development. It allows for lower-cost infrastructure such as decentralized wastewater treatment. Generally, these locations are intended to be outside of the city limits where infrastructure may not yet be available, or areas where infrastructure provision would be cost prohibitive.

Low Density Multi-Family Residential
The fourth residential category is Low Density Multi-Family Residential. This category promotes structures intended for multiple families at a lower density. Low Density Multi-Family Residential consists of residential complexes such as a fourplex, triplex, duplex, apartment, and town home. This type of structure has a maximum density of 15 dwelling unit per acre. This category may serve as a transitional zone between lower density residential areas and other residential or non-residential areas.

Medium Density Multi-Family Residential
The fifth and final residential category is Medium Density Multi-Family Residential. The purpose of this classification is the development of traditional apartment
complex structures. This category allows for a maximum density of 25 dwelling units per acre. This classification includes land used for a variety of housing types, but primarily for multiple family dwellings. High density fourplexes, triplexes, duplexes, apartments, condominiums, town homes, and group quarters are examples of development within this category.

**Mixed Use Classification**

The Mixed Use category was established to accommodate existing developments and to promote new projects in areas which traditionally provided for various types of general retail, office, business, and service uses while encouraging secondary uses on the upper floors of buildings. The application of the Mixed Use category promotes pedestrian activity, contributes to a unique blend of commercial developments, and allows for an increase in infilling opportunities within the City. In order to provide flexibility for existing and new developments, the Mixed Use classification is broken into three different groups.

**Pedestrian Mixed Use**

The Pedestrian Mixed Use group allows residential as well as commercial development. Residential units are not permitted on the first floor of these structures. A maximum of 60% residential use is permitted in all structures within this category. Furthermore, there is a minimum size requirement of 500 square feet per residential unit. The goal of this type of development is similar to the Central Business District Mixed Use, which encourages loft style apartments above commercial buildings.

**Corridor Mixed Use**

Corridor Mixed Use permits commercial development, high density residential (apartments), office space, and light industrial. The purpose of this classification is to accommodate a diverse area made up of different, yet compatible, structures and uses on the same site or in the same area. There are no restrictions concerning the required amount of residential use in these structures. The aim of this classification is to allow flexibility by permitting other land uses in addition to commercial.
Section 17 - Future Land Use

**Historic Mixed Use**

The final mixed use classification, Historic Mixed Use, allows for Bed and Breakfasts, cafés, artisan studios/galleries as well as single family residential. This category requires a minimum of 30% residential use per lot. For example, a historic home can be converted into a Bed and Breakfast as long as 30% of the lot is being used for residential purposes. This classification excludes traditional style apartment buildings and other intense residential uses. This mixed use classification promotes diversity in development while permitting and encouraging neighborhood and historic preservation of the Old Town Neighborhood along Washington Avenue.

**Redevelopment**

In order to promote the economic health of Navasota, particular areas have been categorized as Redevelopment. Areas located primarily in the northern portions of the current city limits have been designated with this redevelopment classification (Map 17.1). Further details on potential projects within these areas can be found in the associated document, the Navasota Economic Development Plan.
Section 17 – Future Land Use

Planning Area 1

Planning Area 1 includes the area on the northeastern side of Navasota. The area south of the intersection of Highway 6 and North LaSalle Street has been designated as Redevelopment. This land could potentially be developed as an arboretum, amphitheater, and trade venue. This improvement to the northern gateway offers the opportunity to encourage several activities that could benefit Navasota. The goal of this area is to offer an attractive entrance into Navasota, while also giving residents a place to hold concerts, performances, and other related events. The second area of the northern gateway, also identified on Map 17.2 and 17.3 as Redevelopment, is suggested to be an area for trade events similar to those found in Round Top and Canton, Texas. The purpose of this area is primarily the attraction of visitors to Navasota. Due to Navasota’s geographic location and the success of similar events, such a use could serve as a draw to both the event location as well as south, down along the LaSalle corridor into the Downtown. Further details of this proposal can be found in the Navasota Economic Development Plan.

In order to maintain consistency with Planning Area 4 and promote attractive development, the east side of LaSalle Street has a recommended land use classification of Pedestrian Mixed Use. The north side of Washington Avenue is also assigned this mixed use category.
Planning Area 2

Planning Area 2 consists of southeastern Navasota as indicated on Map 17.4 and 17.5. The mixed use category is used extensively within this planning area. In order to create consistency in terms of aesthetic properties and corridor locations, Pedestrian Mixed Use is the advised land use along this span. In addition, Corridor Mixed Use has been proposed along Highway 6 from just south of Washington Avenue to the southeastern city limits. Given the proposed uses of this classification, Corridor Mixed Use will allow various uses, including both commercial and residential along this area. The third multi-use category, Historic Mixed Use is recommended on the south side of Washington Avenue. In order to promote and increase the economic activity of Navasota, the corner of Highway 6 and Washington Avenue has been designated solely for Commercial land uses. The location of this area, in terms of traffic and visibility make it ideal for commercial uses. The remainder of Planning Area 2, includes the existing subdivisions east of Highway 6 and a small area south of SPUR 515, and has been designated as Agricultural/Residential. It should be noted that there is a tremendous opportunity for residential infill in Planning Area 2, which would be facilitated through the presence of existing urban infrastructure.
Section 17 – Future Land Use

Map 17.4: Area 2
Existing Land Use

- Single Family
- Duplex
- Multi-Family (2 units or more)
- Group Quarters
- Mobile/Manufactured Home
- Road (Large Lot Residential, > 1 acre)
- Commercial Retail (Stores, Banks, etc.)
- Commercial Office (Business, Service)
- Commercial Other
- Commercial - Industrial (Warehousing, etc.)
- Light Industrial
- Heavy Industrial
- Public Facilities (CORE, NID, Library)
- Parks
- Public (Parks, hospitals, etc.)
- Transportation
- Railroad
- Railroads
- Downtown
- Park
- Belt Tunnels
- Drains
- Golf Course
- Agricultural
- Unimproved

Map 17.5: Area 2
Planned Land Use

- Low Density Single Family
- Medium Density Single Family
- Neighborhood Density Single Family
- Low Density Multi-Family
- Medium Density Multi-Family
- Commercial
- Neighborhood Retail
- Research and Development
- Warehousing
- Industrial
- Public Use
- Pedestrian Mixed Use
- Historic Mixed Use
- Commercial Mixed Use
- Central Business District
- Parkland
- Redevelopment


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Section 17 – Future Land Use

Planning Area 3

Planning Area 3 is located in the southwestern part of Navasota as shown on Map 17.6 and 17.7. This planning area allows for a variety of uses, to offer both additional housing options for residents as well as opportunities for economic development and expansion. Planning Area 3 primarily comprises the Low Density Multi-Family Residential classification, spanning the south and west borders of the city limits to near LaSalle Street and Washington Avenue. In order to promote compatible land uses and possible economic opportunities, Industrial and Warehousing land uses are recommended in areas adjacent to the west and east side of the railroad, respectively. Finally, the lands running north-south along LaSalle Street have been designated as Pedestrian Mixed Use. In line with the Pedestrian Mixed Use classification, the goals of this area should be to serve both commercial, retail, and office uses with the opportunity to include loft-type residential uses located in the upper stories. The promotion of residential development along LaSalle Street in this planning area is intended to serve as a catalyst for redevelopment and new development within the area. Opportunities exist for infill development in this planning area.
Section 17 – Future Land Use

Map 17.6: Area 3
Existing Land Use

Map 17.7: Area 3
Planned Land Use


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Planning Area 4

Planning Area 4 includes the area on the northwestern side of Navasota. This section’s boundaries are displayed on Map 17.8 and 17.9. This area allows for Pedestrian Mixed Use development along LaSalle Street and Washington Avenue. Since this area is considered a gateway into the CBD, the Pedestrian Mixed Use development promotes a unique mixture of developments and will preclude many undesirable commercial uses.

The area also includes the existing residential classifications of Medium Density Single-Family Residential in the northwest corner and Neighborhood Density Single-Family Residential south to LaSalle Street and Washington Avenue. In addition, a Medium Density Multi-Family Residential is also recommended bordering the north side of Washington Avenue. This planning area includes land meant for residential infill development including areas of multi-family along existing and future arterials.
Section 17 – Future Land Use

Map 17.8:
Area 4
Existing Land Use
- Single Family
- Duplex
- Multi-Family (2 to 4 units)
- Group Quarters
- Mobile/Manufactured Home
- RV Park (large lot residential, > 5 acres)
- Commercial Retail (stores, banks, etc.)
- Commercial Office (business, service)
- Commercial Other
- Commercial Industrial (Warehousing, etc.)
- Light Industrial
- Heavy Industrial
- Public Facilities (COA, MSD, Library)
- Bars Public (Religious, Hospitals, etc.)
- Transportation
- Railroad
- Utilities
- Downtown
- Park
- Ball Fields
- Ongoing
- Golf Course
- Agricultural
- Unimproved

Map 17.9:
Area 4
Planned Land Use
- Low Density Single-Family
- Medium Density Single-Family
- Neighborhood Density Single-Family
- Low Density Multi-Family
- Medium Density Multi-Family
- Commercial
- Neighborhood Retail
- Research and Development
- Warehousing
- Industrial
- Public Use
- Pedestrian Mixed Use
- Historic Mixed Use
- Corridor Mixed Use
- Central Business District
- Parkland
- Redevelopment

This comprehensive plan of future land use map does not constitute zoning regulations or district boundaries.
Section 17 – Future Land Use

**Planning Area 5/Extraterritorial Jurisdiction**

In order to truly evaluate the future of Navasota’s growth and land uses, it is necessary to consider areas outside of the current city limits. For the purposes of the Future Land Use Plan, areas outside of the city limits and within the allowable ETJ are addressed as Planning Area 5 (Map 17.10 and 17.11).

**Industrial Park Addition**

The Navasota Industrial Park is located south of the existing city limits. The current park does not connect with the airport property to the west. Extending the industrial land use to the airport property will increase connectivity with the existing industrial park and encourage additional development. Furthermore, the necessary infrastructure is already located in the southern portion of the City. Currently, the park tenants have a contract with the City to prevent annexation. In exchange for this agreement, the city is permitted to charge a fee in lieu of taxes. Should a new agreement between all parties come to fruition, annexation of this area is recommended.
Section 17 – Future Land Use

Map 17.10: Area 5
Existing Land Use
- Single Family
- Duplex
- Multi Family (2 units or more)
- Group Quarters
- Mobile/Manufactured Home
- Rural (Large Lot Residential, > 1 acre)
- Commercial Retail (Stores, Banks, etc.)
- Commercial Office (Business, Service)
- Commercial Core
- Commercial - Industrial (Warehousing, etc.)
- Light Industrial
- Heavy Industrial
- Public Facilities (CON, MSD, Library)
- Parks
- Public (Plagues, hospitals, etc.)
- Transportation
- Railroad
- Utilities
- Downtown
- Green
- Ball Fields
- Drainage
- Golf Course
- Agricultural
- Unimproved

Map 17.11: Area 5
Planned Land Use
- Low Density Single Family
- Medium Density Single Family
- Neighborhood Density Single Family
- Low Density Multi-Family
- High Density Multi-Family
- Commercial
- Neighborhood Retail
- Research and Development
- Warehousing
- Industrial
- Public Use
- Pedestrian Mixed Use
- Historic Mixed Use
- Central Business District
- Parks
- Redevelopment


This comprehensive plan or future land use map does not constitute zoning regulation or district boundaries.
Section 17 - Future Land Use

Annexation

The ability to annex lands into the city limits can be a proactive tool to aid in maintaining compatible and aesthetically pleasing land uses. Several areas of land around Navasota should be considered for future annexation. The lands in the ETJ east of Highway 6 have already been annexed to some degree. However, this annexation is somewhat of a piecemeal approach. In order to create a more uniform area of land use regulation and to aid future growth patterns along Highway 6, the annexation of the area outlined in Map 17.1 is recommended.

The second area evaluated for annexation is located south of the current city limits, between the Industrial Park and Highway 6. This area has existing infrastructure which will reduce Navasota’s costs. In addition, this area is a prime site for potential gateway uses. Similar to the previous annexation area above, the proximity to Highway 6 may be problematic with regard to incompatible land uses.

Land south of the current city limits between the existing industrial park and the airport should be annexed and developed as an additional phrase of the industrial park. Further, land north of the airport should be annexed to provide land-use controls for the purpose of airport mitigation and aesthetic control.
Section 17 – Future Land Use

Map 17.7: Annexation

Annexation Areas


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The following 10 year action agenda is suggested for implementation of the Future Land Use section the Comprehensive Plan.

**Action Agenda**

**Year 1:**
- Adopt the Comprehensive Plan.
- Adopt a municipal ordinance requiring consistency between the zoning ordinance map and the Comprehensive Plan.
- Identify future land use classifications that need appropriate zoning classifications (such as mixed use, manufactured housing, etc.).
- Adopt zoning text amendments to create appropriate new zoning districts and amend existing districts as needed to permit consistency with the Comprehensive Plan.
- Identify necessary city initiated rezonings to make the zoning map consistent with the comprehensive plan, and adopt a feasible rezoning schedule.

**Year 2:**
- Begin city initiated rezonings as identified in year 1. Continue this process according to the schedule adopted in year 1.
- Expand on the existing clean up program by making it a week long “Navasota Pride Week.”

**Year 3:**
- Zone undeveloped portions of the flood plain area as Agriculture/Residential.
- Begin a program to encourage the purchase of flood insurance.

**Year 4:**
- Condemn, demolish, or repair structures that pose a threat to the safety of the citizens.
- Create a portfolio of commercial site designs to encourage structures meeting the design standards of the community.
- Develop and adopt design and appearance standards for residential uses.
- Perform a general overview and update Future Land Use Plan.

**Year 5:**
- Evaluate probable land uses and the costs of infrastructure associated with any anticipated annexation.

**Year 10:**
- Perform major revisions of the Future Land Use Plan.

**Ongoing Activities:**
- Review and update Comprehensive Plan
- Plan and zone land immediately upon annexation according to the adopted Future Land Use Plan.
- Write an annual report.
Section 17 - Future Land Use

- Document and publicize available infill opportunities throughout the City.
- Reevaluate any rehabilitation projects conducted in Downtown over the past five years to gauge what has worked, and why others have failed.
- Annex the Industrial Park as agreements expire.
Appendix D: City of Navasota Annual Water Quality Report
City of Navasota 2011 Annual Water Quality Report

Your Annual Drinking Water Quality Report provides an analysis of recent tests required by the Texas Commission on Environmental Quality (TCEQ) and describes the efforts of Navasota Water Department to provide you with reliable drinking water through the operation of our municipal water distribution system.

Public Water systems are required by the 1996 Safe Drinking Water Act Amendments to provide information to their water customers. Navasota’s drinking water system is rated “Superior” by the TCEQ and meets all state and federal standards. Navasota Water Department strives to provide its customers with quality drinking water and outstanding customer service.

This report covers the period from January 1 through December 31, 2011.

Public Participation
If you have any questions about this report or concerning your water utility, please contact Gary E. Johnson, Director of Public Works, by calling 936-825-6450, or by writing to this address: P.O. Box 910, Navasota, TX 77868. We want our valued customers to be informed about their water utility.

The Navasota City Council meets on the second and fourth Monday of every month at 6:00 p.m. The Navasota City Council Chambers is located in Navasota City Hall at 200 E. McAlpine Street. Council meetings are open to the public and provide opportunity for residents to share their concerns on any city related matter. For more information, call 936-825-6475. To learn about future public meetings concerning your drinking water, or to request one, please call Public Works at 936-825-6450.

City Manager: Brad Stafford
Navasota Public Works Dept: Gary Johnson, Director of Public Works
Jeff Greer, Utility Superintendent
City Council: Bert Miller, Mayor;
Peter Canney; Grant Holt; Geoff Horn; Bernie Gessner

ESPAÑOL? Este reporte incluye información importante sobre el agua para tomar. Si tiene preguntas o discusiones sobre este reporte en español, favor de llamár al tel. 936-825-6450 por hablar con una persona bilingüe en español.

Special Notice
Required language for ALL community public water supplies:
You may be more vulnerable than the general population to certain microbial contaminants, such as Cryptosporidium, in drinking water. Infants, some elderly or immune-compromised such as those undergoing treatment for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with other immune system disorders can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care provider. Additional guidelines appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Water: At the Source
The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams and ponds, reservoirs, springs and wells.

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and in some cases radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water before treatment include microbes, inorganic contaminants, pesticides, herbicides, radioactive contaminants, and organic chemical contaminants.

Where does my Drinking Water come from?
Our water source is groundwater pumped from the Catahoula/Jackson Group Formation, which is located in Southwest Grimes and Brazos Counties. Water is then treated using chlorine gas disinfection and aeration to remove or reduce harmful contaminants that may come from the source water.

A Source Water Susceptibility Assessment for our drinking water sources are updated by the Texas Commission on Environmental Quality, and are provided to us this year. The report describes the susceptibility and types of constituents that may come in contact with your drinking water based on human activities and natural
conditions. The information contained in the assessment will allow us to focus our source water protection strategies.

**Lead/Copper Reporting**

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. This water supply is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1.800.426.4791 or at epa.gov/safewater/lead.

**Secondary Constituents**

Many constituents (such as calcium, sodium, or iron), which are often found in drinking water, can cause taste, color, and odor problems. The taste and odor constituents are called secondary constituents and are regulated by the state of Texas, not the EPA. These constituents are not causes for health concern. Therefore, secondaries are not required to be reported in this document, but they may greatly affect the appearance and taste of your water.

**Additional Information**

**Chlorine:** Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose or could experience stomach discomfort.

**Total Coliform** bacteria are used as indicators of microbial contamination of drinking water because they are harder than many disease causing organism. While not disease-causing organisms themselves, they are often found in association with other microbes that are capable of causing disease, as their absence from water is a good indication that the water is microbiologically safe for human consumption.

**Fecal Coliforms and E. coli** are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

**Definitions**

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.

**Action Level (AL):** The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Abbreviations**

ppm—Parts per Million: Equiv. (milligrams per liter (mg/l)) One part per million is equivalent to half of an aspirin tablet dissolved in a full bathtub of water (approx. 50 gallons).

ppb—Parts per Billion: Equiv. (micrograms per liter (ug/l)) One part per billion is equivalent to half of an aspirin tablet dissolved in 1,000 bathtubs of water (approx. 50,000 gallons).

pCi/L=picocuries per liter
(a measure of radioactivity)

mRem/yr = One REM = One Roentgen, relates to the absorption of radiation on parts of the body over time.
## 2011 Water Quality Test Results

### Regulated Characteristics

#### Inorganic Contaminants

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>Year Sampled</th>
<th>Highest Level Detected</th>
<th>Violation? Y/N</th>
<th>MCLG</th>
<th>MCL</th>
<th>Possible Source of Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>2010</td>
<td>0.148</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>Erosion of natural deposits; discharge of drilling wastes or metal refineries.</td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>2010</td>
<td>0.85</td>
<td>No</td>
<td>4</td>
<td>4</td>
<td>Water additive to promote strong teeth; erosion of natural deposits Discharge from fertilizers &amp; aluminum factories</td>
</tr>
<tr>
<td>Nitrate</td>
<td>ppm</td>
<td>2010</td>
<td>0.03</td>
<td>No</td>
<td>10</td>
<td>10</td>
<td>Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits</td>
</tr>
<tr>
<td>Selenium</td>
<td>ppb</td>
<td>2010</td>
<td>3.5</td>
<td>No</td>
<td>50</td>
<td>50</td>
<td>Discharge from petroleum and metal refineries; erosion of natural deposits, Discharge from mines.</td>
</tr>
</tbody>
</table>

#### Lead and Copper

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>Year Sampled</th>
<th>Highest Level Detected</th>
<th>Violation? Y/N</th>
<th>MCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>ppb</td>
<td>2010</td>
<td>4.16 (90th percentile)</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Copper</td>
<td>ppm</td>
<td>2010</td>
<td>0.122 (90th percentile)</td>
<td>No</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Erosion of natural deposits; corrosion of household plumbing systems

#### Microbial Contaminants

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Year Sampled</th>
<th>Highest No. of Positive</th>
<th>Violation? Y/N</th>
<th>Total No. of Positive e. coli or fecal coliform samples</th>
<th>MCL</th>
<th>MCL (maximum contaminant level)</th>
<th>Possible Source of Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Coliform Bacteria</td>
<td>2011</td>
<td>1 Positive</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td></td>
<td>Naturally present in the environment</td>
</tr>
</tbody>
</table>

#### Volatile Organic Contaminants (Regulated Contaminants)

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>Year Sampled</th>
<th>Highest Level Detected</th>
<th>Violation? Y/N</th>
<th>MRDL</th>
<th>MRDLG</th>
<th>Possible Source of Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine (Cl₂)</td>
<td>ppm</td>
<td>2010</td>
<td>2.48</td>
<td>No</td>
<td>4</td>
<td>4</td>
<td>Disinfectants used to treat water intakes</td>
</tr>
</tbody>
</table>

#### Radioactive Contaminants

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Units</th>
<th>Year Sampled</th>
<th>Highest Level Detected</th>
<th>Violation? Y/N</th>
<th>MCLG</th>
<th>MCL</th>
<th>Possible Source of Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta/Photon Emitters</td>
<td>mR/hr</td>
<td>2010</td>
<td>0.3</td>
<td>No</td>
<td>0</td>
<td>4</td>
<td>Decay of natural and man-made deposits</td>
</tr>
<tr>
<td>Combined Radionuclides 238/234</td>
<td>pCi/L</td>
<td>2010</td>
<td>2.7</td>
<td>No</td>
<td>0</td>
<td>5</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Gross Alpha emitting</td>
<td>pCi/L</td>
<td>2010</td>
<td>10</td>
<td>No</td>
<td>0</td>
<td>15</td>
<td>Erosion of natural deposits</td>
</tr>
</tbody>
</table>

#### Secondary and Other Non-Regulated Constituents

<table>
<thead>
<tr>
<th>Substance</th>
<th>Units</th>
<th>Year Sampled</th>
<th>Highest Level Detected</th>
<th>Possible Source(s) of Constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicarbonate</td>
<td>ppm</td>
<td>2011</td>
<td>373</td>
<td>Corrosion of carbonate rocks such as limestones</td>
</tr>
<tr>
<td>Chloride</td>
<td>ppm</td>
<td>2011</td>
<td>93</td>
<td>Abundant naturally occurring element. Used in water purification. By-product of oil-field activity</td>
</tr>
<tr>
<td>pH</td>
<td>units</td>
<td>2011</td>
<td>7.7</td>
<td>Measure of the acidity or alkalinity of water.</td>
</tr>
<tr>
<td>Alkalinity</td>
<td>ppm</td>
<td>2011</td>
<td>470</td>
<td>Naturally occurring soluble mineral salts</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>ppm</td>
<td>2011</td>
<td>656</td>
<td>Total Dissolved mineral constituents in water</td>
</tr>
</tbody>
</table>
**Ideas on How to Conserve Water**

Commit to at least one water saving technique each day and over time it will result in saving water. Savings may be minimal, however every drop counts. You can make a difference.

- Water your lawn and outdoor plants late in the day to reduce evaporation.
- Use a shut-off nozzle on your outdoor water hose.
- Use native plants that require less water.
- Mulch around plants to hold water in the soil.
- Consider upgrading to Energy Star labeled appliances.
- Use a low flow showerhead. This can save up to a gallon or two per minute.
- Take shorter showers—5 minutes or less is best.
- Turn off water while soaping hands and brushing teeth.
- Install new toilets that use less than 1.6 gallons per flush.
- Place faucet aerators on sink faucets.

**Frequently Asked Questions**

**Why is my water milky white?**

Many times this is caused by air dissolved in the water. Fill a glass and let it sit on your counter. See if the cloudiness disappears after a few minutes.

**My water is dirty from time to time and then clears up. What's going on?**

Utility line maintenance or use of fire hydrants can disturb the pipe system. This is usually temporary. Don’t run the clothes washer or dishwasher until it clears. You may need to run the bathtub faucet to clear out the problem.

**My water is red or brown. What is this?**

Pipes within the street, yard, home, or your hot water heater tank may be rusting. Consult a licensed plumber or contact your water utility to help troubleshoot the problem.

If the discolored water is coming only from the hot water tap, the source is likely the hot water heater or home plumbing. If the problem flows from both hot and cold taps, you may need to contact your water provider.

**What is the hardness of my water?**

Hardness is the amount of calcium and magnesium in your water and is expressed as units of calcium carbonate. The units used can be mg/L (ppm) or grains/gallon. Navasota’s water’s hardness is 78 mg/L, and is classified as Moderately Hard.

The table to the right shows the generally accepted hardness classification scale.

<table>
<thead>
<tr>
<th>Hardness Range (mg/L as Calcium Carbonate)</th>
<th>Hardness Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 75</td>
<td>Soft</td>
</tr>
<tr>
<td>76 – 150</td>
<td>Moderately Hard</td>
</tr>
<tr>
<td>151 – 300</td>
<td>Hard</td>
</tr>
<tr>
<td>&gt;300</td>
<td>Very Hard</td>
</tr>
</tbody>
</table>

**Do I need a water softener?**

Water softness is a personal preference, although very hard water can require more soap for washing, increasing your cost to wash clothes and dishes.

Most people don’t want to soften water that is already in the soft range. Very hard water almost always needs to be softened. People with water in the hard or moderately hard classifications differ in their opinions about needing a water softener.
Appendix E: Historic Resources Survey
Historic Resources Survey

The survey includes residential homes, commercial buildings, and historic sites. The following structures are listed with the Texas Historical Commission and/or the National Register of Historic Places and can be found on Map 12.1 at the end of this section. Other structures that could be considered historic but are not listed are documented in Table 12.1. Marker text information was gathered from http://atlas.thc.state.tx.us.

Texas Historical Commission Listings:


Marker Number: 8566  
Year Marker Erected: 1981

Marker Text: “A native of England, Joseph Brooks (1831-89) migrated to Texas with his wife Mary Ann (Farrer) (1833-1900) in 1853. After serving in the Civil War, Brooks moved to Navasota, where he survived an 1867 yellow fever epidemic and became a leading area lumberman. In the 1870s he had this home built for his family. Originally Victorian in design, it was modified with classical revival detailing in 1909-11 by the Brooks' daughter Mary Elizabeth Brooks Salyer. Recorded Texas Historic Landmark – 1981”
2. **Evans House**: 412 Manley Street  
**Marker Number**: 8572  
**Year Marker Erected**: 1991

**Marker Text**: "Newlyweds John Thomas and Maude Martin Evans built this house in 1894 on land given to them by his mother. A ticket agent for the International and Great Northern Railway Company, Evans also served the city of Navasota as alderman and city treasurer. The typical 19th-century vernacular house features a gable roof, and a three-bay porch with elaborate balustrade, turned wood posts, spindlework frieze, and jig-sawn brackets. Recorded Texas Historic Landmark – 1991"

3. **First Baptist Church of Navasota**: 309 Church Street  

**Marker Number**: 8574  
**Year Marker Erected**: 1977

**Marker Text**: "In the spring of 1860, six men formed this church, one of the first of any faith in the railroad town of Navasota. By fall there were 52 members, and growth continued. Services were held in the town's..."
schoolhouse, and then in a Methodist church, until the Baptists received a site as a gift from the Houston & Texas Central Railway, and built a small frame sanctuary about 1872. A permanent edifice of native stone was started after Mrs. A. E. Baten, wife of the pastor, drew plans in 1889. Funds came from members and non-members, sometimes as donations of cattle, and a 46' x 67' x 37' x 67' stone building with a steeple was completed in 1890. By 1925 more room was needed; a 2-story annex was constructed. Although a new, larger sanctuary was erected in 1955, the 1890 building is still used. In 1969, it was converted into a fellowship hall, and after a disastrous fire the next year was restored in 1971. The congregation--now numbering more than 900 members--founded and financed one local mission that became self-supporting, and now underwrites another. During the church's first 116 years, it has been served by 35 pastors.”

4. Old First National Bank of Navasota: 107 West Washington Avenue
   Marker Number: 8576
   Year Marker Erected: 1981

   Marker Text: “Local architect, contractor and stonemason James Davern and his brother-in-law C. C. Camp built this commercial edifice in the 1880s. Constructed of cement-covered stone rubble, it was remodeled with Renaissance Revival detailing in the 1890s, during the ownership of the First National Bank of Navasota. Occupied by the bank until 1952, it has also housed a hotel, offices, a telephone company, and a variety of stores. Recorded Texas Historic Landmark – 1981”
5. **First Presbyterian Church of Navasota**: 302 Nolan Street

*Marker Number:* 8577  
*Year Marker Erected:* 1970

**Marker Text:** “Organized in 1866, drawing members from old church at Washington, Texas. First building, erected in 1876, was replaced in 1894 by this Victorian edifice finely crafted in the taste of its English builders. Recorded Texas Historic Landmark - 1970”

6. **First United Methodist Church of Navasota**: 616 Holland Street

*Marker Number:* 8575  
*Year Marker Erected:* 1984

**Marker Text:** “The first worship services of the Methodist church in Navasota were held in 1853 in the community schoolhouse. The Rev. T. W. Blake served as part-time pastor for most of the antebellum and Civil War years. In 1866 the Houston & Texas Central Railroad deeded land at this site for use by the Methodist congregation. In that year, a frame building with shuttered windows was constructed for the fellowship. It was named Robert Alexander Chapel in honor of an early Methodist circuit rider in Texas. The chapel was also used by Navasota's Presbyterian congregation. In 1891 a...”
rock building replaced the frame structure and was used until 1912, when a brick sanctuary was built. The current sanctuary was completed in 1959. Although the size of the congregation is relatively small when compared with that of other churches in the area, the First United Methodist Church of Navasota has served as host to the Texas Annual Conference of Methodist Churches. Throughout its history, this congregation has provided significant service and leadership to the community and has continued to uphold the ideals and traditions of its pioneer founders."

7. **Foster Home**: 1015 East Washington Avenue  
   **Marker Number**: 8578  
   **Year Marker Erected**: 1982

   **Marker Text**: “Mattie Brigance Foster, daughter of Grimes County settler Franklin Brigance, had this home built in 1900 shortly after the death of her husband. Incorporating elements of the colonial revival and shingle styles, the house is of cypress frame construction and features a multi-gabled roof. Its design is indicative of the movement away from the elaborate detailing of the Victorian era. The home remained in the Foster family for 60 years. Recorded Texas Historic Landmark - 1982 Incise on base: Sponsored by Salih M. Yilmaz, M.D., Ph.D.”
8. **R.B.S. Foster Home:** from the intersection of SH 6 and SH 90 take SH 90 approximately 1.5 miles.

**Marker Number:** 8579  
**Year Marker Erected:** 1968

**Marker Text:** “Early Texas plantation home in architectural style of the Atlantic states. Malcolm Camp, wealthy cotton planter, built this structure in 1859, with lumber hauled from East Texas sawmills. High-ceilinged rooms are very large. Formal dining room in sandstone-lined cellar was unique. Had detached kitchen. Purchased 1883 by a leading local citizen, R.B.S. Foster (1848-1889), this was birthplace of his three children-- Georgia, Robert F. and Nettie Rose. So stable is this locality that home was continuously occupied until 1966 by Fosters or their agents.”
9. **Site of Freeman Inn:** 500 East Washington Avenue

**Marker Number:**
8580

**Year Marker Erected:** 1968

**Marker Text:**
"Built by Ira M. Freeman, 1856; way station and hotel for passengers on several stage lines through city. Two-story pine building housed many travelers, among them, Sam Houston. Important visitors, officers stayed here in Civil War. Coaches and teams were kept in Freeman's barns."

10. **The Giesel House:** 113 Railroad Street

**Marker Number:** 8581

**Year Marker Erected:** 1977

**Marker Text:** "Situated near the Houston & Texas Central Railroad Depot, this three-story stone building was erected in 1860 by R. H. Giesel (1833-1872) and his German-born wife Fannie (1828-1881) to house a restaurant and hotel. A two-story frame porch originally extended across the front of the structure. Giesel, a Confederate veteran, served as temporary mayor in 1867, when a yellow fever epidemic struck Navasota. Fannie Giesel renamed her restaurant "The Good Morning John" in 1871. She managed the business..."
until her death in 1881. Later owners operated the hotel as "The Exchange" and "The Hoyle".

11. Rosanna Ward Grimes and Jesse Grimes
   Marker Number: 8583
   Year Marker Erected: 1965

   Marker Text: "Home of Rosanna Ward Britton Grimes (1803-1871) and Jesse Grimes (1788-1866). Signer of the Texas Declaration of Independence and the Constitution of the Republic of Texas; Member of the Congress of the Republic; State Senator; in his honor Grimes County was named."

12. Robert A. Horlock House: 1215 East Washington Avenue
   Marker Number: 8590
   Year Marker Erected: 1984

   Marker Text: "Alabama native Robert Augustus Horlock (1849-1926) came to Navasota in 1871. Here he became a prominent businessman and civic leader. He and his wife, Agnes (White), had this home built in the early 1890s. The house, which remained in the Horlock family for nearly 100 years, exhibits influences of the eastlake and stick styles of architecture. Prominent features include the corner porch, the arched windows with small gabled hoods, and the decorative woodwork. Recorded Texas Historic Landmark – 1984"
13. **La Bahia Trail**: Intersection of LaSalle Street and Brule Drive  
   **Marker Number**: 8595  
   **Year Marker Erected**: 1967  

**Marker Text**: “Originally an Indian trail through Southern Texas and Louisiana; known to Spanish explorers as early as 1690, when the De Leon Expedition passed this site on the way from Mexico to East Texas. With 115 men, 721 horses, 82 loads of flour, and other supplies, Alonso de Leon, Governor of Coahuila, and Father Massanet, a Franciscan priest, entered the wilds of Texas. The purpose of the expedition was to discourage French encroachment from the north, as well as to explore, colonize, and Christianize the Indians. They followed the rugged trail from the present town of Refugio to Goliad and continued northeast to Navasota, probably following Cedar Creek through this town. Then they journeyed north until reaching the Neches River, where (near present Weches) they founded the Mission of San Francisco de Los Tejas. The church was called after the Tejas, or "Friendly" Indians, whose name was eventually given to the entire state. Although de Leon's party went no farther on the western section of the trail, known as Atascosito Road, the eastern section extended into Louisiana. In nineteenth century, the route gained importance as a cattle trail, the Opelousas Road, that moved Texas herds to market in the north and east.”
14. **Leake Building**: 211 East Washington Avenue  
**Marker Number**: 8597  
**Year Marker Erected**: 1977

**Marker Text**: "Originally a one-story frame business house built in 1873 by Walter J. and Julia C. Peterson, this structure was enlarged in 1885. Native sandstone walls and a second story were added. John Wesley Leake (1852-1940), a builder, horse breeder, and race track owner, bought the property in 1886. He and his descendants owned the building more than 80 years. The Victorian commercial structure has housed many important firms. Recorded Texas Historic Landmark – 1977"

15. **Lee Tabernacle Methodist Church**: 302 Teague Street  
**Marker Number**: 8598  
**Year Marker Erected**: unknown

**Marker Text**: "This Methodist congregation was founded in 1860, and worshipped with the Baptist church in shared facilities in Navasota. A church building was erected in 1866 in what was called "Freeman's Town." The Methodist group was formally organized in 1876, and built a separate facility a few years later. This church building was erected in 1896. During construction, services were held in the basement until the sanctuary was"
finished. When the structure was completed, the congregation changed its name to honor the pastor at that time, The Rev. Edward Lee, becoming the Lee Tabernacle Methodist Church. Interior modifications have occurred over the years, including the restoration of the stained glass windows, the addition of a choir room, and general remodeling, but the exterior remains essentially intact. A parsonage was added to accommodate the pastor. This church structure is a fine example of a Gothic revival design, featuring arched windows, a tower entry, stained glass windows, double wood paneled doors, and a gabled roof. The Lee Tabernacle Methodist Church continues to serve its dedicated members as it has for over 130 years in the Navasota community.”

16. **Mickelborough Building:** 115 East Washington Avenue  
**Marker Number:** 8601  
**Year Marker Erected:** 1980  

**Marker Text:** “Eliza Johnson (d. 1876) had this building constructed in 1874 following a fire which destroyed several structures on the block. It was made of limestone rubble to comply with a city ordinance requiring all new construction to include fireproof materials. August Horst (d. 1920), a local investor, bought the property in 1877 and sold it two years later to his wife's brothers, E. P. and J. H. Mickelborough. Members of their families owned it until 1929. The building has housed a saloon, grocery, confectionary, ice cream parlor, and offices for attorneys and dentists.”
17. **Home of Lt. Gov. George D. Neal**: 504 Church Street

- **Marker Number**: 8604
- **Year Marker Erected**: 1974

**Marker Text**: "(Oct. 7, 1853 - July 13, 1916) Born in Amelia County, Va. The Neal Family moved to Washington County, Texas, in 1866. Neal, after attending Baylor University, was admitted to the Bar in 1876. He married Fannie C. Brooks in Oct. 1880, moved to Navasota in 1881, and purchased this residence in 1883. The couple had 3 children. Neal served as county judge, 1884-86; city attorney, 1888-96; and as a State Senator, 1896-1902. He was elected Lieutenant Governor in 1902 and 1904, serving with Gov. S. W. T. Lanham. Neal retired from politics in 1907 and returned here to practice law."
18. **Norwood House:** 207 Ketchum Street  
**Marker Number:** 8605  
**Year Marker Erected:** 1984

**Marker Text:** "Built to serve as the first residence of Ewing and Mattie (Brosig) Norwood, this house was completed in 1898, while Ewing Norwood was president of the First National Bank of Navasota. Designed and built by local architect Ernest Lord, the home exhibits Queen Anne influences in the entry and porch detailing and features a depressed arch and a balustrade over the entryway. The house remained in the Norwood family for more than sixty years. Recorded Texas Historic Landmark – 1984"
19. **Sangster House**: 1113 East Washington Avenue  
**Marker Number**: 8613  
**Year Marker Erected**: 1974

**Marker Text**: "Built in 1902 by Robert Andrew "Buck" Sangster (1878-1957), with part of the proceeds from a winning lottery ticket. Constructed in the Queen Anne revival style with classic revival elements on the exterior. Curly red pine woodwork decorates the 12-room interior. Ernest Lord (1860-1941) was the architect. The house was purchased in 1929 by Sangster's brother, W. W. Sangster, and it remained in the Sangster family until 1965. Recorded Texas Historic Landmark – 1974"
20. **H. Schumacher Oil Works**: 206 Duke Street

**Marker Number**: 8615

**Year Marker Erected**: 1974

**Marker Text**: "Henry Schumacher (1832-1901), a native of Germany, opened one of the first cottonseed oil mills in this region in 1873, assembling the machinery with only the aid of an old encyclopedia. The oil works produced cottonseed oil, meal, and cake, and processed about 1500 tons of seed per year. Schumacher was honored for his contributions to the cottonseed oil industry about 1883 with a dinner at the White House given by President Chester A. Arthur. The first mill burned in 1910, but was soon rebuilt, complete with modern machinery. The oil works ceased operation in 1954."
21. **Henry Schumacher Home:** 306 Duke Street  
   **Marker Number:** 8614  
   **Year Marker Erected:** 1974

   **Marker Text:** "Built by Henry Schumacher (1832-1901), a native of Germany who came to Texas in 1849. In 1866, after serving with the Texas Infantry in the Civil War, he settled in Navasota, was a charter member of the First Presbyterian Church, and about 1868, married Emma Louise Horlock. They had eight children. In 1873, Schumacher built this home and a cottonseed oil mill, for which he was well-known. He was president of the First National Bank at his death."

22. **Saint Paul's Episcopal Church:** 414 East McAlpine Street  
   **Marker Number:** 8612  
   **Year Marker Erected:** 1974

   **Marker Text:** "In 1864, Bishop Alexander Gregg organized an Episcopal mission in Navasota that became a parish in 1866. Originally known as the Church of the Holy Comforter, it was renamed in 1870, when the church building from St. Paul's in Washington (7 mi. SW) was acquired and relocated to Navasota on land donated by the Houston and Texas Central Railway. The congregation completed a new church building in 1891. Throughout its history, St. Paul's has been actively involved in the community with worship, education, and outreach programs."
23. **Steele House**: 217 Brewer Street
   **Marker Number**: 9408
   **Year Marker Erected**: 1974

   **Marker Text**: “In the late 1800s, two brothers named Steele had large cotton operations near Navasota, at Allen Farm, and residences diagonally across this corner from each other. A. G. Steele (1853-1900) and wife Etta had this late Victorian home built in 1896 by contractor J. E. Watkins. Eastlake architectural features embellish the porches and entrances. Descendants lived here until 1970. the house now (1974) is owned and preserved by Syd and Margaret Van Wagner. Recorded Texas Historic Landmark – 1974”

24. **Templeman House**: 1403 East Washington Avenue
   **Marker Number**: 8620
   **Year Marker Erected**: 1987

   **Marker Text**: “Built in the mid-1890s for newlyweds Ward B. and Annie Foster Templeman, this home is reminiscent of Navasota’s early cotton boom era. Originally a Queen Anne design, the house was bricked and modified in the early twentieth century to reflect elements of the Prairie School style of architecture. Prominent features include its wraparound porch, multi-light windows and doors, and copper-clad dome
over a projecting corner turret. Incise on base: Spnsored by Capt. and Mrs. W. T. Urquhart Recorded Texas Historic Landmark – 1987”

25. **Terrell House**: 412 East Washington Avenue

**Marker Number**: 8621
**Year Marker Erected**: 1981

**Marker Text**: “In 1897 Elizabeth Owen had this two-story residence constructed for her daughter Emmeline B. Terrell (b. 1849), the widow of local pharmacist Joel W. Terrell, II, who had died the previous year. In 1899 the home was purchased by John H. Mickleborough, a leading Navasota banker and businessman, and his wife Georgia. An example of Queen Anne styling, the Terrell House features intricate eastlake ornamentation on the gallery and gable ends. Recorded Texas Historic Landmark – 1981”
26. **Lewis J. Wilson Building**: 100 West Washington Avenue  
**Marker Number**: 8625  
**Year Marker Erected**: 1980

**Marker Text**: "A native of Connecticut, Lewis J. Wilson (1832-1895) moved with his parents to Grimes County in 1851. His father Samuel opened a general merchandise business in Anderson. Lewis managed the store until 1861 when he left to serve in the Civil War. After the war he returned to Anderson and opened a mercantile store in partnership with W. R. Howell and John Quincy Yarborough. They completed construction of this brick building in 1871 for a second establishment. Wilson was the sole proprietor by 1881 and continued to manage the business until his death."

*Lewis J. Wilson Building after Train Wreck*
27. **Jesse Youens Home**: 708 Holland Street  
   **Marker Number**: 8626  
   **Year Marker Erected**: 1967  

**National Register:**

28. **Navasota Commercial Historic District**: Roughly bounded by LaSalle Street, Holland Street, 9th Street, and Brule Drive.  
   **Date Listed**: 1982
29. **P.A. Smith Hotel**: 111 Railroad Street  
   **Date Listed**: 1976

30. **Steele House**: 217 Brewer Street  
   **Date Listed**: 1978  
   **Notes**: This house is also listed with the Texas Historic Commission.
### Table 12.1: Historic Building Survey

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Address</th>
<th>Original Use</th>
<th>Current Use</th>
<th>Listed THC</th>
<th>Listed NRHP</th>
</tr>
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<tbody>
<tr>
<td>Joseph Brooks Home</td>
<td>612 East Washington Avenue</td>
<td>home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evans House</td>
<td>412 Manley Street</td>
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<td></td>
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<tr>
<td>First Baptist Church of Navasota</td>
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<td>church</td>
<td>church</td>
<td></td>
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</tr>
<tr>
<td>Old First National Bank of Navasota</td>
<td>107 West Washington Avenue</td>
<td>hotel/store</td>
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<tr>
<td>First Presbyterian Church of Navasota</td>
<td>302 Nolan Street</td>
<td>church</td>
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<tr>
<td>First United Methodist Church of Navasota</td>
<td>616 Holland Street</td>
<td>church</td>
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<tr>
<td>Foster Home</td>
<td>1015 East Washington Avenue</td>
<td>home</td>
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<tr>
<td>R.B.S. Foster Home</td>
<td>from the intersection of SH 6 &amp; SH 90.5 mi on SH 90</td>
<td>Home</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Site of Freeman Inn</td>
<td>500 East Washington Avenue</td>
<td>way station/inn</td>
<td>site of med center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Giesel House</td>
<td>113 Railroad Street</td>
<td>restaurant/office/hotel</td>
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</tr>
<tr>
<td>Rosanna Ward &amp; Jesse Grimes</td>
<td>Marker could not be located by THC.</td>
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<td>Robert A. Horlock House</td>
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<td>museum</td>
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<tr>
<td>La Bahia Trail</td>
<td>Intersection of LaSalle Street &amp; Bruce Street</td>
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<tr>
<td>Leake Building</td>
<td>211 East Washington Avenue</td>
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<tr>
<td>Lee Tabernacle Methodist Church</td>
<td>302 Teague Street</td>
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<tr>
<td>Mickelborough Building</td>
<td>115 East Washington Avenue</td>
<td>saloon, grocery</td>
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<td></td>
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<tr>
<td>Home of Lt. Gov. George D. Neal</td>
<td>504 Church Street</td>
<td>home</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Norwood House</td>
<td>207 Ketchum Street</td>
<td>home</td>
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<tr>
<td>Sangster House</td>
<td>1113 East Washington Avenue</td>
<td>home</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>H. Schumacher Oil Works</td>
<td>206 Duke Street</td>
<td>processing</td>
<td></td>
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<tr>
<td>Henry Schumacher Home</td>
<td>306 Duke Street</td>
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<tr>
<td>St. Paul’s Episcopal Church</td>
<td>414 East McAlpine Street</td>
<td>church</td>
<td>church</td>
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<tr>
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<td>217 Brewer Street</td>
<td>home</td>
<td>home</td>
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<tr>
<td>Templeman House (Castle Inn)</td>
<td>1403 East Washington Avenue</td>
<td>Bed &amp; Breakfast</td>
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<tr>
<td>Terrell House</td>
<td>412 East Washington Avenue</td>
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<tr>
<td>Building Name</td>
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<td>Original Use</td>
<td>Current Use</td>
<td>Listed THC</td>
<td>Listed NRHP</td>
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<tr>
<td>Lewis J. Wilson Building</td>
<td>100 West Washington Avenue</td>
<td>store</td>
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<tr>
<td>Jesse Youens Home</td>
<td>708 Holland Street</td>
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<td>Navasota Commercial Historic District</td>
<td>LaSalle Street, Holland Street, 9th Street, &amp; Brule Drive.</td>
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<td>P.A. Smith Hotel</td>
<td>111 Railroad Street</td>
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<td>vacant</td>
<td>11/1980</td>
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<td>Rene Robert Cavalier De LaSalle (statue)</td>
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<td>Emory - Terrell House</td>
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<td>Wilkerson - Fahey House</td>
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<td>205 East Washington Avenue</td>
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<td>Patout’s Inc</td>
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<td>Levy Building</td>
<td>101 West Washington Avenue</td>
<td>Levy Furniture Co</td>
<td>Navasota Bank</td>
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<td>Brown-Pierson House</td>
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<td>Johnson Rash House</td>
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<td>Neal-Scott House</td>
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<tr>
<td>Smith-Milligan House</td>
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<tr>
<td>Stein-Hancock House</td>
<td>804 Church Street</td>
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<tr>
<td>Ahrenbeck Building</td>
<td>West Washington Avenue</td>
<td>garage &amp; machine shop</td>
<td>Theater</td>
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<tr>
<td>Miller’s Theater</td>
<td>304 East Washington Avenue</td>
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<td>George Hoenke House</td>
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<td>Old City Hall</td>
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<td>Brosig Home</td>
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<td>Union School</td>
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<tr>
<td>Fahey House</td>
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<td>Atcheson School</td>
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<td>Coleman</td>
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<td>Building Name</td>
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<td>Cook Ashburn House</td>
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<td>Franklin Hancock House</td>
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<td>Harris-Lucas House</td>
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<tr>
<td>John D. Rodgers House</td>
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<td>McGee Home</td>
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<td>Owens House</td>
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<td>Pierce</td>
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<td>Walker House</td>
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<tr>
<td>Bechtol House</td>
<td>Navasota Beauty Shop</td>
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</tbody>
</table>

Sources:
http://www.thc.state.tx.us/
City of Navasota Library
http://atlas.thc.state.tx.us
Appendix F: Grant and Loan Programs
Historic Preservation Grant Opportunities

1. **Historic Preservation Grant Fund – NPS:** provides matching grant funding to encourage historic preservation efforts.
   
   **For more information contact:**
   
   Historic Preservation Fund  
   Heritage Preservation Services  
   National Park Service  
   1201 Eye St., NW 2255  
   Washington, D.C. 20005  
   Fax: 202-371-1791  
   Email: nps_hps-info@nps.gov  
   Website: [http://www2.cr.nps.gov/hpf/](http://www2.cr.nps.gov/hpf/)

2. **Federal Historic Preservation Tax Incentives – NPS**
   
   **For more information contact:**
   
   Federal Historic Preservation Tax Incentives  
   Heritage Preservation Services  
   National Park Service  
   1201 Eye St., NW 2255  
   Washington, D.C. 20005  
   Phone: Michael Auer at 202-354-2031  
   Fax: 202-371-1616  
   Email: nps_hps-info@nps.gov  
   Website: [http://www2.cr.nps.gov/tps/tax/tax_p.htm](http://www2.cr.nps.gov/tps/tax/tax_p.htm)

3. **Certified Local Government Grants – Texas Historic Commission:** grant money can be used for training of local preservation commissions, completing or updating surveys of historic resources, producing brochures, preparing preservation plans, and preparing National Register of Historic Places nominations.
   
   **For more information contact:**
   
   Texas Historic Commission  
   Email: bratten.thomason@thc.state.tx.us (grant coordinator)  
   Phone: 512-463-5997  
   Website: [http://www.thc.state.tx.us/grantsincent/graclg.html](http://www.thc.state.tx.us/grantsincent/graclg.html)

4. **Heritage Tourism Grants – Texas Historic Commission:** Offers matching grant funding for heritage tourism oriented projects such as interpretation, signage, publications, websites, or education. Grants are one-to-one with in-kind and/or cash matches. Counties in the Lakes and Brazos Regions will be eligible for the next round of grants. Grimes County is included in the Brazos Region.
   
   **For more information or an application contact:**
   
   Texas Historic Commission  
   Email: amber.nunzio@thc.state.tx.us (grant coordinator)  
   Phone: 512-463-1236  
   Website: [http://www.thc.state.tx.us/grantsincent/grahnt.html](http://www.thc.state.tx.us/grantsincent/grahnt.html)

**Other Financial Sources:**

**State Resources**

1. **Texas Preservation Trust Fund:** A grant program administered by the Texas Historical Commission (THC). Funds can be applied to preservation planning activities, like Historic Resource Surveys or Historic Structures Reports, as well as "bricks-and-mortar" projects for physical work on historic properties.
Appendix G: Retail Master Plan and Guideline
WEST GATEWAY DISTRICT

Community Retail Market area to include specialty retail, and convenience stores.

DOWNTOWN MAIN STREET DISTRICT

Community Retail Market area to include specialty retail, casual sit-down restaurants, and convenience stores.

OLD TOWN MAIN STREET DISTRICT

Community Retail Market area to include specialty retail, pharmacy, local grocery, quick serve, and casual sit-down restaurants.

HIGHWAY 6 CORRIDOR DISTRICT

Regional Retail Market area to include department, supermarket, warehouse, regional travel-stop, pharmacies, quick serve, and casual sit-down restaurants. (See following page for further detail)
1. Located at a major gateway into Navasota, this site is one of the first views by potential consumers as they travel north on Highway 6, and west on Highway 105. Efforts should be focused on an overall cleanup of this corner. Due to good visibility and location on Highway 6, this site has potential for both a regional travel stop and/or quick serve restaurants.

2. Similar to the SE corner, this site has potential for a regional travel stop and/or quick serve restaurant. This site presents the opportunity to capture consumers as they head away from College Station.

3. Located in an existing retail area and directly across from Navasota High School, this site has the potential for a casual sit-down restaurant or two quick serve restaurants. National brand pharmacies will also look at this site because of the regional draw created by the High School and the existing retail cluster in this submarket.

4. This site is large enough to satisfy the needs of a big box retail development. This development should consist of one or two strip centers and quick serve/casual sit-down restaurants.

5. The Southwest Corner of Highway 6 and Highway 90 is at the center of Navasota’s existing retail cluster. With good visibility from both directions on Highway 6, this site has regional and Highway 6 traffic potential. This site is not currently serving its highest and best use with Church’s Chicken. This corner should be marketed to national pharmacies. Once Walmart announces its new Super Center site, the current Walmart site will need to be filled. This site should be marketed to developers with experience in redeveloping old Walmart sites. Because of the size of this big box site, consideration should be made to splitting the site into three stores fronts. Retail prospects for this site include clothing retailers, general merchandise retailers, etc.

6. Due to the parcel size and frontage to Highway 6, this site has potential for regional retail.

7. At 1.92 acres, this site has potential for both retail and/or quick serve restaurants. Because of its proximity to hotels in the area, this site also has potential for casual sit-down restaurants. Additionally, this site is suitable for a service-oriented strip center serving the Retail Trade Area.

8. Due to the parcel size and frontage to Highway 6, this site has potential for regional retail. This site is a logical extension to the existing Highway 6 and Highway 90 intersection retail cluster. A major drainage way runs through this site.

9. Due to the parcel size and frontage to Highway 6, this site has potential for regional retail. However, because of its distance from the existing retail cluster, this site is not likely to be developed in the near term. As a result, this site will serve as a secondary site for most retailers.
4.2.12 Accessory structures such as trash enclosures, ATM machines, utility services, and heating/cooling systems shall be screened from view of neighboring building sites and roadways and shall be constructed to reduce noise transmission to acceptable levels at adjoining properties and public spaces. Materials to screen around these systems shall match or compliment adjacent building materials. Gates shall not allow for view of the contents of the enclosure.

4.2.13 Highly visible detention basins for storm drainage shall be contoured using curvilinear design forms and shall be nicely landscaped.

4.2.14 Service windows and stacking lanes for drive-thru business shall not face public streets.

4.2.15 Loading and delivery service areas shall be located and designed to minimize their visibility, circulation conflicts, and adverse noise impacts to the maximum feasible extent. They shall be screened with portions of the building, architectural wing walls, freestanding walls, and landscaping. They shall not be located in required setback areas.

4.2.16 All utility lines (power, phone, cable, etc.) shall be placed underground except where deferrals have been approved by the City. All connections from trunk lines to individual structures shall be underground.

4.2.17 Satellite receivers or transmitters, television antennas, radio antennas, or other receiving devices are strongly discouraged unless screened from public view.

4.3 Signage

4.3.1 Commercial signs, to the maximum allowed by the City Sign Ordinance, shall be designed as an integral part of the building facade. Mounted signs shall not cover or obscure architectural elements. It shall be assumed, for the downtown area, that the majority of commercial signs shall be pedestrian oriented. Commercial signs in developments 6 acres or larger shall be coordinated as part of an overall signage design program. For multi-building complexes, a free standing sign may be part of this signage program. Locate free standing signs on low planter walls or design monument signs to incorporate elements of the architectural style of the development.

4.3.2 Design directional signs with similar design elements as free standing signs.

4.3.3 Design building signage that is proportional to the scale of the tenant facade.

4.3.4 Illuminate letters not sign backgrounds for free standing signs.

4.3.5 Paint sign backgrounds and sign cabinets to match or compliment building colors.

4.3.6 The use of reverse pan channel (halo) copy and push-through copy is encouraged for building signage.

4.3.7 Primary purpose of signs is to identify the business or businesses located at a specific site. Signs shall not be used as advertisements. The sign’s message shall be limited to the business name and/or the logo of the business occupying the site.

4.3.8 Standardized or corporate signs, which do not conform to the color or architectural detailing of the building, shall be avoided.

4.3.9 Signs shall not be placed on top of any roof, and a sign attached to a wall or eave shall not project above the eave line of the building.
4.1 Scale, Massing, and Style

4.1.1 New buildings shall be made compatible with adjacent development. Many of the older buildings in downtown Navasota establish a consistent rhythm of height, width, and storefront elements along the street. New structures shall to continue this rhythm by expressing similar dimensions.

4.1.2 The facades of new buildings shall be broken down with bays, small scale windows and other details to emulate smaller scale structures. Buildings shall incorporate wall recessions or projections at a minimum of 5 feet in depth. These projections or recessions shall cover at least 25 percent of the total building façade.

4.1.3 The floor to ceiling height of ground floor space shall be 10 feet or greater, and shall match, or closely align with, adjacent structures where feasible.

4.1.4 Developments on lots 6 acres or larger, or assembled properties, shall break down the scale and building massing to appear as a series or complex of smaller structures.

4.1.5 New commercial and civic development adjacent to existing residential development shall gradually step down to the same scale as that of the residential neighborhood.

4.1.6 Design all sides of the building with consistent architectural and facade elements. Break up the roof line silhouette through the use of large cornices, changes in parapet heights, or other techniques such as awnings, bulboouts, reliefs, and fenestration. New structures shall include banding, a change of materials, or relief patterns that respond to the cornice lines and window locations on adjacent buildings.

4.1.7 Buildings with exterior walls greater than 50 feet in horizontal length shall be constructed using a combination of architectural features and a variety of building materials and landscaping near the walls. Walls which can be viewed from public streets shall be designed using architectural features and landscaping (butting the building) for at least 50% of the wall length. Other walls shall incorporate architectural features and landscaping for at least 30% of the wall length.

4.1.8 At least 50 percent of the total façade shall use such features as windows, awnings, entryways, columns, architectural relief and other façade ornamentation and detailing to discourage long expanses of bare wall.

4.1.9 Variations in roof lines shall be incorporated. Parapets, dormers or other features shall be used to conceal rooftop mechanical equipment, wall packs and conduits on all sides of the structure.

4.1.9 Slate, ceramic and concrete tiles, concrete and wood simulated shakes, and composition roofing (with at least a 25-year warranty) are acceptable roofing applications. Pre-formed metal roofing and textured metal with a matte finish may be considered on some buildings.

4.1.10 Low slope single ply membrane roofs may be designed when a parapet and cornice are used to conceal the roofing material.

4.1.11 Where sloped roofs are used, main roofs shall be 4:12 minimum to 14:12 maximum slope with symmetrical gable or hip configuration. Eaves shall to be continuous except at sheds and dormers. Shed roofs shall be attached to the main building wall or roof ridge with a minimum 3:12 slope. Eaves shall overhang at least 18 inches and shall be visibly supported by exposed rafter ends or braces.
4.2.12 Accessory structures such as trash enclosures, ATM machines, utility services, and heating/cooling systems shall be screened from view of neighboring building sites and roadways and shall be constructed to reduce noise transmission to acceptable levels at adjoining properties and public spaces. Materials to screen around these systems shall match or compliment adjacent building materials. Gates shall not allow for view of the contents of the enclosure.

4.2.13 Highly visible detention basins for storm drainage shall be contoured using curvilinear design forms and shall be nicely landscaped.

4.2.14 Service windows and stacking lanes for drive-thru business shall not face public streets.

4.2.15 Loading and delivery service areas shall be located and designed to minimize their visibility, circulation conflicts, and adverse noise impacts to the maximum feasible extent. They shall be screened with portions of the building, architectural wing walls, freestanding walls, and landscaping. They shall not be located in required setback areas.

4.2.16 All utility lines (power, phone, cable, etc.) shall be placed underground except where deferrals have been approved by the City. All connections from trunk lines to individual structures shall be underground.

4.2.17 Satellite receivers or transmitters, television antennas, radio antennas, or other receiving devices are strongly discouraged unless screened from public view.

4.3 Signage

4.3.1 Commercial signs, to the maximum allowed by the City Sign Ordinance, shall be designed as an integral part of the building facade. Mounted signs shall not cover or obscure architectural elements. It shall be assumed, for the downtown area, that the majority of commercial signs shall be pedestrian oriented. Commercial signs in developments 6 acres or larger shall be coordinated as part of an overall signage design program. For multi-building complexes, a free standing sign may be part of this signage program. Locate free standing signs on low planter walls or design monument signs to incorporate elements of the architectural style of the development.

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4.3.7 Primary purpose of signs is to identify the business or businesses located at a specific site. Signs shall not be used as advertisements. The sign’s message shall be limited to the business name and/or the logo of the business occupying the site.

4.3.8 Standardized or corporate signs, which do not conform to the color or architectural detailing of the building, shall be avoided.

4.3.9 Signs shall not be placed on top of any roof, and a sign attached to a wall or eave shall not project above the eave line of the building.
4.2 Building Placement, Orientation, and Site Design

4.2.1 Buildings on primary street frontages within the Downtown Main Street District shall not be set back from the front property line. Rather, they shall be located immediately adjacent to the back edge of the public sidewalk right-of-way. Buildings shall be oriented parallel to the major street frontage, and the ground floor of the building shall be at the public sidewalk level with entries to lease space and outdoor areas directly accessible from the sidewalk. Driveways shall be located on alley frontages in order to maximize on-street parking and minimize disruptions to traffic flow.

4.2.2 Opportunities for pedestrian oriented spaces such as interior walkways, plazas, and courtyards shall be incorporated into developments 6 acres or larger.

4.2.3 Gas canopies, drive-thru lanes, service functions, and accessory structures in all districts, with the exception of the Downtown Main Street District, shall be located away from the intersections. The overall site layout shall include locations where these uses are compatible with residential developments and increased landscaping or screening to further separate these uses from adjacent residential developments.

4.2.4 Street corners shall be developed with building entrances, public plazas, or small parks that make it an active portion of the development.

4.2.5 Commercial developments shall be linked to the surrounding area with pedestrian connections. The paths shall be well lit and visible. Paths shall not pass through service areas of the site, as often these are deserted.

4.2.6 Covered walkways (such as arbors and awnings) shall be placed along the fronts of buildings to create a “pedestrian-friendly” orientation, provide weather protection and add a visual interest at the street level.

4.2.7 Design convenient pedestrian access to, and throughout, the development. Design projects to minimize pedestrian and vehicular convergence. Where pedestrian circulation paths cross vehicular routes, provide a change in paving materials, textures or colors to emphasize the pedestrian path of travel.

4.2.8 Pedestrian focal points shall have enhanced pedestrian paving such as decorative scored concrete, colored concrete, and/or decorative pavers.

4.2.9 Design architectural and/or landscape elements to provide shade on South and West exposures to protect patrons in plazas, patios, and/or other public spaces.

4.2.10 Provisions for long term storage of shopping carts shall be accommodated within the tenant space or in an area adjacent to the tenant space. The shopping cart areas shall be hidden from view with decorative screening at least as high as the carts. Covers for cart areas shall incorporate roof design features found in the development. Shopping cart areas shall be placed so that they do not interfere with accessible routes.

4.2.11 Site plans for development shall include locations for all temporary storage, outdoor displays, sales, vending, amusements, and seasonal sales.
4.4.5 Awnings along street frontages shall be incorporated. Awnings on adjacent buildings shall be similar and sympathetic to one another in size, scale, and color. Awnings shall be coordinated with signage, lighting, and street trees.

4.4.6 All glass, plastic, or other transparent skylight or solar device shall be treated to eliminate reflective glare. Clear, bronze, or gray glazing is preferred over white translucent. Flat skylights are preferable to domes. Solar collectors may be incorporated; however, the collectors shall be flat to the roof. In addition, the majority of the mechanical portion of the system must be contained within the structure and not be positioned on the roof.

4.4.7 Reflective glass is prohibited.

4.4.8 Elevated decks with occupied areas below shall have supports of not less than 6x6. Built-up wing walls or built-up columns (clad with siding material) both in conjunction with landscape screening shall be incorporated.

4.4.9 All 1st floor decks which are more than 24 inches above grade must have skirt (screening) walls. These walls shall be recessed 18 to 24 inches from the deck/porch edge to create shadow lines.

4.4.10 All exterior metals and plastics (vents, flashing, gutters, etc.) shall be screened from view, painted or treated to blend in with the adjacent surrounding material.

4.5 Lighting

4.5.1 Locate lighting for parking areas and drive aisles in landscaped areas.

4.5.2 Lighting fixtures shall be designed to direct light down onto the site and away from neighboring property. Lighting shall be designed to include cut-off shielding to minimize the negative effects of light pollution and the night sky.

4.5.3 Information regarding the design, number, and location of all exterior lighting fixtures shall be provided at time of site plan review, including (but not limited to) exterior wall, pendant, architectural accent, parking lot, walkway, site, and landscape lighting.

4.5.4 Illumination over an entire area or use of overly bright lighting is strongly discouraged. Lighting that blinks, flashes, or changes intensity shall strongly be discouraged.

4.5.5 Lighting for pedestrian safety shall illuminate changes in grade, path intersections, and other areas along paths which, if left unlit, would cause the user to feel insecure. Recommended minimum levels of illumination along pedestrian paths between destinations is 0.5 foot-candles. At pedestrian destination points such as entryways, plazas, and courtyards, lighting levels shall typically achieve illumination of 1 foot-candle.

4.5.6 Illumination for parking areas shall achieve a lighting level of 1 foot-candle on the parking lot surface.

4.5.7 Parking lot lights, security lights, and other lights on a development site shall not exceed a height of 25 feet above the site’s finish grade.
4.6 Parking Facilities

4.6.1 Parking structures fronting public streets shall be designed with facades that are compatible with adjacent buildings. At the ground floor level, retail lease space is encouraged along public sidewalk frontage. Driveway entries shall be from side streets or alleys.

4.6.2 Parking lots shall be adequately lit and include pedestrian amenities such as trash receptacles.

4.6.3 Sidewalks and landscape aisles shall be located perpendicular to the main building to facilitate the flow of pedestrians from the parking lot to the building in a safe and efficient manner.

4.6.4 Parking areas shall be connected whenever possible through the use of cross-access easements.

4.6.5 Parking lots shall be screened from view along sidewalks and roadways through the combined use of free forming berms, low masonry walls, and plantings.

4.6.6 Parking lot designs shall provide for the necessary parking spaces and related landscaping and pedestrian access. At least one paved, continuous, and direct pedestrian walkway (min. 5 feet wide clear, no bumper overhang) through the parking lot to the building shall be provided.

4.6.7 A minimum of 1 canopy shade tree per 8 parking spaces is required in all parking lots, to be planted in islands, medians, and perimeter areas adjacent to lots (excluding streetscape tree plantings). No landscaped area within a parking lot shall be less than 160 square feet.

4.6.8 Islands shall contain an 18-inch wide concrete or decorative paver curb along the inside of the island abutting the parking stalls to allow patrons to avoid tripping over landscape.

4.6.9 Physical shade structures may also be an appropriate means of shading parking lot areas in lieu of shade trees.

4.6.10 Where parking spaces abut landscaped islands, medians, or perimeter curbs or sidewalks, the length of spaces shall be shortened by 1.5 feet to account for the car overhang, and the width of the sidewalk or landscape strip increased by that same amount.

4.6.11 Design parking lots to avoid dead-end aisles. Where a dead-end aisle is authorized, adequate space for unimpeded turn-around must be provided.
4.7 Landscape

4.7.1 Landscape designs shall be prepared by a qualified professional, and at a minimum, enhance the visual appeal of the built environment, screen undesirable views, strengthen the pedestrian scale, provide a buffer between auto and pedestrian environments, provide shade in public spaces and parking lots, help define the site, provide congruency with the existing neighborhood, and break up large areas of hard surface.

4.7.2 Commercial projects shall re-naturalize all areas disturbed by the construction of the site and buildings. Re-naturalizing includes the following native plant materials:
   a) 5-10% Trees
   b) 25-45% Shrubs (must have a minimum of 3 varieties)
   c) 35-55% Grasses
   d) 0-25% Forbs

4.7.3 Commercial projects shall reduce potable water consumption. Reductions can be attributed to any combination of the following items:
   a) Predominate use of native plant species
   b) Efficient irrigation systems (smart weather based control clocks, rain guards, check valves, drip irrigation, etc.)
   c) Use of captured rainwater

4.7.4 Newly planted areas shall include a mix of deciduous and evergreen plantings to provide year-round aesthetic value and to optimize passive solar designs.

4.7.5 The use of turf used in narrow planting strips (6 feet wide or smaller) shall be avoided.

4.7.6 Where landscaping is intended to provide a visual screen, the species, quantity, maturity (size), and spacing of the initial plantings shall be sufficient to provide a functional screen within a single growing season.

4.7.7 Planters shall be guarded from autos by raised curbs or wheel stops where needed.

4.7.8 The plant palette shall emphasize mass and form rather than individual trees or shrubs.

4.7.9 Vegetative matter shall cover 75 percent of any landscape area.

4.7.10 Landscaping shall be completed prior to receiving building occupancy. Exceptions for weather delays to landscape completion may be considered.

4.7.11 Street trees shall be a minimum 4 inch caliper at initial planting. Street trees at maturity, shall have a minimum branch height of eight (8) feet. All other newly planted deciduous trees on the project site shall be a minimum of 3 inch caliper, and Coniferous Trees shall be a minimum 12 foot height.

4.7.12 Fruiting trees shall not be located in or adjacent to public spaces, parking lots, nor sidewalks and streets.

4.7.13 In any case, a minimum ten (10) percent of total parking area shall be landscaped.

4.7.14 Shade trees shall be planted in landscape islands directly or within strips abutting, the parking bays to provide 50% shade coverage at high noon, with full foliage within 5 years of planting.

4.7.15 Trees located in front of “pull-in” parking spaces shall be placed in line with painted lines that designate parking stalls to minimize potential damage from vehicle overhang.

4.7.16 No Evergreen Tree with a mature width greater than 20 feet shall be planted within 15 feet of a landscaped area.

4.7.17 Surface water and pollutant runoff shall be minimized, and filtered through the usage of pervious surfaces and vegetative ground cover whenever possible. Bioswales that collect storm water are strongly encouraged to help water filtration, slow water runoff, and replenish the water table, as well being a means to reduce flooding.
5.1 Scale and Massing

5.1.1 Building Conservation: Navasota’s older buildings are a resource that should be respected and carefully maintained wherever possible. The scale and massing of older buildings provide models for new development and should be maintained in all remodelling projects.

5.2 Access and Orientation

5.2.1 Pedestrian access through entryways shall be created to the main arterial street. Wherever possible, rear entries from alleys should be added, if they do not already exist.

5.2.2 Wherever possible, existing driveways from the public street should be eliminated and primary vehicular access should be from alleys.

5.3 Details, Colors, Textures

5.3.1 Conservation and Restoration: Original building styles and details should be restored or adapted for reuse if at all possible. Cumulative additions and changes should also be respected as indicative of the life of the building where they do not detract from the overall style and composure of the building rehabilitation project. Industrial buildings can be modified to the extent necessary to accommodate new uses. Renovations should be planned to reveal historic details and materials where feasible. The restoration of older buildings to their original character is encouraged. Industrial detailing on warehouse buildings should be maintained.

5.3.2 Color: The palette is intended to unify the downtown, but variations from building to building and block to block should be encouraged to avoid monotony. Colors should be in the earth tone range characteristic of those used on many of the older buildings. Contrasting lighter or bolder accent colors are encouraged for trim, highlights, and signage.

5.3.3 Commercial Signs: Permitted signage areas may need to be modified to fit available locations where they do not obscure architectural details or traditional building elements.

5.4 Renovation Prototypes

There are a number of relatively inexpensive ways that existing buildings can be renovated to give them a fresh look or more extensive changes that recapture an architectural integrity that has been lost over the years from insensitive repairs and modifications. In all cases, these suggested prototypes generally can provide quality lease space for less cost than new construction. Quality renovation is considered an important part of the revitalization of downtown.

5.4.1 Awnings: Add awnings. Select awning design and color scheme to unify or to differentiate establishments, wings or whole buildings.

5.4.2 Tile: Add tiles as a wall base, decorative coping or parapet, belt course or accents.

5.4.3 Paint: Use fresh paint and/or a new color scheme. Select colors to unify or to differentiate architectural elements.

5.4.4 Relief or trim: Relief and trim may be used to articulate surfaces, provide detail and organization to plain walls.

5.4.5 Trellises and espaliers: Plain walls may be enlivened by the addition of trellises and/or espaliers.
5.4.6 Flower boxes: Unadorned walls and facades may be enriched by the use of flower boxes under window openings.

5.4.7 Clean up/restore: The architectural integrity of older buildings may be recaptured by cleaning up or restoring such buildings to their original condition. These changes may include the removal of unsightly signage, inferior exterior finishes, and the restoration of original surface, as well as the removal of exposed HVAC equipment, fire escapes, and the like.

5.4.8 Windows: Upgrade window frames and glazing. Install new storefront system. Alternatively, install mullioned windows for upper story windows.

5.4.9 Dormers/Monitors: Plain facades may be enriched by the addition of dormers or monitors. They can provide focus, create rhythm, and change the proportions of a building.

5.4.10 Roof: Consider re-configuring the roof form. A flat-roofed building may acquire greater presence, apparent volume, and new proportions by the addition of a gabled or hipped roof.

5.4.11 Balconies/Exterior Stairs: Consider adding balconies and/or exterior stairs. (May require interior remodelling.) Balconies and stairs add both functionality and visual interest.

5.4.12 Arcades/pergolas: Arcades and/or pergolas will add three dimensionality, visual interest, focus, and functionality.

5.4.13 Pop-outs: Consider adding entrance/lobby/vestibule pop-outs or additions to otherwise blank facades. Such elements in contrasting materials and roof design can create focus, interest, and also serve a useful purpose.
Appendix H: Beautification and Uniformity Proposal
Beautiful Appearance and Uniformity of Navasota Gateway
1. Design Plan

In order to create a pedestrian connection between Washington Drive and the creek, block caps on section A&B except rush hour time and open to the public.

**WALKABLE DOWNTOWN with MUSIC**
- Install unique, music-themed street furniture
- Keep uniformity with music and art constant
- Create a strong pedestrian connection between Washington Avenue and the creek
- Implement a traffic diet

**OUTDOOR MUSEUM & TIME LINE**
- Create a time line along the street with some view spots and historical plaques
- Provide pedestrian-friendly sidewalks to lead people to downtown area

**LANDSCAPE ISLAND within the median**
- Provide a sense of arrival to new corners
- Serve as a main gateway

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**SECTION 1. Downtown Area**

**Before**

**After**

**SECTION 2. Residential Area**
2. Streetscape - Downtown Area

BEFORE

AFTER
2. Streeescape - Residential Area

BEFORE

AFTER
3. Space Programs and Detailed Design Elements

- Walkable Downtown with Music
- Outdoor Museum & Timeline
- Landscape Island within the median
- Historical Display
- Street Furniture
- Sidewalk with sculpture
- Sidewalk with art
Appendix I: Navasota State of the Community Report