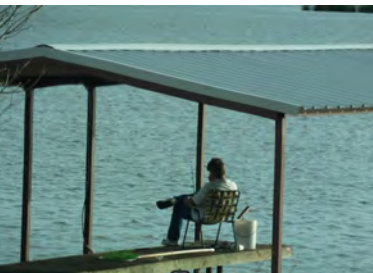


Lake Nasworthy Master Plan and Implementation Strategy

San Angelo, Texas

Prepared For: City of San Angelo | November 5, 2013



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Concho Cruises
Lakeshore Village
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Executive Summary

Lake Nasworthy, a unique recreation destination for visitors and locals alike, is currently widely used yet also holds potential for further enhancement and investment. It is not only a regional recreational lake; it also touches a several residential neighborhoods. The complexity of Lake Nasworthy's history and the surrounding ownership include various public holdings, ground leases, and private owners, which necessitate that the Lake be linked through a common vision and strategy.

This Master Plan is a comprehensive summary of the work done on behalf of the City of San Angelo to identify issues and opportunities for a Lake Nasworthy redevelopment strategy. This initiative was driven by input from stakeholders to create a market-based plan to promote context sensitive development and preservation of the lake and its surrounding areas.

The vision and strategy reflected in this plan reflects the intersection of a market study to understand the true potential of the lake with its surrounding context, as well as the insight of scores of stakeholders representing public institutions, neighborhoods, business owners, recreation advocates, city leaders, and other key opinion leaders.

What emerged early in the process is that Lake Nasworthy represents an amazing quilt of unique physical areas and multiple organized activities, many of which have already claimed regional and national recognition. This fact is important as this plan reflects a means to continue the momentum of the lake rather than an effort to impose a contrived concept that ignores the authentic character of the lake and its community.

This Master Plan provides a substantial amount of technical analysis. That analysis is provided, however, to establish the capacity for implementing its findings and recommendations. We express those recommendations within a series of character zones that emerged during the planning process from existing and likely geographically-based activities. Those character zones include:

- Action Sports
- Harbor Village
- Nature/Education
- Special Opportunity
- Natural Encounter

In the initial process of studying the lake and as the team engaged the public, these general clusters of activity emerged as describing the most prevalent activities around the lake. With that information, the consultant team studied the lake based on these five distinct character zones. These areas provide structure and logic to the Master Plan. The location of the character zones and their current and anticipated activity are explained in detail in this plan.

Each character zone includes a unique focus, but together they create the vibrancy that makes Lake Nasworthy an admired local amenity and regional draw. The popularity of Gun Club Hill Road as a walking and jogging destination is a good metaphor for the latent demand for more structured facilities for activity around the lake. There is more demand for a safe walking and jogging destination near the lake than the street can safely accommodate. Proposed expansion of activity around the lake is supported by market trends, increased activity due to the oil and gas industry employees seeking recreational opportunities, and increased regional and national tourism resulting from marketing by the San Angelo Convention and Visitors Bureau.

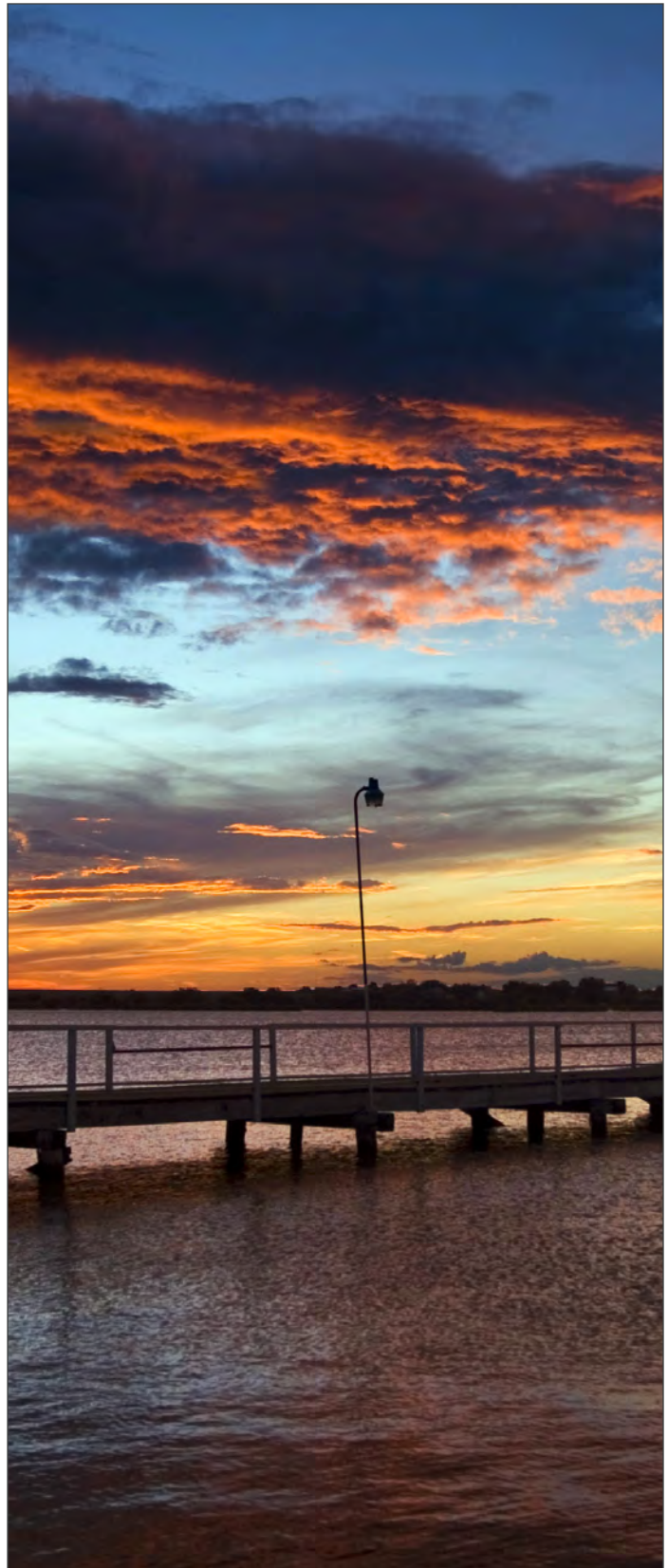
The City Council and San Angelo Planning staff seek an outcomes-focused strategy. The desired outcome of this initiative is to encourage activity and development to ensure the long term viability of Lake Nasworthy as a recreation destination in west Texas. This outcome can be achieved by identifying existing tourism and recreation activities and enhancing those offerings, thereby creating economic development opportunities. This report encourages a comprehensive policy and approach that includes potential "catalytic projects" -- or appropriate development in key locations -- that will provide a necessary influx of economic activity. At the same time, the approach calls for development that fits the context of what already exists at the lake in order to create sustained investment momentum.

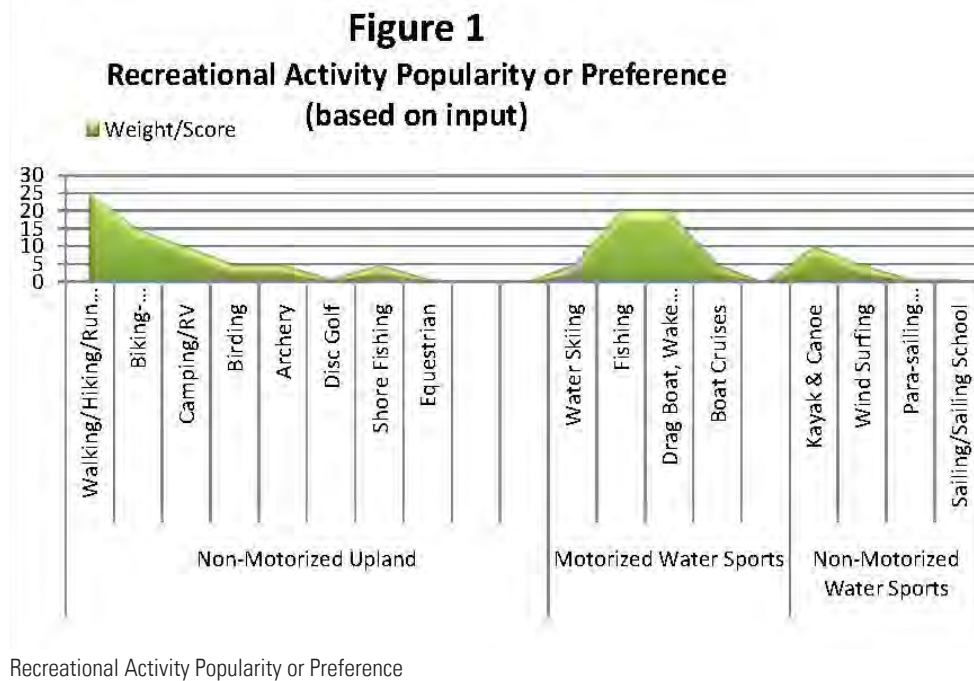
Lake Nasworthy has great potential to fulfill the vision of the city and community as an economic and recreational centerpiece for San Angelo and the surrounding area. The master plan provides the road map to reach that objective; however, several lake management issues beyond the scope of the master plan must also be addressed. First, the city currently relies on the Lake Nasworthy Home Owners Association to administer and enforce certain lake

rules and development standards along the lakeside. This administrative approach should be reexamined and revised to centralize decision-making within the city while continuing open dialogue and input from the HOA. Second, during the public input process, community leaders and stakeholders emphasized the need to investigate and develop technical action plans regarding several critical issues affecting the lake's condition. These issues include lake water supply and the long-term stabilization of lake levels, storm water runoff that adversely impacts lake clarity and sedimentation rates, shoreline erosion and stabilization, vegetation management in and around the lake, and the need for recurring dredging to maintain lake water depths.

As the city moves forward with the master plan, the City should simultaneously retain appropriate engineering firm(s) with expertise in dredging, shoreline management, storm water control, and water supply/management to address these specific issues. The city should work to develop and implement specific near- and long-term action plans to improve the condition of the lake itself as the master plan is put into action.

Fundamentally, the resulting master plan and implementing recommendations are supported by extensive public outreach and a market study that reinforces the amazing quilt that makes up the lake today and its potential tomorrow





Input and Outreach Process

To reconcile the many uses and diverse interests that surround Lake Nasworthy, the consultant team carried out an extensive community outreach and input program. Lake Nasworthy poses itself as a unique opportunity area, not only as a water source in West Texas, but also for its percentage of city-owned land. The Lake Nasworthy Trust Fund, created by the city, cannot be utilized without citizen approval. The restriction of citizen approval has made community feedback an integral piece of this project. In order to fully understand the residents' perspective regarding Lake Nasworthy, stakeholder interviews were conducted to assist in framing the master plan's focus.

The consultant team learned from stakeholders how important Lake Nasworthy is not only to those who live on the lake, but also to the larger community. City staff assisted the consultant team in compiling a list of stakeholders that consisted of a diverse group of recreational users, homeowners, politicians, and business owners. Over 40 stakeholders were contacted and interviewed through a series of small group meetings. After the initial round of interviews, the consultant team worked with city staff to follow up with outreach to all lake residents via post card mailing. During the subsequent small group meetings, 20 additional stakeholders were engaged for feedback. The

consultant team used a coding system to translate the notes and feedback into data to create measurable results.

Stakeholders Involved

A variety of stakeholders surrounding the lake represent numerous interests and users from San Angelo and beyond. The discussions focused on current and future demand, ecological concerns and economic development opportunities. This input provides the basis for the proposed amendments to the San Angelo Comprehensive plan and an implementation strategy to achieve this master plan.

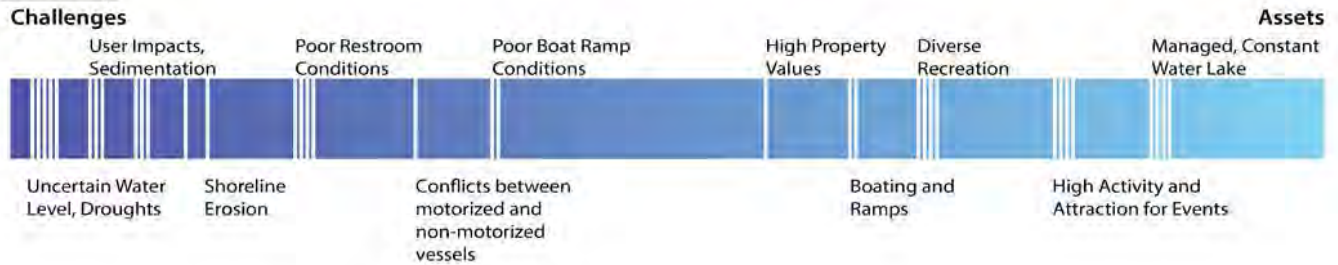
Summary of Stakeholder Input

Over the course of public outreach, it was surprising to learn about the vast amount of activities that take place in and around the lake (see Figure 1). Activities were broken down into non-motorized upland activities and motorized and non-motorized water sports. Information shown in Figure 1 is based on stakeholder input from participants in each of the activities listed, or from those who mentioned the popularity surrounding the activity.

Once the initial input was obtained from stakeholders, the team identified areas of the lake deserving attention. This process generated the five character zones mentioned above.

Figure 2

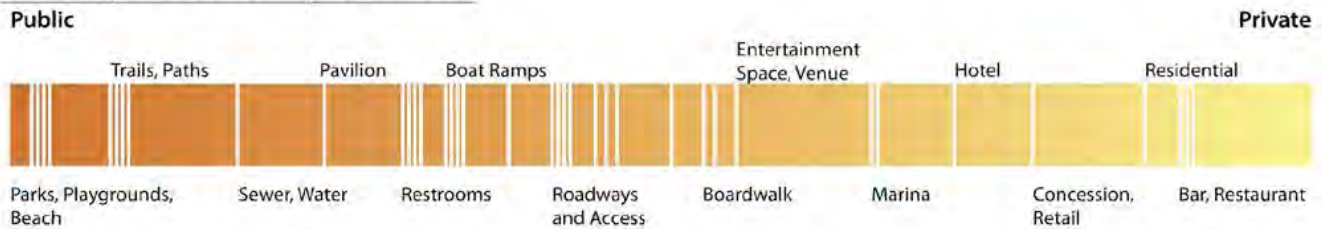
Identity



Public Input: Lake Challenges and Assets

Figure 3

Development and Improvements



Public Input: Lake Development and Improvements

Figure 4

Access and Mobility



Public Input: Lake Access and Mobility

Public Participation

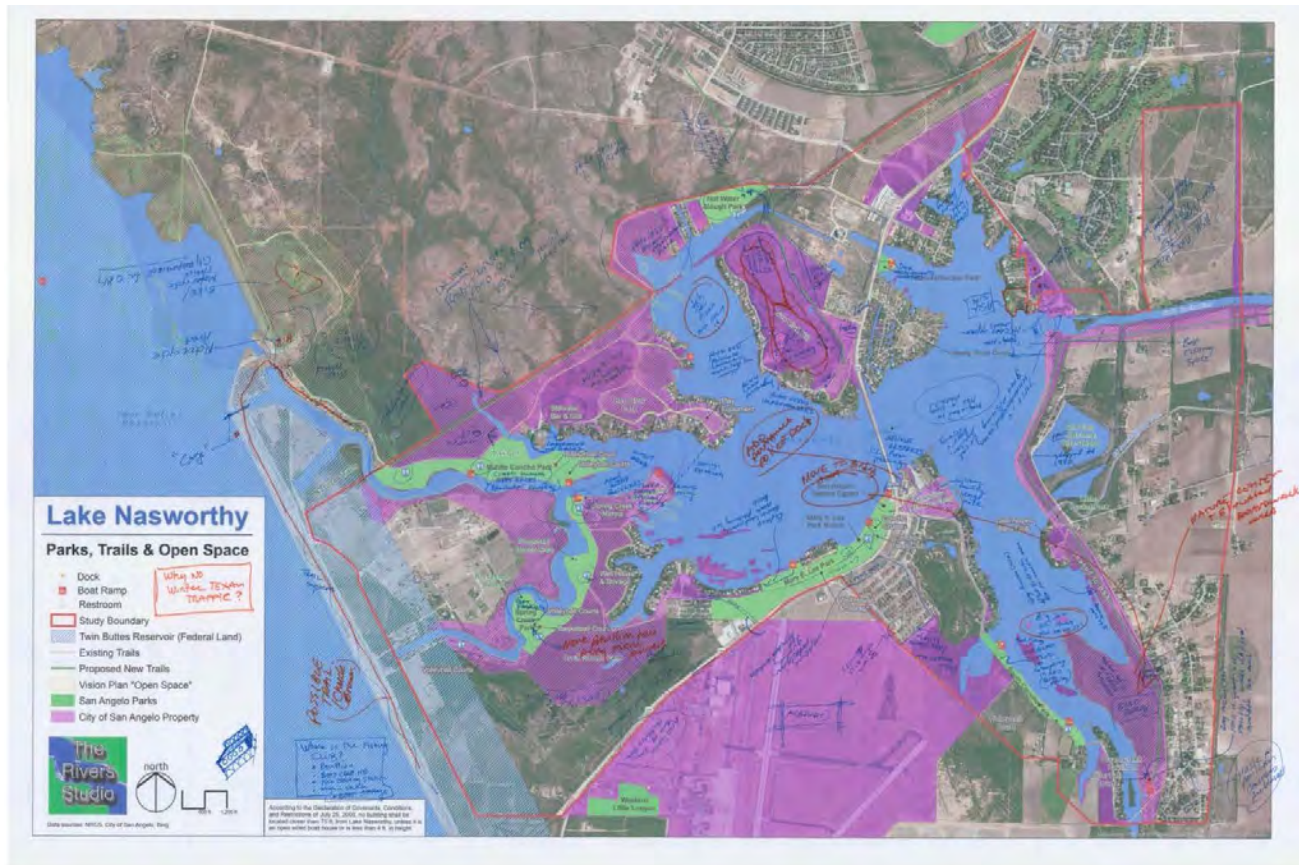


Figure 5: Stakeholder Meeting Map Notes

Ultimately, the selected catalytic projects reflected in this master plan emerged from the insight gathered from the stakeholders. Throughout the process of gathering feedback, a variety of ideas were noted. Figures 2 to 5 display the ranges in feedback and the diversity in information collected.

Figure 2 demonstrates the challenges and assets surrounding Lake Nasworthy. The density of tick marks indicates comments about that particular issue. Uncertainty of water levels was mentioned by almost everyone. The end of the spectrum represents the amount of activity on the lake as an asset.

Figure 3 was created based on stakeholder input on potential development and lake improvements. These developments and improvements are demonstrated on a scale between public and private. The topic mentioned the most was

restroom improvements. Stakeholders mentioned that most of the public facilities surrounding Lake Nasworthy needed updates and improvement.

The stakeholder meetings yielded the need for greater access to current lake areas being used. Figure 4 was created to give more depth to this topic. The figure depicts a spectrum of low-impact and high-impact means of mobility. For example, stakeholders discussed creating better access around the lake by way of a comprehensive trail system. Gun Club Hill is the second area of highest concern for the citizens; this area has become quite popular as a walking loop trail. The popularity surrounding the use of this area is an issue that was heavily considered when creating potential design concepts. An integrated trail network was also an issue frequently mentioned and one that resulted in design considerations in the proposed master plan.

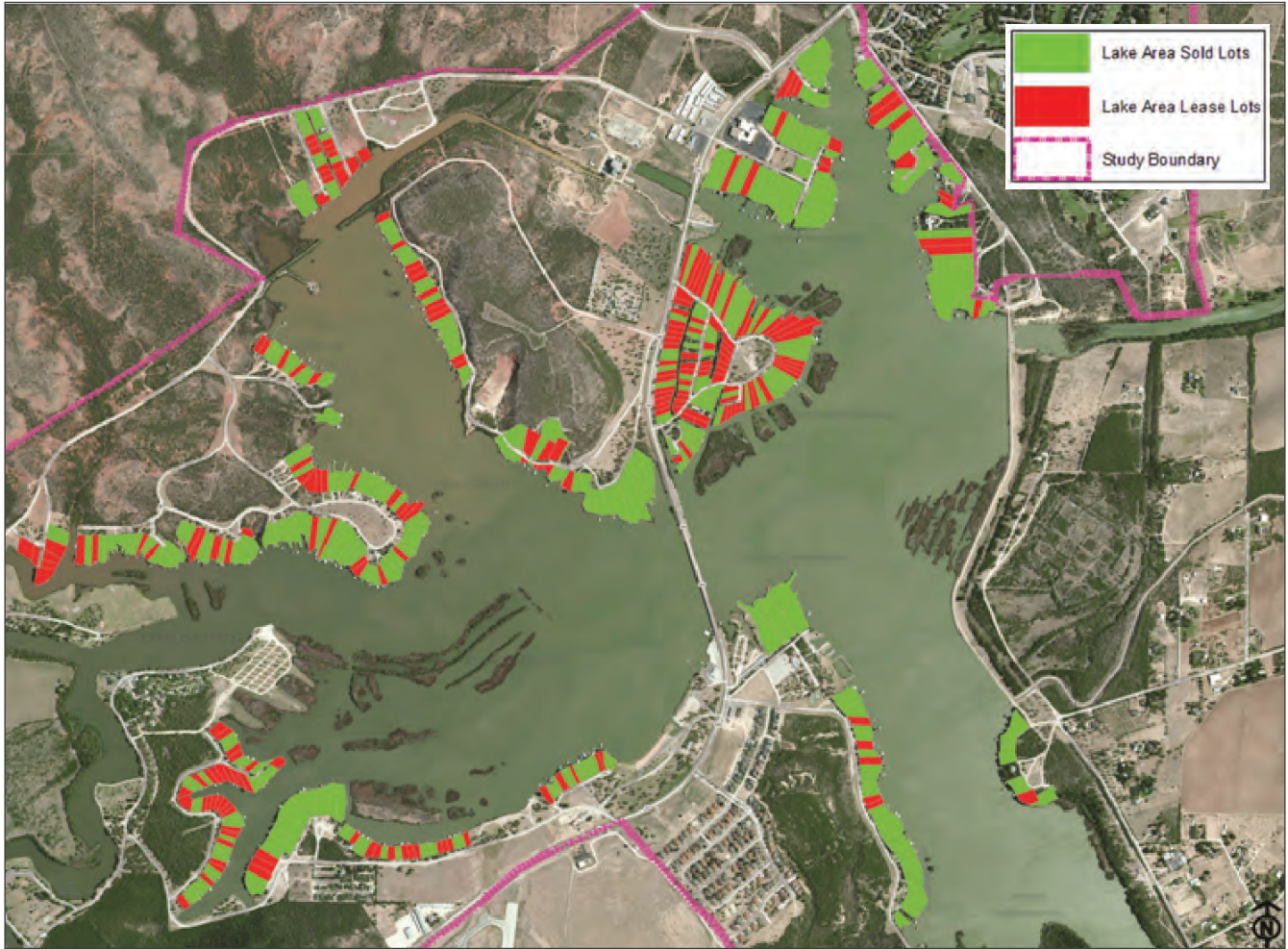


Figure 5b: Lease Status Map



Image 6: Lake Nasworthy Study Area Map

In order to create a realistic and realizable master plan, the consultant team delved into the myriad details and data that make up the complexity of the lake and its surroundings.

Map of Study Area and Description

The Lake Nasworthy study area (see Figure 6) is located in the far southwestern quadrant of San Angelo near the San Angelo Regional Airport, Goodfellow Air Force Base, Twin Buttes Reservoir, and Bentwood Country Club. The Lake is bisected by Knickerbocker Road, and State Highway 306 is approximately one mile to the Northeast. From the lake's downstream edge, the Concho River flows southeast through downtown San Angelo.

Natural Structures

Lake Nasworthy was created in 1930 when Nasworthy Dam was constructed to store the waters of the Spring Creek and

South and Middle Concho Rivers to provide drinking water for the City of San Angelo and surrounding areas. The Lake is full at 1,879 feet above sea level and is 29 feet deep at its deepest point, with a surface area of 1,380 acres. In most conditions, Lake Nasworthy is near constant level because of overflow from Twin Buttes Reservoir. Due to persistent drought, however, that flow is becoming increasingly unreliable.

The study area offers a wide variety of West Texas landscapes. The unique feature of a large body of water in an arid climate provides for an interesting physical environment that contributes to the natural beauty and its draw as a recreation magnet. The lake is unique in the history and makeup of the land ownership surrounding the Lake. It is accessed from several public boat ramps and public parks.

Major Existing Uses/Users

Lake Nasworthy is surrounded by an eclectic mix of public

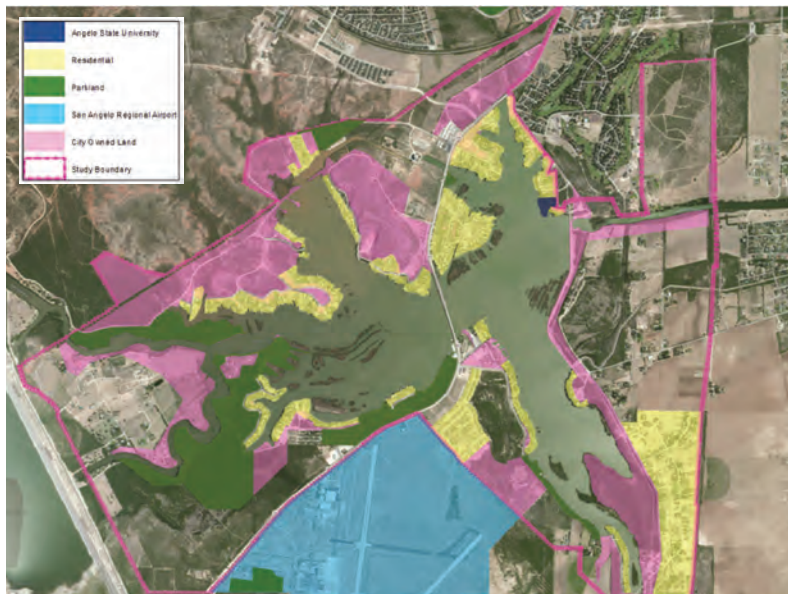
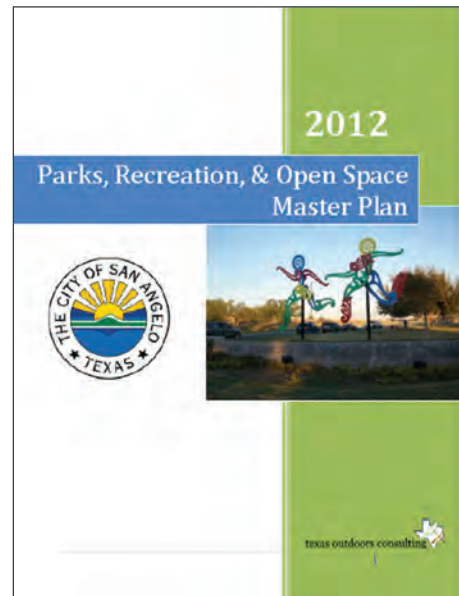


Figure 7: Map Depicting Major Users Around Lake



facilities, large institutional users representing special populations (such as the military and their families and college staff and students), as well as single family homes. See Figure 7 for a map of existing users. The City of San Angelo facilities, the Bureau of Land Management, Twin Buttes Reservoir, the Air Force, San Angelo Regional Airport, Goodfellow Air Force Base, and Angelo State University are all large users on or near the lake. The large users create an interesting combination of and represent an opportunity for synergy rather than single ad hoc interests.

The public and institutional land owners are sizable stakeholders as are the numerous land owners and leaseholders of single family homes. When the lake was created, much of the surrounding land was retained by the Bureau of Land Management and later turned over to the city. The city then subdivided the land into parcels which were leased to homeowners. Later, when the lease terms came up for renewal, the decision was made to sell the lots rather than continue to lease them. The money raised from the sale of the land is put into a trust specifically dedicated for use on lake improvements and management. The history of this land lease/sale arrangement has resulted in the unique ownership pattern and management situation that is currently in place. Over time, most of the land has become owner-occupied.

Relation to Prior Studies

Comprehensive Plan

The latest update to the San Angelo Comprehensive Plan, adopted in 2009, provides a vision for the city through a series of sub-districts that are targeted for redevelopment. Each one of these sub-districts focuses on an area with a unique development context. Together the sub-districts help achieve the City mission to maintain the “small-town character and community spirit and take advantage of ample social, cultural and recreational opportunities.” A parallel deliverable of this report on Lake Nasworthy is creation of a sub-district as an update to the 2009 comprehensive plan. The updated Lake Nasworthy sub-district chapter will act as a tool to implement the vision and concepts described later in this master plan.

Parks, Recreation & Open Space Master Plan

The San Angelo Parks, Recreation and Open Space Master Plan, adopted in 2012, is a valuable companion to this report in its attention to the condition and recommendation of public spaces surrounding Lake Nasworthy.

The goal of the parks master plan was to assess park and recreation facilities throughout the city and to establish planning guidelines for parks over the next decade. That plan contains a thorough inventory of parks and recreation

facilities and details on their programming, marking, reservation systems and fees. It also includes valuable data on the recreation habits of the San Angelo population. The parks master plan recommends creating multi-modal linkages between and through parks, a theme found in this report as well as the San Angelo Comprehensive Plan. This can be accomplished through linear parks, trails, and paths, as explained later in this document.

The master plan includes a particular focus on the Lake Nasworthy parks – as they are tremendous assets to residents and visitors. The main Lake Nasworthy Parks are Knickerbocker Park, Mary E. Lee Park, Middle Concho Park, Spring Creek Park, and South Concho Park. The Parks Master Plan contains details on current issues in the parks and some suggested improvements. The Parks Master also includes existing and potential trail connections. Those trails were integrated into the trail plan which is delineated later in this master plan.

Resource Management and Environment Issues

Lake Nasworthy is a heavily used manmade lake; therefore, there will be resource management and environmental issues likely to be encountered as the city moves forward to improve and enhance the lake and surrounding lands. The exact issues will depend on the specific improvements undertaken. Based on public comments, three potentially significant issue areas have been identified: (a) lake dredging, (b) shoreline erosion/storm water management, and (c) lake water-level management.

Lake Dredging

During the stakeholder input process, the public expressed considerable concern about the increasingly shallow water depths in Lake Nasworthy; many suggested the city take action to dredge and deepen the lake. Dredging practices are subject to extensive federal and state regulatory oversight. In 2002, the city completed a two-year dredging project to remove 3.8 million cubic yards of sediment from the lake, increasing the lake's capacity by about 2,500 acre-feet or some 800 million gallons. This project cost approximately \$10 million and was funded with revenues from the 1999 section Type 4B one-half cent sales tax. Similar dredging actions are likely to be necessary to maintain water depths and lake capacity in the future, notwithstanding a lack of identified funding sources for those activities. A focus on erosion control in the section below can provide some opportunity to offset the costly need for dredging. Details on the regulatory implications of lake maintenance are

included in the implementation section of this report.

Shoreline Erosion and Storm Water Management

As the city considers potential improvements along Lake Nasworthy, it is necessary to carefully consider and account for the potential for increased shoreline erosion and storm water runoff. Erosion is a critical concern because not only does it cause land loss to upland owners – a significant issue in itself – but it also adds to the sediment load in the lake, decreasing water depths and increasing water turbidity.

Shoreline erosion is a natural process that can be exacerbated by human activities. Along Lake Nasworthy, shoreline erosion is likely attributable to wind-driven and boat wake waves impacting unprotected or exposed shoreline sediments, storm water runoff, and periodic fluctuations of lake levels that inundate near shore areas and remove shoreline sediments as lake levels drop. Clearing natural vegetation and constructing impervious surfaces along the lake shoreline can also exacerbate erosion, runoff, and lake sedimentation. Vegetation removal is typically undertaken to create recreational space, increase areas available for development, or expand or enhance lake views. If poorly planned, this practice can destabilize shorelines and sediments, increasing erosion and lake sedimentation. Construction of impervious structures such as driveways, parking areas, and buildings along the lake can also be detrimental. Impervious surfaces increase the velocity and energy of storm water runoff, causing shoreline retreat and lake sedimentation and adversely impact water quality.

Accordingly, as additional development occurs, including particular projects proposed in this master plan, a comprehensive erosion control plan should be developed.

In general, shoreline erosion response practices fall into two broad categories: (1) non-structural methods, and (2) structural or shoreline armoring methods. Non-structural erosion stabilization options typically rely on installation or maintenance of natural vegetation. Healthy shoreline vegetation provides effective resistance against light to moderate wave action. Plant stalks break up wave energy and roots stabilize shoreline soils, reducing erosion and mass sediment movement. Shoreline vegetation also slows surface water runoff, assisting in water absorption, reducing erosion and lake sedimentation. Healthy shoreline plant communities also enhance scenic views and provide

fish and wildlife habitat. Replanting or expanding shoreline vegetation is often the simplest and most cost effective solution where erosion forces are low to moderate.

Well-designed shoreline armoring structures such as bulkheads, riprap, and revetments are generally very effective in reducing or preventing shoreline erosion. However, many such methods are expensive and can have detrimental environmental consequences, including increased erosion rates on adjoining properties that are not armored. Unlike vegetation that absorbs and dissipates wave energy, hard structures reflect and refract wave energy and can cause extensive scour. Structural failure can occur if bulkheads are repeatedly overtopped, and tieback systems can fail. Sloped rock revetments are generally preferable to vertical bulkheads, as they tend to dissipate or absorb wave energy, rather than redirecting it to adjoining lots.

As development around Lake Nasworthy increases, the city may face greater public demand for shoreline armoring solutions. Care must be taken as expanded use of armoring reduces natural shoreline conditions and can detrimentally impact aquatic habitat and water quality.

Recently, many lake communities are beginning to experiment with what are called “biotechnical methods” of shoreline stabilization. This approach seeks to combine structural and non-structural methods, incorporating, for example, gabion structures and installation of shoreline plant materials or detached log breakwaters. By reducing the severity of wave energy or attack on the shoreline, this method seeks to create conditions where shoreline vegetation can be established and function to reduce shoreline retreat or loss. By incorporating structural elements, this method can expand the use of “soft” or non-structural elements in areas of high wave energy or severe erosion, minimizing environmental impacts and providing stability within the system. A biotechnical approach is suitable for a wide range of erosion conditions and commonly used to prevent surface erosion and shallow mass-movement of soil.

As the city considers future shoreline and storm water management actions, the potential negative impacts of shoreline armoring on fisheries, water quality, and other environmental values should be carefully weighed. As with potential dredging actions, the complexity, cost, and

importance of shoreline and storm water management practices should be carefully evaluated through a detailed technical feasibility and engineering analysis before actions are proposed or authorization for the actions is sought

Water Level Management

During the stakeholder and public input processes, concern was expressed regarding the current drought conditions in west Texas and whether water levels in Lake Nasworthy could be maintained over the long run. Commentators noted that plans to enhance or expand lakeside amenities and development effectively assume that lake water levels can be maintained at a reasonably consistent level over time. Public concern regarding lake levels is not unwarranted. According to the Texas Water Development Board, presently all three reservoirs in the San Angelo area are at extremely low levels: O.C. Fisher Reservoir – 0.8 percent capacity; O.H. Ivie – 17.3 percent capacity; and Twin Buttes – less than 3 percent capacity, with some reports showing 0 percent capacity.

Lake Nasworthy captures stream-flow from the Middle Concho River immediately downstream of Twin Buttes Reservoir. The South and Middle Concho rivers flow into Twin Buttes, and then into Lake Nasworthy, which is intended to be maintained at a constant level using managed flows from Twin Buttes. However, due to declining water levels in Twin Buttes, natural flow from the reservoir to Lake Nasworthy has all but stopped at the present time, forcing the city to pump water to reduce losses and sustain lake levels. Currently, Twin Buttes contains approximately 5,324 acre-feet of water or about 3 percent of its capacity. Lake Nasworthy presently stores about 7,774 acre-feet, or about 76 percent of its capacity. By pumping water from the south to the north pool of the Twin Buttes Reservoir, the city seeks to reduce the surface area of Twin Buttes and conserve drinking water by limiting evaporation. The water transfer has also helped maintain water levels in Lake Nasworthy.

In recent years, historic drought conditions and increased water demand to serve municipal, agricultural, and oil and gas development needs have combined to stress water resources in west Texas. There is little question that in the near-term, maintaining adequate water resources will continue to be a significant challenge in west Texas and a high priority for the city of San Angelo, its water department, and the residents and visitors who enjoy Lake Nasworthy.

Lake Nasworthy is a unique location in a changing area. The lake itself attracts increasing demand as one of the few recreational lakes in the region. In addition, the growth in the larger market due to the impact from shale energy extraction creates development pressures that could be harnessed to the benefit of the long term investment needs of Nasworthy. It is in this context that a market study was undertaken with a special focus on natural resource and recreation uses and with substantial stakeholder input and planning.

The market analysis shows a strong demand for a variety of activities associated with the lake and long term development around the lake related directly and indirectly to those activities. The analysis below establishes the demographic and market factors. The market demand is then presented in the context of the character zones in the following section.

It is important to note that the often challenging ability to secure and maintain hotels and restaurants at recreational lakes could be obviated by the strong general demand for hotels in the region. One of the catalytic projects described below includes the potential for a hotel or two at the lake, ones supported by other recreational and guest services facilities.

Market Area Demographics

The market analysis shown in Figure 8 uses demographics and statistics from a primary market that represents the local “everyday” market and includes the City of San Angelo, and the secondary market, which represents the visitor market that includes Odessa-Midland and Abilene-Sweetwater. The analysis draws from the Arc View application of ESRI’s Business Analyst®. This national model generates data by linking information such as demographics with specific locations or areas. The data is updated continually using benchmarks in the model that the software maker tracks and allocates geographically. The market study also utilized available data from the City of San Angelo.

Primary Market (City of San Angelo)

As shown in Figure 9, between 2010 and 2012 the total population in the primary market area (City of San Angelo) grew by 2 percent. This trend is projected to continue, with an estimated population of more than 100,000 by 2017; this translates into a projected growth of roughly 5 percent between 2012 and 2017. The number of households (36,000 in 2010) is projected to follow the same trend with a projected growth of 6 percent between 2012 and 2017 to an estimated 39,000 households in 2017. The following figure summarizes basic demographics for the primary market area.

Figure 8: Demographic Indicator Projections by Market Segment

Demographic Indicator	2012	2017	Change
Population			
Total	838,014	881,314	43,300
San Angelo	95,293	100,347	5,054
Visitor Market	742,721	780,967	38,246
Households			
Total	308,423	325,808	17,385
San Angelo	36,828	39,179	2,351
Visitor Market	271,595	286,629	15,034
Average Household Income			
San Angelo	\$50,960	\$56,950	\$5,990
Visitor Market	\$55,636	\$62,404	\$6,768
USA	\$68,162	\$77,137	\$8,975
Per Capita Income			
San Angelo	\$21,372	\$23,877	\$2,505
Visitor Market	\$21,512	\$24,051	\$2,539
USA	\$26,409	\$29,882	\$3,473

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Demographic Indicator Projections by Market Segment

Figure 9. Demographic Overview Primary Market

Year	Population	Households	Avg. Household Size (Persons)	Families	Avg. Family Size (Persons)
2010	93,200	36,117	2.45	22,910	3.05
2012	95,293	36,828	2.46	22,970	3.05
2017	100,347	39,179	2.44	24,733	3.04

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Demographic Overview Primary Market

Figure 10 Population by Age Group in Percent Primary Market

	2010	2012	2017
Total Population	93,200	95,293	100,347
Age Group			
0 – 4	7.3%	7.3%	7.3%
5 – 9	6.6%	6.5%	6.5%
10 – 14	6.0%	5.9%	5.9%
15 – 24	18.5%	18.3%	17.1%
25 – 34	14.1%	14.2%	14.2%
35 – 44	10.7%	10.4%	10.1%
45 – 54	12.4%	12.1%	11.2%
55 – 64	10.7%	11.2%	11.7%
65 – 74	6.9%	7.3%	8.8%
75 – 84	4.9%	4.8%	5.1%
85 +	2.0%	2.0%	2.1%
18 +	76.6%	76.9%	77.0%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Population by Age Group in Percent Primary Market

Market Analysis

Figure 11 Population - Aging Trend Primary Market

Year	Population	Age Group in %		
		<25	25 - 64	65>
2010	93,200	38.4%	47.9%	13.8%
2012	95,293	38.0%	47.9%	14.1%
2017	100,347	36.8%	47.2%	16.0%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Population - Aging Trend Primary Market

Figure 12. Income Overview Primary Market

Year	2012	2017	Change \$	Change %
Average Household Income	\$50,960	\$56,950	\$5,990	10.5%
Per Capita Income	\$21,372	\$23,877	\$2,505	10.5%
Median Household Income	\$37,088	\$46,130	\$9,042	19.6%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Income Overview Primary Market

The number of families in the market area is projected to grow by 7 percent between 2012 and 2017. The share of family households of all households increases to 63 percent which differs from the overall national trend of a growing number of single-person or non-family (single person) households.

Age Distribution

Over the next five years, the age distribution of the population of the primary market is projected to remain almost the same as in 2010 with a slight increase in the age groups 65 years and older and a slight decrease in the age groups 24 and younger and 25 to 64 years of age. This finding reflects the ongoing national trend toward an overall older population, although this is less pronounced in San Angelo than the nation as a whole. Figure 10 shows the population by age group in percent of the total population. The value of this information to the plan is that as a rare

lake environment in west Texas and the San Angelo area, the plan will need to respond to potential users of many different age groups and interests, but they are all united by the larger societal drive towards more active and engaged recreational and leisure lifestyles.

Figure 11 summarizes the population into only three age groups and shows the change in distribution in percentage between 2010 and 2017.

Household and Per Capita Income

Figures 12 and 13 highlight income trends for the primary market area.

Household Distribution by Income Group

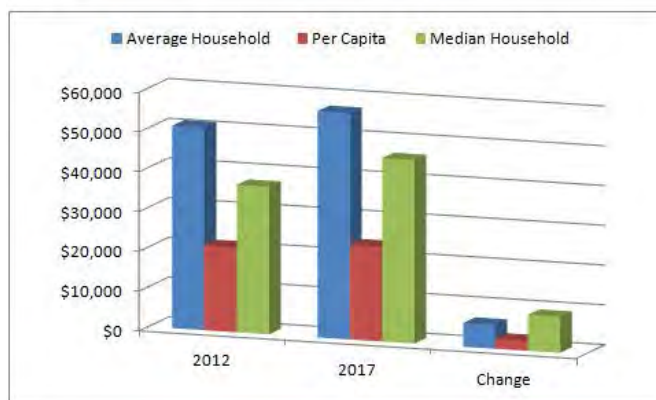
The share of households earning under \$50,000 is projected to decrease by nine percent between 2012 and 2017 to 52 percent of all households, while the share of

Figure 13. Income – Distribution by Income Groups Primary Market

Income Group	2012	2017
<\$15,000	16.4%	15.7%
\$15,000 - \$24,999	17.1%	13.3%
\$25,000 - \$34,999	13.9%	11.3%
\$35,000 - \$49,999	13.9%	12.2%
\$50,000 - \$74,999	18.0%	22.6%
\$75,000 - \$99,999	9.9%	12.8%
\$100,000 - \$149,999	8.2%	9.2%
\$150,000 - \$199,999	1.4%	1.6%
\$200,000>	1.2%	1.3%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Figure 14



2012 Household Income

Distribution by Income Groups Primary Market

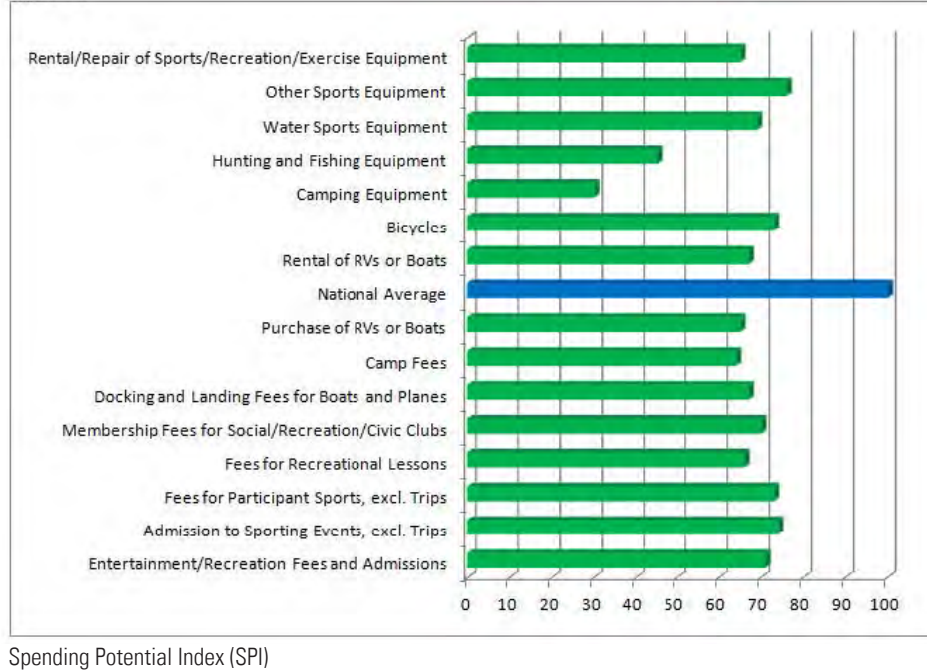
Figure 15. 2012 Recreational Spending Potential Primary Market

Category	Total Annual Spending	Average Annual Spending by HH
Entertainment/Recreation Fees and Admissions	\$15,451,924	\$423.47
Admission to Sporting Events, excl. Trips	\$1,547,246	\$42.40
Fees for Participant Sports, excl. Trips	\$2,740,935	\$75.12
Fees for Recreational Lessons	\$3,163,780	\$111.17
Membership Fees for Social/Recreation/Civic Clubs	\$4,056,553	\$169.32
Docking and Landing Fees for Boats and Planes	\$167,812	\$4.60
Camp Fees	\$654,868	\$17.95
Purchase of RVs or Boats	\$6,376,941	\$174.76
Rental of RVs or Boats	\$201,507	\$5.52
Bicycles	\$512,903	\$14.06
Camping Equipment	\$152,301	\$4.17
Hunting and Fishing Equipment	\$608,814	\$16.68
Water Sports Equipment	\$163,414	\$4.48
Other Sports Equipment	\$253,806	\$6.96
Rental/Repair of Sports/Recreation/Exercise Equipment	\$92,516	\$2.54

Source: 2006 and 2007 Consumer Expenditure Surveys, Bureau of Labor Statistics, ESRI BIS forecasts for 2012

2012 Recreational Spending Potential Primary Market

Figure 16



households earning between \$50,000 and \$100,000 and the households earning more than \$100,000 are projected to increase to a share 35 and 12 percent respectively over the same time period.

In 2012, the average household income in the primary market area is estimated to be \$50,960, the median household income is \$37,088, and the per capita income is \$21,372. Median disposable household income in 2012 was estimated at \$32,680. These figures are somewhat higher than similar figures for the US as a whole but do not suggest that the area is wealthy. More likely it is due to the large number of family households which often have more than one income.

The estimated figures for 2017 show an average income of \$56,950 (+10.5 percent), a median income of \$46,130 (+19.6 percent), and a per capita income of \$23,877 (+10.5 percent). A lower projected increase in median income than average income suggests that San Angelo is again bucking national trends. Nationally there is growing income disparity between wealthier and poor households. This can be seen when the average of all household incomes in an area rises faster than the median household income. Median household income is the midpoint for all area households. Fifty percent are above and 50 percent are below the single

point. That both household income figures are moving up but the median is projected to move up at double the average household income rate suggests that the “middle-class” may actually stronger in San Angelo than nationally. If true, more households will seek the unique leisure experiences offered by the lake in the next few years as they will be able to readily afford the time and cost of recreation.

Recreational Spending Potential

Figure 15 shows the 2012 annual recreation expenditure potential in the primary market area for categories related to potential recreational uses at Lake Nasworthy.

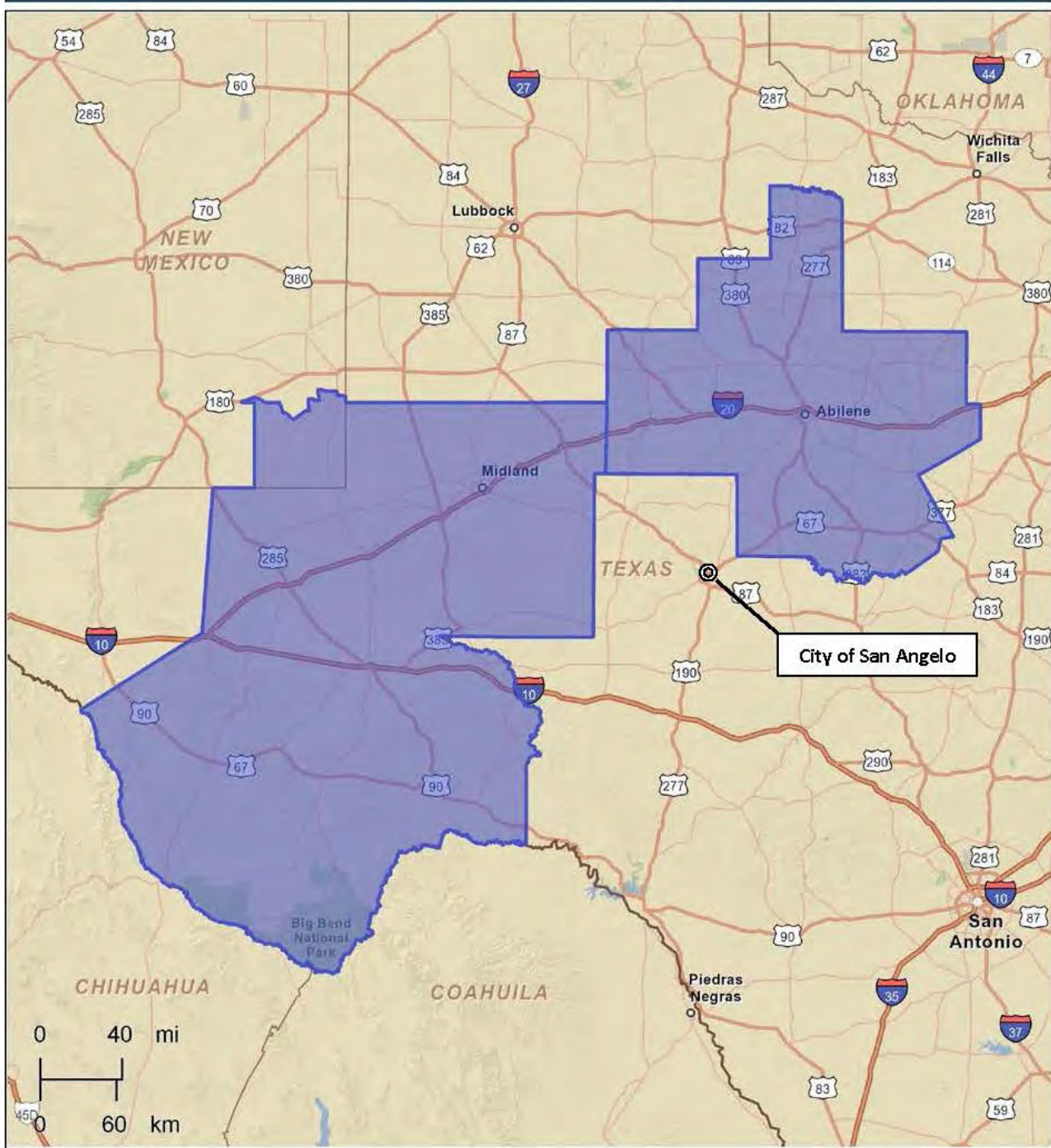
Figure 16 puts the spending categories in Figure 15 in a national perspective. It shows the Spending Potential Index (SPI) and represents the amount spent for a product or service relative to a national average of 100.

Spending in all categories is below the national average. This may indicate a lack of opportunities in the market area or, alternately, a simple lack of engagement in recreational and leisure activities. This can be the result of local historical and cultural preferences for a less active lifestyle – not uncommon in rural areas but less common in medium-sized communities like San Angelo. A low level of engagement in an active lifestyle can portend long-term health issues in a

Figure 17



San Angelo, TX Visitor Markets



Market Analysis

population. The implementation of the new parks plan and the current plan may actually increase community health.

Secondary Market - (Odessa-Midland, Abilene-Sweetwater)

The visitor or secondary market (see map in Figure 17) is important to this analysis for two reasons. One is that people from Midland-Odessa and other secondary market residents have bought a sizable number of properties around Lake

Nasworthy. Lakefront living is simply unavailable in many of the areas within the secondary market. In general this can be viewed as a positive development as these households invest in San Angelo but demand little in city services in return. The most obvious downside would be if secondary market area households have any impact of reducing or denying lake access to residents of San Angelo.

The other reason the secondary market is important is that

Figure 18. Demographic Overview Secondary Market

Year	Population	Households	Avg. Household Size (Persons)	Families	Avg. Family Size (Persons)
2010	724,800	266,324	2.59	184,280	3.13
2012	742,721	271,595	2.60	185,183	3.14
2017	780,967	286,629	2.59	197,524	3.14

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Demographic Overview Secondary Market

Figure 19. Population by Age Group in Percent Secondary Market

	2010	2012	2017
Total Population	724,800	742,721	780,967
Age Group			
0 – 4	7.5%	7.4%	7.4%
5 – 9	7.1%	7.0%	7.0%
10 – 14	6.9%	6.7%	6.8%
15 – 24	14.8%	14.6%	13.7%
25 – 34	13.4%	13.6%	13.7%
35 – 44	11.8%	11.5%	11.2%
45 – 54	14.1%	13.7%	12.7%
55 – 64	11.2%	11.7%	12.1%
65 – 74	7.1%	7.5%	8.9%
75 – 84	4.6%	4.5%	4.7%
85 +	1.6%	1.7%	1.8%
18 +	74.3%	74.8%	74.9%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Population by Age Group in Percent Secondary Market

Figure 20. Population - Aging Trend Secondary Market				
Year	Population	Age Group in %		
		<25	25 - 64	65>
2010	724,800	36.3%	50.5%	13.3%
2012	742,721	35.7%	50.5%	13.7%
2017	780,967	34.9%	49.7%	15.4%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Aging Trend Secondary Market

Figure 21. Income Overview Secondary Market				
Year	2012	2017	Change \$	Change %
Average Household Income	\$55,636	\$62,404	\$6,768	10.8%
Per Capita Income	\$21,512	\$24,051	\$2,539	10.6%
Median Household Income	\$39,208	\$47,021	\$7,813	16.6%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

Income Overview Secondary Market

Figure 22. Income – Distribution by Income Groups Secondary Market		
Income Group	2012	2017
<\$15,000	17.6%	16.7%
\$15,000 - \$24,999	14.8%	11.6%
\$25,000 - \$34,999	12.2%	10.0%
\$35,000 - \$49,999	15.2%	13.8%
\$50,000 - \$74,999	18.2%	22.5%
\$75,000 - \$99,999	8.9%	10.9%
\$100,000 - \$149,999	7.9%	8.8%
\$150,000 - \$199,999	2.4%	2.8%
\$200,000>	2.7%	2.8%

Source: U.S. Bureau of the Census, ESRI BIS forecasts for 2012 and 2017

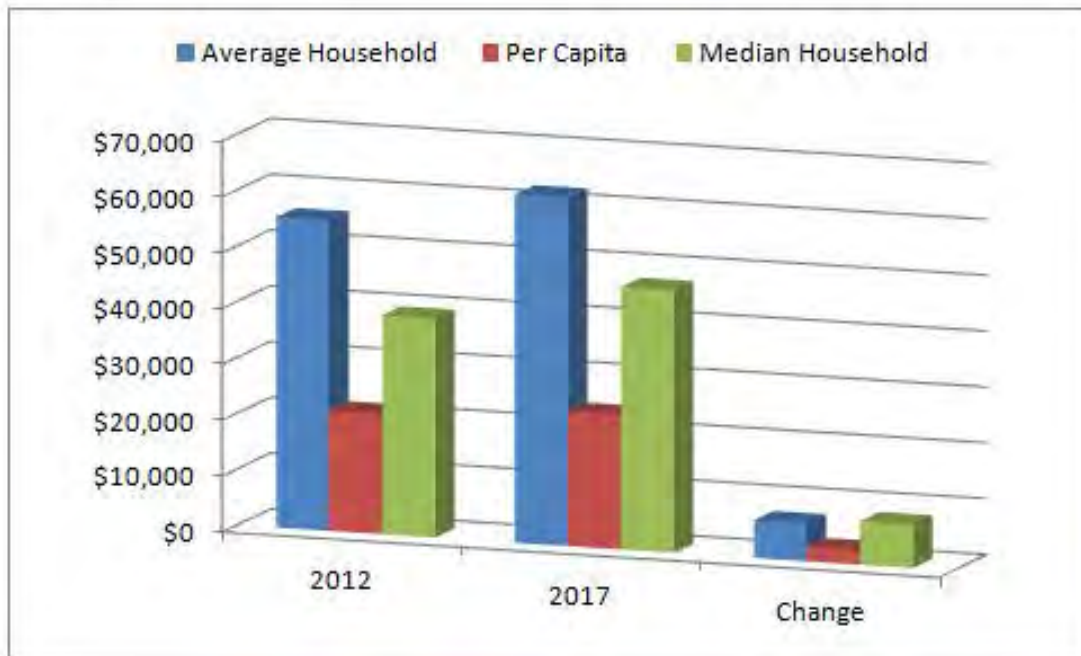
Income - Distribution by Income Groups Secondary Market

day users and/or those staying in hotels within the primary market may come to San Angelo for the unique experiences and activities offered by the lake. During their visit they will spend money on food and beverage, fuel, potentially hospitality, and at retailers. San Angelo will benefit in fiscal impact – more sales and other taxes collected – and local businesses will benefit from increased sales it choice. The extent to which these visitors essentially increase the size

of the San Angelo market through their purchases of things large of all sizes including special interest expenditures like recreational rentals of boats. The result will be increases the size and selection of these businesses in San Angelo.

Benefits from visitation from the secondary market can be enhanced by increasing the number and diversity of recreational and leisure experiences at the lake – especially

Figure 23



Household Income in Secondary Market

lake oriented activities - and the simple increase in the population of this secondary market.

San Angelo benefits from the potential increased secondary/visitor market visitation. See Figure 18 for a demographic overview of the secondary market. Between 2010 and 2012, the total population in this potential secondary/visitor market area grew by 2.4 percent. This trend is projected to continue, with an estimated population of more than 780,000 by 2017, translating into a projected growth of roughly 5 percent between 2012 and 2017. The number of households (725,000 in 2010) is projected to follow the same trend with a projected growth of 5 percent between 2012 and 2017 to an estimated 286,000 households in 2017. Figure 18 summarizes these basic demographics for the secondary/visitor market area.

The number of families in the secondary market area is projected to grow by 6 percent between 2012 and 2017. The share of family households of all households increases to 68 percent, which is against the overall national trend of a growing number of single-person or non-family households.

This is a fortunate development for this plan. The extent to which this plan matches the diverse household interests of the primary San Angelo market will help draw visitation from the secondary market area too.

Age Distribution

As in the primary market, over the next five years, the age distribution of the secondary market population is projected to remain almost the same as in 2010 with a slight increase in the age groups 65 years and older and a slight decrease in the age groups 24 and younger and 25 to 64 years of age. This finding reflects the ongoing national trend toward an overall older population but less pronounced. Figure 19 shows the population by age group in percent of the total population.

Figure 20 summarizes the population into only three age groups and shows the change in distribution in percentage between 2010 and 2017.

Household and Per Capita Income

Figures 21 and 22 highlight income trends for the secondary/visitor market area.

Figure 24. 2012 Recreational Spending Potential Secondary Market

Category	Total Annual Spending	Average Annual Spending by HH
Entertainment/Recreation Fees and Admissions	\$118,081,986	\$434.77
Admission to Sporting Events, excl. Trips	\$12,403,655	\$45.67
Fees for Participant Sports, excl. Trips	\$22,255,529	\$81.94
Fees for Recreational Lessons	\$21,458,175	\$79.01
Membership Fees for Social/Recreation/Civic Clubs	\$31,720,822	\$116.79
Docking and Landing Fees for Boats and Planes	\$2,150,908	\$7.92
Camp Fees	\$6,198,027	\$22.82
Purchase of RVs or Boats	\$35,455,922	\$130.55
Rental of RVs or Boats	\$1,648,874	\$6.07
Bicycles	\$4,955,905	\$18.25
Camping Equipment	\$1,915,859	\$7.05
Hunting and Fishing Equipment	\$7,984,693	\$29.40
Water Sports Equipment	\$1,466,039	\$5.40
Other Sports Equipment	\$2,057,510	\$7.58
Rental/Repair of Sports/Recreation/Exercise Equipment	\$839,109	\$3.09

Source: 2006 and 2007 Consumer Expenditure Surveys, Bureau of Labor Statistics, ESRI BIS forecasts for 2012

2012 Recreational Spending Potential Secondary Market

Household Distribution by Income Group

The share of secondary market households earning under \$50,000 is projected to decrease by roughly 8 percent between 2012 and 2017 to 52 percent of all households, while the share of households earning between \$50,000 and \$100,000 and the households earning more than \$100,000 are projected to increase to a share of 33 and 14 percent respectively over the same time period. These numbers do not account for inflation and do not reflect disposable household income.

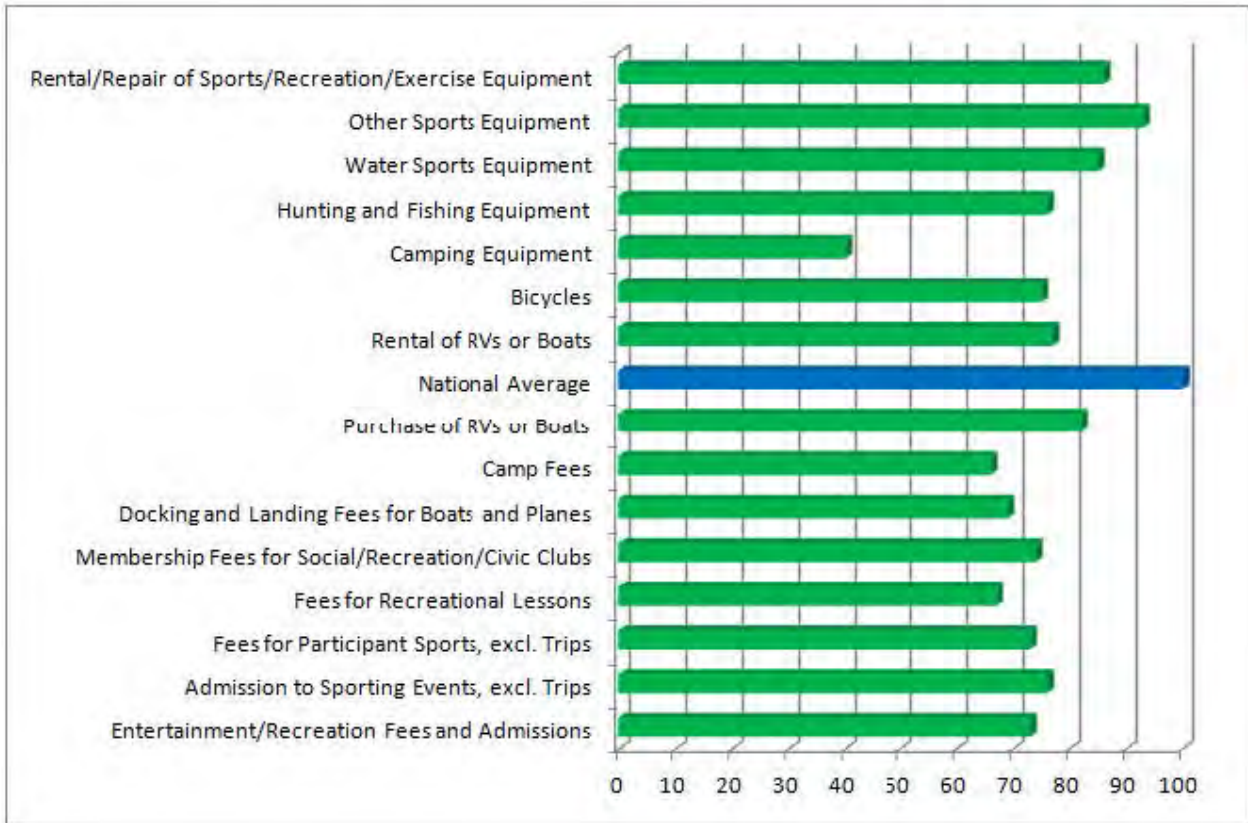
In 2012, the average household income in the secondary/visitor market area is estimated to be \$55,636, the median household income is \$39,208, and the per capita income

is \$21,512. Median disposable household income in 2012 was estimated at \$34,521. (See Figure 23) That the median household income is lower for the secondary market area is not necessarily surprising. This market area includes more rural households which typically have lower income levels in part because some of rural household annual wealth creation is not always captured in the statistics.

The estimated figures for 2017 show an average income of \$62,404 (+10.8 percent), a median income of \$47,021 (+16.6 percent), and a per capita income of \$24,051 (+10.6 percent). While the rate of median household increase is greater in San Angelo, the pattern of a higher increase in



Figure 25



Spending Potential Index (SPI)

median household income than in the average household income repeats for the secondary market.

Recreational Spending Potential

Figure 24 shows the 2012 annual recreation expenditure potential in the secondary/visitor market area for categories related to potential recreational uses at Lake Nasworthy.

Figure 25 puts the spending categories in Figure 24 in a national perspective. It shows the Spending Potential Index (SPI) and represents the amount spent for a product or service relative to a national average of 100.

As seen in the primary market, spending in all categories is below the national average which indicates a lack of opportunities in the market area.

Demand Potential by Sports Participation

The National Sporting Goods Association (NSGA) and

the Sports & Fitness Industry Association (SFIA) publish annual surveys on sports participation in the United States. Participation rates for selected activities are available by region, age group (age 7+), frequency, gender, and other variables. These rates have been applied to the San Angelo market area demographics to estimate the demand potential for development around the lake.

The following figures show the detailed participation potential (demand) in selected sports based on demographics and participation rates that would be found on a fully developed similar site in similar market areas. Based on location, whether or not this is a regional or local facility, competition, synergy effects, and cross participation among activities, a specific market share is estimated. The participants with the highest participation frequency for each selected sport are highlighted. This shows participants that are likely to participate in a specific sport activity over a longer period of time, representing the core market demand.

Participation	Frequent		Occasional		Infrequent		Total		
	2012	2017	2012	2017	2012	2017	2012	2017	Change
Backpacking/Wilderness Camping	923	972	2,374	2,501	1,336	1,407	4,633	4,879	246
Bicycle Riding	1,209	1,273	2,530	2,665	2,187	2,303	5,926	6,241	315
Camping (Overnight/Vacation)	440	463	3,243	3,415	1,808	1,904	5,491	5,783	292
Exercise Walking	2,138	2,251	2,395	2,522	1,743	1,836	6,275	6,609	334
Fishing	1,108	1,167	1,822	1,919	1,707	1,797	4,637	4,884	247
Golf	1,087	1,145	1,885	1,985	1,924	2,026	4,895	5,155	260
Hiking	599	631	2,288	2,409	978	1,030	3,864	4,070	206
Running/Jogging	1,696	1,787	3,528	3,716	1,903	2,004	7,128	7,507	379
Swimming	356	374	2,951	3,108	3,306	3,482	6,613	6,965	352
Boating Motor/Power	561	591	2,242	2,361	463	488	3,267	3,440	174
In-Line Roller Skating	102	108	1,223	1,288	1,166	1,228	2,490	2,623	133
Kayaking	1,281	1,349	2,198	2,315	2,017	2,124	5,496	5,789	292
Skateboarding	2,080	2,191	1,114	1,173	2,732	2,877	5,926	6,241	315
Mountain Biking Off Road	730	768	3,463	3,647	1,985	2,090	6,177	6,506	329
Archery	2,803	2,952	2,978	3,137	1,518	1,599	7,300	7,688	388

Source: ESRI BIS forecasts for 2012 and 2017, NSGA, SFIA

Estimated Participation Potential, Primary Market

Participation	Frequent		Occasional		Infrequent		Total		
	2012	2017	2012	2017	2012	2017	2012	2017	Change
Backpacking/Wilderness Camping	7,165	7,534	18,436	19,383	10,370	10,903	35,971	37,820	1,849
Bicycle Riding	9,386	9,868	19,646	20,656	16,977	17,850	46,009	48,374	2,365
Camping (Overnight/Vacation)	3,414	3,589	25,178	26,473	14,040	14,762	42,632	44,824	2,192
Exercise Walking	16,598	17,452	18,594	19,550	13,532	14,228	48,725	51,230	2,505
Fishing	8,606	9,048	14,151	14,878	13,251	13,932	36,007	37,858	1,851
Golf	8,438	8,871	14,633	15,385	14,937	15,705	38,007	39,961	1,954
Hiking	4,651	4,890	17,763	18,677	7,591	7,982	30,006	31,548	1,543
Running/Jogging	13,172	13,849	27,395	28,804	14,777	15,537	55,344	58,189	2,845
Swimming	2,761	2,902	22,912	24,090	25,673	26,993	51,346	53,986	2,640
Boating Motor/Power	4,358	4,582	17,407	18,302	3,598	3,783	25,364	26,667	1,304
In-Line Roller Skating	793	834	9,494	9,983	9,050	9,515	19,337	20,331	994
Kayaking	9,943	10,454	17,070	17,947	15,662	16,467	42,675	44,869	2,194
Skateboarding	16,149	16,979	8,650	9,094	21,210	22,300	46,009	48,374	2,365
Mountain Biking Off Road	5,665	5,956	26,885	28,267	15,411	16,203	47,961	50,427	2,466
Archery	21,764	22,883	23,124	24,313	11,789	12,395	56,677	59,591	2,914

Source: ESRI BIS forecasts for 2012 and 2017, NSGA, SFIA

Estimated Participation Potential, Secondary Market

Primary Market Participation Potential

Figure 26 shows the participation potential for the City of San Angelo in selected project related sports and activities based on demographics and participation rates for the primary market area. This shows the number of times

people typically engage in that activity each year. This informs decision makers on the size of the relative sports and activity constituencies and on the capacity needs if a particular sport or activity is to be adequately supported with facilities.

Market Analysis

Figure 28. Overview Estimated Participation Potential, Total Market Area

Year	Population/Potential Participants		
	2012	2017	Change
Population Age 7+ Total	752,671	791,520	38,849
Population Age 7+ San Angelo	85,877	90,446	4,569
Population Age 7+ Visitor Market	666,794	701,074	34,280
Backpacking/Wilderness Camping	40,604	42,699	2,096
Bicycle Riding	51,934	54,615	2,681
Camping (Overnight/Vacation)	48,123	50,607	2,484
Exercise Walking	55,000	57,839	2,839
Fishing	40,644	42,742	2,098
Golf	42,902	45,117	2,214
Hiking	33,870	35,618	1,748
Running/Jogging	62,472	65,696	3,224
Swimming	57,959	60,950	2,992
Boating Motor/Power	28,630	30,108	1,478
In-Line Roller Skating	21,827	22,954	1,127
Kayaking	48,171	50,657	2,486
Skateboarding	51,934	54,615	2,681
Mountain Biking Off Road	54,138	56,932	2,794
Archery	65,977	67,279	3,302

Source: ESRI GIS forecasts for 2012 and 2017, NOAA, SHIA.

Overview Estimated Participation Potential, Total Market Area

The choice of which sports/activities to serve is a sensitive one. While all are important, a selection of support facilities for a range of sports and activity facilities should serve the largest part of the population as well as the young, middle-aged, and old. There is also the consideration of selecting activities that can share facilities. For example, many trails can be used for a number of activities ranging from walking, jogging, and running to bicycling and possibly mountain biking. For example, a baseball diamond is an example of a facility that can serve only one sport and a seasonal one at that. Or Fields can serve football and soccer and even more unusual sports such as field hockey or lacrosse (which may come to San Angelo with the servicemen from Goodfellow AFB and students from Angelo State).

Another consideration is that there are some sports and activities that can uniquely happen on a lake (and in some cases a river), such as fishing, swimming (it's different in a pool), canoeing, motor boating, sailing, kayaking, and other water sports. Since these may draw visitors (and their money which leads to fiscal and economic impact for San Angelo) from the secondary market, they really should bob to the top of what may be supported in a lake plan.

Secondary Market Participation Potential

Figure 27 shows the participation potential in the secondary market from selected project related sports and activities based on demographics and participation rates.

Figure 29. Estimated Participation Potential, Local Market

Activity	Number of Adults (18+)	Percent of Total (18+)
Participated in archery	2,113	2.9%
Participated in backpacking/hiking	5,925	8.2%
Participated in bicycling (mountain)	2,521	3.5%
Participated in bicycling (road)	6,494	9.0%
Participated in boating (power)	4,222	5.8%
Participated in canoeing/kayaking	3,280	4.5%
Participated in fishing (fresh water)	9,764	13.5%
Participated in frisbee	4,038	5.6%
Participated in golf	7,362	10.2%
Participated in horseback riding	2,217	3.1%
Participated in jogging/running	6,820	9.4%
Participated in roller skating	1,402	1.9%
Participated in swimming	12,410	17.2%
Participated in walking for exercise	19,368	26.8%
Flew a kite in last 12 months	1,973	2.7%
Did birdwatching in last 12 months	4,424	6.1%
Went to bar/night club in last 12 months	13,920	19.3%
Went to beach in last 12 months	14,453	20.0%
Went to museum in last 12 months	7,694	10.7%
Attended music performance in last 12 months	16,004	22.2%
Went to zoo in last 12 months	9,805	13.6%

Source:GfK MRI, Esri forecasts for 2011

Estimated Participation Potential, Local Market

Figure 30. Estimated Participation Potential, Visitor Market

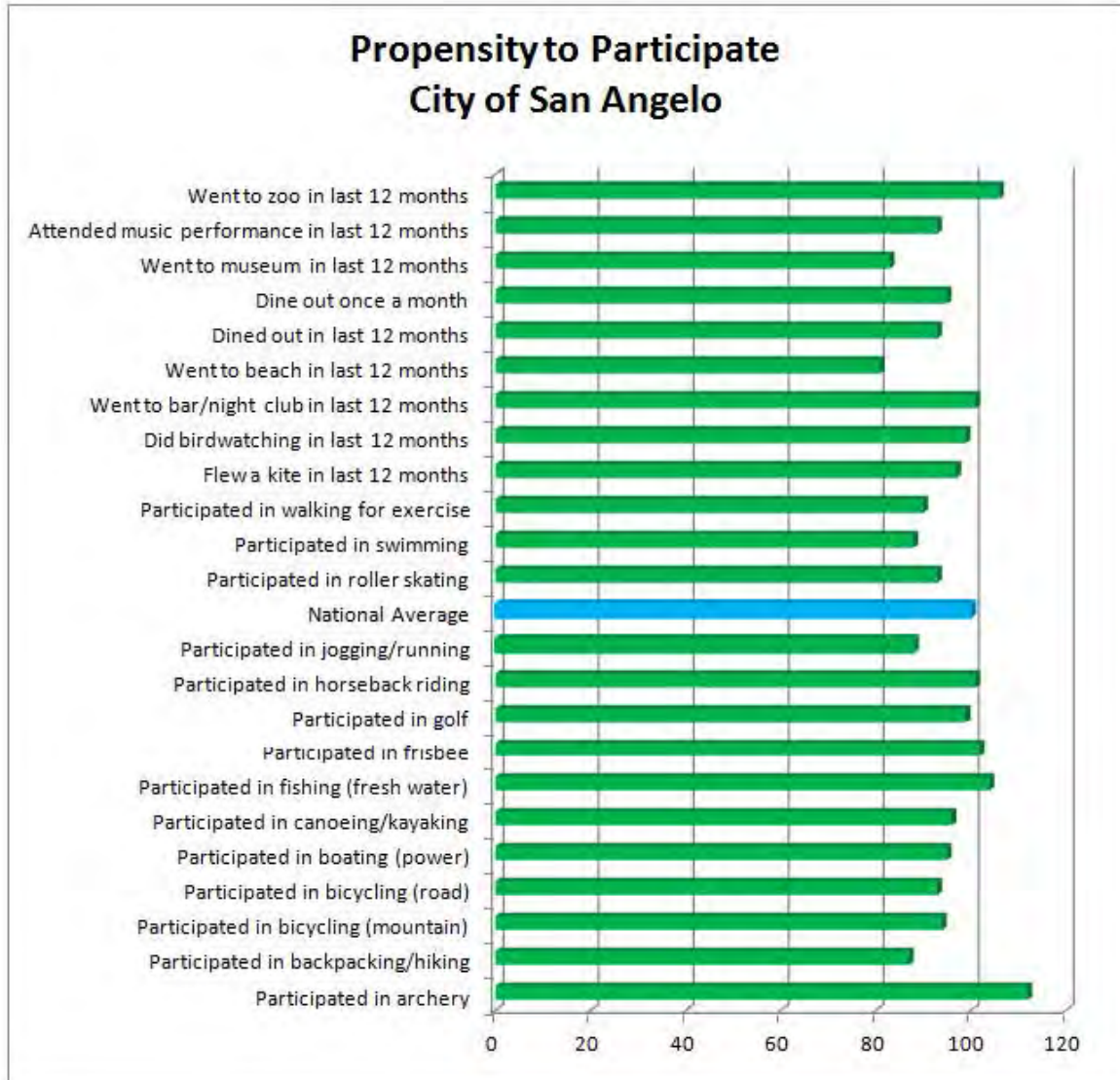
Activity	Number of Adults (18+)	Percent of Total (18+)
Participated in archery	16,481	3.0%
Participated in backpacking/hiking	41,485	7.5%
Participated in bicycling (mountain)	16,351	2.9%
Participated in bicycling (road)	43,520	7.8%
Participated in boating (power)	31,710	5.7%
Participated in canoeing/kayaking	22,919	4.1%
Participated in fishing (fresh water)	79,846	14.4%
Participated in frisbee	27,671	5.0%
Participated in golf	47,428	8.5%
Participated in horseback riding	18,533	3.3%
Participated in jogging/running	47,615	8.6%
Participated in roller skating	12,320	2.2%
Participated in swimming	95,696	17.2%
Participated in walking for exercise	142,675	25.7%
Flew a kite in last 12 months	14,274	2.6%
Did birdwatching in last 12 months	33,666	6.1%
Went to bar/night club in last 12 months	95,042	17.1%
Went to beach in last 12 months	105,705	19.0%
Went to museum in last 12 months	51,258	9.2%
Attended music performance in last 12 months	113,548	20.4%
Went to zoo in last 12 months	66,289	11.9%

Source:GfK MRI, Esri forecasts for 2011

Estimated Participation Potential, Visitor Market



Figure 31



Propensity to Participate - Market Potential Index (MPI)

Figure 28 shows the participation potential in selected sports/activities for both market areas, the City of San Angelo and the visitor market combined for the years 2012 and 2017, as well as changes in participation numbers based on population growth and participation rates for Texas.

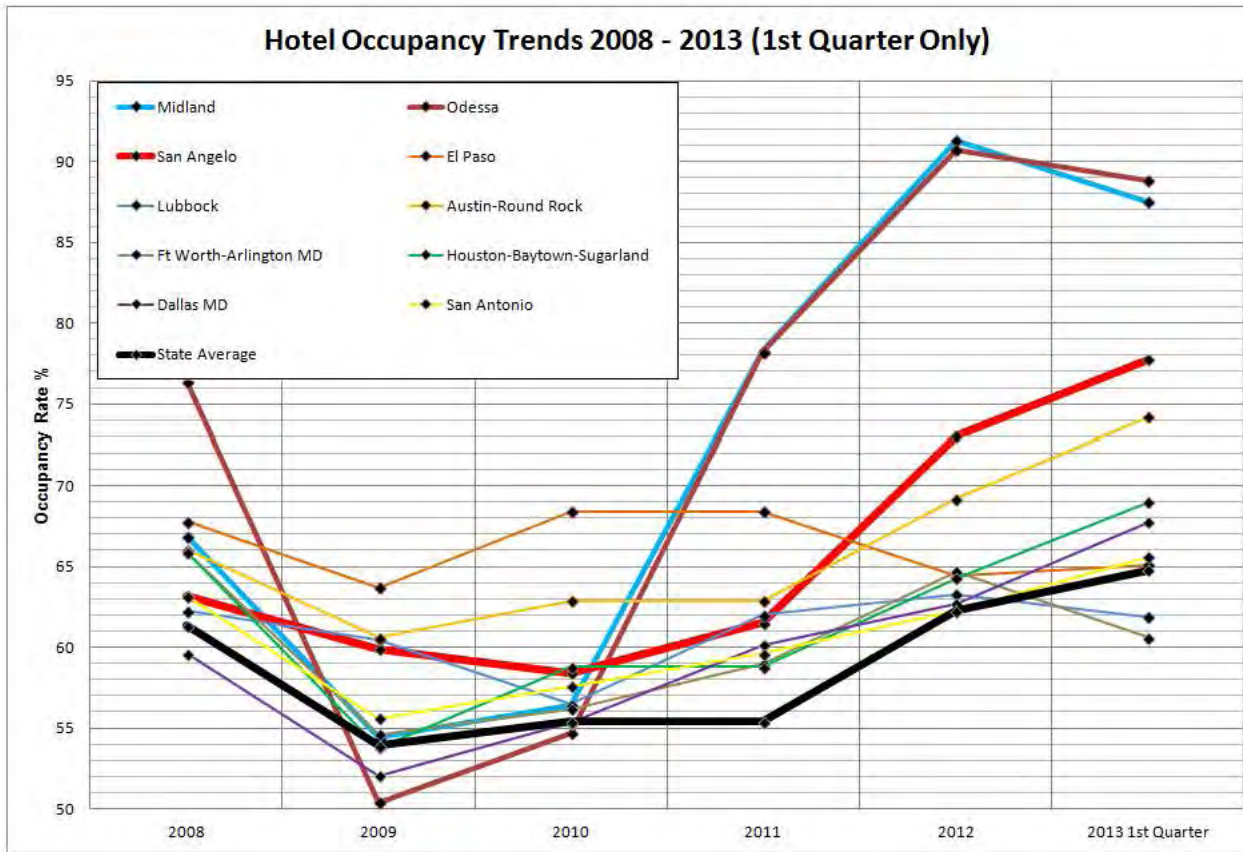
Market Participation Potential Summary

Demand Potential by Propensity

This approach is based on the socio-economic characteristics of households in the market area and their propensities to use various products and services. While this approach estimates

participation it also estimates potential event (e.g. competition, concert) attendance. A market share was not applied to these numbers and it covers adults only – age 18 and above. This approach also compares the likelihood of households/individuals to participate/attend to the national average. It is accompanied by the MPI (Market Potential Index) which measures the relative likelihood of people in the specified trade area to exhibit certain consumer behavior or to participate/attend in activities/events compared to the national average.

A Market Potential Index (MPI) of 100 represents the U.S. average. MPIs above 100 show a higher likelihood to



Hotel Occupancy Trends

participate in a certain activity; MPIs below 100 imply a lower than average participation. These figures are ascertained by sending the specific demographic mix found in a market area into a demand algorithm whose output is based on numerous sources of survey research. The following graphs put the participation categories for each market area into a national perspective – depicting the Market Potential Index (MPI).

Tourism

Texas Tourism & Hotel Market

Domestic visitation to Texas increased six percent over 2011 with an estimated 220million domestic travelers having visited Texas in 2012. The majority, more than 70 percent, traveled in Texas for leisure, and 30 percent for business. Texas had the 3rd largest share of domestic visitation in the U.S. Top visitor origin markets for Texas include California, Louisiana, Oklahoma, Illinois, Florida,

Arkansas, Missouri, Kansas, New Mexico, and Indiana. 2012 was a strong year for tourism in Texas, with all indicators showing positive growth in visitation, economic impact, and hotel performance. Texas hotels collected an estimated \$8.1 billion in revenues in 2012, an increase of 10 percent over the previous year. More than 90 million room nights were sold statewide, with occupancy rates increasing 2.8 percent points to 62.3 percent.

The booming oil and natural gas activity, particularly in the nearby Cline Shale is placing growth pressures on San Angelo. Although the city itself is not the site of much exploration, it is one of the larger cities in the region and serves as a hub for service companies and temporary oilfield workers, executives, and families of those employees. Lake Nasworthy provides recreation opportunities for the influx of new workers, and appropriate means and facilities to entertain, serve, and house them are essential for the future of San Angelo.



Market Analysis

Figure 33. San Angelo Hotel Market

Property Name	# of Rooms	Date Open	Chain Scale	Distance (Miles)
San Angelo Lodge	60	Oct-52	Indep	0.6
Staybridge Suites San Angelo	80	Aug-01	Upscale	0.9
Fairfield Inn & Suites San Angelo	73	Sep-04	Upper Midscale	0.9
Americas Best Value Inn San Angelo	80	Jun-73	Economy	1
Super 8 San Angelo	81	May-56	Economy	1
Econo Lodge San Angelo	75	Jun-81	Economy	1.3
Knights Inn San Angelo	41	Jun-91	Economy	1.4
Motel 6 San Angelo	98	Jan-79	Economy	1.5
Days Inn San Angelo	113	Jun-83	Economy	1.7
Grande Motel	33	N/A	Indep	2.1
Rodeway Inn San Angelo	100	Jun-85	Economy	2.2
Clarion Hotel San Angelo	148	Apr-87	Upper Midscale	2.3
La Quinta Inns & Suites San Angelo & Conference Center	171	Dec-74	Midscale	2.3
Travelodge San Angelo	84	Jun-60	Economy	2.3
Springhill Suites San Angelo	96	Feb-10	Upscale	2.3
Ramada Limited San Angelo	39	Jul-97	Midscale	2.3
Inn Of The Conchos	125	Jun-83	Indep	2.3
Best Western San Angelo	55	Sep-97	Midscale	2.4
Hampton Inn San Angelo	63	Dec-96	Upper Midscale	2.4
Comfort Suites San Angelo	65	Sep-05	Upper Midscale	2.4
Holiday Inn Express & Suites San Angelo	68	Sep-05	Upper Midscale	2.5
Microtel Inn & Suites by Wyndham San Angelo	83	Aug-10	Economy	2.5
Sands Motel	28	N/A	Indep	2.5
Dun Bar East Motel	97	Jun-61	Indep	3.3
Total Rooms	1,956			

Source: STR, MFA

San Angelo Hotel Market

In San Angelo, as in many towns in oil country, hotels are facing greater demand during the week from employment than on the weekends. This inversion in demand opens up the opportunity to explore hospitality development opportunities that can serve current employment while also fulfilling a maturing tourism demand. This can hedge any risk of decline in employment demand by being oriented to the Lake and recreation by providing short-term support on new facilities, and building a long-term reputation for lake recreation.

Areas closely related to oil and gas production (O&G counties) showed a 15.7 percent revenue gain in 2012, and accounted for 56 percent of the state's total revenue gain (from 38 percent of the state's room supply). The 62 percent of room supply in non-O&G counties generated a modest but healthy 7 percent revenue gain for 2012. Room-nights sold in O&G areas garnered real growth of 8.5 percent, while the

non-O&G balance of Texas showed 4.7 percent. In the fourth quarter of 2012, O&G revenues achieved +15.7 percent and non-O&G areas, +7 percent.

Nationally, year-over-year, lodging performance measures are now stabilizing at healthy growth levels after a three-year post-recession recovery period. Occupancy levels are above 60 percent and average daily rates are growing at a healthier 3.8 percent pace, aiding significant revenue per available room (RevPar) improvement. Supply additions remain well below gains in room-nights sold. With 2012 RevPar reaching \$55.83 (equal to 2008), and occupancy slightly above long-term averages, overall new hotel development projects will likely commence selectively. (RevPar is calculated by multiplying a hotel's average daily room rate by its occupancy rate.)

Assuming the hotels are open 365 nights per year, in the

Figure 34. San Angelo Hotel Market 35-70 Miles Distance				
Property Name	# of Rooms	Date Open	Chain Scale	Distance (Miles)
Ballinger Inn	24	N/A	Indep	35.1
Executive Inn	32	Jun-82	Indep	36.1
Budget Host Stonewall Inn	23	Jun-62	Economy	36.4
Motel 83	22	Jun-50	Indep	53.8
Menard Budget Inn	25	Jun-50	Indep	54.1
Days Inn Sonora Devil's River	99	N/A	Economy	60.5
Comfort Inn Sonora	52	Mar-05	Upper Midscale	61.1
Best Western Sonora Inn	54	Jul-00	Midscale	61.1
Cobblestone Inn & Suites Big Lake	45	U/C	Midscale	61.2
Economy Inn	55	N/A	Indep	61.3
Derrick Inn	39	Jun-85	Indep	62.1
Holiday Host Motel	20	Jun-90	Indep	62.2
Days Inn Colorado City	52	N/A	Economy	66.6
Best Western Coleman Inn	50	Sep-96	Midscale	66.9
Travelodge Ozona	40	N/A	Economy	66.9
Budget Inn	28	N/A	Indep	67.1
Best Western Ozona Inn	50	Jun-85	Midscale	67.2
Super 8 Ozona	52	Jun-79	Economy	67.2
Holiday Inn Express & Suites Ozona	70	Jun-09	Upper Midscale	67.4
Americas Best Value Inn Ozona	24	Mar-90	Economy	67.5
Motel 6 Ozona	53	U/C	Economy	68
Hillcrest Motor Inn	20	Jun-77	N/A	68
Total Rooms	929			
<i>Source:STR, MFA</i>				

San Angelo Hotel Market 35-70 Miles Distance

Figure 35. Preliminary San Angelo Lake Nasworthy Hotel Demand Calculation		
Year	2012	2017
Visitor Market	742,721	780,967
Market Share Assumption	25%	25%
Out of Town Visitors	185,680	195,242
Day Trips	43.3%	43.3%
Overnight Stays	56.7%	56.7%
Average Length Overnight Stays	2.61	2.61
Assuming Double Occupancy	2	2
Estimated Room Night Demand	137,391	144,466
Estimated Room Demand	376	396
<i>Source:STR, DK Shifflet, ESRI BIS forecasts for 2012 and 2017, MFA</i>		

Preliminary San Angelo Lake Nasworthy Hotel Demand Calculation

Market Analysis

Figure 36. San Angelo Lake Nasworthy Proposed Hotels Room/Room Night Supply	
Resort Rooms (Marina)	250
Hotel Rooms (Power Plant)	100
Days Open	365
Available Room Nights	127,750
Current Occupancy Rate	77.7%
Room Nights Sold	99,262
<i>Source: MFA</i>	

San Angelo Lake Nasworthy Proposed Hotel Room/Room Night Supply

current year San Angelo has a room night supply of 713,940. Based on available room nights and the last year's occupancy rate, 521,176 room nights were sold in San Angelo. Room nights sold for the 1st quarter of this year are 182,377. The next available hotels outside of San Angelo are 35 miles away. Figure 34 lists the hotels that are between 35 and 70 miles away from San Angelo

Preliminary Hotel Demand Estimate

Beside the additional demand from energy-related business, new demand may come from recreation and leisure visits to Lake Nasworthy. The demand estimates shown in Figure 35 are based only on the new additional room demand from recreation and leisure activities that will be offered around the lake and conservatively assumes one visit per year. It is based on the population figures from the secondary/visitor markets.

In comparison the proposed two new hotel facilities are

likely to create an additional room and room night supply as shown in Figure 36.

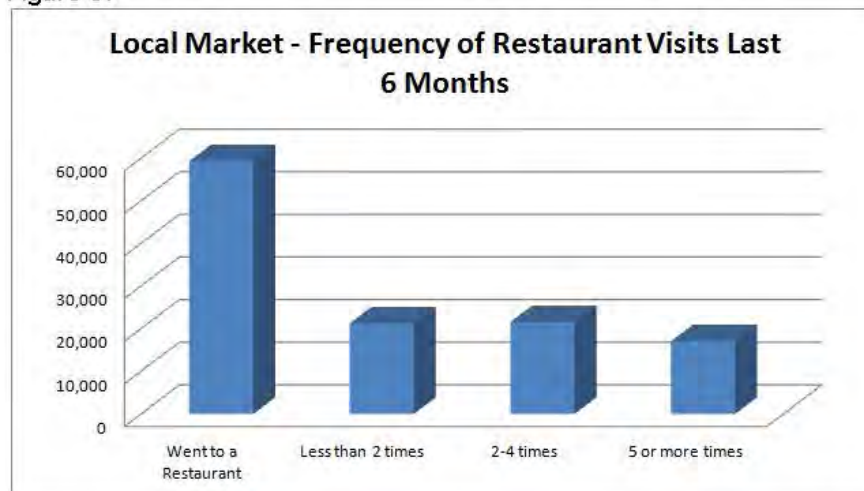
Restaurant Local Market

In 2011, households in San Angelo spent an average of \$2,340 for food away from home, which accounts for 4.7 percent of the average household budget. In total, households in San Angelo spent \$86,290,000 in this category. Figures 37 through 40 detail number of visits, type of restaurant visited, for what reason, and the day of visits to a restaurant.

Restaurant Visitor Market

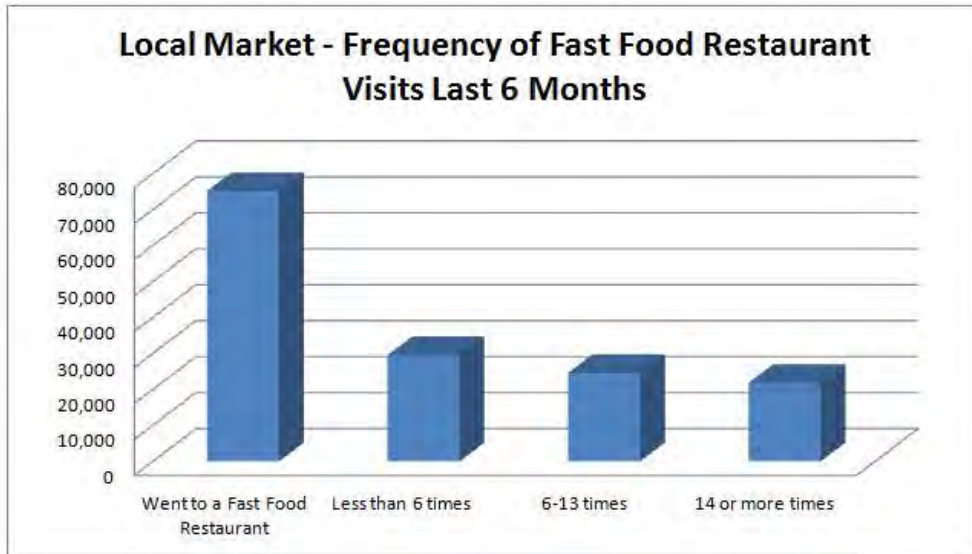
In 2011, households in the secondary/visitor market spent an average of \$2,520 for food away from home, which accounts for 4.7 percent of the household budget. In total, households in the secondary/visitor market spent \$684,230,000 in this category. The following graphs detail number of visits, type of restaurant visited, for what reason, and the day of visits to a restaurant.

Figure 37



Local Market Frequency of Restaurant Visits

Figure 38



Local Market Frequency of Fast Food Visits

Figure 39



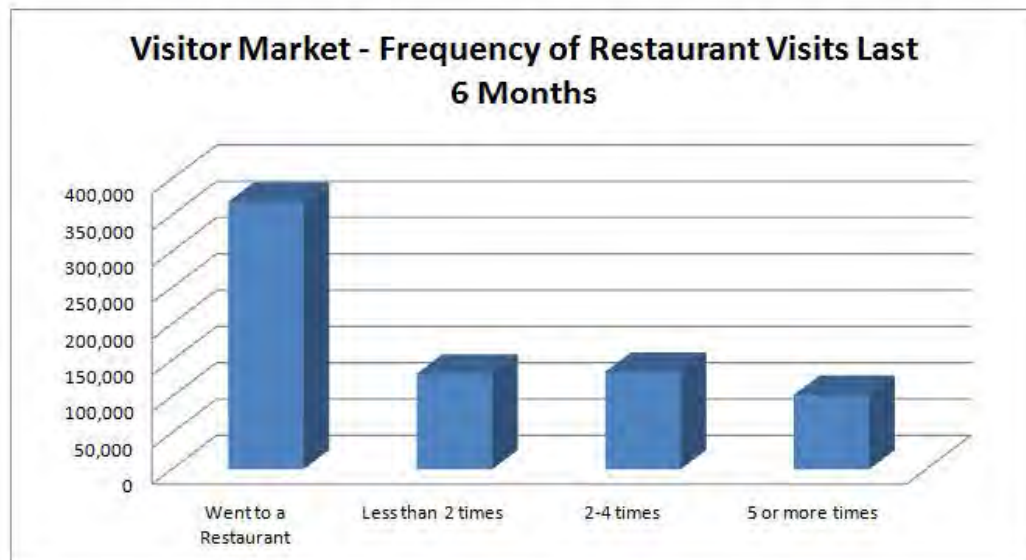
Local Market Restaurant Reason and Day of Visit

Figure 40



Local Market Fast Food Reason and Day of Visit

Figure 41



Visitor Market Frequency of Restaurant Visits

Figure 42



Visitor Market Frequency of Fast Food Visits

Figure 43



Visitor Market Restaurant Reason and Day of Visit

Figure 44



Visitor Market Fast Food Reason and Day of Visit

Assuming the out of town visitor numbers from the hotel demand estimates and an average spending of \$27 per person for food and beverage per day, the additional visitation to Lake Nasworthy could create roughly \$5million per year in new spending potential for restaurants, fast food restaurants and bars.

Regional Tourism Demographics

Two sources of regional tourism statistics are included here. One is more general than the other as the region covered – called the Big Bend Region – is enormous. As large as Texas is, it is only divided into seven tourism regions and much of west Texas is in this one region. A brighter note would be that this region does cover most of the Permian Basin and therefore does give us a good big picture view. Below is what the data shows for this large region, of which San Angelo is a part.

The number of person-stays in the Big Bend Region is estimated at 6.17 million in 2011, and the volume of person-days was estimated at 15.42 million. The Big Bend Region's share of total person-days to Texas is the smallest out of the seven main Texas tourism regions. Leisure visitors share essentially all of the demographic characteristics with the typical U.S.

household, showing similar proportions by age category, presence of children in the home, life stage, and by generation. In household income, the Big Bend Region shows a wealthier distribution in its travel base, attracting more visitors in the \$75,000+ range (54 percent) and fewer in the under-\$50,000 range (33 percent) than the U.S. average. The average traveler has a household income of \$86,520. About one-third of the region's visitors have children in their households. The greatest proportion of the regions visitors are in the 18-34 age category and the average visitor is 44 years old.

Type of Trip and Spending

Of all visitors to the region, 49 percent are leisure visitors. Non-vacation leisure visitors (37.5 percent) coming to the region to visit friends and relatives (VFR) comprise about one-quarter of the leisure visits by trip purpose. Of the vacation leisure visitors (11.5 percent), 5.7 percent are on a weekend getaway and 5.8 percent are enjoying general vacations. The remaining 51 percent of visitors to the region are on business trips – 9.9 percent visit the region for a meeting or conference while the majority (41.1 percent) visit the region to conduct business such as construction, repair, client services, or sales. The average per person per day spending is \$129.60 of which most is for transportation

(34.9 percent) due to increased fuel costs, followed by food (20.8 percent) and accommodations (16.9 percent).

Travel Party Composition and Activities

The largest travel party type in the region is one male only with 43.9 percent, followed by couples (21.6 percent). Couples with children account for only 6.1 percent of all travel parties in the region. This comes as no surprise since the majority of travel is for business and only a quarter of all travel parties are households with children; the average travel party size is 1.66. The region's most popular activities for visitors are culture (12 percent) including historic sites, concerts and plays, festivals, and museum visits. This is followed by nature-related activities (8.6 percent) such as visiting a National or State Park, hiking/biking, visiting a lake, eco tourism, and camping. Outdoor sports are the least favorite activities.

Length of Stay

The average length of stay is 2.61 days. The average length of overnight stays is 4.04 nights. Day trips make the majority with 43.3 percent, 1 to 3-night stays make up 42.5 percent, followed by 4 to 7-night stays with 10 percent and 8+night stays with 4.2 percent. Economic changes seem to be affecting travel behavior for the state. Texas visitors historically tend to drive longer distances for their leisure travel, but 2008 brings in more drivers closer to home as the average one-way distance traveled by auto is at a five year low of 136 miles, in part because of the higher fuel costs.

Big Bend Region/San Angelo Tourism Summary

- Texans generated 61.7% of Person-Days to the Big Bend Region; Non-Texans 38.3%
- Top 3 Texan origin DMAs:
 1. Dallas-Fort Worth,
 2. Odessa-Midland,
 3. San Antonio;
- Top 3 Non-Texan DMAs:
 1. Los Angeles,
 2. Shreveport,
 3. Albuquerque-Santa Fe
- Leisure travel represented 49 percent of Person-Days to the Big Bend Region; Vacation 11.5 percent and Non-Vacation 37.5 percent
- Business travel represented 51% of Person-Days to the Big Bend Region; Meetings 9.9 percent and Transient 41.1 percent
- Activity categories participated in Big Bend Region:
 1. Culture 12.2 percent
 2. Nature 8.6%,
 3. Touring 7.9%,
 4. Attractions 6.4%,
 5. Outdoor Sports 3.6%
- Average Party Size (Adults and Children) 1.66 persons
- Average length of Stay was 2.61 days (overnight and days); 4.04 nights (overnight only).
- 68.7 percent traveled by Auto; 21.3% by Air
- Accommodation Type: Paid 61.9 percent; Non-Paid 37.4 percent; Other Overnight 0.7 percent
- Average Per Person Per Day Spending \$129.60
- Average Age 44.1 years
- Average Household Income \$86,520
- Children in Household: Yes 32.3%, No 66.7 percent
- Children in Household: Yes 32.3%, No 66.7 percent

Market Analysis

Tourism data from a second, smaller area source is discussed below and presents impact data, referenced earlier, by type and scale.

According to a recent study by Dean Runyan and Associates for the State of Texas, the multi-billion dollar travel industry in Texas is a vital part of the state and local economies. The industry is represented primarily by retail and service firms, including lodging, restaurants, retail stores, gasoline service stations, and other types of businesses that sell their products and services to travelers. The money that visitors spend on various goods and services while in Texas produces business receipts at these firms, which in turn employ Texas residents and pay their wages and salaries. State and local government units benefit from travel as well, primarily in the form of excise taxes on the goods and services purchased by visitors.

- Total direct travel spending in Texas was \$65.7 billion in 2012. This represents a 6.7 percent increase over the preceding year. In real dollars (adjusted for inflation), travel spending increased by 4.4 percent.
- Hotel room demand increased by 5.7 percent from 2011 to 2012. Visitor air travel on domestic flights to Texas destinations increased by 3.8 percent. Since 2009, room demand has increased on average by 7 percent per year, and visitor air travel has increased by 3.1 percent per year.
- Direct travel-generated employment increased by 2.9 percent for the year, while earnings increased by 5.7 percent. This was the second consecutive year of employment growth.
- Local and state tax revenues directly generated by travel spending were \$4.4 billion in 2012, not including property tax payments. This represents approximately eight percent of all local and state tax revenues, not including property taxes.
- Travel spending generated \$7.9 billion in local, state, and federal tax receipts which is equivalent to \$840 in tax revenue for each Texas household (property taxes are not included).
- Travel spending supported jobs in other industries through the re-spending of travel-related revenues by businesses and individuals. The secondary impacts in 2012 were 499,000 jobs and \$19.0 billion in earnings.

- The gross domestic product (GDP) of the Texas travel industry was \$26.8 billion in 2012. This is similar to other export-oriented industries such as microelectronics and agriculture/food production. Only oil and gas production and related manufacturing has a significantly greater GDP.

The following table, from the Dean Runyan report, is a great illustration of the scale and value of travel industry impacts on the San Angelo MSA (Metropolitan Statistical Area) or Iron and Tom Green Counties. With the exception of 2010, direct impact has grown remarkably between 2002 and 2012, only a decade later.



**San Angelo MSA
Travel Impacts, 2002-2012p**

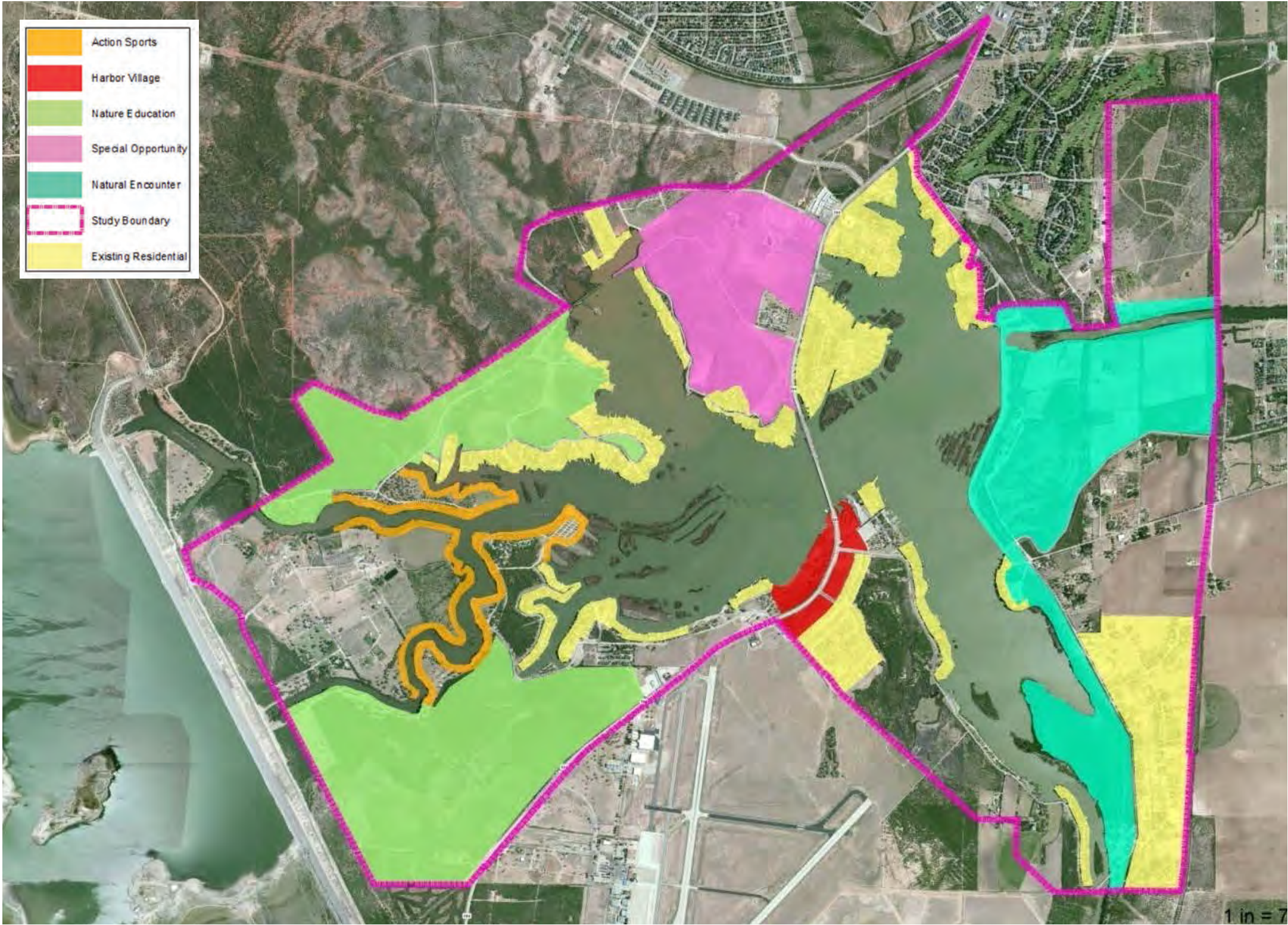
	2002	2004	2006	2008	2010	2011	2012p
Total Direct Travel Spending (\$Million)							
Destination Spending	131.9	144.7	177.7	208.7	191.9	209.0	242.6
Other Travel*	7.8	10.5	12.3	14.0	11.9	12.3	14.2
Total Direct Spending	139.7	155.2	190.0	222.7	203.9	221.4	256.9
Visitor Spending by Type of Traveler Accommodation (\$Million)							
Hotel, Motel	59.0	64.1	82.0	103.2	93.8	109.9	141.6
Private Campground	1.9	2.1	2.5	2.8	3.1	3.2	3.2
Public Campground	0.5	0.5	0.6	0.7	0.7	0.8	0.8
Private Home	34.5	38.8	44.8	49.0	45.4	45.6	42.8
Vacation Home	2.9	3.6	4.6	5.6	4.9	5.4	5.4
Day Travel	33.1	35.6	43.2	47.4	44.0	44.1	48.9
Destination Spending	131.9	144.7	177.7	208.7	191.9	209.0	242.6
Visitor Spending by Commodity Purchased (\$Million)							
Accommodations	17.0	17.5	21.4	28.9	26.3	31.1	44.7
Food Service	26.7	28.2	33.1	38.4	38.4	41.0	49.0
Food Stores	6.1	6.5	7.3	8.5	8.3	8.8	10.1
Local Tran. & Gas	23.9	32.9	49.4	63.1	51.6	60.0	61.0
Arts, Ent. & Rec.	13.3	13.8	15.4	16.7	16.0	16.4	18.8
Retail Sales	39.4	38.4	42.2	43.8	43.0	43.5	49.5
Visitor Air Tran.	5.5	7.4	9.0	9.4	8.3	8.2	9.5
Destination Spending	131.9	144.7	177.7	208.7	191.9	209.0	242.6
Industry Earnings Generated by Travel Spending (\$Million)							
Accom. & Food Serv.	20.2	21.2	24.8	30.0	34.2	36.1	40.4
Arts, Ent. & Rec.	9.0	9.3	10.5	11.5	11.5	11.9	13.6
Retail**	6.7	7.0	7.5	7.9	7.5	7.8	8.7
Ground Tran.	0.4	0.5	0.5	0.6	0.5	0.5	0.6
Visitor Air Tran.	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Travel*	1.1	1.1	1.2	1.3	1.3	1.3	1.4
Total Direct Earnings	37.7	39.3	44.8	51.4	55.3	57.9	64.9
Industry Employment Generated by Travel Spending (Jobs)							
Accom. & Food Serv.	1,320	1,340	1,470	1,620	1,760	1,750	1,920
Arts, Ent. & Rec.	890	840	880	910	870	840	950
Retail**	390	380	380	370	340	340	370
Ground Tran.	10	10	10	10	10	10	10
Visitor Air Tran.	0	0	0	0	0	0	0
Other Travel*	20	20	20	20	20	20	20
Total Direct Employment	2,650	2,620	2,780	2,970	3,030	3,000	3,310
Government Revenue Generated by Travel Spending (\$Million)							
Local Tax Receipts	1.7	1.8	2.1	2.6	2.4	2.7	3.9
State Tax Receipts	9.1	9.5	10.9	12.0	11.6	12.0	14.0
Total Direct Gov't Revenue	10.8	11.3	13.0	14.6	14.1	14.8	17.9

The San Angelo MSA includes Irion and Tom Green counties.

Details may not add to totals due to rounding.

*Other Travel includes resident air travel and travel arrangement. **Retail includes gasoline.

Figure 45



Lake Nasworthy Area Master Plan

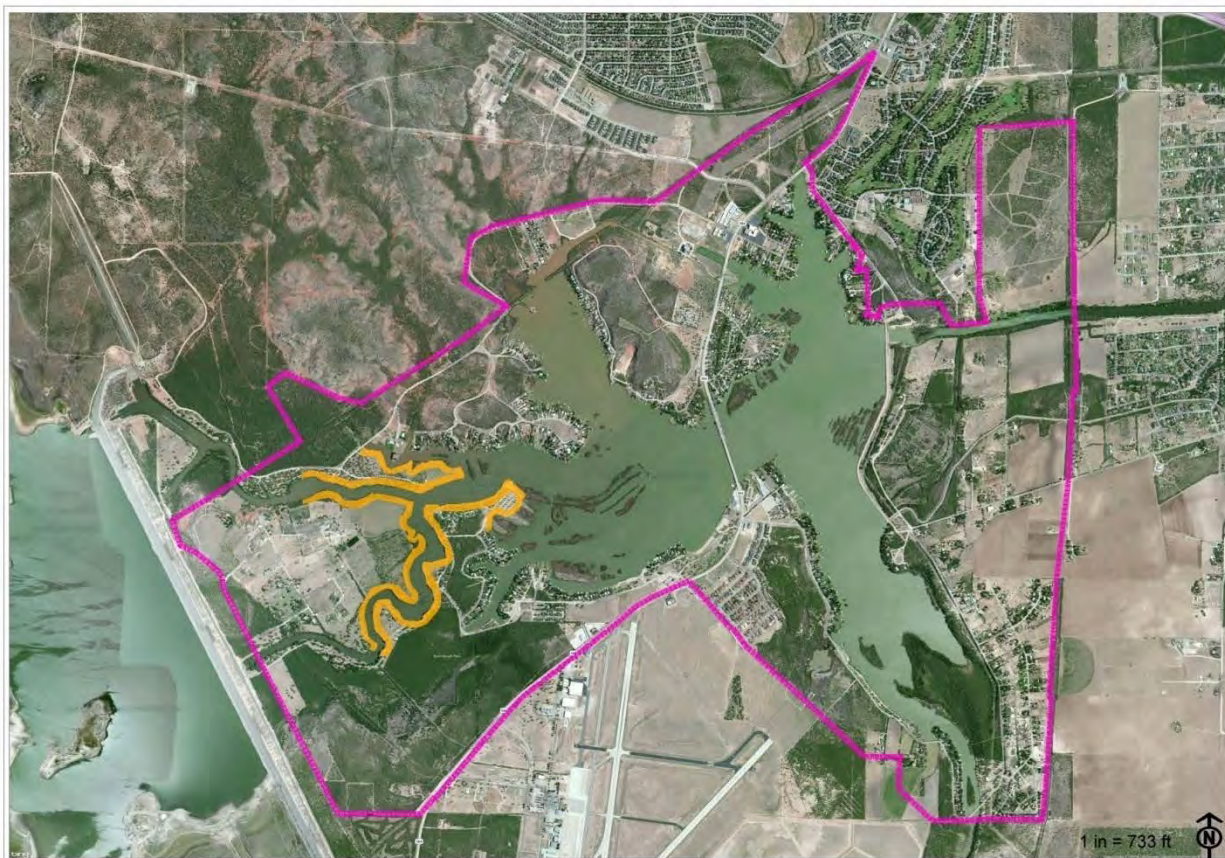
The Lake Nasworthy Master Plan was crafted based on the information summarized in the previous sections of this report. Evaluation of the existing context, incorporation of stakeholder input, and evaluation and consideration of physical and market realities were fused together to inform the master plan.

Lake Nasworthy Area Master Plan

Figure 45 shows the five character zones– physical and artificial boundaries separate the areas that contain areas of similar use or characteristics.

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Figure 46



Zone 1: Action Sports

Market Potential by Character Zone

Each character zone incorporates and builds on existing activities to maximize market opportunities. The various zones have different magnet attractions, slightly different age appeals, and serve different interests, different levels of active lifestyle engagement, and have varying seasonality. This can indicate whether zones are likely to be active enough to support facilities like food and beverage, hospitality, and other support elements for the guest experience. Zones with magnets and other facilities with year-round facilities and general market appeal are likely to have longer lengths-of-stay and are more likely to be able to support the support facilities. If the zone also offers a higher degree of activities unique to a lake environment, they also are more likely to draw from the secondary market in visitation and economic and fiscal impact.

Zone 1: Action Sports

Programming for this zone includes:

- Boat Races (Drag Boats, Remote Controlled Boats)
- Wake Boarding
- Archery
- Mountain Biking
- Trail Running
- Camping (RV,Tent)

In the action sports zone, boat races will require peak loading of spectators for special events that, while built into the design, do not negatively impact the day-to-day use of the area by the other magnet attractions. Almost all of these activities have enthusiastic aficionados who will come to the site to engage in them and have few other places in the area where they can currently do so. Therefore, all of the activities

in this zone are technically magnet attraction elements. The activity mix in action sports does include some water-based activities that can happen on water, but most are not in that category. While camping is not truly a destination or magnet activity in this zone, it is included as a service to visitors in town for the water-based events. In effect, it is a temporary increase in camping capacity for events. That said, some of the additional camping spots may have a longer business season when camping demand from all of the proposed activities in this plan are considered. The relative demand and popularity of these activities, when it can be calculated with available data, are projected in Figure 47.

The action sports activities have a long season in the San Angelo climate. It allows for three season boating, wakeboarding, archery, mountain biking, trail running, and camping; most, weather permitting, can be enjoyed year-round.

Boating and wakeboarding may be the crown jewels among the magnets in this cluster as they require a lake or wide river and can be done rarely in west Texas. If one wants to engage in this activity in the region, he or she has to come to the lake to do it. Figure 47 suggests that boating and wakeboarding may capture

the most enthusiasts of the activities in this zone (assuming sufficient capacity for both). It is interesting that there may be more wakeboarding demand than boating. However, there are underwater mechanical wakeboarding systems that eliminate the need for a boat and some wakeboarding is just a simpler version of surfing.

All of the activities shown in Figure 47 skew toward the younger age cohorts except for archery and camping which are all-ages activities. Archery is seen as a family activity at the current facility – which is unusually successful for this type of facility but still has further development potential. By being targeted to a family audience, it can be considered the top-tier of sporting activities, a lifelong sport. If success continues, this will change the typical profile of the sport which indicates that most participants are young.

Mountain biking, running, jogging, and trail running all rely on the same thing – a trail system; however, two types of trails are needed. Trail running and mountain biking can share a similar trail – a rougher trail with many rises and falls. The other trail activities prefer a more finished and flatter trail. Bikes and runners share a trail best when it is wide enough for easy passage. There is no

Figure 47. Zone 1 Estimated Participation/Attendance Potential

Activity/Year	Participation Estimates				Total	Visits per Year		
	Local Market	Market Share	Visitor Market	Market Share		Local Market	Visitor Market	Total
Boating		75%		60%		10	5	
2012	2,450		15,218		17,669	24,503	76,092	100,595
2017	2,580		16,000		18,580	25,800	80,001	105,801
Archery		75%		10%				
2012	5,475		5,668		11,143	54,750	28,339	83,089
2017	5,766		5,959		11,725	57,660	29,796	87,456
Mountain Biking		75%		5%				
2012	4,633		2,398		7,031	46,328	11,990	58,318
2017	4,880		2,521		7,401	48,795	12,607	61,402
Wakeboarding		50%		50%				
2012	3,349		26,005		29,354	33,492	130,025	163,517
2017	3,527		27,342		30,869	35,274	136,709	171,983
Running/Jogging		75%		5%				
2012	5,346		2,767		8,113	53,460	13,836	67,296
2017	5,630		2,909		8,540	56,303	14,547	70,850
Camping		5%		10%				
2012	275		4,263		4,538	2,746	21,316	24,062
2017	289		4,482		4,772	2,892	22,412	25,304

Source: ESRI BIS forecasts for 2012 and 2017, NSGA, SFIA,

Zone 1 Estimated Participation/Attendance Potential



Figure 48



Zone 2: Harbor Village

good way of projecting trail running demand at this time but the projections for mountain biking and running offer insight. Both would significantly top trail running, an elite form of running. It is estimated that demand would be 15,000 to 30,000 a year, about a quarter to a half of the other two similar activities. Several key youth populations at the nearby Air Force base and the university are likely to contribute to this group.

People generally engage in several of these activities year-round, bringing their own supplies, with the exception of campers who typically require some type of a camp store. Another exception will be the need to supply enthusiasts who come for the boating and other events. Support/human services infrastructure will be needed. Restrooms would operate year-round but food and beverage only during the peak usage seasons.

Zone 2: Harbor Village

- Programming for this zone includes:

- Marina
- Beach
- Restaurants
- Hotel
- Sailing School/Electric Boat Rental
- Triathlon Staging Area
- Splash pad
- Party Boats

The proposed activities for Harbor Village include a number of magnet or destination elements including a reinvented marina and restaurant. In fact, the package of activities in this zone is so uniquely lake-driven that they constitute the plan's best zone for drawing in day and overnight users from the secondary/visitor market area and the economic impact that would come with it. This is an area that might have been attractively pictured on a phone book a generation ago. This area can capitalize on the activity

already generated in the adjacent Mary Lee Park and the Concho Bass Club. The development of the harbor area may also represent the best opportunity for improved economic development of San Angelo because of the image it can project for the community -- a picture more powerful in the marketplace of economic development than images of lakefront homes. Not everyone who sees a picture of a lakefront home believes that they will one day own one, but just about everyone has a reasonable expectation of using the facilities planned for Harbor Village.

The three-season marina and the year-round restaurants, which must be on the water to distinguish them from other restaurants in town and justify the drive past others to this location, are particularly viable if coupled with an appropriately programmed and designed hotel. The key for the hotel will be water views and convenient water access, which is why well designed adjacency to the marina and the beach are critical.

The additional magnet destination elements could include the waterborne version of the restaurants – the party boats – which are likely to be active in the summer as well as spring and fall weekends, the beach and splash pads which will be unique (like the boating) in the region and become magnet destinations, like the party boats, through the summer into the weekends of the spring and fall. The triathlon staging area and sailing schools may use the other proposed elements for staging and be an event experience in the case of the triathlon and a programming experience

likely to be administratively connected to the marina in the case of the sailing school.

This zone will be the commercial heartbeat of the lakefront and will include, along with a hotel and restaurant, probably at least one gift shop, the party boat or boats, berths and boat launches, and boat rentals, and the best place to actually swim/use the splash pad on the lake. In time, the other commercial elements often found on beaches can be added such as mini-golf and perhaps a seasonal carnival can be anticipated unless these are developed as part of Zone 3.

Parking management will be critical for this zone during peak demand times. Plans should include at least one “walk-to” gravel parking lot and a swing set of handicapped parking spaces that can vary depending on anticipated demand for parking (more spaces close to the beach/activity center during peak times).

Hotel Market

- Occupancy rates in San Angelo grew from 58% in 2010 to 73% in 2012 (78% 1st quarter of 2013)
- As mentioned earlier, San Angelo currently has a room night supply of 713,940. Based on available room nights and last year’s occupancy rate, 521,176 room nights were sold
- Based on a market share of 25% of the secondary/visitor market and assuming only one visit per year, an additional estimated room night demand of 137,391 would be created

Figure 49. Zone 2 Estimated Participation/Attendance Potential								
Activity/Year	Participation Estimates					Visits per Year		
	Local Market	Market Share	Visitor Market	Market Share	Total	Local Market	Visitor Market	Total
Swimming		50%		10%		10	5	
2012	2,963		4,601		7,564	29,628	23,004	52,632
2017	3,120		4,837		7,958	31,204	24,187	55,391
Sailing		75%		50%				
2012	902		4,668		5,569	9,017	23,338	32,355
2017	950		4,908		5,857	9,497	24,538	34,034
Boating		75%		60%				
2012	2,450		15,218		17,669	24,503	76,092	100,595
2017	2,580		16,000		18,580	25,800	80,001	105,801
Triathlon		75%		10%				
2012	193		200		393	1,932	1,000	2,932
2017	204		210		414	2,035	1,052	3,087

Zone 2 Estimated Participation/Attendance Potential



Figure 50



Zone 3: Nature/Education

- (not including demand for business travelers).
- A 250-room resort type hotel would add 91,250 available room nights and would sell 70,900 room nights based on the current occupancy rate.

Restaurant Market

- In 2011, households in San Angelo spent on average \$2,340 for food away from home which accounts for 4.7% of the household budget.
- In total, households in San Angelo spent \$86,290,000 in this category
- In total households in the secondary/visitor markets spent \$684,230,000 in this category
- With \$27 spending per person for food and beverage per day by out of town visitors, the additional visitation to Lake Nasworthy could create roughly \$5 million in new spending potential for restaurants, fast food restaurants, and bars

See Figure 49 for the estimated participation and attendance potential for Harbor Village facilities and activities.

Zone 3: Nature/Education

Programming for this zone includes:

- Nature Center
- Family Entertainment Center (FEC)

This zone is intended to stay in a more natural state and would be a good location for the potentially relocated San Angelo Nature Center. Both the nature center and the family entertainment concepts (FEC) in this zone (see Figure 50) are unique to a lake setting. Some seasonality is possible although most zoos in southern locations and nature centers are busiest not in the summer but rather in the spring and fall when the temperatures are more moderate for what is typically seen as an outdoor attraction. The nature center/FEC concept would offer residents and visitors an introduc-

tion to the local ecology through a visitor's center and high quality exhibits. The experience could also include a small film theater, a small educational and entertaining zoo experience done in cooperation with one of the larger metro zoos in Texas (one that would appreciate a west Texas outpost), state-of-the-art animal feeding programs for visitors, and a small array of fun and entertaining experiences that will interest the youth market and bring in financial support for the overall management/ownership entity. To raise revenue and keep adolescents coming back to visit (often with younger siblings), mini-zoos today can offer a broad array of entertaining and overnight experiences such as mini-golf, small rides, carousels, electric go-karts, ball pits, discovery digs, gondola rides, zip lines, and ropes courses.

Many smaller communities across the US currently run successful nature centers and mini-zoos. If developed in San Angelo it is likely that within a few years this would be

San Angelo's leading attendance attraction as zoos typically have the highest attendance in communities. That will, however, not be a threat to other well-regarded and established facilities in town such as the art museum because zoos tend to skew youth-ward in age appeal while art and cultural attractions tend to draw adults and youths with a different set of interests. Summer and weekend camp programs should also be built into the planning for this facility. It may turn out that many of the active uses proposed for the lakefront will also spawn summer and learn-to programs.

Zone 4: Special Opportunity

Programming for this zone includes:

- Walk/Jogging/Bike Trail
- Windsurfing
- Zip line
- Nature Center (Alternative)
- Hotel

Figure 51



Zone 4: Special Opportunity

Master Plan

- Residential Development
- Commercial/ Retail Development

This site, which includes the old power plant and the lake, already draws a lot of San Angelo residents who participate in walking and running activities. A thorough site improvement would increase visitation, thus supporting related attractions and activities around the site and improve safety and access over the current unfavorable situation. Once again, all of the proposed activities are magnet attractions although most are not unique to a lakefront; most (like the hotel and residences) would be more successful due to lake views.

With the exception of windsurfing they are not very seasonal. The trail system is already well-established around Gun Club Hill and the market (and landowners) would welcome a safer alternative if it is equally interesting.

Zip lines are a clear possibility with the existing topography on the site and would add a unique activity to the site. This is also true for a ropes course. These would work best if the decision is made to maintain Gun Club Hill as a public destination rather than a private development area but could still be offered if careful planning allowed for a launching area at the top of the hill. Even if Gun Club Hill is offered for private development, a trail system and recreational access should be incorporated on the top in order to take advantage of the views and to lessen the pressure of the walking demand on the road around the hill.

The power plant site is a standard site for a hotel – on a primary road and near both an airport and downtown – in addition,

with sufficient height it can be oriented to capture lake views. This location will have special access to fitness trails and proximity to other lake assets, possibly making it a very successful hotel property with an edge over other hotels in the market with standard locations. Multifamily residential and a roadside retail/ restaurant, should also be considered for this site. It would target a different market than the proposed hotel in the harbor village zone as that is a distinct property with direct lakefront access.

Hotel Market

- As noted above, but relevant here as well, occupancy rates in San Angelo grew from 58% in 2010 to 73% in 2012 (78% 1st quarter of 2013)
- San Angelo currently has a room night supply of 713,940. Based on available room nights and the last years occupancy rate 521,176 room nights were sold
- Based on a market share of 25% of the secondary/visitor market assuming only one visit per year an additional estimated room night demand of 137,391 would be created (not including demand for business travelers).
- A 100 room full service hotel would add 36,500 available room nights and would sell 28,361 room nights based on the current occupancy rate.
- Current trail system demands are very evident in this zone due to the usage of the road around gun club hill. The extensive trail system proposed is an effort to directly respond to this interest and need.

Zone 5: Community/Activity

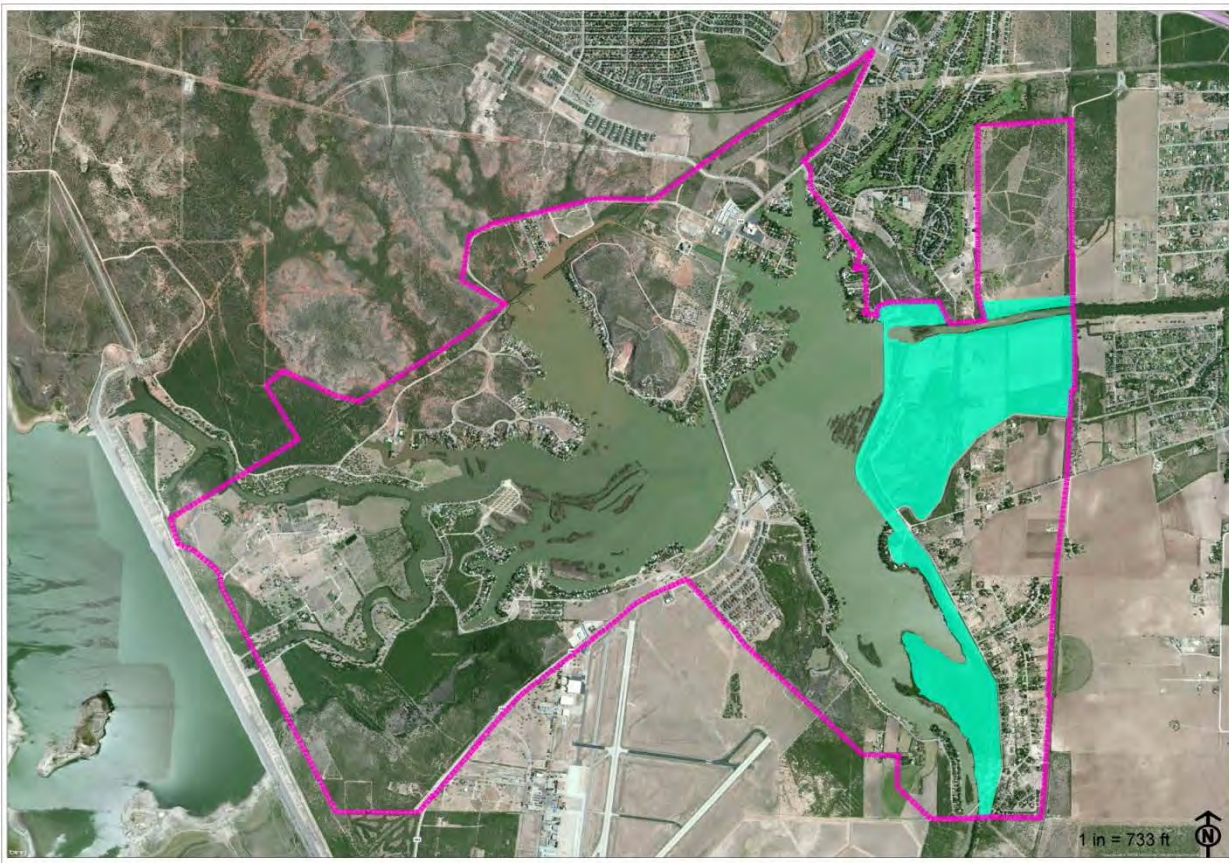
Programming for this zone includes:

- Birding Center

Activity/Year	Participation Estimates					Visits per Year		
	Local Market	Market Share	Visitor Market	Market Share	Total	Local Market	Visitor Market	Total
Bicycle Riding		65%		5%		10	5	
2012	3,852		2,300		6,152	38,516	11,502	50,018
2017	4,057		2,419		6,475	40,565	12,094	52,659
Exercise Walking		65%		3%				
2012	4,075		1,460		5,535	40,749	7,301	48,050
2017	4,292		1,535		5,827	42,917	7,677	50,593
Running/Jogging		75%		5%				
2012	5,346		2,767		8,113	53,460	13,836	67,296
2017	5,630		2,909		8,540	56,303	14,547	70,850

Zone 4 Estimated Participation/Attendance Potential

Figure 53



Zone 5 Community Activity

- Fishing
- Canoe/ Kayak

A trio of low impact activities will succeed best on a quieter portion of the lake (see Figure 53). While lower impact, the birding center, fishing facility, and canoe and kayak facilities are still magnet attractions as they are activities unique to lakes and wide rivers. Two of these activities require a location to which wildlife are drawn – birds and fish. Despite the low-impact and quiet nature of these activities, they are all very popular with enthusiastic followings, as shown in Figure 54 below.

From a design perspective it would be appropriate to spread these activities across the zone, as people do not typically do one and then another in succession– there is no activity synergy, so they are best designed to be quiet and low impact. People engaged in these activities typically bring their

own supplies; there is no clear need for support facilities. The design of this zone should be natural – including any public conveniences provided. There is sufficient demand for these activities – especially as many of the participants in these more sedentary activities are older (see Figure 54).

Integrated Parks/Trails and Connectivity

A network of trails and connections would help build a sense of identity and synergy between character zones around Lake Nasworthy. The lake is a beautiful natural treasure for both San Angelo and surrounding communities. Hiking, biking, and walking are healthy, affordable ways to enjoy the natural world, to exercise, to relax, and to travel from place to place around the lake. However, there are currently no dedicated bike lanes on the roads around the lake and few trails along the water and through the natural wooded areas. The City of San Angelo has identified the

Figure 54. Zone 5 Estimated Participation/Attendance Potential								
Activity/Year	Participation Estimates					Visits per Year		
	Local Market	Market Share	Visitor Market	Market Share	Total	Local Market	Visitor Market	Total
Bird Watching		50%		10%		10	5	
2012	1,803		2,801		4,604	18,034	14,003	32,037
2017	1,899		2,945		4,844	18,994	14,723	33,716
Fishing		50%		25%				
2012	2,319		9,002		11,320	23,185	45,009	68,194
2017	2,442		9,465		11,907	24,420	47,323	71,743
Kayaking		50%		25%				
2012	2,748		10,669		13,417	27,481	53,344	80,824
2017	2,894		11,217		14,112	28,943	56,086	85,029

Zone 5 Estimated Participation/Attendance Potential

need for more trails in the lake area, and many of the trails in this report were already included in the City of San Angelo Bike and Pedestrian Plan (last updated in 2008) and/or the 2012 Parks, Recreation and Open Space Master Plan. A recent survey completed by Community Development Initiatives at Angelo State University in June of 2013 asked participants to provide feedback on existing and anticipated pedestrian and bicycle use. This survey revealed robust current and future demand for bike and pedestrian facilities. The survey found that many adults in San Angelo have an interest in pedestrian and cycling activities with only 12.1% of respondents saying they “lack any sense of identification” with these activities. Also the survey found that “Parks, Museums and other community centers are the most popular destinations for patrons of cycling and pedestrian activity.” This is also a frequent activity with six-of-ten survey respondents reporting traveling by foot to a destination at least once a week and three-of-ten using bicycles to travel at least once a week. The proposed trails in this section are expansions on previously planned routes, trails, and recommended trailhead locations.

The proposed network of trails, bike lanes, and bike routes, as shown on the Proposed Trail System map (Figure 55) would allow bicyclists to travel safely from the north along Knickerbocker Road to attractions around the lake. In addition to providing opportunity for alternative modes of mobility, it would include over 28 miles of scenic and recreational opportunity, creating a loop around the lake. The trail system could also contribute to a solution of the current conflict of uses on Gun Club Road between vehicles and pedestrians.

Organized trail systems can stimulate the local economy by increasing tourism and promoting local business.

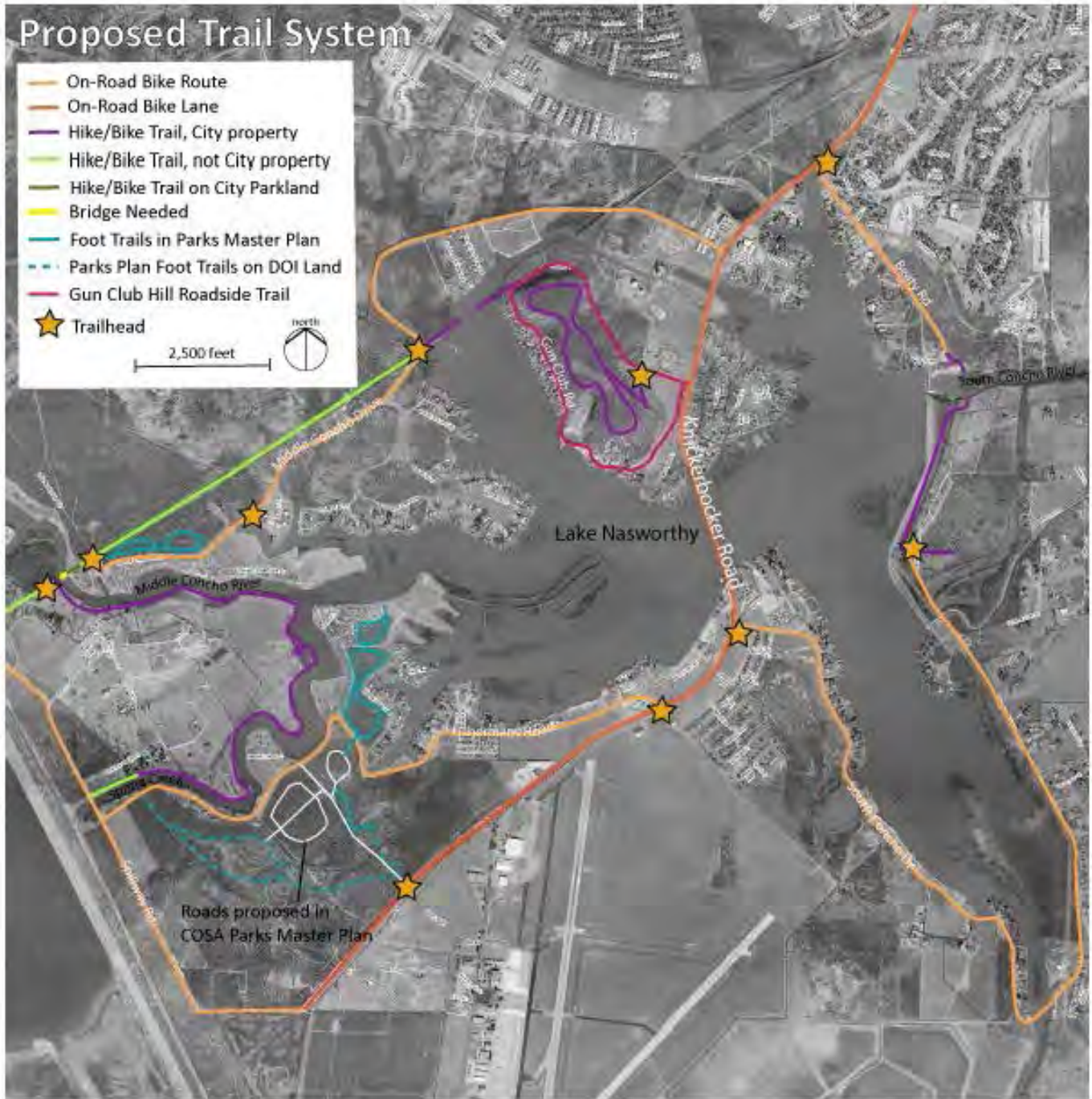
Key Considerations

Some of the trails proposed in this section are not on city-owned land, particularly along the old raised rail bed that would be the location of the Rails-to-Trails trail discussed below. This trail would run from Spillway Road to Red Bluff Road, a distance of 1.8 miles, and would include a pedestrian bridge over the Middle Concho River. Rights of access would need to be acquired by the city or a non-profit entity.

There are also a few sections of the proposed foot trails, included in the COSA (City of San Angelo) Parks, Recreation and Open Space Master Plan, that cross land owned by the U.S. Department of the Interior (DOI). An agreement would need to be reached with the DOI, if one is not already in place, before trail construction could begin on these reaches. Sections of the hike and bike trails that are not on city-owned land are shown in Image 55, the Proposed Trail System, in light green. Sections of the foot trail included in the Parks Master Plan that cross DOI land are shown as a dotted blue line.

Some trails cross land that is leased by the city. Such trail reaches should be aligned and designed to either wholly avoid or minimally displace the agricultural and other uses of the lessee, with written governing understandings between the lessees and the city. Sections of trail on city land that are not currently parkland are shown in purple on the Proposed Trail System map. Trail that crosses existing parkland is shown in dark green.

Figure 55



Proposed Trail System Map

Image 56



Master Plan Sketch of Planned Trail, Midland I-20 Playa Preserve

Proposed Additions to the COSA Bike and Pedestrian Plan (B&PP)

In addition to the proposed bike route along Spillway Road, which was included in the COSA Bike and Pedestrian Plan as a bike lane, this report recommends a hike and bike trail running along the northern edge of Spring Creek and the southern edge of the Middle Concho River, connecting with the broader trail system at each end. This trail would be a more meandering, less direct route than that included in the B&PP, offering an alternative five-mile scenic trail along Lake Nasworthy.

On the east side of the lake, along Fish Hatchery Road, this report recommends a hike and bike trail running to the South

Concho River. A spur would connect to the Hatchery lands on which a playa (an undrained desert basin, watered naturally by rainfall) and restored native prairie are planned as part of this report's birding destination program. The hike and bike trail would continue on the other side of the South Concho River until it connects with the bike route on Beaty Road. At the place where the hike and bike trail meets the river, there is a large shoal which may allow hikers and cyclists to ford the river easily. However, it is recommended that the city further study this possibility.

The road loop around Gun Club Hill, created by Gun Club Road and Hillside Drive, is heavily used at present by walkers and runners and there are a number of points along the

¹ *San Angelo Pedestrian and Bicycle Project Priorities Survey. Dr. Kenneth Stewart. Angelo State University Community Development Initiatives. 2013.*

road where visibility is impaired by hills and curves. A trail separated from the roadway would allow for safe use by pedestrians and unobstructed use of the roadway by vehicles. San Angelo's City Engineer reported in a memo to City Council on August 17, 2010, that adding such a trail would require the physical widening of approximately 6,000 linear feet of Gun Club Road (to establish a minimum roadway width of 20 feet) and construction of an additional 5- to 8-foot wide improved pedestrian way adjacent to the roadway. The City Engineer reported that this would require the excavation of the vertical embankment along the north and west sides of Gun Club Hill. This report recommends pursuing this option, as it would improve public safety while allowing pedestrians to continue enjoying the views from the road. The construction of a trail loop on the top of Gun Club Hill itself, for which there is a Parks Department Capital Improvements Program (CIP), could also reduce pedestrian use of the Gun Club Hill loop road and would provide a significant amenity to the citizens of San Angelo and to visitors.

Two sections of the old rail line jut out into Lake Nasworthy just southwest of Hot Water Slough Park. While it may be possible to build a bridge from one to the other in order to extend the length of the Rail Trail (discussed below), it would likely be cost prohibitive. Instead, the city could make the bridge stubs more conducive to public use, such as fishing, which public interviews reveal is happening there already. Adding a sun shelter (perhaps 6 by 12 feet supported by columns) at the end of each stub, with well-placed benches underneath, would make them more pleasant to use. The stub on the west is wider in some parts, and a picnic area could be added. Given the wear and tear evident on the stubs, a budget should be allocated to their improvement, including safety and visual quality enhancement.

Rail-to-Trails

Former rail lines have been transformed into popular recreational trails and transportation corridors around the US and elsewhere. The raised beds remaining after a rail line has been decommissioned offer a unique opportunity to create trails that are flat or gently sloped and are ideal for bicycling, walking, inline skating, equestrian use, and wheel chair use. The former rail line that runs from Spillway Road in the west to Red Bluff Road in the east could be turned into one of these trails, adding almost two miles of trails in a natural setting and creating a pedestrian-bike

bridge across the Middle Concho River. Information on programs that offer potential funding or technical assistance for trails are included in the implementation section of this report.

Bike Lanes and Routes

In places where the proposed trail system is shown along a roadway, except in the cases of Knickerbocker Road and Gun Club Road, it is likely that a new bike route would be the most appropriate form for the trail to take. A bike route, or Class III bikeway in TXDOT/FHWA nomenclature, would provide for shared use with motor vehicle traffic and would be identified by signs and/or pavement markings.

A bike lane is recommended for Knickerbocker Road instead of a bike route. A bike lane, or Class II bikeway, would be adjacent to but separated from the travel lanes with striping. Since Knickerbocker is a busy four-lane road, a bike lane would be needed to provide some protection for cyclists and to help organize traffic flow. It may not be possible to add a bike lane on the stretch of Knickerbocker Road that crosses Lake Nasworthy since the bridge may not be wide enough to accommodate the added lanes. In that event, signs can direct cyclists to use the sidewalk along the western side of the bridge.

Hike/Bike Trails and Footpaths

Off-road (Class I) trails such as the loop trail atop Gun Club Hill will need to accommodate both bikers and hikers/walkers with a width of at least nine feet. These sections are colored purple or green on the Proposed Trail System map (Figure 55), depending on whether the land is or is not city-owned. Where the alignment for the new trail is fairly even and surface conditions are non-eroding, minimal light re-grading and tamping may be all that is needed for stabilization. Where any erosion or instability is evident, stabilization can be achieved with suitable design and specification. Cross-grades (pitch) and all other specs should conform to TXDOT/ADA/FHWA standards. Path vertical alignments should not exceed 3 percent gradients where possible, with a maximum of 5 percent where steeper grades are unavoidable.

The city's Parks, Recreation and Open Space Master Plan includes trails on city land adjacent to Spring Creek Park and Middle Concho Park, shown on the Proposed Trail System map in blue. These trails can be designed as footpaths with

widths of only two feet in most areas. As with the hike/bike trails described above, where grade conditions for the new trail are fairly stable, only minimal light re-grading and tamping may be needed for stabilization. Where erosion or instability is evident, stabilization can be achieved with the measures recommended above. The design, grades, and surfacing for all trails discussed in this section should conform to ADA (Americans with Disabilities Act) and TAS (Texas Accessibility Standards) specifications.

Trailheads

The establishment of trailheads with way-finding information and space for parking will be important. These can be constructed with low-impact, attractive design and can be accompanied by amenities such as picnic areas, restrooms, and parking or can simply provide information about the trail.

The Proposed Trail System map shows ten optimum locations for trailheads, noted with star symbols:

1. Intersection of Middle Concho Drive and Jaycee Road.
2. Along Middle Concho Drive near the entrance of the rail trail.
3. On Gun Club Road at the proposed entrance to the hill top trail.
4. Intersection of Knickerbocker Road and Beaty Road.
5. On Fish Hatchery Road where the off-road hike and bike trail begins and a trail spur leads off to the new birding site at the old Fish Hatchery #2.
6. Intersection of Knickerbocker Road and South Concho Drive.
7. Intersection of Knickerbocker Road and Fisherman's Road.
8. Along Knickerbocker Road at the potential location of campsites and a potential relocated site of the San Angelo Nature Center.
9. On the southwest side of the Middle Concho River where two trails intersect.
10. On the opposite side of the Middle Concho River where three trails intersect.

It is recommended that parking be included for at least three trailheads: intersection of Knickerbocker Road and Beaty Road (on the adjacent city property), intersection of Gun Club Road and Hillside Drive (on city property) and corner of Concho Drive and Jaycee Road (on city property). A potential trailhead (at the first location listed above) is one of the catalytic

projects included in the implantation section of this report.

Other Considerations

The Parks and Recreation Department may wish to consider installation of an appropriate number of emergency phones along remote portions of the trail system. Also, the department may wish to name the trail system overall and its individual reaches with a nomenclature that expresses the unique attributes of the lake and its plant and animal life. Adding 28 miles of new trails in a well-planned network around Lake Nasworthy would provide San Angelo residents and visitors with greater opportunities to enjoy the lake's natural beauty and to engage in healthy, low impact recreation.



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Potential Partnership Structures

The key to implementing the vision and projects in this master plan will be partnerships. Whether with partnerships among the city and other public sector entities or partnerships with potential private investors, the public sector must be very careful how it uses its limited assets to catalyze desired activity at the lake.

The myriad activities described in this report and potential additional activities are impressive. The vision for partnership and coordination in this implementation section provides the means for the various public partners with an interest in Lake Nasworthy to work together to create synergies and shared outcomes in terms of land assets, revenues for operations and maintenance, and complementary programs.

The city is in the position to help prime development by supporting at some level necessary utility costs where it deems appropriate. The investments involved depend on the type of development. Once detailed project needs are identified, fiscal calculations should be made to consider the cost/benefit case for spurring development on a specific currently underutilized parcel.

Regarding basic needs for the successful operation of the lake and any expanded activities, this implementation section identifies significant infrastructure and public amenity needs such as bathroom facilities, trails, and erosion control measures. Public investment in those elements should be undertaken to catalyze and leverage private investments in entertainment, restaurants, hotels, etc. The means to do this includes entertaining unsolicited proposals under the state authorized authority for local subdivisions. This process encourages fairness and competition, while also allowing for the private sector to bring forth creative approaches to utilizing public assets for maximum public benefit while creating maximum potential private investment at the same time.

Through a separate set of deliverables, the consultant team will provide guidance on this approach.

Funding/Financing Strategy

The Lake Nasworthy Trust Fund is growing and can provide long-term investment capacity in the core infrastructure needs of the lake. As discussed herein, prioritizing those investments will be critical in order to grow general tax base around the lake. This growth in tax base will provide addi-

tional investment potential over time for key infrastructure such as improvements to Knickerbocker Road in order to provide both safe access and increased capacity to destinations around the lake. Accordingly, the creation of a Tax Increment Reinvestment Zone (TIRZ) should be considered in order to provide the potential for additional investments beyond the potential capacity of the Lake Nasworthy Trust Fund. This will be especially important if one of the goals is to balance the preservation of the corpus of the trust fund with expenditures over time.

If any special district such as a TIRZ is created to support catalytic public investments for Lake Nasworthy, the following should be considered:

- The Special District Project Plan establishing public elements for investments such as trails, docks, public plazas, etc. should align with the catalytic elements set forth in this plan.
- The City's Capital Improvements Program (CIP) should also be synced with the Special District Projects Plan so that any CIP expenditures leverage the Special District Project Plan, especially in terms of basic utilities and streets.
- If a TIRZ is created as the special district, incentive policies should be included in the finance plan such as the conditions in which "Chapter 380" Sales Tax and Hotel-Motel Tax grants might be considered. For example, the policy might state that those grants could be eligible for projects that align with the catalytic vision and projects of this master plan and that perform over a certain level of tax base return.
- A coordinated policy should be reflected in both the finance plan for the special district and the finance plan for the Lake Nasworthy Trust Fund.

Catalytic Projects

The following catalytic projects build on the character zone structure described above. Some of these proposed projects are purely public, while others included both a public and private element.

The goal of the public projects such as the birding center is to encourage expanded tourism activity at a relatively low-cost public investment. The purpose of the public-private projects is to encourage the use of under-performing assets

Image 57



Harbor Village Illustrative Concept

that could be coordinated in order to create synergies such as the privately owned marina next to Mary E Lee Park.

Mary E Lee Park

The Harbor Village Character Zone that incorporates Mary Lee Park is a high profile location that has yet to catalyze enough activity to be commercially viable. By using entitlements and encouraging a critical mass of various use types to energize development, the Mary Lee Park area could become a year-round destination for both locals and tourists.

The adjacent marina faces an uphill battle in terms of the economics of a standalone marina. However, if a portion of the land at Mary Lee Park were made available to accommo-

date a hotel/restaurant in combination with the marina, the economics of the operation of the entire destination could provide the ability for the marina operation to be underwritten successfully.

This proposal would necessarily include the relocation of the Nature Center; but options for that effort have been provided in this master plan. This could result in a win-win for both the marina and a relocated Nature Center.

Mixed Use Marina/Hotel

The illustrative concept of Harbor Village in Figure 57 shows how a mixed use marina/restaurant/hotel could be executed, along with complementary for-sale or for-rent mixed use



Figure 58: Mary E Lee Ownership Map Showing Public and Private Parcel Use

residential across Knickerbocker on the private held parcels. This illustrative concept also provides some protection for the small neighborhood on the other side of the beach by creating a buffer with a new drive and landscaping. In addition, it includes a splash park to enhance the beach area.

In order to establish the basic framework for a public-private approach, Figure 58 delineates the private and public parcels that could be made available for purchase and ground leases, respectively. The dispositions of the public lands for ground lease could be facilitated through the unsolicited proposal process described above.

The illustrative concept includes the following:

- Hotel on the lake - 30 rooms per floor, 4-5 floors (120 to 150 rooms total)
- Restaurants - 30,000 SF (one story)
- Conference center - 30,000 SF (one story)

- Retail/Entertainment flex space - 45,000 SF (one story)
- New beach structure with concessions - 6,000 SF
- For rent residential, condominiums or hotel across Knickerbocker Road - 50 rooms per floor, 4-5 floors

Sailing School as Activity Catalyst at Mary Lee Park

One potential use to further catalyze the area would be a sailing school in Mary E. Lee Park. This location would not conflict with boat ramp access and is at a respectful distance from neighborhood homes. The water depths along this shore are moderate and would allow easy docking of boats. Adequate space would need to be allocated from the existing park for parking, access to the dock(s), space for on-land storage of a small number of sailboats, and a small sailing school structure. Space should be provided for trailer parking with opportunities for individuals, including those not enrolled in sailing classes, to bring their own sailboats, sailboards, and other craft.

Sail boating need not be considered competitive with power boating in terms of lake surface availability. The broadening of lake recreational opportunity will allow more residents to do more of what they enjoy, whether for simple recreation or as sporting competition. While Nasworthy does not have the large fetches of other lakes, it has a sufficiently navigable surface and can accommodate small regattas and other racing events, each of which can bring some numbers of competitors and other visitors to San Angelo.

This sailing activity would also provide visual, people-watching interest for those staying at the hotel or eating at the waterfront restaurant.

Power Plant Site

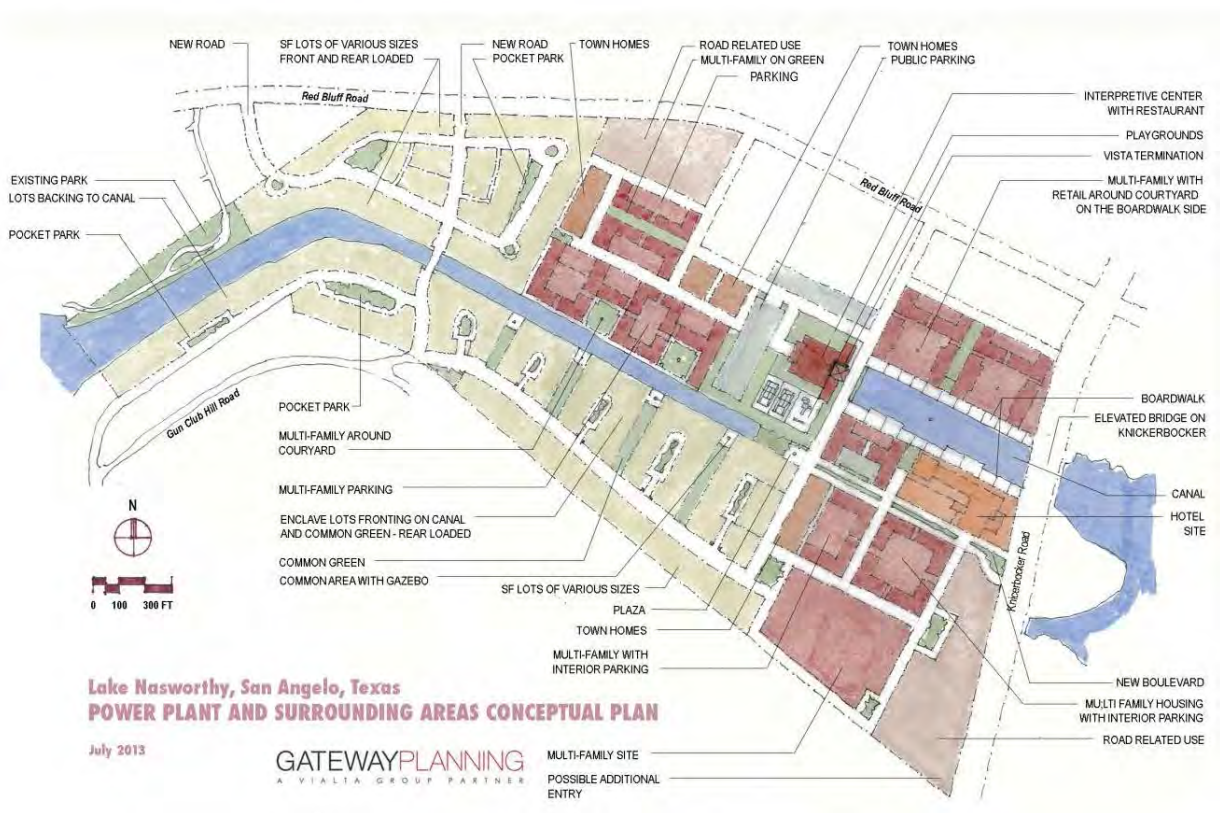
Recently purchased by a private investor, the decommissioned power plant site offers an opportunity for the community to see activation of a previously dormant parcel. The

activity catalyzed by development that relates to existing activity can generate other viable commercial enterprises that would be beneficial near the lake and bolster existing uses. The city's role would be to help shape projects that are in keeping with the long-term vision for Lake Nasworthy.

Complete dismantling of the power plant will create an attractive piece of property near Lake Nasworthy available for redevelopment. This is a unique parcel in its proximity to water and the canal that bisects the site, as well as the frontage on Knickerbocker Road. After discussions with the new owner's representatives, it is understood that the site is envisioned to be a mixed use concept with a single family neighborhood, multifamily buildings, and a hotel served by neighborhood retail and commercial.

Figure 59 provides a concept as to how the hotel, restaurants, retail and housing could be incorporated with pocket

Image 59



Power Plant Site Illustrative concept

parks and public spaces on the power plant site; functional access to the canal for recreation; and access points for new roadway connections and trails through the area consistent with the proposed trail plan. Finally, the illustrative concept shows a location near the proposed hotel that could act as a regional interpretive heritage center and restaurant.

Currently the power plant site is zoned conventionally, requiring a rezoning for a more mixed use, integrated context. Zoning should be updated not only to allow more uses, but also to create predictability across different ownerships as parcels are sold to different developers so that the final development looks as if it had remained under the control of a single master developer. This will allow for the fine-grained public spaces and walkable mixed-use that would complement this location and its adjacency to Gun Club Hill.

As this is a portion of the lake that has not been designed for recreation access or community character, street and trail connectivity will be especially critical to making the development special and appropriate for its key location. This is especially true given the popularity of Gun Club Hill next door. Accordingly, a careful approach to planning, infrastructure design, and zoning will be critical to achieving both appropriate returns for the private owners, future developers, and the public interest in this gateway property providing a destination speaking and connecting to this new vision for Lake Nasworthy. The bottom line is that this approach will allow a proactive vision for the site that would encourage place-based development with public benefit.

A potential option to help activate the power plant site is to elevate Knickerbocker Road so that boats may pass under the bridge and enter the canal which can act as a marina. Preliminary cost estimating done by the TXDOT San Angelo Division put the price for the bridge and road reconstruction at approximately \$2.7 million. This reconstruction, along with an updated boat ramp, would help to activate the eastern section of the lake and position the power plant site to act as a potential focal point of this activity, creating an opportunity for mixed use development on the lake and private access from additional lake housing.

Heritage Center as Activity Catalyst

One potential example of a public benefit would be a Heritage Center that would bring activity to the redevelopment parcel and act as a state-of-the-art exposition of San An-

gelo's heritage and leadership in Water Management and Wind and Solar Power Generation. The Center is conceived as one that could draw large numbers of tourists and any visitor with an interest in deeper understanding of water as a critical resource and the ways in which West Texas is developing advanced and environmentally sound methods of energy generation. Water, now more critical than ever in the city of San Angelo's history, would be highlighted on the one hand for its natural resource values, with the iconic Concho River Pearl as emblem and window opener to the region's important environmental systems. A water capture and management display could reveal the exciting and dramatic history of dam building and lake management at the Nasworthy, Twin Buttes, and O.C. Fisher reservoirs. Energy generation is the second primary theme of the proposed center. While shale oil and gas are also significant energy themes the Heritage Center could also focus on Wind and Solar Power as the second theme beside Water.

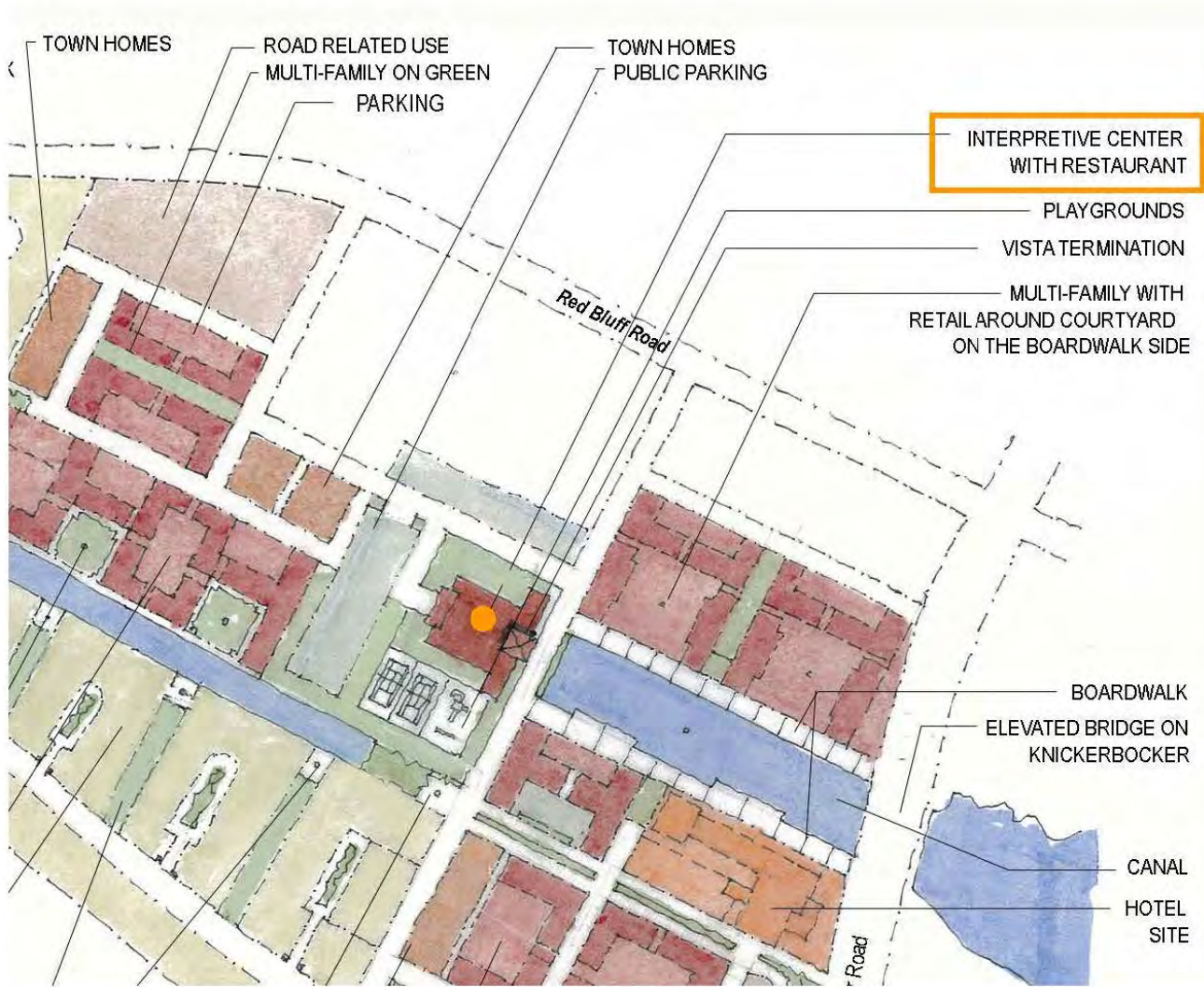
If developed at a high level of exhibitory, audio-visual presentation (including 3-D film), and explanatory mediums, the Center would be in a position to draw large numbers of visitors from the tourism-traveling public as well as from water supply and energy industrial companies, public utilities, and educational and research institutions. Until the concept is developed in further detail and elicits the interest of a possible non-profit sponsor or a private-non-profit partnership, it will not be possible to project visitor numbers, hospitality sector income, and public sector tax revenue associated with such a center, but the possibility exists and should be considered.

The Center was originally conceived on the power plant site, but that original concept (depicted in Figure 60) is not appropriate given the development goals of the new investor in the power plant site. A more modest, yet integrated center, is depicted in the mixed use illustrative plan in Figure 59. Nevertheless, the original concept is still being provided in this master plan in case it is determined later that this more robust center would be appropriate at the power plant site or at another site near the lake.

Gun Club Hill Adjacent to the Power Plant Site

Although this master plan does not provide an illustrative concept for Gun Club Hill if it is developed, the connection between the power plant site and Gun Club Hill must be care-

Image 60



Heritage Center

ful planned and executed. The views from and attraction to Gun Club Hill by walkers/hikers necessitate that any development on the power plant site and Gun Club Hill be linked and aligned through a very carefully executed street and trail plan as potentially laid out in Figure 55 depicting the trail plan for the area and in Figure 59 depicting the potential mixed use development on the power plant site. The infrastructure investments for those improvements should be incorporated into any final planning and zoning for those sites so that both the private owners and the community benefit from any public investments in new streets, trails, and water access.

Birding Center

The Natural Encounter Zone, as described earlier, is an area of the lake best kept in a natural state, although a more natural state does not mean there are no opportunities for activity – albeit more passive activity. Besides the kayaking / canoeing, fishing and camping, there are other niche passive recreation opportunities that can incorporate a wide spectrum of participants. See Figure 62 for a concept of the Birding Center.

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Birding Center as Ecotourism Catalyst

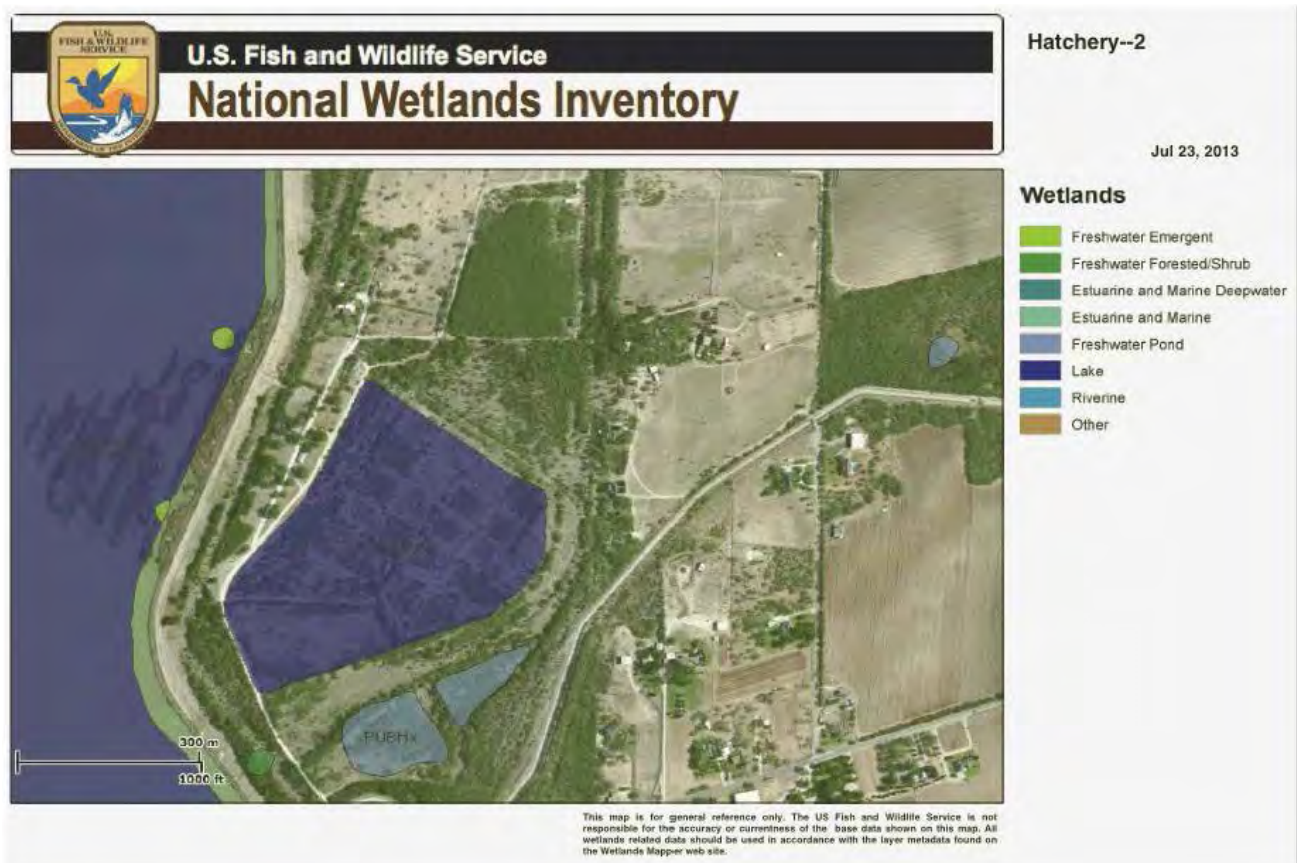
Birding is an example of a popular passive recreation that is renowned for the devotion of its enthusiasts. The Natural Encounter area of the lake offers an opportunity to create a birding destination by retrofitting the former Fish Hatchery No. 2. The former hatchery could be adapted into a Birding-Ecotourism Destination with a Playa and Restored Native Prairie. The Hatchery is situated a short distance south of Nasworthy Dam to the east of Fish Hatchery Road and to the north of Country Club Road. It consists of more than 20 abandoned and now ordinarily dry ponds and other former breeding units, with a total property area of approximately 40 acres. The ponds/units are divided by dikes with an average original crest width of 8 to 10 feet. Original pond water depth extended between two feet at the higher ends and six feet at lower pond ends. With erosion over time since the Hatchery's closing in 1988, lower end depths are possibly no greater than three feet. Dike

widths are probably narrower than the original condition, also due to erosion. Today, most of the property is thinly covered with dry land grass and shrub species, although some mesquite and other trees are present.

Project Opportunities and Benefits

Other resources serve birdlife in San Angelo. San Angelo State Park has prominent birding sites. Lake Nasworthy and its fringe wetlands are well visited. O.C. Fisher and Twin Buttes reservoirs attract birdlife when water levels allow, as do the reaches of the three branches of the Concho River. Nasworthy, however, is often busy with power boating, waterskiing, and other lake activity that tend to deter aquatic birds. Creating a playa a short distance from the Lake would offer a desirable option to birds that prefer quieter surroundings. The restored prairie around the perimeter of the playa, in serving field feeding species, would add to the nature-ob-

Image 61



ervation value and ecological dimensions of the tract overall.

The New Playa

This can be a resource for waterfowl and other avian species at a level of quality that will appeal to a wide spectrum of birders, ecotourists, university students and instructors, families, and schoolchildren.

The pond (playa), dug to a suitable depth (e.g., three feet average over an area of about 3.5 acres in this conceptual proposal) and with sloped banks and other appropriate characteristics, would survive as playas typically do, namely on rainfall alone. Some storm water runoff would be collected by gravity flow by one or more drainages leading rainfall from the re-established perimeter prairie. One such drainage exists on the south edge of the area proposed for the playa. Some natural seepage, if it exists from any water figure adjacent to the site, would also help. The sole intervention would be for the pond/playa's initial establishment, which could be achieved with the supply of about 8 to 9 acre-feet from Lake Nasworthy. Following this pumping, the playa's water sufficiency would depend on rainfall, as natural playas do.

With appropriate design and grading equipment, a pond can be carved appropriately out of the existing landform of the old Hatchery. In the example given here, its configuration would be about 600 feet long in an east-west alignment, this long fetch favored by diving ducks such as canvasback and teal, as well as herons and others. The shoreline is shown in Figure 62 as indented, which will allow tree growth on the western edges of the coves to provide cooling afternoon shade to the near waters, which will in turn encourage fish to gather, which in turn will interest both feeding birds and human visitors. Six roofed bird observation structures are shown in Figure 62, each with a varying view of the playa. A continuous trail links all. Interpretive signs would be designed to properly portray the playa's aquatic, avian, and terrestrial wildlife.

Playas, as dynamic habitats that rise, fall, and revive between drought and rain, also support the robust growth of plants and so serve as attractive feeding grounds for birdlife. "Playa forage." according to David Haukos, national playa expert¹ "is so much better than anything else on the landscape that migrating birds will feed out the playa before they forage in the fields.

And it's not just ducks. We're talking about shorebirds, upland species, wading birds – the gamut."²

The Restored Native Prairie

A native prairie restoration will be a source of food for grouse, pheasants, and geese, among other avian species as well as for terrestrials. Water-conservation principles would be applied to prairie establishment in that seeding of native grasses would be scheduled in August through early October two or more days prior to a forecast rainfall, with repeat seedings later in the same season and in following years, without irrigation/spraying following these events.

Educational Value of Both Playa and Prairie

In addition to serving wildlife, both the created playa and the restored prairie will have high value to high school and college programs, as well as for nature observation and scientific study, including the monitoring of progress on the emergence of both playa and prairie. While no discussion has been held with area institutions such as Angelo State University and San Angelo Nature Center, the attention of these and other nearby educational and research programs could be invited by the city. Their biology programs, researchers, and graduate students could potentially be engaged in monitoring the progress, establishment, and maturation of both playa and prairie. Results would be of interest to students, faculty, researchers, and generally region-wide and nationally.

Constraints

The hatchery property is classified as a "lake" in the National Wetlands Inventory. Any proposed change such as recommended here would need to first receive approval by the U.S. Fish and Wildlife Service following A-95 review. Given that the plan is to reinforce native vegetation and augment bird and other wildlife habitat, our assumption is that chances for approval are good.

Clay used to line the fish ponds should not constitute a barrier to the growth of new vegetation if it is broken up and mixed into the underlying soils by land grading equipment. Buried utilities and equipment would be removed in advance.

The numerous dikes of the hatchery ponds need not be

² David Haukos, PhD, Leader, Kansas Cooperative Fish and Wildlife Research Unit and advisor, Midland's I-20 Playa Wildlife Preserve (The Rivers Studio, Master Planners)

Image 62



Birding Center Concept

re-graded to the point at which the new land surface is entirely smooth. This would be unnecessarily costly and would not serve an essential purpose. A grading plan could accommodate a general leveling of the dikes and provide for a minimum number of new drainage swales. Some ponding of rainfall would not be adverse; it could provide for a seasonal marsh or meadow condition and thus contribute additional diversity to the restored prairie habitat.

Role of the Hatchery Grounds in San Angelo and the Central Flyway

Given the gradual disappearance of playas in Texas and other areas of the six-state region, a critical decline that is beginning to affect bird numbers along the West Branch of the Central Flyway where San Angelo lies, the introduction of a new, albeit small, playa and associated restored native prairie at this location will be invaluable. The new playa, however small, will be a positive measure in sustaining avian life and the chain of resting/feeding water bodies essential to fall and spring migrations, as well as in broadening ecotourism and educational and scientific study opportunities.

Trail Head Connections

During the course of public input, it became apparent that the archery club is a sizable and active user of the area around the lake. The club is constrained by a number of factors, but parking access to public bathrooms is a primary concern. Due to the club's relative proximity to the disc golf course and existing/potential trails, an opportunity for collaboration has become evident.

Image 63 shows a concept that acts as a catalytic project, perhaps on a smaller scale than some other examples; nonetheless, it could have great impact serving the utility of the archery club, the disc golf players and the adjacent park users. The fluctuating nature of the surrounding uses does not necessitate separate parking lots when it makes sense to have shared parking that allows for space when it is needed. The city could play an active role in the creation of these types of trailheads where there are opportunities to support existing activities and foster new ones around the lake.

The aggressive but realizable vision of complementary de-

Image 63



Potential Trailhead Illustrative Concept

velopment at the lake as a part of the new lake Master Plan delineated above will require significant changes to current zoning policy, process, and regulations. As these needs are addressed, the following should be considered:

- Zoning policy should create one central point of administration within the city for Lake Nasworthy, including single family residential use on ground leases, single family fee owned, and new development. This will enable a more predictable outcome from the public's perspective and more efficiency from government operations.
- A one-size-fits-all for zoning regulations will not align with the unique nature of the varying development opportuni-

ties around the lake. Accordingly, a different set of design and zoning standards should be crafted, respectively, for the power plant site area, the Mary Lee Park area, and the other emerging traditional single family areas.

- Zoning policy and updated zoning regulations should be coordinated with the update to the Capital Improvement plan and any new project Plan for the proposed special district (e.g., TIRZ).

Regulatory Environmental Issues

Resource Management

As mentioned above, lake maintenance is an inevitable concern

that must be addressed. Dredging, which at some level will be necessary for resource management, is subject to extensive federal and state regulatory oversight. Also, mentioned earlier, in 2002, the San Angelo completed a two-year dredging project to remove 3.8 million cubic yards of sediment from the lake, increasing the lake's capacity by about 2,500 acre-feet or some 800 million gallons. The cost was approximately \$10 million, funded with revenues from the 1999 Section 4B one-half cent sales tax. Similar dredging actions are likely to be necessary to maintain water depths and lake capacity in the future.

The U.S. Army Corps of Engineers regulates dredging practices under Section 404 of the Clean Water Act. In general, Section 404 requires that any municipality, person or business that proposes to place fill in or dredge material from the "waters of the United States" must first obtain a Section 404 dredge permit from the Corps. Lake Nasworthy falls within the scope of "waters of the United States" as a body of water more than 10 acres in size including contiguous wetlands and any flowing stream. A Corps Section 404 permit will be required before any dredging or filling activity can be conducted in the lake or adjacent streams/waterways.

Section 404 establishes a broad program to regulate the discharge of dredge or fill material into waters of the United States, including wetlands. Activities regulated under this program include dredging, fill for development, water resource projects (such as dams and levees), infrastructure development (such as roads, highways, bridges, and airports), residential or commercial development, installation of docks, piers, shoreline stabilization structures, and even mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g. certain farming and forestry activities). Some of the proposed improvements contemplated in this report will involve either dredging or filling the lake bottom, thus triggering the Corps's section 404 jurisdiction.

The basic premise of the Section 404 program is that no discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. To secure a permit, applicants

must first show that steps have been taken to avoid impacts to wetlands, streams, and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts. This three-step assessment of duties is often referred to as the "wetland mitigation sequence."

An individual permit is required for potentially significant impacts and should be anticipated if any lake dredging or substantial fill is planned. Individual permits are reviewed by the U.S. Army Corps of Engineers, which evaluates applications under a public interest review, as well as the environmental criteria set forth in the Section 404(b)(1) Guidelines, a set of regulations promulgated by the EPA. However, for discharges that will have only minimal adverse effects, an individual permit may not be required; rather, a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities. The general permit process eliminates individual review and allows certain activities to proceed with little or no delay, provided that the general or specific conditions for the general permit are met. For example, marina basin maintenance, short shoreline stabilization projects (less than 500 feet in length), minor road activities, utility line backfill, and bedding are examples of activities that can be considered under a general permit. Texas Commission on Environmental Quality (TCEQ) will also have a role in the 404 permit decisions through the Section 404 water quality certification process.

As with the city's 2002 dredging project, any large-scale future dredging of Lake Nasworthy can be expected to require an individual Section 404 permit from the Corps. However, depending on the design, scope, and scale of future dredging projects, the city may be able to extend and/or amend the Section 404 permit issued for the 2002-dredging project. Detailed technical feasibility and engineering studies of dredging options should be considered before permits to authorize future dredging projects actions are sought.

Shoreline Erosion and Storm Water Management

In 2012, EPA updated the National Lakes Assessment (NLA) to help citizens and governments measure the

³ *National Lakes Assessment: A Collaborative Survey of the Nation's Lakes. EPA 841-R-09-001. U.S. Environmental Protection Agency, Office of Water and Office of Research and Development, Washington, D.C.*

health of the nation's lakes, take actions to prevent pollution, and evaluate the effectiveness of protection and restoration efforts.³ The NLA is designed to estimate the percentage of lakes that are in good, fair, or poor condition. Essentially a scientific report card on America's lakes, the NLA examines ecological, water quality and recreational indicators and assesses how widespread key stressors (such as nitrogen, phosphorus, and acidification) are across the country.

While Lake Nasworthy was not included in the original 2007 NLA survey or the 2012 update, two key findings of the 2012 report are relevant to future decisions regarding Lake Nasworthy. First, 56% of the nation's lakes are in good biological condition, with natural lakes generally in better condition than man-made lakes. Almost half of the nation's lakes are in poor condition. Second, and more importantly, of the stressors included in the NLA, poor lakeshore habitat was cited as the single greatest threat to the nation's lakes with more than one-third of the lakes exhibiting poor shoreline habitat condition. Poor biological health is three times more likely in lakes with poor lakeshore habitat.⁴

Water Levels

State and local water planners work together to assess demand and ensure adequate water supplies through regional water planning groups. San Angelo lies within the Region F Water Planning Region, which includes 32 west Texas counties as well as Midland and Odessa. While surface water provides much of the municipal supplies in the region, groundwater provides the majority of the water utilized, drawn from four major and seven minor aquifers. The Twin Buttes/Lake Nasworthy complex is but one component of an integrated regional water management system. Specific recommendations or actions to sustain Lake Nasworthy water levels are beyond the scope of this planning effort. Future efforts to evaluate and maintain Lake Nasworthy water levels –in addition to other water resources in west Texas – are best addressed through and in coordination with the Region F Water Planning Group.

Roadways and Utilities

This master plan suggests the need for substantial investments in roadway and utility capacity. The following prin-

ciples should be incorporated as specific infrastructure elements are prioritized, designed and paid for through public and public-private approaches as discussed above:

- TxDOT should be engaged proactively to enter into a Memorandum of Understanding for the cooperative redesign of Knickerbocker Road to realize the potential of Mary Lee Park as a hotel-anchored mixed use destination. If deemed appropriate, the funding would be based on the ability of all parties – state, city and private – to secure a benefit from their respective public and private perspectives including safety improvements and tax base growth.
- A multi-stakeholder process should be engaged after the adoption of this master plan to prioritize street improvements based on the prioritization of the proposed catalytic projects delineated in this master plan. Once that prioritization is undertaken, estimates of probable cost can be obtained to understand the investment implications.
- Further discussion will be required about key catalytic projects. However, until more detail for specific projects are developed, utility needs and implementation cannot be assessed with any level of certainty.

Trails Funding

Several potential federal funding or technical assistance programs are available to help implement the proposed trail network. For example, the section of trail that runs along a former rail line might utilize resources available on the Rails to Trails Conservancy's website (www.railstotrails.org). Other organizations include:

Recreational Trails Program (RTP) - Federal Highway Administration

Since 1995, the Recreational Trails Program has helped construct more than 100 miles of trail. This program is managed by trail administrators in each state. The program funds projects that meet specific criteria such as the maintenance and restoration of existing trails, development or rehabilitation of trailside and trailhead facilities and linkages, acquisition of necessary easements, associated administrative costs, and new trails and educational programs. At least 30 percent of all RTP funds must be used for non-motorized trails. Private organizations are eligible for funds under the RTP, although this depends on the particular policies of each

⁴ National Shoreline Assessment Report (2007), Executive Summary, Key Findings, pages ix and x

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state. The trail administrators for Texas are:

Trey Cooksey, State Parks Trails Coordinator
Texas Parks and Wildlife Dept
4200 Smith School Road
Austin TX 78744-3291
512-389-8743;
trey.cooksey@tpwd.state.tx.us

Andrew Goldbloom, Program Admin
512-389-8128;
andy.goldbloom@tpwd.state.tx.us

Land and Water Conservation Fund (LWCF)

This 50/50 matching grant program is administered by state agencies in cooperation with the National Park Service. Program funds are intended for the acquisition and development of outdoor recreation areas; trails are one priority of this program. In particular, funds “target projects that would enhance urban parks and community green spaces,” with a focus on “developing blueways and public access to water resources and conserving large landscapes.”

Rivers, Trails, and Conservation Assistance Program (RTCA)

RTCA is a technical assistance arm of the National Park Service dedicated to helping local groups and communities preserve and develop open space, trails, and greenways. RTCA is an important resource center for many trail builders in urban, rural, and suburban areas. While RTCA does “not award monetary grants or loans,” the program “supplies a staff person with experience in community-based outdoor recreation and conservation to work with partners” on the ground.

This technical assistance could be especially helpful in planning construction of the bridge across the Middle Concho, which is about 150 feet wide in the vicinity of the former rail line. An eight-foot wide pedestrian-bike bridge could be built, potentially using the piers that remain from the old rail bridge. This option would need direction by the city’s Parks and Recreation Department, an engineering study with hydrological and hydraulic study input, and community feedback.

As mentioned earlier, constructing a trail along the former trail line would also require that rights of access be obtained by the city or a nonprofit for the areas where the trail line crosses property not owned by the city, including two private landowners and the U.S. Bureau of Outdoor Reclamation.

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Comparable Lakes in West Texas

O.C. Fisher Lake/San Angelo State Park

Completed in 1952, OC Fisher Lake was constructed by the US Army Corps of Engineers for flood control on the North Concho River. Most of O.C. Fisher is leased to the Texas Parks & Wildlife Department. It is located at San Angelo State Park, home to the official Texas State Longhorn Herd. The park is open seven days a week throughout the year and has various daily entrance fees including: Adults for \$4; Group-Adult for \$2 each; children 12 years and under are free. Annual passes are also available and include: Texas State Park Pass for \$70 per year or Texas Parklands Passport, free.

Activities include camping, picnicking, hiking, mountain biking, horseback riding, fishing, boating, a three-level orienteering course, and bird and wildlife observation. The park has a hunting program with a State Park Annual Hunting Permit, and special drawing hunts for deer and spring turkey.

San Angelo State Park has 50 miles of developed multi-use and divided trails for hiking, mountain biking, and equestrian use. Visitors must provide their own horses. Equestrian camping is available in the North Concho Equestrian camp area. Pens and pole tethers are provided at the water/electric sites, and pole tethers are provided at the primitive sites. Water is located in the camp area and other locales throughout the park's trail system. Equestrian events are held at the park throughout the year as well as rides offered through Rafter M Bar Trail Rides.

The park participates in the "Angler Education Tackle Loaner Program." Individuals can rent rods, reels, and tackle boxes with hooks, sinkers, and bobbers.

Regular scheduled tours and requested tours for groups of 10 or more are available. Guests are taken to see ancient Permian animal tracks and Indian petroglyphs. Other tours include nature tours, hikes, bison/longhorn tours, equestrian tours, historic and prehistoric tours, and stargazing parties.

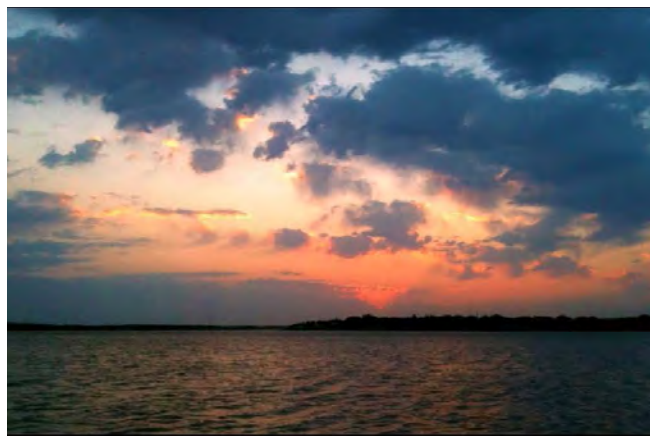
Nearby attractions include Fort Concho, a restored historic fort; a historic shopping district on Concho Avenue; the Riverwalk; and the Cactus Hotel.

Twin Buttes Reservoir

Twin Buttes Reservoir is located about six miles southwest of San Angelo immediately upstream from the Nasworthy Reservoir. This lake has approximately 9,800 water surface acres, 3,219 land acres, and 55 miles of shoreline. There are very limited recreational facilities around the reservoir. Camping is available but there are no developed campsites or hook-ups. Other activities include boating, fishing, and picnicking.

O.H. Ivie Reservoir

Located 55 miles east of San Angelo, O.H. Ivie Reservoir is found on the Colorado and Concho Rivers. It has three public recreation areas to camp, boat, fish, and picnic; Concho Recreation Area, Padgett Recreation Area, and Kennedy Recreation



Area which are open year long. To enter any of these parks there is a \$5 entrance fee per vehicle per day; an annual vehicle pass can be purchased for \$60 or \$10 for senior citizens.

Concho Recreation Area and Kennedy Recreation area both offer numerous amenities including restrooms, large parking areas, cleaning stations, courtesy docks, concrete boat ramps, weigh stations, picnic areas, and camping. They also have available live bait and boat gas for purchase.

Padgitt Recreation Area does not offer as much recreational activity but does have restrooms, parking, courtesy docks, concrete boat ramps, picnic areas, and camping.

Lake Brownwood/Lake Brownwood State Park

Lake Brownwood, located within Lake Brownwood State Park, is open every day year-round. Children 12 and under are free to enter the park, while adults incur a \$4 entrance fee. A Texas State Parks pass is available for \$70 that allows guests to join members for unlimited visits. Busy season for all facilities is during the summer, and cabins and lodges stay busy on weekends and holidays.

The park has numerous recreational activities including hiking, camping, picnicking, water skiing, jet skiing, boating, fishing, swimming, bird watching, and nature study.

There is a 2.5 mile hiking trail, along with a .5 mile nature trail. Motor boats and jet skis are allowed. The park does offer ranger programs that include a variety of educational opportunities, events, and tours. Other fees include: campsite fees ranging from \$12 to \$25 per night, screened shelter

rental at \$30 per night, cabin and lodge rentals ranging from \$65 to \$290 nightly, group dining hall rental for \$80 per day, and group recreation hall with kitchen for \$250 per day.

Cabins and lodges offer numerous amenities that may include a fireplace, picnic figures, outdoor grill, living areas with couches, water, electricity, microwave, stove with oven, chairs, bathroom sink, toilet, and shower, A/C unit, central air, heat, refrigerator with freezer, coffee maker, ceiling fan, beds, and an outdoor patio.

Hords Creek Lake

Located in Coleman, Texas, Hords Creek Lake is operated by the U.S. Army Corps of Engineers, Fort Worth District. It offers fishing, camping, boating, restricted hunting, along with supplying water to Coleman County and providing flood control in West Texas.

The Lake has three parks which offer numerous amenities. Lakeside Park is located on the north side and has a variety of developed camping sites including six sites with screen shelters. Provided within the park are restrooms, drinking water, sewage dump sites, boat ramps, fishing piers, fish cleaning stations, and a nature trail. Flat Rock Park, located on the south side, has more than 55 developed campsites. Amenities among them include electric, sewage, restrooms, single and double occupancy services as well as sewage dump sites, boat ramps, fishing piers, and fish cleaning stations.

Developed campsites cost between \$16 and \$44 per night. Both sites have group shelters/camping available with maximum occupancy between 50 and 200 and fees ranging from



Appendix: Market Study

\$40 to \$260. All enclosed shelters have kitchens with amenities that may include restrooms, electric range tops, sinks, counters, ceiling fans, and fireplaces. Outdoor amenities may include a volleyball court, covered patio, figures, parking lots, restrooms with showers, grills, and playgrounds. The third park, Friendship Park, is for day-use picnickers only. In addition to the beach there are shaded benches and numerous day-use facilities available for guests.

Along the lake there are four beaches designated for swimming only. Two are located at Lakeside Park, one at Flat Rock Park, and one at Friendship Park.

Proctor Lake

Operated and owned by the US Army Corps of Engineers, Proctor Lake consists of numerous amenities including boating, fishing, camping, hiking, equestrian trails, swimming, and hunting.

The lake has an 18-hole golf course and four federal parks of 250 acres each. Two parks, Copperas Creek and Sowell Creek Park, are open year-round and each has more than 60 campsites with amenities that include electricity, water, and sewer hookups. Cost per night ranges from \$16 to \$50. Both parks offer boat ramps, dump stations, group shelters, parking, and restrooms with showers. Copperas Creek also offers an amphitheater and houses one park office.

The third park, Promontory Park, is open during the warm season from April 1 through September 30. Promontory includes a range of camping facilities, including screened shelters, priced from \$16 to \$38 per night. Amenities include boat ramps, dump stations, group shelters, a swim-

ming area, restrooms, showers, and a second park office. Group shelters at the three parks cost \$90 through \$190 and boat ramp access is \$4.

Lastly, High Point Park is only open to overnight camping with a special permit. There is walk-in access for shoreline fishing and parking as well as 10 to 15 miles of developed equestrian and hiking trails. This park is open for day use only.

Two wildlife management areas (WMAs), Sabanna River WMA and Upper Leon River WMA, are available for hunting with a permit during hunting season.

Lake EV Spence

Drought conditions have made public boat ramps unavailable at Lake EV Spence near Robert Lee. Also, the fish population has been severely damaged by chronic golden alga blooms. A required day pass is \$5 per vehicle. Four of the areas are open and may contain restrooms, cleaning stations, live bait, parking, courtesy docks, weigh stations, picnic areas, and camping, although many amenities may not be available due to drought conditions.

Natural Dam Salt Lake

This lake is usually dry but has a capacity of 28,000 acre-feet. The reservoir is used for flood control when needed.

Lake JB Thomas

J.B. Thomas Reservoir, located in Canyon, Texas, was built in 1952 and was one of the first lakes in West Texas. It can be accessed with a day pass entrance fee of \$5 per vehicle which covers all persons in the vehicle. Annual passes are



available for \$60 or \$10 for senior citizens. Open all year long, this reservoir area has five parks which include parking and a marina with boat ramps for public use, pavilions, fire pits, restrooms, fishing, picnic areas, and live bait. Two of the nearby state parks also offer camping.

Lake Colorado City/ Lake Colorado City State Park

Lake Colorado City State Park is open year-round Thursday through Monday with an adult entrance fee at \$4 per day, a group adult fee at \$2 per day, and children 12 and under free. The busy season for this park is Easter weekend through Labor Day. Lake Colorado City State Park features 500 acres of natural habitat and more than five miles of shoreline which provide numerous activities for swimmers, skiers, jet-skiers, campers, hikers, boaters, fishers, and nature lovers.

Amenities included are restrooms and showers, dump stations, picnic areas, a designated swimming area, parking, a boat ramp, fishing piers, and playgrounds. There are more than 110 campsites with water and some with electricity that range from \$15 to \$22 per night as well as cabins for \$55 per night, a group recreation hall with kitchen for \$200 daily, and a group picnic pavilion for \$40 daily. Kayaks with paddles and life vests are available for rent at the park.

Texas Boat Tours/Attractions

Lonestar Riverboat Tours:

Located on Lake Lady Bird in Austin, Texas, this family-owned operation consists of three boats used for public sightseeing tours and privately chartered events. The Little Star, capacity 34, and the Southern Star, capacity 60, are

electric pontoon cruisers that offer hour-long scenic and bat watching tours from March through October. The tours cost \$10 for adults, \$8 for seniors and \$7 for children under 12. The third boat of the fleet is the Lone Star, a double-decked, paddle-wheel riverboat. The 75x16-foot boat is the nation's largest all electric powered paddle wheeler. With a capacity of 150 people, the Lone Star is used for a variety of private events and parties. A two-hour charter is \$18 per person for groups of 30 to 80 people and \$16 per person for parties of 81 to 150. A third hour can be added for an additional \$200 and catering can be included for an additional cost.

Austin Party Cruises

Austin Party Cruises consists of three upscale pontoon cruisers that host year-round charter cruises for birthdays, weddings, receptions, dinners, graduations, company parties, casino parties, and sightseeing tours to name a few. The excursions take place on Lake Austin and pass by some of Austin's most popular sights and landmarks such as Mt. Bonnell, the Loop 360 arch bridge, the Austin Country Club, and the Westlake estates. The three boats hold up to 70 people inside and out on the deck with the Celebration having seating for up to 65 inside, the Jubilee 40 inside, and the Festival 25 inside. Pricing varies based on the size of the group, the length of the cruise, catering and beverage options, and seasonable considerations.

Sunshine Machine Boat Tours

Also located on Lake Austin at the Ski Shore Marina, the Sunshine Machine is a pontoon cruiser that offers private charters for up to 30 people. The boat can be chartered for one to six hours for office parties, swimming parties, wed-



Appendix: Market Study

Figure 71: Comparables Summary Figure

Name	Distance to Lake Nasworthy	State Park (Y/N)	Available Activities	Lodging and Fees (per night rate)	Rentals And Fees	Amenities
OC Fisher Lake/San Angelo State Park	9.9 miles	Yes	Camping, Picnicking, Hiking, Mountain Biking, Horseback Riding, Fishing, Boating, Hunting, Three Level Orienteering Course, and Wildlife Observation	Primitive Backpack Campsites: \$10 Developed Campsites: \$10 Campsites w/ Water and Electricity: \$20 Equestrian Campsites: \$20 Cabins:\$50	Group Picnic Pavilion: \$40 Amphitheater: \$40 Rod, Reel, Tackle boxes with hooks, sinkers, and bobbers	Hiking, Biking, and Equestrian Trails, Restrooms, Dump stations, Boat Ramps, Picnic Figures, Playground, Parking
O.H. Ivie Lake	66 miles	No	Fishing, Boating, Camping, Picnicking	Campsites	Live Bait Boat Gas	Restrooms, Cleaning Stations, Parking, Courtesy Docks, Concrete Boat Ramps, Weigh Stations, Picnic Areas
Lake Brownwood/ Lake Brownwood State Park	115 miles	Yes	Picnicking, Camping, Hiking, Boating, Water Skiing, Jet Skiing, Fishing, Nature Study, Swimming, and Bird Watching	Developed Campsite: \$12 Campsite w/ Water and Electricity: \$15-\$20 Campsites w/ Water, Electricity, and Sewer: \$25 Cabin-2 person: \$65 Cabin-4 person: \$75 Oak Lodge: \$95 Loma Vista Lodge: \$155 Fisherman's Lodge: \$180 Beach Lodge: \$290 Screened Shelters: \$30	Group Dining Hall: \$80 Group Recreation Hall w/Kitchen: \$250	Fishing Piers, Boat Ramps, Picnic Areas, Hiking and Nature Trails, Restrooms, Showers, Dump Stations, State Parks Store, Full Hook-Ups, Swimming Areas

Source: Individual Facilities

Figure 72 : Comparables Summary Figure

Name	Distance to Lake Nasworthy	State Park (Y/N)	Available Activities	Lodging and Fees (per night rate)	Rentals And Fees	Amenities
Hords Creek Lake	76 miles	No	Camping, Boating, Fishing, Picnicking, Swimming	Campsites Group Shelter-50 persons: \$40 Group Camping/Shelter-80 persons: \$90-\$160 Group Camping/Shelter-200 persons: \$260	Boat Launch: \$2	Concrete Boat Ramps, Picnic Areas, Parking, Restrooms, Handicap Fishing Access, Fish Cleaning Stations, Swimming Beaches, Courtesy docks
Proctor Lake	137 miles	No	Camping, Boating, Fishing, Picnicking, Golfing, Horseback Riding, Hiking, Hunting, Swimming	Dry Sites: \$8 Campsite w/water and Electricity: \$16-\$20 Campsites w/Water, Electricity, and Sewer: \$22-26 Double Sites: \$32 Quad Site: \$50 Screened Shelter: \$22-\$38 Group-14 campsites: \$130 Group-8 campsites: \$100 Enclosed Group- 12 campsites: \$190 Group-6 campsites: \$90-\$130 Screened Shelters: \$16-\$38	Boat Launch: \$4	18 Hole Golf Course, Fishing Piers, Playground, Picnic Areas, Equestrian and Hiking Trails, Boat Ramps, Two Wildlife Mgmt Areas for Hunting, Swimming Areas, Restrooms with Showers, Dump Stations, Park Offices, Amphitheater
Lake JB Thomas	114 miles	No	Camping, Boating, Fishing, Picnicking	Campsites	Live Bait	Marina, Restrooms, Parking, Picnic Areas/ Pavilions, Boat Ramps
Lake Colorado City/ Lake Colorado City State Park	90 miles	Yes	Camping, Fishing, Picnicking, Swimming, Water Skiing, Jet Skiing, Hiking	Campsite w/Water: \$15 Campsite w/Water and Electricity: \$20-\$22 Cabins: \$55	Group Recreation Hall w/Kitchen: \$200 Group Picnic Pavilion: \$40 Kayaks w/Paddles and Life Vests	Fishing Piers, Picnic Areas, Swimming Areas, Boat Ramp, 500 Acres of Parkland

Source: Individual Facilities

dings, team building events, wildlife watching, and much more. An hour-long charter costs \$150 an hour for up to 10 people with an additional \$5 a person per hour for each guest over 10. Catering is also available for any charter at an additional cost..

Vanishing River Cruises by Canyon of the Eagles

Vanishing River Cruises offer a variety of ecological cruises through Lake Buchanan and the Colorado River. Native Texas wildlife, waterfalls, bird watching, and bald eagle sightings are just a few of the sights offered. Tours are given on

the Texas Eagle II, a double-decked boat with a capacity of 120 passengers. Cruises range from two hours for scenic and history cruises to four hours for the eagle watch cruises. The two-hour tours cost \$20 for adults, \$17.50 for seniors and \$12 for children. The eagle watching tours cost \$42.45 for adults and \$37.19 for children. Food can be added for an additional fee. Private charters are also available for a variety of occasions including weddings, dinners, anniversaries, and corporate events.

Glass Bottom Boat Tours

Located at the Aquarena Center at Texas State University in San Marcos, the glass bottom boat tours have been in operation since 1946. The Center hosts more than 125,000 visitors annually and teaches about river resources, aquatic life, and the ecosystem of Spring Lake and the San Marcos River. The five glass boats in operation are a large part of these lessons, allowing visitors to view the inhabitants in their natural habitat. Thirty-minute tours are offered year-round and cost \$9 for adults, \$7.50 for seniors and \$6 for children 15 and under.

Dolphin Baywatch Tours

Located in historic Galveston Harbor, this family owned and operated business offers dolphin watching tours and private charters year-round. The Baywatch 1 and the Baywatch Too, are both dolphin safe jet drive boats (no propeller) with a capacity of 38 passengers. Hour-long tours run year-round and cost \$10 for adults and \$5 for children 12 and under. The boats are also available for private charter at the cost of \$350 per 45 minutes. Catering can be included for an additional cost.

Galveston Historical Foundation Harbor Tours

Docking at the Texas Seaport Museum in Galveston Harbor, the Seagull II is a 50-foot twin-engine motor vessel built specifically for harbor sightseeing tours and education. In addition to touring the historic Galveston Harbor, tours take passengers out into Galveston Bay where dolphins and a variety of birds can be seen and explored. Hour long public tours cost \$10 for adults and \$8 for students 18 and under. In addition to public tours the historical foundation also offers a variety of field trip options including ones on harbor history, environmental science, ornithology, and marine biology. Costs of these tours range from \$8 to \$16 a student. Private charters are also available for reservation through the Galveston Historical Foundation.

Colonel Paddlewheel Boat Cruises

The Colonel Paddlewheel Boat is an 800-passenger authentic replica of a 19th Century style paddle wheeler. The boat offers hour-long tours of the Offatts Bayou year-round at the cost of \$11 for adults and \$9 for seniors and children. The boat gives dinner cruises on the second Saturday of every month. For \$65 per person, diners are treated to a dinner buffet, nonstop dancing, and a cash bar. The boat also features two large party rooms with a dance floor and bar that can be rented out during the regularly scheduled tours.

Capt Kidd Charters

Sailing on Galveston Bay, Capt Kidd is a 19th Century replica, 55-foot topsail schooner that can carry a maximum of 28 passengers. Two-hour public tours are offered year-round at \$25 per person for daytime sails and \$30 for evening sails. Special event tours are also offered, such as a 4th of July Firework cruise for \$50. Capt Kidd Charters also has a 44-foot yacht named the Flying Pearl available for private charters. Maximum number of passengers is six and a two-hour charter costs \$295. Additional time can be added at an hourly rate of \$125 an hour.

Tranquil Sails & Service

Tranquility is a 35-foot yacht that offers private charters for up to six people on Grapevine Lake. Cruises offered include romantic cruises, sunset cruises, wedding cruises, day cruises, and a variety of special events. Two-hour charters cost \$60 per person.

Whooping Crane Boat Tours

The Warf Cat is an 84-passenger boat that offers Whooping Crane tours through the Aransas National Wildlife Refuge from November through April. Local naturalists narrate the boat tours, teaching about the whooping cranes and other native wildlife. Tours depart for the wildlife refuge from two different locations, Port Aransas on Tuesdays and Rockport Harbor on Wednesdays through Sundays. The Port Aransas tours take 90 minutes while the Rockport Harbor tours take 45 minutes. Prices for all tours are \$50 for adults, \$48 for seniors and \$25 for children.

Dolphin Encounters

Sailing in the surrounding bays and channels of Port Aransas, Kohootz is a 36-foot catamaran with an upper and lower deck. With seating for up to 26 passengers, the Kohootz offers year-round, 90-minute tours of the Intercoastal Key

Appendix: Market Study

Islands of Port Aransas. The tour includes feature dolphin sighting, native and migratory birds, the Lydia Ann Lighthouse, and narrated historical accounts throughout. These tours cost \$25 for adults, \$16 for children 4 through 12, and \$8 for children three and under. The boat may also be chartered for a variety of private group theme cruises.

Rio San Antonio Cruises River Tour:

Located on the San Antonio River along the River Walk, the Rio Cruises take visitors along the river through downtown San Antonio. Open year-round, these 35-minute cruises which depart every 15 minutes, cost \$8.25 for adults, \$2 for children under five, and \$6 for Bexar County residents and seniors. A tour guide narrates the tour for up to 40 passengers about the various locations located along the Riverwalk. In addition to the public tours, the Rio boats also offer a river taxi service that stops at 39 locations along the river walk. Private dinner cruises, cocktail cruises, and chartered tours are available to book at the cost of \$100 to \$500 depending on the package.

Historical Brazos River Tours

The Brazos Belle is a paddle-wheeled replica of, Hiawatha, an 1880s vessel that was operated by Captain Travis Smith for the Colombia Transportation Company. The boat, operated out of Belle's landing since 2011, has a maximum capacity of 49 passengers and offers various historical tours on the Brazos River. The 90-minute tour goes up and down the river with a stopover in historic East Columbia where buildings from the 1800s are explored. Tours cost \$25 a person and run year-round. Longer trips to explore the 28-mile river, special events for bird watchers and conservationists, and weddings can be arranged for an additional cost.

Buffalo Bayou Boat Tours

Located on the Buffalo Bayou, the Spirit of the Bayou is a 21-person pontoon tour boat that travels through the heart of downtown Houston. The 30-minute scenic and twilight tours take passengers past various historical and famous sites throughout the city. These tours are offered year-round and cost \$7 for adults and \$5 for children 12 and under. Twice a month from June to October, 45-minute bat-sighting tours are offered at the cost of \$35 for adults and \$25 for children. Ninety-minute private charters are also available year-round at \$300 to \$420.

Southern Empress Cruises

Docked out of the Sunset Harbor Resort on Lake Conroe,

he Southern Empress is an authentic replica of a 1800s era sternwheeler riverboat. The Southern Empress, 131 feet long, 40 feet wide, consists of three decks. The main deck serves as the ships primary dining room, casino, or wedding hall. The second deck is the ship's entertainment center with a dance floor, bandstand, and bar. The third deck is a split-level open deck used for observing the lake, the surrounding nature, and sunsets. The boat offers a variety of three-hour cocktail, lunch, and dinner cruises year-round. A lunch cruise costs \$40 for adults, \$30 for children and \$35 for seniors. Wedding and corporate event cruises are also available.





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