

**ECONOMIC
IMPACT:
GOLF AND
TURFGRASS IN
NEW MEXICO
2004-2005**

ECONOMIC IMPACT: GOLF AND TURFGRASS IN NEW MEXICO 2004-2005*

CONTENTS

EXECUTIVE SUMMARY _____	p. 3
INTRODUCTION _____	p. 6
RESEARCH METHODOLOGY _____	p. 7
Data Collection _____	p. 7
The Economic Model _____	p. 8
IMPACT ANALYSIS—AGGREGATE _____	p. 8
Types of Impacts _____	p. 9
Industry Impact Analyses _____	p.10
IMPACT ANALYSIS—MAJOR INDUSTRY COMPONENTS _____	p.13
Golf _____	p.13
Golf Tourism _____	p.15
Landscape/Parks/Open Spaces _____	p.18
CONCLUSIONS AND OBSERVATIONS _____	p.19
Potential for Industry Expansion _____	p.20
Quality of Resource Management _____	p.20
Research and Development _____	p.21
REFERENCES _____	p.22
DATA SOURCES _____	p.22
LIST OF CHARTS _____	p.24
APPENDICES _____	p.25
Appendix 1 – NM Golf _____	p.26
Appendix 2 – NM Golf Tourism _____	p.28
Appendix 3 – NM Landscape/Parks/Open Spaces _____	p.29
Appendix 4 – Acreage & Maintenance Cost Estimates	p.34
ENDNOTES _____	p.35

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ECONOMIC IMPACT: GOLF AND TURFGRASS IN NEW MEXICO 2004-2005

....golf courses and turfgrassed areas add considerably to New Mexico's environmental amenities and both resident and non-resident views of the quality of life

EXECUTIVE SUMMARY

As New Mexico's population grows and the economy expands how we use scarce resources becomes increasingly a part of the public debate. For those concerned with economic development and tourism, golf courses and turfgrassed areas add considerably to the New Mexico's environmental amenities and both resident and non-resident views of the quality of life. Such considerations are routinely important factors in the location of clean industry, and competitiveness for convention business. These factors are also prominent in tourism decision-making and second homes for the semi-retired and snowbirds.

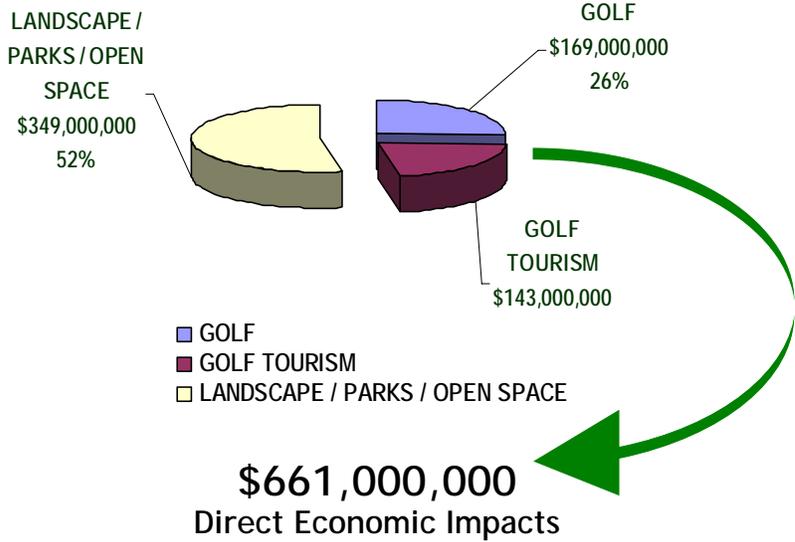
The study reported here focuses on the economic impact of golf and golf related activities and public and private expenditures on landscapes. This includes golf courses and directly related activities such as golf played by non-residents, public open spaces (city parks, etc.), institutional landscaping, and landscape design, contracting and services. Expenditures on these categories of turfgrass related goods and services are quantifiable, some directly and some indirectly, using surveys, data from the New Mexico Department of Taxation and Revenue, data from the National Golf Foundation, and a variety of industry sources. The working definition for landscape only specifically excludes turfgrass areas in state public rights-of-way. This undoubtedly eliminates an element of value from our consideration, no practical direct or indirect way to isolate the expenditures on this was identified.

An IMPLAN economic model of New Mexico was used for the impact analyses¹. IMPLAN is a "demand driven" model that allows the impact of an expenditure (e.g., payment of a \$30 greens fee reflects \$30 worth of demand for golf) to be traced and quantified as it ripples through the economy. The impacts are generally as follows: Direct (a \$30 greens fee is paid); Indirect (the \$30 pays for goods and services necessary to deliver a round of golf); and, Induced (wage earners involved in providing the golfing opportunity—both Directly and Indirectly—spend their wages and create additional economic activity). In addition to a wide variety of impacts (e.g., value by sector, value-added, taxes paid) measured in financial terms, the model provides estimates of employment impacts.

Total Economic Impact: Based on a fiscal 2004-2005 year, the direct impact of golf, golf related activity, and turfgrass expenditures on New Mexico was as follows:

For 2004-2005 the total economic impact of the Green Industry on the New Mexico economy ...is \$1,392,000,000

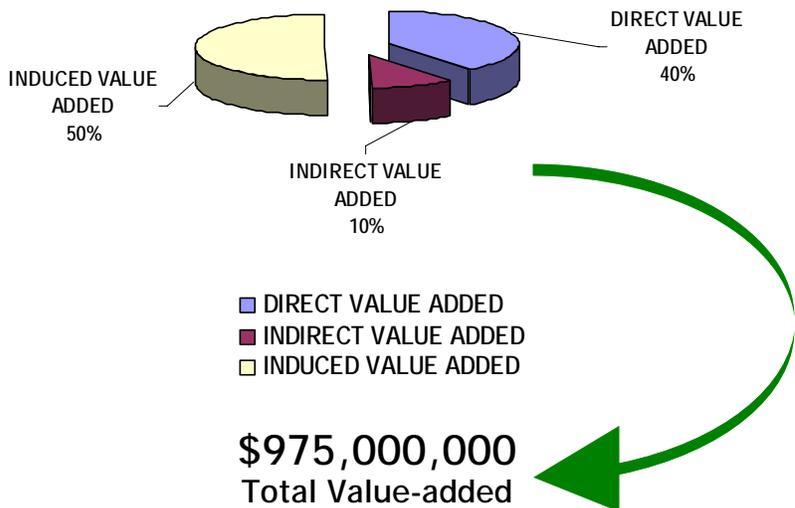
NM GOLF & TURFGRASS DIRECT ECONOMIC IMPACTS



For 2004-2005 the total economic impact (direct, indirect, and induced) of golf and turfgrass on the New Mexico economy is estimated to be \$1,392,000,000.

Value-addedⁱⁱ: Value-added is a measure of value to New Mexico when the cost of imported goods and services are netted out of the total impact. For golf and turfgrass, Total Value-added was \$975,000,000. This amount (70% of Total Impact) is a more accurate indication of the industry’s tangible value to the New Mexico economy than total impact.

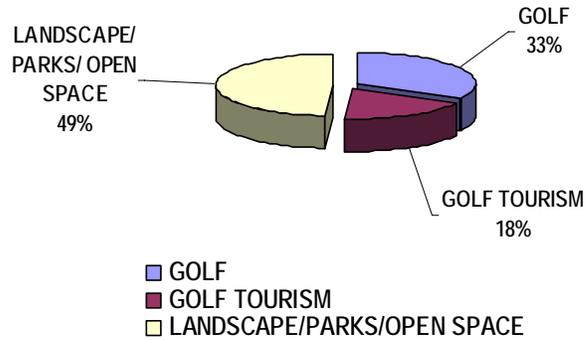
NM GOLF & TURFGRASS TOTAL VALUE ADDED



By major activity, the value-added amounts are Golf (33%), Golf Tourism (18%) and Landscape/Parks/Open Space (49%).

The relatively high total figure (70% of Total Economic Impact) is consistent with a labor and human capital intensive industry.

NM GOLF & TURFGRASS TOTAL VALUE ADDED BY SECTOR

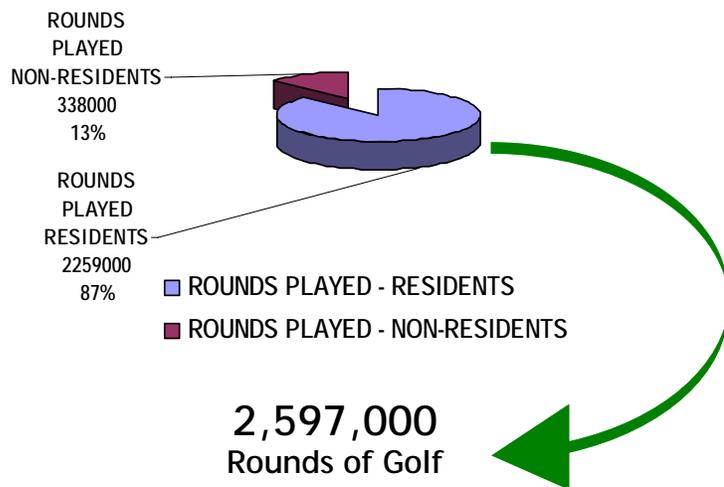


Golf Related Activity: Total Value-added figures for Golf and Golf Tourism (non-resident golf) demonstrate the importance of golf to the economy, combining to contribute 51% of Total Value-added. Golf Tourism's 19% contribution to Total Value-added is produced by non-resident golfers who account for only 13% of the total rounds played in New Mexico in 2004-2005.

Golf related tourism represents an opportunity for economic growth with a high impact on the economy

ROUNDS OF GOLF PLAYED

Residents vs Non-Residents 2004-2005



Because of its high economic impact, golf related tourism is an attractive opportunity for economic expansion since investments in growth (advertising, packaging, etc.) will have a disproportionately large impact on the economy in comparison to other components the economy, not to mention resident golf. Furthermore, given the demographics of the golf oriented tourist, investments in golf tourism may be one of the highest return investments that can be made anywhere in the New Mexico economy.

ECONOMIC IMPACT: GOLF AND TURFGRASS IN NEW MEXICO

INTRODUCTION

In July 1980 a pamphlet containing the results of the New Mexico Turfgrass Survey was released by the New Mexico Department of Agriculture at New Mexico State University, the USDA Crop and Livestock Reporting Service and the Southwest Turfgrass Associationⁱⁱⁱ. In addition to collaborating on the survey the Southwest Turfgrass Association provided the funding for the study. The survey was an ambitious effort. However, it was limited in its scope to the provision of estimates of maintained turf areas in the state. No attempt was made to assess the economic impact of the cost of developing or maintaining those areas or the activities such as golf or other sporting or recreational activities that were dependent upon them. In 1982, the University of California released a study (nominally focused on water conservation in turfgrass use) that provided estimates of the expenditures on turfgrass maintenance by state^{iv}.

In April 1986 the New Mexico Agricultural Experiment Station released a report entitled *The New Mexico Turfgrass Industry: An Empirical Analysis of the Demand for Turfgrass Sod*^v. This study focused on forecasting demand for sod and related landscaping products, but did not attempt to examine the economic impact of the industry on the New Mexico economy.

The current study began in 2004. The intent at the time was to develop for the first time a comprehensive picture of the economic impact of the industry on the New Mexico economy. With minor exceptions due to data availability, that intention is met with the study presented here.

Scope of Industry

The study reported here focuses on the economic impact of golf and golf related activities and public and private expenditures on landscapes. This includes golf courses and directly related activities such as golf played by non-residents, public open spaces (city parks, etc.), institutional landscaping, and landscape design, contracting and services. Expenditures on these categories of turfgrass related goods and services are quantifiable, some directly and some indirectly. This definition specifically excludes turfgrass areas in public rights-of-way. This exclusion undoubtedly represents some value to the economy but no practical direct or indirect way to isolate the expenditures on it was identified.

Support

This economic impact study for New Mexico's golf and turfgrass industries was supported by:

The Professional Golfers Association - Sun Country Section
The Rio Grande Golf Course Superintendents Association
The Southwest Turfgrass Association

In addition to providing the funding for the study the officers and membership of the three organization supported the work with their cooperation in the development, distribution and completion of surveys, generous allocation of time for interviews, provision of proprietary data, and identification of important sources of secondary data.

RESEARCH METHODOLOGY

Data Collection

The data necessary for the development of the economic impact assessment was assembled using a broad variety of direct and secondary sources as follows:

- Surveys
PGA professionals for pro shop operations and personnel details
Telephone surveys to develop specific information such as current greens fees levels by season
- Interviews
Golf Course Superintendents—approximately one third of the state’s golf course superintendents were visited and interviewed
Professional Golfers Association of America—the PGA Sun Country Section Executive Director was consulted on several occasions and assisted in the development of survey instruments used. Several PGA professionals were also interviewed/consulted
- Secondary Sources
National Golf Foundation
Professional Golfers Association of America
New Mexico Taxation and Revenue Department
New Mexico Municipal League
Municipal Budgets (various municipalities)
Institutional Budgets (various)
New Mexico Business Weekly
ICA/International Competitive Assessments
Mountaintop Golf Cars, Inc
Miscellaneous research studies

The basic data development protocol was to seek primary data were possible, and to revert to secondary data if no primary data was available—or if the data available was insufficient. Whenever possible estimates were compared to data obtained from the National Golf Foundation or other appropriate sources to determine if the estimates developed were plausible. In some instances even secondary data was not available for New

Mexico specifically^{vi}. There are also instances where the estimates used were developed using national averages adjusted as appropriate for New Mexico's situation.

The Economic Model

An IMPLAN economic model of New Mexico was used for the impact analyses. IMPLAN is a "demand driven" model that allows the impact of a specified expenditure (e.g., payment of a \$30 greens fee reflects \$30 worth of demand for golf) to be traced and quantified as it ripples through the economy. The impacts are generally as follows: Direct (a \$30 greens fee is paid); Indirect (the \$30 pays for goods and services necessary to deliver a round of golf); and, Induced (wage earners involved in providing the golfing opportunity—both Directly and Indirectly—spend their wages thus creating additional economic activity). In addition to a wide variety of impacts (e.g., value by sector, value-added, taxes paid) measured in financial terms, the model provides estimates of employment impacts.

Modeling Protocols. A single aggregate model of all New Mexico's 33 counties was used for the various analyses. Final demands are assembled into three major activity sectors for the 2004-2005 fiscal year as follows:

- Golf**
- Golf Related Tourism**
- Landscape/Parks/Open Spaces**

Golf—this grouping is comprised of all those final demand activities that are clearly associated with playing golf such as greens fees, purchases of clubs, balls, golf car rentals and purchases, etc., and other golf related services normally associated with golfing facilities.

Golf Related Tourism—this grouping includes all of the expenditures typically made by a tourist, but does not include greens fees paid by the non-resident golfers. These fees are included in the amounts stated for total greens fees.

Landscape/Parks/Open Spaces—this grouping includes home and institutional landscapes, schools, parks, playing fields, and landscape construction and maintenance services for turfgrass areas. It also includes golf course construction and development.

IMPACT ANALYSIS—AGGREGATE

Virtually any activity that involves the purchase, sale or barter of goods and services has an impact on the economy in which the transaction takes place. That activity will also have an

the extent to which direct and indirect expenditures occur in New Mexico determines the level of impact on the economy

impact on other economic systems if goods or services involved in the transaction originate outside of the system (county, state, country, etc.) being studied. For example, the construction of a golf course will have a substantial economic impact. There will be purchases of land, construction materials, utilities, services, and large amounts of skilled labor. The impact of this construction on the local economy depends upon several factors, beginning with the amount of purchases made locally. A second factor is the extent to which those local suppliers of goods and services to the construction are able to purchase their inputs locally. Finally, there is the impact of consumer spending by those whose incomes are linked directly or indirectly to the construction project. In each case, the extent to which direct and indirect expenditures occur in New Mexico determines the level of impact on the economy.

Types of Impacts

There are three levels, and a number of different types of impacts (measured in \$\$, employment, value added, income, etc.) The definitions are generally as follows:

Direct Impacts—impacts that result from changes to final demand (ultimate user). Examples include greens fees, a homeowner’s landscape installation, a meal at a restaurant, a box of golf balls, etc.

Indirect Impacts—impacts that result from business spending on goods and services that are necessary to support the delivery of products to final demand (ultimate user). For example, greens fees (final demand) indirectly translate into purchases of other goods and services by the golf course superintendent to make the course playable. Those purchases of goods, e.g., chemicals, lead to indirect impacts on production, employment, etc, elsewhere within and outside of the economy.

Induced Impacts—impacts that result from consumer spending by wage earners whose incomes are directly or indirectly linked to final demand (here final demand for golf and turfgrass goods and services). For example the personal spending of the employees of the golf course, as well as the employees of the suppliers of goods and services to the golf course account for the induced impacts of golf and turfgrass.

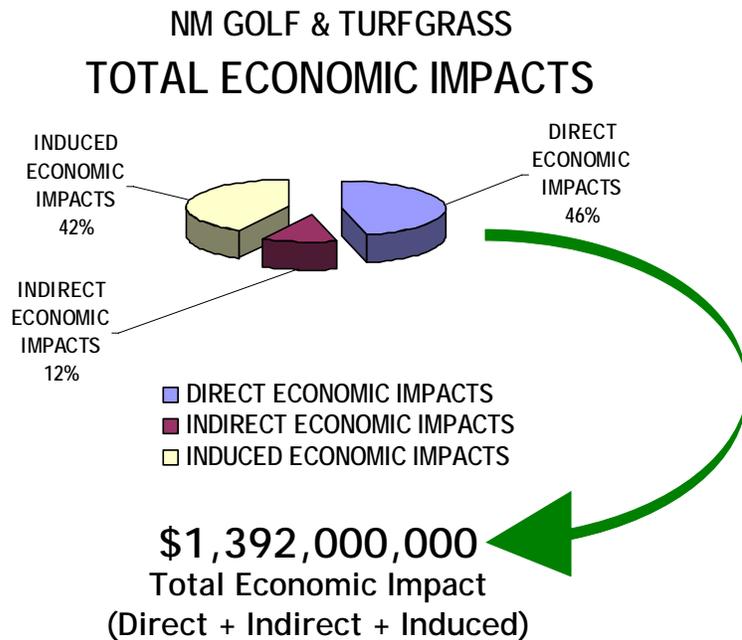
Total Impact—total impact, whether economic, employment, taxes, value-added, etc., does not include “leakages” to economies outside of the New Mexico study area, i.e., the payments for imported goods will have an impact on the economies from which they are imported. A golf car or

tractor used for landscaping may be manufactured in another state or country. The impact is experienced where the item is manufactured.

Total Economic Impact The total economic impact of golf and turfgrass is Direct Impacts plus Indirect Impacts plus Induced Impacts = Total Impact.

Industry Impact Analyses

Golf and turfgrass’s impact on New Mexico is as follows:



While the Total Economic Impact is the largest measure of the impact of golf and turfgrass on the economy, it is not the most meaningful measure of the industry’s impact. This is because the cost of goods that are imported are included in the total. For example, the dealer’s cost of a golf car manufactured in Michigan or Canada is included in the final demand figures despite the fact that only a fraction of the total price constitutes value added in New Mexico. While tax revenues may be enhanced by virtue of the total value being higher, the actual margin of value added in New Mexico by the dealer is of more general interest. This is because the margin of value-added in New Mexico translates into jobs and income for New Mexicans and local business enterprises.

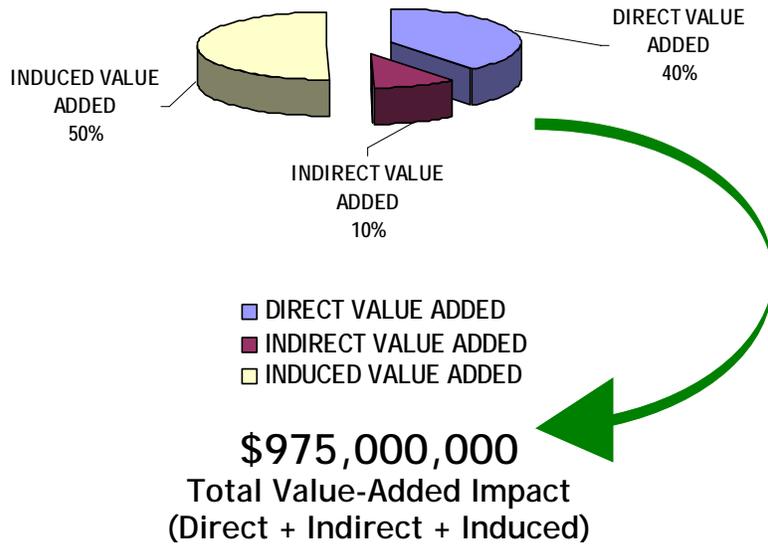
Value-Added

The value-added in New Mexico is a measure of the extent to which the economy is able to produce the full array of goods and services necessary to conduct and support a particular industry. For golf and turfgrass, Total Value-added was \$975,000,000. While not as large as the total impact, Total

Value-added (70% of Total Impact) is a more accurate indication of golf and turfgrass activities' tangible value to the New Mexico economy than Total Impact since it reflects activity in New Mexico.

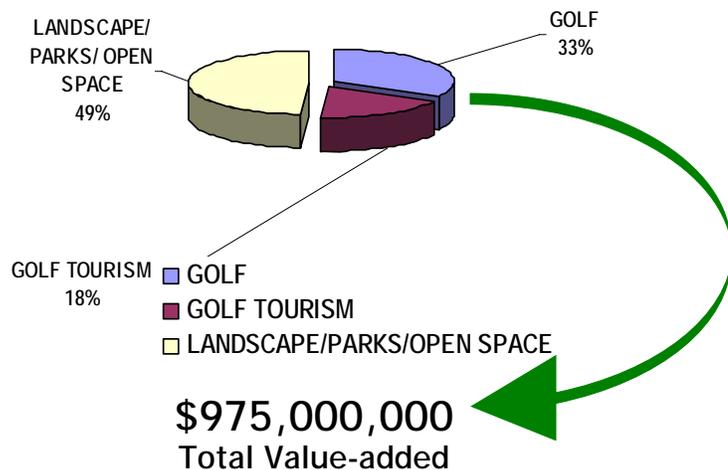
Total Value-Added ... is a more accurate indication of golf and turfgrass activities' tangible value to the New Mexico economy than Total Impact

NM GOLF & TURFGRASS TOTAL VALUE ADDED



The value added breakdown by sector grouping is as follows:

NM GOLF & TURFGRASS TOTAL VALUE ADDED BY SECTOR



Total Employment Impact

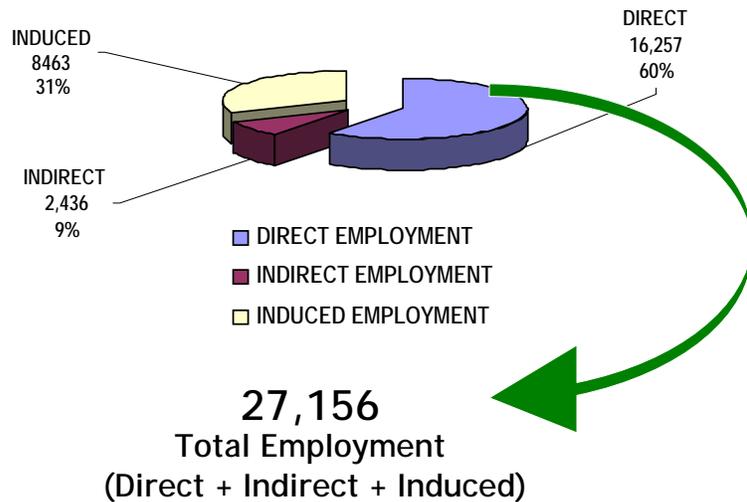
Employment associated with direct (final) demands for goods and services is Direct Employment. For Golf this includes maintenance staff, pro shop staff, administrative staff, etc.; For Landscape/Parks/Open Spaces a similar array of

employees; Golf Tourism’s employees include work for hotels, rental car agencies, restaurants, etc. that serve golfers.

Indirect Employment includes all goods and service providers who support the Golf, Golf Tourism and Landscaping demands with utilities, services, supplies, etc.

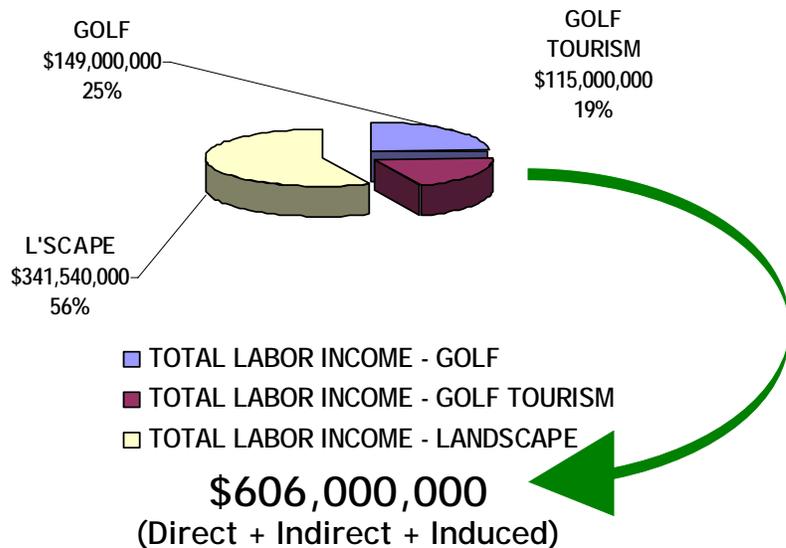
Induced Employment results from spending wages and salaries earned in direct and indirect activities on the typical array of consumer durable and non-durable goods.

NM GOLF & TURFGRASS TOTAL EMPLOYMENT IMPACT



The labor incomes associated with these employment totals are as follows:

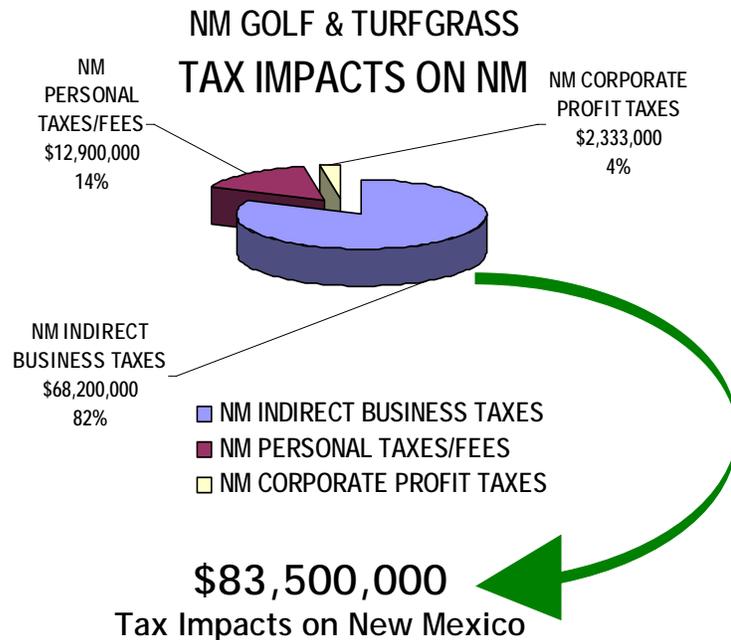
NM GOLF & TURFGRASS TOTAL LABOR INCOME



Tax Impacts

Golf and turfgrass's tax impacts register in three major areas, Taxes on wages and salaries; Corporate Profit Taxes, and Indirect Business Taxes^{vii}.

Indirect Business Taxes include excise and sales taxes paid by individuals to businesses during the normal course of business. They do not include taxes on business income or profits.



Golf is a ..
potent and clean
running
component of
the state's
growing economy

IMPACT ANALYSIS—MAJOR INDUSTRY COMPONENTS

Golf

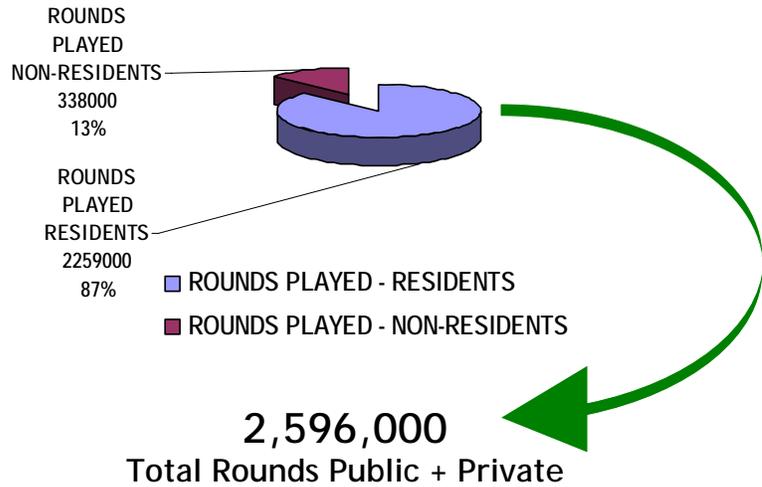
Golf related expenditures are the second largest of the three major industry groupings. When Golf Tourism is added, New Mexico's golf "industry" accounts for just over one-half of the state's green economy. Since it is a relatively well-defined aggregation of activity, it stands as a potent and clean running component of the state's growing economy.

For 2004-2005, the National Golf Foundation (NGF) reported that the New Mexico supply of golf courses was 76 18-Hole equivalents^{viii}. In an earlier report, the NGF estimated the golf playing population of New Mexico to be 149,400 golfers. This compares to a total 2004 population for New Mexico of 1,903,289, which translate to less than one in twelve New Mexicans are golfers.^{ix} However, for 2004-2005 these golfers (with some help from non-residents) played an estimated 2,596,000 rounds of golf on the state's public and private links.

one in twelve
New Mexicans
are golfers

ROUNDS OF GOLF PLAYED

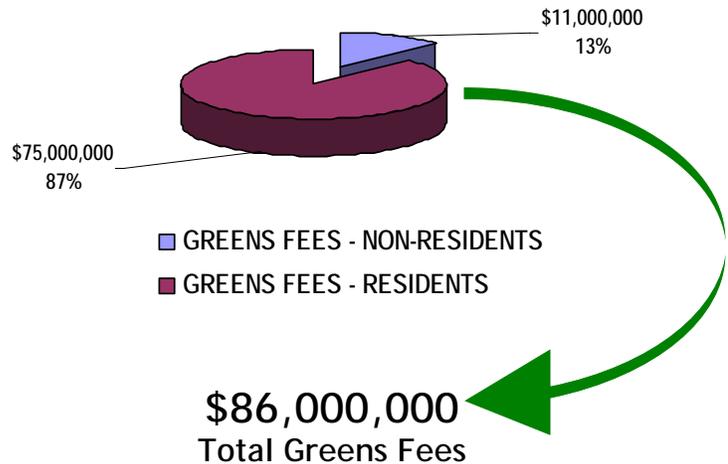
Residents vs Non-Residents 2004-2005



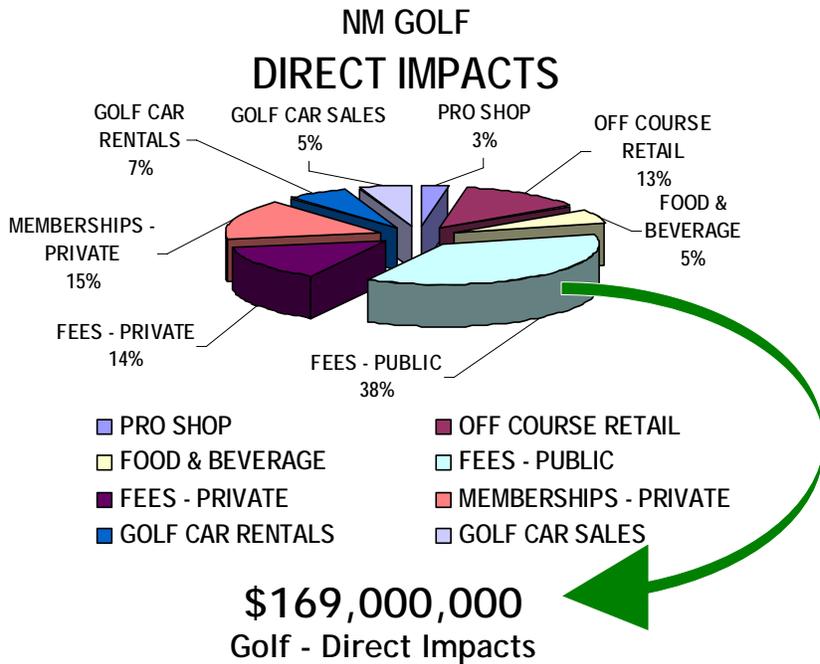
In doing so these golfers paid greens fees amounting to \$86,000,000.

NM GOLF TOURISM GREENS FEES

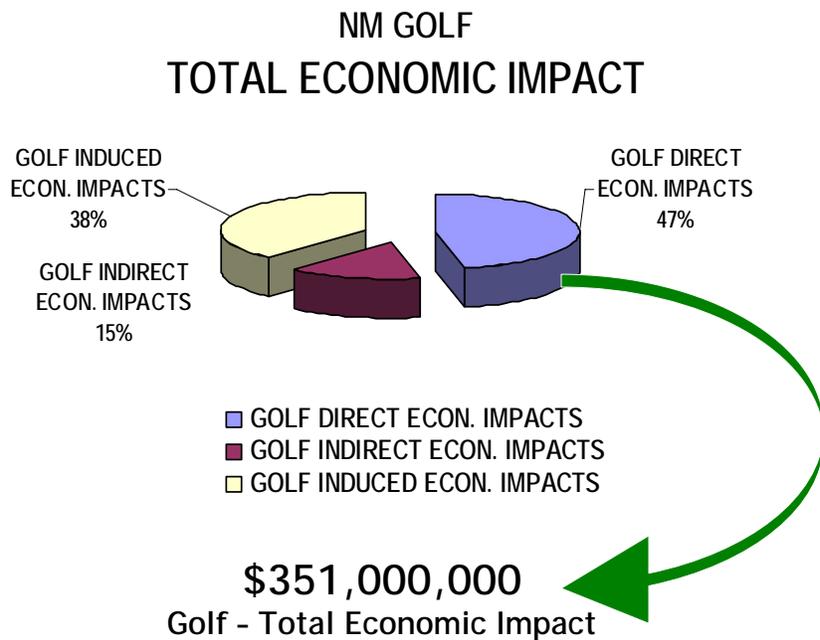
Residents vs Non-Residents



While these greens fees are a substantial expenditure they are only a little more than one half of the total direct expenditures on golf in the New Mexico. In addition to greens fees, there a number of areas of expenditure that can be directly linked to the golfer's obsession with his or her sport. These include membership dues for use of private facilities (21 in New Mexico), purchases of clubs, balls, and related equipment, golf car rentals and purchases, and food and beverages. When these expenditure are assembled, the direct impact is essentially double the amount spent on greens fees.



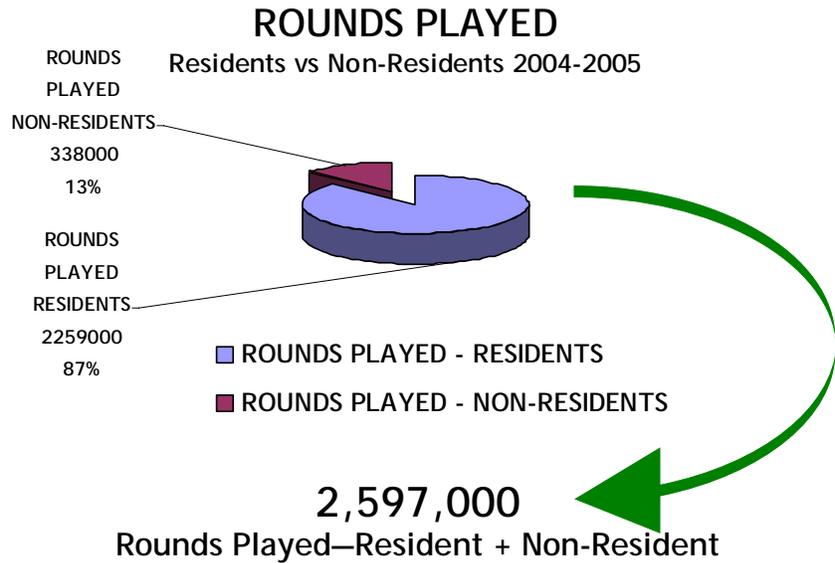
The total economic impact of the golf sector (Direct + Indirect + Induced Impacts) on the New Mexico economy is \$351,000,000. This amount includes non-resident direct expenditures on greens fees, but does not include the non-golf expenditures of golf tourists.



Golf Tourism

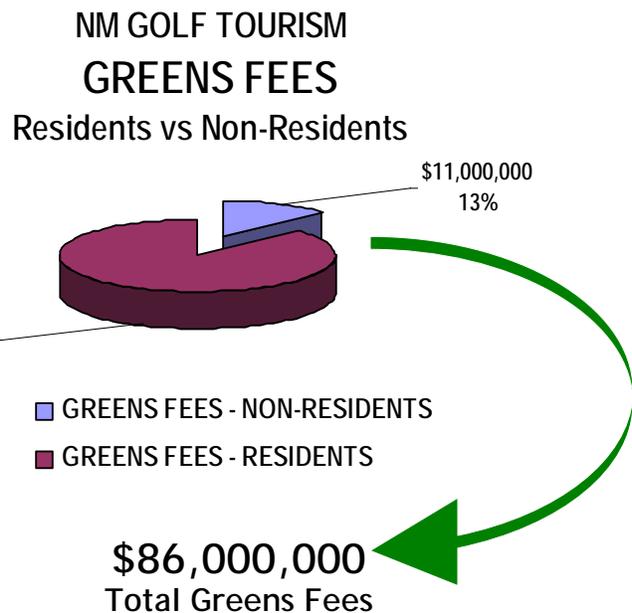
Approximately 10-13% of all golf rounds played on New Mexico courses are played by non-resident golfers. The economic

impact of this non-resident activity is disproportionately high in comparison to resident activity.



The thirteen percent of golf activity attributed to non-residents produces approximately 18% of the Total Value-Added by the golf and turfgrass sectors

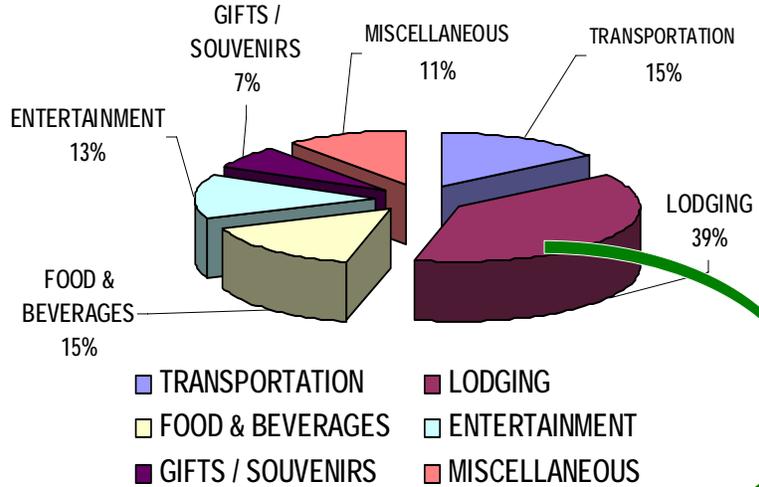
The thirteen percent of golf activity attributed to non-residents produces approximately 18% of the Total Value-Added by golf and turfgrass activity. A round of golf played by a non-resident has the economic impact of four rounds played by a New Mexico resident. A one percent (1%) increase in non-resident golf participation translates into an \$11,000,000 increase in direct impacts and approximately \$22,000,000 in total impacts on the New Mexico economy.



The direct impact of golf tourism includes payment of greens fees. However, these are included in Golf and not included in the Golf Tourism impact analyses.

Golf Tourism's impacts are more significant than tourism in general. This is because the demographic profile of the golf

NM GOLF TOURISM DIRECT IMPACTS



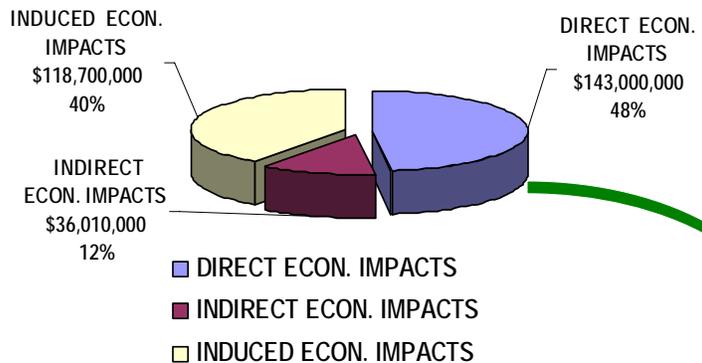
The golf-oriented tourist is older, has a much higher level of disposable income and is predisposed to expect and pay for quality

\$143,000,000

Golf Tourism - Direct Impacts

oriented tourist points to much higher levels of spending than the normal tourist. The golf-oriented tourist is older, has a much higher level of disposable income and is predisposed to expect and pay for quality--both a higher quality golfing experience, as well as other goods and services while traveling.

NM GOLF TOURISM TOTAL ECONOMIC IMPACT



\$298,000,000

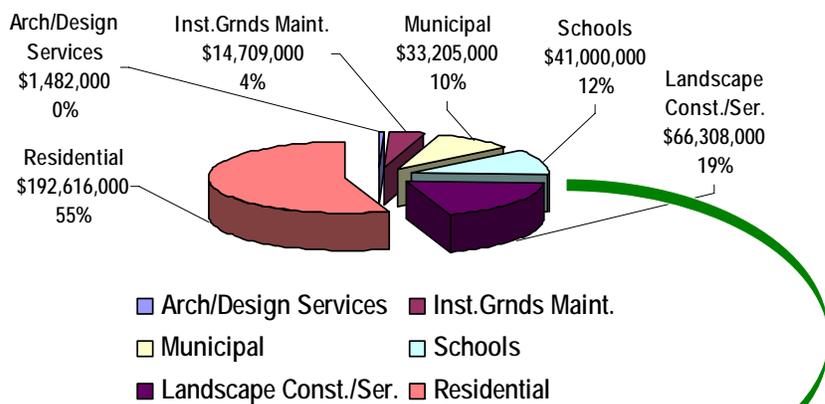
Golf Tourism - Total Economic Impact

Landscape/Parks/Open Spaces

In New Mexico's arid climate, open green spaces take on increasing importance for the quality of life. This is particularly true as private landscapes are developed and converted to xeriscapes and provision of access to green space falls increasingly on the public sector. In addition to the substantial impact landscaped areas have on the quality of life New Mexico residents enjoy, the industry also makes a substantial contribution to the New Mexico economy.

The categories of expenditures for which estimations were possible include Landscape Architectural Design and Services; Institutional Grounds (government facilities, hospitals, military bases, etc.); Residential turfing areas, Municipal Parks and Open Spaces; Universities and Colleges; and Landscape Construction, Design and Maintenance^x.

LANDSCAPE / PARKS / OPEN SPACES DIRECT ECONOMIC IMPACT

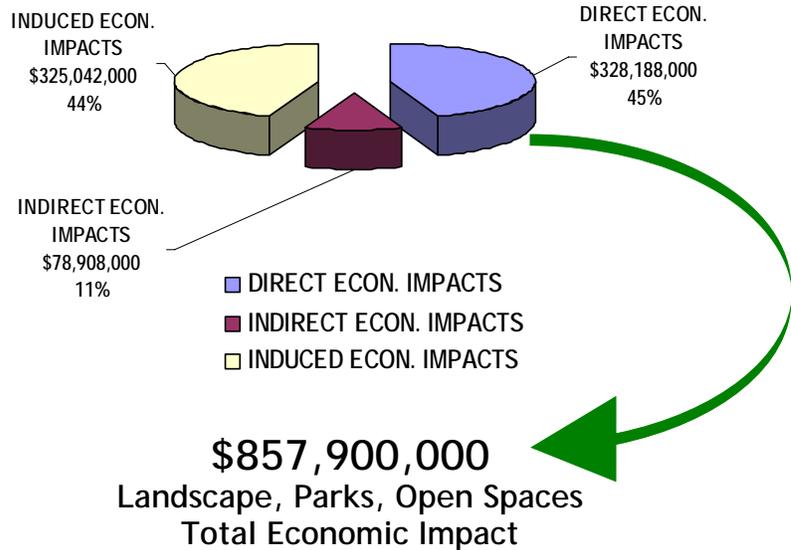


\$349,000,000

Landscape, Parks, Open Spaces - Direct Impacts

Accurate estimates of these landscape related activities are problematic. Goods and services for lawn establishment, and maintenance are available from myriad sources ranging from lawn care professionals to big box discount stores to pharmacies. Additionally, lawn care services range from sophisticated professionals to neighbor kids who will mow a lawn or pull weeds for a nominal sum. However, there are numerous data sources that make it possible to assemble plausible estimates for many of the items. The specific procedures are outlined in the appendices.

NM LANDSCAPE, PARKS, OPEN SPACES TOTAL ECONOMIC IMPACT



CONCLUSIONS AND OBSERVATIONS

New Mexico's Green Industry makes substantial contributions to the state's economy and to residents' quality of life. While most citizens are inclined to associate the industry with the relatively high profile issue of golf courses and little else, impact analyses such as presented here demonstrate that the industry viewed comprehensively, impacts upon virtually every sector of the economy directly or indirectly.

There are many benefits to the presence of green in the environment. These benefits accrue to virtually everyone regardless of their direct participation in golf, or their likelihood of visiting a public park or open space. Green assets have important temperature moderating qualities, provide pleasant views, and attract birds and wildlife.

While the foregoing characteristics are often cited in defense of green assets, particularly here in the arid southwest, green also makes very important contributions to the New Mexico economy. The industry is directly and indirectly responsible for the provision of over 20,000 jobs, over \$400 million in personal income, and over \$700 million in total value-added to the economy.

Potential for Industry Expansion

There are two areas where New Mexico golf is in a position to take proactive steps toward expansion of its impact on the economy. The most obvious of these is the issue of golf

tourism. It is clear from the information presented here, that expansion of golf tourism has huge potential. The study does not provide information on the marginal impact of promotional dollars on the numbers of golf tourists. It does, however, demonstrate that non-resident golf activity is associated with a very substantial differential impact when compared to resident golfers.

The golf tourist is older, has greater amounts of disposable income and is inclined to spend on premium goods and services. While tourist and resident pay the same amount for greens fees at the same facility, the non-golf specific expenditures of the golf tourist result in expenditures comparable to four rounds of golf by an average resident. Given that the demographics of the golf tourist can be factored in to promotional campaigns for New Mexico as a golf destination, the impact can be expected to be even higher.

The second area for expansion is the closely related issue of golf course supply. A 2005 analysis developed by the National Golf Foundation provides a state-by-state comparison of golf course supply by household per 18-hole equivalents^{xi}. With the national average at 100, New Mexico stands at 80. This suggests that New Mexico has a below average supply of 18-hole equivalents for the state's population. While this may not seem to present a problem, if on-going efforts to promote golf to residents and to tourists are even moderately successful new facilities will be needed to accommodate the growth.

Quality of Resource Management

Among the noteworthy issues that surfaced during the development of the data for the impact assessment was the degree of professionalism and overall sophistication of the resource management of golf courses in New Mexico. A very high percentage of the golf course superintendents have obtained or are working toward professional certification^{xii} in virtually all aspect of managing golf courses. The array of demands on the superintendent ranges from horticultural and entomological aspects of the job to environmental stewardship to personnel management.

Formal education and training are not the exclusive province of the superintendent. A majority of the grounds maintenance employees for the golf courses surveyed are also certified for application of chemical applicators, for irrigation system installation, etc. In short, the response to the financial and social pressures for superior stewardship of the natural resource base is very impressive.

Research and Development

The New Mexico green industry has long been a leader in the development of new and improved varieties of turf suitable for

the state's harsh, high altitude conditions. The industry has worked in collaboration with New Mexico State University to develop, disseminate and implement best management practices, to deal with water quality and quantity issues and to create a collaborative and proactive environment for the development of the industry to the benefit of the state's residents.

The annual Southwest Turfgrass Conference brings together regional and national experts on all dimensions of the industry to highlight the best of the preceding year's developments for the state and regional industry.

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LIST OF CHARTS

NM Golf & Turfgrass—Total Economic Impacts	p.10
NM Golf & Turfgrass—Total Value-Added	p.11
NM Golf & Turfgrass—Total Value-Added By Sector	p.11
NM Golf & Turfgrass—Total Employment Impact	p.12
NM Golf & Turfgrass—Total Labor Income	p.12
NM Golf & Turfgrass—New Mexico Tax Impacts	p.13
Rounds—Public & Private	p.14
Greens Fees—Public vs. Private	p.14
Golf—Direct Impacts	p.15
Golf—Total Economic Impact	p.15
Rounds Played—Residents vs. Non-Residents 2004-2005	p.16
Greens Fees—Residents vs. Non-Residents	p.16
Golf Tourism—Direct Impacts	p.17
Golf Tourism—Total Economic Impact	p.17
Landscape/Parks/Open Spaces—Direct Impacts	p.18
Landscape/Parks/Open Spaces— Total Economic Impact	p.19

APPENDICES

General Notes: The following appendices present notes on data sources and data development used in the economic impact analysis. Where appropriate, data sources may be noted, but due to proprietary considerations, the data is not presented.

In other instances, similar proprietary considerations made it impossible to acquire primary data. Where that was the case, the methodology used to make plausible, conservative, estimates of the size of expenditures is noted.

In numerous instances (noted), regional or national data (e.g., Census data; statistics from National Golf Foundation surveys, etc.) is scaled back to a level appropriate to New Mexico's population and demographics.

Appendix 1—NM Golf

Notes on data and data development

The primary sources of data for the Golf sector were as follows:

Sun Country PGA Pros (PGAPRO)

National Golf Foundation—various studies (NGF)

NM Taxation & Revenue Department (NM T&R)

International Competitive Assessments (for Golf Car Industry data)

DIRECT GOLF EXPENDITURES							
	Clubs	Balls	Softgoods	Total		Reference #	
Pro Shop retail	\$3,023,856	\$618,516	\$927,774	\$4,570,146	PGAPRO/NGF/NM T&R	1	
Off Course retail							
Best	\$6,425,694	\$2,027,358	\$2,164,806	\$10,617,858	NGF/NM T&R	2	
Other	NA	NA	NA	\$11,417,148	NGF/NM T&R	3	
Food & Beverage				\$9,098,963	PGAPRO/NGF/NM T&R	4	
Fees Public				\$62,448,000	PGAPRO/NGF/NM T&R	5	
Fees Private				\$50,376,000	PGAPRO/NGF/NM T&R	6	
Golf Cars Rental				\$11,021,000	PGAPRO/NGF/NM T&R	7	
Golf Cars Sales				\$9,238,000	Industry Source: Intl. Competitive Assessments	8	
TOTAL				\$168,787,115			

1 The data for Pro Shop retail were developed using figures from the survey distributed to NM PGA members and profiles of golfer expenditures obtained from the National Golf Foundation. Some data was also obtained from the NM Department of Taxation and Revenue. NGF data provides profiles of golfers and their expenditures which allow golfers' expenditures to be identified and allocated to different categories of goods as well as to different retail sources. As noted in 2 (following) these purchases substantially occur off site.

2 The data for Pro Shop retail were developed using figures from the survey distributed to NM PGA members and profiles of golfer expenditures obtained from the National Golf Foundation. Some data was also obtained from the NM Department of Taxation and Revenue. NGF data provides profiles of golfers and their expenditures which allow golfers' expenditures to be identified and allocated to different categories of goods as well as to different retail sources.

As noted here, the most avid and active golfers, while a minority of the total, make a disproportionate amount of the total expenditures on clubs, balls and softgoods at specialty product retailers and over the internet. The majority, while a source of considerable revenue, are much more likely to make their purchases from general retailers who happen to carry golf supplies.

3 (see #2 above)

4 The data for Food & Beverage were developed using figures from the survey distributed to NM PGA members and profiles of golfer expenditures obtained from the National Golf Foundation. Some data was also obtained from the NM Department of Taxation and Revenue.

5 The number of public rounds played (NGF & surveys) by the average greens fee (NGF & surveys) - 1,879,000 * \$33.23

6 There are two components to this figure - greens fees or equivalent and membership dues/assessments/fees;
The number of private rounds played (NGF & surveys) by the average greens fee (NGF & surveys) - 717,491 * \$33.23
Membership fees \$26,000,000 (NGF, surveys, NM Department of Taxation & Revenue)

7 Data obtained from NM Department of Taxation & Revenue with corroboration from PGA member survey and NGF averages.

8 The US market for golf car sales is identified in a proprietary study conducted by the firm International Competitive Assessments, Inc. The numbers for New Mexico are a population-based extrapolation of the national total.

Appendix 2 – NM Golf Tourism

Notes on data and data development

There are two primary data sources for developing figures on golf tourism for New Mexico. They are NGF profiles of expenditures for golf related travel, and PGA survey data on the amount of golf played in New Mexico by non-resident golfers.

Non-resident golfers played 228,641 rounds of golf. For the analysis it is assumed that these golfers played an average of 1.5 rounds of golf per trip. This results in 152,427 trips. For expenditures at the destination, the average figures for Business/Vacation/Golf trips by golfers were used (NGF - The US Golf Travel Market 2003 Ed, p16).

Note: Greens fees paid by non-resident golfers are included in the general Golf section.

DIRECT GOLF TOURISM EXPENDITURES

			Reference #
Transportation (\$142/trp)	\$21,645,000	NGF	1
Lodging (\$364/trp)	\$55,483,000	NGF	2
Food & Bev (\$144/trp)	\$21,949,000	NGF	3
Entertainment (\$120/trp)	\$18,291,000	NGF	4
Gifts Souvenirs (\$66/trp)	\$10,060,000	NGF	5
Misc (\$102/trp)	\$15,548,000	NGF	6
	TOTAL	\$142,976,000	

1 Transportation refers to rental cars/taxis and private automobile expenditures. Airfares are not part of the impact since they are largely an expenditure that occurs at the point of origin when they are relevant at all.

2 Hotels, motels.

3 Food & Beverages refers to consumption that does not take place at the golf venue.

4 This category covers any non-golfing activity that the tourist may engage in - movies, opera, horseracing, gambling, baseball, etc.

5 Self-defined

6 Any expenditure not covered by another category

Appendix 3 – NM Landscape/Parks/Open Spaces

Notes on data and data development

For the impact analyses the expenditures were allocated as follows:

Lumber Hardware/Garden Suppliers	50%
Nurserys/Garden Suppliers	30%
General Retailers	20%

DIRECT LANDSCAPE/PARKS/OPEN SPACE EXPENDITURES		Reference #
Landscape Arch' & Design Services	\$1,482,000	1
Institutional Grounds Maintenance	\$9,750,000	2
Cemeteries	\$344,520	3
Military Bases, Fair Grnds, Race Tracks	\$829,980	4
Airports	\$3,784,160	5
Municipal	\$14,708,660	6
Schools	\$33,205,000	7
Landscaping Services (const/design/maintenance)	\$41,000,000	8
Landscapes Residential	\$66,308,000	9
	\$192,616,479	
TOTAL	\$349,320,139	

- 1 New Mexico Department of Taxation & Revenue: ANALYSIS OF GROSS RECEIPTS BY NAICS (State Summary) RP-80 2004 Q4 edited.xls

This figure is undoubtedly an underestimate of the actual value of this type of service. Many “design-build” operations (general contractors, engineering firms, etc.) will incorporate such services and report them under general construction. This is also true of architectural firms that provide integrated, comprehensive design services, but do not distinguish between architecture, engineering, and landscape architecture when reporting for taxation purposes.

- 2 Institutional grounds maintenance refers to the in-house cost of grounds maintenance for public and private entities (hospitals, state & federal facilities, etc.) that are large enough to have in-house grounds maintenance staffing. Such entities may maintain all or part of their respective grounds. A comprehensive (but not exhaustive) inventory of major state and federal facilities (National laboratories, corrections, courts, hospitals, county administrative facilities, and major universities - UNM, NMSU, etc.) yields in excess of 130 entities. While budgets for some are in the millions, the actual amount of turfed areas vary widely and an average budget of \$75,000/year is assumed for all. This

- 3 The data used to estimate the impact of cemetery related turfgrass expenditures were as follows: The acreage of maintained turfgrass was taken from the 1980 survey with the explicit assumption being that in the interim expansions and modifications including non-traditional landscapes, e.g. xeriscapes, would have left the net area approximately the same. The cost for this category was assumed to be .5 of the commercial residential cost/acre (\$1044/yr.) for landscaping - this in recognition that many cemeteries are privately maintained and if appearances are any indication, not regularly or particularly carefully maintained.

- 4 The data used to estimate the impact of Military Bases, etc. related turfgrass expenditures were as follows: the acreage of maintained turfgrass was taken from the 1980 survey with the explicit assumption being (as in the case of cemeteries) that in the interim expansions and modifications including non-traditional landscapes, e.g. xeriscapes, would have left the net area approximately the same. The cost for this category was assumed to be .5 of the commercial residential cost/acre (\$1044/yr.) for landscaping. In this case the assumption is that the frequency of maintenance is one half of the rate for domestic lawns.

- 5 New Mexico has 62 municipal/public access airports and two military airport (Note: Kirtland AFB shares runways with Albuquerque Sunport). There are many additional private facilities, and heliports. The area of maintained turfgrass for airports reported in the 1980 New Mexico Turfgrass Survey was 10,720 acres. Since then there has been one major development /addition to the NM airport inventory, the Double Eagle II facility

in Albuquerque. There is no practical way to verify the current status of all the facilities noted at the reference site <http://www.globalair.com/airport/state~/abrv=NM>, so the area used is the same as 1980 study. Secondary data available today suggests that this number underestimates the area actually maintained for public facilities and did not include private facilities and landscaped heliports.

There is no consistency among municipalities that actually publish data on airport turf maintenance. If published at all it may be commingled with general landscape maintenance. A search of the internet provided only one well-documented reference to airport maintenance costs per acre. That reference is Austin, Texas. The municipality's data for five years is for a constant 2500 acres.

(<http://www.ci.austin.tx.us/budget/eperf/index.cfm?fuseaction=home>)

The per acre cost reported ranged from \$353/acre (2004) to an estimate of \$479/acre (2006). This analysis uses the conservative lower figure. Overall, the estimate is somewhat conservative.

- 6 Data for this category was developed by examining municipal budgets and where possible correlating those budgets with reported acreages of parks, other landscaped public spaces, etc. For the municipalities reporting the amount spent/capita was \$29. This was multiplied by an urban population of 1,145,000. The total \$33,205,000 divided by 2xcommercial rates = 15,903 acres (assumes that public sector is inefficiently organized relative to private contractors - this is similar to the assumption made for schools)
- 7 The only primary data for this category consists of budget items for a small number of the state's school districts. The data were assembled and extrapolated to the rest of the state on a per school basis. NM Public Education Department records indicate that (<http://www.ped.state.nm.us/districts/alphaschools.html>) there are 1143 public and private K-12 schools in the state. The analysis assumes 1.5 full time employees/school (\$30K); \$5K for tools and supplies and \$1K for water and chemicals. This results in a total of \$41,148,000. If it is assumed that each school has 1-2 acres of playing fields, open space, etc., it appears considerable savings might result from contracting out landscape related services.
- 8 Access to primary or even secondary data on this category is qualified by the commingling of landscape contracting activity in the category of general construction reported to NM Taxation & Revenue. The numbers used for the impact analysis were developed by examining revenue data from a survey - *Landscape Contractors Ranked by 2005 Gross Revenue* - reported in the New Mexico Business Weekly (February 10-16, 2006 issue). This data, while incomplete made it possible to generate plausible figures for smaller contractors by looking at an average of revenues per regular, non-seasonal employee for the larger contractors.

The top 25 employers as reported had 971 non-seasonal employees (223 seasonal). Average revenue per non-seasonal employee was \$68,288. The overall breakdown of work for this

part of the industry was, Commercial - 71%; Residential - 29%. National survey data for commercially maintained residential turfgrass indicates an average of .36 acres per account. Using this amount and a commercial rate of \$1044 per account produces an estimate of 6,631 acres of turfgrass for all other residential.

- 9 The only available, nominally primary, data for this category is found in the 1980 Turfgrass Survey (acreage) and the 1982 Turfgrass Water Conservation study (maintenance cost). In the former case, the residential data is combined with business data. In the latter case the cost for the state is an extrapolation of a national average to New Mexico. The essential data for developing a plausible figure for residential turfgrass related expenditures are shown in the following table.

	RESIDENTIAL LANDSCAPE ESTIMATES				
Average lawn (sgl. fam. detach.)	Landscaping Management 2006	Turfgrass Water Conservation 1982	National Gardening Association 2005	Real Estate Journal.com 2005	MMTurfgrass Survey 1980
Average \$ spent	0.36 acres (15,682 sq ft)	0.04 acres (1750 sq ft)	NA NA 387/yr (\$449 in 2004)	NA NA \$750 (\$25/wk)	NA NA NA NA
NM Population 1980	NA	NA	NA	NA	1,302,894
Sngl Fam Units 1980	NA	291,679	NA	NA	291,679
Direct \$ Impact 1980 (est)	NA	\$58,335,800	NA	NA	NA
Acres 1980 (est)	NA	11,667	NA	NA	11,667
NM Population 2004	NA	NA	1,903,289	NA	NA
Sngl Fam Units 2004	NA	NA	497,717	NA	NA
Direct \$ Impact 2004 (est)	NA	NA	\$192,616,479	NA	NA
Acres 2004 @ 0.04/res (est)	NA	NA	19,909	NA	NA
Acres 2004 @ 0.36/res (est)	NA	NA	179,178	NA	NA

References:

- www.landscapemanagement.net
- www.realestatejournal.com
- www.gardenresearch.com

For the purposes of this study it is assumed that a single family detached, residential landscape averages 1500 sq. ft., is self maintained, and further, that all other residential landscaping is

commercially maintained (single family attached, multiple unit, apartments, etc.) This pragmatic approach moves the less tractable problem of estimating rental unit landscaping - not covered here - into the category of commercial landscaping contracts (see Item 8).

Appendix 4 – Acreage & Maintenance Cost Estimates

	Acres (est.)		2004 - 05 Maintenance Cost (est.)
Airports	10,720	*	\$3,784,160
Cemeteries	606	*	\$344,520
Golf Courses	9,488	**	\$43,628,000
Institutional Grounds	9,360	**	\$9,750,000
Military Bases, Fairgrounds & Racetracks	1,590	*	\$829,980
Municipal (includes parks/open space	15,903	**	\$33,205,000
Residential - Single Family Detached	10,720	**	\$192,616,479
Residential - All other	660	**	\$19,229,320
Schools (K-12)	1,715	**	\$41,148,000
EST. TOTAL ACRES	75,976		
EST. TOTAL MAINTENANCE COST			\$344,535,459

* Acreage estimate from 1980 survey

** Acreage estimate developed for current study

ENDNOTES

- i IMPLAN Professional-Social Accounting and Impact Analysis. Users Guide, Analysis Guide, Data Guide, MIG Inc. February 2004
- ii Value-Added is generally a better measure of an activity's real impact on an economy than total impact. Value-Added consists of four components, Employee Compensation; Proprietor Income; other Property Income; and, Indirect Business Taxes.
Employee Compensation is all income paid to workers—wages, salaries, benefits (health and life insurance, retirement and non-cash compensation)
Proprietor Income is any income received for payment of self-employed work—includes income received by private business owners, physicians, attorneys, professionals of any kind.
Other Property Income is interest, rents, royalties, dividends, profits—including profits earned by corporations
Indirect Business Taxes are primarily excise and sales taxes paid by final demand purchasers to retail businesses—this does not include taxes on profit or income.
- iii New Mexico Turfgrass Survey. New Mexico Department of Agriculture, USDA New Mexico Crop and Livestock Reporting Service and Southwest Turfgrass Association, July 1980
- iv Gibeault, V.A. and Cockerham, S.F., Eds. Turfgrass Water Conservation. Publication 21405, California Cooperative Extension, University of California, Division of Agriculture and Natural Resources. 1985
- v Diemer, J and Francescutti, D. The New Mexico Turfgrass Industry: An Empirical Analysis of the Demand for Turfgrass Sod. Research Report 582, NM Agricultural Experiment Station, New Mexico State University, Las Cruces, New Mexico, April 1986
- vi For example, when using data from the National Golf Foundation a problem often arises because the Northwest part of New Mexico is in the NGF's Mountain Region and the southeast part of New Mexico is in the NGF's South Central Region.
- vii This does not include Social Insurance Taxes (Employer & Employee contributions); personal taxes such as Motor Vehicle Taxes, Hunting Licenses, Fines, etc.
- viii NGF Golf Industry Report. Volume 6. First Quarter 2006. The data on 18-Hole equivalents was reported as of December 31, 2005.
- ix US Bureau of Census. Quick Facts (New Mexico)
<http://quickfacts.census.gov/qfd/states/35000.html>
- x One element missing from this impact analysis is noteworthy. That major exclusion is highway rights of way. The NM Dept of Transportation was not able to provide data that distinguished unimproved but maintained rights of way from those that are improved with significant landscaping elements including turfgrass. The data shown in the summary table for acreages is taken from the 1980 Turfgrass survey. No maintenance cost is estimated.

xi NGF Golf Industry Report—Golf Course Development Issue.
Volume 5, First Quarter 2005

xii Certified Golf Course Superintendent (CGCS)