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A Pilot Study Designed to Provide Preliminary Data For Developing a Feasibility Study of Building a Golf Course in Bozeman, Montana

By

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B.S., University of Montana, 1981

Presented in Partial Fulfillment of the Requirements

for the Degree of

Master of Business Administration

University of Montana

1989

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CONTENTS

LIST OF TABLES..... iv

SECTION ONE: PROBLEM DEFINITION

Introduction..... 1

Definition of Terminology..... 3

Organization of the Paper..... 4

SECTION TWO: REVIEW OF PUBLISHED SURVEYS AND PROPOSALS

Golf Participation in the United States, 1985..... 6

Golf Course Operations Survey..... 9

Feasibility Study for Arrowwood Golf Course..... 11

Bridger Creek Golf Course..... 12

Summary..... 13

SECTION THREE: RESEARCH METHODOLOGY

Introduction..... 16

Survey Design..... 17

Non-Golfer Survey..... 17

Golfer Survey..... 18

Sample Selection..... 22

SECTION FOUR: SURVEY AND RESEARCH RESULTS

Statistical Analysis..... 24

Analysis of the Telephone Survey..... 25

Analysis of the Mail Survey..... 27

Hypothesis 1 - Percent of the Population that Plays Golf..... 28

Hypothesis 2 - Average Number of Rounds of Golf..... 30

Hypothesis 3 - Percent of Female Golfers..... 32

Hypothesis 4 - Age Distribution of Golfers..... 33

Summary of Hypotheses Testing..... 35

Results of Questions Two Through Twelve..... 36

Price Sensitivity..... 38

Profile of Existing Courses..... 40

Golfer Profile 43

Estimating Potential Rounds of Golf..... 45

SECTION FIVE: CONCLUSION

Problems Encountered With Sample Selection..... 48

Limitations..... 50

Recommendation..... 52

Appendix A

Regional Comparison of Daily Fee Facilities: Golf Course Operations Survey..... 55

Appendix B

Golfer Survey and Cover Letter..... 60

Appendix C

Representation By Calling Area..... 64

Appendix D

Statistical Calculations..... 65

Appendix E

Comparison of Responses by Male and Female Participants..... 74

Appendix F

Demographics of Gallatin County Golfers..... 75

Appendix G

Gallatin County Demographic Data..... 78

BIBLIOGRAPHY..... 80

LIST OF TABLES

Table		Page
1.	Comparison of Frequency of Play by Region.....	8
2.	Daily Fee Facilities Regional Comparison.....	10
3.	Calculation of Percent of the Population in Gallatin County that Plays Golf.....	29
4.	Golfers by Frequency of Play.....	31
5.	Comparison of Age Distribution.....	34
6.	Hypotheses Testing.....	35
7.	Golfer Survey Questions Two through Twelve.....	36
8.	Golf Course Fee Comparison.....	39
9.	Comparison of Responses by Course.....	42
10.	Summary of Responses to Questions Twelve and Thirteen.....	44

SECTION ONE: PROBLEM DEFINITION

Introduction

This paper is a pilot study designed to provide preliminary data for developing a feasibility study of opening a new business in Bozeman, Montana. The business under consideration is a proposed 18 hole golf course. A major constraint in assessing the financial viability of opening any new business is that projections of revenues and expenses cannot be based on actual operating data. Expenditure projections can be developed by examining operating costs of similar businesses and considering variables in the local environment.

Projecting revenues, however, is more complicated. It involves establishing prices and estimating sales volume. Prices can be determined by comparing established rates of the competition and assessing the price sensitivity of the market. Estimating sales is the most difficult and critical part of projecting revenue potential.

The author could find no previous studies of golf courses in the Gallatin County market. Preliminary research was needed to develop and conduct a full feasibil-

ity study. This pilot study--developed to provide the background necessary for a feasibility study--consists of a compilation and review of available sources of information, and a survey to determine unique characteristics of the Gallatin County golf market.

The National Golf Foundation (NGF) provides data about golfer characteristics; the percent of the population that plays golf and average annual rounds played. These data can be used to estimate the number of rounds a golf course can expect. The data are available for various regions, however, differences do exist between a given site and the national or regional statistics. (Regional differences are discussed in Section Two.) The variance can be quite significant. This makes reliance solely on projections from the NGF risky.

One method of minimizing the risk in relying on estimates for potential roundage is to determine if the typical golfer in the area under consideration is different than the golfers surveyed by the NGF. A preliminary survey was developed to test the following null hypotheses:

1.) The percentage of the population in Gallatin County that plays golf is no different than the percentage determined by the NGF.

2.) The Gallatin County golfer average number of rounds of golf per year is no different than the golfers surveyed by the NGF.

3.) The proportion of male and female golfers in Gallatin County is no different than the golfers surveyed by the NGF.

4.) The age distribution of golfers in Gallatin County is no different than the golfers surveyed by the NGF.

If the hypotheses are rejected, the NGF projections may need to be adjusted to compensate for differences in the market. If the hypotheses are accepted, the NGF data can be used to develop estimates of potential rounds of golf.

Definition of Terminology

Golf courses can be classified in three ways, by ownership, by who can play, and by type. Golf courses can be owned by the members, by a profit making corporation, or by a municipality. Play at a golf course can be restricted to members and guests only, or open to the general public. Golf course types include regulation length, par three or executive length (short courses), resort courses, private or daily fee courses. Typically, most private courses are owned by the members and most daily fee courses are open to the public.

Gallatin County has two private 18 hole courses (owned by the members and restricted to members and guests only) Riverside and Valley View. There are two public courses.

Cottonwood is an 18 hole public course that is privately owned. The city of Three Forks operates a 9 hole municipal course.

In addition to the courses identified above, there is one 18 hole resort course located at Big Sky. The target market for a resort course is generally the vacationing public. Because of the difference in target market, resort courses have been excluded from consideration in this pilot study.

Organization of the Paper

Section Two of this paper briefly covers two surveys published by the National Golf Foundation, a feasibility study of opening a new golf course in Great Falls, Montana, and a proposal for a new golf course in Bozeman, Montana. The section also describes how these papers contributed to the development of this pilot study.

Section Three of this paper covers in detail the development of the survey used in this pilot study and the intention of each question. The surveying technique is described in this section.

Section Four reports the results of the survey. The hypotheses stated above are analyzed in this section.

Section Five summarizes the information presented in the previous sections. Difficulties encountered in the

survey process and general limitations in the applicability of this pilot study are included.

SECTION TWO: REVIEW OF PUBLISHED SURVEYS AND PROPOSALS

Golf Participation in the United States, 1985

The National Golf Foundation (NGF) in conjunction with Market Facts, Inc. published the results of an extensive survey of golfers throughout the United States. In October, 1985, a survey was mailed to a sample of 20,000 households.

> Households in the sample were balanced to United States Census statistics in terms of geographic region, household size and income, area population density and market size and age of head of household....By the response cutoff date of November 2, 1985, nearly 13,600 households had returned usable questionnaires resulting in information from over 34,000 individuals...We project a margin of error of (+ or - .2%) at the 95% confidence level...[1]

This survey estimates that 8 percent of the population played golf from November, 1984 to October, 1985 and that 9.7 percent played golf from November, 1983 to October, 1985.

The survey revealed that golf participation was

1.) highest among the 30 to 39 age group,

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[1]National Golf Foundation and Market Facts, Inc. Golf Participation in the United States, 1985 (Jupiter, Florida: National Golf Foundation, 1986), 2.

2.) approximately 4 times greater among males than females,

3.) highest among people in the North Central region and lowest among people in the Southern region of the United States, and

4.) directly related to household income.

The survey concluded that the golfer was most likely to come from more upscale socioeconomic households. Golfers were members of:

- o 13.4 percent of all households with an income $40,000 and over,
- o 13.2 percent of all households headed by a college graduate, and
- o 12.5 percent of all households when the household head was a professional.

In addition, to assessing the demographic characteristics of the golfers surveyed, the NGF study analyzed the frequency of play. The study classified golfers as infrequent if they golfed 1 to 2 rounds per year, occasional if they golfed 3 to 7 rounds per year, average if they golfed 8 to 24 rounds per year, and avid if they golfed 25 rounds or more per year.

> Avid golfers ... represent 25% of all golfers, but 77% of all rounds played. Together, average and avid golfers represent about one-half (51%) of all golfers and account for 93% of all rounds played in the past 12 months.[2]

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[2]Ibid., 14.

Older golfers play a disproportionately large share of rounds. "The 50 and over age segment represents 27% of all golfers but 48% of all rounds played in the past 12 months."[3]

The analysis of frequency of play revealed regional differences. Golfers in the Southern and Western Regions represent 41 percent of all golfers, yet account for 51 percent of all rounds played. The Western region (including Montana) had approximately the same percentage of the population identified as golfers as the national average. However, the golfers in the Western region played a higher number of rounds per year.

Table 1

Comparison of Frequency of Play by Region

Region	Golfers (in percent)	Rounds (in percent)
North East	22	18
North Central	37	31
South	23	29
West	18	22

Source: National Golf Foundation and Market Facts, Inc. Golf Participation in the United States, 1985 (Jupiter, Florida: National Golf Foundation, 1986).

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[3]Ibid., 14.

Golf Course Operations Survey

The Professional Golfers' Association of America (PGA) and the NGF produced a joint survey of golf course operational statistics. In September, 1985, 12,842 surveys were mailed to golf facilities in the United States. By the response cutoff date of March 3, 1986, 3,823 usable surveys were returned (a response rate of 31 percent). The survey was designed to collect a wide variety of information affecting the operation of a golf facility. Some of the data included:

- type of course (private, daily fee, municipal, executive and par 3, or resort facilities),
- length of playing season,
- annual rounds played (by men, women, juniors, and seniors),
- facilities and services available, and
- membership and fee information.

The survey data were analyzed by type of facility to compile national averages. In addition, selected data were analyzed by region. (Refer to Appendix A for regional comparison of daily fee facilities and map identifying states within each region.)

> The nature of golf course operations differs considerably around the United States due to climatic, economic, demographic and cultural variations. To highlight these variations, selected variables collected in the operations survey are analyzed by region. The regions used in this analysis are the

nine census regions as used by the United States Bureau of the Census.[4]

Nationwide, 39.4 percent of golf facilities are private, 45.1 percent are daily fee, and 15.5 percent are municipal.

Montana was part of the Mountain Region which includes Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico. Table 2 compares daily fee facilities in the Mountain Region with total United States statistics.

Table 2

Daily Fee Facilities Regional Comparison

	U.S. Total	Mountain Region
Average Annual Rounds Per Golf Course	24,250	20,000
Percent Played by		
Men	50	42
Women	15	18
Juniors	9	9
Seniors	26	31
Length of Season	240	295
Initiation Fee	$245	$380
Annual Dues	$340	$310
18 Hole Green Fee (weekday)	$ 8	$ 8
18 Hole Green Fee (weekend)	$ 9	$ 10

Source: Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986).

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[4]Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986), 57.

Feasibility Study for Arrowwood Golf Course

In July, 1984, Robert E. Yoxall--Recreational Operations, Palo Alto, California--prepared a feasibility study that was incorporated into a request for funding submitted to the Montana Department of State Lands. Mr. Yoxall analyzed the feasibility of a proposed 18 hole golf course, Arrowwood, in Great Falls, Montana.

Mr. Yoxall based his analysis on demographic data from the 1980 U.S. Bureau of Census Preliminary Census and on NGF statistical information. He did not attempt to identify differences between the golfing population in Great Falls and the populations surveyed by the NGF.

The demographic data that Mr. Yoxall relied upon included:

1. County population: 80,696
2. Population within a 45 minute drive of the proposed site: 89,259
3. Population per 18 hole public course: 59,506
4. Percent of Population over the age of 18: 69.4
5. Median age of population: 27.9
6. Number of households: 29,900
7. Median household income: $16,223
8. Percent of households with an income in excess of $15,000: 53.2

The NGF statistics that Mr. Yoxall relied upon included:

1. Population per 18 hole public golf course in Montana: 34,900.
2. Population required to support an 18 hole public course: 25,000.
3. Median Age of Public Golfers: 42.5.
4. Percent of Golfers over the age of 18: 95.6.
5. Percent of golfers with a household income in excess of $15,000: 83.4.
6. Estimated annual median rounds of golf per golfer in Montana: 37.6.

The feasibility study determined that the Great Falls area could support another public golf course. National averages indicate that for the size of the population within a 45 minute drive of Great Falls (89,259) in 1984, the area could support 63 holes of public golf (only 27 holes were open to the public at that time).

Bridger Creek Golf Course

In May, 1987, an Offering Circular was published by The Golf Course Partners, Inc. for a Montana limited partnership to develop a golf course in Bozeman. The Offering expired without the minimum required number of units being sold. The Offering Circular included very

detailed and clearly presented financial statements. The statements were compiled by Galusha Higgins & Galusha, a Bozeman CPA firm. The firm prepared the statements based on "information that is the representation of management and does not include the evaluation of the support for the assumptions underlying the forecast."[5]

The principals of The Golf Course Partners, Inc. have considerable working experience in golf course operations on which to base their projections. The annual operational expenses of the proposed Bridger Creek Golf Course should not be significantly different than other courses with which The Golf Course Partners have experience. The principals, however, lack the necessary work experience to be able to project construction costs. They have not developed a course and have no experience in general contracting. This weakness was pointed out in the Offering Circular.

Summary

The surveys and studies detailed in this section contributed to the development of this pilot study in several ways. Golf Participation in the United States, 1985 and Golf Course Operations Survey provided data used in Section

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[5]Golf Course Partners, Inc. Offering Circular, Bridger Creek Golf Course Limited Partnership (Bozeman, Montana: Golf Course Partners, Inc., 1987), 38.

Four to test the hypotheses in Section One and to estimate potential rounds. National projections are used from both of these surveys because of the composition of the regions. In the first survey, Montana was included in the Western region. In the second survey, Montana was included in the Mountain region. The States that make up these regions vary widely in geography, demographics, and climate. No data were available specifically for Montana.

The Feasibility Study for Arrowwood Golf Course emphasized the critical demographic data needed in assessing feasibility. The major flaw identified with the Arrowwood study was that it did not attempt to identify differences between the golfing population within a 45 minute drive of Great Falls and the populations surveyed by the NGF. The author has sought to correct this weakness by developing a survey to determine the nature of differences between the golfing populations in Gallatin County and those surveyed by the NGF.

The golf course under consideration in this paper is the course identified in the Offering Circular Bridger Creek Golf Course Limited Partnership. This pilot study is designed to expand and improve upon the information in this offering.

The principal limitation with the Bridger Creek Golf Course Offering was that revenue projections were developed through a "gut feel" assessment of rounds of golf at a set

price. This "gut feel" does not take into account price sensitivity of golfers in the area. The survey detailed in Section Three was designed to determine if price sensitivity exists.

SECTION THREE: RESEARCH METHODOLOGY

Introduction

Primary research for this pilot study consisted of the development, distribution and analysis of a questionnaire designed to achieve two objectives. The foremost objective was to test the hypotheses stated in Section One.

1.) The percentage of the population in Gallatin County that plays golf is no different than the percentage determined by the NGF.

2.) The Gallatin County golfer average number of rounds of golf per year is no different than the golfers surveyed by the NGF.

3.) The proportion of male and female golfers in Gallatin County is no different than the golfers surveyed by the NGF.

4.) The age distribution of golfers in Gallatin County is no different than the golfers surveyed by the NGF.

The published surveys and research material contained in Section Two can be used to form the basis of financial analysis for a feasibility study based on this pilot study. The validity of using these data can best be determined by

comparing golfers in Gallatin County with the golfers surveyed by the NGF.

The second objective of the survey was to establish a base of marketing data to evaluate alternative target markets and promotional strategies. This base of information provides direction and guidance in the development of a comprehensive marketing survey that would be contained in a feasibility study. The results of the pilot study highlight areas for further research.

In addition to the primary research, demographic data were compiled from several sources available through the Montana State Department of Commerce, Census and Economic Information Center. The demographic data supplements the results of the survey in determining market potential.

Survey Design

The survey consisted of two parts--a survey for non-golfers and a survey for golfers. The rationale behind each question is described in detail in this section.

Non-Golfer Survey

A telephone interview was used to assess the non-golfer population. Non-golfers were asked only two questions. First, they were asked if they had ever played

golf. The purpose of this question was to assess the percentage of the non-golfing population who had tried golf but were not current golfers. Several people volunteered their reasons for quitting golf (these generally related to poor health or age). These comments were noted on the calling sheet but were not summarized.

The second question asked of non-golfers was whether they would consider trying golf in the future. This question was designed to estimate the potential of turning non-golfers into golfers.

Golfer Survey

A copy of the golfer survey form is reproduced in Appendix B. Each question was developed as follows:

Question 1. The first question on the golfer survey collected demographic data about the respondent and members of their household. Age distribution, percentage of male and female respondents, and the average annual rounds of golf were compared with those of the survey from the National Golf Foundation (NGF) detailed in Section Two. The proportion of golfers and non-golfers in the household was used in the calculation of the percentage of the population that plays golf.

Question 2. The second question determined the percentage of rounds played on weekends. These data could be helpful in estimating usage patterns. This information could be used for scheduling employees, setting tee times, and other aspects of decision making in operating a golf course.

Question 3. The third question was used to gain an understanding of the green fees and annual family membership rates that Gallatin County residents expect to pay and consider fair. These data can be used to update the revenue projections presented in the Bridger Creek Golf Course proposal and to determine if price sensitivity exists.

Question 4. The fourth question attempted to assess the underlying inhibitors to playing golf. A number of these factors are out of the control of the golf course operator. However, some of the inhibitors can be overcome. For example, if "Time taken away from the family" was the most frequently cited inhibiter, advertising can promote golf as a family activity and the course design can include facilities for non-golfing family members. The responses to this question have only a very small bearing on the feasibility of establishing a course, but are impor-

tant considerations in developing a promotional strategy.

Question 5. The fifth question was designed to identify hidden demand. If golfers have not had difficulty scheduling a tee time, then this may indicate that the current golf facilities are adequate.

Question 6. The sixth question can help determine the course design. If a majority of the golfers were more interested in a par 3 course and a high number of respondents identified "Length of time required to play" as a major inhibiter in question 4, then a short course designed to address these needs should be in demand.

Question 7. Responses to the seventh question can be used to determine the size and quality of the driving range and the extent of resources to devote to this facility.

Question 8. The eighth question revealed recreational opportunities that compete for the golfers leisure time. The answers to this question were intended to be used primarily for developing a promotional strategy.

Question 9. The ninth question identified the course that the respondent most frequently plays. This question had two purposes. First, it was used to determine if each golf course in the area was represented in the sample. Second, it was used in conjunction with Question 10 to assess the perceived quality of competing courses.

Question 10. The tenth question assessed the playing condition, the quality of the driving ranges and practice greens, and the difficulty or challenge of Gallatin County courses. These data were used to develop a profile of competing courses.

Question 11. The eleventh question determined the importance of fourteen facilities or services that may or may not be offered at a new course. These data can be used for course design and to develop a promotional strategy.

Question 12. The twelfth question was an open-ended question designed to assess whether the general population believes that a new course could be successful. The responses to open-ended questions are difficult to analyze. They were categorized into

similar comments and summarized. This information was useful in cultivating a general feel for the market.

Question 13. The last question was designed to give the respondents the opportunity to give their opinion. The free form expression of thought may provide insights that prove useful.

Sample Selection

The population identified for the survey was the Gallatin County area. Random telephone calling was used to identify golfers and to survey non-golfers. A telephone calling list was developed by generating 2,000 random four digit numbers. Prefixes were assigned based on the percentage of telephones in each exchange in order to ensure that calls were distributed throughout Gallatin County. Random telephone calling was an attempt to ensure that people new to Gallatin County and those with unlisted telephone numbers were included in the survey.

In general, a sample size is established to yield a confidence level and error rate that the researcher desires for the survey results. The formula for calculating the sample size requires that certain information, about the population to be surveyed, be known. An estimate for either the standard deviation or the proportion of suc-

cesses or failures for a critical variable is required for the formula. Since nothing was known about the golfing population in Gallatin County, a sample size could not be calculated in this manner. Therefore, a target sample size of 100 returned golfer surveys was selected. The sample size was based on a rough estimate that there were approximately 1,000 golfers who played at existing courses on a regular basis. A sample size of 100 golfers would provide data for approximately 10 percent of the known golfers. In addition, it was believed that the expense required to generate additional responses would not be justified. A response rate of 50 percent would require that 200 surveys be mailed out.

Non-golfers were interviewed over the telephone. Golfers were asked if they would agree to complete a mail survey. If the golfer agreed to participate, a survey form and cover letter were mailed within 24 hours. (The survey form was sent with return postage affixed.) The golfers were not interviewed over the phone because the questions involved in the survey were better suited to a written questionnaire.

SECTION FOUR: SURVEY AND RESEARCH RESULTS

Statistical Analysis

A 95 percent confidence level was used to analyze the survey data in this section. A 95 percent confidence level was selected because it is commonly used in business and it is the same level used in the NGF surveys described in Section Two.

To test the hypotheses stated in Section One, a z test was used. A z test is a statistical test that determines the significance of differences in data. It is used to assess whether differences in the observed proportions are due to chance or whether they are due to underlying differences in the population.

If the observed z score was greater than the critical z score of + 1.96 or less than - 1.96, the null hypothesis was rejected. Rejecting the null hypothesis supports the belief that there is a difference between the golfers in Gallatin County and the golfers surveyed by the NGF. If the z score was between + or - 1.96, then the null hypotheses were accepted. Detailed statistical calculations are contained in Appendix D.

Analysis of the Telephone Survey

All 2,000 random telephone numbers generated were called during the telephone survey. Of the 2,000 numbers called, 1,410 were either non-working numbers or there was no answer. At least three attempts were made to any phone number that was identified as a ring, no answer. The phone survey resulted in 590 households in Gallatin County being contacted. The contacts were asked if they would participate in a survey about recreational opportunities in the Gallatin County area.

Of the 590 contacts, 456 people (about 77 percent) agreed to participate. This resulted in a self selection bias of approximately 23 percent. The impact of this self selection bias cannot be calculated. However, there was no indication that golfers are more or less likely than non-golfers to participate in a telephone survey. If evidence of this nature were found, then the self selection bias may be critical.

Of the 456 telephone survey participants, 339 said there were no golfers in their household; 117 said there were golfers in their household. Following are results of the non-golfer interviews:

- Non-golfers comprised 74.3 percent of the participants (339 out of 456).

- When asked if they had ever played golf, 23.3 percent of the non-golfers answered positively (79 out of 339).
- When asked if they were likely to try golf in the future, 23.9 percent said yes (81 out of 339).

Of the 456 telephone survey participants, 117 (25.7 percent) indicated that someone in their household plays golf. This estimate was statistically valid at a 95 percent confidence level with less than a 5 percent error. The NGF survey did not provide a comparable statistic on the percent of households that contain golfers. Therefore, this figure was used to calculate the percent of the population that plays golf.

Although the percent of the households that contain golfers was a statistically valid figure, there was a problem with the definition of "golfer" that affects the validity of this number. The telephone survey used in this pilot study did not define golfer, but left the definition up to the person called. The NGF survey defined a golfer as someone who had played within the past two years. The fact that golfer was not defined during the telephone survey could have resulted in the exclusion of golfers who did not golf within the past season, or the inclusion of people who golfed more than two years ago. This means the data from the two surveys may not be comparable.

Analysis of the Mail Survey

Of the 117 people who identified themselves as golfers, 110 agreed to complete a mail survey. This resulted in a self selection bias of about 6 percent. A bias this small is negligible and can safely be ignored.

The mail survey had a response rate of approximately 56 percent--62 completed surveys out of the 110 surveys mailed were returned. The 62 surveys provided data for 92 golfers and 27 non-golfers over the age of 12. The original goal of the survey was to receive 100 completed surveys. Since fewer surveys were received, the survey results have potential for a greater amount of error.

In addition, there was also a non-response bias present in this survey. The non-response rate for the survey was about 44 percent. Mail surveys typically do not have a high response rate.

> No mail survey can be considered reliable unless it has a minimum of 50 percent response, or unless it demonstrates with some form of verification that the nonrespondents are similar to the respondents.[6]

Although the response rate was above 50 percent, there may still be a difference in motivation between the golfers who responded and the golfers who did not respond. Since nothing was known about the golfers who did not respond, the only way to determine the impact of this non-response was

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[6]William G. Zikmund, Business Research Methods. (Chicago, Illinois: The Dryden Press, 1988) 173.

to compare the data for the golfers who did respond with data from the NGF survey, even though the definition of golfer may not be exactly comparable. The following four sections compare golfer characteristics found in the Gallatin County survey with the NGF survey.

Hypothesis 1 - Percent of the Population that Plays Golf

The responses to question one of the survey indicated that approximately 77.3 percent of the people--over the age of 12 and living in the respondents household--play golf (92 out of 119). With 25.7 percent of the households playing golf (117 out of 456), this leads to an estimate that approximately 19 percent of the population over the age of 12 plays golf.

In order to make this statistic comparable to the NGF statistic, it must be adjusted to account for the percent of the population that was under the age of 12. (An arbitrary assumption was made that the amount of golf played by children under the age of 12 was inconsequential.) In Gallatin County, 84.2 percent of the population was over the age of 12. This leads to an estimate that about 16.7 percent of the population in Gallatin County plays golf. (Refer to Table 3 for a summary of the calculation of percent of the population that plays golf.) This percentage was higher than the NGF 1985 survey. The

NGF survey resulted in 9.7 percent of the respondents claiming to have played golf within the past two years.

Hypothesis 1 stated the percentage of the population in Gallatin County that plays golf is no different than the percentage determined by the NGF. Comparison of the data from the two surveys resulted in an observed z value of -2.23. The critical z value (at a 95 percent confidence level) was -1.96. Since the observed z was outside the critical range, the first hypothesis in Section One was rejected.

If the calculation for the percent of the population that plays golf is accurate, the difference between the Gallatin County percentage and the NGF percentage is statistically significant. However, there may be reason to question the accuracy of this percentage. Refer to Limitations in Section Five for a full discussion of possible weaknesses with these data.

Table 3

Calculation of Percent of the Population in Gallatin County that Plays Golf

% of households with golfers	25.70%
117 households with golfers	
339 households without golfers	
% of family members that play golf	77.31%
92 golfers over 12	
27 non-golfers over 12	
% of population over 12	84.20%
% of population that plays golf	16.73%
Estimated 1988 population	49,000
Estimated # of Golfers	8,198

Hypothesis 2 - Average Number of Rounds of Golf

Hypothesis 2 stated the Gallatin County golfer average number of rounds of golf per year is no different than the golfers surveyed by the NGF. The survey of golfers in Gallatin County determined that the mean number of rounds of golf per year was 23.95--with a standard deviation of 28.34. Comparing the two means resulted in a calculated z value of .6831 which was within the range of + or - 1.96 for the critical z value. The null hypothesis was accepted at a 95 percent confidence level. This means that the average number of rounds for golfers in Gallatin County was not statistically different than the NGF estimate that the average rounds of golf per person per year was 21.85.

Since the standard deviation in number of rounds played was greater than the mean, further analysis was warranted. Golfers can be classified into infrequent, occasional, average, and avid based on the number of rounds played each year. The percentage representation in each of these categories can then be compared with the data from the NGF survey. Table 4 compares the golfers in the NGF and Gallatin County surveys.

Comparing the proportion of infrequent golfers in each survey resulted in an observed z value of 1.54. This z value was less than the critical z value of 1.96. The null hypothesis that there is no difference between the

Table 4

Golfers by Frequency of Play

Golfer Type	Number of Rounds Played	* NGF Survey	Gallatin County Survey
Infrequent	1 - 2	21.00%	14.12%
Occasional	3 - 7	28.00%	18.82%
Average	8 - 24	26.00%	29.41%
Avid	25 +	25.00%	37.65%
Mean		21.85	23.95

* Source: National Golf Foundation and Market Facts, Inc. Golf Participation in the United States, 1985 (Jupiter, Florida: National Golf Foundation, 1986).

proportion of infrequent golfers in the Gallatin County survey and the NGF survey was accepted.

Comparing the proportion of occasional golfers in each survey resulted in an observed z value of 1.86. This z value was less than the critical z value of 1.96. The null hypothesis that there is no difference between the proportion of occasional golfers in Gallatin County and the NGF survey was accepted.

Comparing the proportion of average golfers in each survey resulted in an observed z value of -.70. This z value was greater than the critical z value of -1.96. The null hypothesis that there is no difference between the proportion of average golfers in Gallatin County and the NGF survey was accepted.

Comparing the proportion of avid golfers in each survey resulted in an observed z value of -2.64. This z value was less than the critical z value of -1.96. The

null hypothesis that there is no difference between the proportion of avid golfers in Gallatin County and the NGF survey was rejected. This means that there was a statistically higher proportion of avid golfers represented in the survey of Gallatin County golfers than the NGF survey.

Hypothesis 3 - Percent of Female Golfers

Hypothesis 3 stated the proportion of male and female golfers in Gallatin County is no different than the golfers surveyed by the NGF. The NGF survey found that approximately 21.2 percent of golfers were female. The survey of golfers in Gallatin County indicated that the percent of female golfers was 33.7 (31 out of 92). Comparing the percentages from the two surveys resulted in an observed z value of -2.88, which was less than the critical z of -1.96. Therefore, the third hypothesis in Section One was rejected.

Since there was a difference in the representation of female golfers in Gallatin County, the data for questions 2 through 12 of the survey were sorted by sex and analyzed to identify differences between the sexes. A summary of responses to questions 3 and 4 for both males and females is included in Appendix E. These questions revealed the most difference between men and women. The responses were not analyzed to determine the statistical significance of the differences because of the small cell size.

Some of the differences included:

- A higher percentage of women than men noted the following inhibitors to playing golf: high cost, other time commitments, time taken away from family, and intimidated by golfers with more experience.
- A higher percentage of men than women noted the following inhibitors to playing golf: travel time to the course, length of time required to play, poor quality playing conditions, and failure to see improvement in your game.

Hypothesis 4 - Age Distribution of Golfers

The last hypothesis in Section One stated the age distribution of golfers in Gallatin County is no different than the golfers surveyed by the NGF. To determine if this hypothesis was to be accepted or rejected, the golfers were classified into the same four age groupings identified in the NGF survey. The percentage observed in each of these age groups was compared to the results of the NGF survey to determine the extent of differences. Table 5 identifies the representation in each age group.

Comparing the proportion of golfers under 20 in each survey resulted in an observed z value of 1.16. This z value was less than the critical z value of 1.96. The null

Table 5

Comparison of Age Distribution

Age Distribution	* NGF Survey	Gallatin County Survey
Under 20	11.50%	7.6%
20 - 29	24.25%	27.2%
30 - 49	36.50%	42.4%
50 and over	27.75%	22.8%

* Source: National Golf Foundation and Market Facts, Inc. Golf Participation in the United States, 1985 (Jupiter, Florida: National Golf Foundation, 1986).

hypothesis that there is no difference between the proportion of golfers under 20 in Gallatin County and the NGF survey was accepted.

Comparing the proportion of golfers between 20 and 29 in each survey resulted in an observed z value of -.65. This z value was less than the critical z value of 1.96. The null hypothesis that there is no difference between the proportion of golfers between 20 and 29 in Gallatin County and the NGF survey was accepted.

Comparing the proportion of golfers between 30 and 49 in each survey resulted in an observed z value of -1.16. This z value was less than the critical z value of 1.96. The null hypothesis that there is no difference between the proportion of golfers between 30 and 39 in Gallatin County and the NGF survey was accepted.

Comparing the proportion of golfers 50 and over in each survey resulted in an observed z value of 1.05. This z value was less than the critical z value of 1.96. The

null hypothesis that there is no difference between the proportion of golfers over 50 in Gallatin County and the NGF survey was accepted.

Based on the comparison of the proportion of golfers in each age group, the null hypothesis that the age distribution of golfers in Gallatin County is no different than the golfers surveyed by the NGF was accepted.

Summary of Hypotheses Testing

Table 6 summarizes the results of the hypotheses testing detailed above. (Detailed statistical calculations are contained in Appendix D.) The results indicate that the golfing population of Gallatin County was statistically different than the golfing population surveyed by the NGF in two areas; a higher percentage of the population plays golf and there was a higher proportion of female golfers. Gallatin County golfers were not statistically different in the mean rounds of golf and the age distribution of golfers.

Table 6

Hypotheses Testing

Hypothesis 1 (Percent of Population)	Rejected
Hypothesis 2 (Mean Rounds)	Accepted
Hypothesis 3 (Percent of Female Golfers)	Rejected
Hypothesis 4 (Age Distribution)	
Under 20	Accepted
20 - 29	Accepted
30 - 49	Accepted
50 and over	Accepted

In analyzing the responses to question one, the largest margin of error found was approximately 10.3 percent at a 95 percent confidence level. (Refer to Appendices D and F for details.) With both this margin of error and the biases previously noted, the survey results cannot be generalized and attributed to the golfing population in Gallatin County. The remainder of the questions on the mail survey are reported here as an indication of the opinions of this small group of golfers.

Results of Questions Two Through Twelve

Table 7 provides a summary of the responses to questions 2 through 12 on the golfer survey. The responses to specific questions are noted and discussed in further detail following the table. Questions 2, 4, 6, 7, 8 and 11 were included specifically to provide marketing and course design information. They are not discussed in detail in this paper. Refer to Appendix B for a copy of the survey form.

Table 7

Golfer Survey Questions Two through Twelve

# 2	Percent of rounds played on weekends	45.91%
# 3	Average 9-hole green fee considered fair	$ 7.04
	Average 18-hole green fee considered fair	$ 11.89
	Average 9-hole annual family membership considered fair	$258.40
	Average 18-hole annual family membership considered fair	$319.90
	** Refer to Table 8 for comparison with fees of existing courses	

Table 7 Cont.

# 4	Inhibitors to playing golf	# reporting
	High Cost	31
	Other time commitments	23
	Length of time required to play	15
	Time taken away from family	11
	Travel time to golf course	11
	Other	10
	Intimidated by golfers with more experience	9
	Poor quality playing conditions	7
	Failure to see improvement in game	5
	** Refer to Appendix E for comparison of responses by sex	

# 5		
	Number reporting difficulty scheduling a tee time	22
	% of time they experience difficulty	25.48%
	Number reporting no problems scheduling a tee time	38
	Number of non-responses	2
	** Refer to Table 9 for comparison of responses by course	

# 6		
	Number who prefer a Par 3 course	10
	Number who prefer a regulation length course	52

# 7		
	Number who use a driving range	48
	for warm up	6
	for practice	15
	for both	27
	Number who do not use a driving range	12
	Number of non-responses	2

# 8	Number selecting this activity as participating in most often	
	Golf	41
	Fishing	27
	Gardening	19
	Camping	17
	Hiking	16
	Swimming	13
	Boating	11
	Other	11
	Biking	8
	Softball	6
	Horseback Riding	3

# 9	Course most frequently played	# reporting
	Cottonwood Hills	30
	Valley View	13
	Other	11
	Riverside	8
	** Refer to Table 9 for comparison of courses	

Table 7 Cont.

# 10	Rating of golf course identified in # 9 (scale: 1-low, 5-high)	
	course condition	3.77
	driving range	3.54
	practice green	3.88
	challenge	3.79
	** Refer to Table 9 for comparison of rating by course	
#11	Rating of importance of facilities/services (scale: 1-low, 5-high)	
	cart rental	3.45
	private lessons	3.38
	competitive leagues	3.36
	lounge	3.24
	beginners leagues	3.19
	pro shop	3.19
	group lessons	2.97
	club rental	2.95
	restaurant	2.76
	patio/grill	2.75
	club storage	2.36
	locker rooms	2.34
	child care	2.13
	mini-golf	1.78
#12	Number supporting a new course	41
	Number not supporting a new course	16
	Number undecided	2
	Number of non-responses	3
	** Refer to Table 9 for comparison of responses by course	

Price Sensitivity

Analysis of the survey of Gallatin County golfers indicates that the respondents may be price sensitive. Question three of the survey asked respondents to specify a fair price for an 18 hole round, a 9 hole round, an annual family membership at an 18 hole course and an annual family membership at a 9 hole course. Table 8 compares the average rates identified in the survey, the rates for existing

courses, and the results of the Golf Course Operations Survey. The fees estimated by the survey data are lower than fees of competing courses.

In addition, the most frequently cited inhibitor to playing golf (question 4) was high cost--50 percent of the respondents listed cost as an inhibitor. Questions 12 and 13 of the Golfer Survey were open-ended and designed to elicit the opinions of the respondents. The comments were categorized and summarized. (Table 10 contains a summary of the comments.) In response to the open ended questions, a total of 20 participants indicated that lower rates were important.

Table 8

Golf Course Fee Comparison

	Survey Data	Cottonwood	Riverside	Valley View	Mountain Region
9-hole fee	$7.04	$9.00	n/a	n/a	n/a
18-hole fee	$11.89	$12.00	$20.00	$15.00	$10.00
9-hole member	$258.40	n/a	n/a	n/a	n/a
18-hole member	$319.90	n/a	$960.00	$540.00	$310.00

Note: Riverside and Valley View are private courses. Initiation fee is $1,000 at Riverside, $700 at Valley View, and averages $380 for the Mountain Region. Discounted green fees are offered during the week at Cottonwood ($6.00 for 9 holes, $9.00 for 18 holes). The Mountain Region data is from the Golf Course Operations Survey, and is from 1985.

In calculating the average fees, there are problem areas that should be noted. The average may not be valid because a number of respondents failed to complete the pricing

section or may have interpreted it incorrectly. Only 82 percent of the respondents (51 out of 62) provided prices for green fees, and 50 percent of the respondents (31 out of 62) listed family membership rates. The golfers that did respond may be the most price sensitive golfers.

In addition, it was quite possible that respondents provided annual membership rates for singles instead of family membership rates. An indication of this was that more than one golfer from Riverside listed $100 as a fair annual family membership rate for an 18 hole course. Riverside is a private course whose annual family membership dues (in addition to initiation fee) is $960.

Because of the poor response and the possible misinterpretation of the question, pricing data are not reliable and cannot be used to update the projected revenue and income statements from the Bridger Creek proposal. Additional research is required in order to establish an accurate pricing structure and to determine price sensitivity.

Profile of Existing Courses

The responses to questions 9 and 10 were analyzed together to develop a profile of existing courses. Table 9 summarizes:

- the average scores that each of the courses received

for quality (based on a rating of 1 representing the lowest score and 5 representing the highest score);

- the percentage of respondents that were unable to schedule a tee time when desired within the past year, and the percentage of time they were unable to schedule a tee time;
- the percentage of respondents who answered positively when asked if Bozeman could support a new course;
- the average fees considered fair; and
- the percentage of rounds played on weekends.

Riverside and Valley View had the highest overall score, which can be expected from a private course. Cottonwood would be the prime competitor to a new public golf course since it is the only 18 hole public course. Over 80 percent of the respondents who regularly play at Cottonwood favor a new course (24 out of 29).

The responses tend to indicate that the existing courses are overcrowded. An average of 36.67 percent of the respondents experienced difficulty scheduling a tee time (22 out of 60). Of those reporting tee time problems, they indicated they could not schedule a tee time when desired about 1 out of every 4 times. This indicates that 9.35 percent of the requests for tee times at the existing courses are turned down. A comparable national statistic or data on an acceptable rejection rate were unavailable. Also, this question did not determine the extent of difficulty in

Table 9

Comparison of Responses by Course

	Cottonwood	Riverside	Valley View	Other	Total
# of Respondents	30	8	13	11	62
Course Condition	3.34	4.63	4.17	3.86	3.77
Driving Range	3.36	3.75	3.64	3.86	3.54
Practice Green	3.63	4.50	3.92	4.14	3.88
Challenge	3.38	4.38	4.25	4.00	3.79
Overall Score	13.71	17.26	15.98	15.86	14.98
% of Golfers With Tee Time Problems	40.00%	50.00%	25.00%	30.00%	36.67%
% of time	27.92%	20.00%	13.00%	33.33%	25.48%
% of Golfers Favoring a New Course	82.76%	50.00%	58.33%	60.00%	69.49%
9-hole green fee	$7.28	$6.50	$7.56	$6.07	$7.04
18-hole green fee	$12.48	$11.44	$11.55	$10.67	$11.89
9-hole membership	$209.00	$350.00	$294.50	$250.00	$258.40
18-hole membership	$273.85	$408.33	$345.29	$283.33	$319.90
Rounds on Weekends	46.61%	47.50%	32.38%	61.89%	45.91%

scheduling a tee time. The respondents were not asked how long of a delay they experienced, or whether the were able to schedule an alternate tee time.

The information on overcrowding and percent of golfers favoring a new course may be unreliable. The non-response bias in the survey may have resulted in only golfers with the strongest opinions (pro or con) responding. Perhaps golfers satisfied with the status quo were not motivated to take the time to complete the survey.

Golfer Profile

Following is a summary of the respondent's comments that were most frequently noted in questions 12 and 13. The responses to questions 12 and 13 were combined in the analysis because most of the respondents did not distinguish between them. Since many of the responses overlapped, the questions were combined to eliminate double counting. For example, if a respondent stated in answer to question 12 that Bozeman needs a new course because there is only one public course, and also stated in response to question 13 that a new public course was needed, the response would be counted twice if the questions were analyzed independently. The double counting may have distorted the results of the survey.

A total of 54 surveys had written responses to these questions. These comments indicate areas that may be explored in more detail in a survey developed for a feasibility study. The most frequently noted comments were:

- "Bozeman needs a new golf course because the existing courses are too expensive." Twenty respondents made this or a similarly worded comment.
- "Bozeman needs a new public golf course because there is only one course open to the public." Fourteen respondents noted this concern.

- "Bozeman needs a golf course that is conveniently located." Ten respondents identified this requirement.
- "Bozeman needs a new course because the existing public course is too crowded and play is too slow." This comment was made by 7 people.
- "Bozeman does not need a new course because there is enough golf available for the size of the population." This remark was also made by 7 people.

Table 10 summarizes the responses to questions 12 and 13. Only comments that were noted by more than one respondent are included in this table.

Table 10

Summary of Responses to Questions Twelve and Thirteen

Factor identified	Number Making Comment
Current courses are too costly	20
Not enough courses open to the public	14
Need course that is closer	10
Current courses are too crowded & slow	7
There are enough courses available	7
College students have not been targeted	4
Need more challenging course	3
Educate new golfers on courtesy	3
Need high quality course	2
Open private courses to the public	2
Build a par 3 course	2
Maintain status quo	2
Total number of respondents	54
Total number of non-respondents	8

Estimating Potential Rounds of Golf

The 1988 population of Gallatin County was estimated at 49,000. It is expected to grow to 52,000 by the year 1993. Gallatin County is the third fastest growing county in Montana. From 1980 to 1987, the county population increased 13.7 percent.[7] Demographic data on the residents of Gallatin County are contained in Appendix G.

In the feasibility study for Arrowwood Golf Course, Robert Yoxall provides a rough estimate that a base population of 25,000 is required to support an 18 hole public course. The original intention of this pilot study was to use Mr. Yoxall's calculation to estimate the number of courses that could be supported in Gallatin County. However, the difference in definition of base population made this comparison invalid. Mr. Yoxall's estimate was based on a population within a 45 minute drive of the proposed site. Using Gallatin County as a base excludes a 9 hole, private course in Livingston and population in other counties that are within a 45 minute drive, and includes some people living in the county that are beyond a 45 minute drive.

In addition to the problems with base population, Mr. Yoxall's calculation may not provide an accurate estimation of the ability of Gallatin County to support a new course.

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[7]United States Bureau of the Census, Current Population Reports, Series P-26, No. 87-A "County Population Estimates, July 1, 1987, and Revised Estimates, July 1, 1986."

There are 2 private courses offering 36 holes of golf. These courses would be disregarded in the calculation of the number of holes of public golf that can be supported by a base population because they are not open to the public. Because of the above noted problems, estimating potential roundage is a more accurate means of determining if the county can support an additional golf course.

The survey of golfers in Gallatin County resulted in rejection of the hypothesis that the percentage of the population that plays golf is no different than the percentage determined by the NGF and acceptance of the hypothesis that the average number of rounds played is no different than the average determined by the NGF. Using the survey's estimate that 16.73 percent of the population plays golf and the NGF estimate that the average rounds per golfer is 21.85, a population of 49,000 would generate 179,120 rounds of golf per year. If a new 18 hole course captured an equal share of the market one would expect total rounds to be about 39,800. A new 9 hole course should expect approximately 22,390 rounds.

Golf Course Partners estimates that roughly 20,000 rounds of golf are required to support an 18 hole course. Regional data from the Golf Course Operations Survey confirms this estimate--the average number of rounds per year at a daily fee golf course in the Mountain region was 20,000. In order for a new 18 hole course to generate

20,000 rounds, they must capture at least 11 percent of the total market.

SECTION FIVE: CONCLUSION

Problems Encountered With Sample Selection

Several problems were encountered with the sample selection process. The critical problems included:

- Random telephone numbers were used instead of using the published telephone directory to include unlisted numbers. However, some people with unlisted numbers were suspicious when called for a survey--some asked how their number was obtained and refused to participate.
- A difficulty with using prefixes based on percentage of lines was that, smaller areas had a higher proportion of non-working numbers. With only a few hundred phones in an exchange, it was less likely that a random number between 0000 and 9999 would result in a contact. However, each area was included in the calling sheets. No one living in Amsterdam agreed to participate in the phone survey--two households were reached and both declined. Three Forks, Manhattan, Belgrade, and Gallatin Gateway were under represented

in telephone survey participants. (Refer to Appendix C for representation by area.)

- The timing of the calls was not the best. Calls were made during October and early November, 1988. Several households had been called to participate in election polls and some people refused to spend anymore time participating in telephone surveys.
- Telephone surveying was time consuming and expensive. Each golfer survey mailed out cost approximately $1.75, compared with about $.75 if only a mail survey had been used. (The dollar difference represents the cost of calling a golfer. An average of 5 golfers were contacted per hour at a rate of $5.00 per hour.) It was believed that the time and expense would be justified by a higher survey return rate. However, the actual response rate was approximately 56 percent which may or may not be higher than the response rate expected from a mail survey.
- A follow-up notice was not sent to non-respondents due to delays in completing the telephone survey. There was a high turnover in personnel conducting the telephone survey. The turnover delayed the survey completion process and the response cutoff date by approximately 4 weeks. By the response cutoff date, up to 6 weeks had passed since some of the surveys had been mailed. It was believed that people who had not responded by this date

had most likely disposed of the survey, and would not be likely to respond to a follow-up post card. These problems resulted in fewer surveys being mailed out than originally anticipated. Only 110 of the 200 surveys were mailed to households with golfers.

Limitations

The sample size for the survey was not large enough to have a high confidence in attributing the survey results to the full population. The poor response rate may have been due to anomalies in completing the telephone survey. It was difficult to control the survey process because of the physical distance between people making the telephone calls and the supervisor. There was a high turnover rate in telephone interviewers--in all there were seven individuals making calls. The high turnover delayed the survey's targeted completion date by approximately 4 weeks. Some of the surveys were mailed out after the return date specified in the cover letter. In addition, each individual interviewer's style may have biased the responses of the people contacted.

The calculation of the percent of the population that plays golf may be unreliable. If the average number of people per household for the survey respondents was the same as the average in Gallatin County, and the 14 percent

of the population not identified in the golfer survey are all non-golfers, then the estimate for the percent of the population that plays golf would be about 14 percent. Comparison of this percentage and the percentage determined by the NGF resulted in a calculated z value of -1.49 (the critical z value was -1.96). This percentage is not statistically different than the NGF estimate of about 9.7 percent.

If the data is faulty, the first hypothesis in Section One would be accepted and the projected annual rounds of golf in Gallatin County would be substantially less. Projected rounds would fall to 103,853 from 179,120--a decrease of about 42 percent. This survey cannot attribute the difference in the average number of people per household to either respondent error or to varying characteristics in households with golfers. It would be prudent to conduct further research before relying upon the estimates calculated in this survey.

In addition to weaknesses in the survey, the scope of this paper is limited. It does not address all of the aspects of developing and operating a golf course. It was beyond the scope of this paper to assess the accuracy of estimates for construction costs, expenditure data, and financing requirements. These elements should be included in the development of a full feasibility study.

Recommendation

This pilot study can be used as a basis for a more detailed survey of golfers in the Gallatin County area and as a starting point for a feasibility study. The preliminary research, reported in this paper, indicates the following:

- There may be a possibility that Gallatin County has a higher percentage of golfers than the national average. A more conclusive study of the market is needed to rely on this estimate in calculating the potential rounds a golf course can expect. The survey instrument should be redesigned to explicitly determine the percentage of the population that plays golf. The portion of the survey that collects demographic data should ask for the total number of people in the household and the total number of golfers.
- Gallatin County has a higher percentage of female golfers than the national average. The survey developed for the feasibility study should seek to identify and explore differences between men and women golfers.
- Gallatin County golfers may be price sensitive. The pilot study results in this area were unreliable due to the poor response and possible misinterpretation of the question relating to pricing data. New questions should be developed to assess price sensitivity.

- Gallatin County golf courses may be experiencing overcrowding. If possible, more data should be collected to compare the percentage of time that Gallatin County golfers cannot schedule specific tee times with a percentage that is considered acceptable by industry standards.

In addition, the survey instrument should provide a definition of a golfer as someone who has played within the past two years. This would make the data comparable to the data from the NGF survey.

In order to have at least 95 percent confidence (with an error of 5 percent) in the survey results the number of responses required would be 356. Assuming a response rate of 50 percent is achieved, 712 surveys would need to be mailed. The number of responses required was determined by examining the statistical calculations in Appendix D to determine the sample size needed to ensure that no more than a 5 percent error existed. The proportion for the percentage of golfers in the 30 to 49 age group resulted in the largest required sample size. To ensure that golfers in this age group are adequately represented in the survey, 356 completed survey forms will need to be received.

The sampling frame for this survey could be mailing lists purchased from the golf courses in Gallatin County, if allowed by the courses. The membership lists from the golf courses would be the most efficient means of targeting

golfers. Since the majority of the problems with this survey can be attributed to the difficulty in identifying golfers through a random telephone survey, using the mailing lists as a sampling frame will increase the reliability of the survey results.

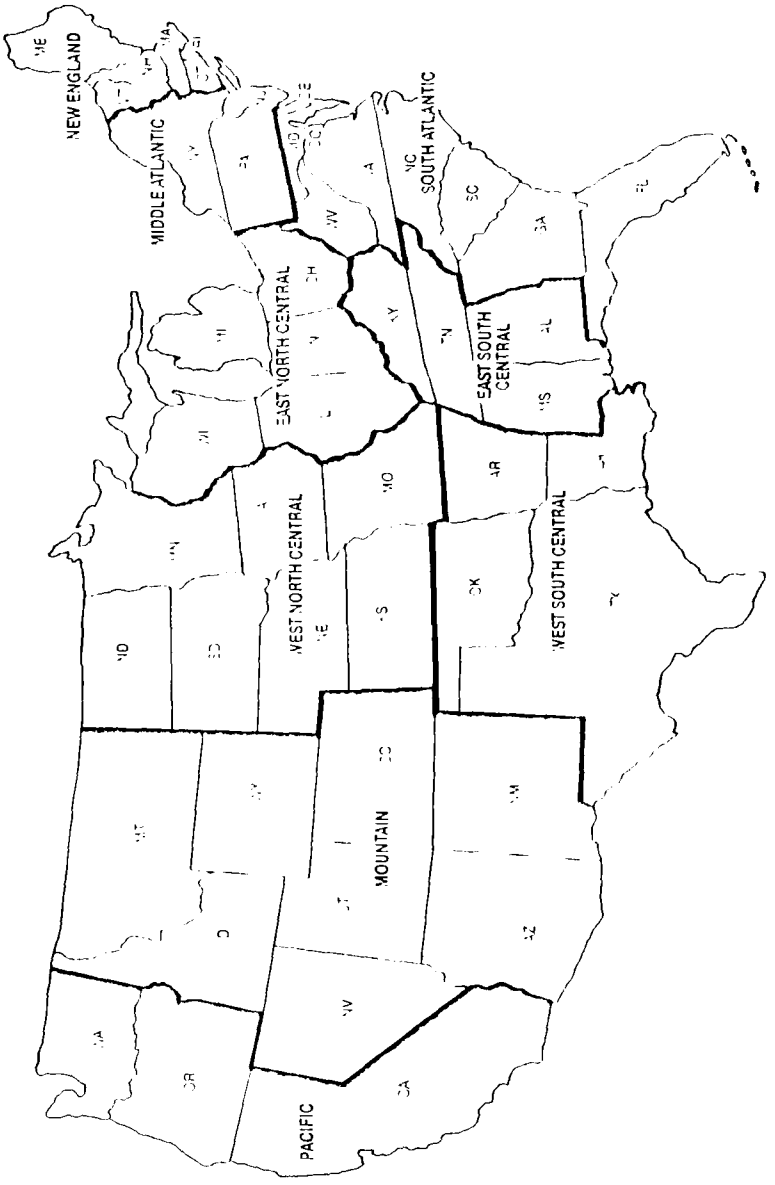
If a mailing list cannot be purchased from the golf courses, a general mailing list could be purchased from sporting goods retailers or marketing firms, or one could be developed by using the city directories or phone books. A general mailing list would require that a larger number of surveys be mailed out to ensure that an adequate number of responses were received.

The pilot study presented in this paper tested a survey instrument and sampling technique. The results can be used as a starting point for a feasibility study of developing a golf course in Bozeman, Montana.

Appendix A

Regional Comparison of Daily Fee Facilities: Golf Course Operations Survey

Regions Used In The Analysis



Source: Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986).

DAILY FEE FACILITIES — Regional Comparisons

	United States (total)	New England	Mid Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
DESCRIPTION OF SAMPLE										
Sample Size (Number)	1088	89	107	344	151	176	35	47	57	82
Sample Size (Percent)	20%	19%	13%	23%	26%	20%	16%	17%	20%	15%
ROUNDS PLAYED										
Number of Rounds	24250	19000	27000	24000	13500	35000	35000	15000	20000	40000
Rounds Played By:										
Men	50%	45%	48%	53%	51%	48%	62%	59%	42%	41%
Women	15%	17%	16%	17%	18%	12%	11%	8%	18%	16%
Juniors	9%	10%	9%	9%	9%	7%	8%	8%	9%	9%
Seniors	26%	28%	27%	21%	24%	33%	19%	25%	31%	34%
LENGTH OF SEASON										
Days	240	222	220	210	200	350	300	310	295	350
MEMBERSHIPS										
Total Memberships	180	203	161	138	160	250	287	221	195	195
Initiation Fee	$245	$245	$245	$230	$165	$325	$135	$225	$380	$275
Annual Dues	$340	$410	$440	$300	$195	$500	$275	$315	$310	$480
Guest Fee	$9.00	$10.00	$10.00	$8.50	$7.50	$10.00	$8.00	$7.00	$9.00	$10.75

Source: Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986).

DAILY FEE FACILITIES

Regional Comparisons

	United States (total)	New England	Mid Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
GREEN FEES										
Weekday (18 Hole)	$8.00	$9.00	$8.00	$8.00	$7.00	$8.00	$6.75	$6.00	$8.00	$9.00
Weekend (18 Hole)	$9.00	$10.00	$10.00	$9.00	$8.25	$10.00	$7.50	$8.00	$10.00	$10.00
Junior Rates Offered	34%	21%	27%	39%	23%	27%	20%	30%	40%	68%
Senior Rates Offered	35%	29%	42%	48%	20%	27%	17%	25%	19%	43%
Season Tickets Offered	31%	21%	34%	42%	26%	16%	20%	15%	47%	44%
PGA PROFESSIONAL	55%	52%	63%	46%	22%	76%	63%	55%	74%	85%
CLUB FACILITIES & SERVICES										
Practice Range	64%	51%	54%	60%	54%	77%	71%	68%	96%	78%
Golf Cars	94%	92%	97%	96%	85%	98%	94%	94%	98%	96%
Caddies	4%	11%	6%	3%	3%	3%	0%	0%	0%	7%
Proshop	93%	93%	96%	94%	79%	95%	97%	98%	98%	99%
Lockers	58%	70%	74%	56%	54%	68%	51%	38%	49%	50%
Dining Room	42%	47%	56%	42%	44%	36%	26%	15%	51%	48%
Bar / Lounge	64%	73%	77%	71%	66%	52%	40%	30%	67%	62%
Tennis	17%	19%	19%	8%	8%	41%	29%	28%	17%	18%
Swimming	19%	11%	23%	9%	11%	41%	31%	36%	19%	15%
Health Club	2%	2%	6%	2%	1%	2%	0%	2%	3%	4%

Source: Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986).

DAILY FEE FACILITIES

Regional Comparisons

	United States (total)	New England	Mid Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
GOLF CARS										
Require Golf Car	3.3%	0%	2.8%	1.4%	0%	13.6%	3%	0%	0%	1.2%
Rounds Using Golf Car	49%	30%	49%	41%	49%	70%	71%	66%	49%	36%
18 Hole Golf Car Fee	$9.00	$11.00	$11.00	$10.00	$10.00	$7.00	$6.00	$9.25	$12.00	$12.00
PRACTICE RANGE										
Large Bucket of Range Balls	$2.00	$2.00	$2.00	$2.00	$2.00	$1.50	$2.00	$2.00	$1.75	$2.00
Individual Lesson (30 min)	$12.00	$12.00	$12.50	$10.00	$10.00	$10.00	$11.00	$10.00	$12.00	$13.75
Junior Rates	29%	30%	31%	29%	25%	33%	26%	*	*	*
PRO SHOP										
Size (square feet)	600	450	600	500	400	800	775	675	600	800
Sales By Product:										
Clubs	17%	17%	17%	14%	18%	13%	16%	16%	14%	16%
Balls	32%	31%	29%	32%	35%	26%	30%	31%	21%	25%
Apparel	20%	16%	16%	16%	15%	23%	15%	13%	30%	18%
Bags	8%	9%	10%	8%	9%	8%	8%	8%	8%	9%
Gloves	11%	11%	11%	12%	10%	11%	14%	12%	12%	10%
Shoes	8%	9%	9%	8%	7%	9%	9%	11%	7%	12%
Other	4%	7%	8%	10%	6%	10%	8%	9%	8%	10%
Offer Discount	79%	75%	89%	82%	67%	79%	80%	77%	75%	89%
Discount Amount	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

Source: Professional Golfers' Association of America and The National Golf Foundation, Golf Course Operations Survey, (Jupiter, Florida, June, 1986).

Appendix B
Golfer Survey and Cover Letter

McGraw McMillan
P.O. Box 3031
Bozeman, MT 59772

October 20, 1988

Dear Golfer:

Recently you were telephoned and you agreed to participate in a survey of Bozeman area golfers. Enclosed is the survey discussed. Please take a moment now to fill out and return the postage paid survey form.

Your opinions on the current golf environment in Bozeman are important. This survey will help identify what factors are most significant to you, the golfing public. The survey could lead to improvements in recreational opportunities in your community.

Your survey is strictly confidential. The individual responses will be combined and summarized for research purposes only.

Thank you for your time and thought in completing this survey. Please return the survey by October 31, 1988.

Sincerely,

Mary Olson
Consultant

1988 BOZEMAN GOLFER SURVEY

1. Please tell me about yourself and anyone over 12 who lives with you.

	Age	Sex	Play Golf?	If yes, how many rounds do you average per year? 9 hole rounds?	18 hole rounds?
Yourself					
Others					

2. What percent of your rounds are played on weekends?

3. Green fees vary greatly across the country. For a high quality public golf course in the Bozeman area, what do you feel is a fair price for:

9-hole course– daily green fee? Annual family membership?

18-hole course– daily green fee? Annual family membership?

4. Do any of the following factors prevent you from playing golf as often as you would like? (Check all that apply.)

- Length of time required to play
- Travel time to the golf course
- Poor quality playing conditions
- Failure to see improvement in your game
- Time taken away from family
- Other time commitments
- High cost
- Intimidated by golfers with more experience
- Other

5. Have you been unable to schedule a tee-time when you wanted in the past year because the course was full? Y or N If yes, what percent of the time?

6. Would you be more interested in playing a par 3 or a regulation length course? (Mark one)

par 3 short course regulation length course

7. Do you use the driving range? Y or N
If yes, do you use the driving range: (Mark one)

to warm up before you play golf only for practice both for warm up and practice

8. Please mark the three summer activities in which you participate most often.

softball hiking fishing boating gardening

camping swimming biking horseback riding

golf other

9. Which golf course do you most frequently play golf?

10. Please rate the following at the course identified in question 9.

	Below Average				Above Average
Condition of the course	1	2	3	4	5
Quality of the driving range	1	2	3	4	5
Condition of the practice green	1	2	3	4	5
Difficulty or challenge of the course	1	2	3	4	5

11. Please rate the importance of the following facilities or services.

	Unimportant				Important
Miniature Golf	1	2	3	4	5
Pro Shop	1	2	3	4	5
Club Rentals	1	2	3	4	5
Cart Rentals	1	2	3	4	5
Club Storage	1	2	3	4	5
Locker Rooms	1	2	3	4	5
Restaurant	1	2	3	4	5
Lounge	1	2	3	4	5
Patio / Grill	1	2	3	4	5
Group Lessons	1	2	3	4	5
Private Lessons	1	2	3	4	5
Beginners Leagues	1	2	3	4	5
Competitive Leagues	1	2	3	4	5
Child Care	1	2	3	4	5

12. Do you believe Bozeman could support a new public (not private) golf course? Y or N
Why?

13. What actions can be taken to improve golf in the Bozeman area?

Thank you for taking the time to complete this survey!

Please fold and mail the survey to:

Golf Survey
P.O. Box 3031
Bozeman, MT 59772

Appendix C

Representation By Calling Area

	Lines		Participants	
	#	%	#	%
Bozeman	16495	77.23%	428	93.86%
Belgrade	2607	12.21%	21	4.61%
Three Forks	972	4.55%	5	1.10%
Manhattan	369	1.73%	1	0.22%
Amsterdam	368	1.72%	0	0.00%
Gallatin Gateway	547	2.56%	1	0.22%
	21358	100.00%	456	100.00%

Appendix D

Statistical Calculations

Hypotheses Testing

P1=Sample proportion of successes in Group 1
P2=Sample proportion of successes in Group 2
Sp1-p2=pooled estimate of the standard error of difference of proportions
p=pooled estimate of proportion of success in a sample of both groups
q=(1-p)
N1=Sample size for Group 1
N2=Sample size for Group 2
alpha=.05
critical z value +/- 1.96

Hypothesis One

The following calculation is a comparison of the percent of the population that plays golf--assuming that households with golfers have fewer people per household than the average in Gallatin County.

P1	0.097
P2	0.1673
Sp1-p2	0.031556
p	0.098908
q	0.901092
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = -2.22779

The null hypothesis is rejected.

The following calculation is a comparison of the percent of the population that plays golf--assuming that households with golfers have the same number of people per household as the average in Gallatin County.

P1	0.097
P2	0.1438
Sp1-p2	0.031465
p	0.09827
q	0.90173
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = -1.48736

The null hypothesis is accepted.

Hypothesis Two

The following calculation is a comparison of the % of golfers classified as infrequent from the Gallatin County Survey and the NGF Survey.

P1	0.21
P2	0.1412
Sp1-p2	0.044609
p	0.208271
q	0.791729
N1	3298
N2	85

Calculated Z=(P1-P2)/Sp1-p2 = 1.542301

The null hypothesis is accepted.

The following calculation is a comparison of the % of golfers classified as occasional from the Gallatin County Survey and the NGF Survey.

P1	0.28
P2	0.1882
Sp1-p2	0.049199
p	0.277693
q	0.722307
N1	3298
N2	85

Calculated Z=(P1-P2)/Sp1-p2 = 1.865876

The null hypothesis is accepted.

The following calculation is a comparison of the % of golfers classified as average from the Gallatin County Survey and the NGF Survey.

P1	0.26
P2	0.2941
Sp1-p2	0.048237
p	0.260857
q	0.739143
N1	3298
N2	85

Calculated Z=(P1-P2)/Sp1-p2 = -0.70692

The null hypothesis is accepted.

The following calculation is a comparison of the % of golfers classified as avid from the Gallatin County Survey and the NGF Survey.

P1	0.25
P2	0.3765
Sp1-p2	0.047768
p	0.253178
q	0.746822
N1	3298
N2	85

Calculated Z=(P1-P2)/Sp1-p2 = -2.64821

The null hypothesis is rejected.

Hypothesis Three

The following calculation is a comparison of the percent of female golfers from the Gallatin County Survey and the NGF Survey.

P1	0.212
P2	0.337
Sp1-p2	0.043453
p	0.215392
q	0.784608
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = -2.87666

The null hypothesis is rejected.

Hypothesis Four

The following calculation is a comparison of the percent of golfers under 20 from the Gallatin County Survey and the NGF Survey.

P1	0.115
P2	0.076
Sp1-p2	0.033586
p	0.113942
q	0.886058
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = 1.161212

The null hypothesis is accepted.
The following calculation is a comparison of the percent of golfers in the 20 to 29 age group from the Gallatin County Survey and the NGF Survey.

P1	0.2425
P2	0.272
Sp1-p2	0.045595
p	0.243292
q	0.756708
N1	3298
N2	91

Calculated Z=(P1-P2)/Sp1-p2 = -0.647

The null hypothesis is accepted.

The following calculation is a comparison of the percent of golfers in the 30 to 49 age group from the Gallatin County Survey and the NGF Survey.

P1	0.365
P2	0.424
Sp1-p2	0.050935
p	0.366601
q	0.633399
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = -1.15834

The null hypothesis is accepted.

The following calculation is a comparison of percent of golfers 50 and over from the Gallatin County Survey and the NGF Survey.

P1	0.2775
P2	0.228
Sp1-p2	0.047259
p	0.276157
q	0.723843
N1	3298
N2	92

Calculated Z=(P1-P2)/Sp1-p2 = 1.047429

The null hypothesis is accepted.

Estimate of the Error and Sample Size

n = number of items in the sample
Z = confidence interval in standard error units
p = estimated proportion of successes
q = estimated proportion of failures (1-p)
E = allowance for error between the true proportion and the sample proportion

Calculation of number required in the sample
n = ((Z*Z)*p*q)/(E*E)

Calculation of Error
E = sqrt((Z*Z)*p*q)/n

Hypothesis One

NGF 1985 study determined that 9.7% of the general population plays golf. The Gallatin County study estimated that 16.73% of the population plays golf.

	estimated	actual
n =		456
Z =	1.96	1.96
p =	0.097	0.1673
q =	0.903	0.8327
E =	0.05	
n	135	
E		3.43%

If there are the same number of people per household in the golfer households as the average for Gallatin County, then the estimate of the percent of the population that plays golf would be 14.38%.

	estimated	actual
n =		456
Z =	1.96	1.96
p =	0.097	0.1438
q =	0.903	0.8562
E =	0.05	
n	135	
E		3.22%

Hypothesis Two

NGF 1985 study determined that 21% of golfers are classified as infrequent. The Gallatin County study estimated that 14.12% of golfers are classified as infrequent.

	estimated	actual
n =		85
Z =	1.96	1.96
p =	0.21	0.1412
q =	0.79	0.8588
E =	0.05	
n	255	
E		7.40%

NGF 1985 study determined that 28% of golfers are classified as occasional. The Gallatin County study estimated that 18.82% of golfers are classified as occasional.

	estimated	actual
n =		85
Z =	1.96	1.96
p =	0.28	0.1882
q =	0.72	0.8118
E =	0.05	
n	310	
E		8.31%

NGF 1985 study determined that 26% of golfers are classified as average. The Gallatin County study estimated 29.41% are classified as average.

	estimated	actual
n =		85
Z =	1.96	1.96
p =	0.26	0.2941
q =	0.74	0.7059
E =	0.05	
n	296	
E		9.69%

NGF 1985 study determined that 25% of golfers are classified as avid. The Gallatin County study estimated that 37.65% are classified as avid.

	estimated	actual
n =		85
Z =	1.96	1.96
p =	0.25	0.3765
q =	0.75	0.6235
E =	0.05	
n	288	
E		10.30%

Hypothesis Three

NGF 1985 study determined that 21.2% of the golfers are female. The Gallatin County study estimated that 33.7% of the golfers are female.

	estimated	actual
n =		92
Z =	1.96	1.96
p =	0.212	0.337
q =	0.788	0.663
E =	0.05	
n	257	
E		9.66%

Hypothesis Four

NGF 1985 study determined that 11.5% of golfers were under 20. The Gallatin County study estimated 7.6% of golfers were under 20.

	estimated	actual
n =		92
Z =	1.96	1.96
p =	0.115	0.076
q =	0.885	0.924
E =	0.05	
n	156	
E		5.42%

NGF 1985 study determined that 24.25% of the golfers were between 20 and 29. The Gallatin County study estimated that 27.2% of the golfers were between 20 and 29.

	estimated	actual
n =		92
Z =	1.96	1.96
p =	0.2425	0.272
q =	0.7575	0.728
E =	0.05	
n	282	
E		9.09%

NGF 1985 study determined that 36.5% of the golfers were between 30 and 49. The Gallatin County study estimated that 42.4% of the golfers were between 30 and 49.

	estimated	actual
n =		92
Z =	1.96	1.96
p =	0.365	0.424
q =	0.635	0.576
E =	0.05	
n	356	
E		10.10%

NGF 1985 study determined that 27.75% of the golfers were over 50. The Gallatin County study estimated 22.8% of the golfers were over 50.

	estimated	actual
n =		92
Z =	1.96	1.96
p =	0.2775	0.228
q =	0.7225	0.772
E =	0.05	
n	308	
E		8.57%

Appendix E

Comparison of Responses by Male and Female Participants

Question # 3

	Daily Fee		Family Membership	
	9-hole	18-hole	9-hole	18-hole
Female Golfers	$6.20	$10.36	$275.00	$346.88
Male Golfers	$7.40	$12.33	$257.60	$310.10
Combined	$7.04	$11.89	$258.40	$319.90

(Average daily green fees and annual membership fees listed by male and female participants.)

Question # 4

	Female	Male	Combined
High cost	55.00%	48.78%	50.00%
Other time commitments	45.00%	34.15%	37.10%
Length of time required to play	20.00%	24.39%	24.19%
Travel time to the golf course	10.00%	21.95%	17.74%
Time taken away from family	25.00%	14.63%	17.74%
Other	30.00%	9.75%	16.13%
Intimidated by golfers with more experience	25.00%	9.75%	14.52%
Poor quality playing conditions	5.00%	14.63%	11.29%
Failure to see improvement in your game	5.00%	9.75%	8.06%

(Percent of male and female participants indicating this specific inhibiter to playing golf.)

Appendix F

Demographics of Gallatin County Golfers

Age	Male	Female	9-hole Rounds	18-hole Rounds	Total Rounds	Classification
62	1		32	160	192	Avid
54		1		100	100	Avid
53		1	72	10	82	Avid
67	1		70	10	80	Avid
30	1		60	10	70	Avid
22	1			65	65	Avid
41	1		40	20	60	Avid
64	1		30	30	60	Avid
63	1		60		60	Avid
56		1		60	60	Avid
30	1		40	15	55	Avid
30	1		20	30	50	Avid
62		1	50		50	Avid
21	1		44		44	Avid
27	1		25	16	41	Avid
26		1	30	10	40	Avid
79	1		20	20	40	Avid
59	1		32	4	36	Avid
55	1		30	5	35	Avid
43		1	30	3	33	Avid
17		1	30		30	Avid
62		1	15	15	30	Avid
17	1		20	10	30	Avid
37	1			30	30	Avid
37	1		20	10	30	Avid
22		1	21	6	27	Avid
30	1		20	6	26	Avid
21	1		20	5	25	Avid
21	1		10	15	25	Avid
28		1	15	10	25	Avid
30	1		10	15	25	Avid
58	1		20	5	25	Avid
39	1		20		20	Average
72		1	10	10	20	Average
48	1		20		20	Average
61	1			20	20	Average
44	1		10	10	20	Average
24	1		15	5	20	Average
23	1		15	4	19	Average

Age	Male	Female	9-hole Rounds	18-hole Rounds	Total Rounds	Classification
36	1		3	15	18	Average
50	1		12	6	18	Average
26	1		15		15	Average
44	1		10	5	15	Average
36	1		10	5	15	Average
46		1	15		15	Average
33		1	15		15	Average
54		1	12		12	Average
35	1		12		12	Average
28	1		10	2	12	Average
23	1		10		10	Average
38		1	10		10	Average
18		1	10		10	Average
13		1	10		10	Average
25	1		6	2	8	Average
22	1		6	2	8	Average
21	1		6	2	8	Average
20		1	6	2	8	Average
22	1		6	1	7	Occasional
19	1		4	3	7	Occasional
35	1		2	5	7	Occasional
29		1	6		6	Occasional
35		1	3	3	6	Occasional
34	1		5		5	Occasional
21	1		5		5	Occasional
38		1	5		5	Occasional
47	1		5		5	Occasional
34		1	4		4	Occasional
35		1	3		3	Occasional
62	1		3		3	Occasional
46	1		2	1	3	Occasional
29		1	3		3	Occasional
31		1	3		3	Occasional
35		1	3		3	Occasional
35	1		2		2	Infrequent
18	1		2		2	Infrequent
41	1			2	2	Infrequent
39	1		2		2	Infrequent
26		1	2		2	Infrequent
22	1		1	1	2	Infrequent
43	1		2		2	Infrequent
22	1		2		2	Infrequent
45	1			2	2	Infrequent
42		1	2		2	Infrequent
16	1		1		1	Infrequent
29	1		1		1	Infrequent

Age	Male	Female	9-hole Rounds	18-hole Rounds	Total Rounds	Classification
72	1					
58	1					
52		1				
49		1				
41	1					
39		1				
39	1					

Summary

Average Age	37.8587
# Males	61
# Females	31
Average Rounds	23.95
Std. Dev. of Rounds Played	28.34

Appendix G

Gallatin County Demographic Data

Income Distribution by Household
(1988 Estimate)

Income Range (In Dollars)	Distribution (In Percent)
0 - 9,999	19.80
10,000 - 14,999	11.50
15,000 - 24,999	23.00
25,000 - 34,999	19.40
35,000 - 49,999	15.50
50,000 - 74,999	8.00
75,000 +	2.80

Percent of Households with Income > $15,000	68.70

Gallatin County
Age Distribution
(1988 Estimate)

Age Range (In Years)	Distribution (In Percent)
0 - 4	6.70
5 - 11	9.10
12 - 17	7.40
18 - 24	16.20
25 - 34	22.40
35 - 44	15.20
45 - 54	8.30
55 - 64	6.30
65 - 74	4.90
75 +	3.50

Percent of Population 18 and Over	76.80

Gallatin County	1980	1988	1993
# of Households	15,000	18,000	20,000
Total Population	43,000	49,000	52,000
Avg. # People/Household	2.86	2.72	2.60
Median Household Income	$15,357	$23,129	$25,175
Median Age	25.2	30.3	32.7

Source: The 1988 Sourcebook of Demographics and Buying Power for Every County in the USA. CACI

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