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To cite this article: John L. Crompton (2000) Designing golf courses to optimize proximate property values, Managing Leisure, 5:4, 192-199, DOI: 10.1080/13606710010001770

To link to this article: https://doi.org/10.1080/13606710010001770

Published online: 02 Dec 2010.
Designing golf courses to optimize proximate property values

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There has been extraordinary growth in the past decade in the number of golf courses that have been constructed as central components of residential developments. The reasons underlying this growth are discussed. The basic five alternative configurations of golf courses are described, together with the edge effect which is the key to their differing impact on a development's property values.

There are 26.4 million golfers aged 12 and over in the United States. Approximately 5.4 million (22%) of them are ‘avid’ golfers, defined as those who play 25 or more rounds a year; a further 35% are ‘moderates’ (8–24 rounds per year); and 43% are ‘occasionals’ (1–7 rounds per year) (National Golf Foundation, 2000). In 1999, these golfers played on a total of 16 747 golf courses. This total includes regulation, par-3, and executive length courses. Approximately 70% (11 657) of these courses are open to the public (National Golf Foundation, 2000). In addition, at the end of 1999, there were 1069 courses under construction and 708 in the planning stage.

The vitality of golf in the United States is exemplified by the data reported in Table 1. Demographic and economic indicators suggest this trend will continue. Approximately 40% of golfers report a household income of over $75 000 (National Golf Foundation, 2000). The highest per capita golf participation rates are among those in the 50–59 age cohort and the baby boomers are now entering this age group (McKinsey, 1999). They are empty nesters; in their peak earning years; close to retirement; and have the economic security of strong private pension funds boosted by the unprecedented increases in the stock market in the 1990s. The golf industry expects a ‘natural’ addition of 3–4 million golfers and 100 million rounds over the next decade from these favourable demographics. This translates into an annual growth rate of 1% to 2% (McKinsey, 1999).

Although only 2000 of the golf courses in the United States are part of a residential development, the trend to incorporate them as central features of real estate developments accentuated rapidly in the 1990s when

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of courses</th>
<th>Number of rounds (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>10 848</td>
<td>266</td>
</tr>
<tr>
<td>1980</td>
<td>12 849</td>
<td>358</td>
</tr>
<tr>
<td>1990</td>
<td>13 951</td>
<td>502</td>
</tr>
<tr>
<td>1999</td>
<td>16 747</td>
<td>564</td>
</tr>
</tbody>
</table>

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Almost 1000 such courses were constructed (Dugas, 1997). Approximately 40% of current golf course construction is real estate related (National Golf Foundation, 2000). While the real estate industry in the United States as a whole grew at an annual rate of 2–3% in the 1990s, the annual growth rate of developments which incorporated golf courses approached 10%, making it one of the hottest sectors in real estate.

Approximately 3.7 million or 15% of all golfers are permanent residents of a golf course community, and 80% of these individuals own their residences. Another 3% of all golfers own a residence on a golf course that they use as a vacation home or rent out as an investment property.

The appeal of golf course communities is not confined to golfers. Indeed, only approximately one-third of those who purchase houses in these developments play golf regularly (McElvea et al., 1991). For the majority of home buyers, the appeal is the open space and park-like ambience that golf courses provide. A typical response from residents is, ‘It’s like living in the country here, but with access to the city’ (Dugas, 1997, 1B).

The acreage required for a viable real estate project that incorporates a golf course varies. The minimum size is about 400 acres (half golf, half residential), but many consider this ratio to be marginal. In addition to golf, some developments offer an array of other recreation amenities such as nature trails, jogging and biking trails, day care centres, fishing lakes, swimming pools and recreation centres. Larger projects allow developers to spread the cost of a golf course and other amenities over a larger number of residential units. However, the disadvantage of larger projects is that the interest costs of the money borrowed to undertake the development escalate, as they have to be carried for a longer period of time.

Golf and real estate are very different businesses and most developers have no desire to be in the business of operating a golf course. There are some examples in the United States where developers have constructed a golf course and then donated it to a local parks and recreation agency or a non-profit homeowners association to operate. A more common strategy is for developers to donate the land for a golf course to a city. For example, in response to its request for proposals, Lee County in Florida received offers from six developers willing to donate 150 acres for a golf course, some of whom also offered to contribute $100 000 for the planning and design of the course (Winton, 1994). In these cases, the municipality develops the course and operates it. When the costs of land acquisition are excluded, the course revenues often are sufficient to cover operational costs and annual debt charges associated with the construction costs. In addition, the city receives increased property taxes from the homes whose values have been enhanced by their proximity to the course.

There are three reasons why developers include golf courses and other amenities in their projects: (1) to increase the land values in their development; (2) to respond to physical planning or ecological conditions, either voluntarily or imposed by regulation, which require a real estate development to accommodate storm water run-off, integrate wetlands or other environmentally sensitive areas, mitigate a site by enhancing biodiversity through creating native habitat areas, or buffer disparate uses; and (3) to accelerate the absorption of real estate, i.e. to sell their lots more quickly. It has been estimated that the broadening of market appeal and the enhanced image and ambience that a golf course creates, speeds up overall absorption by 20–30% which translates into higher profitability for the developer.

The enhanced land value derives from two sources. The first is image: ‘Golf is a way to dress up the real estate . . . The golf course tends to elevate the image of the community
The core golf course. In a core course, the holes are clustered together, either in a continuous sequence, leaving the clubhouse at number one and returning to it at number 18, or in two returning nines, with each nine-hole sequence beginning and ending near the clubhouse. Because it consumes the least amount of land, the core course is usually the least expensive to build. However, the only sites it provides for real estate development lie at its perimeter, and the length of lot frontage is ±10 000 feet.

The single fairway, continuous is a single, open loop starting from the clubhouse and returning to the clubhouse. It consumes the greatest amount of land and offers the greatest amount of fairway frontage for development sites. It can be designed to wind its way through fairly difficult terrain. Length of available lot frontage is ±47 000 feet.

The single fairway, returning nines configuration consists of two loops of returning nines, with the clubhouse in the centre. Most flexible for play, slightly less frontage due to the concentration of tees and greens for holes 1, 9, 10 and 18. Length of available lot frontage is ±44 000 feet.

Fig 1 The five basic golf course configurations
and people are attracted to image’ (Dugas, 1997, 1B). Golf has connotations of affluence and prestige, and some people may seek to enhance their self-esteem or social standing by buying into a development with this type of image. The second source of enhanced value is the visual and physical access to attractive open space that cause individuals to pay a premium price for their homes.

The developers’ strategy mirrors that which has been advocated by supporters of public parks and open space for over a century, i.e. parks and selected recreation features are an investment not a cost because they generate more property taxes for a city than it costs to service the annual debt charges incurred in creating the amenities. A consistent stream of studies reporting this value-enhancing effect of parks has emerged since Frederick Law Olmsted pioneered this approach with his documentation of the impact of Central Park on surrounding real estate values in New York from 1856 to 1873 (Crompton, 2000).

The linkage between golf courses and parks has been accentuated in recent years by newer courses accepting greater responsibility for protecting the natural environment. There has been growing acknowledgment of the damage golf courses can inflict by denigrating wetlands and other types of sensitive areas and using pesticides, and a recognition that they should be part of the solution to environmental problems, rather than creating them. To this end, the United States Golf Association has linked with the Audubon Society in an effort to enhance wildlife habitat through improved resource management practices on golf courses. In short, golf courses are becoming more park-like (US Golf Association, 1999).

**ALTERNATIVE PLANNING CONFIGURATIONS**

Five basic golf course configurations are recognized: core; double fairway, continuous; double fairway, returning nines; single fairway, continuous; and single fairway, returning nines (Muirhead and Rondo, 1994). These are shown in Fig. 1. Their potential for maximizing the value of adjacent real estate varies. A determining factor is the extent of a
golf course’s circumference or edge (Little, 1990). If a 100 acre course is circular in shape, then it has a relatively small circumference. If the 100 acres is distributed more linearly, then the amount of edge increases substantially. The principle is illustrated by the following calculations:

A circular park that is 100 acres in area will have a radius of 1177.8 feet. Given that the circumference of a circle is two times pi, times the radius (2πr), the amount of edge will be 7396.7 feet. Assume this park is unpeeled into a long strip of green which is one square acre wide (209 feet) – in effect, laying one acre next to another in a line. To find the length of the edge of 100 acres in this configuration 209 feet is multiplied by 100 times two, since there are two sides to this strip. The result is 41 800 linear feet, 5.65 times as much edge than a circular park of the same number of acres. That is the edge effect (Little, 1990, p. 36).

The increased amount of edge means that more property can be sited adjacent to the golf course and the aggregate enhancement value of the property is likely to be larger.

The importance of the edge principle is illustrated in the alternative configurations in Fig. 1. The single fairway configurations have most edge and can accommodate the most real estate frontage. However, the houses on opposite sides of the course are relatively close together and likely to be in each others’ view lines. In contrast, the core course has least potential for real estate frontage, but the views are likely to be uninterrupted and not likely to include other homes. For this reason, the premium associated with the core course frontage is likely to be greater than that accruing from the single or double fairway options.

The preferred option in most real estate developments is the single fairway returning nines configuration. This yields almost the maximum frontage for real estate, but offers greater flexibility and efficiency in operation over the single fairway continuous configuration by providing two starting holes. Thus, more players can begin a game, and the entire course can be brought into play in two hours, compared to four hours in a continuous layout with only one starting hole (Muirhead and Rondo, 1994). Further, this layout allows for the option of playing only nine holes.

THE ‘WINDOWS’ PRINCIPLE

Creating ‘windows’ is a design strategy used to maximize real estate values in golf course developments (Jenson, 1990). In traditional golf course developments, lots were placed around the entire perimeter of the course, which locked it off from internal areas of the project. This isolates the internal lots and diminishes their desirability and value. ‘Windows’ are openings in the perimeter of the golf course that, much like a window in the side of a building, provide direct views of the golf course. They are created by leaving open spaces at key points along the perimeter of the course. Making the golf course visible from interior lots increases the value of portions of the development that are located at a distance from the course.

Figure 2 contrasts the impact of creating windows with the traditional lot pattern (Jenson, 1990). Windows are created by locating local interior roads and cul-de-sacs from the window into the interior lots, giving most of the lots on a cul-de-sac views of, and secondary frontage (i.e. across the road) on, the golf course. At the very least, all home-owners have a view of the course as they drive down the cul-de-sac past the window. The effect is to make one feel that the golf course belongs to the whole community and contributes an ambience that benefits everybody.

Sometimes a developer may have to give up a few frontage lots to create a window. But obtaining premium prices for a larger portion of the interior lots, more than offsets this
loss. Roadway windows frequently can be placed at points along the course where it would be difficult to fit in perimeter lots – at drainage ways, at the outside edges of dogleg golf holes, and at unusually shaped parcel boundaries. Such placements minimize the amount of frontage given up for the window and often lead to greater efficiency in developing lots elsewhere on the site.

**THE BOTTOM LINE**

The magnitude of investment in creating a golf course varies widely according to topography, soil conditions, irrigation needs, drainage requirements, landscaping, the quality of course features such as greens, bunkers and water features, and the costs of labour and materials in the area. However, it is substantial and the cost of constructing an 18-hole course exclusive of land costs, may range from $2 million to $8 million. If all the acreage in a project is suitable for development into lots and no floodplain land is involved, then a developer forfeits the revenue that would be forthcoming from the sale of lots on the 150 acres of land needed for the course. If one-acre lots were sold at $40,000 each, then the loss to the developer of the 150 acres would be $6 million. If the developer paid another $4 million to construct the course on this land, then the total cost would be $10 million.

A larger set of amenities beyond a golf course results in commensurate increases in
cost. For example, Del Webb Corporation developed a 5800 acre master planned subdivision in Phoenix known as Anthem (Fletcher, 1999). The recreation amenity package cost the corporation $77 million. It included two golf courses, a rock climbing wall, a children’s railroad, a skating rink, a roller hockey rink, a 4 acre fishing lake, a water park, 30 acres of soccer and softball fields, and an array of parks.

To justify investment on this scale, there has to be substantial enhanced value of a development’s real estate. How much value does a golf course add? Generalizations or averages obscure substantial variations among courses, but results from a study of master-planned golf communities across the United States yielded the averages shown in Table 2.

Lots and houses throughout a golf-course community bring premiums over comparable lots/units in non-golf developments (Table 2). Prime sites fronting on greens or enjoying water views or fairway and open-space vistas can command twice the average fairway-frontage premium. Non-frontage property offering views of the golf course and partial vistas also commands a substantial premium. Even interior sites located within the gates of a golf-course community command a slight premium (McElyea et al., 1991). Although it is difficult to generalize about the magnitude of premiums, in percentage terms golf’s enhancement of land values tends to decrease as the base land values rise.

When the averages shown in Table 2 are applied to the course configurations shown in Fig. 1, the difficulty of recouping the costs of a golf course using a core or a double fairway configuration becomes apparent. In Table 3 the real estate income accruing from a double fairways returning nines course is compared with that from a single fairways returning nines layout. The analysis assumes that 75% of the frontage in both cases is usable for real estate development, and that the premiums for properties with golf course frontages average $25 000 for detached homes, $20 000 for town homes, and $15 000 for garden apartments. The estimates in Table 3 show that the single fairway returning nines yields substantially more income, irrespective of what type of housing is developed. The income estimates in Table 3 are conservative because they do not include the premiums associated with golf-view homesites or interior homesites (Table 2). They also do not show the loan cost savings that accrue to the developer from selling the real estate more quickly as a result of the golf course. Nevertheless, these estimates do illustrate why the single fairway returning

<table>
<thead>
<tr>
<th>Lot value</th>
<th>Housing value</th>
</tr>
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<tbody>
<tr>
<td><strong>Base homesite</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>$50 000</td>
</tr>
<tr>
<td><strong>Golf-course community</strong></td>
<td></td>
</tr>
<tr>
<td>Interior homesite</td>
<td>$52 000</td>
</tr>
<tr>
<td>Golf-view homesite</td>
<td>$60 000</td>
</tr>
<tr>
<td>Fairway frontage</td>
<td>$75 000</td>
</tr>
<tr>
<td>Prime golf frontage&lt;sup&gt;2&lt;/sup&gt;</td>
<td>$100 000</td>
</tr>
</tbody>
</table>

<sup>1</sup> An interior lot in a master-planned community without golf.

<sup>2</sup> Homesites fronting on greens, lakes, and other particularly desirable features of a golf course.

nines configuration is preferred in golf course developments.

**REFERENCES**


<table>
<thead>
<tr>
<th>Types of development</th>
<th>Double fairway returning nines with 18 000 feet available frontage</th>
<th>Single fairway returning nines with 33 000 feet available frontage</th>
<th>Differential premium bonus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Possible number of units</td>
<td>Premium income</td>
<td>Possible number of units</td>
</tr>
<tr>
<td>Detached houses (100 feet lots)</td>
<td>180</td>
<td>$4 500 000</td>
<td>330</td>
</tr>
<tr>
<td>Townhouses (38 feet width)</td>
<td>424</td>
<td>$9 480 000</td>
<td>868</td>
</tr>
<tr>
<td>Three story garden apartment (40 units of frontage per 1000 feet)</td>
<td>720</td>
<td>$10 800 000</td>
<td>1320</td>
</tr>
</tbody>
</table>

Table 3 Income advantages of the single fairway returning nines course