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THE GENERATION OF DESIGN AND PLANNING GUIDELINES FOR
A NEW SOUTHWESTERN COMMUNITY

by

Michal Grissett Tincup

A Thesis Submitted to the Faculty of the
SCHOOL OF RENEWABLE NATURAL RESOURCES
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF LANDSCAPE ARCHITECTURE
In the Graduate College
UNIVERSITY OF ARIZONA

1997
STATEMENT BY AUTHOR

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APPROVAL BY THESIS DIRECTORS

This thesis has been approved on the date shown below:

Mark P. Frederickson
Professor of Landscape Architecture

Merle Harold Jensen
Assistant Dean, College of Agriculture

Warren D. Jones
Professor Emeritus, Landscape Architecture
ACKNOWLEDGEMENTS

This thesis would not have been possible without the support and encouragement of many people. Thesis committee members Mark Frederickson, Merle Jensen and Warren Jones gave kind words of encouragement and suggestions while sacrificing their time and energy to enable me to finish 'on time'. The opportunity to work with Professor Mark Frederickson has been especially rewarding. His gentle guidance and high expectations have pushed me beyond what I dreamed possible over these past three years. He has my highest respect and admiration. To my fellow classmates and members of Tejido Design Group: Penny Batelli, August Benzien, Chad Cecil, Gary Chapman, Caryl Clement, Bob Dietz, Tim Faras, Gina Garcia, Eric Gilliland, Brian Hefenieder, Faye Samson, Matt Shawaker, Greg Wehrs, Todd Wenskoski, and Keith Wilson, thank you for your dedication to design and the support which helped shape this thesis. I would like to thank Professors Lauri Johnson and Erv H. Zube who provided me with employment and encouragement over these past three years. I would also like to thank Professor Bill Havens, who kept pointing me in the direction of scholarship and networking opportunities. To my family, especially Ray Grissett, Jayne Grissett, Michael Saucier, and W.E. and Nancy Davenport, thank you for the long telephone calls, e-mail conversations, and post cards that kept me going. Most importantly, I would like to thank my husband Jeffrey. His incredible selflessness, unconditional support and tireless devotion continues to amaze me. I owe all of my success to him, now and in the future.
DEDICATION

This thesis is dedicated to the memory of Jerry Ray (Jay) Grissett, Jr. and Thelma Carlie Van Saucier Grissett.
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ABSTRACT

As our southwestern cities continue to grow in essentially uncontrolled and sprawling patterns it becomes increasingly apparent that new planning approaches and design guidelines must be generated to rectify past and combat future problems.

Today, many community developments focus decision making principles on purely economic gain at the expense of addressing the socio-cultural, aesthetic, functional, economic, and environmental issues.

In an attempt to address these issues, we employed both qualitative and quantitative methods of research. The qualitative methods included: a case study analysis of past, present and future communities; a literature review of past communities and new theoretical movements; structured interviews with real estate developers in the southwest; and participant observation encompassing peer dialogue and design reviews. The quantitative methods included statistical analysis of questionnaires given to designers and developers practicing in the southwest.

A series of design and planning guidelines were distilled from this research. They were then tested by applying them to the design of a new community in the southwestern United States.
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CHAPTER 1: INTRODUCTION

PURPOSE, NEED, SCOPE:

The purpose of this thesis is to develop a series of design and planning guidelines applicable to master planned communities within the southwestern United States.

Need:

As our southwestern cities continue to grow in essentially uncontrolled and sprawling patterns it becomes increasingly apparent that new planning approaches and design guidelines must be generated to combat future problems.

Many contemporary community developments focus decision making principles on purely economic gain at the expense of addressing the socio-cultural, aesthetic, functional, and environmental issues associated with sustainable development. The following statements illustrate this need.

Socio-Cultural Issues:

Todd W. Bressi, "Planning the American Dream"

"Social scientists debate the extent to which physical design creates or reflects social conditions. But current metropolitan settlement patterns have clearly exacerbated social, class, and racial segregation and diminished the importance of common ground on which people of different backgrounds and outlooks might encounter each other (Katz, 1994; xxv)."

There exists a need for creating a sense of community and social interaction with a mix of inhabitants in today's communities today.

Functional Issues:

Sprio Kostof, America by Design

"From that time forward (post World War II) Americans set out to fuse their lives and their cars. They learned to eat, court, and even worship behind the steering wheel. The car brought about an indigenous twentieth-century culture, whose roadside landmarks were motels, drive-in movie theaters, road houses, chain restaurants, and the brassy untamable strip which drained the vigor of an upstaged Main Street (1987;197)."

A need exists for creating communities not entirely dependent on and consumed by the automobile.
Aesthetic Issues:

Peter Calthorpe "The Region"

"A homogeneous quality overlays the unique nature of each place (community) with chain-store architecture, scaleless office parks and monotonous subdivisions (Katz, 1994:xii)."

Communities need to be created with a sense of character and aesthetic appeal.

Environmental Issues:

John Ormsbee Simonds,
Garden Cities: 21 Creating a Livable Urban Environment

"The planning, development, and operation of a regional open space system directly affects the programs of many agencies—including those of community development, water management, forestry, highways, and environmental protection (1994;160)."

Angela Danadjieva

""To heal the environment, we must look to the transformation of urban liabilities into amenities (Simonds, 1994;166)."

Viable, sustainable relationships with the environment need to be included within today's communities.

Economic Issues:

Philip Langdon, A Better Place to Live

The costliness of suburbs, the scarcity of time, and the disconnection and fragmentation of the community have serious consequences." (1994;26).

There is a growing concern for communities to service needs from within.

To further illustrate the need for developing alternative approaches to community design in the southwest, it is helpful to refer to communities already in existence. The following comparison between residents in two different communities is an example of situations we will explore to determine potential solutions:

"Two Little Old Ladies"

1. In A Better Place to Live, Philip Langdon relates a story about a little old lady in Stuart, Florida. She was standing in a supermarket line fumbling for her car keys and
getting more and more upset. When a women approached her to ask what was wrong, the lady expressed her worry about passing her drivers license exam the next day. The lady's husband died several years ago. The lady lived in the same house for twenty years. She did not want to move, had no other form of support, and no alternative form of transportation. There would be no way for her to get the grocery store.

2. An opposite form of this situation could be illustrated by the author's grandmother. She lives in an old neighborhood in Hattiesburg, Mississippi. This neighborhood contains such things as distinctive architecture, sidewalks, alleys, garage apartments, porches, and open spaces. Generations of people have lived on the same street. Most people within close proximity know each others families and are very willing to help one another with day to day necessities. The neighborhood grocery store, which serves a small nucleus of houses, is within a few blocks of her house. It is accessible by secondary streets removed from heavy traffic. The location of the store as a 'hub' and the less traveled roads make it more appealing for someone to venture on foot to the store. However, even in this 'better than average situation' there are no alternative forms of transportation.

Scope:

In an attempt to address these issues, we will employ both qualitative and quantitative methods of research. We chose to use this hybrid approach in hopes of producing more comprehensive and significant results. We will first take a holistic ethnographic approach to research by exploring several bodies of knowledge in order that we might obtain a clear understanding of the current community composition problem. The qualitative scope will include:
1). an extensive literature review of past and present community design along with new theoretical developments.

2). an extensive case study analysis of past, present, and future master planned communities across the southwest and United States as a whole.

3). structured interviews of real estate developers with knowledge regarding the development of communities in the southwest and a brief non-participant observation analysis associated with these interviews.

4). participant observation associated with peer dialogue/reviews from a conceptual master plan generated by the honors design group known as Tejido.

We will then look at a smaller set of Likert scaled questionnaires given to both real estate professionals and design professionals in the allied fields of: landscape architecture, architecture, and planning practicing within the southwest United States. This research method will be conducted so that we may analyze and distill a series of design/planning guidelines for communities being built in the southwest. Based on the questionnaires, we will:

1). derive statistical information regarding the significance of the evaluation categories (socio-cultural, aesthetic, economic, functional, and environmental issues) in the design of communities today.

2). derive statistical information regarding the worth and applicability of a new planning/design theory known as the 'New Urbanism' movement. This 'movement' emphasizes pedestrian and transit oriented neighborhoods with a mix of land uses, densities, and populations. Its relevance to our situation needs to be explored.

The final synthesis of information from these qualitative and quantitative methods will be organized by a criteria of evaluation referred to as 'design/planning ordering systems'. These address the socio-cultural, aesthetic, functional, economic, and environmental issues of a design. These were synthesized by Dr. Mark P. Frederickson from a number of various design and planning process sources. They have been used as a holistic approach to teaching design studios. We felt this would be a logical evaluation tool
for each research method. The use of these 'ordering systems' will allow a thorough and organized application of information into final design/planning guidelines.

Because there is obvious merit in learning from past and present experiences the guidelines generated from research methods will be applied to a research problem in the southwest United States. A conceptual master plan will be generated for a sample site located between Tucson and Phoenix. The site is a mature pecan grove on 1500 acres of land identified for this study as the 'Picacho Pecan Village'.

The organization of this thesis is as follows: Chapter Two (2) will focus on the literature review of issues surrounding community development. This will largely focus on post World War II communities and 'New Urbanism' principles. Chapter Three (3) will focus on a general overview of research methods and possible threats to validity. This will include a discussion on ethnographic research design and the incorporation of both qualitative and quantitative analysis. Chapters Four (4) and Five (5) will focus on the qualitative and quantitative analysis and results respectively. Chapter Six (6) will outline lessons learned from the research process and provide design and planning guidelines. Chapter Seven (7) will provide detailed information on the Picacho Pecan Village site. It will also demonstrate the worth of guidelines developed in this thesis through a conceptual master plan. Appendices will provide a graphic representation of the statistical analysis of data, a copy of the questionnaires used for the structured interviews and surveys, and the post review questionnaire with peer and professional review comments.
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CHAPTER 2: LITERATURE REVIEW

INTRODUCTION:

The literature review for this thesis includes: a brief discussion of theory behind research methods, a brief history of community development, and an overview of neo-traditional planning/ The New Urbanism Movement'. These were chosen in order that we might apply information from past and present communities to produce design and planning guidelines. It was important for us to understand the positive and negative aspects of communities that will impact future developments. How did we do this? We researched the most prominent writers in the above subject areas. The following is a discussion of these topic areas.

RESEARCH METHODS AND DESIGN

We conducted a literature review of the different statistical measurements used for this study. We will discuss theory associated with descriptive statistics and correlation's (specifically Pearson correlation's). We have included a discussion on these measurements to provide a general understanding of these research methods. We will also identify reasons for the selection of the research methods.

Descriptive Statistics

The fundamental purpose of statistics is to simplify and reduce a large set of information to some smaller set without discarding the essential information in the process (Smith and Glass, 1987).

Descriptive statistics are numbers that represent some characteristic of the set of scores being studied. Within descriptive statistics there are measures of central tendency, measures of variability, and measures of relationship.
The measures of central tendency include the mean, median, and mode. However, we have only applied mean analysis to our study. This is because "the mean is by far the statistic most often used in social and educational research to represent the typical score in the distribution (Smith and Glass, 1987; 55)."

The mean informs the researcher about the typical score or central score. It is an abstraction. This is done by adding all the individual scores and dividing by the number in the sample.

The median is the middle score in the distribution, one having half the scores above it and half the scores below it. The median is always the middle score of the 50th percentile. The mode is the most frequently occurring score in a given sample (Korin, 1975).

**Measures of Variability**

Measures of variability deal with the variance present within a set of scores. Within a sample, variability is not ordinarily under the researchers control. The essence of understanding and communicating variability is variance.

Variance represents the degree of variability present in individual scores from a sample. It reflects the amount of individual differences on a characteristic. It provides a measure of how different the scores of individuals are from each other and from the typical score.

The standard deviation is basically the square root of the variance. It is also commonly referred to as the degree of heterogeneity in a study. For our study it is referred to as 's'. The standard deviation is commonly referred to along with the mean when describing results of a study. Standard deviation is used because it is easier to understand than variance. "It uses the same scale as the measure itself (Smith and Glass,
Both the standard deviation and the variance indicate the degree of individual difference.

**Measures of Relationship/Correlational Studies**

The third type of measurements we will address are correlational studies. Correlation is referred to as "r" for this study. According to Smith and Glass (1987;202), "The most prevalent way of expressing a relationship between variables is the correlation coefficient." It means correlation or covariation. If variables, at least two, are correlated, then they go together. Correlation's use terms such as "strong", "low", "positive", or "moderate". You will see these terms used in our analysis portions in Chapter Five of this thesis. An easier way to understand correlation's is if high scores on 'variable x' are accompanied by high scores on 'variable y' then the 'variables x and y' are correlated. Correlational research involves hypotheses about the relationships among variables you are studying. One of the most important points to correlational studies, however, is that no causal claims are made. It is to relate or predict (not to establish cause). The goal is to just understand the patterns of relationships with the variables you are studying. The two basic purposes of correlation's include:

1). building theory about phenomenon by better understanding the constructs, what they consist of, and how they relate to consumers.

2). the prediction of one variable from another (or several others).

There are several different kinds of correlational studies including partial correlation's, Pearson correlation's, Multiple Regression Analysis, and factor analysis. For this study we will concentrate on Pearson correlation's.
We will refer to Pearson correlation studies as 'Pearson r'. They are used to summarize the magnitude and direction of the relationship between two variables (Hopkins, 1978). These correlational coefficients allow us to compare the strength and direction of association between different pairs of variables. Correlation coefficients have two properties that describe the relationship between two variables: direction and size. The positive sign (+) or negative (-) indicates direction of the relationship. The size or magnitude equals the numerical size of the correlation coefficient.

The correlation coefficients in the study can have values that range from positive one (+1) for a direct (positive) or "high" relationship, a negative one (-1) for a perfect (negative), inverse or "low" relationship to zero for no systemic correlation (Hopkins, 1978). Just as labels are generally placed on scores of the variables, the scores can be simply indicated by the presence of the greater degree of association in a set of data. The larger the value of the correlation, in absolute terms, the higher the degree of association. For instance, if 'variable x' had a correlation of .80 and 'variable y' had a correlation of .40, then 'variable x' would have a higher degree of association. The use of the terms "high" or "low" depend on the type of data being analyzed. There is no particular value which can be used for separating "high", "low", or "moderate" (Korin, 1975;118). In addition, they do not need to be given a label as "high" or "low" for you to gain meaning out of the study.

Within correlational studies (specifically Pearson correlation's) scatterplots are highly recommended. They provide instant and clear visual representations of data. "The shape of a relationship can best be determined by examining scatterplots (Smith and Glass, 1987;200)." They are used to demonstrate our highest correlation's. Within Chapter Five, the highest correlation's derived from this thesis will be demonstrated by using scatterplots.
BRIEF HISTORY OF COMMUNITY DEVELOPMENT

This discussion will focus on a brief history of community development in the United States including the 'City Beautiful Movement', the 'Garden City Movement', Post War Suburbanization/New Town Movement, and Neo-Traditional Planning/The New Urbanism Movement. Throughout this discussion it is important to remember that each of these 'movements' develop from one another with no specific beginnings and endings. We will research these movements because they have the most visible and 'recent' impacts on today's communities. This will also include a brief discussion on individuals that had impacts on communities as well as examples of their work. A description of the contributions of Frederick Law Olmsted will provide initial context for the development of communities in the United States.

The Influence of Frederick Law Olmsted

The work of Frederick Law Olmsted (1822-1903) prior to and during the 'City Beautiful' Movement had a profound impact on our cities and open spaces. According to Lewis Mumford, the planning movement in America was a direct reflection of the work and curvilinear designs of Frederick Law Olmsted and Calvert Vaux (Stein, 1957). Olmsted felt each city should be composed of a series of linked park spaces. He was credited with the designs of Central Park in New York, New York (See Figure 2-1) and the Emerald Necklace of Boston.

(Figure 2-1: Central Park, New York City; Fisher, 1986).
Other notable projects during his lifetime included the plans for Riverside Estate in Chicago (1869) and Prospect Park in Boston (1880) (See Figures 2-2 and 2-3).

(Figure 2-2: Prospect Park in Boston; Fisher, 1986).

(Figure 2-3: Riverside, Illinois; Fisher, 1986).

He was a visionary of planning and landscape design whose extensive influences cannot be completely measured.

He advocated creating a formal organization for the promotion of civic pride and planning including the American City Planning Institute. He is also known as the father of modern Landscape Architecture with the 1899 founding of the American Society of Landscape Architects (ASLA).
THE CITY BEAUTIFUL MOVEMENT

The 'City Beautiful Movement' took place in the United States during the late 19th and early 20th centuries. Its designs borrowed from France's Ecole des Beaux-Arts school of Architecture. It was composed of very formal designs with gridded streets which was a sharp contrast to the drabness of the existing framework. There was an emphasis placed on public spaces (plazas and park) and civic buildings, all trying to "incorporate an ideal of village life into modern urban settings (Fulton, 1996;7)." This movement encouraged ordinary street improvements, paving, furnishings, and plantings. This movement is considered the beginning of modern city planning.

"When anyone begins to explore the evolution of structured governmental planning process, invariably the beginning point is the World Columbian Exposition of 1893 in Chicago (Smith, 1991)." Probably the most notable event during this period was this exposition (See Figure: 2-4).

(Figure: 2-4, World Columbian Exposition; Jellicoe, 1995).
This was a national celebration of the 400th anniversary of Columbus' discovery of America (Kostof; 1987; 183). What resulted was a series of lagoons with classic buildings, white marble-like structures, plazas, promenades, large fountains, floodlighting, and sculptures. This world's fair produced a feeling of civic and residential pride across the country. Chicago was referred to as 'the white city' or 'the dream city'.

**Prominent Design/Planning Professionals and Associated Cities:**

There were several individuals and cities associated with design and planning during this period. The most notable is Daniel H. Burnham (1846-1912), who worked with Olmsted and Vaux to develop the plans for the Worlds Columbian Exposition (Jellicoe and Jellicoe, 1995). Burnham had a decisive impact on the architecture and planning of this time. Not only did he work on the exposition, but he was appointed to head the revision of L'Enfant's plan of Washington, D.C. by Senator James McMillan. Burnham laid out plans for Cleveland, Ohio; San Francisco, California; Manila and Baguio Philippines; Berkeley, California; Duluth, Minnesota; and Springfield, Massachusetts. Burnham is probably best known for his statement:

"Make no little plans, they have no magic to stir men's blood. Make big plans, aim high in work, remembering that a noble, logical diagram once recorded will never die (Kostof, 1987;188)."

Other individuals involved in this movement included: J. Horace McFarland, Frederick Law Olmsted, Jr., John Nolen, Charles Mulford Robinson, Charles McKim, and Augustus Saint-Gaudens.

There are probably very few large cities not influenced by these individuals and the principles of the 'City Beautiful Movement'.
Another example of a city influenced by this movement was Denver, Colorado. In Barbara Stewart Norgren and Thomas Jacob Noel's book *Denver the City Beautiful*, they state:

"The City Beautiful was more than aesthetics. It was also an attempt to make cities more efficient. Civic centers were designed to promote inter-governmental cooperation by clustering city, state, and federal offices in an office park. Landscaping doubled as fire and flood control by putting space between buildings and by changing flood plains to parks. Parks, playgrounds, and recreation centers were also a stock prescription of public health proponents (1987;27)."

**Transportation:**

This period was also known for the streetcar designs dating from 1890 to 1920. These were placed directly within neighborhoods. However, it was during this era that we start to see real impacts of the automobile. The Federal Highway Act of 1916 improved linkages across the country. The highway now known as US Highway 30 was built to link New York to San Francisco. During this time the automobile made it possible for the wealthy to leave the cities for country trips. It also gave the poor the opportunity to travel where they could find work. It brought rural settlers out of isolation and increased speed and ease of travel. The extent of the negative impacts of the automobile would not be completely felt until well after World War II. However, it is important for us to mention their impacts from these early communities.

**Housing and Relocation:**

During this time there was an attempt to relieve congestion and unsanitary conditions within the inner cities. There was overall concern for improving the slum areas. Private enterprises were encouraged to build at the edge of cities (setting the stage for future 'sprawl' problems). The relocation of the middle class to outlying areas became popular.
This was all done in an attempt to provide more space and better housing opportunities for the lower income families (Ben-Joseph and Southworth, 1997). This would also provide newer housing for the middle class establishing social and economic stability. During this movement there was an increased reliance on state regulatory mechanisms, public service programs, and expert knowledge. This movement also made way for the Work Progress Administration (WPA) and the Civilian Conservation Corps (CCC) from the 1930's till the 1940's.

Whereas, the 'City Beautiful Movement' attempted to add aesthetic qualities to the nation's communities, it did not address the problems of congestion, poverty, and overburdened services (Kostoff; 1987). Some critics have warned that this movement only covered up the real problems of cities and the need for comprehensive future planning (Smith, 1991).

The 'City Beautiful Movement' lasted until the stock market crash of 1929 (Smith, 1991). It occurred at the height of the Industrial Revolution. Therefore, a brief discussion about the impacts of industry on the formation of our cities will follow.

**Industrial Influences during the 'City Beautiful Movement'**

We will focus a brief discussion on the impact industry has had on the formation of our communities. This is not done to suggest that other factors such as the automobile, socioeconomic status, and public policy have not played a role. However, this is done to provide further background regarding community development within our country.

During the 'City Beautiful Movement' technology changed the form of cities in the following ways:

1. new types of infrastructure made new locations accessible and cheaper (i.e. building of interstate highway systems allowed industry to locate elsewhere).
2. different types of industries grew at different rates (i.e. agriculture)
3). location of jobs could change as technology, product mix, and industrial organization changed.

4). technological advances have enabled a larger share of the population to live longer after retirement, allowing the retirement population of states like Florida, Texas, California, and Arizona to expand significantly (US Congress; 1995).

Other patterns of urbanization included:

1). the building of highway systems
2). the use of investment tax credits for new facilities
3). location of public housing and middle class housing creating advantages for home ownership

Early Industrial City 1870-1920:

During this period in history, our urban structure was transformed due to industry. There was a concentration on production around central business districts. This included a desire for high status groups to move to country estates and garden suburbs. As a result, this left the working class inside cities. There was a separation and specialization of land uses during this time period. Technologies included:

1). transportation (railroads, steam powered ocean vessels)
2). new energy sources (electricity)
3). new industrial processes (taylorism)
4). new materials (steel)
5). new communications technology (telegraph and telephone)

Densities in population increased and activities in urban centers made investments in urban rail centers (long distance and commuter) viable. There was a dominant flow of migrants from rural areas to urban areas (as early agricultural mechanisms took hold and industrialization proceeded at a rapid pace). At the beginning of 1870 approximately 1/4th
of all Americans lived in urban places, by the end of 1920, over 1/2 lived in cities (US Congress, 1995).

THE GARDEN CITY MOVEMENT

For the most part, this movement occurred after the 'City Beautiful Movement' but at the beginning of the 20th century. There is, however, some overlapping of time between these two movements. This movement was created to focus communities towards having a 'sense of place'. It contained less formal elements than previous designs. Communities focused on green spaces and bringing people away from the streets. A popular design element of this time was to adjust units (buildings) inward towards green spaces and schools.

Sir Ebenezer Howard:

This movement was started by the English designer, Sir Ebenezer Howard. His idea was to create towns for workers with green areas along the edges of the community. The following is the definition for a garden city developed by the Garden City Association:

"A Garden City is a town designed for healthy living and industry, of a size which makes possible a full measure of social life, but not larger: surrounded by a rural belt: the whole of the land being in public ownership or held in trust for the community (Macfadyen, 1970;109)."

There were basically three different types of planned communities developed by Ebenezer Howard. These included the 'Garden City', the 'Garden Suburb', and the Garden Village'.

The 'Garden City' included these basic elements:

1). it was self contained, industrial, agricultural, residential, and planned as a whole.

2). combined advantages of both town and country with garden surrounded homes for at least 30,000 people.
3). provided a context for a national movement for garden cities later known as the Garden City Movement.

The 'Garden Suburb' included these basic elements:

1). the growth of a city should be based upon healthy carrying capacities.

2). the problems of most cities is rural depopulation (which this type of planned community did not truly address)

The 'Garden Village' included these basic elements:

1). the village is basically a garden city in miniature, but dependent on adjacent cities for various infrastructure support.

2). they do not have a continuous buffering garden belt

3). they are the center of one great industry for the community.

Some of the most notable examples of Ebenezer Howard's work within the 'Garden City Movement' includes the English towns of Letchworth (Estate) Garden City and the City of Manchester: Wythenshawe (See Figures 2-5 and 2-6).

(Figure: 2-5, Letchworth, England; Macfadyen, 1970).
The work of Ebenezer Howard in 1898 influenced American entrepreneurs to incorporate the garden city principles within their designs. According to Lewis Mumford, Howard's book "Garden Cities of Tomorrow has done more than any other single book to guide the modern town planning movement and to alter its objectives (Simonds, 1994; 62)."

Clarence Stein and Henry Wright:

At the same time Ebenezer Howard was working on these ideas in England, Clarence Stein and Henry Wright were working on similar designs in America. They were creating village settings which included both park and automobile space. Stein and Wright visited England and saw firsthand the designs of Howard at Letchworth.
The inclusion of the automobile in Stein and Wright's designs are among the most notable elements seen during this era. They separated the automobile from the pedestrian by using overpasses and greenways similar to the work of Olmsted in Central Park. Within this movement, Stein and Wright developed "neighborhood units". These were categorized as units that focused inward (indicative of the 'Garden City Movement') on green spaces. The designs of Stein and Wright included the 'superblock' ideas and pedestrian vehicular separation. These garden city principles were incorporated into the concept for Radburn, New Jersey in 1928 (See Figure: 2-7).

(Figure: 2-7, Radburn, New Jersey; Joseph and Southworth, 1997).

The city of Radburn is probably the most widely associated city with this movement. The community is located 16 miles north of New York City and was planned in 1928 to accommodate 25,000 residents. The following elements were included within the community:

1). superblock areas between 30 to 50 acres
2). housing aligned according to topography
3). fewer housing units facing streets
4). cul-de-sac arrangements that reduced infrastructure costs by 25 percent which resulted in the incorporation of more park space
5). driving lanes reduced to 18 feet with 6 foot utility strips on either side of landscaped areas
6). building set backs at 15 feet
7). separation of automobile and pedestrian traffic, local roads to be used only by residents and guests

Today, Radburn is a very popular community with families using the public open space to its capacity. However, the popular elements exhibited in this plan (community open space and vehicular/pedestrian separations) did not seem to impact the development seen within subsequent years. The following two reasons could account for this:
1). developers reluctance to encourage open spaces for purely economic reasons
2). homeowners desiring more personal lawn space.

During this time, Tony Garnier developed one of the first modernist approaches to planning by segregating industry, setting buildings back from streets and isolating land uses (Calthorpe, 1993). The contributions of Frank Lloyd Wright and Le Corbusier impacted the formation of our communities during this era as well. They both encouraged the segregation of land use, the promotion of the automobile, and the domination of private space over public space. The street was no longer a place for congregation (Calthorpe, 1993).

Other examples of cities during this time include the Greenbelt New Town projects of the 1930's. These included the following three communities: Greenbelt, Maryland; Greenhills, Ohio; and Greendale, Wisconsin (See Figure 2-8).
They were the result of the Federal Resettlement Administration's push to incorporate ideals of the Garden City Movement based on their proven success in Radburn, New Jersey. The goals behind 'greenbelt communities' included:

1. to provide work for unemployed men
2. to demonstrate the success of incorporating Garden City principles
3. to provide low rent housing and healthful social and physical surroundings for families.

These communities fell short of their goals and resulted in basic suburban communities as opposed to centers for industry, business, and residential uses.

Transportation:

During the 'Garden City Movement', the use of automobiles increased as people became more and more dependent on the car. The car began being used for both transportation and work (farming). There were more highways being built due to the creation of newer towns. The age of the suburbs began during this era, but we will not see these fully develop until Post World War II. The explosion of highways is largely a result of the New Deal Programs of the Roosevelt administration. During the 1920's,
American's ownership of cars increased from under seven million in 1919 to over 23 million in 1929. During the depression the automobile was taunted as a means of togetherness.

At the end of the Great Depression most of the English garden city ideas had ceased, but this paved the way for the first very large federal involvement in community building (Burby and Weiss, 1976).

NEW TOWN MOVEMENT OR POSTWAR SUBURBANIZATION:

A rush of suburbanization occurred after World War II which affected the layout and appearance of many of our communities today. At times, this new town movement (what is often referred to as postwar suburbanization) overlaps with the 'City Beautiful Movement' and the 'Garden City Movement'. This era is marked by the "unprecedented metropolitanization of the population following World War II, in addition to a growing concern with the predominant character of suburban growth around large metropolitan centers (Burby and Weiss, 1942)." Design elements of this time included interior neighborhood units with exterior roads for the majority of traffic. These exterior roads were many times lined with strip malls. This 'altered garden city movement' was the focus of towns built between the 1920's to 1980's. The intention of altering previous planning movements resulted in a variety of allocations of green area; some small, some larger. There were several different types of communities developing all over the country including mining towns, mill towns, port cities, railroad towns, airport towns, harbor towns, and coastal towns. Many of the communities built during this time were sole residential communities of one single class with monotonous features. During this era it was common for mediocre piece-mill development proposals to obtain public approval
based on meeting basic zoning and building codes (Simonds, 1994). There were also mixed use 'new towns' of the 1960's including Reston, Virginia and Columbia, Maryland. We will look closely at Reston, Virginia within our case study analysis in Chapter Three of this thesis.

The lifestyle choices of most Americans during this time fragmented our society while there was an increased focus on highways (Katz, 1996). This era has been widely associated with the emergence of community 'sprawl'. The results of this suburban sprawl included:

1). the deterioration of proud neighborhoods
2). the alienation of large segments of society
3). a constantly rising crime rate
4). environmental degradation

The 'sprawl' occurring during this time created communities more like the original urban core they broke away from. The prices of land increased along with taxes and the cost of infrastructure. This made it increasingly difficult for people to own single family dwellings. The separation of residents from the older city is a result of the following reasons:

1). Post World War II development was supported by federal mortgage insurance.
2). The exodus from downtown made possible, corporate headquarters and shopping malls.
3). Factories and industry located outside of the city core for more space
4). As women entered the work place, there were more automobiles and more offices.
5). New expressways were built, but did not serve the intended communities.
During the 1960's we begin to see opposition to post war "sprawl" that was occurring, especially within Jane Jacob's book *The Death and Life of Great American Cities*. Within this book she readvocated the use of urban villages and usefulness of streets for both cars and pedestrians.

The metamorphosed version of the 'Garden City Movement' was also the model for "master planned" communities of the 1970's, particularly in California. During this time peripheral shopping centers were located around the edges of the cities with the majority of office space built away from downtown. The following illustration is an example of urban sprawl with commercial components located along the edges, requiring almost everyone to depend on the automobile exclusively (See Figure 2-9).

(Figure: 2-9, Illustration of Sprawl; Langdon, 1994).

It was during the 1970's that both the emergence of the historic preservation movement and "postmodern" architecture encouraged more traditional forms of urban design (Fulton; 1996). In 1979, we saw the emergence of Battery City Park in Manhattan. Alexander Cooper and Stan Eckstut designed this 92 acre landfill as a "new town-in-town" (Fulton, 1996:8). This replicated the formal grid streets of the 'City Beautiful Movement'.

The opportunity of developing new towns provided a means for attempting to combat some of the aesthetic, socio-cultural, environmental, and functional issues of previous communities. There was a tremendous increase during the 1980's of the construction of master planned communities with homogenous houses and unreasonable densities. From these 'new town' projects we see the emergence of 'neotraditional planning' during the early 1980's.

We also see designers continuing to combat the negative results of increased technology within the nation's cities. As we discussed within the 'City Beautiful Movement', a brief overview of the influences of industry within this period will follow. This discussion also overlaps with events occurring during the 'Garden City Movement'.

Industry and Post World War Suburbanization/
Mass Production Metropolis (1920-present):

There was a wave of technologies occurring during this time which continued to help form cities. This included:

1). increased automobile technology
2). more frequent airplane travel
3). new infrastructure
4). widespread diffusion of electricity, highways, and water systems, mass production manufacturing technologies, and agricultural mechanization.

The air travel (as mentioned above) became more long distance oriented with commercial and truck transports taking care of regional needs. The population of urban cores began to decline with a mass exodus of people from inner cities. There was an increase in ghettos as a result of displaced workers, increased mechanization, and housing segregation. Within the metropolitan areas "cities were reshaped by the automobile (US
"This resulted in an outer core area of communities dependent on the car and larger city core. This can be seen within our case study of Reston, Virginia.

At the beginning of the 1970's cities were categorized by post industrial metropolitan development with businesses spread throughout. The present and future growth of residents moves to the outer suburbs and exurban areas. Some parts of the central cities decline and some completely close down.

**Transportation:**

This era has been categorized as an automobile dominated version of work emerging during the 'Garden City Movement'. The automobile continued to influence the shape of America in bigger and more expansive ways after World War II. The federal interstate highway program launched in 1957 was called the 'National System of Interstate and Defense Highways'. This program produced 41,000 miles of super roads connecting 90% of the country. This also lead to the Highway Trust Fund. It was during this era that we see designers and planners attempting to combat the ills of the automobile through greenery and the clustering of buildings.

**NEO-TRADITIONAL PLANNING/THE NEW URBANISM MOVEMENT:**

During the 1980's and 1990's, the neo-traditional or the 'New Urbanism' movement developed due to the "growing sense that the suburban paradigm, which has dominated since the 1940's and 1950's cannot sustain another generation of growth (Katz, 1994;x)." There is a slight distinction between neo-traditional design and 'New Urbanism'. However, this is primarily due to the timing of their formation. Based on our literature review we will describe the principles of each 'movement' in the following
sections. More emphasis will be placed on the 'New Urbanism' because it is the more defined 'movement' of the two. We will also include a discussion on the prominent designers and cities of this 'movement'. The principles derived from these practitioners represent the formation and essence of the 'New Urbanism'. Therefore, the principles of this movement will be outlined within our discussion of these practitioners, as opposed to separating them out as a whole list. We will also address criticism surrounding the 'New Urbanism'.

**Neo-traditional design/planning:**

Neo-traditional design/planning emerged in the early 1980's largely through the work of Peter Calthorpe, and the husband and wife team of Andreas Duany and Elizabeth Plater-Zyberk. According to Fulton (1996), neo-traditional planning encompasses "principles of neighborhood design that are pedestrian oriented and offer a mix of land uses including public spaces; a precursor to the New Urbanism." The principles of this movement borrow heavily from the planning of the 1900's and 1920's. More specifically, the 'City Beautiful' and 'Garden City' movements we discussed previously in this chapter influenced designs of this era. It is a "returning to the cherished American icon: that of a compact, close knit community (Katz, 1994:x)." The work associated with neo-traditionalism paved the way for a more clearly defined movement called 'The New Urbanism'.

**'The New Urbanism' Movement:**

During the early 1990's the movement termed 'The New Urbanism' developed from the most influential designers/planners coming together for the purpose of creating a defined movement. Several of the professionals associated with neo-traditional design
were also influential in the 'New Urbanism' movement including: Duany, Plater-Zyberk, and Calthorpe. Similar to neo-traditionalism, the principles of the 'New Urbanism' borrow heavily from the 'Garden City Movement'. The movement rejects the elements of 'conventional' suburban planning and the post World War II 'sprawl'. More specifically, it was in direct response to the fragmentation of our communities and the role automobiles have played in the formation of our towns (See Figure 2-10).

(Figure 2-10: Illustration on the left is a 'conventional' community and illustration on the right is a 'New Urbanist' community, Katz, 1994).

Basically, 'New Urbanism' is the inclusion of housing, schools, workplaces, and retail within a town center as the heart of an entire community. The definition is "a movement in architecture, planning and urban design that emphasizes a particular set of design principles, including pedestrian and transit-oriented neighborhood design and a mix of land uses, as a means of creating more cohesive communities (Fulton, 1996:2)."
Currently, the 'movement' is attempting to include both 'infill' development and new growth. Over the past few years, a series of guidelines have been developed, twenty seven to be exact. We will address these through our discussion of influential leaders of this movement. However, there are basically two main goals which include:

1). to create a sense of community with more diverse land use and opportunities for social interaction through implementing public spaces
2). to return to pedestrian and transit friendly neighborhoods with reduced impact on the environment

Within the 'New Urbanism' movement, there is a division among its practitioners. They are two different groups that believe either:

1). the edge of a region should not be developed until all infill possibilities are exhausted. The redevelopment/infill areas should incorporate 'New Urbanism' principles.
   
   or

2). due to the current economic and political situation where edge growth is favored, it's better to continue with the development and include the 'New Urbanism' principles toward a more sustainable future community.

Due to this separation, the advocates of 'New Urbanism' contend the principles can be applied to many different situations. There are influential designers of this 'movement' that represent these two divisions. The following sections outline their work and the 'New Urbanism' principles in detail.

Peter Calthorpe and 'The Region':

Peter Calthorpe is considered one of the most recognized proponents for neo-traditionalism and the 'New Urbanism' movement. Some of his best known publications include: The Next American Metropolis, The Pedestrian Pocket Book: A New Suburban Design Strategy, and the essay 'The Region' in The New Urbanism. In many of
Calthorpe's writings he defines the current problems: "We continue to build post World War II suburbs as if families were large and had only one breadwinner, the jobs were all downtown, land and energy were endless and another lane on the freeway would end traffic congestion (Katz; 1994; xii)."

The theory behind Calthorpe's work centers around 'transit oriented developments' or 'TOD's' (See Figures 2-11 and 2-12) The principles of TOD's transcend into 'New Urbanism' principles (they are one in the same). The principles of TOD's are as follows:

1). "organize growth on a regional level to be compact and transit-supportive
2). place commercial, housing, jobs, parks, and civic uses within walking distance of transit stops;
3). create pedestrian-friendly street networks which directly connect local destinations;
4). provide a mix of housing types, densities, and costs;
5). preserve sensitive habitat, riparian zones, and high quality open space;
6). make public spaces the focus of building orientation and neighborhood activity; and
7). encourage infill and redevelopment along transit corridors within existing neighborhoods (Calthorpe, 1993).

(Figure 2-11: Transit oriented development diagram, Katz, 1994).
Fundamental components include the design of a dense, tightly woven community that mixes uses and densities. This includes a mix of populations and densities. A large focus of TOD's centers around the incorporation of alternative transportation, such as a rail transit. Transit will invigorate downtown, reduce the need for parking, and order and formalize 'the region' (See Figure 2-13).

Typically these designs have radial streets emerging from a core area. Radial designs produce shorter travel distances and a grand feel to the community.
Impacts on the 'region':

Calthorpe focuses attention on the impacts of 'the region' on a community. The 'region' is considered a distinct area of activity. The 'New Urbanism' principles as applied to the 'region; are concerned with the whole metropolitan area and should include urban principles with public spaces, circulation systems, and pedestrian support (See Figures 2-14). The basic goals applied to the 'region' include:

1). defined edges or 'Urban Growth Boundaries' (which was mandated by states in 1972 to limit growth) should be included in the master plan. They are the equivalent of a defined neighborhood edge

2). a circulation system that focuses on pedestrian and transit ease

3). public space addressed from the beginning of the project (preserve major open space networks) to preserve nature as a limit to human habitat.

4). civic and private areas should coexist (housing, civic centers, recreation, commercial)

5). a diverse population, both economically and socially.

(Figures 2-14: Diagram of housing and commercial layouts; Kelbaugh, 1989).

Calthorpe highly recommends that attempts at infill and redevelopment be addressed before development at the edge occurs. This provides the best situation for preserving
natural open spaces. He advocates that infill limits overall growth by allowing towns and suburbs to grow until they are one mass. Calthorpe, does contend that infill might not be appropriate if there are extraordinary space demands or if no growth neighbors resist the infill projects. There are special problems dealing with infill including: racial tension, gentrification, economic stagnation, bureaucracy, and deteriorating schools. Therefore, he addresses new growth.

New growth could work with well planned communities applying 'New Urbanism' principles. One of the best known new growth towns designed by Calthorpe with 'New Urbanism' principles is Laguna West. This community is discussed in detail within our case study analysis (See Figure 2-15).

(Figure 2-15: Section of Laguna West illustrating neo-traditional/New Urbanism principles, Joseph and Southworth, 1997).

He contends that within new growth towns, it is easier to develop transit and pedestrian oriented elements. These new growth areas or satellite towns could help manage the growth of older suburbs by absorbing excess development (Katz, 1994).

Andreas Duany and Elizabeth Plater-Zyberk, 'The Neighborhood, The District, and the Corridor':

The husband and wife team of Duany and Plater-Zyberk are widely recognized within the 'New Urbanism' movement. According to Stan Fellows, "Architects Andreas
Duany and Elizabeth Plater-Zyberk, two of the most influential urban planners in America today, argue that a great city is merely a confederation of great neighborhoods (Fellows, 1997; 44). Similar to Peter Calthorpe, they were involved in neo-traditional planning and developed their own planning guidelines. These are known as 'traditional neighborhood developments' (TND's). These principles focus less on public transit and vary more in response to local conditions than Calthorpe's 'TOD' principles. Each of these principles represent elements of 'New Urbanism'.

Within Duany and Plater-Zyberk's work there are a range of community types. Some of their best known projects include Seaside, Florida; Mashpee Commons, Massachusetts; and Rosa Vista, Arizona. We will address these communities within our case study analysis in Chapter Three of this thesis. Another well known community incorporating 'New Urbanism' principles designed by Duany and Plater-Zyberk is Kentlands in Gaithersburg, Maryland (See Figure 2-16).

(Figure: 2-16: Plan of Kentlands, Langdon, 1994).

Andreas Duany and Elizabeth Plater-Zyberk focus their work on 'New Urbanism' principles towards 'the neighborhood, the district, and the corridor'. The neighborhood is an urban area with a mix of human activity. A district is dominated by a single activity. A
corridor is a series of connectors and separators of neighborhoods and districts. Finally, a single neighborhood standing free in the landscape is a village (Katz, 1994).

'The Neighborhood':

Much of Duany and Plater-Zyberk's work focuses on neighborhoods because they feel they have the most inefficiencies. They borrow principles from the 1900's and 1920's where urbanism is limited with a defined center. Their principles include a varieties of population densities with a mix of dwellings, workplaces, shops, civic buildings, and parks. The ideal neighborhood (which contributes to social identity) would include the following:

1). a center and an edge (similar to the Urban Growth Boundaries of Calthorpe)

2). the optimal size from center to edge would be 1/4 mile. This equals a five minute walk. There should be a limit on the neighborhood and town size (towns should be 40 to 200 acres) (See Figure 2-17).

3). a balance of activities within the community (socially and economically). This should include a mix of housing types, commercial, civic, and recreational outlets. There should be higher residential densities than conventional neighborhoods.

4). a fine network of interconnected streets. Streets are to create appropriate building sites and shorten pedestrian routes. Local traffic should be limited to local streets. There should be multiple routes and a variety of street types with an emphasis on providing opportunities for casual social meetings. The grid pattern should be used for automobile and pedestrian circulation. According to Duany and Plater-Zyberk, the "happiness of people takes precedence over the happiness of cars (Consumer Reports, 1996)."

5). priority given to public space and civic buildings. This will provide pride and community identity and add life to the community. The location of public buildings should be an initial thought. The buildings should be located along main streets and next to public spaces. The architecture should respond to vernacular designs of the region.

6). pedestrian friendly and transit options accessible. This is important to provide independence of movement for the young and old populations.
Other principles include the center of a community containing public, green, open space. The core areas of neighborhoods are usually in the middle unless elements such as views, topography, or water resources impact its placement. The center is the hub of the neighborhood and could include public buildings, day care, shops, jobs, religious facilities, and a post office (Auridac and Shermyen, 1994).

The edges of a community will vary from site to site. They could be comprised of open space, infrastructure, orchards, farms, desert, wetlands, or woodlands, golf courses, recreational open spaces. However, within high density areas, the edge is usually infrastructure (i.e. rail lines). In addition, retail buildings and workplaces may be located along the edge of a community where they could intensify community activity.

'The District':

The 'district' is a series of urbanized areas that are functionally specialized. This does not mean, however, that there is one single, rigorous activity. The district could include: theaters, restaurants, bars, nightlife, hotels, commercial, education, and other entertainment. This degree of specialization enhances the community. Other aspects include the workplace within the community. Within today's society, this is not necessarily a negative situation. Our case study analysis will demonstrate this element.
The district should contain a detailed interconnected circulation system and an attention to the character of the public spaces.

'The Corridor':

The 'corridor' serves as the connector and separator of neighborhoods and districts. It is the most difficult to implement because it requires regional coordination (Katz, 1994). It is an urban element characterized by its visible continuity. It also provides entry into neighborhoods and adjacent districts. The location of corridors is determined by technological intensity and densities. The placement of rail transit should be associated with the town and industrial districts. The light density areas within the corridors may be continuous green edges between neighborhoods. This provides an opportunity for long distance walking, bicycling, and enjoyment of natural habitat. The corridor has an inherently civic nature with the most universally used open spaces. Its purpose is to serve connections and mobility.

Elizabeth Moule and Stefanos Polyzoides, 'The Street, The Block and The Building'

The final individuals most recognized with this movement include Elizabeth Moule and Stefanos Polyzoides. They are referenced in literature less frequently than the previous individuals we mentioned. However, their contributions should be noted for a comprehensive analysis. Within their designs they address issues surrounding the 'street', the 'block' and the 'building'.

The 'Street':

Within 'New Urbanism' streets are communal rooms and passages (Katz, 1994). The street should contain a pattern of connectedness and continuity of movement. This is
done to encourage mixed use and a variety of paths for a 'sense of place'. The hierarchy of streets is determined by the pedestrian and vehicular traffic. There are no singular automobile oriented streets. However, development should adequately accommodate the automobile, but at the same time incorporate pedestrian and transit options. The formation of streets is based on their design in plan and section. There should be no cul-de-sac designs. Instead there should be narrow, gridded streets, with sharp corners. This will force cars to move slowly while reducing the noise and confusion of very curvilinear streets with cul-de-sac's. Further, the streets should have easy crossings, landscaped medians, two way access, curbs, sidewalks, and street parking.

The 'Block':

The block sizes are to be square, rectangular, or irregular. They are to be between 250 and 600 feet. The blocks/lots are to be placed so that all sides can help define public spaces. They should be a variety of widths and depths. Alleys should be active spaces and accessible for service and additional parking. At the perimeter of a community there should be parkways, sidewalks, and setbacks. The streetwalls should have visual character. The 'block' should contain details such as: arcades, porches, stoops, stairs, balconies, eaves, cornices, loggias, and chimneys. When dealing with parking, the pedestrian should be accommodated first. This could be accomplished through underground parking or parking that doubles as public gardens. The landscape design should incorporate a variety of trees for variance in lighting and visual impact. They should address climate, topography, and the history and building practices of the region. The design of open space parks should encourage use by its residents.
The Building:

The buildings should be designed not solely for their function, but their aesthetic impact as well. The architecture should be linked to its surroundings. There should be guidelines that link entitlements and predictable physical and architectural definitions (Katz, 1994). There are to be two kinds of buildings: fabric and monumental. Fabric buildings have a consistent form and conform to all street 'rules'. In contrast, the monumental building designs are free from all formal constraints (Katz, 1994). The building heights are proportional to the right of way widths. Similar to the landscape design, the architecture should be: comprised of regional materials, respond to the local climate, and derived from local history and building practices. The architectural expression should encompass three things:

1). emphasize the public character of the street
2). reflect semi-public nature of open spaces
3). responds to the service nature of alleys and backyards

Criticism of the 'New Urbanism':

The 'New Urbanism' movement has received criticism from various designers and professionals across the country. Some of this criticism from our structured interview analysis is included within Chapter Three of this thesis. However, within this section we will address criticism we uncovered during our literature review only.

The 'New Urbanism' principles have created an ongoing dialogue between designers, marketers, and developers across the country. It is gaining support from government officials and planning professionals across the country. Some individuals believe this is due to the fact that it attempts to provide 'new' solutions for environmental, functional, and aesthetic problems within communities (Schleimer, 1995). However, it is
also creating debate and criticism among professionals. The following is a list of criticism of the 'New Urbanism' organized by the 'design/planning ordering systems' we mentioned in Chapter One:

1). Aesthetics over Function: emphasizing visual style over important planning principles and providing an avenue for more sprawl, referred to as "New Urban Sprawl" (Fulton, 1996;3).

2). Socio Cultural: Most of the neo-traditional planning towns built so far have been for middle and upper income people. There have been complaints that most housing within these communities are 'overpriced'. This is a result of not enough market research to determine correct pricing (Schleimer, 1995). (This is in direct conflict with one of the goals of this movement to include a diverse range of people).

3). Function: Local fire departments worry that streets are too narrow for trucks (even though this was disproved at Laguna West) (Consumer Reports, 1996).

4). Economic: There are few constructed examples of 'New Urbanism' communities incorporating all the principles of the movement. Therefore, the "movement needs a 'home run' (Schleimer, 1995; 4)."

5). Economic: Developers are reluctant to try something new that has not been consistently shown to be successful. (We will see this within our structured interview results in Chapter Four) "The development industry is full of legends about people who tried something different and went broke (Consumer Report, 1996;27)." The traditional developers and home builders need to be educated about the principles (Schleimer, 1995).

6). Function/Economics: Many developers, banks and insurance companies specialize within their practices (i.e. retail, office, residential) therefore standard patterns of financial support do not lend itself to this movement. (We will see this within our non-participant observation analysis in Chapter Four).

7). Function/Economics: Many retailers will not build a commercial outlet that does not have a large front parking lot (which is in conflict with 'New Urbanism' principles) (Consumer Report, 1996).

8). Aesthetics: "New Urbanist proposals are likely to attract critics, who call it suburbia scented with nostalgia (Leccesse, 1997)."

9). Socio-Cultural: Many developers and free-marketers consider designers of 'New Urbanism' as social engineers denying the preferences of the American consumer (we will see this criticism within our case study analysis of Celebration, Florida in Chapter Four) (Fulton, 1996).
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CHAPTER 3: RESEARCH METHODS

INTRODUCTION:

As previously mentioned, the goals of this research include a hybrid research approach for the three following areas:

1). the examination of past and present community development to determine successful and unsuccessful design elements or if design elements have been forgotten or overlooked.

2). the examination of the relevance of 'New Urbanism' principles to determine if new approaches to planning/design are appropriate.

3). the examination of past, present, and future theories to determine if the planning 'ordering systems' (socio-cultural, aesthetic, economic, functional, and environmental issues) are included and applicable within southwestern communities.

Why are we doing this? The research for this thesis is being conducted in an attempt to synthesize/product planning and design guidelines from all sources for southwestern communities. Ultimately these guidelines will be demonstrated on a sample site located between Tucson and Phoenix known as the Picacho Pecan Village site.

How are we doing this? We are using an ethnographic (qualitative) approach to this research. We will also include quantitative methods. We chose to use this hybrid approach in hopes of obtaining a very comprehensive and holistic analysis of our subject matter. The qualitative methods will include structured interviews, non-participant observation, participant observation/peer dialogue and case study analysis. Quantitative methods are used in order to obtain a clear cut statistical representation of answers to the Likert scale questions we used in our surveys/questionnaires.

Ethnographic methods were employed for this thesis because they allow the study of a certain issue, in a holistic and very thorough manner. This is particularly applicable because observations were realized in a variety of fields: landscape architecture, architecture, planning, and real estate development. This study is not, however, solely
focused on human behavior. It is being conducted to determine human beliefs and experiences, interactions of man and the environment, and to study complex socio-economic issues involved in community development.

Ethnographic studies first represent the view of the respondents. Secondly, they employ participant and non-participant observation while trying to avoid manipulation of data. The third aspect of these studies is they attempt to derive descriptions of a 'phenomena' within a study area. Finally, ethnographic researchers use a variety of research methods in order to address a study holistically and comprehensively.

The overlapping of quantitative and qualitative methods used in this thesis is supported within ethnographic studies as breaking down the dichotomy and inappropriateness of the division between qualitative and quantitative studies. However, this research does concede there are clear delineations between qualitative and quantitative studies with inductive, generative, and subjective processes employed primarily for this study. This is due to the fact that we are conducting more qualitative analysis than quantitative analysis.

This chapter will focus on how and why the research was conducted. The division of this chapter includes three primary areas: a discussion of the research methodologies/tools used, potential sources of invalidity, and the triangulation of data. Chapters four (4) and five (5) will focus on the qualitative and quantitative results respectively.

**RESEARCH METHODOLOGIES:**

The methods of research employed for this study included an extensive literature review, structured interviews, survey/questionnaires, non-participant observation, participant observation, and a thorough case study analysis. Structured interviews took
place with developers practicing in Tucson and Phoenix. Survey/questionnaires were administered to both designers and developers. Participant observation/peer dialogue included the researcher working with an honors design group in developing conceptual designs for a mixed-use community located between Tucson and Phoenix. Case study analysis focused on a variety community types throughout the United States. Non-participant observation derived from structured interviews uncovered a few issues associated with community design which will be addressed with the use of vignettes later in this chapter. In addition, there was an attempt to triangulate data derived from the structured interviews with the questionnaires and case study analysis.

**QUALITATIVE ANALYSIS:**

*Structured Interviews*

The structured interviews took place during the spring semester of 1997 and included developers within Tucson and Phoenix. The purpose of interviewing these developers was to:

1). determine their opinions on elements important or not important in master planned community designs

2). determine successful and unsuccessful elements of their past projects

3). determine if the incorporation of the 'ordering systems' (socio-cultural, aesthetic, economic, functional, and environmental issues) was a factor in their approach to development.

4). determine opinions on 'New Urbanism' and past community design principles to determine their applicability to a community within the southwestern United States.

5). determine their opinions on the potential success of a mixed use community located between Tucson and Phoenix.
How did we go about attempting to answer these questions? This included addressing site selection/sampling/setting, along with a specific interview form and procedure.

*Site Selection/Sampling/Setting*

This section will be devoted to determining where and why the sample group was chosen. The sample group studied for the structured interviews and questionnaires was derived from professionals within Tucson and Phoenix in: landscape architecture, architecture, planning, and real estate. The cities of Tucson and Phoenix were selected for reasons including the proximity to the subject site and the applicability in determining needs of communities within the southwest. Criterion-based selection was primarily used because these professionals fit within a population dealing with community development in the southwestern United States. Within criterion-based selection network selection was utilized as an effective tool for obtaining data (Goetz and LeCompte, 1984). This is the practice of obtaining referrals that respondents felt would be appropriate to contact regarding community development. The following are reasons for the selection of respondents:

*access.* The accessibility of people within Tucson and Phoenix to the researcher made this focus particularly appealing.

*locality.* The locality and experience of these professionals practicing within the southwestern United States was important to determine specialized needs of this region.
**familiarity with professionals.** The researcher has built up a general familiarity with professionals in the area. The basic knowledge of professionals in the two cities dealing with community development projects was important in narrowing the focus and reducing the time spent on the interviews.

**convenience and cost.** The convenience of contacting these professionals within close proximity to the researcher's home base was a major factor in the selection. It was cost effective to concentrate on a smaller area within close proximity to the researcher. The researcher was restricted to this focus based on personal budgetary constraints.

**willingness.** The overall willingness and acceptance of participation in this study was an important factor. Many of these professionals lead extremely hectic and demanding schedules. The opportunity to derive opinions and data was more of a rarity than not.

It is not the intention of this study to generalize results to a larger population such as the entire United States. However, considering the sampling that took place for this study, results could be applied in a regional context. Comparability and translatability are important within this study. The reasoning behind this is that information derived from this research could be applied to like and unlike groups of communities within the southwestern region of the United States.

*Interview Forms*

The overall form of interviewing used was nonscheduled standardized interviews which Goetz and LeCompte outline as using the same questions from respondent to respondent but the altering the order given the response or reaction of the subjects (Goetz
and LeCompte, 1984;119). These interviews were conducted in the specialized interview form referred to as "key-informant interviewing and career or life histories (Goetz and LeCompte, 1984;119)."

Respondents participating in this study are individuals with specialized skill or knowledge that can pass along information relevant to the study with limited use of time. They were also able to elaborate on past experiences, both successful and not successful with development projects in the southwestern United States and therefore assist our case study analysis.

The second specialized interview form is 'career or life history form'. These are "useful devices for determining how participants respond to settings, events, or particular innovations (Goetz and LeCompte, 1984;120)." This is particularly applicable to the respondents contacted for this research due to their day-to-day association over several years with development of projects ranging from housing to commercial in the southwestern United States.

Respondents

There were a total of ten developers interviewed along with one landscape architect who had previously worked directly for a developer. The range of years in the real estate business included five (5) respondents having ten to twenty years of experience, two (2) having twenty to thirty years of experience, three (3) having thirty years or more experience, and one (1) landscape architect that worked directly for a developer having five to ten years of experience.

The respondents experience with real estate development in the southwest was a defining factor in selection. Respondents were not included or excluded based on the researchers preconceived bias regarding their potential response. Therefore, based on this
description and the reasons mentioned in site selection/sampling section of this chapter, these respondents were most appropriate for this study. Threats to validity will be discussed in depth later in this chapter.

Interview Procedure

Each subject was given a brief overview of the subject site, the 1500 acre mature pecan grove development previously referenced as Picacho Pecan Village, and shown a aerial photograph. They were told the subject property was chosen purely as an academic research project. However, they were instructed to associate their feedback to the questions with this property in mind. This introduction was brief in an attempt to reduce the potential for bias. They were then issued the questionnaire which consisted of fifteen questions. The results and analysis of data derived from these questionnaires will be discussed later in this chapter. After the subjects were given an opportunity to answer the questions, the structured interview took place. It should be noted that on occasion, during the questionnaire portion of research, some subjects would ask questions or need clarification. At this time, the researcher would attempt to answer questions without providing too much information or biasing the respondents answer.

The structured interviews were conducted by asking a series of eight questions. At times, only six of the eight questions were applicable to certain respondents therefore the number of answers varied from interview to interview. They lasted from thirty minutes to two hours in length. The interviews were all taped recorded with the subject's permission and were accompanied with field notes. Information from these interviews was transcribed to generate ideas and elements necessary for community design.
Participant Observation/Peer Dialogue

Participant observation is one of the primary methods ethnographers use to derive information. It is reflexive and involves the researchers studying themselves and participants. This is done to derive interpretive comments based on the researchers perceptions. This type of research builds upon other methodologies. Many times participants will provide responses to issues that were not intentional and therefore expand areas of thought (Goetz and LeCompte, 1984). The participant observation associated with this thesis was facilitated through the involvement of the researcher in a honors design group known as Tejido and our frequent feedback from academic and professional juries.

We used participant observation for the following reasons:

1). to gain access to information

2). to elicit from other participants and professional their definitions of what elements were important or not important in the design of a community.

3). to observe and analyze the unexpected

How did we do this? Our participant observation occurred within Tejido which operates in the Landscape Architecture program at the University of Arizona. Selection to participate in this group is based on merit and is considered an activity beyond the normal class load. Past projects of this design group have included work in Mexico, Arizona, and the British West Indies. During the academic school year of 1996-1997, Tejido became involved in the master plan development of the Picacho Pecan Village mentioned previously in this thesis. This group was comprised of ten undergraduate and graduate students. The group met once a week along with additional scheduled work times. The purpose of the group was to develop two overall conceptual master plans for the site. This would be ultimately displayed within a document illustrating the research conducted prior to the
conceptual design phase. It would also illustrate individual design processes leading to two conceptual plans with section and perspective drawings.

During this design process, the researcher took notes of group meetings, desk critiques, 'in-house' juries and formal presentations to professional developers, bankers and lawyers. These observations were recorded through extensive field notes. A great deal of design dialogue took place among the students, professors, and professionals in the fields of landscape architecture, real estate, engineering, and agriculture. This multifaceted dialogue constitutes this study's participant observation activity. As the process evolved during the school year, design guidelines were derived and utilized when developing the conceptual plans for the project. These design guidelines will be identified later in subsequent chapters.

Non-Participant Observation:

We utilized non-participant observation during this study because we wanted to make note of any interactions that may affect results of the study based on the structured interview process. More specifically, we wanted to determine any reoccurring statements of behavior or common occurrences among respondents. During this process, both the similarities and differences among professionals in the field of real estate development became apparent. There are varying degrees of specialties with some developers focusing only on commercial development, some on residential development, and some dealing with a combination of elements for entire communities such as housing, industry, recreation, and commercial. There were fewer developers that dealt with communities as a whole.

The use of a tape recording device did not appear to have any significant affect on respondents. The researcher witnessed no overt nervousness nor hesitation when asking for permission to tape record the interview session. There was one exception when one
respondent asked me to turn off the tape recorder when discussing some controversial and
highly political water issues associated with his projects. To the best of our ability, we did
not witness potential bias in this area.

This non-participant observation was done by the researcher taking field notes after
the interviews and then including the analysis of information in subsequent chapters.

*Case Study Analysis*

We utilized case study analysis to review communities across the southwestern
region and United States as a whole. We studied these communities in order to:

1). determine different approaches to design or design implications
2). determine the relevance of neotraditional/'New Urbanism', 'New Town' and
'Sustainable' communities
3). determine the inclusion or omission of the 'ordering systems' (socio-cultural, aesthetic,
economic, functional, and environmental issues) in their design.
4). determine elements that contributed to the overall success or failure of these
communities

How did we do this? We selected communities across the United States and
southwest region that represented different types of movements in community planning.
These communities represented conventional, 'New Urbanism', 'New Towns' and
'sustainable' communities. Three case studies representing each of these areas were
studied in detail. Eight additional communities were studied to provide a more
comprehensive case study analysis. The researcher took extensive notes on common
issues across the communities regarding elements of success and failure. Detailed
descriptions of these case studies and 'lessons learned' from our analysis will be discussed
in Chapter Four.
QUANTITATIVE ANALYSIS:

Surveys/Questionnaires

The use of surveys or questionnaires is a common practice within both quantitative and ethnographic research, and one which proved very valuable in supplying comparative data derived from the interviews. We explored for possible significant correlations among the variables (questions) and then administered the questionnaires to:

1). statistically determine correlation's—rank elements important to include or exclude in a community between Tucson and Phoenix.

2). determine whether or not it was important in the success of a community to incorporate/address the 'ordering systems'.

3). determine if there was a correlation between utilizing "New Urbanism' principles in a pedestrian oriented community with a mix of populations.

There were a total of thirty three questionnaires administered during the spring semester of 1997. Eleven of these questionnaires were previously mentioned in the structured interview section along with the site selection/sampling process. Each questionnaire contained fifteen questions and was administered to people in the planning, architecture, landscape architecture, and real estate/business professions. There were three (3) respondents from planning, fourteen (14) from landscape architecture, one (1) from architecture, ten (10) from real estate/business, one (1) from 'other' (mechanical drafter in a landscape architecture firm), two (2) landscape architecture/planning, and one (1) architecture/landscape architecture.

The questions included both Likert scaled and multiple choice questions. The following analyses were run for basic descriptive statistics, Pearson correlation, and Multiple Regression Analysis. Each of these analyses were run for the population of
developers and designers independently and then for the whole population of respondents. Descriptive statistics were calculated to determine: both the mean and standard deviation or average respondent opinion for each question. The Pearson correlation studies were conducted to: predict one variable from another (or several others) and to build theory about phenomenon by understanding the constructs (a mental, abstract idea). The multiple regression analysis was primarily focused on the following:

1). the success of a community vs. the inclusion or exclusion of certain ordering systems or general planning elements

2). the likelihood (probability) of 'New Urbanism' principles being included within a community vs. pedestrian orientation and a mix of populations.

The statistical analysis resulting from these questionnaires will be addressed in Chapter Five. A list of the questions and a representation of the statistical data will be included within the appendices of this thesis.

POTENTIAL SOURCES OF INVALIDITY:
Reliability

Reliability is the ability of the other researchers to replicate information derived from any particular study. Ethnographic studies are unique in that they study groups or situations which are undergoing change (Goetz and LeComte, 1984). If information derived is manipulated for stringent or purely numerical data then valuable post-factum hypothesis generation could be compromised. Researchers cannot replicate naturally occurring situations without affecting the results. In the following section, threats to external and internal reliability and internal and external validity will be discussed and addressed along with how the researcher tried to minimize their effects on this study.
External Reliability

External reliability deals with the likelihood (probability) of independent researchers concluding the same information in a similar setting. We addressed the following issues associated with external reliability: researcher status/position, informant selection, social situation, and methods of data collection and analysis.

Researcher Status/Position

The researcher had contact with professionals within the landscape architecture, architecture, planning, and real estate professions during the structured interviews, questionnaire, and non-participant observation portion of this study. This was important for one main reason. This multi-discipline situation allowed the researcher to consider opinions in each discipline because each often collaboratively contributed to the production of community designs.

The researcher has a general background in landscape architecture and research and is familiar with the ways of evaluating community designs. These categories are based on the planning ordering systems frequently referred to in this thesis (socio-cultural, aesthetic, economic, functional, and environmental issues). The limited experience of the researcher prior to studying issues surrounding this topic helped alleviate the possibility of preconception or observer bias. However, in an attempt to further combat this, triangulation of data sources was an important factor for this study. As previously mentioned, we used a hybrid approach to our research in an attempt to obtain more comprehensive results. Therefore the external reliability of this study has been enhanced by the researcher status position.
Informant Selection

As previously mentioned the respondents were chosen from the landscape architecture, architecture, planning, and real estate professions in Tucson and Phoenix. The reasons for their selection included convenience/cost, access, willingness, locality, and familiarity with professionals. The respondents were practicing professionals within their respective fields. The number of years in practice ranged from one to fifty years. This provided a broad range of individuals with different experience levels. The number of years of experience was not an intentional selection, but was due to the random nature of their selection.

The researcher had basic knowledge of her respondents and was able to make contact with these individuals primarily on the basis of referrals. There were a few individuals contacted that were prior friends of the researcher. However, the researcher chose to solicit acquaintances to alleviate the possibility of biased results. This is because "friendships that, because of their unique status or stigmatizing qualities, may bias perceptions or preclude access to important sources of information at a later date (Goetz and LeCompte, 1984:96)." Whether intentional or non intentional, friendships may result in the embellishment or exclusion of important information.

Social Situation

The knowledge and experience of the respondents from the allied design professions varied. The real estate developers, as mentioned previously, also had varying degrees of specialties. This is quite common in the profession.

The structured interviews were conducted one-on-one with the respondent and the researcher in an office setting. This was done for two main reasons: to attempt to put the respondent at ease and for convenience. The questionnaires were answered individually by
respondents in a public office. There was a conscious attempt on the part of the researcher to keep the locations and situations similar.

The differences among respondents was considered more of a positive aspect of this study and not a threat to validity. This was due to the desire to obtain a cross section of responses within the design and development professions.

**Methods of Data Collection and Analysis**

During the structured interview phase each respondent was given a brief overview of the subject property. They were then given the questionnaire to fill out and finally asked a series of questions for discussion. A tape recorder was used for the discussion portion with the respondents’ permission. The researcher took extensive the field notes. The order of questions and total number of questions varied from interview to interview with little input from the researcher. A few respondents asked for clarification on a couple of the questions, primarily questions regarding New Urbanism principles. However, these questions were indicative of a current trend in design and development professions which will be addressed in detail later in this chapters four and five.

As you may recall, the quantitative data analysis process consisted of descriptive statistics, Pearson correlation, and multiple regression analysis using the computer software application known as Systat. This program proved very valuable and time efficient when analyzing data. The researcher simply loaded responses and the program conducted the analysis. The researcher then interpreted the results which will be outlined in Chapter Five.

The structured interview responses were analyzed based on elements each respondent listed as necessary or not necessary for a successful community. The respondents also discussed elements they felt were pivotal in the success or failure of their
own projects. The respondents' opinions on the 'ordering systems' were also used to
determine potential inclusion or exclusion into the site. When comparing the data derived
from respondents, similarities and differences were noted among respondents.

The same basic system and subject matter was noted when researching case studies
or noting participant observation within Tejido Design Group.

Internal Reliability

Internal reliability refers to the degree that other researchers, given a similar set of
circumstances or ideas would match them with data in the same way as the original
researcher. We addressed the following issues associated with internal reliability: low
inference descriptors, peer examination, and mechanical recording.

Low Inference Descriptors

Low inference descriptors deals with the researchers accurate and detailed
description of data. The more information the researcher provides regarding observation
and field notes (both positive and negative), the more credible the results.

As mentioned previously, the following research methods were used: thirty three
questionnaires, ten structured interviews with non-participant observation analysis, an
academic year of participant observation, a thorough literature review and case study
analysis. Each of these methods were thoroughly described within the analysis portion of
subsequent chapters.

All of these methods were studied with primary reference to the 'ordering systems'
and 'New Urbanism' principles. The detailed explanation of questions was mentioned
previously within this chapter.
Peer Examination

Periodic reviews of research information and conceptual design development regarding the subject site were conducted throughout the academic year by peers and professionals. The researcher reported ongoing results of questionnaires and structured interviews to design team members for responses. This was done in the hopes of enhancing "cross-site validity of conclusions (Goetz and LeCompte, 1984;220)."

Mechanical Recording

The information derived from structured interviews came from tape recording the session and concurrently taking notes. The researcher used the same tape recorder in each session and posed the same 'permission question' to each respondent. There appeared to be no negative reaction to this recording with every respondent willing to participate. The one exception was mentioned previously when the respondent asked that the tape recorder be turned off for a small portion of the interview due to the subject matter.

VALIDITY

Internal Validity

This type of validity tries to determine if the information gathered from respondents is similar to the opinions of assumptions made by the researcher. Internal validity in ethnographic research is considered a strength (Goetz and LeCompte, 1984). Several of the procedures employed for this study are considered positive approaches. For instance, the use of interviews is considered to be less abstract and therefore very worthwhile. The use of participant observation is considered another good source of comparison and helps demonstrate real world situations. The researchers continual self examination and
collaboration with her mentor/advisor to determine if procedures were handled correctly was another approach utilized for this research.

Six potential threats to internal validity addressed within the next section of this paper include: history and maturation, observer effects/bias, selection and regression, testing, instrumentation, and spurious condition.

**History and Maturation**

History and Maturation basically deals with the possibility of change throughout the research process. More specifically, history deals with the entire social situation during the time of the study and maturation deals with changes in individuals involved in the process (Goetz and LeCompte, 1984). By nature, ethnographic studies contend that change is always present. The task for the ethnographer is to determine the variables that remain constant as opposed to the ones that change. To control for this threat, the researcher must detail any changes or stability's that occurred throughout the process. There did not appear to be any changes in the individuals or social situation during our process. However, the researcher did not attempt to control this type of situation, but rather discuss and embrace them in their context.

**Observer Effects/Bias**

Observer effects or bias is an important consideration in ethnographic studies. Basically it deals with the intentional or unintentional effects the researcher places on the data or process of gathering information. Information should be kept within the context of the study and not generalized beyond what is appropriate. This is not attempted within this study. The second point regarding observer effects is that a variety of opinions exist, therefore the researcher must search to obtain a cross section of respondents. This was
addressed within this study considering the variety of fields of practice and specialization present within the respondents. The final way to combat observer effects is to spend a lot of time in the field of study. Due to the time constraint of this thesis, this was not an approach taken to combat this threat. However, the previous two options were utilized.

In addition, the researcher made every attempt to report findings accurately and without personal influences. Throughout the structured interview process and the distribution of questionnaires, the researcher attempted to communicate the academic purpose of this study.

Selection and Regression

The selection of respondents is an important procedure in ethnographic studies. The concern is that the respondent's professions as a whole will be so complex that continual study is warranted to counter this threat. Due to the variety of professions selected for this study, this threat was of particular concern. The variety of professions was an important factor for this study. The researcher chose to obtain a cross section of respondents that typically deal with the entire conceptual process of mixed use community design. This was done in order to consider different aspects that contribute to the process. In addition, the structured interviews, which were limited to developers, will be analyzed separately.

Testing

The threat of testing on an experiment is viewed two ways. It has been determined that some respondents learn from taking pretests and thus affect the outcome of the posttest. However, the other argument associated with this is that pretests can actually put
the respondent at ease if they know a little more about the subject matter or about what to expect from the researcher.

The application of structured interviews must consider these issues. This study provided questionnaires prior to the structured interview therefore providing the respondent with an idea of the subject matter. Our studies also gave questionnaires without follow up structured interviews. The researcher believed the participants in the structured interviews would benefit from having the questions first. If there is a longer period of time between the pretest and the posttest then the potential differences decreases. However, this was not the case in this study.

According to Smith and Glass (1987; 129): "The testing threat can occur on tests of personality and adjustment as well as achievement and ability tests with the subjects' appearing better adjusted on the posttest, even if no true changes in their adjustment has occurred."

**Instrumentation**

Instrumentation threats could be applicable when differences occur in measuring the variables of the study. If the researcher employs different methods from group to group, then the results could be altered. Changing instruments from study to study can affect the results.

The study addressed this by using the same procedure for introducing the research project to each person. In addition, the only difference in the structured interviews and the questionnaires was that the structured interviews were conducted after the questionnaires. Therefore, every respondent received the questionnaire 'first'. Also, the 'instruments' used for the structured interviews and questionnaires were not altered from respondent to respondent. Another reason this is not that applicable is that no ratings were given by the
researcher for the questionnaires or structured interviews, but were all done by the respondents.

**Spurious Conclusions**

Causality is common in ethnographic studies but one which provides concern regarding threats to internal validity. The concern is whether or not a cause and effect truly exists. In addition, the researcher must be conscious of the existence of a relationship among variables. The use of participant observation aided our research regarding spurious conclusions. The continual cross checking of data with peers and advisors was constructive as a means to try and control this threat.

**External Validity**

External validity is the ability the researcher has to obtain information and apply it to a larger group. They are also referred to as interaction effects (Campbell and Stanley, 1966). In this study, the researcher does not intend for the results to be generalized across the United States, but does attempt to provide information that could be applied on a regional basis.

The issues of comparability and translatability are important. Whereas, the ability to generalize to a larger population is important, the ability to generalize to a regional population is considered adequate within ethnographic studies. The comparability is achieved if the researcher adequately quantifies the many variables and situations associated with the study so that other researchers can determine if the study would be applicable to their research. The translatability is achieved if the research is clearly understood by those reading the results and not simply by the researcher. It is the belief of the researcher that these issues are addressed within this thesis.
Five potential threats to external validity will be addressed within the next section of this paper and include: selection, setting effects, construct effects, and history effects.

**Selection**

This concern is that some constructs cannot be applied to a group of respondents from varying fields, but only applied to a single group. This is most commonly examined with regards to a certain set of categories designated by the researcher. In the case of this study, the 'ordering systems' were easily understood and familiar to the respondents. The issues surrounding the 'New Urbanism' movement needed more clarification, but ultimately provided information for the study which will be discussed in subsequent chapters.

**Setting effects**

Settings can vary widely from study to study and can be interpreted differently based on this threat. Information gathered in one setting may vary from another. This was addressed by the researcher personally visiting the offices of the respondents. This was the case in each of the interviews and questionnaires.

A second important issue associated with setting effects is oversaturation. There is a potential for areas of study to be researched too much. This is common in educational studies. However, the researcher did not find this to be the case when contacting potential respondents. The issues surrounding the 'New Urbanism' movement have been recently developed. In addition, the ordering systems are terms used by the researcher to explore several wide topic areas.
Construct effects

This occurs when variations of terms or meanings occur across populations and situations (Goetz and LeCompte, 1984). A major application of ethnographic study is the "cross group application" (Goetz and LeCompte, 1984;232). Differences could occur among the disciplines targeted for this study. However, these differences were important for this along with the incorporation of each of the disciplines surveyed. Therefore, it is important for the researcher to note these issues of construct validity. Further explanations of the outcomes of the cross group analysis will be addressed in subsequent chapters.

History effects

This threat takes into consideration that different study groups have individual 'histories' and thus produce problems with cross comparison. This study does take into account a cross comparison of different groups in the design and development professions. However, these groups of people often work together to produce the end product of a community design. In this manner, the professions are considered to have similar 'histories'. Therefore, it was important to include each profession.

TRIANGULATION OF DATA/SUMMARY:

The research design purposefully attempts to triangulate our data sources and subsequent analysis for each method. This is done to:

1). determine reoccurring elements/issues in each source of data (Sources of data include: literature review, case study analysis, academic year of participant observation with Tejido, structured interviews with developers including brief non-participant observation analysis, and surveys/questionnaires with designers and developers.)

2). derive design and planning guidelines for community developments in the southwestern United States
In order to achieve this, we kept a comprehensive list of implications or design guidelines derived from each research method. In addition, the author was continually associating with one or more forms of research methods throughout the entire process.

The result of this triangulation is a much stronger outcome of information due to the multiple research sources and cross-checking of information. The data is rich and complex because we did not narrow the focus of respondents, but rather chose to deal the professions that contribute to the entire process of community design. The final result is that we were able to assemble a series of guidelines based on our research methodologies for peer and professional review. This is the essence of our approach, hybrid research design.
## CHAPTER 4: ANALYSIS AND RESULTS OF QUALITATIVE RESEARCH

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INTRODUCTION

This chapter will identify results derived from the qualitative research methods employed for this thesis. As previously mentioned, this deals with a wholistic approach to research relying on several methods. These include: structured interviews, non-participant observation associated with the structured interviews, case study analysis, and participant observation. The following sections will discuss the analysis and results of each research method.

STRUCTURED INTERVIEWS

The purpose of these interviews was to determine opinions of professionals working in the southwestern region of the United States regarding the following:

1). the extent to which the planning 'ordering systems' are addressed in a master plan.

2). elements considered to be successful or unsuccessful within the framework for master planned communities in the southwest.

3). the appropriateness of 'New Urbanism' principles for a master planned community in the southwest.

How did we do this? As previously mentioned in Chapter Three: Research Methodologies, structured interviews were given to real estate professionals practicing in Tucson and Phoenix. Our sample included a total of 10 developers and one Landscape Architect who had previous experience working for developers.

The comments from these interviews were then transcribed and listed according to the planning hierarchy ('ordering systems') including: socio-cultural, aesthetic, economic, functional, and environmental issues. As you may recall, we are using these 'ordering
systems' as evaluation categories. There is be a brief description of the meanings of each planning 'ordering system' or evaluation category within this chapter.. There is a section on 'New Urbanism' principles, and opinions given specifically relating to the retirement population in the southwest. The comments represent a wide range of opinions and are contradictory at times. The following comments represent only the views/opinions of the developers interviewed. Each section contains quotations from one or two respondents prior to the listing of information derived from the study. These quotes are not intended to represent opinions of the entire 'ordering system', but instead meant to illustrate the kinds of comments the researcher was receiving from the respondents. These comments will culminate in a list of the most frequently occurring opinions among the respondents.

COMMENTS BASED ON 'ORDERING SYSTEMS':

SOCIO-CULTURAL ISSUES:

In Chapter One we established the need to address a lack of opportunities for social interaction and lack of diversity among people living in today's communities. Therefore, this issue was addressed during our interviews. For an exact copy of the questions used for this interview, please see the Appendix section of this thesis.

Socio-cultural issues for the purpose of this study deal with a variety of influences on "society". These include the cultural diversity of a community or mix of populations. The applicability of planning for these social networks is addressed by the respondents.

The goals are to determine opinions regarding these 'societal' issues and their importance.

Jack Gleason, Senior Vice President -
Community Planning and Development, Del Webb Corporation

Mr. Gleason related a story for our study regarding a situation they were faced with when developing a community. One of their sites in Texas was a former burial site for
Native Americans. Apparently the graves were scattered throughout a flood plain area. To address the situation, they brought in representatives from tribes in "Oklahoma and other places" to hold ceremonies for these burials. This was in direct response to a socio-cultural issue on a site.

In response to general social issues and people he stated "I don't think we can social engineer the market".

The following is a list of 'socio-cultural' opinions (in no particular order) we obtained from our interviews:

1. Do not place too many restrictions on residents regarding way of life.

2. Would like to see the opportunity for more socialization with designs that contribute to more social opportunities.

3. The new theories coming out of schools makes sense in terms of today's social atmosphere.

4. Need to include a cultural arts aspect to communities--tie in to other local communities, schools, and people.

5. Need to incorporate some sort of social festival each year and design areas to promote this event.

6. Socio-cultural issues are important if you are developing directly adjacent to a Native American reservation, but otherwise it won't drive sales on a regional or national level.

7. It is very important to address the issues of indigenous cultures (socio-cultural issues), but would not go so far as to make an interpretive center.

8. Need to include "social cores" or gathering places (recreational centers) for people throughout a community.

**AESTHETIC ISSUES:**

As you may recall, in Chapter One we demonstrated the homogenous and boring nature of many of the communities we live in today. Therefore, this was an issue we addressed during the interviews. For a listing of the exact questions used dealing with aesthetic issues, please see the Appendix section of this thesis.
For the purpose of this study, the aesthetic 'ordering system' deals with the beauty and images which produce pleasant places for people to live. It includes the style of architecture within a community. It also addresses the design of the landscape. It basically deals with the overall appearance of a community.

Roy Drachman, Sr.
"If you have enough money to put in the amenities and make it (the community) attractive, to attract people, and then to continue to grow, well, then the community will feed on itself."

The following is a list of "aesthetic" opinions (in no particular order) we obtained from our interviews:

1. The incorporation of recreation (amenities) is one of the most if not the most important aspect within a community.

2. The golf facility in Eloy is always busy—and it is not very aesthetically appealing—this shows the success of incorporating a golf course in a southwest community.

3. Create a "sense of place" for the community. It's important to create aesthetically pleasing environments where people would like to spend time.

4. The layout of the streets should not be designed on a grid. This is out of fear that you will just produce a boring street with similar views and a line of garages.

5. There should be a clear architectural style—the look of the architecture within the whole community is very important. Elements of the region (vernacular architecture) should be brought into the community to entice people from other regions. A lot of time should be spent on making sure the color palette of the community is appropriate.

6. The overall style should not be monotonous alike or "cookie cutter"—you should let homeowners buy lots they want—so they won't all look alike.

7. Communities should have a distinctive theme or concept such as an "Equestrian community".

8. Views should be expanded and maximized especially when dealing with natural washes.
FUNCTIONAL ISSUES:

As you may recall in Chapter One, we addressed the present dependence of communities on the automobile. This has produced congested streets and consumptive behaviors by its users. Therefore, this was an area we focused on within the interviews. For a listing of the exact questions used for these interviews, please see the Appendix section of this thesis.

Functional issues regarding this study concern the basic necessities of a community. This includes the street layout and overall convenience of facilities. This also concerns infrastructure and transportation systems needed to make a community work.

Jerome S. Shull, President, Shull Jones Builders Inc.
"New approaches are born out of necessity"

The following is a list of "functional" opinions (in no particular order) we obtained from the interviews:

1. Security is number one in importance, recreation follows as a close second.

2. Convenience/accessibility of facilities including commercial/retail components are important elements in the success of a community. Parking in retail establishments should be accessible to all users. Commercial components are usually located along the edges of communities for accessibility reasons.

3. Alleys are appealing to residents if they are "active" spaces. They should be designed for the "DINKS"—"Dual Income No Kids" population (not retirees). Active alleys will add convenience and safer areas for children to play.

4. An easily accessible, centrally located community will be successful. The location of residents to resources provided by a major metropolitan area is important. The maximum commute time should be 30 minutes, 15 minutes is optimal.

5. Any new town needs a reason for being.

6. Street layout should facilitate ease in transportation.

7. If there was an airport in between Tucson and Phoenix, it would have a huge impact on future communities in the area.

8. The disciplines of: landscape architecture, engineering, architecture, planning, and real estate development should all work together. If one discipline drives the entire plan it's bad.
9. Some people expect to live on cul-de-sacs. However, these should be modified. There should be an option to pass through them to open spaces or another street in order to avoid congestion and frustration.

**ECONOMIC ISSUES:**

In Chapter One we demonstrated the need for communities to support themselves economically from within through industry and commercial outlets. As you can imagine, this made up a large part of the discussions we had with developers. The list of questions we asked during this process can be seen within the Appendix section.

Economics with regards to this study deals with the goods and services needed and produced within a community and its ultimate profit. This includes opinions on the inclusion of commercial or business ventures in order to produce profit. Basically, it deals with the economic needs of a community to maintain its existence.

*John W. Graham, President, Sunbelt Holdings, Inc.*

"It (a community) has to be real affordable, you have to give people the reason to make that choice (to buy)."

*Jack Gleason, Senior Vice President - Community Planning and Development, Del Webb Corporation*

"...No doubt economics drives (the projects)....we have found ...that if we spend the money and do things right, you'll get paid back, however, you're not going to get paid back greatly."

The following is a list of "economic" opinions (in no particular order) we obtained from our interviews:

1. If you can entice light industry, then the community will be successful. If industry was included there would be no question that your community would work.

2. The treatment of light industry within the site is very important. Light industry must have a special look and feel. It cannot be the typical industrial development connotations of the past. It must have distinctive architecture with less emphasis on manufacturing.

3. The area of the master plan with the least expensive infrastructure should be built first.
4. You must have jobs in the area or it will be an unusual living condition.

5. You must have plenty of commercial/retail establishments or provide access to them. You need an "anchor or a draw" to the area so people outside of the community will visit as well.

6. A master planned community located between Tucson and Phoenix would only work if the developer received advanced commitment from industry and commercial investors.

7. If the commute is a little longer, then houses should be priced on the cheaper end of the market.

8. You could have economic success with a project that turns out to be completely different than you had envisioned.

9. Sustainability and profitability are not mutually exclusive—(sustainability meaning economically not environmentally).

10. If you have an opportunity like Celebration, Florida—or the non-profit set situation—then you do not have a tremendous amount of pressure to turn a profit. Therefore, you can explore alternative ideas.

11. There should be a range of housing prices.

12. Different socio-economic levels are important within a community.

ENVIRONMENTAL ISSUES:

As we mentioned in Chapter One, there is a need for communities to begin focusing on developing sustainable practices for their future livelihood. Therefore, this was discussed during our interviews. A list of the questions we used is included in the Appendix section of this thesis.

Environmental issues regarding this site include addressing the overall sustainability of the project. It deals with responding to the existing wildlife (plant and animal), sun/shade, and water issues. This includes response to topography and open space. It basically includes climatic and biotic factors that act upon an ecological community.
Nathan K. Miller, Picor Commercial Real Estate Services
"People are becoming much more aware. It's important (environmental issues) in the global scheme...because our population is doubling and tripling and we are going to run out of water...we're going to run out of many things, and any way you can build in sustainability it's going to pay off in the long run."

The following is a list of "environmental" opinions (in no particular order) we obtained from our interviews:

1. More and more real estate professionals are noticing the importance of open space. They are receiving this feedback from potential buyers. "Buyers appreciate open space".

2. Concerning the sample site, Picacho Pecan Village, the pecans are the best part of the site, but they must be planned for otherwise its "just a desert out there".

3. In a ranking order of importance, views and open space with walking trails was considered the most important element, with water, and golf following in importance.

4. Water issues are very important--what was once a positive aspect to communities, could now backfire on you and turn into a negative.

5. Sustainable developments are very important today--Civano is a good model. On the opposite side of this argument we heard that Civano is not a good model because it "ignored the marketplace".

6. The City of Tucson and its immediate surrounding areas are much more encouraging about promoting sustainable communities.

7. Waste water treatment, and the overall use of water is important in a community.

8. A site located between Tucson and Phoenix, such as Picacho Pecan Village, could be a showcase for sustainable communities.

9. New theories coming out of schools today make sense in terms of environmental issues.

10. It is a very important issue when dealing with large land masses (1500-3000 acres or more), but becomes much more difficult to address when dealing with smaller communities.

11. No tolerance for "bogus" environmental work.

12. For the most part, environmental issues are important just when soliciting approvals in the face of opposition.
"SUCCESSFUL AND UNSUCCESSFUL PROJECTS"

During the interview process the respondents were also asked to relate opinions on successful or unsuccessful projects they were involved with and the reasons for both. During the process, the researcher noticed the respondents reluctance to discuss their unsuccessful projects. Instead, for whatever reason, most of this discussion was devoted to their successful projects. Nonetheless, in order to obtain a set of design/planning guidelines, a basic overall listing of their reasons will follow.

REASONS FOR THEIR SUCCESSFUL PROJECTS:
1. Because the community was located in a high profile area with a great deal of traffic.
2. Because the elements of the project (commercial, employment, housing) served the community well.
3. Because the community was a totally new project/location. There was an opportunity to "start clean".

REASONS FOR THEIR UNSUCCESSFUL PROJECTS:
1. Location—community was not on the main road with enough traffic
2. Because the community did not take care of its surroundings, it was not clean.
3. Because the project was 'typical' with no imaginative subdivisions (predominately 'look a like' housing)—often referred to as cookie cutter”.

NEW URBANISM ISSUES:

During the interview process the respondents were also asked to relate their opinions on the 'New Urbanism movement' seen in community planning today. As you may recall, a detailed definition of this 'movement' was previously provided within the literature review section of this thesis. This discussion was conducted in order to determine elements of 'New Urbanism' that developers considered to be 'positive' or 'negative' for a community in the southwest. We are attempting to determine the worth of this 'movement' with regards to the southwest.
John W. Graham, President, Sunbelt Holdings, Inc.
"The jury is still out. It has a lot of admirable and interesting planning concepts....It is academically and intuitively interesting but there are only a few implemented and where they are implemented, there is a lot of negative feedback that comes out of it."

Jack Gleason, Senior Vice President -
Community Planning and Development, Del Webb Corporation
New Urbanism principles work only "to the degree done." "The problem you have as a developer with 'New Urbanism' is that if you're going to put everything in the center, and we do that, ...you've got one mile worth of street, water, and sewer...you have to do all of this land development to bring it (the infrastructure) up here (to the center)...normally you'd start at one end and just keep working through it (the development) and economically it's much, much less expensive (than using purely 'New Urbanism' principles).

The following is a list of 'New Urbanism' opinions (in no particular order) we obtained from our interviews:

1. The ideas behind New Urbanism have a lot of positive aspects, including the need to create a sense of place. However, you cannot "socialize the market". There should not be too many restrictions placed on residents. People are okay with restrictions when it deals with public safety and general aesthetic issues. However, when you try to over-regulate people it becomes very unappealing.

2. People like the New Urbanism "concepts", (such as Celebration, Florida), but we (developers) are still waiting to see if it will succeed.

3. Not familiar with the 'New Urbanism' movement enough to comment.

4. Need variations on 'New Urbanism' by simply picking the elements that work in communities. Do 'New Urbanism' in a looser form with less "overall rigid forms"--"Break down 'New Urbanism'."

5. The aspect of living and working together would only work if everyone was employed by the same 'XYZ' company.

6. "New Urbanism" has negative connotations in real estate--"bad word" in real estate development professions.

7. Celebration, Florida was not driven by pure profit but done to prove a point--therefore it is not a good model.

8. Community at the core or central area of the property with residential units above won't work.
9. It (New Urbanism) is only good if it enhances the reputation or bottom line.

10. The formal layout or straight street layout is not appealing to buyers—because residents don't want cars "zooming" by their homes. Curvilinear streets reduce this traffic.

11. Positive aspects of New Urbanism include porches and garages on the sides or rear of the houses.

RETIREMENT COMMUNITIES:

During our interview process we received a lot of feedback associated specifically with retirement communities. This is due to the fact that the southwestern region of the United States has a large number of active adult communities (AAC). Even though the focus of this thesis is not limited to retirement communities, we thought it would be appropriate to include these statements given their relevance to the region.

1. Security is the most important element for active adult communities. The next most important aspects are medical facilities and recreational outlets. Retirees want quality of life, enjoyable places, sense of safety, belonging, and beauty.

2. Retirees want a defined neighborhood or community that is segregated from other uses. They don't necessarily want to be near children or grandchildren. This could be accomplished by dividing the spaces with a road or park space. However, it could have the same project name.

3. Retirees view golf within their community as important for three distinct reasons: they currently play golf, they intend on learning it one day, or they like the social connotations of living in a golf community.

4. Retirees are becoming more and more active. They are no longer a sedentary population. In recent years, developers are bringing back tennis courts with more emphasis on recreational activities. Recreation is an important element when attempting to attract retirees. The opportunity to walk is very important.

5. Retirees make up the majority of volunteers in the country. Therefore, they want these opportunities accessible where they live.

6. Retirees are becoming more involved in the computer age. A few developers have started to incorporate community computer facilities solely for this purpose.

7. Alleys: Retirees do not like alleys because they are considered to be 'unsafe'. They are more passive when used with the retired population, and therefore not usable. Three main
reasons include: maintenance, security, and trash. Alleys should be called 'open space corridors' to cut down on the negative connotations.

8. Some retirees don't feel comfortable driving themselves everywhere. Retirement and 'New Urbanism' seems like a good fit.

9. The best scenario for the planning of a retirement community would be long views, over water, over golf.

10. There is no need for industry within predominantly retirement based communities.

11. Designing for pedestrian oriented activity in 'New Urbanism' should be encouraged only if it does not inconvenience the user or place strict controls on the residents.

**SUMMARY OF RESULTS OF STRUCTURED INTERVIEWS:**

The following section is devoted to listing the opinions occurring most frequently among respondents. These indicate similar responses that were given by at least more than one person. Therefore, they are the most important elements for consideration when developing design/planning guidelines. They are organized according to both the planning 'ordering systems' and 'New Urbanism' principles.

**SOCIO-CULTURAL ISSUES:**
1. Do not place too many restrictions on residents.

**AESTHETIC ISSUES:**
1. There should be a definite architectural style responding to the region.

2. A sense of place or character should be given to the community. People should enjoy moving through the space.

**FUNCTIONAL ISSUES:**
1. Residents should have easy access to commercial and retail establishments (things necessary for daily life).

2. Security is very important within a community along with recreational components.

**ECONOMIC ISSUES:**
1. If a developer was able to attract light industry into a community then it would be successful. The light industry would have to 'architecturally' fit within the community and not be manufacturing based.
2. The incorporation of amenities (recreational, commercial) within a community is a key to its economic success.

3. For a community located between Tucson and Phoenix, the prices of houses should be on the cheaper end of the market ($90,000.00 to $140,000.00) due to the commute.

ENVIRONMENTAL ISSUES:
1. Open space is being considered more of an important element than it has been in the past.

'NEW URBANISM' 
1. New Urbanism principles have elements of merit which should be singled out and used according to their proven success in a community.

2. You can place too many restrictions on people.

NONPARTICIPANT OBSERVATION ASSOCIATED WITH STRUCTURED INTERVIEWS:

Nonparticipant observation associated with this thesis deals with the authors experience during the structured interview process. The researcher chose to address this method in order to further demonstrate the comprehensive approach to this thesis. This method was appropriate to determine comprehensive and representative accounts of respondents behavior. It is especially appropriate in the distillation stages of research and is not considered to be used within initial stages.

How did we do this? This observation was recorded through field notes immediately proceeding each structured interview.

There were three main items witnessed as a result of nonparticipant observation. First, the researcher used a tape recording device during the structured interviews which appeared to have no significant affect on the responses. The researcher witnessed no apparent nervousness or hesitation on the part of the respondents.
Secondly, throughout the interview process, we learned of the varying degrees of specialization among real estate professionals. Apparently there are very few real estate professionals that develop the entire master planned community. In fact, even the largest companies would solicit commercial developers to contribute to the project. Therefore, most real estate professionals specialize in a certain market (i.e. housing, commercial, recreational, etc.)

Finally, we observed a hesitation on the part of developers to be receptive to any idea or development that had not been done before or proven to be successful. Many of these individuals have experienced the 'ups and downs' of the real estate market, and therefore were cautious. There was a strong feeling of economic 'survival' among these professionals. They showed interest in new ideas and concepts, but were very skeptical and unwilling attempt alternative solutions without a concrete assurance that the project would be profitable.

PARTICIPANT OBSERVATION:

The author's involvement in the academic honors design group, Tejido, allowed participant observation results to be included in this thesis as a viable and significant research method. This included daily work on the development of a conceptual master plan for a sample site in southwest Arizona.

The purpose of this participant observation is to obtain data from a group of students and professionals involved in the process of designing a community in the southwest. More specifically the objectives are to:

1). promote peer dialogue among students spending an academic year (1996-1997) studying the issues/theories of community design and then applying it to a sample site.
2). obtain feedback from professionals in the real estate and design professions (landscape architecture, architecture, and planning) on elements incorporated into the conceptual master plan developed by Tejido.

3). gain knowledge regarding the entire design process and all elements that needed to be considered for a community in the southwest.

The final objective, as you may recall, is to distill design and planning guidelines from the information received from all sources.

How did we do this? The researcher recorded extensive field notes during and after involvement in the design process of Tejido. This process consisted of:

1). a series of Tejido group meetings and review sessions throughout the academic year.
2). participant involvement in Tejido research and design teams.
3). formal and informal juries with students, real estate professionals, design professionals, property owners and academicians.

The results/comments from this participation are organized according to planning evaluation categories or 'ordering systems' which include socio-cultural, aesthetic, functional, economic, and environmental issues. The criteria for including these comments was based on a series of notes taken throughout the year of concerns/comments that were addressed within group meetings or juries. Whereas, they are not direct quotations, they are as close to the original comment as possible.

The comments are more specifically related to the sample site, Picacho Pecan Village. These represent a wide range of opinions and are contradictory at times. However, due to their obvious direct association with concerns of southwest communities results will contribute to final design/planning guidelines.

The final summary of the participant observation includes the most frequently occurring opinions among participants. This also includes the most frequently discussed topics/areas of concern among the students.
COMMENTS BASED ON 'ORDERING SYSTEMS':

SOCIO-CULTURAL ISSUES:

The following is a list of "socio-cultural" opinions (in no particular order) we received throughout our participant observation experience:

1. Housing:
   This community should have a mix of housing types (RV, apartments, townhomes, single family housing). Designs should address affordable housing or low income housing. You need an affordable component for a mix of populations and diversity within the community. Cohousing communities, such as those occurring in Davis, California, should be considered within this community.

   This community should focus only on 'upscale development' or higher priced homes.

   There is difficulty in mixing retirees with conventional developments (single family housing). There needs to be distinct divisions. Division can be as simple as a road or park. However, it's important to reduce retirement isolation. We also heard contradictory opinions that retirees could be mixed with conventional neighborhoods.

2. A school should be included within the community, possibly kindergarten through sixth grade.

3. Promote social separations but, also provide public areas.

4. Create Social Opportunities:
   Passive recreation including children play areas are important within a community for social activities.
   Surround clusters of buildings around open courtyards for sociability and to create a "village setting".
   Create a sense of "community" by providing social opportunities.
   Address social aspects/issues.
   There is a problem of isolation if a community is too far out.
   You can't force people to socialize.
   Create urban open spaces for interaction.

5. Population:
   The focus of this community should be on retirees.
On the opposite side of this discussion, we heard: the community would be made up of professors, employees of light industry, commuters, families, retirees, and snowbirds.

6. Regional influences: Address cultural influences of the area (region).

7. Celebration, Florida: It's an innovative and incredible concept. Also, heard there are too many restrictions placed on residents in this community.

8. Festivals attract people which adds to the character of the community.

AESTHETIC ISSUES:

The following is a list of 'aesthetic' opinions (in no particular order) we received throughout our participant observation experience:

1. Existing pecan grove on sample site:
   - Include the pecans in the design as an aesthetic component.
   - Change trees at the houses and streets (besides pecans).
   - Winter visitors will like the pecans.
   - Do we create a feature or live within a feature (the pecans)?

2. Water features:
   - Look into the possibility of incorporating water features and canals.
   - Use water in multiple ways—an amenity, irrigation source, sewage treatment, wildlife habitat, aesthetic positives of wetlands.
   - Develop lakes as anchors to segment the community.

3. Open Space:
   - Playgrounds and soccer fields are important.
   - You need common or public areas throughout the project.
   - Put a buffer of green space by the highway or along main roads.
   - Keep as much green as possible.
   - Think about whether it would be better to have a central portion of green areas through the middle or green areas along the edge of the property.
   - Pocket parks are good.
   - If the front of the house space is large then the overall open space of the community will be compromised.
   - Plant materials and water features are important.

4. Architectural Styles:
   - Look at vernacular architecture, it should be regionalized. The 'barrio style' is the closest to vernacular.
   - Need architectural controls.
   - Vary set backs of housing positions.
   - Make architectural style—New Mexico pueblo, barrio style, stucco.
Architectural styles should include the softening of buildings with arched entrances and awnings on the outsides. This will help distinguish the businesses.

5. Commercial:
   Think about the types of stores in detail and choose them carefully.
   Isolate commercial areas with green spaces for aesthetic value.

6. Make the community really 'aesthetic', a landmark. Create "something different" to draw in outside tourism.

7. Streets:
   Explore residential roads, what types of aesthetic feeling do you want to create—curvilinear vs. straight. There was a division among participants who questioned the aesthetic appeal of straight roads vs. curvilinear roads. Streets should have a pleasant aesthetic feel, good transitions, sense of identity and appropriate contrast.

8. Views:
   Axis views are good. Make views count within the community.

9. "Aesthetics are obvious"

10. Make surprises—nooks and crannies, provide a series of continual experiences.

11. The main entrance feature/signage is important in a community.

12. Golf courses, mountains, washes are all positive aesthetic features.

13. Recreation/Amenities:
   People like stables at a distance. They like to see people riding horses, but don't like the mess.
   Start with site amenities: views, wetlands, slope, orientation.

14. Commuter trains could be a quaint feature for the community.

FUNCTIONAL ISSUES:

The following is a list of "functional' opinions (in no particular order) we received throughout our participant observation experience:
1. Safety:
   Fear is a factor in communities, especially with a prison nearby. There should be controlled access into the community. The perception of who is in control of the community impacts its use. Fencing the community is a good idea.

2. Circulation/Streets/Traffic:
   Designs should fully explore a pedestrian focused community with the car out of daily life.
   Link community to a rail system. Then link it to area amenities like Picacho Peak State Park.
   Promote a central pedestrian core with the automobile focused along the outside.
   Light Rail within the community is a good idea.
   There were comments regarding whether the automobile circulation should go throughout the middle of site or limited along the outer edges.
   Overall circulation is very important.
   Be careful about pouring traffic onto busy streets.
   Envision ways of easy transit.
   You must have unique design with otherwise boring roads.
   Are curvilinear streets functionally appropriate? The grid vs. curve debate.

3. Commercial:
   Decentralization of commercial stores is a good idea.
   There should be a synergistic relationship between industry and commercial phases.
   Address the issue of the cost of food vs. convenience.
   Linear village vs. centralized commercial village.
   Placing retirees in the core area of the community would provide easy access to commercial necessities.
   Put commercial development by the golf course.

4. No air strip is needed for this community.

5. A resort should be in the town center.

6. Recreation/Golf:
   There are positives to having a community not completely centered on golf.
   Segregate golf in one area, don't mix uses We also heard that you should integrate golf into community for maximum return on the investment.
   Do not place golf by interstate. A golf course in the larger section of land would be better.
   Integrate recreational facilities. Golf should have be used for many activities.
   Design golf around drainage
   Alternatives for golf:
   flood retention, community spaces, walking, open space, fishing in lakes, special events space.
   Have active/inactive loops in a 27 hole golf course
7. Water:
   Use canal water features to irrigate and for 'natural' drainage.
   Position lakes close to wells for functionality purposes.
   Incorporate water harvesting elements on the golf course including left
   over irrigation (effluent water) from the golf course. Also use water
   harvesting for the entire site via detention basins.

8. Densities:
   There were several discussions on densities.
   Bump densities up near central core of community.
   20-30 RAC=high density—townhomes, apartments
   10-15 RAC=semi detached
   1-3 RAC=low density, single family housing

ECONOMIC ISSUES:

The following is a list of "economic" opinions (in no particular order) we received
throughout our participant observation experience:

1. Industry:
   Industry should be incorporated within the community.
   It gives instant financial credibility to community.
   Industry located along the highway good.
   Industry could have a manufacturing component, but not necessarily
   production
   Industry brings jobs.
   Capitalize on Agricultural Industrial center concepts. This would be good
   for public relations. It would also be a good way to showcase
   products through freeway retail sales.
   The facades of industry and overall style is important.
   Labor for industry and commercial facilities already exists in the area
   (Arizona City, Eloy, Casa Grande)

2. Commercial:
   Integrate small commercial and civic into the community.
   Mess with outlet concept—decentralized.
   Motel/Resort/Golf/Industry—real commercial opportunities.

3. Possibly obtain money from federal agencies for infrastructure

4. The master plan can be used as a tool to entice investment bankers.

5. Housing:
   Put upper end housing (more expensive) towards the rear of property,
   (away from major highway).
   There is a need to incorporate low income or affordable housing (instead
   of just all 'expensive' housing)
RV's: Find out general cost of RV park, incorporate into community at different places. - interweave with berms and trees. They should be by the city center and associated with different things such as: horses, golf, park space. Given term of "18 foot cigar tube".

6. Recreation:
   The golf course at Eloy is always busy, therefore it's "successful".

7. Open Space:
   Landscape is a cost effective way of increasing revenues.
   Watch the amount of open space. Do not have too many green spaces because they cost too much money.

8. Existing pecan grove on site:
   The cost of maintaining the pecans is an important economical issue.
   Possibly a homeowner's association would take care of their maintenance.
   Don't depend on pecans for economic success of community.
   Pecan groves are an asset economically.

9. Population:
   Demographic=75% retirees--Others thought it would be 50-75% retirees.
   Find out income range of population in nearby communities.

10. The community would have a positive economic impact on the Picacho community.

11. Resort
   Retirees would be attracted to a resort with an array of rooms.
   The length of stay of visitors should be defined where the resort is located.

12. From an economic standpoint: traffic on the highway is just as exciting as the water and shade.

13. There are tax advantages to a non-profit organization such as Youth Now Foundation developing a master planned community.

ENVIRONMENTAL ISSUES:

The following is a list of "environmental' opinions (in no particular order) we received throughout our participant observation experience:

1. Existing pecan grove on site:
   The handling of pecans from an environmental standpoint is very sensitive (mold, soot, aphids). We will have to service and spray the trees regularly.
The phasing out of pecan trees and replacement with another species should be considered.

2. Use agricultural fields in the design, possibly demonstration gardens.

3. Explore aquaculture opportunities for community.

4. Watch the issues of a community located adjacent to flood plains.

5. Use sustainable building materials, like Diatomaceous earth (DE).

6. Promote the roughness and beauty of the southwest. Address the relationship to the Sonoran desert.

7. Water:
   - Address xeriscape options within the community.
   - Decentralize waste water systems in the community.
   - Use water for both irrigation and recreational purpose.

8. Place a series of wetlands on state lands.

9. Focus on attracting wildlife within the community.

10. Climatic response:
    - East/West orientation of buildings would be better for shade.
    - Pay attention to arid climate.
    - Technology—earth building, straw bale, solar energy could be a viable option.
    - The use of drought tolerant plants is important.
    - Local water harvesting should be incorporated in the community.
    - A district sewer disposal system based on a series of wetlands should be a component within the community.

11. It is good public relations to deal with environmental issues.

**SUMMARY OF RESULTS OF PARTICIPANT OBSERVATION:**

The following section is devoted to listing the opinions/comments occurring most frequently among student participants and jurors (professionals) throughout the design process. These indicate similar responses that were given by at least more than one person. These were selected by recording the number of times each comment/idea was made throughout the academic year. Therefore, they are considered the most important elements
when developing an overall series of design/planning guidelines. They are organized according to the evaluation categories/planning 'ordering systems'.

**SOCIO-CULTURAL ISSUES:**

1). A mix/diversity of housing types (price ranges and sizes) should be included within the community.
2). There will be difficulty mixing retirees with single family housing. There should be some divisions.
3). Create opportunities for social interaction and congregation.

**AESTHETIC ISSUES:**

1). The existing pecan grove should be considered within the design. However, the community should not entirely depend on the trees.
2). There should be multiple uses for water elements on site.
3). Vernacular architectural styles should be used for the community.
4). We should think about the "types" of stores and the aesthetic feelings they should create.

**FUNCTIONAL ISSUES:**

1). Include alternative forms of transportation.
2). Fear/Protection is a big factor within this community.
3). The commercial and civic areas should be decentralized and seen throughout the community (not just at the edges).
4). There are positives to having a community not completely centered upon golf.
5). The layout of the street (grid vs. curvilinear) is very important.
6). The overall circulation of the automobile and convenience of users should be a priority.
7). No air strip is needed for this community.
ECONOMIC ISSUES:

1). Industry should be incorporated within the community.

2). More expensive (lower density) housing should be placed at the rear of the site.

3). RV (recreational vehicles) should be incorporated within the community and at high visibility places.

4). The population should be predominately retirees.

5). The use of open space should be limited due to its expense.

ENVIRONMENTAL ISSUES:

1). The handling of pecans could be potentially problematic, they should be phased out over several years.

2). Agricultural fields should be incorporated into the design, possibly as demonstration gardens.

MOST FREQUENTLY OCCURRING DEBATES AMONG STUDENTS:

1). The layout of street systems, especially within individual neighborhoods. There were numerous discussions surrounding whether or not the roads should be curvilinear or straight.

2). The placement of golf along the highway, not bisected by housing vs. the placement of golf within the community.

3). The placement of pedestrian circulation vs. automobile circulation. Where should each be placed and how much emphasis should be placed on transportation options other than the automobile. (i.e. pedestrian and trolley)?

4). The placement of industry in the community. Should it be placed along the highway, next to an existing rail line or within the community?

5). The amount of park space provided for the community and its immediate access from individual homes.
CASE STUDY ANALYSIS:

The case study analysis of this thesis focuses on examples of past, present, and future communities in the southwestern region and United States as a whole. As you may recall, we are looking specifically at communities that have addressed either the ordering systems or 'New Urbanism' principles. We are analyzing case studies in order to:

1). determine elements considered successful or unsuccessful by critics, authors, and residents in master planned communities.

2). apply the synthesis of information into design/planning guidelines for future communities within the southwestern United States.

The following case studies will be addressed in detail: Seaside, Florida; Civano, Arizona; and Reston, Virginia. These were addressed in detail because they were excellent examples of master planned communities. The following case studies will be addressed with less detail: Celebration, Florida; Addison Circle, Texas; Laguna West, California; Davis, California; Rosa Vista, Arizona; Jackson-Taylor, California; Rio Vista West, California; Windsor Estates, California; and Mashpee Commons, Massachusetts. These were focused on in less detail due to time constraints of the researcher. However, they are important to demonstrate the overview of research conducted for this thesis.

Why were they chosen? These case studies were chosen for two main reasons:

1). they represent different types of 'planned communities' each with both similar and different focuses: 'New Urbanist' communities, southwestern 'sustainable' communities, and 'new town' communities.

2). the author's personal familiarity with each of the detailed case study projects allows a more in depth analysis.

3). each deal with parts, if not all, of the planning 'ordering system' issues--socio-cultural, aesthetic, functional, economic, environmental.
How was this analysis conducted? Each community was researched in detail and real estate representatives were contacted when possible. Extensive notes regarding the composition, response to the planning 'ordering systems' and 'New Urbanism' principles were recorded.

The results of this study includes the distillation of design implications and a statement of relevance for each project. These will ultimately be used for a series of design and planning guidelines. The most frequently occurring design implications will be distilled into one list (organized according to the 'ordering systems') at the conclusion of this case study analysis.

DETAILED CASE STUDY ANALYSIS:

SEASIDE

• Location: Seaside, Florida
• Owners or Developers: Robert and Daryl Davis
• Designers or Planners in Charge: Andreas Duany and Elizabeth Plater-Zyberk
• Relevance: This community represents one of the first pedestrian oriented communities built in America with an emphasis on vernacular materials and a 'sense of place'. It is the most recognized community associated with the 'New Urbanism' movement or neo-traditionalism.

•Description:

Background:

The master plan for this 80 acre community was completed during the summer of 1982 (See Figure 4-1). The project began when Robert Davis, the initial owner, inherited
it from his grandfather, J.S. Smolian. Mr. Davis grew up in the area and was influenced by the presence of the beach and communities within close proximity to the site. Based on these experiences he wanted to develop a community by recreating small towns from the surrounding areas. Jonathan Barnett contends the World War I resort of De Funiak Springs to the north of Seaside is the real inspiration for the architectural style (1995:80).

Mr. Davis constructed two houses and a pavilion laying the groundwork for the future development site. The pavilion and two houses built in the initial stage of development proved to be a 'tester' to determine if the market would support sales of houses not directly located on the beach.

(Figure 4-1: Seaside Master plan, Katz; 1994)

Architecture, Codes and Zoning:

Extraordinary detail has been paid to the "little things" at Seaside. This includes the sand paths connecting residences from every direction to the beach and bicycle rentals. The ambiance produced as a result of the distinctive architectural guidelines and street layout provide a unique experience for the visitor. The author of this thesis has first hand
experience with this community, having visited and spent a few days on site. This allows a more detailed account of the surroundings and personal perceptions associated with its success as a community.

Particular attention was given to the architectural style of the community (See Figure 4-2). It was ultimately modeled after vernacular architecture of the south and Florida. The style and strict guidelines associated with the architecture were determined after traveling through the surrounding communities by Mr. Davis and the designers, Andres Duany and Elizabeth Plater-Zyberk. These strict architectural codes which have won most of Seaside's praise, were considered unwise by traditional development standards. The houses share common design elements, forms, and materials. The vernacular elements of Seaside include picket fences, porches, towers, peaked roofs, traditional window types, footpaths, and gardens. Specific qualities of the Seaside cottages included:

- "They had deep roof overhangs, ample windows and cross ventilation in all rooms.
- They were built off the ground, to allow the breezes to flow under the house as well as through it.
- They had ample porches.
- They were built of wood and other time-tested materials; with reasonable maintenance, they could last several generations (Seaside, 1996)."

The codes for Seaside include distinct building types and requirements. These include:

1. Type I for retail on ground floor and residential above
2. Type II for primarily office use
3. Type III for warehouses, workshops, and small offices
4. Type IV for private houses
5). Type VI for freestanding houses with guest houses in the rear

6). Type VI for Charleston type houses with a side yard

7). Type VII for the function of gateways or focal points

(Figure 4-2: Seaside street, Katz, 1994).

The Seaside Urban Codes were written in 1982 but continue to change as the needs and desires of present and future residents change. However, there are three basic ideas which remain:
"Both plan and code are graphic documents, easily understood by the citizen-buyer.

As few rules as necessary are incorporated into the Code in order to insure that each Seaside house will continue the regional building tradition and will contribute to giving Seaside's neighborhoods the coherence, cohesion, and strong sense of place that characterizes such towns as Charleston, Savannah, Nantucket, and Cape May. Seaside's houses should share a common vocabulary of building forms and materials, but there should be a great deal of variety and heterogeneity within the town.

The Code is designed to work with the plan to produce streets which are comfortable, and even delightful for pedestrians. The streets are designed to accommodate cars and parking but to make walking more convenient and pleasant than driving (Seaside, 1996).

Circulation and Streets:

Ultimately, the zoning codes produce streets that are pedestrian friendly while still maintaining spaces for automobiles. The idea is to make walking and bicycling more appealing than driving a car. There are dirt footpaths scattered throughout the site providing private areas and views of the ocean. The overall size of 80 acres proved to be a desirable element to promote alternative modes of transportation. This size enables a person to comfortably walk a quarter mile distance in any direction to reach a multitude of amenities within the community. This encourages pedestrian traffic and social contact to occur more frequently than in an automobile focused community. In addition, the streets are designed with no raised sidewalks or defined curbs (See Figure 4-3). However, there is a change in paving patterns with spacing to allow street parking and tree lined buffering (Ben-Joseph and Southworth, 1997). As typical of 'New Urbanism' designs, the streets have a very formal pattern and place special importance on intersections and connections.
**Community components and commercial facilities:**

Seaside contains a core "downtown" area which is bisected by the main automobile traffic. However, due to the paving materials, narrow streets (usually 18 feet wide) signage, and overall feeling when inside the community; the major road does not lend itself to fast traffic (Langdon, 1994). The central core downtown area is within easy walking distance of most residences. It contains virtually every need imaginable and is always full of activity. There is a small grocery store, bookstore, clothing stores, and various specialty shops. A range of restaurants are available which cater to different price ranges. However, there are no "cheap" places to dine. These commercial areas began as casual impromptu establishments under canvas tents to sell fruits, vegetables, and arts/crafts. Some of the existing commercial establishments are still in the form of canvas covered carts. A few of the commercial establishments combine with "Dreamland Heights" suites for residential rental. In addition, the only "developed" portions of the beach are devoted to Seaside's Honeymoon Cottages and nine signature Seaside pavilions. These honeymoon cottages are two stories with a living room, dining room, bedroom, and kitchenette areas along with a Jacuzzi, steam shower and wood stove.
In general, the community contains numerous pavilion areas, gazebos, a village green/amphitheater area, restaurants, retail establishments, a post office, recreational facilities, a town center, and public works buildings.

Community events throughout the year include: The Seaside Institute Fall Concert Series, Seeing Red Wine & Music Festival, Seaside Institute Writer's Conference, Seaside Institute Annual Meeting, Architect's House Tour, Seaside Jazz By the Sea, Tree Lighting Ceremony and Christmas Parade, Painting Your Life with Seaside, and Tour of Homes. These festivals are just as much a part of creating the sense of place and "design" of the community as the paving selected for the road.

Economic summary:

According to Donna Spiers, Real Estate Broker for Seaside, there are currently 280 homes built of the 300 homes planned for the community. The average lot size is 50' x 100'. These homes are approximately 50% rental and 50% private homes. The market price for these homes range from $400,000 to over one million. Because the current land development has been "maxed out", there are no future plans to expand Seaside. According to Ms. Spiers, since Seaside's inception land value has increased approximately 33% each year.

Design Implications:

The overall layout of various design elements and amenities are useful in developing a master planned community. The success of this community demonstrates the importance of considering the numerous elements incorporated into this design. The strict architectural codes and guidelines provide a unique character and 'sense of place'. These codes also address the climate of the area by designing buildings to take advantage of
breezes (ample windows for cross ventilation and placement off the ground). The emphasis on pedestrian orientation and alternative forms of transportation (bicycle) by promoting varying paths and spectacular views. Finally, the town center is within easy access (1/4 miles) to residents providing all basic needs.

CIVANO
• Location: Tucson, Arizona
• Designer or Planner in Charge: Wayne Moody
• Relevance: This project is an excellent example of a plan to develop a sustainable community within an arid environment. This case study is located within 100 miles of our project site, Picacho Pecan Village.

• Description:
Background:

The project known as Civano was chiefly developed by a team under the management of Wayne Moody, principal project manager for Community Design Associates of Tucson, working under contract to The Planning Center and in cooperation with the Arizona State Land Department and the Tucson/Pima County Metropolitan Energy Commission (See Figure 4-4).

This master planned community is proposed to be located near the eastern side of the Tucson Basin in Arizona off Houghton Road. The idea for this project came about in the early 1980's. Its purpose was to provide a community that utilized: solar energy, low water consumption, open space, use of recycled materials and efficient waste water treatment. The designers and developers wanted to provide a community that contained several stages of land use along with a village center, open space, and social/business
interaction. In addition, the clustering of housing and development was done to promote the practice of employment and residential status within close proximity to one another. One of the first stages of development will be the construction of an industrial site (Moody, 1996).

Community components, housing, and population:

The size of the project encompasses 820 acres with 2,500 dwellings. It will include three neighborhood centers, a community school, a visitor center and hotel with conference center. Commercial/retail space will surround the center of the site totaling 285,000 square feet. In addition, office space, service, research space and light industry are expected to produce 1,500 jobs. The open space and recreational areas will comprise 400 acres.

The overall layout and placement of buildings and features was developed to encourage pedestrian and bicycle traffic. Buildings were clustered together in close proximity to each other to encourage sociability and reduce infrastructure costs. To support this notion, a future community tram system is proposed along with linkages to city bus systems, bicycle trails, and hiking trails. Crucial to the master plan as a whole, the open space consisting of 400 acres forms a linking system throughout the community. This helps provide a pedestrian linkage throughout the residential, commercial, and industrial areas (Clark, 1994).

The village center will contain the clustering of small developments for residential capacities. The highest residential densities near the village center range from 35 units per acre to ten units per acre and are in the form of apartments and townhomes. The medium density housing, primarily single family housing with guest houses, ranges from six to
Figure 4-4: Civano master plan, Moody, 1996.
eight residences per acre. The lowest density housing consists of single family housing ranging from four residences per acre to one residence per acre around the edges of the site.

The idea is that the highest densities start towards the village center and become less dense as you move towards the edges. This housing will be constructed using Sonoran adobe materials and styles in initial stages (Moody, 1996). The use of vernacular architecture and building clustering/densities are similar components to 'New Urbanism' or neotraditional planning guidelines.

The target market for the project is a population termed "empty nesters". These are individuals that are over 50 years of age with grown children, active, and can be retired or not retired. The studies for this project determined that 46% of the population for Civano would be empty nesters (Moody, 1996).

Planning process and public involvement:

The process for developing the plan (See Figure 4-5) for this community included the following steps: obtaining the best plot of land for the community's needs and conducting an environmental and economic analysis.

According to Wayne Moody, two of the biggest challenges were convincing developers of its feasibility and positive aspects. In addition, another goal was trying to educated the public on alternative approaches to building a community (Moody, 1996). This included educating the public on the variety of possibilities on how communities could be formed, how they could sell and build homes, and how they could change their way of life to become more conservation oriented. This public involvement was key to the success of the plan. The 'education' also carried over to developers. It was important for
the project, that the right developers be involved to preserve the vision of a sustainable community. According to Wayne Moody, "Developers build what they know will sell" (Moody, 1996). Therefore "selling" the whole concept surrounding Civano became a challenging endeavor.

'Sustainable' guidelines:

In order to adhere to specific energy and conservation objectives guided by the Tucson/Pima County Metropolitan Energy Commission, major goals were determined and include: "reduce energy consumption by 75 percent, reduce water consumption by 65 percent, reduce air pollution by 40 percent, reduce solid waste production by 90 percent, provide on job on site for every two hundred homes built. (Clark, 1994)." These guidelines are "non-negotiable" as the project proceeds and as people beginning building
homes within the community (Moody, 1996). For this research study, we are particularly interested in detailed physical guidelines provided by case study analysis. For Civano, the "primary physical plan concepts designed to partially implement" the goal of sustainability include:

- "the provision of a central social and business focus in the Village Center and Village Plaza, linked to all parts of the village by pedestrian, bicycle, and community tram system.

- configuration of land uses so that 50% of the residents and 70% of the jobs are within 1/4 mile distance from the Village Center.

- preservation of major resources and conservation area, incorporating all prime natural areas and additional adjacent recreational, agricultural, and educational uses, consisting of 37% of the site;

- the location and design of pedestrian and bicycle systems to make walking and bicycling as convenient as possible and to reduce the need to rely on personal automobiles.

- the conscious integration of public and community transportation system with other circulation modes;

- orientation of residential development to maximize southern and northern exposure and natural breezes, maximizing the use of passive solar design for summer cooling and winter heating;

- provisions for photovoltaic solar arrays over parking areas, large rooftops, and unusable areas within existing utility easements to provide for active solar energy production;

- the design of a phasing plan so that there can be a balance of land uses within the framework of a strong sense of community during all phases;

- the use of reclaimed effluent for all exterior uses;

- the organization of each neighborhood around a neighborhood center, linked to the Village Center, with smaller residential clusters of 25-35 units each oriented around common pedestrian paths/natural drainage systems and short, narrow cul-de-sacs to give preferred access to the pedestrian system and eliminate through traffic. (Moody, 1992).

According to Ken Clark, Professor of Architecture and Chair of the Interdisciplinary Planning Program at the University of Arizona, "Civano is attempting to show Tucson, a city located in the extreme climate of the Sonoran Desert, what form that city might have taken, given a holistic approach to land
use and energy conservation. As such Civano can provide a model approach for communities that seek to remain viable in a future of less plentiful energy (Clark, 1994)."

• **Design Implications:**

This case study provides a strong example of a sustainable master planned community within an arid environment. The "non negotiable" energy goals provides a good model for future community growth. The clustering of different residential types and variety of densities is a unique approach to community design. The incorporation of amenities and employment opportunities within one community will prove beneficial to its users. By including the public in the planning process the end result will serve the community more holistically.

RESTON

• **Location:** Reston, Virginia

• **Owners or Developers:** Simon Enterprises/Gulf-Reston, Inc.

• **Designer/Planner:** Whittlesey and Conklin

• **Relevance:** This community is one of the first examples of what was considered a 'new town' or 'new community'. The plan began mixing densities and uses for a different approach to planning. It has been referred to as the "showcase example of American planned communities (Larkham and Whitehand, 1992;209)."
• Description:

Background:

Reston, Virginia was one of the few "new town" communities developed during the early 1960's as a "federally nonassisted new community" (Burby and Weiss, 1976:4). The basic design principles behind these 'new towns' were as follows (See Figure 4-6):

1). the town should be a series of self contained neighborhoods with education, church, and commercial facilities in the center

2). it should contain an internal path system

3). preservation of open space including parks and playgrounds should be a major concern.

4). major traffic areas would be routed towards the exterior of the community.

Based on several of these principles, the first residents of Reston, located approximately 18 miles northwest of Washington, D.C., moved in during December of 1964.

At the time, these 'new communities' were funded by 'non traditional' sources including banks and insurance companies. Reston received initial funding from Gulf Oil Corporation, John Hancock Mutual Life Insurance Company, State Planters Bank of Commerce, and the Empire Trust Company.

Robert E. Simon, Jr. purchased the property of Reston in March of 1961 when it was being used as farmland and as the location of a distillery. Simon had several goals in mind at the onset of the project. These goals included:

• Providing opportunities for leisure time.

• Making it possible to stay in the same community for a lifetime, life and work in the same community.

• Providing a variety of recreational, cultural, and commercial opportunities.

• Preserving and encouraging beauty (structural and natural open spaces).
(Figure 4-6: Reston Master Plan, Williams, 1997)
Ensuring financial success.

As you may remember, these goals resemble the neo-traditional or 'New Urbanism' communities emerging today.

Commercial components, housing, and population:

This city has been widely known for its urban design and mix of uses. There are a mix of housing densities and types. These include apartments, medium-low density townhouses, patio homes, and single family residences (Golany, 1976). There are three different density designations. These include: high which is 60 residents per acre, medium which is 14 residents per acre, and low which is 3.8 residents per acre. Initially Reston attracted a younger population due to its high number of apartments or rental units. Two golf courses with additional recreational facilities such as tennis, swimming, and riding facilities were added to the town. The community also contains medical, day care centers, and educational facilities. Recently the 'Reston Town Center' was built within close proximity to the highway. This town center is very popular among residents. It focuses on an interior 'pedestrian only' atmosphere with office towers, retail outlets, a Hyatt Regency Hotel and a variety of restaurants (See Figure 4-7). Reston is also known for its extensive internal path system used for walking and bicycling. These were designed to connect homes with neighborhoods and village centers.

There are seven different 'villages' that make up the community. Approximately 23% of the site is used for recreation in conjunction with commercial areas and a 970 acre industrial park. The individual town center was designed to serve the overall projected population.
After an initial slow start in developing the community, population dramatically increased in the early 1970's. The target population was 75,000 on a total 7400 acres. However, current population for Reston is 56,000 people. Similar to other case studies, residents were included in the initial planning process, particularly Hunter Woods Village Center. This involvement was determined to be very important to the initial residents of Reston (Burby and Weiss, 1976).

**Community aesthetics and functionality:**

Today's Reston community still provides the initial feeling of 'getting away from D.C.' when you enter the interior areas or areas further removed from the highway. The community definitely has a more 'close knit' neighborhood feel to it with several community centers, churches, and annual festivals. This is worth noting considering its close proximity to the large metropolis of Washington, D.C. Nonetheless, given the many positive aspects of Reston, the community has a dense feeling and a clear dominance by the automobile. Early criticism concentrated around the need for more schools and the high density. The majority of residents of Reston commute to work in Washington, D.C. each day. This makes the total commute time each day approximately three hours. A number of residents make use of the 'metro/subway' system linked to Washington, D.C. However, in order to ride the 'metro' a resident, in almost every case, is required to drive an automobile to the subway station. This is a shortcoming of this community, given the fact that one of the initial goals of Reston was to provide an all inclusive community. This issue is one that would warrant further investigation beyond the scope of this thesis. In order to gain a clear understanding of the history and longevity of different planned communities within the United States, there is merit in reviewing this case study.
• **Design Implications:**

This community is worthy of review due to its early attempts to incorporate principles for creating a very 'livable' town. These principles which were mentioned in detail within the description. The fact that pedestrian orientation or an emphasis on open space has been dominated by the automobile is of particular interest. There are opportunities for social interaction and recreation. Another important aspect is the affect and overall appeal created by the density of this community. There has been an attempt to provide opportunities for people to both live and work within this community (even though many residents commute). The new and innovative planning and design guidelines employed for this town illustrate the importance of attempting new solutions. The age and metamorphosis of this community provides lessons for future communities.
ADDITIONAL CASE STUDY ANALYSIS:

CELEBRATION

- Location: 20 miles southwest of Orlando, Florida
- Developers/Planners: The Celebration Company, A subsidiary of Walt Disney Company.
- Designers: Cooper, Robertson, & Partners, and Robert A.M. Stern Architects, Urban Design Associates, and EDAW Landscape Architects
- Relevance: The most recent master planned community marketed as a 'community of the future'. Walt Disney Company hopes this community will become the model for future communities and serve as a solution to problems within existing communities.

- Description:
  
  Background:

  The Celebration development is currently in its first phases of development. It is located on 4,900 acres of land in northwest Osceola County, Florida, just 20 miles southwest of Orlando (See Figure 4-8). The planning for this community took place eight years ago with the first residents moving in during June of 1996. The estimated population is 20,000 with a total cost of $2.5 billion. This community has been the focus of numerous debates within design and development professions. The main argument is the forced socialization or restrictions placed on residents. This will be addressed later within this analysis.

  This community was primarily based on five focus areas or what could be considered "ordering systems". These include: health, education, technology, place, and community. This could be directly compared to the ordering systems of environmental
issues, socio-cultural issues, aesthetic issues, economic issues, and functional issues, being used within this research study. Areas of focus for this community include the following: the health of the community, the opportunity for lifelong learning, volunteer activities, a telecommunications network, civic pride, and a strong social network.

The planning methods used within this community are termed "traditional town planning principles" (Middleton, 1997;36). However, this community could be closely aligned with neo-traditional or 'New Urbanism' principles as well.

Housing:

There are four basic housing types consisting of: estate, village, cottage, and townhouse. In addition, to these four types, apartment units over garages are allowed on each lot. There will also be some apartments located over retail establishments. The lots are all basically 130 feet deep but range in width sizes from 22 to 90 feet. The square footage of the lots will range from 2,900 square feet to 11,700 square feet. The housing is priced
at approximately 10-15% higher than relative housing within close proximity to this site. The apartment rental prices start at $600, townhomes at $128,000, and single detached housing at $190,000. Future plans include providing less expensive single detached housing. There are also plans to include an area for the retirement population. The six styles include: classical, Victorian, colonial revival, coastal, Mediterranean, and French. These homes are placed close together and close to the street to encourage social interaction. There are fences and verandas to join the public/private zones and encourage walking. The placement and design of buildings are in response to the climate. This includes the use of arcades, balconies, and alleys leading towards fountain courts.

Community components, civic and commercial:

The retail and commercial establishments are modeled after "those found in small American towns" (Middleton, 1997:36). The main goal of these retail establishments was to support the community and attract people visiting central Florida. The selection of these retail establishments was done carefully to support the area and will encompass 68,000 square feet. Office space will include 67,000 square feet of space. This retail and office space facilities are located within the Celebration Village which will include an 18 acre downtown district, a preview center, a town hall, post office, bank, cinema, and restaurants.

This community will be surrounded by a 4600 acre greenbelt that will not be developed. Other green areas include an 18 hole golf course along with park spaces, a trail network, and public pathways. Tennis courts, a community pool, and large lake compliment these open spaces.

A main element included within this community is a new health care system. The Celebration Company and Florida Hospital teamed together to provide a proactive approach
to healthcare. This consists of facilities including: primary care, multiple specialty center (outpatient surgery, sports medicine, cardiology, neurology, behavioral medicine, and ear, nose, and throat specialties), a fitness center, urgent care hospital, and assisted living. This health care system would also provide a place for world renowned experts to showcase medical skills within a learning atmosphere.

Another important aspect of Celebration is education. The plan calls for a high quality public school for kindergarten through 12th grade. In addition, the Celebration Company has teamed up with Stetson University to provide an educational facility for teachers. This educational unit is located on a 36 acre 'campus'. The Celebration Company donated $11 million dollars worth of land, design services, and funding for this school system. Disney plans to include $9 million for operation enhancements and training.

**Codes and guidelines:**

A 'pattern book' was developed in order to produce plans and guidelines for this community. This pattern book is general what comes under fire by the critics of Celebration. The pattern book along with the homeowners association serves as the governing body for this community. Each homeowner is required to sign a "Declaration of Covenants". There are strict regulations regarding the landscape of each yard, it's design, plant material selection, and maintenance. Further restrictions limit the parking areas of mobile homes, pickup trucks, and boat trailers. These restrictions go on to state that no more than two people can sleep in any one bedroom. The discussion on the variety of restrictions associated with this community must be limited in this thesis for practical reasons of time. However, the point to the debate surrounding these regulations is the attempt of these planning guidelines to 'control' the residents.
On the other hand, the executives of Disney and the designers contend there is a market for this type of community and that demand has driven the guidelines. Their simple argument, and one which merits notation, is that residents choose to live in this community. Disney Design and Development Director, Peter Rummel, stated "We start with the assumption that you are not required to live here (Beardsley, 1997:93)." During structured interviews conducted for this study, both positive and negative comments were provided by developers within Tucson and Phoenix. The positive comments surrounded the fact that Disney was breaking new ground and 'pushing the envelope' of development. The negative comments included the combination of retail and residential uses. Other comments surrounded the fact that this would not be a good model because it was not purely driven by profit. Whether or not you agree or disagree with the elements which make up this community, Celebration has created an ongoing debate within the design and planning professions which will probably continue for the duration of its development. This debate will expand ideas and possible solutions for community designs.

**Design implications:**

The following are important elements for consideration based on this case study: the use of architectural styles or themes and varieties of housing sizes, the placement of housing within close proximity to each other and the streets, the use of a 4700 greenbelt surrounding the community, the emphasis on health, education, technology, place, and community.
ADDISON CIRCLE

• Location: Addison, Texas

• Developers/Planners: Gaylord Properties, Inc., and Columbus Realty

• Relevance: This case study illustrates an 80 acre community site within an existing urban framework. This provides the alternative side to previous "new" 'New Urbanism' models.

• Description:

Background:

This 80 acre community is located within north Dallas and is designed to be a medium to high density community using many 'New Urbanism' principles. The public policy makers are joining forces with private enterprise to plan for 3000 units within an existing high density community (See Figure 4-9).

(Figure 4-9: Addison Circle, Texas; Gosling, 1996).
This community is already land locked with historic success in the 1970's. In the past, the focus of the community was on restaurant and hotel development. This suburb permitted liquor when other north Dallas suburbs restricted its sale. Therefore, the community grew and focused primarily on commercial development.

However, when outer edge suburbs such as Plano, Richardson, and Lewisville became popular, Addison's commercial district began to suffer. As a result, town officials wanted to increase the population living within the community to support the existing commercial base.

Planning process:

The town of Addison produced a comprehensive plan in 1991 which identified several goals and outlined strict design guidelines. The primary model they used when developing their plan was the State/Thomas district. This community was created in 1987 in an urban setting using many new urbanism principles. The bottom line to this development added $60 million to the local tax base.

Columbus Realty along with the town of Addison and Gaylor Properties went through an eight month planning process. Their process consisted of a comprehensive survey to determine rental rates and potential needs. This was conducted in order to "convince the town and the community that public sector investment in the project would be based on sound business and market-demand assessments (Gosling, 1996:21)." These surveys also determined that neighborhood focused communities with higher densities and devoted open spaces were preferred by consumers.

Similar to the Civano case study, Addison Circle developers quickly realized the importance of including the community and public officials in every stage of the process.
The final result addressed density, building materials, lot coverage, and landscape standards. The lessons these developers learned from their process included three main focus areas. First, the process of development must include time to communicate the concept to the community and potential future buyers. Secondly, the communities under change must agree to a proactive role and certain development commitments. Finally, the importance of density must be addressed as it ultimately supports revenues for all parties.

**Community components:**

The final plan focused on the impact of traffic within this highly urbanized setting. This included spending three times the normal allotment for landscaping. In addition, pedestrian orientation, collector streets, and garage access were other aspects incorporated within the plan. Other elements included wide sidewalks, curbs, shade trees, paved crosswalks, benches, distinctive signage, and outdoor lighting. Pedestrian linkages occur throughout the community linking essential hubs.

There are a total of two subareas or neighborhoods with 3,000 to 4,000 units planned for each area including commercial and civic facilities. The second area includes four million square feet of space for high density offices, residential, hotel, and retail uses. This would increase the employment base for this area by 10,000 jobs.

Another aspect important for this plan includes high rise buildings, view corridor streets, mixed type housing, and "in house" offices. The mixed use activity occurring within these streets creates more activity to support a strong neighborhood network. The circulation allows users to "overlook public streets and parks with front doors, balconies, and porches, but also all of the supporting amenities like health spas and leasing offices are deliberately located in retail spaces along street frontages (Gosling, 1996:22)."
Other aspects addressed within the plan include standards for architectural exterior finishes, relative building scale, setbacks, lot coverage, plant materials, and the screening of parking lots. The last important objective of the plan was to designate and preserve open spaces. These were to be used for jogging trails, community events, and urban parks. This would also provide a signature feel to the community and distinctive atmosphere.

• Design implications:
The following are important elements for consideration based on this case study:

1). the use of medium and high density lots
2). the deliberate preservation of open space and landscape details
3). the use of a similar community as a case study
4). the use of surveys to determine the needs of the area
5). the attention to architectural styles, setbacks and lot sizes
6). the involvement and education of the community regarding the concept and entire process

LAGUNA WEST
• Location: Sacramento, California
• Designers/Planners: Calthorpe Associates
• Developers: Phil Angelides
• Relevance: This plan incorporates several transit oriented development (TOD) principles along with including light industry within the community.
**Description:**

**Background:**

This 1045 acre community is located 11 miles south of Sacramento on a former rice paddy (Ben-Joseph and Southworth, 1997). This community is one of the first realized developments incorporating Peter Calthorpe's transit oriented district (TOD) principles or pedestrian oriented development (POD) (See Figure 4-10). There are a total of 3,400 units and a population of about 8,000 to 10,000 people.

(Figure 4-10: Laguna West, California; Katz, 1994).

**Housing:**

There are a variety of housing types including single detached, 'compact' single detached, apartments and condominiums. The single detached housing ranges in square footage size from "bungalows" to "multi-level" homes (Katz, 1994;28). Garages for these homes are usually located on the side or on the rear with carriage houses at some locations. There are four different single detached 'compact' housing floor plans. The smallest unit consists of 1,100 square feet and the largest is 1,800 square feet. These are located along
the waterfront of the community and approximate 14 residences per acre. Within this framework, two houses share parking spaces with apartments located above garages. These housing units contain distinctive features such as porches, Hollywood driveways (to reduce paving), and elevated stoops. Higher density apartments and townhomes are located within the town center/core. Some criticism surrounds this community in that the division and character of these neighborhoods needs to be defined more clearly.

Community components, civic and commercial:

The town core is located relatively near the center of the community. All roads lead to this central area which contains the Laguna Town Hall, Town Square Park with playground, basketball court and rose garden, express bus stop, day care facilities, and lakeside plaza and promenade (Laguna West, 1997). The town hall and civic facilities comprise 12,000 square feet and combine office space and classrooms for multiple uses. There is also an auditorium for community events, a branch library, and an outdoor amphitheater. Open space consists of a five acre park with a two acre meadow leading to the waterfront plaza.

An independent study determined that 84 percent of Laguna West residents particularly enjoyed the pedestrian orientation of the community. There is a total of six miles of winding shoreline area for bicycling, walking, and jogging. The incorporation of alternative transportation has not been included yet. However, the entire transit oriented development concept for the community can now be supported by its current densities. A unique design feature is the placement of tree wells within neighborhood roads. This was done to increase vegetation within paved areas. It is interesting to note that one developer interviewed for this thesis commented negatively on the functionality and liability of this feature.
Another unique aspect of this community is the incorporation and treatment of light industry within the site. Apple Computer Corporation and JVC Corporation have facilities located directly adjacent to the main road. These industries architecturally blend with the community and provide added employment for the community. Bus service from the town center is provided to these manufacturing facilities.

Other elements within close proximity to the community include: retail establishments; fire stations; elementary, middle, and high schools; country club; golf course, marina, and racquet club.

**Design Implications:**

The following are important elements for consideration based on this case study:

1. the incorporation and treatment of light industry within a community
2. the variety of housing types and densities
3. the open space linkages
4. the planning for future alternative transportation methods

**Davis, California**

- Location: Davis, California
- Designers/Planners: Various--Michael Corbett (in part, during 1974 General Plan)
- Relevance: This community represents one of the first communities with an emphasis placed on sustainability along with pedestrian orientation, natural open spaces and 'village centers.'
• Description:

Background:

The community of Davis is located in northern California just west of Sacramento. It has received a lot of attention regarding its "environmentally sound planning policies" (Corbett, 1981; 27). In the late 1970's this attention was focused on its planning guidelines for energy conservation. In 1975, Davis established the first energy conservation code in the United States which includes mandatory standards for all new construction. This could be compared to one of the previous case studies, Civano.

Greenbelts/Open Space:

It contains a system of greenbelts running through the various neighborhoods. At various points through these greenbelts and along streets, bicycle paths are constructed (See Figure: 4-11).

This community is frequently associated with these paths. Davis has been referred to as "The Bicycle Capital of America" (Davis, 1997). There are approximately 30 miles of bicycle lanes and paths. These were first established in 1967 and are now a required element for new neighborhoods. The University of California-Davis also supports this extensive use of bicycles along with the emphasis on environmental issues.

Community components:

The community of Davis has recently (since the early 1990's) been the focus of "cohousing" developments emerging in the United States (Streisand, 1992). This is sort of a 'kibbutz' situation where residents share daily responsibilities such as cooking and daycare. This is coupled with sharing laundry facilities and community living areas.
There are several recreational facilities including parks, pools, tennis courts, softball fields, community center, theaters, and an 18 hole golf course.

• Design Implications:

This is a good example of an 'older community' employing sustainable development practices while incorporating natural open spaces and trail systems. The popularity of this community provides an indication of the merit of these elements over a long period of time.
ROSA VISTA

• Location: Mesa, Arizona, 1991
• Designers: Andreas Duany and Elizabeth Plater-Zyberk
• Relevance: This community is an example of a mobile home village in an arid environment within close proximity to our project site. This design demonstrates alternative approaches to the traditional manufactured home park. The need for this research was based on feedback from our structured interviews and participant observation within Tejido Design Group.

• Description:

  Background:

  In order to combat negative perceptions associated with traditional manufactured home communities, the developers of Rosa Vista incorporated details to address the appeal of the community as a whole and the individual units.

  Community components:

  The designers of this project determined that the following elements contributed to the sense of place within communities: "close placement of units, extensive common facilities, such as a clubhouse; and a well defined perimeter" (Katz, 1994:90). In addition, they determined that "small paseos" would best serve pedestrian access along with primary streets located along the rear of the site (See Figure: 4-12).
Several different styles or types of units were developed coinciding with the typical architectural style of the southwest, Sonoran region. The designers also determined the importance of siting buildings at 1'-0" for courtyard houses and 3'-0" for bungalow units (Katz, 1994). This community contains manufactured homes (factory-built homes) located within lots of 30 and 40 feet.

Other details that provide a unique sense of place include: porches, shutters, eaves with exposed rafters, and stucco materials. The use of a wooden arcade typifying southwestern architecture while providing shade is also a main component. The majority of automobile traffic occurs on the Alameda and two additional streets. Pedestrian oriented traffic is encouraged through centrally located parking and walkways lined with native vegetation and seating. The promotion of pedestrian access is also addressed by providing parking and service along the rear of the homes.
• **Design Implications:**

The following are important elements for consideration based on this case study:

1). the promotion of a pedestrian oriented community through the placement of parking lots and service entrances

2). the use of details and design elements such as porches, rafters, shutters, and stucco materials within an arid environment

3). the siting of the manufactured homes slightly above grade

4). the use of materials indigenous to the Sonoran desert region

**JACKSON-TAYLOR**

• **Location:** San Jose, California, 1991

• **Designers:** Calthorpe Associates

• **Relevance:** This project was originally a food processing center within a large orchard farm adjacent to a underutilized rail line. These elements mimic elements present within our project site, Picacho Pecan Village.

• **Description:**

**Community components, housing and commercial:**

The plan for this 75 acre community located in San Jose, California includes 1,600 residential units, 550,000 square feet of retail space, and light industry (See Figure: 4-13). However, small businesses make up the majority of the business industry.

The center of the community is mostly comprised of larger buildings of mixed use development including high and medium density housing, along with retail and office spaces. Small buildings are located along the edges and mimic adjacent single family dwellings (Katz, 1994:193).
The mixed use areas of the community have a density of 40 to 50 units per acre with lower levels for commercial use and upper floors primarily containing residential development. The strictly residential areas were proposed at 40 to 50 units per acre with parking located at the ground level. The parking requirements for the area were 2.2 spaces per unit. The lower density residential areas would provide 12 to 25 units per acre and mimic adjacent neighborhoods. This area would provide rental units and "would be implemented in the manner of a traditional neighborhood on a parcel-by-parcel basis (Katz, 1994;197)." Right of ways were secured for public use as open space or streets. Improvements were made to increase aesthetic interest among users. One important feature that links the community is a rail line that is not being used to its capacity. This could possibly be designated for commuter uses in the future. The City of San Jose has promoted the location of large areas of residential housing adjacent to existing communities and rail stations.
Planning process:

Several plans were developed and reviewed in a public forum throughout the planning process. Elements from each of the plans were carried over to the final rendition.

• Design implications:

The following are important elements for consideration based on this case study:

1). the use of cluster housing and mixed use development between retail/commercial and residential

2). locating residential areas near potential rail systems

3). promoting and revitalizing streetscapes

4). parking located on the ground level of residential structures

5). the use of open space and community areas

RIO VISTA WEST

• Location: San Diego, California, 1992

• Designer: Calthorpe Associates

• Relevance: This community represents pedestrian orientation with a unique response to outside motorists while preserving the inner core area for residential activities. Several components (detailed in the description below) integrated into this community relate to our sample project, Picacho Pecan Village.
- Description:

**Community components:**

This 95 acre community is located in the Mission Valley area of San Diego and contains 1,700 housing units among several other mixed use developments. A core of mixed use development includes "specialty stores, restaurants, a multi-screen cinema, office buildings, and housing over shops (Katz, 1994; 143)." A central park area includes a community building, amphitheater, and daycare center (See Figure: 4-14).

(Figure: 4-14, Rio Vista West; Katz, 1994).

Other important components of the project includes a 120,000 square superstore which is "critical to the economic feasibility of the project (Katz, 1994; 144)." The placement of stores and parking lots are within short walking distance of each other. There are frequent store entries and multiple trees for shade. The community has a series of tree lined streets with pedestrian only paseos between community blocks. To continue the local streets within this commercial framework, the automobile lanes and walkways are located
on the existing grid pattern (Katz, 1994:143). A rail system links the community to the downtown area and other sites within the city.

**Housing:**

There are several different residential types of housing available and all are adapted to architectural styles and traditions of the region. The higher density housing is comprised of 25 to 55 units per acre with "apartments built above podium parking (Katz, 1994:145)." The medium density housing contains 20 to 30 units per acre comprised of three story buildings with parking accessible from the rear. The low-density housing with units comprise 15 to 25 units per acre. These are generally two-story townhouses for sale (as opposed to rental) with rear parking and entrances. Each of these housing types and layouts encourage activity along the streets with "porches, porticos, bay windows, and separate entries for ground floor units (Katz, 1994:145)."

The following statement sums up the project strategy to integrate the commercial land use within the community: "The project’s arterial face orients out to passing motorists, while its internal layout, tree-lined streets and vital public areas cater primarily to the needs of residents and those arriving by trolley (Katz, 1994:144)."

**Design implications:**

The following are important elements for consideration based on this case study:

1. the use of design features such as porches, bay windows and porticos
2. the use of architectural styles indigenous to the region
3. the use of a rail system or trolley car for alternative forms of transportation
4. parking located underneath or to the rear of the residential housing units
5). the use of a large discount store as well as specialty shops providing economic and retail support for consumers

WINDSOR ESTATES

• Location: Indian River County, Florida
• Designers: Andreas Duany and Elizabeth Plater-Zyberk
• Relevance: This community is a model case study to determine the desires of affluent homeowners shifting from vast expanses of land use to a more compact, society oriented atmosphere.

• Description:

Background:

This community was conceived from the beginning as a resort community approximately eight miles from Vero Beach in Florida. The entire community encompasses 416 acres and was built in 1989.

Community components:

Amenities for this community include an 18 hole golf course, polo fields, equestrian center, tennis courts, riding trails, ocean beach property, village community center, and a range of retail stores (See Figure: 4-15).

The planners, Andreas Duany and Elizabeth Plater-Zyberk alternated the sizes of streets throughout the plan to include wider boulevards and narrower more intimate neighborhood streets. The formality, which you may recall, is a trademark for the 'New Urbanism' movement. In this case it is in response to the once existent citrus grove and planned polo fields.
Housing and architectural codes:

The housing for this golf community is not typical because its form is not bisected or determined by the design of the golf course. The housing was clustered together in a tight community around the edges to form a greenbelt on two sides. This two sided greenbelt consists of the golf course and polo fields. The majority of the housing is a courtyard or sideyard type with open areas walled. The houses sited close to the street and close to each other. These lots are centralized in the interior portion of the community. The size of these interior lots are unusual for a golf/resort community. However, the designers have discovered that due to their size the area has developed into a close-knit intimate area of the community. Each of these houses has a garage attached with an apartment located above. The garage and overhead apartment are access via alleys or small lanes. These garages turn inward towards shared parking areas to cut down on the view of cars and land use. These smaller lots have proven to be more popular than the largest lots due to the "overall character of this part of the community (Katz, 1994;63)." The largest single family home lots are located on the outside of the golf course and along the beachfront.
The architectural elements are regulated by strict codes and contain porches, outbuildings, and level changes. These continual elements are visible in other new urbanism developments. The comprehensive planning and architectural codes were also in response to the vernacular architecture of the region.

**Design implications:**

The following are important elements for consideration based on this case study:

1. smaller lot sizes and more intimate spaces utilizing courtyard and sideyard designs
2. location of housing within close proximity to streets with private walled gardens
3. larger detached homes are located along the perimeter of the site
4. the use of garage apartments, off-street parking and garage entrances
5. wide variety of street sizes from small to large
6. the use of golf and polo fields as greenbelts
7. the village center concept which serves the communities basic needs

**MASHPEE COMMONS**

- **Location:** Cape Cod, Massachusetts
- **Developers/Planners:** Buff Chace and Douglas Storrs
- **Additional Designers:** Andreas Duany and Elizabeth Plater-Zyberk
- **Relevance:** This community is unique because it utilizes a "retail first" strategy. The community was developed/planned around a revitalized commercial core. Several elements of 'New Urbanism' were incorporated within the commercial core to develop this close knit community.
• Description:

**Background:**

This community was once a diminishing 1960's strip shopping center. However, in 1986 the developers decided to renovate the shopping area and build a community around this existing core (See Figure: 4-16). Mashpee Commons is located 65 miles south of Boston and has received a lot of attention regarding its transformation.

(Figure: 4-16; Mashpee Commons; Katz, 1995).

**Community components, housing, civic and commercial:**

The community is centered around a central core area with retail shops, restaurants, offices, banks, a post office, library, church, movie theater, police station, fire station, and school.

The housing includes a mix of single family housing units, townhomes, apartments over retail shops, and alley accessed homes. Each of the four neighborhoods or clusters of housing faces a common green space with a wide range in housing sizes. One of these green spaces contains the town library and Catholic church (Langdon, 1994). Each of the housing units are within easy walking distance of the civic and commercial units. The architecture is influenced by the traditional Cape Cop village architecture. "The rational,
compact New England saltbox is a basic component of this vernacular style (Katz, 1994; 173)."

The development of this community was in response to the existence of the retail establishment first. This is in direct contrast to traditional developments where large tracts of housing areas are developed first.

- Design implications:
  
The following are important elements for consideration based on this case study:
  1). the use of apartments above retail spaces
  2). the ease of walking distances from housing to commercial/civic units
  3). separate neighborhoods with open spaces
  4). vernacular architecture with a mix of housing types and sizes
  5). linking of roads from different directions
  6). retail areas sited close to the road with screened parking
  7). parking along the street which provides easy access into businesses and a buffer between pedestrians and traffic.

LESSONS LEARNED

Several lessons were learned based on the above research and additional readings. There are a multitude of community case studies that could have been addressed. The sheer number and variety of planned communities is extraordinary. However, the author chose the 'detailed case studies' based on their different types and personal experience with the sites. The 'additional case studies' included 'new town' developments, 'New Urbanism' communities, and communities with a 'sustainable' emphasis. The majority of these case studies were referred to within several sources of literature and by leading experts in the
fields of planning, landscape architecture, and architecture. In cases where widespread criticism has occurred, the author acknowledged these shortcomings in order to apply these lessons. This synthesis of information will be triangulated with data derived from other research methodologies addressed within this thesis. Overall, there were lessons learned from both the evolution of communities over many years and recent 'innovative' developments whose merits have yet to be determined by time. The following are some of the 'lessons learned' organized according to the design/planning 'ordering systems':

**Socio-cultural Issues:**
1. There should be clustering of buildings (joining the public/private zones) to encourage social interaction and pedestrian traffic. There should be limited setbacks, but a variety of experiences.
2. There should be year round festivals and events which help contribute to the sense of character/tradition/memories of community.
3. The public or potential residents should be involved in the planning process when applicable.
4. The incorporation of volunteer activities within a community should be considered in the plan.

**Aesthetic Issues:**
5. The inclusion of vernacular architecture is the key to a cohesive community. There should be a similar vernacular architectural style, but no "cookie cutter" housing with the visitor or resident straining to decipher one house from another. The same principles apply to the landscape architectural styles.
6. The inclusion of "little details" should be addressed such as the use of porches, overhangs, window treatments, street/shade trees, and topography.
7. Special importance should be placed on the variety of street types and experiences with emphasis on view corridors.

**Functional Issues:**
8. There should be detailed zoning/architectural/street/landscape codes to ensure uniformity and cohesion. However, this should not be a license to "socialize the market" or place too many restrictions on residents.
9. An alternative traffic system should be incorporated into the community with special attention paid to whether there could be a solution to the dominance of the automobile.

10. There should be a distinction between neighborhood clusters with a mix of densities, devoted open spaces, and village centers. The open space should include a network of trails to encourage pedestrian activity. This natural space should also provide multiple purposes.

**Economic Issues:**

11. The importance of incorporating employment opportunities within the community for its residents. This was demonstrated as either light industry, commercial/retail, or government.

**Environmental Issues:**

12. The community should focus on environmental sustainability including paying special attention to climate (in other words taking advantage of climatic conditions).

13. The clustering of buildings will also reduce land use and infrastructure costs.

14. The use of architectural codes to produce buildings that respond to the climate by taking advantage of winds for ventilation and cooling.
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CHAPTER: 5
QUANTITATIVE RESEARCH ANALYSIS AND RESULTS

QUANTITATIVE RESEARCH

As you may recall, in Chapter Three we discussed all research methods used for this thesis. This included our holistic approach of using both qualitative and quantitative methods. Our quantitative results were derived from Likert scaled questionnaires we administered to eleven real estate professionals and twenty two designers in the allied fields of landscape architecture, architecture, and planning.

This chapter will discuss the results of these questionnaires in order to determine:

1). possible correlation's with the success of a community located in between Tucson and Phoenix and the incorporation of the planning 'ordering system' issues--socio-cultural, aesthetic, economic, functional, and environmental.

2). possible correlation's with the success of 'New Urbanism' communities and the incorporation of pedestrian orientation, light industry, and a mix of populations within one community.

How will we do this? As you may recall, we entered the statistical results of our surveys/questionnaires into the Systat statistics application (Hill, 1992). The results were then put through a series of calculations: general descriptive statistics (mean, variance, standard deviation) and Pearson correlations. These results were then analyzed and discussed within the sections to follow. The final results/impressions from each of these different calculations are compiled into a summary of correlation's for final design/planning guidelines. For a detailed listing of all of our questions, please see the Appendix section of this thesis.
SURVEYS/QUESTIONNAIRES:

Descriptive Statistics:

As you may recall from our literature review, descriptive statistics is a tool for obtaining information from a mass of data that is hard to understand (Glass and Hopkins, 1978). We will discuss descriptive statistics results for our population as a whole (33 developers and designers from Tucson and Phoenix) based on each question in the survey instrument. We will also analyze the descriptive statistics results individually from the (11) developers and (22) designers. In Chapter Three we reported that Likert scaled questions were used with two different forms of answers (depending on the questions). The response choices were as follows:

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<tr>
<th>Essential</th>
<th>Very Important</th>
<th>Important</th>
<th>Sort of Important</th>
<th>Not Important</th>
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or

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<th>Very Likely</th>
<th>Likely</th>
<th>Moderately Likely</th>
<th>Not Likely</th>
<th>Absolutely Not Likely</th>
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First, we will discuss the means and standard deviations for each question. We will also reiterate information we derived from the structured interviews in association with these questions. The results based on each question are as follows:

Question one: "What would the likelihood of a mixed use community located between Tucson and Phoenix being a successful community?"
For the whole group of respondents (33) the mean for this question was 2.909 (s=0.914). This indicates that the average respondent felt its success was "moderately likely".

When we separated these results between the developers (11) and designers (22) similar results occurred. The mean for the developers was 2.818 (s=0.982) and the mean for designers was 2.955 (s=0.899).

During our structured interviews we learned from developers that, in order for a community located between Tucson and Phoenix to be successful, the following things must occur:

1). The initial phases must be planned for a retirement population and include adequate commercial and recreational components.

2). The prices of housing must not be placed too high—approximately $90,000.00 to $140,000.00 for a single family lot.

3). If industry was brought into the site, then the community would be successful (economically). If populations other than retirees will be within the community, then you must provide an avenue for jobs.

**Question two: What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the master plan of a community?**

For the whole group of respondents (33) the mean for this question was 1.758 (s=1.786). This strongly indicates that the average respondent believed these issues to be almost between "essential" and "very important". We found similarities once we separated these results between the developers (11) and designers (22) with the means being 1.636 (s=0.809) and 1.818 (s=2.130) respectively.

During our structured interviews, developers gave these responses (among others we addressed in detail in Chapter Four) regarding environmental issues:
1). Developers are recognizing the importance and demand from consumers to incorporate open spaces within a community. (Open space, views, and walking trails are among the most popular components within communities in the southwest).

2). Addressing environmental issues are important to address for public approval.

**Question three:** What is the importance of incorporating socio-cultural issues (such as identification with indigenous cultures) in the area into the master plan of a community?

For the whole group of respondents (33) the mean for this question was 2.344 (s=1.066). This indicates that the average respondent believed this to be in between "very important" and "important" (closer to "important"). Once we separated these results between the developers (11) and designers (22) we found the means to be 2.636 (s=1.027) and 2.227 (s=1.066) respectively. This shows similarity among the developers and designers in their responses.

During our structured interviews, developers gave these responses (among others we addressed in detail in Chapter Four) regarding socio-cultural issues:

1). There should be minimal restrictions placed on residents, 'Do not try and socialize the market'

2). Social cores or gathering places should be included within a community.

3). Socio-cultural factors should not be the main focus of a community (i.e. they will not solely drive sales).

**Question four:** What is the importance of incorporating aesthetic issues (such as increased vegetation, view corridors, unique architecture) in the area into the master plan of a community?

For the whole group of respondents (33) the mean for this question was 1.848 (s=1.734). This strongly indicates the average respondent believed this issue to be between "essential" and "very important" (closer to "very important"). When we separated
the results between the developers (11) and the designers (22) we found the means to be 1.636 (s=0.674) and 1.909 (s=2.091) respectively. There are surprising similarities in the results of questions two and four where respondents both felt strongly regarding the inclusion of environmental and aesthetics issues when planning a community. In fact, the developers responded with the exact same mean score for both question two and four. However, based on the results of question three, socio-cultural issues were not considered to be as important of an issue. This is in contrast to our literature review and case study analysis.

During our structured interviews, developers gave us these responses (among others we addressed in detail in Chapter Four) regarding aesthetic issues:

1). There should be a distinct architectural style that responds to the region (vernacular architecture). There should not be a 'look-a-like' feel to the community.

2). Recreational components are among the most important within a community.

3). The aesthetics of the grid vs. curvilinear design was a common debate among designers. Streets should be interesting and not monotonous.

Question five: What is the likelihood of new approaches to design/planning being incorporated over purely economic incentives into the master plan of a community?

For the whole group of respondents (33) the mean for this question was 2.906 (s=0.856). This indicates the respondents felt that new approaches being incorporated would be "moderately likely". Once we divided the responses from the developers (11) and designers (22) we determined the means to be 2.364 (s=0.674) and 3.182 (s=0.795) respectively. This shows a more distinct division between developers and designers on this question. Surprisingly with the developers leaning towards "likely" and the designers leaning towards "moderately likely" to "not likely".
During our structured interviews we learned from developers that new approaches were not likely to be done without proof of their economic success. This is in direct conflict with the descriptive statistics results outlined above. This could possibly due to the developers' desire to try new approaches even though their reluctance would prevail.

**Question six:** What is the likelihood of 'New Urbanism' concepts being successful in a predominately retirement based community?

For the whole group of respondents (33) the mean for this question was 2.742 (s=0.815). This indicates the respondents felt the likelihood of incorporating 'New Urbanism' principles to be between "likely" and "moderately likely" (but closer to "moderately likely"). When we separated the developers (11) from the designers (22) we found the means to be 2.636 (s=0.674) and 2.810 (s=0.873) respectively. This indicates similarities in responses from all participants.

During our structured interviews, developers gave us these responses regarding this question:

1). As mentioned in the previous question, according to developers, new approaches such as 'New Urbanism' were not favored because their success needs to be further proven.

2). The concepts of the 'movement' were considered to be positive. Possibly pick the most functional elements and create a new version of this 'movement'.

3). You cannot place too many restrictions on residents, especially the retirement population.

_The 'New Urbanism' question included the component of a retirement community in order that we might help determine the relevance of the principles to the southwest._

_Considering that initial interviews, participant observation results, and case studies indicated the strong likelihood of new master planned communities in the southwest being_
primarily retirement based, we considered this to be an important factor when asking our respondents this question.

Question seven: What is the likelihood of a successful community incorporating light industry within the site?

For the whole group of respondents (33) the mean for this question was 2.879 (s=0.927). This indicates that respondents felt that light industry would be "moderately likely" to be included within a successful community. When we separated out the responses from developers (11) and designers (22) we found the means to be 2.818 (s=1.079) and 2.955 (s=0.899) respectively. This indicates strong similarities among all respondents. However, this is in direct conflict with structured interviews which revealed that a community would be successful if it had a light industry component. This could be explained by two things. First, the developers could have felt it would be impossible to attract light industry (which was part of our interview results). Therefore, their choice would have been "moderately likely". Secondly, the remaining twenty two respondents might have been mislead by the word 'industry' which carries negative connotations.

Question eight: What is the likelihood of a master plan focusing on pedestrian orientation with limits to automobile access being a successful project?

For the whole group of respondents (33) the mean for this question was 3.121 (s=0.992). This was the highest mean score of all the questions and indicates the average respondent to feel this between "moderately likely" to "not likely" (but closer to "moderately likely"). This indicates more resistance to this concept of encouraging pedestrian orientation over automobile. When we divided the responses from the
developers (11) and the (designers (22) we found the means to be 3.091 (s=1.044) and 3.091 (0.971) respectively. This obviously shows similarities among designers and developers on this issue. This also supports conclusions from our literature review and case study analysis regarding the continued domination of the automobile in today's communities. However, this is in direct conflict with 'New Urbanism' principles.

During our structured interviews developers gave these responses regarding this question:

1). You must provide convenience and ease of movement for people within a community. This includes easy access in and out of commercial, civic, and recreational establishments.

**Question Nine:** How important is the mix of populations within a community (different ages, different socio-economic levels, etc)?

For the whole group of respondents (33) the mean for this question was 2.455 (s=0.905). This indicates the average respondent felt the mix of populations to be between "very important" and "important" (but slightly closer to "very important"). When we divided the results from the developers (11) and the designers (22) we found the means to be 2.909 (s=0.944) and 2.227 (s=0.813) respectively. This indicates two things: similarity to the overall results and slight differences between the developers leaning towards "important" and designers leaning towards "very important".

During our structured interviews, developers gave the following responses regarding this question:

1). Socio-cultural issues which deal with a diversity of population were the least important compared to environmental and aesthetic issues.

2). The success of a community (economically) does not depend on a mix of populations.
Summary of Descriptive Statistics:

Based on the above descriptive statistics, there was a strong indication of heterogeneity (among the entire population) with respect to the importance of incorporating environmental issues and aesthetic issues. These received almost the same means (1.758 for question two and 1.848 for question four) and the highest amount of variance or standard deviation (s=1.786 for question two and s=1.734 for question four) among respondents.

However, the developers responses for questions two and four contained a lower standard deviation compared to the entire population and the designers. The means were 1.636 for both questions two and four with a standard deviation of 0.809 and 0.674 respectively. This indicates more homogeneity among developers in that there was less variability among responses.

When you address the designers responses to questions two and four you see a higher standard deviation compared to the entire population and the developers. The means for questions two and four were 1.818 and 1.909 respectively. The heterogeneous standard deviations were 2.130 for question two and 2.091 for question four.

Based on this information, we received a strong message regarding the importance of incorporating aesthetic and environmental issues within a community. The scores for these two 'ordering systems' inadvertently indicate the lack of concern for socio-cultural issues. This supports the bulk of discussion among design professions today regarding our lack of community closeness.

The results from this study strongly indicate a conflict regarding the inclusion of industry within a community. However, discussions during our interviews, our literature review and case study analysis support this component as essential for the life of a
community. As mentioned previously, this result could be due to the lack of ability to attract this component along with aesthetic misconceptions.

**Correlational studies:**

As you may recall from Chapter Two, the goal of correlational studies is to understand the patterns of relationships among variables. There are no causal claims made in this research. They serve the following purposes:

1. building theories and ideas about constructs—what they consist of and how they relate to other constructs.
2. to enable us to predict one variable from another (or from several variables).

For this study we will focus on Pearson correlational studies. The matrices generated from these Pearson correlation's represent relationships between several pairs of variables simultaneously. This is the most commonly used method in educational or social research (Smith and Glass, 1987). Therefore, we felt this would be appropriate for our study.

**Pearson correlation (Pearson r):**

As you may recall, Pearson correlation's summarize the magnitude and direction of the relationship between two variables. The correlation coefficients can have values ranging from a positive one (+1.0) to a negative one (-1.0). A +1.0 score reflects a perfect direct (positive) relationship. A positive relationship means high scores on one variable are associated with high scores on the other variable. A -1.0 score reflects a perfect inverse (negative) relationship. Negative relationships occur where high scores on the first variable are associated with low scores on the second variable and vice versa (Conner and Morrell,
1977). If a score of zero occurs, this indicates no systematic correlation. Correlational relationships are not meant to imply causal relationships. Based on our 33 respondents, we will break down Pearson correlation results according to the negative and positive relationships for: the whole population, designers, and then developers. We will illustrate our results by using correlation matrices. According to Smith and Glass (1987;206) "In published research, one seldom encounters a report of one bivariate correlation. More often the researcher reports a collection of bivariate relationships between all pairs of several variables in a correlation matrix." Therefore, we used and included correlation matrices when analyzing the following relationships.

**Negative, inverse relationships for whole population:**

The two most notable 'negative', inverse relationships for the whole target population occurred between questions two (Q2) and six (Q6) and then between questions five (Q5) and three (Q3). As you may recall, these questions are as follows:

Q2= "What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the master plan of a community?"

Q6= "What is the likelihood of 'New Urbanism' concepts being successful in a predominately retirement based community?"

Q5= "What is the likelihood of new approaches to design/planning being incorporated over purely economic incentives into the master plan of a community?"

Q3= "What is the importance of incorporating socio-cultural issues (such as identification with indigenous cultures) in the area into the master plan of a community?"

There does not need to be a correlation labeled as high or low for the statistics to be useful. When you are looking at two correlation's "the correlation with the larger value (in absolute terms) indicates the presence of the greater degree of association in that set of data (Korin, 1975;118)."
There is a very moderate, negative inverse relationship or correlation between these two variables in both questions. Therefore, these two negative, inverse relationships between questions two (Q2) and six (Q6) and then between questions five (Q5) and three (Q3) are the most appropriate to single out. For a listing of all negative, inverse relationships please see the Appendix section of this thesis. These are only noted to show the highest 'negative' relationships from these respondents. For a stronger negative relationship, the scores needed to be -0.30 and higher. However, because these were the highest 'negative' relationships for these respondents, we wanted to list them.

The correlational matrix (See Table 5-1) for these two sets of questions is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Q2</th>
<th>Q3</th>
<th>Q5</th>
<th>Q6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q3</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5</td>
<td>-0.139</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6</td>
<td>-0.101</td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

(Table 5-1: Correlation matrix)

Summary of results:
What does this mean?

For question two (Q2) and question six (Q6) the 'Pearson r' score of -0.101 indicates there is a very moderate (towards zero), negative relationship between the "incorporation of environmental issues into a master plan" and "the success of 'New Urbanism' concepts in a retirement based community." This could possibly be explained by criticism the 'New Urbanism' movement has received regarding the lack of attention to environmental issues. However, this could also mean people felt these two were in direct
conflict due to the importance 'New Urbanism' places on social issues (as opposed to environmental).

For question five (Q5) and question three (Q3) the 'Pearson r' score of -0.139 indicates there is a very moderate (towards zero), negative relationship between "new approaches to design/planning being incorporated over purely economic incentives" and the "importance of incorporating socio-cultural issues into a community."

Positive, direct relationships for whole population:

As you may recall, a correlation that is said to be positive means high scores on one variable are associated with high scores on the other variable. If this is the case, then the variables are considered correlated, since the scores covary.

Based on the entire set of correlation's between each question we are considering an approximate range of coefficients between .30 and .40 to be "moderately" related and those above .50 to be strongly related when determining relationships. For a listing of all positive, direct relationships please see the Appendix section of this thesis.

Based on this, there were five positive correlation's worthy of notation for the whole population of respondents. However, these were only correlation's which could be categorized as "moderate". Therefore, there were no "strong" correlation's. As you may recall, by using a correlation matrix we can illustrate results for the five sets of questions. The correlation matrix (See Table 5-2) is as follows:
Summary of results:

What does this mean?

As you may recall, questions eight (Q8) and one (Q1) were:

Q8 = "What is the likelihood of a master plan focusing on pedestrian orientation with limits to automobile access being a successful community?"

Q1 = "What would the likelihood of a mixed-use community located half way between Tucson and Phoenix being a successful project?"

The 'Pearson r' score of 0.299 indicates a positive or "moderate" relationship between the "success of a community located in between Tucson and Phoenix" and the "likelihood of a master plan focusing on pedestrian orientation with limits to the automobile." This illustrates that respondents felt "moderately" that a community located between Tucson and Phoenix could successfully incorporate pedestrian oriented elements. This is not necessarily in conflict with our structured interview results, because developers indicated that residents required ease of movement within a community. This could be
accomplished while also accommodating pedestrian activity. Once again, this supports our case study analysis and literature review.

As you may recall, questions seven (Q7) and two (Q2) were:

Q7= "What is the likelihood of a successful community incorporating light industry within the site?"
Q2= "What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the master plan of a community?"

The 'Pearson r' score 0.336 indicates a positive or "moderate" relationship between the "likelihood of incorporating light industry within a site" and the "incorporation of environmental issues." This indicates respondents felt "moderately" towards between incorporating light industry and environmental issues within a site. This means that the incorporation of light industry and addressing environmental issues should be considered in the master plan of a community between Tucson and Phoenix for a successful community. This is supported by our structured interview results in Chapter Three.

As you may recall, questions four (Q4) and three (Q3) were:

Q4= "What is the importance of incorporating aesthetic issues (such as increased vegetation, view corridors, unique architecture) in the area into the master plan of a community?"
Q3= "What is the importance of socio-cultural issues (such as identification with indigenous cultures) in the area into the master plan of a community?"

The 'Pearson r' score of 0.302 indicates a "moderate", positive relationship between the "incorporation of aesthetic issues" and the "incorporation of socio-cultural issues within the master plan of a community." This means there a "moderate" relationship between incorporating these two issues into a community between Tucson and Phoenix. Aesthetic issues were determined to be very important where socio-cultural issues were of
less importance. However, it is interesting to see that a Pearson correlation determined these two issues should be incorporated together. This is supported by our case study analysis, literature review, and participant observation.

As you may recall, questions eight (Q8) and six (Q6) were:

Q8= "What is the likelihood of a master plan focusing on pedestrian orientation with limits to automobile access being a successful community?"

Q6= "What is the likelihood of 'New Urbanism' concepts being successful in a predominately retirement based community?"

The 'Pearson r' score of 0.414 indicates a "moderate", positive relationship between the "incorporation of 'New Urbanism' principles within a predominately retirement based community" and "a purely pedestrian oriented community." This indicates there is a relationship between incorporating these two elements within a community. This is supported by our structured interview results that indicated walking trails and open spaces to be among the most popular elements within a community in the southwest. This is also supported by our case study analysis and literature review which indicated pedestrian orientation was a main goal for 'New Urbanism'.

As you may recall, questions nine (Q9) and question one (Q1) were:

Q9= "How important is the mix of populations within a community (different ages, different socio-economic levels, etc)?"

Q1= "What would the likelihood of a mixed-use community located half way between Tucson and Phoenix being a successful project?"

The 'Pearson r' score of 0.410 indicates a "moderate", positive relationship between the "likelihood of a successful community located between Tucson and Phoenix" and "a mix of populations within a community." This indicates that the issues of including
a mix of populations in a community between Tucson and Phoenix should be addressed within the master plan. This is a "moderate" relationship, however, which indicates that even though it is positive, it is not an absolute. This is supported by our structured interview results. However, this is in direct conflict with 'New Urbanism' principles.

We should reiterate that each of the above relationships were "moderate". Based on the above information, we tried to be sensitive to the fact that these were not "strong" relationships. However, these were the highest positive correlation scores within the whole population. Therefore, we wanted to report these results.

**Negative, inverse relationships for designers:**

When we separated out the responses of the designers (from the whole population) we noticed similarities of negative, inverse relationships between the designers and the population as a whole. The designers, just like the whole respondent population, also had negative, inverse relationships between question six (Q6) and two (Q2) and then question five (Q5) and three (Q3).

However, there were four more correlation's which should be noted based on their 'Pearson r' scores in results from designers only. These are only noted to show the highest 'negative' relationships from these respondents. For a stronger negative relationship, the scores needed to be -.30 and higher. However, because these were the highest 'negative' relationships for these respondents, we wanted to list them. Therefore, we will not include descriptions for these. For a listing of all negative relationships for designers, please see the Appendix of this thesis. The correlation matrix (See Table 5-3) is as follows:
### Summary of results:

What does this mean?

For questions five (Q5) and question one (Q1) the 'Pearson r' score of -0.254 indicates there is a very moderate (towards zero), negative relationship between "new approaches to design/planning being incorporated over purely economic incentives" and the "success of a community located between Tucson and Phoenix." This was the strongest "low" relationship among designer responses. This basically indicates there are no "strong" negative aspects between these two issues.

For question four (Q4) and question two (Q2) the 'Pearson r' score of -0.160 indicates a very moderate (towards zero), negative relationship between "incorporating aesthetic issues and environmental issues within the community." However, this is in direct conflict with other sources of data we used for this study. For instance, we received information from our structured interviews that revealed aesthetic and environmental issues were both important. However, the structured interview respondents discussed the

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<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q7</th>
<th>Q9</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td></td>
<td>1.00</td>
<td>-0.159</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>-0.160</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Q5</td>
<td>-0.254</td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q9</td>
<td>-0.252</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

(Table 5-3: Correlation Matrix)
aesthetic issues more. The importance of both of these issues has been further supported by our case study analysis results and literature review.

For question seven (Q7) and question (Q3) the 'Pearson r' score of -0.159 represents a very moderate (towards zero), negative relationship between "incorporating light industry within a community" and "addressing socio-cultural issues within a community."

For question nine (Q9) and question three (Q3) the 'Pearson r' score of -0.252 indicates a very moderate (towards zero), negative relationship between "incorporating a mix of populations within a community" and "addressing socio-cultural issues." This could be explained by many developers responding negatively to having a mix in populations (instead of solely retirees) which would mean that socio-cultural issues would not be affected by this mix.

Positive, direct relationships for designers:

When we separated out the responses of the designers (from the whole population) we noticed similarities between designers and developers regarding positive, direct relationships. Both the designers and developers responded positively to the following questions: question eight (Q8) and one (Q1), question seven (Q7) and two (Q2), and question eight (Q8) and six (Q6).

As you may recall, these questions were:

Q8= "What is the likelihood of a master plan focusing on pedestrian orientation with limits to automobile access being a successful community?"

Q1= "What would the likelihood of a mixed-use community located half way between Tucson and Phoenix being a successful project?"

Q7= "What is the likelihood of a successful community incorporating light industry within the site?"
Q2= "What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the master plan of a community?"

Q6= "What is the likelihood of 'New Urbanism' concepts being successful in a predominately retirement based community?"

However, there are two additional correlation's provided by the designers that represented positive, direct relationships. For a listing of all positive relationships for designers, please see the Appendix section of this thesis. The correlation matrix (See Table 5-4) is as follows:

Table 5-4: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Q2</th>
<th>Q4</th>
<th>Q5</th>
<th>Q9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4</td>
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<td>1.00</td>
<td>0.372</td>
<td></td>
</tr>
<tr>
<td>Q5</td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Q9</td>
<td>0.463</td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Summary of results:
What does this mean?

As you may recall, questions nine (Q9) and question two (Q2) were:

Q2= "What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the master plan of a community?"

Q9= "How important is the mix of populations within a community (different ages, different socio-economic levels, etc)?"

The 'Pearson r' score of 0.463 indicates there is a "moderate to strong", positive or direct relationship between "incorporating a mix of populations" and "addressing environmental issues within communities." This indicates that a mix of populations within
a community and addressing environmental issues should be considered together. This is supported by statements made in the case study analysis, specifically Civano, Arizona and Davis, California. However, structured interview results do not support this relationship given the reduced attention to a mix of population.

As you may recall, questions five (Q5) and four (Q4) were:

Q5 = "What is the likelihood of new approaches to design/planning being incorporated over purely economic incentives into the master plan of a community?"

Q4 = "What is the importance of incorporating aesthetic issues (such as increased vegetation, view corridors, unique architecture) in the area into the master plan of a community?"

The 'Pearson r' score of 0.372 indicates there is a "moderate", positive relationship between "incorporating new approaches to design/planning over purely economic incentives" and "addressing aesthetic issues within communities." This indicates that aesthetic issues should be considered along with new approaches to design and planning for a community between Tucson and Phoenix. This is supported by our case study analysis, literature review and participant observation results.

**Negative, inverse relationships for developers:**

When we separated out the responses of the developers (from the whole population) we noticed, unlike the designers and the whole population, no similarities of negative, inverse relationships between the developers and the population as a whole existed. There were no similar negative inverse relationships among all three groups.

However, for the developers only, there were two sets of questions that emerged as having negative, inverse relationships. Similar to the results of the whole population and designers, these are only noted to show the highest 'negative' relationships from these
respondents. For a stronger negative relationship, the scores needed to be -.30 and higher. However, we wanted to list them to be comprehensive in our statistical approach. For a listing of all negative inverse relationships for developers, please see the Appendix of this thesis. The following correlational matrix (See Table 5-5) for these questions is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q7</th>
<th>Q9</th>
</tr>
</thead>
<tbody>
<tr>
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<td>---</td>
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<tr>
<td>Q7</td>
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<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Q9</td>
<td>---</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

(Table 5-5: Correlation Matrix)

Summary of results:
What does this mean?

For the question seven (Q7) and question one (Q1) the 'Pearson r' score of -0.129 indicates a very moderate negative, inverse relationship between the "success of a community located between Tucson and Phoenix" and the "incorporation of light industry within the community." Similar to results from descriptive statistics, this does not support information we received from our structured interviews or our case study analysis. During these studies the combination of industry and a successful community was highly encouraged. However, this could be explained by negative perceptions people have of 'industry'. Those respondents not given the opportunity to expand their thoughts on the varieties of "industry" might have reacted negatively to this at first.

For question nine (Q9) and question one (Q1) the 'Pearson r' score of -0.128 indicates a very moderate, negative, inverse relationship between "incorporating a mix of populations" and the "success of a community located between Tucson and Phoenix." These results are supported by information we received from our structured interviews.
These interview results supported limiting the population to just retirees for a community located between Tucson and Phoenix. However, this was not the recommendation from our case study analysis and literature review.

**Positive, direct relationships for developers:**

When we separated out the responses of the developers (from the whole population) we noticed fifteen (15) positive, direct relationships from responses. This represented the highest number of positive, direct relationships among all response groups. Due to this strong relationship, we will further demonstrate this relationship by showing scatterplots for each correlation. This enhances the meaning of the correlation coefficient (Hopkins, 1978 and Kaplan, 1966). These 'Pearson r' scores ranged from 0.306 to 0.738. For the purpose of this discussion we will only outline those scores above 0.600 which, as you may recall, represents a "strong" correlation. A detailed listing of these correlation's can be seen in the Appendix section of this thesis.

The correlation matrix (See Table 5-6) for the five correlation's with the highest or 'strongest' relationships is as follows:

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<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q6</th>
<th>Q8</th>
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<td>Q1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2</td>
<td>0.622</td>
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<td>0.657</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>0.738</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Q4</td>
<td></td>
<td>---</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6</td>
<td>1.00</td>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q8</td>
<td>0.620</td>
<td>1.00</td>
<td>0.618</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q9</td>
<td></td>
<td>---</td>
<td>1.00</td>
<td></td>
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</tr>
</tbody>
</table>

(Table 5-6: Correlation Matrix)
Summary and results:
What does this mean?

For question one (Q1) and question three (Q3) the 'Pearson r' score of 0.622 indicates a "strong" positive relationship between the "success of a community located between Tucson and Phoenix" and the "incorporation of socio-cultural issues into the site." This is supported by 'New Urbanism' theories and our case study analysis. See the scatterplot illustration showing this linear relationship (See Figure: 5-1). Scatterplots that illustrate a linear relationship indicate a "positive, linear, and quite strong relationship between two variables (Smith and Glass, 1987;200)."

For question nine (Q9) and question two (Q2) the 'Pearson r' score of 0.738 indicates a "very strong" positive relationship between the "importance of having a mix of populations within a community" and "incorporating environmental issues in a community." This was the highest correlational score among developer responses. See the scatterplot illustration showing this linear relationship (Figure: 5-2).
For question four (Q4) and question three (Q3) the 'Pearson r' score of 0.657 indicates a "strong", positive relationship between "incorporating aesthetic issues" and "socio-cultural issues within a community". This is supported by case study analysis and numerous 'New Urbanism' principles discussed earlier in our literature review chapter. However, there was a distinction between the means of each of these issues with aesthetic issues having more positive results (mean=1.848, s=1.734). See the scatterplot illustration showing this linear relationship (Figure: 5-3).
For question nine (Q9) and question eight (Q8) the 'Pearson r' score of 0.618 indicates a "strong" relationship between "incorporating a mix of populations" with a "predominately pedestrian oriented community". This is directly supported by case study analysis and a literature review of 'New Urbanism'. See the scatterplot illustration showing this linear relationship (Figure: 5-4).

(Figure 5-4: Scatterplot for question eight and nine)

For question eight (Q8) and question six (Q6) the 'Pearson r' score of 0.620 represents a "strong", positive, relationship between "designing a predominately pedestrian oriented community" and the "likelihood of 'New Urbanism' principles being incorporated into a predominately retirement based community." This is supported by case study analysis and the fact that 'New Urbanist' communities encourage a strong pedestrian component. See the scatterplot illustration showing this linear relationship (Figure: 5-5).
Summary of correlation's:

As you have seen, the population as a whole contained two negative, "moderate" inverse relationships and five "moderate" correlation's.

The designers had strong similarities to the results of the population as a whole with both negative and positive correlation's.

However, the strongest correlation's were seen among the positive, direct relationships generated by the developers. These were further supported by the scatterplots. These correlation's are as follows:

• 1). The success of a community located between Tucson and Phoenix and the inclusion of socio-cultural factors. The reason for this correlation could be developers and designers beginning to understand the importance of planning for social interaction among residents. Within Chapter One we demonstrated the need for future communities to address socio-cultural factors. These issues were largely neglected during the post World War II era and the reign of the automobile (which continues today).
• 2). The mix of populations within a community and the inclusion of environmental issues. From a preliminary standpoint, these two issues do not seem to have a very strong correlation. However, this could be due to the fact that the means for each of these issues were similar and were located in near the "essential to very important" response category. These indicates they should be addressed within the master plan for the community.

• 3). The incorporation of aesthetic issues and socio-cultural issues within a community. This correlation indicates that both aesthetic and socio-cultural issues were important to address/include within a community. This is supported by our literature review, case study analysis, and participant observation. Whereas, socio-cultural issues received a 'lower' mean score, this correlation indicates that respondents felt it was as important as aesthetic issues.

• 4). The mix of populations within a community and the design for a pedestrian oriented community. This indicates that a diverse population should include pedestrian oriented opportunities. This could be due to the fact that planning for pedestrian orientation is considered to be a new, speculative project. Likewise, including a mix of populations within a community has not been done during post World War II communities. However, this could also indicate the popularity of walking among the retiree population. This analysis takes into account the large retirement population in the southwest.

• 5). The design of a pedestrian oriented community and the likelihood of "New Urbanism" principles being incorporated into a predominately retirement based community. This is clearly related due to the importance "New Urbanism" places on pedestrian oriented designs. As mentioned in the previous statement, this is supported by the fact that within the southwest, one of the most important elements for the retiree market is access to walking trails and open spaces.
CHAPTER 6: TABLE OF CONTENTS

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Summary of need and process:

As you may recall, in Chapter One we established the need for present and future communities to address problems caused by post World War II designs within the United States. If urban 'sprawl' continues to occur within the southwest, as it is occurring in other parts of the country, then our communities failed to learn from past mistakes and will be faced few alternatives. Therefore, the need exists to address the following design/planning ordering system issues:

Socio-cultural Issues—There is a clear division (spatially & culturally) among people living in communities today. There are few communities with a mix of populations (racial, class, and age). Within our homogenous communities, little opportunity exists for socialization. Besides lacking a variety of residents, the design of our communities does not lend itself to simple interaction among people (Katz, 1994).

Functional Issues—There are functional problems caused by sprawl and the dominance of the automobile in post World War II communities. This produces difficulty in walking and reduced socialization, as mentioned above. The location and function of streets produces congestion and communities dependent upon the car (Kostof, 1987).

Aesthetic Issues—There is little aesthetic appeal within newer communities built since World War II. They are characterized by strip mall developments, and 'cookie cutter' architecture (Katz, 1994).

Environmental Issues—These have been largely overlooked in the past with pollution and land/water degradation. Sustainable relationships/guidelines need to be explored fully (Ormsbee, 1994).
Economic Issues—The post World War II communities have overlooked the previously mentioned issues in search of pure economic gain. In addition, the design of today's communities adds expense to the consumers budget due to long commutes and rising property prices (Langdon, 1994).

These statements, outlined in Chapter One are the basis and 'watermark' for our research. Through our research methods (literature review, structured interviews, non-participant observation, case study analysis, and surveys/questionnaires) we were able to distill information/comments to form a series of design/planning guidelines for the southwest. As previously mentioned, our research used a design problem, 'Picacho Pecan Village' as a 'testing site' in order to:

1). obtain information by providing an example project in the southwest
2). test theories/comments received during our process

The guidelines to follow are a result of the research conducted for this thesis. Based on this process we were able to distill the following guidelines.

Lessons Learned:

During this summary we will discuss what we learned from our sources. At the end of the outlined items a notation has been made indicating which sources gave us the information. This is an attempt to illustrate our triangulation of data. We used several sources to try and gain as much ('cross checked') information as possible. As you will see, there are some guidelines that we obtained from multiple sources and some from individual sources.
The following sections constitute the guidelines we obtained and are organized by the 'design/planning ordering systems'.

**Socio-Cultural Issues:**

1). There is a relationship between the success of a community located between Tucson and Phoenix and a community that addresses socio-cultural issues. We learned statistically that, in fact, respondents felt these issues (such as providing opportunities for social interactions) were important to the success of a southwestern community. This is supported by 'New Urbanism' and the early 'City Beautiful Movement and Garden City Movement' designs which strongly support socio-cultural issues. However, we noticed that socio-cultural issues were not given as much attention as aesthetic, functional and economic issues. Which makes a stronger point to address them within a design. We learned from some respondents that these issues were one portion of the design and should not be solely relied on for the life of the community. Based on all of our sources, we conclude these issues are important and should be addressed within the design. (Questionnaires, Structured Interviews, Literature Review and Case Studies).

3). Mix of populations: Based on large populations of retirees in the southwest, initial phases of a new town between Tucson and Phoenix should be composed predominately retirees. The master plan must include recreation and commercial activity to encourage and develop a social atmosphere. Many retirees located in 'planned communities' in the southwest prefer age group separation. However, this does not represent the whole group. The integration of retirees into a mixed use community is challenging. We learned that it was possible to integrate, but the community must provide the option of a separate neighborhood or community for an age restricted population. Considering this argument,
the success of a community is not based on the mix of populations, if the community is predominately retirement based which would be appropriate in the southwest. (Obtained from Participant Observation and Structured Interviews).

However, based on literature review results and case study analysis, we feel strongly that our lack of social cohesion is a result of our lack of diversity (age and race) within communities. Reston, Virginia was an example of a town that (in its initial stages) was attractive to people due to its variety of housing types for different income levels. We also see culturally popular places (due to the mix of populations) within areas such as Coventry and Shaker Heights in Cleveland, Ohio; the French Quarter in New Orleans, Louisiana; the southside of Birmingham, Alabama; and Dupont Circle in Washington, D.C. This issue is more of a comment on social/class/race cohesion as a whole today which is out of the scope of this thesis. However, it is clear that if there are no attempts to provide alternative options (within our designs) for a mix of people then we cannot expect to ameliorate our racial problems (Obtained from Literature Review and Case Studies).

4). Housing: Keeping our discussion on mix of populations in mind, there should be a mix and diversity of housing types including different prices and sizes including medium and high density lots (RV's, apartments, townhomes, condominiums, ranchettes, patio homes, single family housing). This should include affordable housing or even cohousing communities such as we saw in Davis, California (Obtained from Participant Observation, Structured Interviews, Case Studies and Literature Review).

5). Create social opportunities: Social cores, gathering places, should be incorporated within communities. There should be nodes of park spaces, commercial outdoor plaza areas, recreation areas (formally and informally). Places for people to meet, talk, play, and
entertain one another. These should be easily accessible and open to everyone in the community. (Obtained from Structured Interviews, Literature Review and Case Studies).

6). Provide an educational component within the community (while keeping your target population in mind). This could be a small elementary school. We learned that people felt passive recreation areas for children were appealing in promoting a social atmosphere for a community. (Obtained from Participant Observation and Case Studies)

7). There is a strong correlation between aesthetics and socio-cultural issues. This was determined statistically which supports the notion that they should be used together within a community in the southwest. This translates to providing opportunities for social interaction in pleasant, visually pleasing environments. (We will discuss aesthetic issues separately in the next section) (Obtained from Questionnaires, Literature Review, Case Studies and Participant Observation).

8). The clustering of buildings (with minimum set backs) joining public and private zones will encourage social interaction and neighborhood activity (Obtained from Case Studies, Literature Review, and Participant Observation).

9). There should be public involvement in the planning process. Communities that have had a successful planning process included the public in their ideas and decisions. This was evident in both Reston, Virginia and Civano, Arizona. This adds a more comprehensive approach to the design of a community and includes the people it directly affects (Obtained from Case Studies, Literature Review and Structured Interviews).
10). There should be an incorporation of volunteer activities within a master planned community in the southwest (especially retirees). This would add social opportunities and the fostering of goodwill among neighbors. We saw this most notably within our research of 'conventional' neighborhoods during our structured interviews. (Obtained from Case Studies and Structured Interviews).

11). A response to local (regional) cultural heritage should be incorporated into the community. This includes preserving historic sites and cultural traditions. This could include cultural art aspects (dance, music, arts/crafts) and educational components (Obtained from Case Studies, Participant Observation, Structured Interviews and Literature Review).

12). Phasing should be addressed within this community (as mentioned previously retirees should be in the first phase). However, phasing should be addressed to control the growth rate and to encourage compact development. (Obtained from Participant Observation, Case Studies and Structured Interviews).

13). We believe in creating social opportunities and responding to the regional culture. However, you cannot place too many restrictions on people living within communities. This is dealing with the specifics of private property (i.e. restricted use of private spaces, and lack of choice regarding architectural and landscape elements) 'You cannot socialize the market or play social engineers'. This is especially true for the retiree population within the southwest. We learned that some of the 'New Urbanism' community residents are not happy with restrictions placed on use of interiors of homes and private yards. Therefore,
special attention needs to be placed on this issue (Obtained from Case Studies, Structured Interviews and Participant Observation).

**Aesthetic Issues:**

1. As mentioned previously, aesthetic and socio-cultural issues go hand in hand within communities. In addition, we learned of a strong correlation between environmental issues and aesthetic issues. This means that the treatment of environmental and aesthetic issues together are important for a southwestern community. (Obtained from Questionnaires, Literature Review, Case Studies, Structured Interviews and Participant Observation).

2. An industrial component (which was determined to be important within a community located between Tucson and Phoenix) must be treated with special aesthetic attention to alleviate some negative connotations from the Industrial Revolution. These perceptions were due to sterile architecture, environmental harms, and the encouragement of 'sprawl' by locating industry along the edges of cities. The word industry has bad connotations which could be alleviated with the right aesthetic treatment. The architecture and landscape architecture should blend with the overall character of the community instead of isolating itself as a 'dirty work place' (Obtained from Structured Interviews, Case Studies and Literature Review).

3. Aesthetic issues were considered “very important to essential” within our questionnaire’s and structured interviews. The appearance and 'feel' of a community is important to its users. It affects people's outlook and perceptions on life. The specific affects of aesthetics on people's perceptions are out of the scope of this thesis. However, it is clear that aesthetically pleasing environment is a positive element in a community
4). Vernacular Styles: There must be distinct architecture with a vernacular style of the region. This transcends into the landscape architectural style as well. This includes particular attention placed on the selection of materials (plant and building) of the Sonoran region (southwest). This also includes the selection of colors for the community. These issues respond to 1900 and 1920's traditional communities that have proven to be popular by its residents (Obtained from Structured Interviews, Literature Review, Case Studies and Participant Observation).

5). There should be a 'sense of place' or character within the community to make it distinctive and one that provides pleasant places for people to live, work, and play (Obtained from Literature Review, Case Studies, Participant Observation and Structured Interviews).

6). Special attention needs to be paid to the 'little things' within a community such as porches, overhangs, window treatments, shade trees, and topography. There should be an emphasis on protecting views and vistas especially in association with natural areas (Obtained from Case Studies, Structured Interviews, Literature Review and Participant Observation).

7). Streets: There should be a variety of street types and experiences with an emphasis on views and vistas. There should be a series of linking roads from every direction. This should include pedestrian routes. The streets should not be limited to grid designs but
should employ some curvilinear designs with cul-de-sacs for private access (Obtained from Literature Review, Case Studies, Structured Interviews).

8). The existing vegetation, like the trees between Tucson and Phoenix should be considered within the design. However, your plan should not be entirely dependent on these (Obtained from Case Studies and Participant Observation).

9). There could be multiple aesthetic uses for water. However, given the southwestern location, the use of water as an aesthetic element should be severely limited. The aesthetic uses of water should be backed up with environmental uses (which we will address later in this chapter) (Obtained from Structured Interviews, Case Studies and Participant Observation).

10). The designers and community should decide what types of stores (like ‘mom and pop’ stores vs. large retail stores) and real estate establishments should be included within a community. Addressing this issue and approaching it comprehensively, would preserve a cohesive community feeling. This corresponds with the treatment of industry within the site (Obtained from Participant Observation, Case Studies and Literature Review).

11). Recreational elements have been proven to be one of the most important elements within a community in the southwest. The aesthetic treatment and focus on these elements is important in order to attract users to the features (which in turn affects socio-cultural and economic issues as well) (Obtained from Structured Interviews, Participant Observation and Case Studies).
12). Encourage public open spaces and greenbelts to occur within the community. This should include a pedestrian/bicycle trail system with parks playgrounds, and golf along the edges. However, golf should not be interfered with by multiple uses (i.e. children playing in sand traps). At times, buildings should be clustered around these elements for aesthetic benefits (Obtained from Case Studies, Participant Observation, Structured Interviews and Questionnaires).

**Functional Issues:**

1). Security is very important within a community located between Tucson and Phoenix (along the highway). Residents must feel at ease when they are at home. Otherwise you will not attract residents. There should be no feeling of isolation or lack of civic support. Solutions to this problem included: security guard entrances at certain areas, sufficient lighting, and placement of activity areas within the community. (Obtained from Participant Observation, Structured Interviews and Literature Review).

2). Functional issues also transcend into the design of a pedestrian oriented community. It was determined from our questionnaire/survey analysis that a mix of populations and a design for a pedestrian oriented community were related. The layout of the pedestrian areas should correspond at times with the existing streets, connect to and compliment natural open spaces, and should be easily accessible by all residents. It should vary in widths and provide a multitude of experiences (topography, views/vistas, challenge). The 1/4 mile rule illustrated in the 'New Urbanism' principles would promote easy walking distances and access to community features (commercial and civic) (Obtained from Questionnaires and Structured interviews).
3). The design of a pedestrian oriented community and the likelihood of a ‘New Urbanism’ focused community between Tucson and Phoenix are related. This is supported by walking trails and open spaces being very important to the retirement population in the southwest. There should be some areas devoted to pedestrian traffic only (Obtained from Structured Interviews, Questionnaires and Case Studies).

4). We acknowledge the importance of including pedestrian focused areas within a community. However, pedestrian orientation cannot supersede the ease of movement needed for motorists. Pedestrian orientation received negative results from structured interviews and questionnaires and positive results from case study and literature review. Possible Solution: Design transit alternatives for people. Include a clustering of buildings with safety regulations (Obtained from Structured Interviews, Questionnaires, Case Studies and Literature Review).

5). Residents should have easy access to commercial and retail establishments. Some ‘New Urbanism’ principles addressed having some commercial units at the edges of the community for ease. This does not mean, however, we are advocating linear strip shopping. Minimal edge developments should be clustered as well. Parking should be accessible for residents (Obtained from Literature Review, Case Studies and Structured Interviews).

6). Alternative transportation systems: The automobile should not rule the community. There should be an alternative traffic system(s) that are pleasant and easily accessible for all residents. They should adhere to the overall feeling of the community and address the
other design/planning issues (aesthetic, socio-cultural, economic and environmental). There should be options for residents to travel via public transportation, walking, or bicycling. This will provide a more pleasant atmosphere and an opportunity for social interaction (Obtained from Literature Review, Case Studies and Participant Observation).

7) The placement of commercial, housing, employment, parks, and civic buildings should be within easy walking and bicycling distances of the alternative transit system. This would help encourage people to not solely rely on the automobile for all transportation needs (Obtained from Case Studies, Literature Review and Participant Observation).

8) There should be detailed zoning/architecture/streets/landscape codes to ensure uniformity and cohesive design. These codes would produce a concrete order to the community. This does not mean that every house or commercial entity look the same. There should be distinct variations within the designs (Obtained from Case Studies and Literature Review).

9) District neighborhood clusters should contain a mix of densities devoted to open space with village centers and a network of trails for social interaction. There should be individual neighborhoods relying on the 1/4 mile allowable distance from the center of the neighborhood to the edge (Obtained from Case Studies, Literature Review, Participant Observation and Structured Interviews).

10) The community and civic areas should be decentralized and seen throughout the community. However, this does not mean they need to consume unnecessary amounts of
land. This means they should be functionally accessible to people within the community (Obtained from Participant Observation).

11). Phasing and Infrastructure: The most expensive infrastructure costs should not be in the first phases of the development. However, adequate basic infrastructure (water, lighting, sewer, roads, etc.) is a necessity for residents (Obtained from Structured Interviews)

12). Streets: The overall layout of circulation for automobiles should be convenient. Streets and directions should be easily understood by the user. There should be signage (aesthetically pleasing) directing traffic with clear designation of streets. The streets should be a combination of curvilinear and grid designs responding to views and 'experience' for the traveler. If alleys are incorporated within a design they should be used for 'active' spaces and not 'passive' spaces. They should not be included within retiree designated neighborhoods. Cul-de-sac's should be incorporated into the master plan, but contain an option for the pedestrian or bicyclist to pass through to connecting streets or parkways (Obtained from Structured Interviews, Participant Observation, Literature Review and Case Studies).

**Economic Issues:**

1). A southwest community (located between Tucson and Phoenix) incorporating an industrial component would be successful. This was continually supported throughout our research. However, there were more positive comments by developers than designers. This lends itself to the notion that its placement and aesthetic presentation must be handled
correctly (see aesthetic issues discussion). It was indicated that it would be difficult to entice industry to this area, but that it would be a tremendous plus to the community. We saw examples of this working within several of our 'New Urbanism' case studies (Obtained from Case Studies, Questionnaires, Structured Interviews, Participant Observation and Literature Review).

2). For a satellite community located between Tucson and Phoenix, the houses must be priced lower for marketability. $90,000.00 to $140,000.00. This is supported by our literature review and case study analysis of 'conventional' and 'New Urbanism' communities where the homes were priced too high which resulted in exclusivity or failure (a criticism of New Urbanism and developers). We were told during our structured interviews that 'if the commute is longer, then you should price your homes a little cheaper'. However, you should include an option for higher priced homes for a mix and diversity of housing (Obtained from Structured Interviews, Case Studies and Literature Review).

3). Recreational components are among the most important for economic success and are supported by the desire for open space and need for social opportunities. This includes having a golf course, tennis facilities, organized sports, and walking and bicycling trails. Amenities (recreation and commercial) are very important in the southwest (especially with retirees). (Obtained from Literature Review, Case Studies, Structured Interviews and Questionnaires).

4). We learned from our structured interviews and surveys/questionnaires that new approaches such as the 'New Urbanism' are not likely to be done unless proven to be
economically successful. Therefore, if 'New Urbanism' is to make strides it must have all of its principles within a community and prove its successful over time (Even though a desire for these new principles exists) (Obtained from Questionnaires, Literature Review and Structured Interviews).

5). You must incorporate employment opportunities with a community including: commercial, civic, retail (if you want to attract mixed populations). There should be a significant commercial component to attract people driving along the interstate (between Tucson and Phoenix) (Obtained from Case Studies and Structured Interviews).

6). More expensive housing should be placed away from freeway locations or major streets. This includes lower density housing (Obtained from Participant Observation and Structured Interviews).

7). Affordable housing should be provided at high visible places (to increase revenues). This could include high density housing and RV's. RV's are popular within the southwest. However, their aesthetic treatment should be a priority. This mix of housing (prices and sizes) would provide additional options for potential residents and produce a rich diversity of people as well (Obtained from Participant Observation, Case Studies and Literature Review).

8). There should be a plan for the economic basis to support and encourage sustainable development. Alternative solutions (innovative entrepreneurship and fund raising) should be a component within the community (Structured Interviews and Literature Review).
9). Providing short term accommodations (small resort, bed and breakfast inns, etc) for travelers in the area could contribute to the economy (Participant Observation, Literature Review and Case Studies).

10). Revenues/profits from tourism or commercial/civic activities should be reinvested into the local community (Obtained from Literature Review, Case Studies and Structured Interviews).

11). The use of open spaces will entice residents and add to the overall appeal of the community. However, the amount of open space should not 'get out of hand'. The use of open spaces should be limited due to expense even though it is a wise investment at a certain level (Obtained from Participant Observation and Structured Interviews).

Environmental Issues:

**We noticed throughout our process that environmental issues were addressed with the least amount of intensity by each research method we used. This was not intentional on the part of the researcher. We concede that sustainable development is a worthwhile and important element which should be addressed in detail in subsequent studies.**

1). Sustainable development (even though the details are out of the scope of this thesis) is a viable alternative and appropriate for the conditions of the southwest (Obtained from Structured Interviews, Participant Observation and Case Studies).
2). The inclusion of a mix of populations and environmental issues was considered important. Environmental and Aesthetic issues are considered to be "essential/important." There was a strong indication of this in our questionnaires/surveys (Obtained from Questionnaires).

3). Designers and Developers are being told by consumers that they want more natural open spaces. This was not specifically broken down into spaces for wildlife or sustainable practices (Obtained from Structured Interviews and Questionnaires).

4). Most of the feedback we received from our structured interviews indicated that environmental issues are important for simple public relations reasons instead of sustainability (Obtained from Structured Interviews).

5). The highest correlation occurred between incorporating a mix of populations and environmental issues. This indicates that the majority of our questionnaire respondents felt these issues go hand in hand (Obtained from Questionnaires).

6). The community should focus on environmental sustainability while paying special attention to climate. Use architectural codes to produce a response to winds, ventilation, cooling. This includes siting buildings to maximize southern and northern exposures for natural breezes (Obtained from Case Studies, Literature Review and Structured Interviews).

7). There should be a clustering of buildings to reduce land use as well as infrastructure costs (Obtained from Case Studies, Literature Review and Participant Observation).
8). Vernacular landscape elements: Agricultural fields (responding to the region) should be incorporated into the design of the community. This could include open spaces for educational uses as well (Obtained from Case Studies and Participant Observation).

9). Natural drainage systems (detention/retention basins) should be included into a southwestern community. This would provide alternative trail systems (when not in use) as well as water harvesting opportunities (Obtained from Participant Observation).

10). Sensitive habitat and riparian areas should be preserved on a large scale (Obtained from Structured Interviews, Participant Observation and Case Studies).

11). Water issues in the southwest are very sensitive (due to the shortage of rainfall) and should be addressed with responsible conservation. In the same respect, responsible, low water use plants should be incorporated within designs wherever possible. Effluent water should be used for all landscape applications. What was once an important aesthetic component, could not backfire for a developer or community (Obtained from Structured Interviews, Participant Observation and Case Studies).

12). A waste water treatment facility should be incorporated into the community for functional and environmental reasons (to produce water at a reasonable price) (Obtained from Participant Observation).
‘New Urbanism’ Issues:

Our exploration of 'New Urbanism' principles proved to be important when addressing communities of the southwest. The aesthetic and socio-cultural components were among the most applicable. This is because 'New Urbanism' pays particular attention to these issues. The following are a list of conclusions we have drawn based on our research.

1). The 'New Urbanism' movement needs to be proven through the construction of more communities before it will be used more frequently. These communities must include all (if not a majority) of the elements the movement claims to be important in their design (such as transit and the incorporation of light industry).

2). The concepts of this movement are considered theoretically positive and have received a lot of attention for providing possible solutions to the age old problem of producing the 'perfect all around community'. It has provided an avenue for discussion and debate which would have otherwise not occurred. Therefore, this movement will contribute to bringing issues to the forefront in our next search for a durable set of guidelines or principles.

3). A designer should pick and choose worthy elements of ‘New Urbanism’. The entire principles of the movement should be examined regarding its applicability to individual situations. All principles are not relevant or usable (i.e. only grid streets or overly strict social codes).

4). The use of only gridded streets does not produce the most enjoyable streets in every occasion. Gridded streets have merit if they are based on views or response to the
topography. There should be a combination of grid and curvilinear streets for the most enjoyable experience. Apply 'New Urbanism' principles in a looser form.

5). You cannot place too many strict controls/guidelines on the way people deal with their 'own property' (i.e. Celebration, Florida). The only situation in which this would work would be if the residents understood these guidelines and agreed with them from the beginning (such as cohousing communities).

8). There are negative connotations in real estate towards 'New Urbanism'. This is supported by the reluctance of today's developers to construct entire communities based on all of the 'New Urbanism' principles. We learned this during our structured interviews and literature reviews. This reluctance and the negative connotations need to be addressed through education and proven examples if we are to learn from this movement. We also noticed in our structured interviews that some people (designers and developers) did not know about this movement. This could, once again, be a reason for education.

10). 'New Urbanism' has positive aesthetic aspects such as incorporating vernacular architecture and elements such as porches, windows, paths, views, open spaces, and the clustering of buildings.

**Closing comments:**

The guidelines and issues addressed as a part of this thesis have been done so in hopes of providing preliminary insight into some of the problems/needs of present and future southwestern communities. The author does not contend that these can be generalized to a much larger population, but hopes they can be expanded upon in future
research projects. While writing this thesis, the author noticed the need for additional research regarding issues such as: cultural mixes of populations, the design of streets, environmental issues in functioning communities, and expanded debate surrounding the 'New Urbanism' movement. Throughout our research, we came in contact with both insightful and helpful literature, case studies, professionals and peers. Without these comprehensive and multiple sources this analysis and distillation of guidelines would not have been possible.

"In ways we use what is designed and built, in the demands we make and the changes we bring about, we are all designers of America. On all of us falls the blame for what is ugly in our surroundings, what is inhumane and derelict. To all of us belongs the credit for the beauty we fashion and the love, the excitement, the grace we allow it to contain (Kostof, 1987:203)."
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CHAPTER: 7
DESIGN PROBLEM

Introduction:
The design and planning guidelines developed as a result of our research were applied to a design problem known as Picacho Pecan Village. This was to determine and demonstrate their possible worth.

How did we do this? First, we included a brief background discussion regarding the subject property. Secondly, we have included the conceptual design for the master plan, final master plan design, image boards illustrating process, and perspective drawings. These illustrate our application of the design/planning guidelines on the subject property.

Site Location and Ownership

The subject property, Picacho Pecan Village, for this thesis makes up a total of 1513.17 acres which includes 370.75 acres of state leased land (Figure 7-1). It is located adjacent to and west of the community of Picacho, Arizona in Township 8 South, Range 8 East, Sections 9, 15, 16, 22, 27, and 34. Interstate 10 bisects the property and serves as a major link between El Paso, Tucson, Phoenix, and Los Angeles. The property is approximately twelve miles southeast of Casa Grande, 45 miles northwest of Tucson, and approximately 65 miles south of Phoenix. Picacho Pecans is also located in south central Pinal County, Arizona and the lower Santa Cruz River Valley. Casa Grande is the largest city in Pinal County and Tucson is the largest metropolitan area in southern Arizona (Arizona Department of Commerce, 1996).
(Figure 7-1: Site map for Picacho Pecans Village; Abbott, 1997).
As previously mentioned, portions of the property are located on either side of Interstate 10 and adjacent to Arizona State Route 87. The Southern Pacific Rail Road line and "rail road spur line to Coolidge" runs along the northern most section of the property (Antle, 1997). Frontage roads adjacent to Interstate 10 run along two sides of the property. There are existing interior dirt /gravel roads. A two lane paved road known as Phillips Road runs east/west through the property to the south of Interstate 10. Additional roads through this southern portion of the property include Picacho Boulevard which runs along the eastern edge of the property and Barrett Road which runs along the western edge. Picacho Boulevard is a paved two land road and Barrett Road is a dirt road. Other roads within this portion and directly along the edges are not identified with specified names.

The immediate past owners, Picacho Pecans, Inc., refer to the property as the Alexander Farm comprised of 581.5 acres and the Thomasson Farm comprised of 931.65 acres. According to Bob Antle, owner of Picacho Pecans, Inc., the property was bought from a "Mr. Art Thomasson and Mr. Alexander" (Antle, 1997). This property was purchased by Picacho Pecans, Inc., during the mid to late 1960's under the corporation name of Bud Antle, Inc., Prior to that time the property was developed for farming both cotton and vegetables. According to Antle, "When the predecessor company to Picacho Pecans, Inc., Bud Antle Inc., was sold to Castle and Cooke, Inc., now known as Dole Food Company, the Picacho ranches were not included in the sale because the vegetable operations were ceased in the area and had moved to Yuma, Arizona and Huron, California." (Antle, 1997).

The property was recently donated by Picacho Pecans, Inc. to the non-profit organization, Youth Now Foundation. This organization was formed within the University of Arizona's College of Agriculture and Recreational Turf Management Systems program. The goal for this project is to eventually produce a master planned community
with revenues generated from its development to benefit projects undertaken by the Youth Now Foundation.

**Current Land Use**

The property is currently being used as a commercial pecan orchard. There are approximately 45,000 mature pecan trees producing a "positive cash flow" (Antle, 1997).

The pecan orchard itself comprises 930 net acres on approximately 1000 acres of land (Antle, 1997). These 45,000 pecan trees were planted over a series of years. The area, historically known as the Alexander Farm contained 46 acres of pecan trees planted in 1974, 108.5 acres of pecan trees planted in 1976 and 266.5 acres of pecan trees planted in 1978. The area known as the Thomasson farm contained 232.8 acres of pecan trees planted in 1976 and 276.7 acres of pecan trees planted in 1978. The state leased land comprising 370.75 acres is primarily open desert used to store clippings or for maintenance purposes.

The property also contains three residences. One of the residences is "fee land" and is in good condition. The other two residences are located on state leased land. These two houses are considered to be in average condition and are single family dwellings. On the southern edge of the property, a 5,900 square foot shop building is located on 20 acres of "commercial lease" (Antle, 1997).

**Zoning**

Property located within Pinal County which has not been master planned or is currently being used for an alternative use is zoned General Rural (GR) or a rural zoning classification. This GR designation makes up the majority of the land within Pinal County at the present time (McGrath, 1997). This includes the Picacho Pecans property which
contains GR designation along with a small portion of property between Interstate 10 and Arizona State Route 84 which is zoned CB-2. The CB-2 designation is considered to be commercial.

**Water Issues Associated with Site**

The State of Arizona passed the Groundwater Management Act in 1980 to control and monitor the use of groundwater throughout the state. The property located adjacent to the Picacho Pecans property and the site itself was included within the Grandfathered Water Right Certifications due to the history of agricultural use on site. The total acreage which fell under this certification included 1097 acres of fee owned land. In addition, certificates were issued by the Arizona for 339 acres of state leased land. The Picacho Pecans property has been granted a 100 Year Assured Water Supply designation from the Arizona Department of Water Resources (Antle, 1997 and Abbott, 1997).

There are ten well sites located on the property which contain both abandoned wells and wells currently used for irrigation. Currently the pecan grove is being flood irrigated (Kai, 1997). The property is within the Central Arizona Irrigation and Drainage District (CAIDD) which was formed to distribute Central Arizona Project (CAP) water for agricultural purposes. This falls under the Permit to Appropriate Public Waters which was issued to the property from the Department of Water Resources (33-89688) allowing up to 40 acre-feet for irrigation use (Antle, 1997). The additional water use designation includes two Type II non-irrigation water rights for livestock and domestic/residential use which covers 7.30 acre feet (Antle, 1997). The water service for the property comes from two municipal or industrial water companies. These include Picacho Water Improvement Corporation and Spring Branch Water Company (Antle, 1997).
Adjacent Property

The town of Picacho is the most closely located town to the Picacho Pecans property. It is fourteen miles north of the Pinal-Pima County border and is bisected by Interstate 10. Views from the site include the Picacho Mountains and Picacho Peak. The property directly adjacent to the site makes up portions of the town of Picacho. This includes the area directly to the east comprised of residential units and open desert land. The property directly to the west of the site is currently being used as agricultural land and undeveloped desert. Along this western side horses are currently being corralled. Directly to the north are a series of three industrial businesses, Anderson Clayton/Eloy Compress, Delta and Pine Land Company, and Federal Compress Company. These developments are separated from the site by the railroad and interstate. The property to the south of the site is open desert with a maintenance building and corrals.

Area Information and Communities

There are several communities within the regional vicinity of Picacho Pecans which includes Picacho, Picacho Peak, Red Rock, Eloy, Casa Grande, Tucson and Phoenix. A common connection between each community is the direct impact on their economy from tourism revenue. Each of these communities have unique backgrounds, impact the subject property in various ways and will be addressed within the next sections.

Picacho, Arizona

There are three communities located within very close proximity to each other and adjacent to the subject property. These include Picacho, Picacho Peak, and Red Rock. The town of Picacho means peak or point in Spanish.
Early settlers in the area included the Hohokam Indians. However, today the Native American reservations in the immediate area are limited to the following: the Ak-Chin reservation 56 miles south of Phoenix, the Gila River reservation 40 miles south of Phoenix, the Pascua-Yaqui Reservation 135 miles southwest of Phoenix, and the Tohono O'Odham reservation 136 miles south of Phoenix next to Tucson (Arizona Office of Tourism, 1997). There are no Native American reservations located directly adjacent to the property, but are in close proximity.

Throughout the history of this area, accounts have been made by travelers about the peak and surrounding area. Traditionally this area was important to people traveling through the area due to the existence of water at the Gila River and the close proximity to Tucson. The literature about Picacho is limited but each piece of information along with conversations with area residents reveals similar facts about the area.

This area has the distinction as being the only site for a Civil War battle within the state of Arizona. This occurred on April 15, 1862 and was termed the Battle of Picacho Pass (Ferdon and Westberg, 1997). This battle took place "when troops from the Union's California Volunteers encountered a detachment of soldiers on guard duty from the Confederacy's Texas Volunteers (Arizona Department of Commerce, 1996)." This area was also the brief campground for the Mormon Battalion which passed through this area to fight Mexico. This was known as the first American military camp establishment in the area and occurred in December of 1846.

Other accounts by travelers included notations by the Jesuit Priest, Father Kino, during the 17th century, as well as the Spanish explorer, DeAnza. This area has been reference by Father Frances Garcia who wrote early accounts of the in 1775 (Antle, 1997). The Butterfield Overland Stage carried passengers through this area during the 1840's-1880's. However, the Southern Pacific Railroad revolutionized passenger travel in March
of 1880 with the construction of the railroad. This runs directly along the northern portion of the Picacho Pecans property (Ferdon and Westberg, 1997).

A post office was built in this area in January of 1881, halted in June of 1907, and then reopened in February of 1929. The post office is still in operation just adjacent to Picacho Boulevard.

The principal economic support for this area comes from agricultural production. Initially these towns were established to ship agricultural products such as pecans, cotton, citrus, and livestock (Arizona Department of Commerce, 1996). This area also contains some modest commercial developments including restaurants, motels, and RV resorts. In addition, the Picacho Peak State Park which opened in 1968 is located within these communities, at the base of the peak. This state park is open to the public and contains hiking trails, camping and picnicking facilities. Much of the commercial and recreational developments in the area are in response to the travel industry. Approximately 1,877 residents live within these three communities in single family detached dwellings and mobile homes with a civilian labor force of 2,669 and an unemployment rate of 2.6% (Department of Commerce, 1996).

Eloy, Arizona

The community of Eloy is the closest community to the site that is located north towards Phoenix. This town came into being in 1902 when the Southern Pacific Railroad built a switch approximately six miles west of Picacho. This community was further developed in 1918 when W.L. Bernard, John Alsdorf, and J.E. Meyer purchased the eastern portion of the community, drilled a well, and named it Cotton City. They bought land to the west and farmed the land for cotton (Arizona Department of Commerce, 1996).
The current population is 7,680 with a civilian labor force of 2,956 and an unemployment rate of 11.7%.

The primary economic support for this community comes from agricultural developments. The land is within the Santa Cruz Basin and is considered to be some of the most fertile farming areas in the state. This includes more than 100,000 acres being cultivated for cotton, grains, citrus, and vegetables. There is also strong support for cattle ranching.

Other support comes in the form of tourism and recreation. This includes the largest skydiving centers in the nation located at Eloy Municipal Airport, known as Skydive, Arizona. There is an 18 hole golf course, Eloy Tohono Golf Course, and several recreational/sports facilities. Picacho Reservoir is located just 15 miles north of Eloy and provides a multitude of sporting activities. There are also a few man made lakes in close proximity to the reservoir which allow fishing, skiing, swimming, and bird watching. In September of 1996, Pinal County was awarded a $2 million dollar grant to construct a new recreational lake adjacent to the existing reservoir. This was awarded by the Arizona State Parks Board and will provide swimming, boating, skiing, fishing, camping, hiking, and picnicking areas. The reservoir will be segregated from the new recreational lake to provide protection to the existing riparian wildlife habitat (Picacho Reservoir Review, 1996).

Casa Grande

The city of Casa Grande was founded in 1879 and was named after the Hohokam Indian Ruins located 20 miles to the northeast of the city. Since 1915, it has been the largest city in Pinal County. It is located almost halfway between Tucson and Phoenix at the intersections of Interstate 10 and Interstate 8. This area is known as Arizona's Golden
Corridor. The population is estimated at approximately 20,355 with a civilian labor force of 9,871 and an unemployment rate of 5.1% (Arizona Department of Commerce, 1996).

This community was historically dependent upon agriculture and mining, however industrial developments coupled with retail/commercial and tourism related activity has boosted the economy of this area. There are two large factory outlet stores located along Interstate 10, Factory Stores of America and Tanger Factory Outlet Center. In addition, Casa Grande is home to Harrah's Phoenix Ak-Chin Casino and two golf courses, the Casa Grande Municipal Golf Course (Dave White Park), and the Francisco Grande Resort and Golf Club (Greater Casa Grande Chamber of Commerce, 1996). Industrial developments include: American Beverage Corporation/Daily Juice, Volkswagen of America, R.R. Donnelley & Sons, Strick Trailer, Life Tile, Ross Laboratories, Frito Lay, Mulay Plastics, Ness Arizona, Nissan/Calsonic, and Hunter Douglas Wood Products. A strictly manufacturing base is provided by the following: Hexcel, Mayville Metals and Velcro Laminates, and Skyline Mobile Home Manufacturing (Arizona Department of Commerce, 1996).

Tourism related activities in addition to the recreational activities mentioned previously include the annual O’Odham Tash Indian Celebration and Casa Grande Art Museum annual shows. Other attractions available to the tourist includes the Casa Grande Valley Historic Museum, the Casa Grande Art Museum, the Casa Grande Valley Players, North Mountain Park, and two historic trails, Pinal Pioneer Parkway and Apache Trail (Arizona Department of Commerce, 1996).

Tucson, Arizona

The largest city to the south of the Picacho Pecans property is Tucson, also known as the Old Pueblo. It is located along the Santa Cruz River and derives its name from the
Indian word meaning "water at black mountain". It was founded in 1775 as a Spanish presidio or military post to protect against Apache Indian raids. Father Kino, during the 17th century, established the first Spanish Mission, San Xavier, ten miles south of Tucson. Mexico governed Tucson from 1821 until 1854 until the Gadsden Purchase was signed adding the city to the United States. Tucson was incorporated in 1877 and serves as the Pima County seat. The population is estimated at 440,335 residents with a civilian labor force of 219,808 and a 5.0% unemployment rate (Arizona Department of Commerce, 1996).

The primary economic support comes from federal, state, and local government. This encompasses approximately 60,000 jobs. The University of Arizona employs 10,000 people and Davis-Monthan Air Force base employs 7,000 people. Many of Tucson's residents have been employed through manufacturing companies as well. Hughes Missile Company, AiResearch (Tucson Division), Sargent Controls, and Burr Brown are a few of the companies locating to Tucson within the past ten years.

Tourism has been a major economic factor for the city as well. Area attractions such as the San Xavier mission, Biosphere 2, Kitt Peak National Observatory, Old Tucson Studio, and Saguaro National Park, help to produce $2.3 billion dollars in tourism revenue for Pima County. Other activities available to tourists include cultural events such as the symphony, opera, dance, and theater. Tucson is also home to several sporting events including professional baseball, tennis, and golf along with the numerous sporting events coordinated by the University of Arizona. Tourists along with local residents can also utilize the Arizona Historical Society, the Arizona Sonoran Desert Museum, the Tucson Museum of Art, and the Tucson Botanical Gardens (Arizona Department of Commerce, 1996).
Phoenix, Arizona

Phoenix is located approximately 65 miles north of the Picacho Pecans property. It is the largest city in Arizona and the seventh largest in the United States (Arizona Department of Commerce, 1996). It is also known as the Valley of the Sun. The Phoenix name is derived from the Egyptian symbol of rebirth and was chosen due to the existence of Hohokam Indian civilization ruins on the site. The city has approximately 2.45 million residents within the metro area and Maricopa County along with a civilian labor force of 1,217,814 and an unemployment rate of 4.9%.

Phoenix was founded in 1867 by Jack Swilling who diverted irrigation water from the Salt River for his canal company. Water shortage issues affected the city early on its history with drought periods during the early 1900's. In 1911 the Roosevelt Dam was completed which finally stabilized water supplies.

The year round pleasant weather in Phoenix has added to its attraction. Agricultural crops such as citrus and cotton have been important in the past to the city. Due to the favorable weather conditions, the military located airfields in Maricopa County including Luke Air Force Base.

Today, manufacturing is the leading employer in Phoenix with 148,000 people working in this field. Companies representing these employees include U-Haul, Aztar, Circle K, Phelps Dodge, and Dial. Phoenix is also the third largest producer of electronics in the country. Finally, tourism is very important to the economy of Phoenix.

Tourists, along with permanent residents, have the opportunity to witness two professional sports teams, the professional football team, the Cardinals, and the professional basketball team, the Suns. The city is also the site for several baseball training operations hosting the Chicago Cubs, the Oakland Athletics, the San Francisco Giants, the Milwaukee Brewers, and the Seattle Mariners. The major league baseball team,
Diamondback, are scheduled to begin playing in Phoenix in 1998. Other avenues for tourists and residents includes the Heard Museum founded in 1928, the Phoenix Art Museum, and the Arizona Mineral Museum and Pueblo Grande. Cultural events include numerous theaters, opera companies, ballet companies, and the symphony. Other recreational opportunities include Phoenix's South Mountain Park, Papago Park, the Phoenix Zoo, and the Desert Botanical Gardens.

**Summary of Area Information**

The location of Picacho Pecans provides opportunity from the smallest town experiences to one of the largest cities in the United States. Each of the adjacent communities to the subject property are affected by the tourism industry as well as agriculture. Recreational and commercial facilities are located within each community but are not extensively concentrated within very close proximity to the site. This site has approximately 35,000 cars passing by each day, mature pecan trees producing shade, and an adequate supply of water.

**Demonstration of design:**

The following pages illustrate the conceptual master plan design, final master plan design, image boards, and perspective drawings. These designs are based on the design/planning guidelines derived from the research conducted for this thesis.
(Figure 7-2: Conceptual master plan)
(Figure 7-3: master plan)
(Figure 7-4: Image board demonstrating literature review)
LITERATURE REVIEW

'The City Beautiful Movement'

Daniel H. Burnham

Transportation

Sir Ebenezer Howard

Clarence Stein

'Sir Ebenezer Howard'

(Figure 7-5: Image board demonstrating literature review)
(Figure 7-6: Image board demonstrating literature review)
CASE STUDIES

(Figure 7-7: Image board demonstrating case study analysis)
CASE STUDIES

Addison Circle, Texas

Laguna West, California

Davis, California

Windsor Estates, California

Jackson-Taylor, California

Mashpee Commons, Massachusetts

Celebration, Florida

Rio Vista, Arizona

(Figure 7-8: Image board demonstrating case study analysis)
SURVEYS

structured

INTERVIEWS

- Descriptive Statistics
- Pearson Correlation
- Multiple Regression Analysis

(Figure 7-9: Image board demonstrating surveys and structured interviews)
(Figure 7-10: Image demonstrating community entrance)
(Figure 7-11: Image demonstrating single family housing adjacent to park space)
(Figure 7-12: Image demonstrating trolley and commercial area)
APPENDIX A: STRUCTURED INTERVIEW QUESTIONS

STRUCTURED INTERVIEW QUESTIONS:

1. In your opinion, what components are necessary to include when developing a master planned community?

2. Of your developments or projects, which one(s) are you most proud of or consider to be the most and why?

3. Of your developments or projects, which one(s) are you most dissatisfied with or consider to be failures and why?

4. What demographic group do you primarily deal with in your community development projects?

5. What elements do retirees want in their communities? How do you determine this?

6. Are you familiar with the 'New Urbanism' movement in planning today? If so, what are your opinions on its elements with regards to communities in the southwest or in general?

7. Given the parameters of the Picacho Pecan Village Project, Is this development feasible? Please give reasons for your answer.
APPENDIX B: QUESTIONNAIRE

SCALE QUESTIONS
**Please circle the most appropriate answer....

1. What discipline/specialization do you primarily align yourself with?
   - planning
   - architecture
   - landscape architecture
   - real estate/business
   - other

2. How many years have you been involved in that field?
   - zero to five years
   - five to ten years
   - ten to twenty years
   - twenty to thirty years
   - thirty years and above

3. What demographic group of people do you primarily deal with?
   - Ages 18-25
   - Ages 26-35
   - Ages 36-45
   - Ages 46-55
   - Ages 56-65
   - Ages 66 and above

4. What demographic group produces the highest return on your investment?
   - Ages 18-25
   - Ages 26-35
   - Ages 36-45
   - Ages 46-55
   - Ages 56-65
   - Ages 66 and above

Q1=5. What would the likelihood of a mixed-use community located half way between Tucson and Phoenix being a successful project?

very likely likely moderately likely not likely absolutely not likely

*Please list the reasons why?
Q2=6. What is the importance of incorporating environmental issues (such as wildlife, shade, water, sustainability) into the masterplan of a community?

essential very important important sort of important not important

Q3=7. What is the importance of incorporating socio-cultural issues (such as identification with indigenous cultures) into the masterplan of a community?

essential very important important sort of important not important

Q4=8. What is the importance of incorporating aesthetic issues (such as increased vegetation, view corridors, unique architecture) into the masterplan of a community?

essential very important important sort of important not important

Q5=9. What is the likelihood of new approaches to design/planning being incorporated over purely economic incentives into the masterplan of a community?

very likely likely moderately likely not likely absolutely not likely

Q6=10. What is the likelihood of 'New Urbanism' concepts being successful in a predominately retirement based community?

very likely likely moderately likely not likely absolutely not likely
Q7=11. What is the likelihood of a successful community incorporating light industry within the site?

very likely likely moderately likely not likely absolutely not likely

Q8=12. What is the likelihood of a masterplan focusing on pedestrian orientation with limits to automobile access being a successful project?

very likely likely moderately likely not likely absolutely not likely

Q9=13. How important is the mix of populations within a community (different ages, different socio-economic levels, etc.)?

essential very important important sort of important not important

14. If you had to choose one factor, what factor is most important regarding community development?

socio-cultural issues  
aesthetic issues  
ecconomic issues  
environmental issues  
functional/infrastructure issues

15. If you could design/plan a community emphasizing a specific component, which component would that be?

industrial component  
commercial component  
recreational component  
educational component
APPENDIX C: SYSTAT COMPUTER APPLICATION RESULTS FROM QUESTIONNAIRES

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APPENDIX D: POST JURY/REVIEW QUESTIONNAIRE AND COMMENTS

QUESTIONNAIRE:

1. How well was the theory derived from the research for this thesis integrated into the design problem, Picacho Pecan Village?

2. How well were the design/planning ordering systems (socio-cultural, aesthetic, functional, economic, and environmental issues) balanced in this thesis?

3. Could the design/planning guidelines generated from this thesis be generalized to another population (i.e. the entire United States)? If so, how?

4. Do you think ‘New Urbanism’ principles are applicable to the southwest? If so, in what ways. Please elaborate.

COMMENTS FROM JURY/REVIEW ORGANIZED BY QUESTIONS:

1. How well was the theory derived from the research for this thesis integrated into the design problem, Picacho Pecan Village?

   Respondent A: “Overall, very well—detailed synthesis. However, I still feel its a little ‘watered down’, but it is obvious that all possibilities researched were looked into at equal weight.”

   Respondent B: “Very! But didn’t discuss implications that this is all new development on already disturbed land as opposed to undisturbed pristine land.”
Respondent C: “I felt it supported the project perfectly. It showed what was needed to put into the design.”

Respondent D: “Very Well.”

Respondent E: “Excellent. The New Urbanism approach with an exception or so such as street design is good.”

Respondent F: “Need to elaborate more on the integration.”

Respondent G: “Quite well, use of ordering systems and keeping of 'goody sheets' helped insure meaningful integration.”

2). How well were the design/planning ordering systems (socio-cultural, aesthetic, functional, economic, and environmental issues) balanced in this thesis?

Respondent A: “Extremely well with exception of environmental issues. It is ironic that the one research area which proved the 'least' important to developers interviewed, relatively took a 'back seat' to the other design/planning ordering systems.”

Respondent B: “Very Well Balanced”

Respondent C: “It was fairly balanced—perhaps there should be more emphasis on environmental issues.”

Respondent D: “Good Balance”

Respondent E: “All well done, even environmental issues which can be touchy”

Respondent F: “Seems well. To really get into it, there is a need for further discussion on those ordering systems.”

Respondent G: “Organized and reminded researcher of her central goals—distill out relevant guidlines.”
3). Could the design/planning guidelines generated from this thesis be generalized to another population (i.e. the entire United States)? If so, how?

Respondent A: “Definitely! Some socio-cultural issues have to be related more specifically to the exact region, but the simple fact that New Urbanist planning is occurring throughout the country proves its ability to be generalized realistically.”

Respondent B: “Yes. The mixed socio-cultural aspects—mixed price housing retention as buffer zones.”

Respondent C: “Yes. The mixed use is important for all communities. Also the idea of community identity is wonderful.”

Respondent D: “With Limitations”

Respondent E: “Absolutely-Small is beautiful “urban village” people want control in their life—not massive roads, etc.

Respondent F: “Yes, all points are relevant.”

Respondent G: “I believe the research methods and research design strategy could be generalized—not the results.”

4). Do you think ‘New Urbanism’ principles are applicable to the southwest? If so, in what ways. Please elaborate.

Respondent A: “Not as applicable as probably more midwest areas or eastern areas simply because the principles are based on foundations visible more frequently in these other, older planned areas. Southwest developers and people will be harder to ‘sell’ simply because many have no frame of reference. For this reason, the concepts must be taken even ‘farther’ in order to help the realization.”
Respondent B: "Yes, definitely. The weather dictates the need for accessible transit. Decar-ing of the region. Mixed density has historically been a vital part of courtyard community i.e. Barrio Historic, etc."

Respondent C: "Yes. Because of all the ugly sprawl. However, it will be hard to apply because everyone (westerners) want their own plot of land."

Respondent D: "Yes. Especially the pedestrian orientation and the environmental issues."

Respondent E: "Yes. Sprawling seems like Phoenix, even Tucson doesn't have the character. The Celebration project gives a special feeling of 'community'. Maybe we will know our neighbors (again) in the future encouraged by good design-New Urbanism!"

Respondent F: "Not everywhere. This is cowboy land. New Urbanism can become gated communities, or small points in desert. It needs to be designed in relation to an urban context."

Respondent G: "Pedestrian orientation, some of neighborhoods, vertical zoning, mixed-land use/light industry, open space as connectors."
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