BANKRUPT GOLF COURSES: AN HISTORICAL ANALYSIS AND STRATEGIES FOR REPURPOSING

by

BLAKE JEFFREY CONANT

(Under the Direction of Ron Sawhill)

ABSTRACT

More than 800 golf courses have closed since 2003 and approximately 1,000 to 2,500 are projected to close in the next decade. Many of these courses are repurposed as high-end mixed-use development, high-density residential, or big-box development. The sustainable benefits the golf course once provided either diminish or leave completely. As our country's 21st Century needs shift towards food, water, and energy security, bankrupt golf courses can offer repurposing opportunities to plan for those needs. The goal of golf course repurposing should be to provide similar or greater sustainable benefits as the golf course once did. Understanding how that land can be sustainably repurposed is vital for local communities, environments, and economies to thrive in the 21st Century. This thesis will offer suggestions, strategies, and solutions for repurposing bankrupt golf courses that have yet to be implemented in the United States.

INDEX WORDS: Golf, Golf Architecture, Golf Course, Golf Course Development, Land Use, Sustainability

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BLAKE JEFFREY CONANT

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BLAKE JEFFREY CONANT

Major Professor: Ron Sawhill

Committee: Katherine Melcher
Gary Green
Tom Doak

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
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DEDICATION

For my mother, Margaret, who always gives me encouragement, support, and love. An ambitious son could ask for nothing more.

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CHAPTER 1

INTRODUCTION

The beginning of American golf is difficult to identify. The earliest trace of the game comes from Charleston, SC, and Savannah, GA, in the late eighteenth century (Adams and Rooney). However, no evidence can prove these clubs were anything more than social organizations. The accepted date of inception is 1888 when a group of friends played a three-hole course at the St. Andrews Golf Club in Yonkers, New York (Moss). By 1893, thirty-four courses were built throughout the United States in Kentucky, California, Maine, Oregon, Massachusetts, Illinois, South Carolina, New Jersey, and Minnesota (Adams and Rooney). By the beginning of the 20th Century, 100,000 golfers were playing on 1,040 courses and by the end of the 20th Century, more than 26 million people were playing golf on 16,000 different golf courses (Napton and Laingen). Golf evolved exponentially from 1888 on into the twenty-first century, not only in the amount of courses, but also in the style, location, and golfers who played.

Golf began as a game played predominantly by the upper class at private clubs. By 1960 the demographic of players had shifted to a majority being from the middle class who played at daily fee courses. The post-World War II boom revealed golf to the public and democratized the game. Brought on by

improvements in technology and implementation into residential communities, golf courses became longer (total yards) and bigger (acres).

In 1988, the National Golf Foundation issued a challenge to developers: "Build a Course a Day for 10 years" (NGF *Trends in the Golf Industry, 1986-1996*). This challenge was meant to supply the landscape with enough golf to meet the projected demand of new Baby Boomer golfers. The number of courses increased dramatically for the decade that followed, but demand did not increase at the same rate. Consequently, too many courses were built to meet the demand, often times they were built in already saturated markets or in areas without a large demand for golf, and many had construction budgets upwards of $20 million and maintenance budgets upwards of $2 million annually which caused their green fees to increase beyond the reach of the middle class. Many were designed by professional golfers and resulted in a course too difficult for the average golfer to play, which meant a round of golf now took more time. Many courses built in the 1990s were not environmentally, economically, or socially sustainable and ultimately became hazardous to the economic vitality of the golf industry because of the market saturation, the cost to play and maintain, their increased difficulty, and their time commitment (Hueber and Worzala).

Residential golf developments skyrocketed in the United States during the 1990s. Golf courses created the atmosphere and the landscape upon which residents could look out on. The course was used to sell residential lots; in turn, income from lot sales largely subsidized maintenance because the maintenance

budget was often up to three times the amount of revenue the course brought in. Maintaining the pristine look was rationalized with the idea that a pristine course would sell more lots. When lots didn't sell, maintenance had to be scaled back and management didn't know how to make the course financially sound without lot sales. Loans were carried, debt accrued, and finally banks had to foreclose on courses. Some courses already had too much debt, were built in the wrong location, or simply were not enjoyable for golfers and stood no long-term chance of surviving. On the surface, the future for lenders, owners, and developers looks bleak, but potential exists for other, similar sites.

More than 1,000 courses have closed since the industry busted in 2003 (NGF *State of the Golf Industry*). Too many courses coupled with a shrinking demand means more golf courses will close before a balance is achieved in the industry. According to Dr. Joe Beditz, President and CEO of the National Golf Foundation, "the problem of oversupply will fix itself once the industry loses some 1,500 to 2,000 golf courses" (Hueber and Worzala 9). The average golf course sits on a 150-180 acre site (Gimmy, Johnson and Institute). Therefore, based on closure projections by the NGF, approximately 250,000-400,000 acres of socially, economically, and environmentally valued green space will become available in the next decade. Lenders will be looking to unload these properties or manage them to minimize loss, while the surrounding community wants to maintain the existing green space and not be subject to decreased property values from land use changes.

Ultimately, sustainability needs to be considered. The definition of sustainability this paper will use comes from the Brundtland Report commissioned by the United Nations World Commission on Environment and Development in 1987 where sustainable development was defined as, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland 15). Furthermore, environmental, social, and economic health combines to create the three pillars of sustainability. Social issues encompass standard of living, education, community, and equal opportunity. Economic factors include profit, cost savings, economic growth, and research and development. Finally, environmental issues include natural resource use, environmental management, and pollution prevention for air, water, land, and waste. Development, maintenance, management, or repurposing cannot be considered successful if it doesn't incorporate a "triple bottom line" definition of sustainability as shown in Figure 1.1.

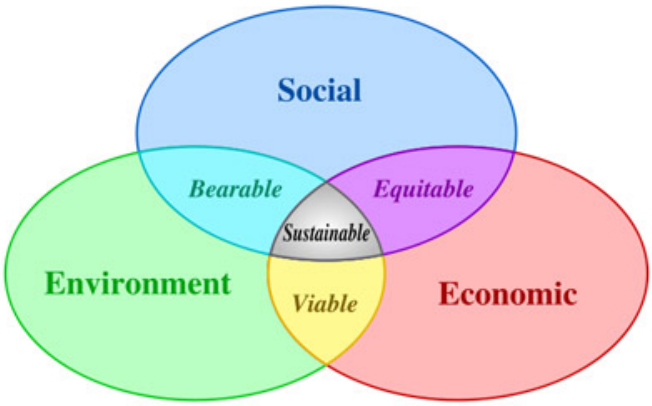

Figure 1.1 - Sustainability Triple-Bottom Line (Maryland)

Potential loss of green space that golf courses provide to the community, the ecosystem, and the economy could disappear because of irresponsible development. To minimize this loss a number of legitimate options, some already being practiced and some proposed in this paper, provide those sustainable benefits. The redevelopment goal should be to provide the community, the economy, and the environment similar or greater benefits as the golf course once did. The United States Golf Association (USGA), golf's governing body, has defined eight benefits that golf courses offer. They include providing wildlife habitat, protecting topsoil from water and wind erosion, improved community aesthetics, absorbing and infiltrating rain, improving health and reducing stress, improving air quality, capturing and cleansing runoff in urban areas, and making substantial contributions to the community's economy (USGA). Consequently, the research question then becomes: How can bankrupt or financially unstable golf courses be sustainably repurposed?

First, using an historical analysis strategy, this paper examines where the golf industry presently stands and how it is trending in the future (Deming and Swaffield). Second, it reviews the history of the golf industry from 1950 until 2000, highlighting key decisions and trends in golf course development. Third, interpretive strategies are used to analyze available resources, infrastructure, and golf course components to display the wide variety of course types and determine what is available for repurposing (Deming and Swaffield). Fourth, three case studies show how bankrupt or financially unstable golf courses are currently

being currently being repurposed. Finally, the paper culminates with discussion and response about opportunities for sustainable change on bankrupt golf courses, the reality of the golf industry, and where the change must come from.

CHAPTER 2

CURRENT STATE OF THE GOLF INDUSTRY

Golfer participation in America is currently in decline. As shown in Figure 1.2, participation peaked in 2003 with 30.6 million golfers. Eleven point six million (38%) were considered "occasional" golfers, i.e., golfers age six and above who play between one and seven rounds per year (NGF *Golf Participation in the United States*). Eighteen point nine million (62%) were "core" golfers i.e., golfers age six and above who play more than eight rounds per year.

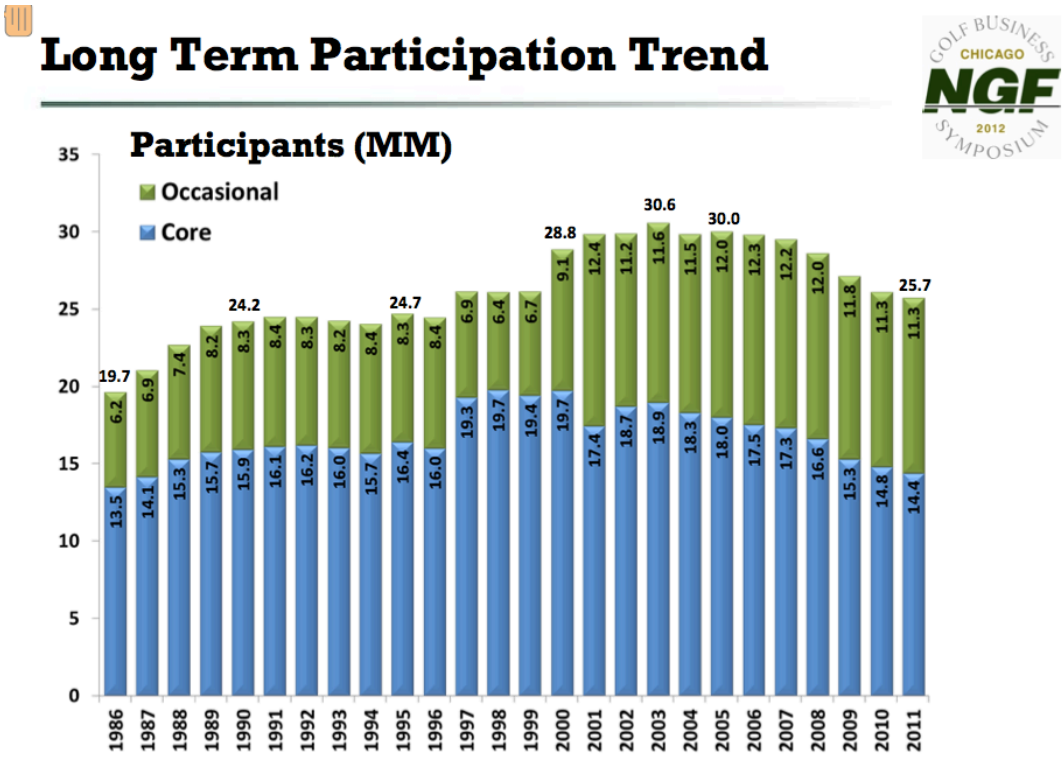

Figure 2.1 Golfer Participation in the United States (NGF *State of the Golf Industry*)

Core golfers drive the industry through their rounds played and merchandise bought. By 2011, the number of golfers in the U.S. had dropped to 25.7 million, a 16% decrease in participation over an eight-year span (NGF *State of the Golf Industry*). Even more alarming, core golfer participation dropped to 14.4 million, a 23.8% decrease in participation over the same eight-year span. Occasional golfers remained consistent with 11.3 million participants (NGF *State of the Golf Industry*). Although the National Golf Foundation (NGF) believes golf participation is leveling off near 25-26 million participants, a significant chunk of core golfers have stopped playing or reduced their playing frequency due to recessionary effects (NGF *State of the Golf Industry*). Recent data shows signs of stability, but the demand for golf has shrunk significantly.

Golf construction in America is currently in decline as well. Comparing the number of courses opened and closed using an 18-hole equivalent (18HEQ) is a good way to measure course construction. An 18-hole equivalent adds the total number of golf holes in an area and divides by 18 to equal the number of 18HEQ facilities. The number of 18HEQ facilities establishes a more accurate number of golf holes provided to a market. In 2011 there were 157.5 18HEQ course closings compared to 19 18HEQ course openings (NGF *Industry Update - U.S. Golf Supply*). Figure 1.3 shows that 2011 marked the sixth straight annual drop in golf course supply. Market correction began in 2006 and has cumulated in a net reduction of 358.5 18HEQ courses (NGF *Industry Update - U.S. Golf Supply*). This drop represents 2.4% of the total golf facilities. Of those 358.5 courses,

most are lower priced public facilities and a large number of nine-hole facilities (NGF *Industry Update - U.S. Golf Supply*).

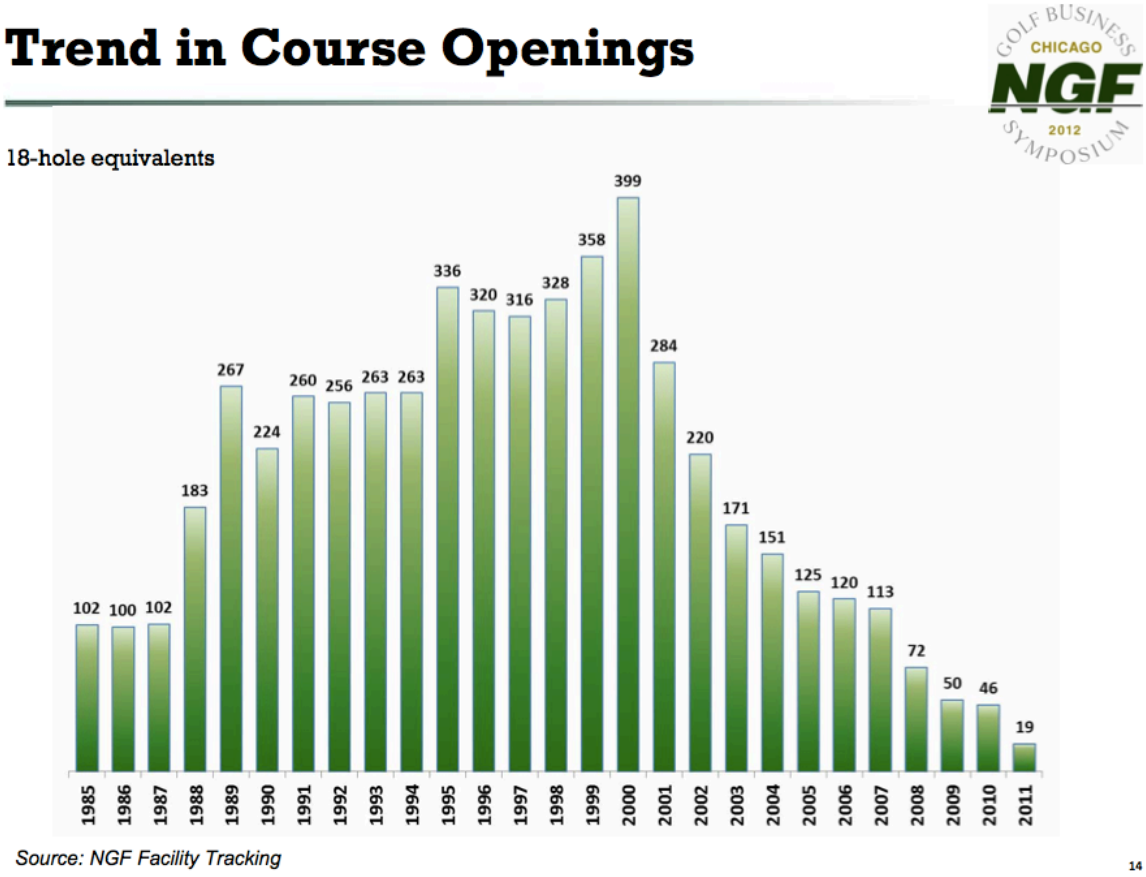

Figure 2.2 Golf Course Openings in the United States from 1985-2011 (NGF *State of the Golf Industry*)

The market correction of 2006 was long overdue because the decrease of golfers and number of rounds played was not sufficient enough to support the abundance of supply. According to the NGF, from 1991 to 2006, the number of 18HEQ in the U.S. grew by 30% with a golfer growth rate of 6.5% during that same span (NGF *State of the Golf Industry*). Joe Beditz, President and CEO of the NGF says this market correction has a long way to go:

> The cumulative reduction in course supply over the past six years has been quite modest, and pales in comparison to the net increase in facilities that occurred over the two decades prior to this recent pullback. In 2000 alone we gained 362 courses, and over the 20-year period from 1986-2005, we added more than 4,500 courses (18HEQ). The slow correction that is now occurring is very much overdue and necessary, to help return the golf course business to a more healthy equilibrium between supply and demand (NGF *Industry Update - U.S. Golf Supply* 2).

Furthermore, according to NGF's "Golf Course Supply Index," the ratio of golfers to golf courses is still 17% below where it was 20 plus years ago (NGF *Industry Update - U.S. Golf Supply*). Correcting over supply is necessary to adapt to changing demands and to restore a healthy equilibrium in the industry.

Golf course construction was first stymied by the Tech Stock tumble in 2000 (Hueber and Worzala). Securing lending for new residential golf projects became more difficult and consequently, developers struggled to unload a golf course property once the surrounding residential property was sold. As David Hueber states, "Lenders were cautious about providing funds for the acquisition of those golf courses to prospective purchasers. It had been common practice for developers to subsidize the golf course operations, because their primary interest was in selling the real estate surrounding the golf course and not in profitably operating a golf course" (Hueber and Worzala 5). Once considered assets, golf courses were now liabilities.

The second major drop in development came after the 9/11 attacks and subsequent recession. Real estate continued to grow through 2007, but financing golf courses slowed to a halt as evidenced by the sudden decrease in golf course openings. From 2008-2011, only 187 courses opened in the United States (NGF *State of the Golf Industry*). During the same span, 510 courses closed. By comparison, in 2000 alone, 399 courses opened (NGF *State of the Golf Industry*). These comparisons show more evidence of over supply and insufficient demand.

Development of master-planned communities targeting a specific demographic began in earnest around the 1950s, but became a prominent business model in the 1990s. More than 100 master-planned communities were started annually in the 90s, and over 3400 existed as of 2010 (Wyman). Interestingly, only 20-40 % of purchasers of residential property in golf course communities actually play golf (Wyman). Oftentimes courses were built where they weren't needed, and developers overspent building high-end courses with big-named designers intended to appeal to the Baby Boomer generation. According to research conducted by the NGF in 1988, Baby Boomers were projected to play more frequently as they aged and were expected to buy premium golf course lots in master-planned communities. The Baby Boomer generation did not behave as expected. The percentage of those that played golf remained the same at 12%, but their play was less frequent than previous generations (NGF *Generational Risk in Golf*). Rather than increasing their

participation and rounds played, Baby Boomers enjoyed cheaper recreational alternatives such as walking, jogging, swimming, and biking (SGMA *Sports and Fitness Participation Report Today!*). This implies that adjacent green space is desirable, but limiting that green space to golf undermines existing research showing a desire for a broad range of recreational activities.

Golf did enjoy success in the 1990s. The game experienced significant increases in all key barometers of the industry's economic health and vitality: number of golfers, number of golf rounds, and net increase (decrease) in golf courses (openings vs. closings) (Napton and Laingen). From 1990-1999, the number of golfers increased from 27.4 million to 28.8 million, the number of golf rounds rose from 451.4 million to 518.4 million, and the net increase of courses rose by 20.6% (NGF *Rounds Played in the U.S.*). However, as facilities experienced a 20.6% growth from 1990-1999, the number of golfers and golf rounds played only rose by 4.9% and 12.9%, respectively (NGF *Rounds Played in the U.S.*). The imbalance created in the 1990s left the industry scrambling in the 2000s.

The golf industry experienced significant decline in all key barometers of economic health and vitality during the 2000s. The overall United States population that played golf declined nearly 2% since 2000, from 11.1% to 9.6% (Beditz *Golf Participation in America, 2010-2020*). From 2000-2012, the number of golfers dropped from 28.8 million to 25.7 million, the number of golf rounds

decreased by 10.7% from 518.8 million to 463 million, and the net increase in course openings shrunk to 3.5% (NGF *Golf Facilities in the U.S.*).

The exact cause of the downturn, other than supply and demand, has not been indentified or addressed. What is obvious is the amount of correction still needed to create equilibrium between golfers and available golf courses. Ideally, demand for golf in America would remain consistent and the only market adjustment would be closing or opening courses. Current trends show stable demand, roughly 25-27 million golfers, for the next five years. Therefore, the only certainty is 1,000 to 2,500 courses must close over the next decade to reach equilibrium. Many of those closures will be attached to failed master-plan developments, residential communities, or older daily-fee courses.

The following chapter will discuss the history of golf development in the United States from 1950-2000. Looking at the history of the industry can reveal what a desired equilibrium looks like. It can also help understand how these problems manifested after public golf was popularized. The current state of the industry has been established, but knowing the history of how golf grew in America, why it grew, where it grew, and what went wrong will be beneficial when considering how to repurpose these areas.

CHAPTER 3

POST WWII HISTORY OF THE AMERICAN GOLF INDUSTRY

To fully comprehend the current state of the golf industry, it is necessary to explore, analyze, and understand how we got there. Exploration and analysis assists us in understanding how and why golf changed from a game for the elite to a game for the middle class. We can also answer how and where the golf development industry evolved. Looking at the history of golf's built environment from the mid-20th Century onward helps uncover the causes that led to the current crisis situation.

The post WWII history of golf's built environment provides insight into the shifts in supply and demand, who championed the movement and why, and how that affects what happens now. Outlining the growth of the game socially and economically gives us an opportunity to understand trends and patterns in demographics and popularity.

Residential golf communities had a large impact on the golf industry. The golf course's role in residential development was vital for selling lots, but it also affected our nation's recreational activity, where golf courses were being built, and how they were being managed. In 2008, Darrel Napton and Christopher Laingen wrote an article for the Geographic Review titled, *Expansion of Golf*

Courses in the United States. Napton and Laingen divided the history of golf into four major epochs representing the beginning of golf in America and the three boom periods that followed. Using their timeline we will focus on the last two Epochs starting with the third Epoch in 1950.

The third Epoch lasted from 1950 to 1969 and represented a time of leisure, relaxation, and prosperity for the United States. Five thousand five hundred and fifty-eight new courses developed in this era with heavy concentration in the industrial corridor stretching from New York to Chicago (Napton and Laingen). Secondary clusters formed in Florida, the Southeastern Piedmont, and along the west coast; remote areas like Palm Springs emerged as national golfing destinations as well (Napton and Laingen).

The postwar economic climate thrived and population grew rapidly as evidenced by more than 80 million children born between 1946-1964. Known as the Baby Boomer generation, their influence on golf development is unparalleled and continues to affect the golf industry today. Because of economic and population growth after World War II, golf course construction grew. Suddenly, retirees with paid benefits and longer life expectancy peppered the landscape and caused the need for recreational activities to dramatically increase (Napton and Laingen).

At or about this time, dependence on and love for the automobile caused a massive increase in auto production. New families could now afford a car and explore the region around them. Construction of suburban rings around bigger

cities soon followed. Golf fit perfectly into these new developments. It became one of the many recreational activities that postwar families could align themselves with and it had the added allure of representing wealth and prestige. What better way to leave behind the hardships of war than buying a car, moving to the suburbs, and taking up golf?

Although Baby Boomers, automobiles, and suburbs largely contributed to the shift from private golf to public golf, they were not the only factors. The Revenue Act of 1943 was a carryover wartime measure that lasted until the 1960s and greatly influenced the tax rates for private clubs (Moss). The Act doubled the tax on club dues and initiation fees from 10% to 20%. After the war, clubs had difficulty securing new membership and retaining old membership due to the continuation of the war tax. Consequently, private clubs suffered in the 1950s. In 1950, approximately 3,000 private courses existed, but by the end of the decade had only accrued a net growth of 206 facilities (Adams and Rooney).

In contrast, daily-fee courses doubled during the same time going from 1,082 courses in 1950 to 2,254 in 1960 (Adams and Rooney). As shown in Figure 2.1, in approximately 1962, public courses outnumbered private course for the first time in American history. Advancement in technology, coupled with cultural changes following World War II, drove Americans away from committing to member-owned clubs.

Changes to the way Americans traveled affected what leisure activities they participated in and where those activities were located. Introduction and

adaption to the jet allowed Americans to travel far from home, sometimes to second homes, cabins, or resorts. Many still wanted to play golf and perform other leisure activities while traveling, but they wanted to do so on a daily basis and not be forced into annual memberships (Moss). Consequently, more daily-fee courses were built in destination or vacation areas, like Southern California, Florida, The Carolinas, and Arizona.

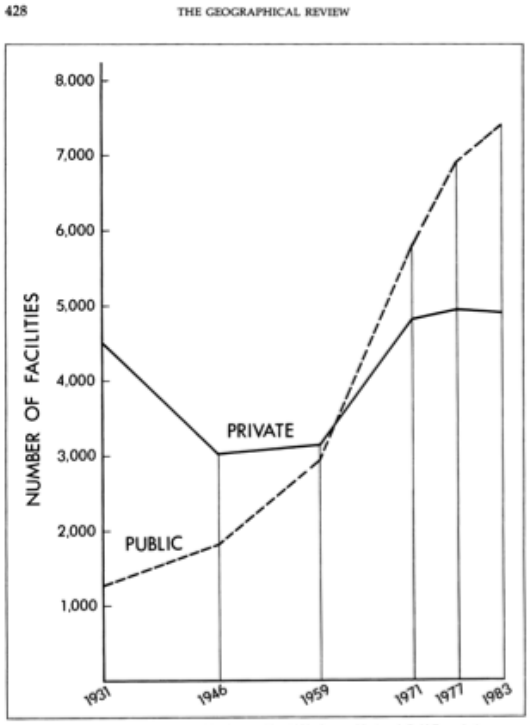

Figure 3.1 - Comparison of Public and Private Facilities from 1931 – 1983 (Adams and Rooney)

The president's influence rippled through the golf industry, thanks in large part to the television (Moss). Dwight D. Eisenhower was an avid golfer, member of Augusta National Golf Club in Augusta, GA, and beloved American figure, especially to the middle class. The president's love for golf helped legitimize the

sport to middle class citizens; the fact that he played matches on television helped to further popularize the sport. When sports broadcasting began, the nation was introduced to another lovable figure: Arnold Palmer.

Palmer was a charismatic man who popularized golf among the general public. He won 62 PGA Tour events and seven major events during his 25-year career and is considered one of the greatest golfers of all-time. Arnie's Army, the name for the millions of fans who followed him on the course and from home, watched his tournaments and played rounds wherever they could, often times at the local municipal or daily-fee course recreating shots they saw Palmer hit the week before.

Television played a large role in popularizing the sport during the 1960s (Moss). Before the 1950s, private clubs never had to battle with a leisure activity like television. Now, T.V. had privatized leisure, allowing a family to relax and enjoy events from the comfort of their own home. The purpose of a club was to lure an individual away from home to a place where recreation was available. Now that television allowed individuals and families to relax from the comfort of their own homes, private clubs had to adapt or lose membership.

The automobile was now a staple in the modern home, as was central heating and air conditioning; larger homes with larger yards became more common. It became obvious why families would chose to spend their leisure time at home with family and friends. Alleviating stress and anxiety no longer had to be done at the club.

During this time, golf shifted from heavily populated areas to the rural and perimeter sites (Adams and Rooney). Three main reasons for this shift exist. First, the Golden Age clubs, booming from 1910 until approximately 1935, took many of the great, urban locations making it difficult to find accessible and affordable land near the city core.

The Golden Age refers to the early portion of the 20th Century between the end of World War I and the beginning of the Great Depression that saw many of the greatest golf courses designed and constructed in the United States. From 1916 to 1930, the number of courses in the United States increased from 715 to over 6,000 (Adams and Rooney). Many of the now famous classic architects worked during this time, including: A.W. Tillinghast, C.B. MacDonald, Seth Raynor, Donald Ross, Alister Mackenzie, Willie Park Jr., Harry Colt, Stanley Thompson, and William Flynn.

The second major reason for golf shifting to non-urban areas happened during the 1950s when course construction increased in the suburbs, expanding metropolitan areas, vacation resorts, and retirement communities. Third, the US Department of Agriculture's Farmers Home Administration (FmHA) developed a program aimed at providing potential economic stimulation and increased family recreation areas. The National Golf Foundation (NGF) estimated that 10 million golfers would exist by 1970 and 10,000 courses would be needed to meet the demand (Adams and Rooney). The FmHA report noted that, "outdoor space in

itself is a resource in this day of crowded city dwelling," and the demand for golf far exceeded the supply (Administration).

Based on the FmHA report, the Department of Agriculture developed a program designed to make recreational opportunities accessible in rural areas. From 1963-1975, the Department of Agriculture offered two types of subsidized loans aimed at assisting rural communities improve public recreational facilities such as golf courses, driving ranges, swimming pools, tennis courts, and baseball facilities. Over the 12-year program the FmHA distributed more than $10.5 million in loans to rural communities to aid in the construction of these facilities. Golf accounted for 566 of the 1035 loans distributed (Napton and Laingen).

By the 1960s, Americans were enjoying expensive vacations in exotic locations. They traveled by jet airplane and played golf at exquisitely maintained resorts. Back home, other Americans were enjoying life in the suburbs, barbequing in a big back yard with friends and neighbors. They would watch a golf tournament on Sunday and go out and play the local daily-fee course later that week. The club had once been the central element in many American's lives, but people adopted new patterns and habits. They enjoyed resort golf while on vacation and the local daily-fee course while at home. This was the new model until the latter part of the1950s when a timber investor named Charles Fraser, who later became the grandfather of the gated community, came into possession of 3,000 acres on the South Carolina coast.

The gated golf community quickly became one of the major competitors for private golf clubs. Golf communities soon morphed into residential golf development and ultimately changed the business model and the golf industry forever. Gated communities started as extensions of private clubs, but rather than members owning an equity stake in the club, the land developer controlled the memberships and sold them as non-equity shares in the club. Another major difference between private clubs and gated communities was the idea to bring real estate and housing inside the property line where it could be integrated with golf.

A significant consequence of golf course development was alteration of neighboring land values. Developers believed that the attraction to and close-proximity of golf courses would help sell housing and ultimately earn the highest rate of return on their parcel of land. However, as research has shown, only 20-40% of homeowners in golf developments play golf (Wyman). For the homeowner, the real value came from the aesthetics of the course, the permanent open space, and the veil of exclusivity that the community offered. Because of their ability to utilize otherwise boring land and provide people with the aforementioned benefits, these developments flourished in the 1960s and 1970s.

Hilton Head Island in South Carolina is one example of how these communities flourished. Hilton Head started as a cotton plantation, but in the 1950s companies began acquiring land on the island and harvesting timber.

They ran electricity to the island, had a steady ferry service available, and a few industrious folks erected cottages along the beachfront (Moss). In 1956, a toll bridge was completed, and Charles Fraser, an early timber investor, acquired 3,000 acres of land and began developing Sea Pines Plantation.

Sea Pines evolved to become the model developers all across the country would use. Presently, it has 11 private gated "plantations" that differ slightly, but are generally similar. Some cater to tourists or short-term visitors, others cater to homeowners and retirees, some emphasize the beach, but all invest in golf. No commerce happens at Sea Pines, they are private enclaves controlled by development companies or homeowners associations. Because of the lack of planning and zoning controls, the plantations are defined by the golf and the architecture. Therefore, most have restrictive agreements on the land deeds limiting the house size, design, and color (Moss).

Fraser's first interest in developing Hilton Head was emphasizing the beachfront property. It was not until noted golf architect George Cobb convinced him to reconsider the thought of adding recreational amenities to the property that Fraser thought of golf courses at Sea Pines. Cobb argued that "first-class golf would draw first-class people" willing to live in a community where golf had a dominating presence (Moss). Cobb also asserted that a golf course could make the interior property a more profitable development. Interior homes would not be as expensive as beachfront, but they would draw higher value than property with zero golf views. In 1962 Fraser sold more than $2 million worth of fairway lots on

land that he surmised to be, “virtually unsellable without the golf course in front of it" (Moss 151).

In the late 1960s, Harbour Town was created, a yacht basin surrounded by housing and shops developed as an artificial town. Now, Harbour Town and the striped lighthouse symbolize the Sea Pines Plantation. The centerpiece of Harbour Town was the 18-hole championship course designed by Pete Dye, one of the preeminent golf architects of his era, which opened in 1969. The course has hosted a PGA Tour event in mid-April, currently the RBC Heritage Golf Tournament, for 42 straight years (S. P. Resort).

Figure 3.2 - Aerial view of Harbour Town Golf Links at Sea Pines Resort (S. P. Resort)

Sea Pines and other golf communities changed the model for maximizing profit on the land. Typically, a parcel would be surveyed, split into a grid, and sold off as quickly as possible. No grid existed at Sea Pines. Housing was not

relegated to main arteries. Instead, housing grew on curving roads that led to dead ends; open space was created, large areas were designated nature preserves, and a densely developed area suddenly seemed wide open with green space and nature. This was made possible by golf holes winding through the property and connecting the homes. These clusters created a sense of community and togetherness that strengthened the idea of doing things the "Sea Pines Way" (Nicholls and Crompton). In 1970, around the end of the third Epoch, private property-owners associations controlled fewer than 5,000 golf communities, but by the end of the next Epoch more than 125,000 such golf communities existed with more than 40 million Americans calling them home (Moss).

The fourth epoch lasted from 1970 until 2000 and represented a time of maturation and saturation in the golf industry. Seven thousand three hundred and forty-two courses opened during the 30-year window. Americans have always gravitated towards warm and sunny locations since the nineteenth century, but the rate hastened during the 1970s (Napton and Laingen). Americans were living longer, leading healthier lives, retiring younger, and had access to pensions and social security (Hueber and Worzala). This gave retirees the flexibility to move seasonally or permanently to warmer areas with access to outdoor recreation.

Once again, areas like South Carolina and North Carolina, Florida, Arizona, and Southern California experienced the largest boom in construction.

Florida accounted for 12% (894) of the newly built golf courses during this epoch. The Carolina coast, or “Golf Coast”, became one of the premier golfing regions. Developments like The Landing, a private golfing community in Savannah, GA, with six 18-hole courses surrounded by residential development, represented the fully matured design concept of the master-planned golf community.

Desert areas also became popular golfing locations because of their mild winters and sunny days. Las Vegas, Phoenix, San Diego, Santa Barbara, and Palm Springs began developing in the 1950s and continued to grow well into the fourth epoch. One of the driving factors behind their growth was the rampant use of master-planned communities. During the 1980s, more than 35% of all new golf developments were master-planned communities (NGF *Trends in the Golf Industry, 1986-1996*).

Phoenix, Arizona, in particular, had a large number of master-planned communities built around golf. The model was simple and delivered unbelievable wealth. For example, developers could receive an additional $20,000 for each home located adjacent to or near the course (Moss). A residential development of 1,500 homes yielded $30 million in profit by adding a golf course plan, plenty of money to justify the $8-10 million price tag to hire a big-name designer and build the course and more than the money gained from using the land for more lots (Moss).

In the late 1970s and early 1980s, several national and international events worried developers and subsequently thwarted golf construction. Inflation

began after the United States ended their dollar-to-gold conversion and continued to increase due to debt created by the Vietnam War and social program of the Great Society (Napton and Laingen). Energy prices increased twice after 1973, once after OPEC reduced oil supplied in the U.S. and again when Iran stopped exporting oil to U.S (Napton and Laingen). Businesses reacted by altering their spending and investments. Developers willing to risk borrowed money on golf courses.

In 1985 the National Golf Foundation wanted to conduct a nationwide study on golf participation and requested the services of Dr. John Rooney, a geographer from Oklahoma State (Hueber and Worzala). The research looked into demographics, golf participation, percentage of population that played golf, and the number of courses per capita (Adams and Rooney). This research along with the work being conducted by NGF showed that demand could skyrocket based on the percentage of Baby Boomers that played golf (NGF *Trends in the Golf Industry, 1986-1996*). If the numbers accurately reflected the demand Baby Boomers would create, it meant there wouldn't be enough supply to satiate them. Golf's third boom, as explained by Dr. David Hueber, was, "driven by the expectation that the Baby Boomers were likely to play more often as they grew older, because they would have the time, money, and inclination to play more golf" (Hueber and Worzala 14).

Therefore, the NGF called for a golf summit to present their findings and optimistically report on the future of the golf industry. They put together a

"Strategic Plan for the Growth of the Game" in which they called for the industry to "Build A Course a Day" from 1988 to 2000 to meet the projected demands. The slogan made its point, and golf course construction broke through the once stagnant threshold. After 1990, more specialized golf course lenders entered the market, lending practices loosened, and many courses once stuck "In Planning" turned over to "Under Construction" from 1990 to 1993 (NGF *Trends in the Golf Industry, 1986-1996*). Development continued to thrive as a reaction to the built up demand for the sport. From 1986-1990, the number of golfers in the United States increased from 19.9 million to 27.8 million, with more than 75% of those golfers playing the majority of their rounds at public facilities (NGF *Trends in the Golf Industry, 1986-1996*). During the same time span, rounds played went from 400 million to 500 million (NGF *Trends in the Golf Industry, 1986-1996*). It was obvious that after 1985, the demand for golf couldn't be contained, and more courses needed to be built to meet those demands.

The golf industry did build an average of a course per day during that time, with just over 400 courses opening per year from 1990-2000 (NGF *Golf Industry Overview*). Many of the courses opened were public, and the game was widely available to all classes in all locations. By the year 2000, the United States had more than 16,000 golf courses, 30 million golfers, and 520 million rounds being played every year (NGF *State of the Golf Industry*).

Unfortunately, Baby Boomers did not meet their projected demands. The percentage of Boomers that played golf remained at 12%, but they were not as

avid as expected or even as avid as previous generations. Rather, they enjoyed a wide variety of recreational activities (SGMA *Sports Participation in America*). Cheaper alternatives to golf like jogging, biking, hiking, and swimming saw increased participation. At the time, the golf industry could not respond. The industry had so much momentum that slowing down was not an option. A course a day was built even though actual demand required nowhere near that amount of supply.

By end of the millennium, the golf industry bubble was about to burst. As shown in the previous chapter, it finally did in 2003 and nearly a decade later is still far from reaching equilibrium. Equilibrium will require 1,000 to 2,500 courses closing over the next decade, but the opportunity to make sustainable change is fleeting (Beditz *The Future of Public Golf in America*). Our goal should be sustainable repurposing and reuse of golf course green space. Food security, water security, and energy production are all major issues facing our country and our world in the 21st Century. Reusing existing features, components, facilities, and infrastructure of an old golf course broadens the potential land uses and reduces upfront development costs. Utilizing those existing components and addressing national and international resource issues eases the burden on future generations. Therefore, to understand the full repurposing potential of a golf course, it is important to understand what amenities, features, and components it offers.

CHAPTER 4

GOLF FACILITY RESOURCES AND COMPONENTS

METHODS

Understanding the components of golf courses and golf course facilities is necessary when one tries to determine other potential uses. Size of a golf site varies based on facility type as well as the era in which it was built. Resources of a golf course vary greatly between facility types, region, budget constraints during construction and operation, land constraints, and water supply. However, all golf courses have common components from which we can define a foundation to gauge appropriate types of repurposing. Organizing golf courses based on size, facility type, and site features provides structure for understanding the resources available and inherent in golf courses.

Analyzing courses from large scale to small scale helps establish baseline parameters for repurposing applications. This is accomplished using the nine different geographic regions according to the Census Bureau. These nine regions help to broadly define the type of golf being built, i.e., desert courses, coastal courses, links courses, parkland layouts, and prairie courses, and begin to reveal what repurposing applications may be suitable or unsuitable. From there, analyzing the six types of facilities and their subsets helps differentiate the

layout and acreage of land. Third, discussing the five basic design options from which courses are routed largely determines repurposing options. Finally, exploring the features of the site derived from The Appraisal Institutes book, *Analysis and Valuation of Golf Courses and Country Clubs* as well as Tom Doak's book, *Anatomy of a Golf Course,* shows what on-site components are available to retrofit or reuse.

Institutions like National Golf Foundation, PGA of America, and Golf Datatech use Census regions of the United States to analyze data on golf participation, rounds played, and golf course openings and closings (NGF *State of the Golf Industry*). As shown in Figure 4.1, the nine regions are Pacific, Mountain, West North Central, South Central, East North Central, South Atlantic, Mid Atlantic, and New England. Each occupies anywhere from three to eight states and represents a specific climate, eco-region, and demographic. Understanding where a golf course is located with respect to its region helps group similar courses. Ultimately, these regions will help identify the ideal region(s) for specific repurposing proposals, and retrospectively analyze the viability of golf developments in four case studies.

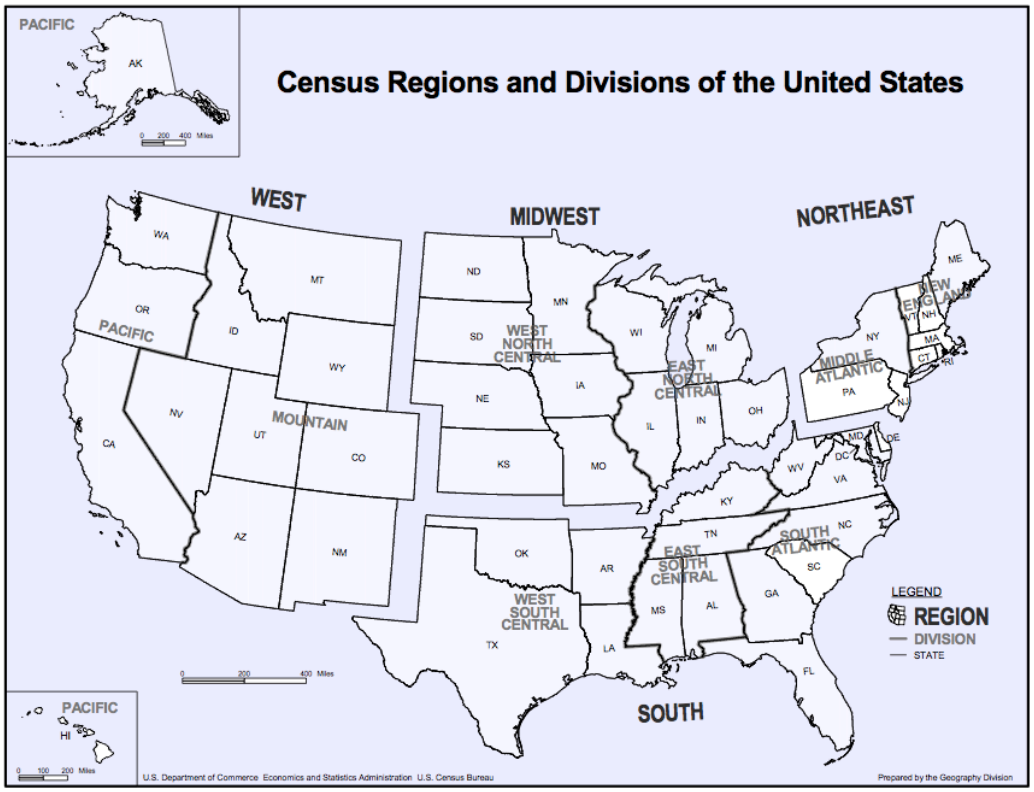

Figure 4.1 - Census Regions and Divisions of the United States (Bureau)

GOLF COURSE FACILITIES

A golf facility is defined as a business location where golf can be played on one or more golf courses (NGF *Golf Facilities in the United States*). Six types of golf facilities exist: Municipal, Daily-fee, Private, Real Estate-Related, Resort, and Real Estate/Resort. Facility designation is based on a combination of who funds the project and user accessibility. Municipal facilities are owned by tax-supported entities such as states, counties, cities, or armed forces and are open to the public at all times. Daily-fee facilities are privately owned and provide public access to golf. Some daily-fee courses may offer memberships and provide limited public access in which case they're called "semi-private." Private

facilities are restricted to members and their guests. Real estate-related facilities are located in and considered an integral part of a real estate development. A developer or homeowners associations typically own them. Resort facilities offer golf as well as other amenities such as tennis, swimming, gyms, and are linked with a hotel. Real Estate/Resort Facilities combine features of the real estate and resort golf facility.

Each type of facility can vary in size (number of holes) and length (yards). Figure 4.2 shows that more than 63% of all golf facilities operate with the standard 18 holes. 27% operate as nine-hole facilities, 5% operate as 27-hole facilities, 3% operate as 36-hole facilities, and 2% operate as 45-hole or more facilities (Gimmy, Johnson and Institute).

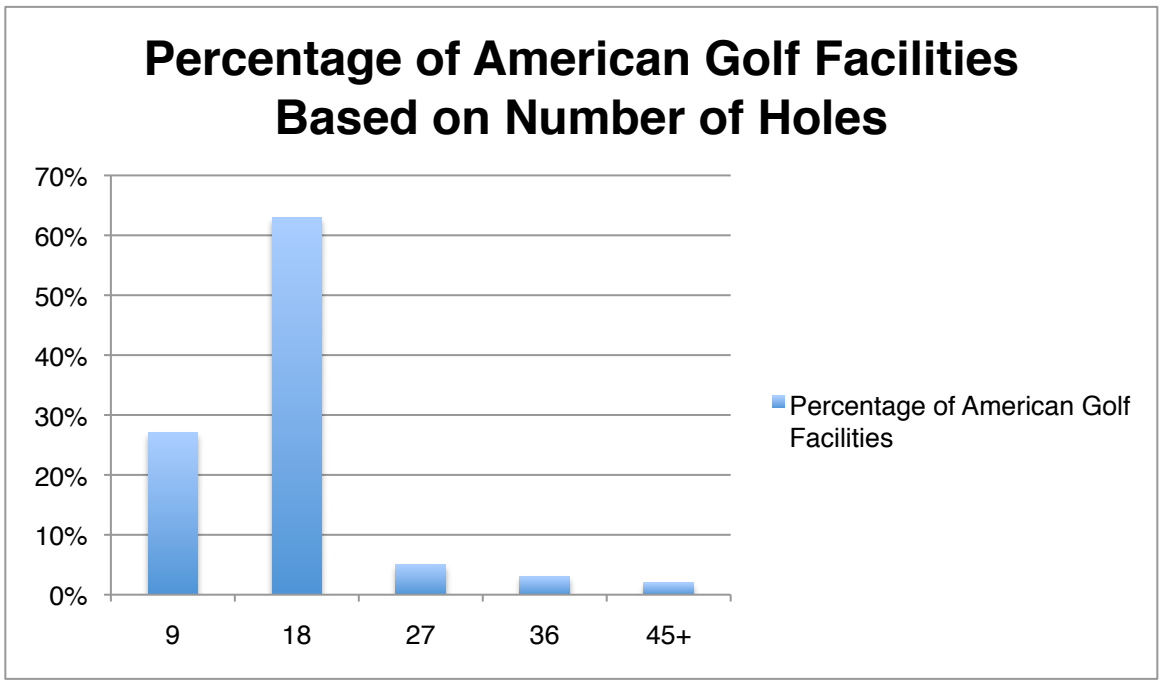

Figure 4.2 - Facilities Breakdown by Number of Holes

Three types of courses can be indentified by length: Regulation, Executive, and Par 3. Regulation courses consist of a variety of par 3, par 4, and par 5 holes with a cumulative total par between 70 and 72 over 18 holes. Executive courses are a shorter version of the regulation course with cumulative par ratings typically between 60 and 66 for 18 holes. These courses tend to be built on a more compact tract of land as compared to regulations courses. Finally, Par 3 courses consist solely of par 3 holes with a cumulative total par of 54 over 18 holes.

In 2011, the United States had 15,761 golf facilities (NGF *Golf Facilities in the U.S.*). Municipal facilities account for 15.5% of the golf course market in the United States, approximately 2,431 courses (NGF *State of the Golf Industry*). They operate on a daily-fee basis, but not for profit. More than 700 operate as nine-hole facilities. On average, they occupy considerably less acreage than private or public courses. The majority were built during the third Epoch circa 1960s, and sited closer to established neighborhoods in the city core.

Daily Fee facilities, which include Resort and Real Estate facilities, account for 58% of the golf course market in the United States, approximately 9,146 courses (NGF *Golf Facilities in the United States*). Daily Fee courses operate on a for profit basis. Approximately 3,781, or 24% of all U.S. golf courses, operate as real estate golf facilities and approximately 1,181, or 7.5% of all U.S. courses, operate as resort golf facilities (NGF *Golf Facilities in the U.S.*). The other 4,184, or 27.5% of U.S. courses, operate as daily-fee facilities open to

the public. An individual, a corporation, or a developer of a community for which the course serves as a primary amenity, can operate daily-fee courses.

Private facilities account for 26.5% of the golf course market in the United States, approximately 4,174 courses (NGF *Golf Facilities in the United States*). Ownership can operate in two ways. Members either own the private course, called an equity ownership, or a separate entity owns the course and sells non-equity memberships. Most equity ownerships operate as a non-profit, and most non-equity ownerships operate as for profit. The distribution of equity and non-equity courses is roughly equal throughout the U.S. Most private facilities, more than 94%, are based around a regulation length course, while 72% are standard sized, 18 hole tracks (Beditz *The Future of Private Golf Clubs in America*).

BASIC DESIGN OPTIONS

The five basic design options largely determine the routing of the golf course and the repurposing applications. Influences upon course design include the amount of the land available, investment objectives, surrounding land uses, development density of surrounding area, topography, perception of quality, operating costs, and achieving differentiation between the new course and nearby competition. The five basic design options include: Core, single-fairway continuous, single-fairway returning nines, double-fairway continuous, and double-fairway returning nines (Gimmy, Johnson and Institute). Typically, core courses require the least amount of land and operate most efficiently, double

fairways require more land and operate less efficiently than core courses, and single fairways require the most land and operate the least efficiently. Operational efficiency also reflects the potential repurposing efficiency. Core courses are more versatile and present less property-line constraints than double or single fairway layouts because the entire course and its components compactly fit into one parcel. Double-fairway layouts may present more repurposing difficulty due to a complex parcel shape or interruption from other surrounding land uses. Single fairway layouts present the most complex repurposing layout because they are typically linked with residential communities and present complex land-use planning problems.

The advent of top 100 golf course lists by institutions such as GolfWeek, GolfWorld, Golf Digest, and others, have generated interest in comparing courses qualitatively. Qualitative differences include playability, aesthetics, conditions, reputation, location, and designer (Gimmy, Johnson and Institute). Qualitative differences can influence the value of a course. "Signature" courses – those designed and built by famous architects or former professional golfers – tend to add value to a property. However, if the course enters foreclosure or bankruptcy, the architect becomes less important than key factors such as location, aesthetics, and site conditions.

SITE FEATURES

Features like size (acres), shape, topography, utilities, public access, soils, and vegetation not only affect the original development of the golf course, but also the potential for repurposing the golf development. Many of these features, particularly shape, topography, soils, and vegetation, vary greatly depending on what region of the United States the course resides.

Size of the course and the site is typically measured in acres. Each type of facility and layout requires a different amount of land. As previously stated, core courses require the least amount of land, double-fairway courses require more, and single fairway require the most. Municipal courses tend to require the least amount of land. Regulation municipal courses range from 140 – 210 acres with an average of 150 acres; daily-fee courses range from 125 – 200 acres with an average size of 155 acres; and private courses range from 160 – 210 acres with an average size of 170 acres (Gimmy, Johnson and Institute). Residential golf developments typically require a minimum of 300 acres of net usable land area (NULA) (Graves and Cornish). Therefore, the facility and design layout requiring the least amount of land would be a core municipal course. The facility and design layout requiring the most land would be a single-fairway residential golf development.

Shape of the site largely determines the use of a core, single, or double fairway design. Compact sites require using a core routing plan in order to fit a regulation course on site. A perfect example of a compact core development is

Seminole Golf Club in June Beach, Florida. Designed in 1929 by Donald Ross, the site for Seminole was extremely small, approximately 125 acres, with ocean abutting the property on the east and major highways directly west. Figure 4.3 displays Ross' brilliance and creativity in squeezing 18 holes onto the Seminole site and shows the land use benefits of a core routing plan.

Figure 4.3 - Seminole Golf Club, Example of Core Routing

Real estate golf developments and resort developments require complex shapes and routings in order to integrate the course with the surrounding land

use. Although no set rule exists for golf course frontage to residential or resort courses, most developers attempt to maximize the number of lots adjacent to the course. The goal is to achieve the highest price and profit for an entire mixed-use project so as to not penalize any one land use (Gimmy, Johnson and Institute). In the 1990s, successful golf course design was characterized by achieving lot maximization, typically in the form of "double-barreled" routing. Double-barreled refers to one hole being surrounding on both, or all sides by housing. Figure 4.4 shows an example of double-barreled routing from The Player's Club at Deer Creek in Omaha, NE. Double-barreled routing drives up lot costs by giving each owner a golf course view.

Figure 4.4 - Double-Barreled Routing Example

This style was almost always at the detriment of the golf course and golf routing. The land for golf was not ideal, often times requiring an abundance of earthwork. Abundance of earth moving usually led to unnatural features not resembling any natural topographic features. The surrounding aesthetics, most often the backsides of homes, were uninspiring. Most of all, the routing was elongated and convoluted requiring the use of a cart, creating awkward transitions between holes, long distances between the previous green and the next tee, and multiple intersections with neighborhood roads. Double-barreled routing also presents the most issues when considering repurposing. Changes to land use affect property values of adjacent homes and development in these areas is limited.

Topography is one of the most important features of a site. On a regulation course with no resort or residential development attached, the topography determines the layout and the routing. A golf architect first locates the most important features with the best vistas on the site, and then finds areas too steep to build upon and marks them off. Typically, fairways don't exceed a 10% slope and greens don't exceed a 5% slope. Grading on steeper land tends to be too difficult and tying the edges back in to create natural contours is next to impossible. In *Anatomy of a Golf Course*, Tom Doak writes, "Undulation is the soul of the game," and, "A golf architect's plan generally revolves around using the topography to make the golf holes interesting (Doak *The Anatomy of a Golf Course / Tom Doak*)."

When the golf course is developed in conjunction with a resort or residential development, the golf architect and the land planner must compromise on land use. Unfortunately, the land planner and the golf architect both want the same pieces of land i.e., the interesting topography with vistas, the natural clearings, and both want to avoid the steeper slopes. Often times this pushes the golf course to a non-ideal area on the lot to drive prices up in an otherwise undesirable site location (Doak *The Anatomy of a Golf Course / Tom Doak*). Therefore, most of the courses attached to residential communities or resorts will receive the majority of the uninteresting and difficult terrain, resulting in a relatively soulless golf course. Coincidentally, the uninteresting terrain results in landscapes that require little modification when considering repurposing.

Soils are another site feature that can drastically alter the style, routing, and layout of a golf course. Golf can be played and developed on all types of soils, but some are far more expensive to build on and maintain than others. The best soils are sandy loams that provide good drainage, support healthy turf and ground cover, and offer cheaper construction costs (Doak *The Anatomy of a Golf Course / Tom Doak*). Other soils include sand, silt, and clay.

Pure sandy soils provide the best drainage, but are difficult to establish turf; require heavy watering and topdressing; and once established, necessitate the use of chemicals and fertilizers. Silty soils are very fertile and drain relatively well. However, over time they can become compact and lose some of their draining properties. Clay soils retain an abundance of water and therefore

provide poor drainage. In dry weather, clay hardens and cracks. Often times the golf course needs to be capped with sandy loam if built on clay soils, otherwise the clay will become disruptive to the healthy growth of turf grass. Because of its weight, clay is also very difficult to construct with.

Other problem soils include rocky soils, which delay the shaping process and drive up construction costs and often times require the use of dynamite. Mucky soils, usually found in wetlands or lowlands, require massive amounts of earth moving and drainage to maintain the golf course properly. Ultimately, golf courses have been built on every type of soil, amending the natural condition to provide at minimum a moderately good growing medium.

Vegetation, particularly tree coverage, can greatly impact the character and potential reuse of a site. On a woodland course, openings of 100-200 feet are required for turf grass to obtain adequate sun exposure. On a non-woodland site, the natural ground cover provides a unique character to the golf course. A course like Shadow Creek, in the desert of Nevada as shown in Figure 4.5, with tree-lined fairways and exotic vegetation, may make for a sublime landscape, but one that is the antithesis of the natural vegetation that exists.

Courses developed on floodplains or seasonal wetlands present other vegetative issues; besides the elevated construction costs for drainage, permitting, and “discovery” costs, the land is subject to flood damage or seasonal closing (Doak *The Anatomy of a Golf Course / Tom Doak*). The benefits of developing on these lands are the cheap cost and the incentive to profit from a

site that is otherwise undevelopable. Bankrupt courses developed on floodplains or wetlands become prime candidates for conservation easements.

Figure 4.5 - Aerial image of Shadow Creek Golf Course, Las Vegas, NV

Accessibility has become less of an issue for golf course developers, but it becomes a key component in how a course would be repurposed. Accessibility does not mean ADA requirements, rather, accessibility refers to the ease, time needed, and cost for the target demographic to get to the course. Typically, developers of residential and municipal courses build within a city because they want to serve an area with a larger population base. Similarly, older courses were located near large population bases because of the difficulty of travel

presented before the 1950s. Resorts and private courses worry much less about targeting a specific population base; rather, they target a specific demographic or player. "Destination" courses, whether public or private, offer world-class golf in exotic locations, regardless of access or surrounding population; the idea being that the golf, amenities, and/or setting are of such high quality as to overcome of the inconvenient location.

A great example of destination golf is Bandon Dunes in Bandon, Oregon. As Figure 4.6 shows, Bandon is a small coastal town in southern Oregon two hours from the nearest interstate and two and a half hours from the nearest major city, Eugene, Oregon. Bandon Dunes offers 85 holes of golf on five different courses (B. D. G. Resort); three of the courses – Old MacDonald, Pacific Dunes, and Bandon Dunes – are rated in the top 50 best US courses according to Golf Digest magazine (Digest). The resort's wild success can be accredited to the world-class golf facilities and the ocean front vistas. The inconvenience of flying into Eugene, OR, or Bend, OR, renting a car, and driving two-and-a-half hours to the resort is a non-issue for their targeted demographic.

If courses in desolate locations, built on borrowed money, floundered and defaulted on their loan, it raises the question: what will the lender do? Infrastructure exists; the location is often times exotic, but surrounding land is undeveloped and no sizeable population exists to support traditional development. Once a minor inconvenience to the player, accessibility now becomes a major force in the ultimate decision of repurposing the property.

A. **Bandon Dunes** Golf Resort
57744 Round Lake Drive, Bandon, OR
(888) 345-6008
323 reviews

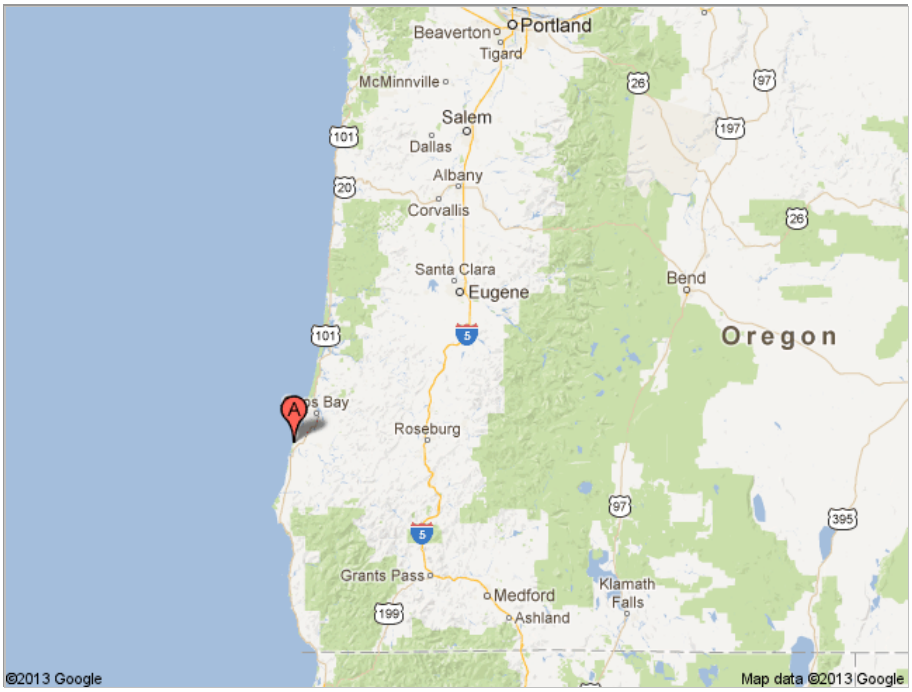

Figure 4.6 - Bandon Dunes Golf Resort Proximity to Major Oregon Cities

Lastly, a course must have access to utilities, most importantly a water supply. An 18 hole regulation course requires anywhere from 300,000 – 700,000 gallons of water per day in peak season (Barrett). Desert or arid climate courses require as much as 1,000,000 gallons per day (Gimmy, Johnson and Institute). Present and future access to a sustainable, consistent source of water is an important environmental consideration for any golf course development. Lakes, streams, or other natural sources become vulnerable under the stress of such large water demands. Most courses tap a well into a clean, underground water source that feeds into one or more irrigation ponds.

In recent years local governments have limited well permits for golf course developments; this has forced owners and architects to look into water supply alternatives such as rainwater harvesting and effluent from wastewater treatment plants. Rainwater harvesting is unpopular on a large scale because of the difficulty in designing water storage that looks acceptable when empty or full (Mahaffey). Effluent water became popular in the mid-late 1990s, with over 200 courses using secondary wastewater by 1998, and has evolved to produce steady water supplies for golf courses (Graves and Cornish). However, the danger of relying upon municipally-controlled water, especially during times of drought, is the threat that a course's water supply may be rationed or pinched off completely (Doak *The Anatomy of a Golf Course / Tom Doak*).

GOLF COURSE FEATURES

Every golf hole offers a different experience, strategy, or aesthetic. Whether the hole is from a template that has been repeated a thousand times or buried deep in the Himalayas never to be duplicated again, each one is distinctive. However, each hole and each course is created with the same fundamental elements: greens, tees, fairways, hazards, and rough. The architect arranges and places those features however he or she sees fit to create a unique golf hole. Understanding golf features and how they can be utilized during repurposing requires generalization about their characteristics. It is important to remember that each course, each site, and each hole presents a

different challenge and different opportunity, yet is achieved by using the same building blocks.

The most important and most expensive features on any golf course are the greens. The size and shape of a green is largely determined by the length of the hole, amount of play the course anticipates, type of grass, and maintenance budget. Before World War II, many greens were less than 4,000 square feet, sometimes as low as 2,500-3,000 square feet. Small greens, or "postage stamp" greens, were able to survive because of the lower maintenance standards and minimal amount of rounds played on them per year. By the 1950s, with golf coming into its second major boom phase, green sizes nearly doubled, with some larger than 10,000 square feet (Graves and Cornish). Although necessary to expand green size to accommodate more golfers, greens of 8,000-10,000 square feet proved to be over compensating. Today, an average green size ranges from 4,500-6,500 square feet. Greens present a variety of shapes, as well, most commonly oval and kidney shaped, but it's not uncommon to see teardrop, square, or eccentric freeform shapes.

Grades of the putting surface must be gentle and subtle to ensure balls do not run off the edges. Maximum slope on pinnable areas rarely exceed 3%, and transition areas or humps on a green rarely exceed 10% slopes. The putting surface typically surface drains in at least two directions, preferably more if possible. Subsurface drainage is common on nearly all types of courses.

The most common green construction method uses one developed by the USGA Greens Section Committee. It is typical to find this method of construction, or some derivation of it, on most golf courses built or renovated in the last 40 years. A USGA green is graded 18-20 inches below the finished grade, matching the contours as accurately as possible. Then, a subsurface drainage system is placed along the line of maximum fall, and lateral drainage lines are installed no more than 15 feet apart and extend to the perimeter of the green. The entire sub grade is then covered with clean, washed, and crushed gravel to a thickness of four inches. Finally, a USGA approved root zone mixture, consisting mostly of fine and medium sized sand, is filled to a depth of no less than 12 inches at which time the architect can seed, sprig, or sod the green (Staff). The USGA green section drawing can be seen in Figure 4.7.

Other types of green construction include the California section, which is very similar to USGA, and pushup greens that use existing soil to construct the green site. The subsurface of a pushup green is indistinguishable from other turf grass areas on the course.

Tee boxes mark the beginning of each hole. Prior to the golf cart, tees were typically placed within 10 yards of the previous green site to ensure walkability, but this became less of a trend after the golf cart and when residential and resort courses were introduced to the golf industry. Now it is not uncommon to see a tee placed several hundred yards from the previous green.

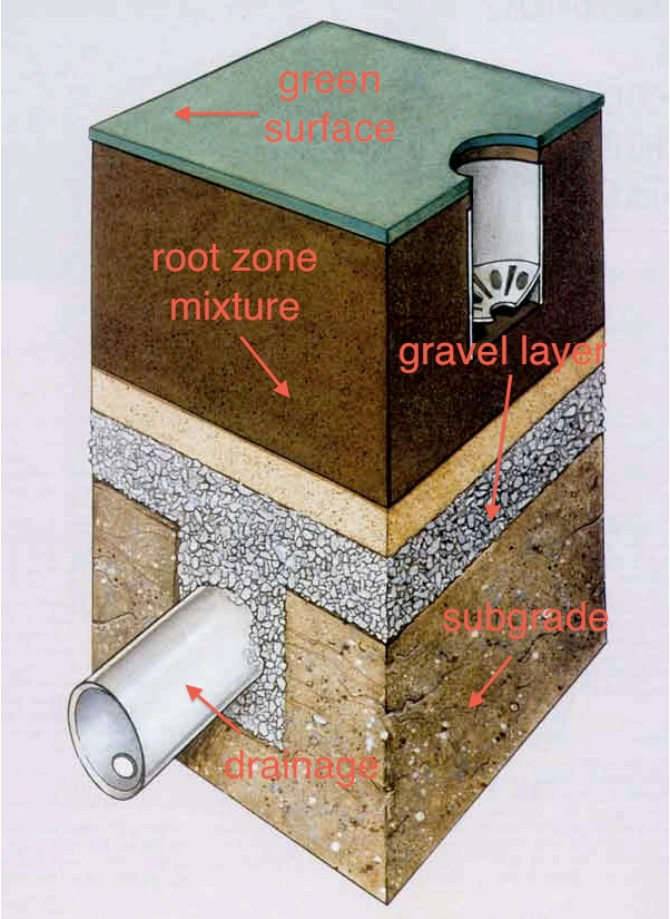

Figure 4.7 - USGA Green Cross-Section (Staff)

Tee boxes require a similar amount of square footage as putting greens. The USGA Green Section recommends 200 square feet per 1,000 rounds played on par 3 holes and 150 square feet on par 4 and 5 holes. For a club averaging 30,000 rounds annually, the teeing space for a hole would need to be 4,500 – 6,000 square feet. Because multiple teeing areas are necessary to accommodate players of varying skill levels, the square footage can be distributed in a number of ways: one long rectangular teeing area; multiple rectangular teeing areas divided by strips of rough or native areas; one large

freeform shape, or multiple freeform shapes divided by strips of rough grass or native areas. Tees graded with no slope are ideal for the player, but due to the subsurface drainage required they are not cost effective. Rather, most tees are built with a crown or pitch of 1% to promote proper surface drainage. The height of the tee is determined by the needed visibility of the landing area. Unlike putting greens, tees tend to be more uniformly shaped and graded; they are often times raised on fill and rarely require subsurface drainage.

Fairway and rough comprise the space between the tee and the green. More chemicals are applied to fairways and both are cut at different heights; otherwise, they are very similar. Both require irrigation, both contain hazards, and both require some level of maintenance. Before the advent of large construction budgets and even larger earth moving equipment, fairway and rough grading was limited to landing areas and to ensure surface drainage. Thus, the land on many courses built during the Golden Age (ca. 1910-1935) is extremely representative of the original, natural contours (Grant). Whether built with limited funds and tools or built with what Tom Fazio would call, "total site manipulation," the foundation for fairway and rough is similar: have enough slope, at least 2-3%, for surface drainage, and create or utilize interesting contours.

Therefore, fairway contours rarely exceed 10% slopes except for transition areas or plateaus. Rough contours may exceed 10% slopes in areas where the architect needed to tie the edges back into the natural terrain. The acreage of combined fairway and rough differs from hole to hole, but generally a par 3 has

anywhere from 1-3 acres, a par 4 anywhere from 4-7 acres, and a par 5 anywhere from 7-10 acres.

Hazards and obstacles represent the last major feature of a golf hole, and often times define the strategic aspects of the hole. The two most frequently used hazards include sand bunkers and water, but other obstacles can similarly affect the shot. Obstacles such as mounds, trees, and native areas may not be defined as hazards according the Rules of Golf, but are no less penal. Water hazards vary depending on the region and the topography, but include oceans, lakes and ponds, creeks and rivers, wetlands, or man-made irrigation ponds.

These features may be integral to the design of a particular hole or set of holes. Often times a stream or creek will meander through a property coming in contact with multiple holes along the way. Rae's Creek at Augusta National Golf Club is one example of using a natural water feature in the design of the course. The creek runs along the back of the eleventh green, in front of the twelfth green and along the left hand side of the thirteenth fairway. Potential environmental concerns and restrictions may exist when considering repurposing a course with water features.

Sand bunkers differ largely in size, shape, style, sand characteristics, drainage, and construction. Typical methods of bunker construction in the United States include bulkhead, grass-faced, flash-faced, railroad tie, and sod-wall. It's extremely rare for a course to use more than one specific method of bunker construction. The scale of the site, the construction and maintenance budget,

placement relative to the hole, and the aesthetic goal of the architect largely determine the shape, style, and size of the bunker. Soil type, budget, and desired aesthetic largely determine the sand characteristic and drainage of bunkers. Some courses, like Sandhills Golf Club in Mullen, NE, sit on naturally sandy sites and bunkers can simply be dug out of the ground. Other courses, like Peachtree Golf Club in Atlanta, GA, sit on clay sites and import their sand on top of a lined moisture barrier with proper drainage to protect from flooding or washouts.

OTHER FEATURES AND FACILITIES

Up to this point, the discussion has covered the types of golf facilities, basic design options, types of courses, size of courses, site features, and golf course features. These represent the backbone of the golf course; but to run and operate efficiently, ancillary facilities and infrastructure must be in place. Coincidentally, these ancillary features are vital when considering how to repurpose a bankrupt golf course. The cart path, clubhouse, irrigation system, practice facility, parking lot, maintenance building, and other facilities possess the flexibility to be reused in creative ways.

Most courses build or add a practice facility to their site and find it to be one of the most important features of the course. Practice facilities range from a cleared swath of land for players to hit warm-up shots to something more intricate that includes bunkers, greens, and practice holes. A typical practice facility has

proximity to the pro shop and first tee, stretches 300 yards from tee front to tee end, has 20,000 square feet of teeing area to accommodate at least 12-15 golfers, and a north-south orientation (Graves and Cornish).

Practice putting greens are constructed using the same methods as the golf course greens, but are typically bigger in size. Twelve thousand square feet or more marks the standard size, either on one green or split evenly between two greens. Often times a practice facility will include learning or teaching centers. These centers range from an open area at the end of the driving range to learning center buildings and private practice areas. Chipping and pitching greens are constructed under similar specifications as a putting green, but are less common. Other practice facilities included on some sites include warm-up courses, children's courses, par 3 courses, or pitch and putts.

One of the reasons many golf facilities fail is because they invest too much money into the clubhouse area, which includes cart storage, parking, social areas, pro shop, starter's station, and the kitchen and bar. Bigger clubhouses come with higher maintenance and increased debt. They can only be sustained by a large, core group of golfers who frequent the course two to three times per week. The clubhouse area acts as the hub of the course layout that can range in size from a trailer to a 100,000 square foot facility. The footprint ranges from 4-15 acres and must be placed strategically on the site. It must be accessible from adjoining roads and is usually within close proximity of the first and tenth tee and ninth and eighteenth greens. Mike Young, of Mike Young Designs, says, "Big

clubhouses are a major deterrent when considering purchasing a golf course." According to him, a big clubhouse either needs to be maintained or demolished, and neither option is cost effective. There must be sufficient area to store golf carts either underground or in a nearby shed. The parking area for a regulation size 18-hole daily-fee course in an urban or suburban area should accommodate 150-200 vehicles (Graves and Cornish).

Irrigation systems represent one of the most expensive features on a golf course. Twenty-first century irrigation systems range in price from $500,000 to upwards of $3,000,000. A typical irrigation system's lifespan ranges from 15-30 years, often times longer if maintained properly (Tucker). Older irrigation systems, and many modern systems as well, are typically constructed of polyvinyl chloride (PVC) plastic pipe. PVC is a hard plastic that's susceptible to freeze damage, leaks, and cracks. Recently, high-density polyethylene (HDPE) has replaced PVC because of its durability, pliability, and ability to withstand freezing temperatures.

Older systems are similar to a home irrigation system where a single valve controls eight to twelve sprinkler heads, and when turned on, all heads distribute water. Now, nearly all golf course irrigation systems in the United States are computer controlled with a valve-in head system, where each sprinkler head has its own valve (Mahaffey). This system has charged pipes at all times with water always at the base of the sprinkler, allowing a superintendent to open one head and water a specific area.

Irrigation can be spaced two ways: Triangular or Square. Square spacing is typically found on older courses allowing for a single, double, or triple row layout. Single row spacing means one irrigation line running down the middle of the fairway and double row would be two lines running down the middle of the fairway. Triangular spacing, often found in contemporary courses, uses a method of triangulation to ensure better distribution uniformity than square spacing.

Pump stations are necessary to control the flow of the water through the irrigation lines. James Garret, Golf Course Irrigation Engineer, writes in *Golf Course Design*, "Most of today's golf course pump stations are skid-mounted pre-engineered units that include multiple pumps, all required valves, and manifold piping. They typically have solid-state programmable logic controllers that sequence pumps on and off in response to irrigation system pressure and flow sensors at the pump station." Pump stations also include accurate flow meters that provide water management information to the superintendent. The pump house is typically a simple block or wood structure that is erected over the station. Some buildings in the northeast may be insulated with heat, but often times their only purpose is to keep motors of the pump station cool.

If the clubhouse acts as the central hub for golf activity, the maintenance shed acts as the central hub for maintenance activity. Location of the maintenance area tends to be toward the back of the course, hidden from view, but easily accessible to multiple parts of the golf course. Comprised of one or

more buildings, the maintenance shed houses turf equipment, the mechanic's shop, the superintendents' offices, the employee break room, and intern housing. The maintenance area also houses chemical rooms, storage, gas pumps, waste bins, and turf or landscaping nurseries.

Standard turf equipment housed in the maintenance shed includes walking green mowers, triplexes, fairway mowers, gang mowers, aerators, chemical application equipment, bunker rakes, turf vehicles, tractors, and skid steers. Other equipment found at certain clubs includes front-end loaders, backhoes, boom lifts, water trucks, and wood chippers. Typically a golf facility may lease a portion of their equipment through a local dealer like John Deere or Toro, but they also own larger pieces of equipment.

Since the 1960s, cart paths have been a major component of golf courses. Most courses built before the 1960s have added cart paths and carts to ensure they maintain their rounds played. Golf used to be a walking game. There were no tee boxes; rather, the player would tee anywhere within two club lengths of the previous green (Adams and Rooney). With larger sites, undulating inland topography, longer courses, and the "sausage link" routing of residential courses, carts became necessary to keep certain demographics playing golf. Cart paths begin at the clubhouse and sequentially follow all holes on the course until circling back to the clubhouse. Tributary paths lead to the maintenance shed, practice facility, rest stations, and parking lots. The width of the cart path varies depending on the level of traffic. For one-way traffic, seven feet is standard; for

two-way traffic around the clubhouse, practice facility, and staging area, a minimum of ten feet is required. Paths are made from a variety of materials such as concrete, asphalt, pervious pavement, pavers, crushed gravel, or dirt. Cart paths have multiple reuse potential as trails or bike paths.

Other facilities found on certain golf courses include tennis courts, swimming pools, pool houses, and fitness centers. These features are typically found on private courses where the membership base consists of families. The final consideration for the components of a golf course includes the furniture, fixtures, and equipment. These include, but are not limited to, golf carts (often leased), computers, copiers, office furniture, bar fixtures, televisions, tables, benches, dedicated restroom/rest areas, outdoor-lighting, and kitchen appliances.

These common components define the foundation of a typical golf course and provide a basis for assessing appropriate types of repurposing. The size and shape of the site, its region, the number of holes and length of the course, the existing infrastructure, and the other features can help determine the potential uses of the site, other than golf. Rather than assessing how much money it will cost to remove a feature, developers can begin to assess the features on how well they can be sustainably repurposed. For example, instead of asking how much it would cost to tear out the irrigation system, they can begin to ask how much it may cost to repurpose that irrigation system for urban agriculture. How to assess will need to be addressed to define what may work, what will not work,

and what could work. Developer's buying bankrupt golf courses could potentially save hundreds of thousands of dollars if they choose to retrofit existing structures, reuse existing infrastructure, and strategically repurpose the existing open space and graded land.

Evaluating case studies of how bankrupt golf courses are currently being repurposed is a valuable way to understand what's currently being done in the golf industry. Each case study repurposed the golf course differently, some with justified reasons and others simply because it would yield the most profit. Some chose to repurpose golf course components and others chose to clear the entire property and start from scratch. Combined, case studies provide a snapshot of how the industry is repurposing golf courses and golf course components.

CHAPTER 5

CASE STUDIES

METHODS

To understand the possible repurposing applications on bankrupt golf courses, first it's important to find out what's currently happening. More than 800 golf courses have closed since 2000, providing a significant number of case studies open to examination. This makes it possible to answer two questions: "How are golf courses currently being repurposed," and, "Is it an adequately sustainable solution for the land?" After extensive research for courses that had closed or gone bankrupt and finding articles or information detailing why they closed and what was to be done with them, three case studies were chosen. The three case studies were selected because of the breadth of information surrounding their closing, the variety of repurposing solutions their owners chose to pursue, and how these three exemplify the vast majority of current golf course repurposing. The three case studies include Ironwood Country Club in Omaha, NE; Clear Lake Golf Course in Houston, TX; and Long Shadow Golf Course in Madison, GA.

The case study methodology breaks the course into four different categories: Course history, reasons for failure, how the course was repurposed,

and assessment of repurposing success. The history explains the background information identified in the previous chapter. Identifying components such as the original architect, year opened, type of course, acreage, location in the city, region, climate, usership, and amenities. This information helps analyze the new use and if it was the most appropriate choice. "Why it failed" focuses on the timeline of the closure, process of closure, and cause of closure. "What happened with it," details the process of deciding what to do with the property, how it was done, the significance or uniqueness of the project, and some of the general features and future issues. Finally, the conclusions portion of the case study analyzes the site using a grade sheet and discusses the course and how well it was repurposed.

The grade sheet determines the success of the repurposed golf course. It will be presented in table format comparing the original golf course with the repurposed application based on benefits the course/development provide, how well the course/development provide that benefit based on an A-F grade scale, and the importance of that benefit relative to the rest of the site, with "1" being most important and "3" being least important. Grades are determined subjectively based on information provided by members of the golfcourse/development team, literature found on the case studies, and course/development comparisons. Ultimately, successful repurposing is defined by how well the new use maintained or improved upon the previous social, economic, and environmental benefits offered by the golf course. As previously

described, a golf course offers eight major benefits: it provides wildlife habitat, protects topsoil from water and wind erosion, improves community aesthetics, absorbs and filters rain, improves health and reduces stress, improves air quality, captures and cleanses runoff in urban areas and discourages pests, and makes substantial contributions to the communities economy (USGA). Using sustainable benefits as a foundation to grade all repurposed golf courses allows for analysis and discussion of the success or failure of these sites. The goal is to provide direction and options to those who have or desire sustainable business plans, but have not considered developing on a bankrupt or closed golf course. The grade sheet methodology was derived from a similar assessment tool used by Golf Club Consulting, Inc. based out of Glenwood Springs, CO. Sources of information came from informal communication with owners, developers, architects, and government officials of each site as well as Internet resources.

DISCUSSION

Of the 800 courses closed since the year 2000, these three case studies represent a majority of the repurposing going on in the country. Often time the site is stripped, graded, and turned into big box or mixed use development; or local government purchases the land for recreation or infrastructure purposes; or there is an attempt to resurrect the golf course, tweak it, and make it successful. Other repurposing applications include conservation or rerouting the course to make room for a community center or age-restricted housing.

No model currently exists for repurposing a golf course, and it would be very difficult to find a model that applies to all sites. As discovered in this chapter and the previous chapter, each course offers a different set of variables that dictate the appropriate application for reuse. Everything from location, climate, surrounding demand and supply, course features, course amenities, course layout, ownership, financial stability, to surrounding land use impacts how, when, and why the course should be repurposed.

The ability to sustainably repurpose a golf course largely depends on the owner and the financial status of the course. One with no debt that's experiencing financial trouble is a much better candidate for sustainable repurposing. As exemplified in the Clear Lake case study, this option comes down to more than the economic prosperity or feasibility of a project. The course can continue operation as the owner, local community, potential developers, and local government work holistically to find the most sustainable repurposing application.

Contrarily, a course indebted to a lender or recently foreclosed on has little control over the future of the site. The goal of the bank is to get the note off their books as quickly and profitably as possible. At Ironwood, First National Bank was able to secure a bid on the property for almost the entire amount of the outstanding debt. In this case, it was in their best interest to take the money and clear themselves of all responsibility. At Long Shadow, no offers or appraisals came close to the $2 million debt; therefore it was in their best interests to keep

the course operational and hopefully recoup some money from green fees. This strategy allowed the bank to wait for the market to shift or for a buyer to come and offer more money. When the bank dictates the future of the golf course, the only metric used to decide that future is economics. In the simplest terms, a bank will not take the lower of two bids just because one wants to build a WalMart and the other wants to put the course into conservation.

These case studies answer the question of what's happening now and if it is the appropriate repurposing for the site. They also begin to show that change can't rely on banks or owners to do the right thing. Rather, change must come from communities, local government, or creative entrepreneurs that realize golf course land has potential to be repurposed as something else. Often times the land is available for cents on the dollar. That reduces risk and lowers profit margins needed to survive. The major problem is many local governments or potential entrepreneurs do not realize the versatility of a golf course. The question then turns to how can golf courses be sustainably repurposed.

CASE STUDY 1: IRONWOOD COUNTRY CLUB

Ironwood Country Club was built by prominent Midwestern golf architect, Bill Langford, in 1924. The private, 18-hole regulation parkland layout sat on 153 acres of land on the western edge of Omaha, Nebraska. In the 1960s, the course was enveloped by suburban development. The geographic center of the city shifted further west as Omaha grew and sprawled away from the Missouri

river. By the mid 2000s, Ironwood was positioned within a mile of the geographic city center and was surrounded by real estate, commercial, and corporate development. Omaha lies in the west north central census region with humid continental (warm summer) climate.

Figure 5.1 - Aerial of Ironwood Country Club Dated August 2010

Originally named Highland Country Club, the course was funded by the local Jewish community in response to other country clubs in Omaha banning Jewish members. Not until the 1980s, and particularly after 2001 when the

course was renamed Ironwood and seeking membership, was the club more receptive to a completely interfaith membership. In the mid-1980s, Warren Buffett was one of the first non-Jewish members to join the club, and did so as a sign of anti-discrimination.

In addition to the core layout and 6,700 yard course, the club had a number of amenities. The 153 acres of land had hundreds of mature cottonwood, maple, oak, and pine trees coupled with a natural creek that ran across the Southwestern portion of the property. The club had a putting green, 15 tee driving range, and practice hole with sand hazards. One public access point existed on the north side of the property, connecting it to Pacific Street, a main artery in town. The maintenance facility could be accessed on the west side of the property off 132nd street, another major artery. The course had a fully integrated cement cart path and a fleet of owned carts available for rent. The irrigation system was double-line square design using a municipal water source feeding four man-made irrigation ponds.

In 1999, club ownership believed that in order to compete with neighboring country clubs, they needed to renovate their facilities. For years they lost social and golf members to neighboring clubs that either had better family-friendly facilities or newer golf development. In 1999 the club borrowed $10.7 million from First National Bank to finance the new clubhouse, additional parking, cart storage, two new tennis courts, new pool, and pool house (Bergley). Construction was finished in 2001 and the course officially changed their name

from Highland Country Club to Ironwood Country Club. Renovations completed in 2001 provided the club with a new 100,000 square foot clubhouse complete with underground cart storage, restaurant, banquet hall, locker rooms, storage, and offices. The renovations also expanded the parking lot, added two new tennis courts to the existing two, and added a pool with pool house and waterslide.

The club began losing members during construction of the clubhouse, but hoped to regain and increase membership after 2001. Unfortunately, new members never joined. With most of the social membership gone to neighboring clubs, Ironwood issued an assessment to current golf members to help repay the loan. More than 100 members chose to leave, rather than pay the assessment. Originally maintained with 350 golf and 250 social members, Ironwood was left with 250 total members by 2006. In November of 2009, First National Bank foreclosed on the $10.7 million loan and put the land up for bid at auction in December of 2009.

Chip James, president of Lockwood Development, knew the club was having trouble prior to foreclosure and had his team draw preliminary plans for repurposing should it ever go up for sale. In December of 2009, only one month after the bank foreclosed on the property, Lockwood Development bought the site via auction for approximately $10 million. They were the only bidders, besides the bank setting the floor amount for the property. Similar properties in West Omaha sold for $3.50 - $4.00 per square foot, Lockwood bought Ironwood for just under $1.50 per square foot. Vice President of Lockwood Development,

Bob Bergley said of their interest in the site, “It was 153 acres in the middle of the city that was a great opportunity and could be bought right” (Bergley).

Lockwood Development closed the deal in January of 2010 and renamed the new development Sterling Ridge. Seeing that it would take a year to plat the property, rezone it as a mixed-use facility, go through the planning department, planning board, and city council vote approval, they hired a management company to continue operating, but this time as a daily fee public course. According to Mr. Bergley, no serious consideration was given to keep Sterling Ridge a golf course, but this was a good way to minimize losses during the planning process and give the community a chance to play the once private course.

The site plan originally proposed a mixed-used development with office space, retail, and multi-family housing. Lockwood invited community members to the local school, showed them the plans, and asked for their input. The community showed concern for the removal of green space, they objected to the removal of trees, and were strongly against multi-family housing. Lockwood Development heeded the advice of the community and nixed the planned apartments, but with the backing of the city and local government moved forward with the mixed-use development. The city believed it would increase the tax base and Lockwood saw the development as the most profitable option. Mr. Bergley describes the current relationship with neighbors as “decent”, but believes the course could have been a big box development or celebrity home

had Lockwood not been interested. He remains adamant that this application was the better alternative for the city and the neighbors.

Shortly after the auction, representatives of the Tri-Faith Initiative approached Lockwood about purchasing a parcel at Sterling Ridge. Tri-Faith Initiative includes members of the three Abrahamic religions: Islam, Judaism, and Christianity, and their goal is "to promote mutual respect for one's own religion and serve God in his/her own way." They wanted to create a center that includes a Jewish temple, an Episcopal Church, and Islamic temple forming a multi-faith neighborhood. The Tri-Faith Initiative is the first of its kind in the world. After hearing the opposition to the proposed multi-family housing, Lockwood became eager to replace it with the religious center.

Of the 25-platted parcels, three were sold to the Tri-Faith Organization and the rest were to be developed by Lockwood. The plans, as shown in Figure 5.2, called for removal of all amenities, including the clubhouse, trees, irrigation system, tennis courts, and swimming pool. The clubhouse had potential to be reused as assisted living or family housing, but Lockwood believed the building was oddly designed and conflicted with the new plans to redirect the entrance road. Instead, an auction was held to sell off as many items as possible from the clubhouse, maintenance, and course. Before demolition, firefighters were also able to use the roof and interior for training. More than 200 trees were relocated from the course to the back of the property, but many were diseased or rotting

and had to be harvested. After demolition, roads, utilities and infrastructure were installed and construction of commercial and retail buildings could commence.

Figure 5.2: Sterling Ridge Development Plans (Initiative)

The Tri-Faith Initiative is the only unique building feature or concept at Sterling Ridge. The rest of the Sterling Ridge development is a standard mixed-use facility that will have 800,000 square feet of Class-A office space and retail

space, 42 single-family residential lots, and an assisted living center. Outside of fountains and sculptures, no unique landscape features exist on site. Stormwater is captured and removed as quickly as possible. Lockwood planned for the development to be completed by 2017-2020, and it appears the project is on track to be complete within that timeframe. Sterling Ridge is currently still selling single-family lots and office space. The construction phase is on going and the first office building, Millard Electric, is set to open in fall of 2013.

Sterling Ridge's presence will increase the tax base and boost the economy, but as shown in Table 5.1, it is my opinion that this repuprosing falls well short of the environmental and social benefits previously offered by Ironwood. In seven of the eight grade sheet categories, the development fails to maintain the previous benefits offered by the golf course. The amount of wildlife on site has been drastically reduced during construction and will most likely remain low post-occupancy. Rough, trees, native grass, and open areas occupy more than 70% of the acreage on a golf course and are places where most wildlife spends their time. The installment of impervious surface will have the biggest impact on reduced wildlife habitat, but other factors such as increased human and vehicular traffic will also cause adverse effects.

Protecting topsoil from wind and water erosion is compromised as more impervious surface replaces topsoil. Community aesthetics have been reduced with the removal of green space and addition of impervious cover. Noise pollution will increase from construction and post-occupancy traffic and the

impervious surface and glass-faced buildings will increase the urban heat island effect. Most importantly, 153 acres of lush green space in a highly developed part of town is being replaced with mixed-use development. With less turf and trees to offset vehicles and HVAC units, air quality at Sterling Ridge will reduce dramatically compared with Ironwood. Turf and trees promote a cooler environment, while pavement and office buildings will promote the urban heat island effect.

Table 5.1 – Grade Sheet for Ironwood Country Club

Comparing Benefits of Ironwood Country Club and Sterling Ridge					
Ironwood Country Club			Sterling Ridge		
Benefit	Rate (A-F)	Importance (1-3)	Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	B	1	Protect Wildlife	C	1
Protect Topsoil	A	2	Protect Topsoil	D	2
Community Aesthetics	A	2	Community Aesthetics	C	2
Infiltrate Rain	A	1	Infiltrate Rain	D	1
Promote Health/Reduce Stress	A	1	Promote Health/Reduce Stress	B	1
Improve Air Quality	A	1	Improve Air Quality	D	1
Reduce Runoff	A	1	Reduce Runoff	D	1
Stimulate Economy	B	1	Stimulate Economy	A	1

The site will no longer be able to absorb and filter rain as it once did. Instead, stormwater is now captured as quickly as possible via drains and moved offsite. The effects of erosion upon neighboring streams will be felt immediately. CFS and flow rate numbers will increase dramatically at outlet points. The amount of runoff captured from parking lots that house vehicles and dumpsters increase the potential for water quality issues in neighboring streams.

Opportunities for health improvement and stress reduction will slightly diminish. Ironwood was a private club, and provided an abundance of outdoor exercise opportunities for limited members. Sterling Ridge will offer limited public walking paths around the site. Well-maintained landscapes and design has shown to improve worker attitude and office dwellers at Sterling Ridge will overlook well-designed, manicured landscapes. Unfortunately, parking lots, retail space, and other office buildings fracture the landscape. Sterling Ridge will make substantial contributions to the community's economy. The contribution to the economy outweighs that previously offered by the golf course. 800,000 square feet of office space and retail will immediately impact Omaha's economy.

Sterling Ridge is an example of a typical mixed-used development. First National Bank wanted to part with the property as quickly and as profitably as possible. The developer wanted to achieve the maximum amount of profit on the land. Bob Bergley was correct in saying it could have been worse for the neighbors if a big box store or celebrity housing development bought the site. Lockwood Development made an effort to hear the neighbor's criticism of the

plan and give their thoughts on development, but ultimately what the neighbors wanted and what Lockwood wanted were two very different things. Lockwood went ahead with the original plan – minus the multi-family housing – and made a significant impact with the sale of three parcels to the Tri-Faith Initiative. The lack of rainwater and stormwater capture, trails, and green space is disappointing for a site that had been nothing but green space for over 90 years.

CASE STUDY 2: CLEAR LAKE GOLF COURSE

Jay Riviere designed Clear Lake Golf Course in 1963 in Houston, Texas. Clear Lake was the first golf course community built in Texas. The 18-hole regulation course was spread through two subdivisions and amassed 173 acres of land. In 1989 the Clear Lake began operating as a privately owned, public daily fee course. In 2001 Renaissance Golf Group, LLC bought Clear Lake for $4 million. The course sits in a suburb of Houston called Clear Lake and is located just minutes from Galveston Bay and the Gulf and Mexico. Houston falls into the South Central census region and experiences a humid subtropical climate. The entire course uses a subtropical perennial Bermuda grass.

The unique V-shaped single-fairway layout offered many unique site features and amenities. A fully integrated cart system connected the holes and included above ground cross over of one boulevard and one neighborhood road. Running through the middle of the layout was stormwater and flood control drainage that was part of a bigger, citywide system. Other water features on site

included two irrigation ponds fed by municipal water. A single-story clubhouse was featured on site as well as a maintenance shed with an underground fuel tank. Practice facilities included a putting green, chipping green with sand bunkers, and grass driving range. The surrounding land use was almost entirely residential.

Figure 5.3 - Aerial of Clear Lake Golf Course from July 2005

In 2004, Renaissance Golf Group (RGG) approached State Representative John Davis about turning the course into a subdivision. As more

residents became aware of RGG's plans to close the course and develop it as high-density subdivisions, they became concerned. In February 2005 neighbors of Clear Lake Golf Course formed a community group in opposition of the proposed residential development (CLCCL). The course was destined for closure and could no longer compete with surrounding courses without investing millions more in capital renovations. Therefore, in April of 2005, RGG announced Clear Lake Golf Course would close (CLCCL). At this time, more than 3,200 residents had signed a petition against a housing development at Clear Lake. To make matters more confusing, in 1991 a restriction was placed on the land by Exxon Land Development (ELD) requiring the land remain a golf course until 2021. After the course officially closed in July 2005 it went for sale in August. At this time, Clear Lake City Water Authority (CLCWA) conducted preliminary hydrology assessments to determine the viability of a water detention facility and in November began consideration of purchasing the course (CLCCL).

In March of 2007, RGG officially filed suit against ELD in state district court in an effort to break and eliminate the deed restriction. The RGG desired to use the course for its "highest and best use" without the land constraints, and argued that if the restriction was not lifted, they would sell the course anyway where it would sit abandoned until 2021. The Clear Lake City Civic League (CLCCL) and CLCWA both filed petitions in intervention against RGG in their deed restriction suit. In turn, the owners filed to block CLCCL and CLCWA from joining the suit. Shortly after the petition of intervention was filed, CLCWA began the process of

acquiring the golf course via eminent domain by filing suit to condemn the property. The CLCWA commissioned and received three appraisals for the golf course. The board agreed to select the middle appraisal that amounted to $1,395,000 and sent a “letter of last offer” to RGG (CLCCL).

In May of 2007, support began for State House Bill 3232 that would restrict development of subdivision golf courses like Clear Lake (CLCCL). In June, the bill was signed into law, and effective immediately, the new law explicitly identified neighbors within 200 feet of a golf course boundary as stakeholders in the redevelopment, and ensured they had legal standing to be involved in the redevelopment process. Now, the community who opposed the redevelopment had a legal say in determining how it would be developed.

In January of 2008, CLCWA’s condemnation of the golf course case was set for trial. To be decided were issues about the right to condemn, the amount of land needed for public purpose, and fair value of the land to be decided. After being delayed three times, the case was finally heard in November of 2009 and ruled in favor of RGG in February of 2009 (CLCCL). The jurors returned a mixed verdict about the right of CLCWA to condemn the course for purposes of drainage and flood control. They also placed a value of the property at $5.1 million. This meant CLCWA had to go to the State Court of Appeals to make a final decision. In April 2010, the RGG vs. Exxon Deed restriction case resumed after nearly three years of temporary suspension.

In April of 2011, the State Court of Appeals decided in favor of CLCWA's condemnation of former golf course property (CLCCL). Rather than appeal the ruling to the Texas Supreme Court, RGG approached CLCWA with an offer to sell the property outright and drop ongoing legal disputes. Finally, in May of 2011, nearly six years after first resolving to acquire the golf course, CLCWA purchased the property for $6.25 million under the condition that RGG demolish and remove any existing or dangerous structures plus remediation of any hazardous or dangerous environmental hazards prior to closing (CLCCL). This required demolition of the clubhouse, which had been left vacant for years, was overrun with homeless, and recently succumbed to fire. This also meant the removal and remediation of the underground fuel tank near the maintenance area.

If the CLCWA had acquired the property through condemnation, they would have been responsible for all demolition and remediation on site. If allowed to become high-density development, CLCWA would have incurred huge expenses installing larger water and sewer lines. The original lines in the areas were sized based on the master plan indicating the land remained low-density golf course of recreation. Although the $6.25 million price tag was much higher than their initial appraisal, the water authority avoided inheriting potentially crippling costs.

Currently, Harris County agrees to mow the flood control ditches that run through the middle of the course while CLCWA mows the rest of the 178 acres

twice a month from March-September and once a month from October-February (Branch). After the purchase, CLCWA worked with Harris County on the design of the detention facilities and developed partnerships with Houston and other local governments to build detention ponds and create recreational and conservation amenities. A town hall meeting was called in February 2012 to inform the public of CLCWA's desire to create amenities in the flood control design (Branch). A request was made for citizens to serve on an Advisory Group to provide input on what the community would like to see incorporated into the design. In February of 2013, a Master Plan of the facility was presented to the public with the ultimate goal of pooling resources from multiple layers of government to enhance the flood control design by incorporating multiple uses (CLCWA). As shown in Figure 5.4, general features of the new detention facility include parking and picnic areas, a kayak dock for open water kayaking, practice fields, a multi-use main trail along the perimeter of the site, a riverside footpath, bottomland reforestation, wetlands, open water, habitat islands, a new street bridge, and a new pedestrian bridge.

The significance of this purchase should not be overlooked. The reuse of a golf course as a water detention facility is a spotlight project and unique because of the amount of effort and resources poured into this site by the water authority and the community. In the future, coastal towns looking to protect against sea level rise or flooding may look to Clear Lake as an example for utilizing exhausted, existing resources and repurposing them to fit a need.

Figure 5.4 - CLCWA Proposed Master Plan for former Clear Lake Golf Course

As shown in Table 5.2, the new water detention facility will improve upon the social and environmental benefits the golf course offered, and the economic impact may be realized in potential disaster fund savings and indirect economic benefits. Wildlife habitat will increase with the implementation of bottomland reforestation, wetlands, open water, and habitat islands. Biodiversity will attract more species of wildlife to the area and the reforestation and addition of vegetated areas will increase the carry capacity of Clear Lake Golf Course. Water and wind erosion of topsoil will not be at risk, however, much of the topsoil on site will be removed to construct the detention ponds. The new facility will offer improved community aesthetics by reforesting the golf course, landscaping with native plants, and diversifying plant species. Health benefits and stress

reduction will be improved by offering a more diverse selection of passive and active recreationall components that target a larger audience. These components include two sets of trails for biking and hiking, practice fields, a new pedestrian bridge, kayaking, and new wildlife features.

Table 5.2 – Grade Sheet for Clear Lake Golf Course

Comparing Benefits of Clear Lake Golf Course and CLCWA Water Detention Facility					
Clear Lake Golf Course			CLCWA Water Detention Facility		
Benefit	Rate (A-F)	Importance (1-3)	Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	B	1	Protect Wildlife	A	1
Protect Topsoil	B	3	Protect Topsoil	C	3
Community Aesthetics	B	1	Community Aesthetics	A	1
Infiltrate Rain	B	1	Infiltrate Rain	A	1
Promote Health/Reduce Stress	A	1	Promote Health/Reduce Stress	A	1
Improve Air Quality	A	2	Improve Air Quality	A	2
Reduce Runoff	B	1	Reduce Runoff	A	1
Stimulate Economy	B	2	Stimulate Economy	B	2

One of the biggest advantages of the water detention facility is the improvement in absorbing and filtering rain. The golf course and neighboring subdivisions sit at or above sea level and flooding is a major concern. This

facility will control flood levels much better than the golf course and will capture and retain water on site. It will perform better at cleansing and reducing runoff as well as protecting other water bodies from erosion. By limiting impervious cover and building footprints, the urban heat island effect will remain non-existent and air-quality will continue to be clean. The economic impact of the new facility relative to the old golf course is unclear. A mixed use, high-density development would have made more of an immediate economic contribution, but potential savings this facility may provide in the future could be in the tens of millions. Ultimately, the social and environmental benefits of the water detention facility are better for the community, the land, and the city's future.

The Clear Lake Golf Course case study differs from the others because the course was not bankrupt. RGG ceased operation because it was more cost effective to let the course sit vacant than to operate. The fact that this was not a foreclosure situation ultimately benefited the community and the local government and gave them more time to formulate a strategy. The community had time to learn about the goals of the owner, decide if they aligned with the community goals, form alliances, reach out to local authorities, and develop an alternative plan. This is a great example of how small local government can avert a potentially disastrous situation for community members. In response, the community took initiative by protecting their local resources and green space by staying current with local issues, educating fellow neighbors about the owner's plans, generating petitions and getting signatures, proposing new bills that gave

them a voice, creating advisory boards and groups, and holding volunteer days and fundraisers. The CLCWA undertook an expensive fight against an owner who sought profit and ignored the wishes of the surrounding community. They stayed committed to the project for more than six years and were finally able to see their work come to fruition in the form of a much needed and much wanted water detention facility with recreational amenities.

CASE STUDY 3: LONG SHADOW GOLF COURSE

Long Shadow Golf Course recently opened in 2006 just south of Madison, Georgia and Interstate 20 and closed three years later in 2009. Local Athenian golf architect Mike Young designed the 18-hole regulation course as part of an 1,100 acre planed residential development that sat on a former dairy farm. The 7,356 yard layout used perennial Bermuda grass to accommodate the humid subtropical climate in the South Atlantic Region. The course was privately owned and managed by developer Paul Donnelly and operated as a public daily fee course. Madison, Georgia is an historic rural town with a population of 3,999 and Long Shadow was the only course within a 20-mile radius. The course had many natural amenities, but little was invested in the infrastructure. The irrigation system was designed simply and effeciently. No clubhouse existed on site, rather, Mr. Donnelly used a trailer to collect greens fees and run a small pro shop. The course had a fully integrated cart path system with rental carts available and offered a 30 tee driving range. Multiple natural creeks run through

the site as well as several lakes and irrigation ponds. Fescue grass frames each hole and runs through the entire property. Long Shadow was to be the centerpiece of Madison Lakes, a residential development. It was a well-designed course and aimed to provide fun golf to visitors without burdening the owner with a large clubhouse or outrageous maintenance bills.

Long Shadow is significant because of its location and unique because of its management practice relative to other courses in the state. The course sits just south of Madison, Georgia near the intersection of Highway 441 and Interstate 20. This intersection provides a gateway to the four major cities in Georgia – Athens, Atlanta, Augusta, and Macon – and receives tourism traffic through the historic town of Madison. The closest golf course is 20 miles northeast of Madison and Reynolds Plantation is 30 miles southwest. Long Shadow is located at a nexus in Georgia and offers one of the few golf courses in the area.

Originally Mr. Donnelly planned to build single-family homes and adult or over-55 housing, and market the course as an amenity. No one expected Long Shadow to turn a profit, but rather it was expected to sell homes and dictate a way of life at Madison Lakes. However, the course was highly rated, reaching as high as 4th on Golfweek magazines best courses available for public play in Georgia. The development was modeled after Reynolds Plantation just a half hour away. With six, 18-hole signatures courses and more than 3,500 residents occupying thousands of acres on Lake Oconee, Reynolds Plantation seemed like the

perfect model to follow. Unfortunately, using their model as a template was sadly ironic as the owners of Reynolds struggled to stay afloat and offered the homeowner's association the opportunity to buy the development in 2010 for $43 million, which they refused.

Figure 5.5 - Aerial of Long Shadow Golf Course from October 2011

Madison Lakes lasted just three years before Mr. Donnelly lost the course in default action with United Bank in lieu of default for $2 million debt (plus interest) payments. The course was left to sit unmaintained during severe drought for nearly two years while the bank decided what to do. Finally, in 2011,

the bank foreclosed and took over ownership of the course. According to Mike Young, “When lots quit selling, no one knew how to make the golf work by itself.”

In late 2011, the bank hired the original architect, Mike Young, to manage the course while they decided its future. Young’s deal with United Bank paid him a monthly fee and he received a portion of the revenue generated from the course. The goal was to break even or lose less money than just having the course sit there. To operate a course in this nature, a main consideration is the amenities. With profit margins already thin, a successful operation cannot be bogged down with unnecessary features. Long Shadow’s lack of amenities actually made it easier to run the golf course. A big clubhouse would have required maintenance, upkeep, and staff. Instead, Long Shadow continued to collect green fees and operate the pro shop out of a trailer, drastically reducing costs. No trees on site made the turfgrass maintenance easier due to the lack of leaf litter, non-existent tree management, and an abundance of sun for healthy turf conditions. Finally, the minimal irrigation system was low cost, easy to care for, and reduced energy and water consumption.

Originally, the bank hired Young to maintain and manage the course so it would not be destroyed by drought and heat and could sell it at a higher price when the market came around. In late 2012, the bank decided they wanted to shut the course down, but Young and his team continued to operate the course silently. In February of 2013, Young officially bought the course from United Bank. As of March of 2013, plans are in progress to renovate bunkers and

greens that will improve the architecture and the golf course. Long Shadow is expected to reopen to the public in the fall of 2013.

The management structure allows Young to charge lower green fees and make golf an affordable recreation activity. The model for many public golf courses in Georgia is to have a big clubhouse, overwatered and lush green fairways, an abundance of landscaping, and high greens fees. The lack of good golf architecture is hidden by these amenities. Young's model is the antithesis of traditional Georgia golf. He won't have a clubhouse, the fairways may be brown, there won't be landscaping, and he'll have affordable greens fees. It is a significant course as it breaks the mold of what Georgia golf has been.

As shown in Table 5.3, the grade sheet does not change much for this repurposing. Wildlife habitat, topsoil protection, community aesthetics, absorption of rain, increased health and reduced stress, air quality, and captured runoff all maintain their initial benefits compared when the course was originally built in 2006. The contributions to the economy will stay relatively similar, however, instead of trying to break-even the course will aim to produce revenue. Debt no longer lingers in the background and the goals have shifted. The course is no longer an amenity to residential development, but rather a golf course that aims to be a steward of exceptional architecture, responsible management, and environmental sensitivity.

It is common to see a bankrupt golf course try repurposing itself again as a golf course, but this rarely works, and is usually at the detriment of neighboring

courses. Banks are unfamiliar with managing and operating golf courses; therefore they hire management companies to run them or they choose to sell them cheaply to a developer (Mahaffey).

Table 5.3 – Grade Sheet for Long Shadow Golf Course

Comparing Benefits of Long Shadow Golf Course Pre and Post Bankruptcy					
Long Shadow Pre-Bankruptcy			Long Shadow Post Bankruptcy		
Benefit	Rate (A-F)	Importance (1-3)	Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	B	2	Protect Wildlife	B	2
Protect Topsoil	B	2	Protect Topsoil	B	2
Community Aesthetics	A	1	Community Aesthetics	A	2
Infiltrate Rain	A	1	Infiltrate Rain	A	1
Promote Health/Reduce Stress	A	1	Promote Health/Reduce Stress	A	1
Improve Air Quality	A	2	Improve Air Quality	A	2
Reduce Runoff	A	2	Reduce Runoff	A	2
Stimulate Economy	B	2	Stimulate Economy	B	1

Unfortunately, the new owner or management team often makes similar mistakes to those that caused the course to fall into financial trouble in the first place. Namely, more loans are floated to make capital improvements, more maintenance or landscaping is required, and/or the inherent problems like a poor

site, lack of population or demand, or a poor design are ignored. In metropolitan areas with many struggling golf courses, the over health of the golf market improves when one or two courses close because the same amount of demand (golfers) is distributed to a smaller supply (golf courses). Typically, when a bankrupt course repurposes itself as a golf course, the market remains oversaturated, but the once bankrupt golf course is not relieved of its debt and can undercut competing courses with lower prices or better membership incentives.

At Long Shadow, the opportunity to try and operate the course again under new management made sense. The first attempt to operate the course was under a residential development method that proved to cause future problems. However, the inherent features of the course like good architecture, healthy demand for golf, and a well-situated site proved that the course could work with a proper management philosophy. Additionally, the course was bought from the bank for 10 cents on the dollar and the owner could now operate with zero debt. On top of that, the lack of amenities gave Mike Young a lower overhead and his profit margins were much higher. This allowed him to keep the greens fees lower, attract a healthy base of golfers, and compete with other courses in the market.

CHAPTER 6

RECOMMENDATIONS FOR REPURPOSINGS

FUTURE OF GOLF COURSE DEVELOPMENT

The future of public golf in the United States will be tumultuous over the next ten years. According to the National Golf Foundation, approximately 1,000-2,500 courses are projected to close in the next decade; the most at-risk include 9-hole courses built in the 1950s and 1960s, executive courses, par-3 courses, rural area courses, and high-end/highly leveraged debt courses (Beditz *The Future of Public Golf in America*). Thus, the trend of 100-150 courses closing per year will likely continue for the next decade. Ironically, many of these courses were successful before the 90s, but have since been the ones to suffer from the drop in demand and oversaturation in the past 10 years. More closings may be sold for real-estate development if the housing market continues to rebound and owners of financially unstable courses have a chance to sell land for "higher and better" use. As a precaution, the National Golf Foundation has been wrong before, as recently as the "Build A Course A Day" proposal in 1988 when the demand they projected never materialized and the market saturation created from the proposal was a catalyst for some of the financial issues the golf industry is dealing with today.

"Higher and better" use typically refers to profitable redevelopment, but rarely is a course being sold for the "higher and better" use of the land or the surrounding community. Other uses exist that not only achieve economic sustainability, but also social and environment sustainability. Applications such as urban agriculture, wind energy, tree farming, constructed wetlands, and parks offer a "higher and better" use that targets all three legs of sustainability.

Plenty of available public golf and demand for public golf remains. Core golfers, the driving force of the market, are expected to maintain their participation over the next 10 years and more than 25 million Americans express latent demand to play golf (Beditz *The Future of Public Golf in America*). Demand for the sport is stable, but not expected to see wholesale increases in the next decade. At the expense of owners and benefit to golfers, public golf is widely accessible across the United States. From 2003-2011, more than 1,000 courses closed in the United States, representing a 6.3% decrease in overall golf course supply. However, net change during the same time span, which includes course openings, resulted in less than a 1% decrease in overall golf course supply. For the golf industry to reach equilibrium, net golf course supply must shrink by 5-10% in the next decade (Beditz *The Future of Public Golf in America*). A 5-10% net decrease in supply will increase the health of remaining courses by gaining back golf rounds lost to oversaturation. However, while the market strives to reach equilibrium, construction of public courses will remain low for another decade.

Private golf has fallen on similar hardships as public golf. Ten to fifteen percent, or 500+, private clubs, report serious financial challenges (Beditz *The Future of Private Golf Clubs in America*). The biggest indicator of financial instability for private clubs is a decline in membership. Consequently, clubs are trying a number of different solutions to regain membership or keep existing members. An unhealthy or at-risk club is prone to offering special membership prices or reduced initiation fees to boost numbers. Other clubs have introduced new, expanded programming to engage families, children, and women (Shackelford). Some of the healthier clubs choose to make capital improvements to the golf course or clubhouse in an effort to retain membership or add prospective members. Each country club is different and no universal model exists for success.

Country clubs will continue to be a part of the social fabric in America. They still provide socially intimate, high-quality golfing experiences, but they must consider a further reach into the community if experiencing financial instability. Clubs with declining membership should consider opening their doors to public play before operating at a deficit. They should conduct an objective analysis about the demand for golf in their area and prepare financial forecasts in an effort to develop a strategic plan (Beditz *The Future of Private Golf Clubs in America*).

Some golf courses are not in debt and are just operating at a loss, but many still carry debt held by a lender. Once foreclosed, these courses have little say in how the land should be repurposed. The bank's concern is relief from the

property as quickly and profitably as possible. Consequently, lenders will sell the property for a fraction of its appraised value to avoid management and maintenance fees and hassles. This creates opportunity for municipalities, businesses, corporations, or entrepreneurs to purchase former golf courses at reasonable prices and retrofit the existing site and infrastructure to meet their needs. As evidenced in previous chapters, a golf course offers a number of existing site features, amenities, and potential for sustainable repurposing - repurposing that could not only benefit the economy, but the community and environment as well.

WHAT CAN BE DONE

A number of different factors determine the sustainable repurposing of a golf course. Existing parameters such region, climate, acreage, natural landforms, surrounding land use, and resources and amenities available contribute to the reuse decision. Other parameters are determined by the benefits the repurposed option offers to the community, the environment, and the economy. Finally, a major consideration must be protecting, preserving, and/or providing water, food, and energy for future generations.

At their core, sustainably repurposed golf courses should offer the same or improved benefits that the golf course once did. As previously noted, the USGA determined that a golf course offers nine main benefits: provides wildlife habitat, protects topsoil, improves community aesthetics, infiltrates water, improves

health and reduces stress, improves air quality, captures and cleanses stormwater runoff and reduces pests, restores damaged land areas, and makes substantial contributions to the community's economy.

These benefits align with the expected shift in resource priorities during the 21st century – from oil and fossil fuels to water, food, and energy conservation/production. As population rises, so does demand for natural resources, concern about food security and water security, energy production, and effects of climate change. According to the American Geosciences Institute, the top two critical needs in the 21st Century are ensuring reliable energy supplies and providing sufficient supplies of water (AGI). One of the key goals of sustainable development is not to compromise the needs of future generations. Bankrupt or financially unstable golf courses can allocate prime land towards ensuring food security, reliable energy supply, and sufficient water supply for the 21st Century.

Therefore, outlined below are five potential golf course repurposing options including agriculture, energy production, wetland treatment facilities, silviculture, and parks. Other potential repurposing solutions explained in less detail include lake developments, conservation easements, and management solutions. Selecting an appropriate option should be guided by assessment of how they fit the framework of existing parameters and offered benefits, region and land use compatibility, and what types of golf courses would best be applied. Once again, a grade sheet was used to determine how well the repurposing

application would maintain or improve benefits previously offered by the golf course. It will be presented in table format with the eight USGA benefits, how well the repurposing applications provide that benefit based on an A-F grade scale, and the importance of that benefit relative to the rest of the site, with “1” being most important and “3” being least important. Grades are determined subjectively based on information known about the application and research found about the application.

AGRICULTURE

Urban agriculture addresses a present and future need for improved food security and access to healthy, environmentally appropriate food. Many cities in America have food deserts that either lack availability or their stores only stock processed foods with no fresh alternatives. The cost of fresh produce is not affordable for many living below the poverty line.

Recently, a growing interest in local food and organic food has resurfaced in the United States (Pretty, Pilgrim and Pearson). Locally grown food improves sustainability through waste recycling, stormwater management, and reduced energy use (Sarah Taylor). Urban agriculture adheres to the principles of smart growth that encourages integration of mixed land uses to provide community needs within a walkable distance (Duany, Speck and Lydon). Cities like Portland, Seattle, Detroit, and Denver have already began retrofitting brownfields and suburban landscapes with sustainable agroecosystems, turning oversized

lawn or recreational areas that were once agricultural land back into productive spaces.

Along with brownfields, bankrupt or financially unstable golf courses are suitable for an urban agriculture application. Encompassed within urban agriculture are fruit orchards, vineyards, crop production, mushroom farms, herb gardens, or medicinal plant farms. The necessary land for these applications varies depending on the specific growing climate needed for a certain product, however, most require soil content with large quantity of organic matter; water retention for supportive growth; irrigation system and water sources; growing season with warm, humid days and adequate rainfall; and infrastructure to transport and store crops (Sarah Taylor).

Golf courses provide a number of these necessities. Many courses across the United States are built in areas with proper turfgrass growing conditions. These conditions translate well to urban agriculture. From tee to green, cleared and graded swathes of irrigated land with rich soil sit readily available. An irrigation system can be retrofitted cheaply and easily to conform to agriculture watering practices (Mahaffey). On-site access via cart path, entrance roads, and maintenance roads are available for transportation and maintenance sheds and storage areas already erected can be retrofitted to store produce. Course equipment such as tractors, utility vehicles, and mechanical equipment are available and reduce start-up costs.

Limitations to urban agriculture do exist. A primary constraint is competition from other land uses such as mixed-use development or real estate. As suitable as agriculture may have been at Ironwood Country Club in terms of environmental and social needs, paying $50,000 an acre was an unreasonable land cost for agricultural applications. Finding the appropriate land cost is vital for a maintaining a profitable and sustainable agricultural application. Another constraint is residents may prefer other uses to urban agriculture. Access to secure tenure on the land is another issue. More research is needed on the benefits people obtain from ecosystems and the value of ecosystem services to further promote the idea of urban agriculture (Sarah Taylor). More research is also needed on the perceived health risks of growing food in urban areas and how to dispel fact from fiction. This includes environmental impacts and comparisons of chemical use for agriculture compared to chemical use on golf courses.

The benefits of urban agriculture, as shown in Table 6.1, especially relative to what the golf course previously provided, outweigh the potential drawbacks. With the landscape and ecosystem remaining intact, many wildlife species will be able to adapt to the new land use. Although wildlife management around crops is necessary, other areas on the property will remain undisturbed and provide safe ground for animals, insects, and birds. Topsoil protection has been a point of contention for agriculturists for a long time. Often times the same crops were planted year after year on the same piece of ground until all topsoil

was stripped of its nutrients. Current sustainable farming practices place an emphasis on crop rotation, allowing fields to lie fallow for a season, and planting nitrogen-fixing crops such as beans to increase soil health (Sarah Taylor). Spreading composted waste and manure across fields helps revitalize topsoil as well. If these practices are not utilized, topsoil eventually degrades over time.

Urban agriculture would maintain and even increase the community aesthetics offered by the golf course. Noise pollution would still be kept to a minimum and local green space would be preserved. Included in the landscape would be a richer diversity of crops and native plants that would replace the low-diversity turfgrass. The land would also continue to capture, infiltrate, and treat stormwater on site. It would also act as a filter to cleanse dirty runoff. Air quality would remain consistent and the farm would continue to act as a carbon offset. If community gardens, walking trails, and education programs were established on urban agriculture sites, human health and stress reduction would remain at high levels. If the site did not provide recreational and physical health options, it would still provide access to a healthier, locally produced food alternative.

Farming can also be a social activity where people share food, knowledge, and labor. Through farming, children and adults can learn about food, nutrition, cooking, environment, economics, and culture (Sarah Taylor). By integrating locals into the farm activities, the community becomes stronger. Finally, urban agriculture brings economic revitalization and stabilization to the community by providing a local, sustainable food source. Locally produced food reduces the

embodied energy resulting from inputs, transport, and packaging (Sarah Taylor). The byproduct of agriculture, organic waste, can be composted and used as fertilizer for growing food or revitalizing topsoil.

Table 6.1 – Grade sheet for Urban Agriculture

Benefits of Urban Agriculture Relative to Previous Golf Course Benefits		
Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	C	2
Protect Topsoil	A	1
Community Aesthetics	A	2
Infiltrate Rain	A	1
Promote Health/Reduce Stress	A	1
Improve Air Quality	A	2
Reduce Runoff	A	2
Stimulate Economy	A	1

Because of their rainfall amount, climate, and soil structures, ideal urban agriculture regions include the West North Central, East North Central, Mid Atlantic, and portions of the South Atlantic. Smaller par 3 or executive courses in the urban corridor of these regions are ideally suited for repurposing as urban agriculture. Residential golf developments, especially those “double-barreled”

with homes on each side have potential to be platted and sold to farmers or homeowners associations.

ENERGY PRODUCTION

Wind plants represent another sustainable reuse of golf course land. These plants contain a number of turbines that use wind to generate electricity. The turbines are mounted on towers at or above 100 feet to take advantage of frequent wind speeds (AWEA/ASCE). Oftentimes turbines connect and feed energy back to a utility power grid. Electricity providers privately own most of the wind plants in the United States (AWEA/ASCE).

Wind plants require certain natural and infrastructural elements to operate efficiently and profitably. The National Renewable Energy Laboratory surveyed more than 170 wind plants across the United States and found that the majority use between 22 and 110 acres of land (NREL). The biggest determinant in the site of a wind plant is the wind resource potential. For this reason, many wind plants are found in the West North Central, Western South Central, Northern Mountain, and Pacific Regions of the United States (NREL). Consequently, few wind plants are found in the South Atlantic and Eastern portions of the South Central Regions. Other considerations include necessary road access, transmission system availability, wind farm layout, community acceptance, and environmental permitting (AWEA/ASCE).

As shown in Table 6.2, wind plants offer similar sustainable benefits as a golf course. They can be erected in forests, shrub land, or desert and the existing course could remain widely undisturbed outside of service road and turbine pad construction. Wildlife habitat for ground dwelling animals would remain largely undisturbed, but the effects wind plants have on bird populations has shown to be detrimental (Drewitt and Langston). Overall wildlife habitat would decrease as a result, and consequently more research and effort are needed to develop efficient wind farms that do not destroy bird populations.

Wind plants retain the same ability to infiltrate rain, improve air quality, and cleanse stormwater runoff as the former golf course. Most of the topsoil on site could be protected, but some will be stripped to build service roads and turbine pads. Additionally, community aesthetics would worsen with the erection of multiple wind turbines. This consideration places more emphasis on acceptable golf courses on which a wind plant could be sited. Due to security, regulation, and private ownership wind plants are closed for public use and could not offer the benefits of improved health and reduced stress. However, potential exists for wind plants to one day become areas for passive recreation.

Two major positive impacts wind plants offer are improved air quality and economic contributions. Turbines do not emit pollutants like other energy resources and they also reduce smog, acid rain, and greenhouse gas emissions. Furthermore, wind energy is the fastest growing renewable energy source in the United States (AWEA/ASCE). Wind is a non-depreciable natural resource that's

renewable, available, and plentiful. Wind plants create local jobs, provide a local source of energy, and add significantly to state and property taxes (AWEA/ASCE).

Table 6.2 – Grade sheet for Energy Production

Benefits of Energy Production Relative to Previous Golf Course Benefits		
Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	C	2
Protect Topsoil	B	2
Community Aesthetics	C	2
Infiltrate Rain	A	2
Promote Health/Reduce Stress	C	2
Improve Air Quality	A	1
Reduce Runoff	A	2
Stimulate Economy	A	1

Wind plants typically do not perform as well in urban areas as they do in open plains or coastal areas (AWEA/ASCE). Regions with the highest wind power potential are West North Central, Western South Central, Northern Mountain, and Pacific Regions of the United States. Therefore, financially

unstable or bankrupt core golf courses in the suburban, exurban, or rural areas of these regions provide the best site conditions for wind plants.

SILVICULTURE

Tree farming operations are another sustainable repurposing option for financially unstable or bankrupt golf courses. They revitalize the environment and the economy while offering passive recreation activities to the surrounding community. A certified tree farm requires 10 acres of land according to the Natural Resources Conservation Services (NRCS). Consideration for a tree farm site depends on the cleared acreage versus the forested acreage, the slope and topography of the land, insect or disease problems, natural disturbances such as ice storms, wind, fire, or flooding, special features on site such as geological formation or significant wildlife, and any trees or plants worth protecting (NRCS). Depending on the desired species, multiple climates are advantageous for tree farming. Those in the East North Central, South Atlantic, Mid Atlantic, New England, Northern Mountain, and northern Pacific regions provide the best growing conditions. Typical costs associated with starting a tree farm include certification, clearing, planting, pest control, irrigation, perimeter barrier if necessary, and maintenance (NRCS).

Recently, management plans have become commonplace for tree farmers and mandatory for certified farmers. They promote stewardship and sustainability in tree farming forecasting long-term, 10-year goals. They outline

how and how often one should maintain property boundaries, maintain wildlife food plots and structures, maintain firebreaks, and monitor and control invasive species. Other voluntary considerations for tree farms include maintaining or opening views to or from the property.

If recreational activity is desired on site, access to walking, hiking, or biking trails, camping, fishing, hunting, snowmobiling, bird watching, swimming, or snowshoeing should be considered (NRCS). If ponds, streams, or cart paths already exist on site, repurposing them for recreation makes sense. Clubhouses, if small enough, could be repurposed as a recreational activity shop. Irrigation systems could also be retrofitted to cover new plantings. Depending on the species grown, opportunity exists to harvest syrup, Christmas trees, or other non-timber resources. Educational programs could also be implemented into the management plan.

Tree farms provide a number of sustainable benefits to local communities, as referenced in Table 6.3. Private forests are vital to the protection of wildlife. Sixty-percent of at-risk wildlife depends on private forests for habitat (NRCS). Small mammals, large mammals, insects, reptiles, amphibians, and birds all create homes in forests. Forests protect topsoil and prevent soil erosion by anchoring roots into the earth. They maintain or improve community aesthetics by providing green space, views, and natural cooling system to surrounding environment. Forests infiltrate rain as well or better than golf courses because of the hydration needs of trees. They capture and cleanse stormwater runoff in

urban areas by storing and releasing water slowly and protecting flooding downstream. The addition of recreational activities can offer similar health reduction and stress release as a golf courses. Tree farms improve air quality by absorbing carbon emissions and creating renewable energy sources. Finally, they make substantial contributions to the community's economy by providing logging and forest related jobs and giving the community a local source of renewable energy.

Table 6.3– Grade sheet for Silviculture

Benefits of Silviculture Relative to Previous Golf Course Benefits		
Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	A	1
Protect Topsoil	A	1
Community Aesthetics	A	2
Infiltrate Rain	A	1
Promote Health/Reduce Stress	B	2
Improve Air Quality	A	1
Reduce Runoff	A	1
Stimulate Economy	A	1

Golf courses ideally suited for repurposing as tree farms include par-3, executive, and regulation courses on all types of layouts because of their smaller acreages. Private, daily fee, or municipal courses would be better suited than residential developments due to their proximity to neighborhoods. Courses located in suburban, exurban or rural areas with close proximity to a city and infrastructure are best. Finally, regions that are must supportive of tree growth include the East North Central, South Atlantic, Mid Atlantic, New England, Northern Mountain, and Northern Pacific regions.

CONSTRUCTED WETLANDS

Constructed treatment wetlands are another option for repurposing a golf course. Engineered or constructed wetlands utilize natural processes involving wetland vegetation, soils, and their associated microbial assemblages to assist, at least partially, in treating effluent or other water sources (USEPA). Treatment wetlands are best constructed in upland areas outside of waterways unless the source of water can be used to restore a degraded or former wetland (USEPA). Constructed treatment wetlands should also avoid floodplains or floodways for fear of damaging natural wetlands or aquatic resources. Many golf courses were built in wetland areas, especially coastal wetlands, and could benefit from re-naturalization. Similarly, land degraded and destroyed through diversion of water supplies, often time's golf courses commonly found in the arid western US, are

prime candidates for wetland treatment construction. Permitted wetlands have no maximum size, but require at least 5 acres of land.

Golf courses could be repurposed as constructed wetlands for a number of reasons. Both require maintenance and service access. A typical golf hole has soft, sinuous edges on relatively flat contours. For constructed wetlands to operate most efficiently, they require meandering edges weaving in and out of the landscape across long, gentle grades (USEPA). These sinuous edges create variability in the design and avoid stagnant water or "short-circuiting" the treatment process (USEPA). By incorporating cart paths as trails, the public can continue to use the site for recreation and education. Lastly, appropriate wetland treatment design allocates woody vegetated buffer areas around the sites and provides wildlife corridors and open space (USEPA).

Constructed treatment wetlands offer many social, environmental, and economic benefits, as shown in Table 6.4. The amount of provided wildlife habitat varies widely depending on the type of treatment. Systems that would best maintain or improve the wildlife habitat offered by golf courses act as facilities for the final polishing function for a pretreated effluent or other water source. These systems provide water reuse, wildlife habitat, and public use (USEPA). Wetland facilities protect topsoil and restore degraded golf course land while returning it to its natural functioning state. Community aesthetics are maintained through a more naturalized landscape, low noise pollution, and green space. Wetland treatment facilities maintain an ability to infiltrate rain, improve

air quality, and capture and cleanse stormwater runoff similarly or better than the golf course. If public use were allowed, wetland treatment facilities become places to improve health, reduce stress, and educate the public on water treatment. They can restore degrade wetland systems back to their historic, natural condition while making substantial contributions to community's economy. Wetland treatment facilities are typically inexpensive to build and maintain, they filter future drinking water, reduce potential flood damage, and clean water (USEPA).

Table 6.4 – Grade Sheet for Constructed Wetlands

Benefits of Constructed Wetlands Relative to Previous Golf Course Benefits		
Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	A	2
Protect Topsoil	B	2
Community Aesthetics	B	2
Infiltrate Rain	B	1
Promote Health/Reduce Stress	B	1
Improve Air Quality	A	2
Reduce Runoff	B	2
Stimulate Economy	A	1

Constructed wetland treatment facilities are versatile and can be built in nearly every region of the United States. They can be repurposed residential golf developments or core courses near metropolitan areas. They don't require the amount of acreage typically found on a regulation course, therefore par 3 or executive courses might offer a more practical and affordable site. The main consideration when repurposing a golf course as a wetland treatment center is the disturbance of natural waterways. Therefore, it must be an upland course out of the floodplain or floodway.

PARKLAND

Parks represent another repurposing opportunity for bankrupt or financially unstable golf courses. As stated by Andres Duany and Jeff Speck in *The Smart Growth Manual*, "Access to nature is a basic right, especially for those without the means to drive (Duany, Speck and Lydon)." According to the Trust for Public Land, as many as two-thirds of the residents of America's largest cities do not have access to a nearby park, playground, or open space (TPL *The Benefits of Parks: Why America Needs More City Parks and Open Space*). As urban sprawl continues and urban green space is removed from city cores, it becomes increasingly important to preserve those spaces and maintain the pleasures of nature. Therefore, many of the golf courses that are projected to close – 9-hole par 3, or executive courses in urban areas – become ideal repurposed parkland.

Referenced in Table 6.5, parklands offer an abundance of social and environmental benefits to a community. According to the Trust for Public Land, parks provide access to nature, promote physical and mental health, control stormwater, help control air pollution, help decrease air temperature in urban areas, are linked to reducing crime, and help create stable neighborhoods with strong communities (TPL *The Benefits of Parks: Why America Needs More City Parks and Open Space*). However, one of the biggest benefits of parkland, especially urban parkland, is the economic impact.

Table 6.5 – Grade Sheet for Parkland

Benefits of Parkland Relative to Previous Golf Course Benefits		
Benefit	Rate (A-F)	Importance (1-3)
Protect Wildlife	A	1
Protect Topsoil	A	2
Community Aesthetics	A	1
Infiltrate Rain	A	1
Promote Health/Reduce Stress	A	1
Improve Air Quality	A	1
Reduce Runoff	A	1
Stimulate Economy	A	1

Since 2003, the Trust for Public Land (TPL) has conducted research revealing the economic value cities and urban residents receive from parks and recreation facilities. Through TPL's research, eight ways cities derive economic benefits from parks have been found: property value increase, tourism, direct use, attracting and retaining businesses, health, community cohesion, clean water, and clean air (TPL "Economic and Health Benefits of Parks").

Parks are versatile in size, shape, and location and can therefore be retrofitted on nearly every type of golf course. Currently, parks and green space are needed in urban areas. The need for more urban parks aligns with National Golf Foundation's projections that the majority of course closings in the next decade will be urban and suburban par 3 or 9-hole executive courses (Beditz *The Future of Public Golf in America*). Therefore, bankrupt or financially unstable courses in urban areas become prime candidates for repurposing as parks. The existing green space, the potential for retrofitting cart paths (if they exist) as trail networks, and the use of an existing clubhouse (if it exists) as a recreation center all decrease the initial investment needed to repurpose the course as a park.

OTHER APPLICATIONS

Urban agriculture, wind farms, tree farms, constructed wetlands, and parkland offer the most sustainable golf course repurposing options. However, although not as sustainable, there are other possible repurposing options. Lake developments take financially unstable residential golf developments with on-site

streams or wetlands and create lakes out of low-lying areas. In theory, the residential community would remain, but rather than golf as the core amenity, the lakes would become the core amenity. Other amenities could supplement the lake, such as trails, tennis, or a smaller sized golf course or par 3 course. Lake front property is equal to or more desirable than golf courses as adjacent property and could help leverage adjacent property values while costing 1/5th of the price to maintain (Wyman). Although lake developments offer economic and social benefits, they offer few environmental benefits. Streams and wetlands must be mitigated to offset loss from dams. Additionally, water-vehicles using the lakes as recreation disturb and pollute wildlife habitat occupying the lake. An abundance of struggling residential golf developments exist, but the opportunities for lake development sites are limited to a narrow percentage of those sites due to resource and site requirements. Finally, permitting for a lake development could take years to secure, begging the question of what to do with the land in the meantime.

Conservation easements allow landowners to maintain ownership and use of their property, but permanently remove all development rights. This protects the land's natural character, working landscape, and valuable natural resources while providing tax benefits to the landowner. However, easements drastically reduce the economic and development potential of the land. Easements are also not required to allow public access, which could dramatically decrease the health and stress relief benefits once offered by the golf course. Easements are primary

candidates for financially unstable urban golf courses where green space is rare and needs to be protected or in and could be viable options for urban fringe, suburb, exurb, or especially rural golf courses.

MANAGEMENT SOLUTIONS

Potential management solutions also exist for financially unstable courses that haven't defaulted or closed. The costliest, but most potentially rewarding, is to conduct a course renovation. Renovations include reshaping bunkers or green complexes, rerouting a set of holes, replacing irrigation systems, or rerouting and rebuilding the entire course. Renovating could also mean condensing a course from 18 holes to 9 holes, 27 holes to 18 holes, 36 holes to 18 holes, etc. Renovations should only take place after analyzing surrounding golf supply and demand and determining that rounds played would increase due to the renovations.

A recent example of a successful renovation comes from the Deltona Club in Deltona, Florida. Bobby Weed Golf Design renovated the course and amenities in 2007 and the course has since seen an increase in rounds played and revenue (C.M.). The unique aspect of the Deltona Club renovation was restructuring and condensing the layout to make room for 17 acres of interior land. The interior parcel will be used to develop 300, age-restricted condominiums (Weed). The owner was able to leverage the new real estate

against the cost of the renovation and the result was a new, competitive golf course that generated profit.

Tom Doak hypothesized another potential management solution for larger metropolitan areas in the United States. The hypothesis is that if courses in large metropolitan areas band together and decide that “x” number of courses in the area should close to restore health to the local golf industry, then more decision making power is left to the owners and operators about how to repurpose the land. As Mr. Doak writes:

> These individual courses have no power in their ultimate fate, because they are always under the pressure of the debt. The only way I see they can take control is collectively -- say, have 2-5 clubs band together, decide which one should close, and pool their resources. Ideally, they'd pay off the debt on the course that's closing so they could keep control of the property… but if not, they'd sell to the highest bidder instead of letting a bank do it. (Doak "Personal Communication with the Author")

This strategy takes power away from the bank and places it back into the hands of the golf operators. Ultimately, it allows a committee to analyze each course and objectively decide which course should close. This increases the overall health of the local golf market and provides an opportunity to sustainably repurpose the course. However, this solution is limited by the voluntary nature of the process. In Doak’s hypothesis, owners and operators would voluntarily come together and decide to close “x” number of courses. Few would volunteer to put

themselves and their employees out of work unless forced to do so. Doak's solution is viable, but more research is needed to determine an appropriate way to decide what courses to close and how to place the employees of closed clubs at other neighboring golf courses.

Many courses are taking it upon themselves to help stay afloat in the volatile climate. More owners are focusing on customer service, strategic planning, player development, responding to customer feedback, indentifying new revenue sources, and improving the golf experience (Beditz *The Future of Public Golf in America*). Fewer courses are resorting to negative maintenance and operating habits like lowering maintenance standards, delaying improvements, or offering discounts.

For courses to remain viable, communication via email and a customer database are vital to maintain a core group of golfers. Recognizing the key indicator of stability is also important. The magic number of golfers per 18-hole public course within a 10-mile radius is 4,000 (Beditz *The Future of Public Golf in America*). A golf course with that demand indicates a high potential for success. Ultimately, honest assessment of the current state of operations is required from the owner to determine their return on equity and consider the best investment for the course.

Other, less drastic management solutions can be made to tweak or refine the golf course operations. The first is changing maintenance practices. Scaling back irrigation and replacing unused turfgrass with native grasses helps reduce

maintenance costs and energy costs. In the southeast, many courses seeded their greens with bent grass, a perennial cool season grass used on many greens in the northeast. However, private courses in the southeast wanted to accommodate many of their northern members by using bent grass on their greens to mimic northeastern courses. As a cool season grass, bent grass does not tolerate the heat and humidity of southeastern summers very well. Therefore, they require daily hand-watering during the summer to control wilt, 24-hour fans to cool the grass, daily hand mowing, and weekly fungicide and pesticide applications to combat the low tolerance of disease.

Pat O'Brien, Greens Section Committee Chair for the Southeastern District of the USGA says he's seeing business models change from bent grass to Bermuda grasses and ultra dwarfs (O'Brien). These heat tolerant grasses eliminate the need for fans, fungicides and pesticides, hand-watering, and are able to be maintained with a riding triplex mower rather than hand-mowing. These green conversions, which Pat says he has seen 60-80 courses perform the renovation every year for the last 7-8 years, cost approximately $250,000 per 18 holes, but reduce maintenance costs by up to $100,000 per year (O'Brien). Similar practices can be seen happening all across the country.

Converting bent grass greens to Bermuda grass greens is just one example. Desert courses are over-seeding less and letting their summer grasses go dormant during the winter. Having green, lush fairways year round is no longer necessary or possible for most courses. Other management solutions for

private clubs include opening their doors to public play. If demand exists, but membership is dropping, changing business models to a semi-private club makes sense to take advantage of the additional golf rounds. Another option is to hire a third-party manager familiar with the current golf industry to help adjust operations and generate interest with the latent golfers.

DISCUSSION

The future for golf courses, both public and private, looks bleak in the near term. Projected levels of demand never materialized, but the current golf course supply is built to handle that demand. Projections indicate that demand has stabilized, but will not grow. Therefore, the industry is left to balance itself through course closings to reach equilibrium. 1,000 to 2,500 courses will close in the next decade, leaving an abundance of available green space around the country to repurpose. A number of solutions for repurposing closed courses or restructuring financially unstable courses are proposed in this thesis. However, what is possible and what is reality are very different.

Owners and banks will continue to sell to the highest bidder and developers will continue to implement the design that is most profitable. None of the aforementioned parties will act altruistically in the name of sustainability unless that path leads to the most profit. What matters most to banks, owners, and developers is profit and that usually translates to mixed-use, high-density residential, or big box development. Many of these developments forego

sustainable implementations like stormwater treatment, on-site renewable energy, multi-use trails, green space, or wildlife habitat areas because these implementations sacrifice profit. Repurposing golf courses as mixed-used or high-density developments can be successful if on-site sustainable features are considered, but if greed continues to be the driving force behind the decisions of developers and lenders, the potential benefits that bankrupt golf course properties offer may never come to fruition.

Throughout this thesis we've identified the issues, opportunities, and limitations of bankrupt and financially unstable golf courses. Besides the motives of lenders and developers, one of the major limitations in golf course repurposing is developing a model to show the most suitable sustainable applications. Between the region they are in, the size of the facility, the type of golf course, type of ownership structure, and physical setting, it is rare to find one golf course exactly the same as another. Adapting a grade sheet is a preliminary step in developing a model for best determining how to repurpose a golf course, but much more research needs to be done to refine and enhance the grade sheet.

One of the biggest opportunities is the chance to buy prime real estate well below market value. As evidenced by Ironwood Country Club selling for 35% of the fair market value and Long Shadow selling for 10% of the fair market value, these courses offer an ambitious investor the opportunity to apply creative solutions to the land and stay operational with razor thin profit margins. The lynchpin to sustainable repurposing is cheap land. Bankrupt golf courses provide

that. This chapter began to answer the question of who could be taking advantage of these landscapes. Farmers, renewable energy supporters, local municipalities, creative entrepreneurs, and venture capitalists all should begin to recognize the potential in bankrupt golf course land in the next decade.

CHAPTER 7

CONCLUSION

The shift from private clubs to public courses during the 1950s and 1960s changed golf forever in America. This shift democratized and popularized the game while bringing about rapid improvements in technology and golf course construction. During this time the residential golf community became popularized. In 1988, The National Golf Foundation issued a challenge to developers to "Build a Course a Day" until the year 2000 to meet the projected demand for golf. Demand never materialized and golf's built environment was left with an oversaturation of courses. These courses were often times attached to residential developments or built in areas that were already oversaturated with golf. Golf became an amenity to sell real estate, and when lots didn't sell, operators didn't know how to make the course financially sound. Over-building continued through 2003, until the golf industry bubble finally popped and course construction abruptly halted.

More than 1,000 courses have closed since 2003. However, the golf industry is far from reaching equilibrium in supply and demand. According to Joe Beditz, President and CEO of National Golf Foundation, the industry won't reach equilibrium until another 1,500-2,000 courses close, likely over the next decade.

With the average golf course sitting on somewhere between 150-180 acres of land, this sets the stage for 250,000-400,000 acres of valued green space to come available in the next decade. Many of these courses will default on their bank loan and the lender will look to unload the property as quickly and profitably as possible. This means golf courses will be selling for a fraction of their appraised value or loan amount value. Developers have already begun targeting these properties because they can be had at below market value and present opportunity for massive profit. This is typically achieved through mixed use, high-density, or big box store development. Conversely, the surrounding community wants to maintain existing green space and not be subject to decreased property values from land use changes. The environment also values the golf course green space for the provided wildlife habitat, the stormwater capabilities, and air quality improvements.

Now is the time to consider sustainable repurposing development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" . These developments provide a triple-bottom line of social, environmental, and economic benefits. The ultimate goal for repurposing financially unstable or bankrupt golf courses should be to provide similar or greater benefits than the course once offered, specifically wildlife habitat, protected topsoil, improved community aesthetics, absorption and filtration of rain, improved health and reduced stress, improved air quality, captured and cleansed runoff, restored damaged land areas, and substantial

economic contributions. To achieve this goal, the golf course provides a number of components that could be reused to aid a sustainable repurposing such as irrigation systems, cart paths, clubhouses, and cleared and graded land.

The case studies at Ironwood, Long Shadow, and Clear Lake provide a snapshot of what is currently happening with financially unstable golf courses. Ironwood represents a typical, mixed-used development sold to the highest bidder and developed to maximize profit. Long Shadow represents how changing the business model can make a once financially unstable golf course a profitable venture. Clear Lake shows what is possible when the community and the local government band together to make a sustainable change.

Plenty of room for improvement exists. Out of the 1,500-2,000 courses that will close in the next decade, many will end up like Ironwood. The lenders represent a constant in the equation. Their only concern revolves around removing a defaulted loan from their books as quickly and profitably as possible. However, plenty of opportunity exists for farmers, renewable energy investors, nurseries, venture capitalists, creative entrepreneurs, or others to invest in cheap golf course land and sustainably repurpose it to achieve a triple bottom line.

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APPENDICIES

APPENDIX A

GRADE SHEET MODEL

Sample: Golf Course Asset Assessment

Golf Club Consulting, Inc. conducted a Golf Course Asset Assessment of *xxx* on xxxxx Time was spent touring the golf course and its associated amenities. During the visit, xxx (Golf Course Superintendent) assisted in golf course access. xxx was very helpful and answered all questions or concerns that were asked.

1) Evaluation

The following components of the golf course were reviewed:

1) Bunkers
2) Cart paths
3) Fairways
4) Golf course lakes and streams
5) Golf course landscaping
6) Golf course maintenance building
7) Golf course equipment
8) Greens
9) Irrigation pump station
10) Irrigation system
11) Irrigation water
12) Irrigation water storage
13) Tees

These components are evaluated in this report, as follows:

a) Description: (narrative)
b) Rating of component during site visit: (A - F / with A being the highest)
c) Importance of component (1, 2 or 3)
   1: Very important
   2: Somewhat important
   3: Not important
d) Was all information gathered, provided or available? (yes or no)
e) Concerns: (list)
f) When should the concerns be corrected? (narrative)
g) Actions needed to correct concerns? (list)
h) Can concerns be corrected in normal course maintenance in the 1st year of operations? (yes or no)
i) Can concerns be corrected in normal course maintenance in the first 5 yrs of operations? (yes or no)
j) Cost range to fully correct concerns: (cost range)

14) Summary of evaluations

		Rating	Importance
1)	Bunkers	C	3
2)	Cart paths	D	1
3)	Fairways	B	1
4)	GC Lakes and streams	C	3
5)	GC Landscape	B	3
6)	GC Maintenance building	D	2
7)	GC Equipment	D	1
8)	Greens	A	1
9)	Irrigation pump station	A	1
10)	Irrigation system	C+	1
11)	Irrigation water	?	1
12)	Irrigation water storage	C	2
13)	Tees	B	2

The following golf course components are very important and are in need of financial resources:

- Cart paths
- GC Equipment
- Irrigation water

The following golf course components are very important and do not need financial resources in the near future.

- Greens
- Fairways
- Irrigation system
- Irrigation pumpstation

The following golf course components are somewhat important and do not need financial resources in the near future.

- GC maintenance building
- GC lakes and streams
- Irrigation water storage
- Tees

If you have questions concerning this report, please let me know. Thank you for the opportunity to assist *xxx*.

Respectfully submitted,

Richard N. Eide
President