



3 1293 01411 2886

THESIS
|

LIBRARY
Michigan State
University

This is to certify that the

thesis entitled

CIVIC DESIGN AND
A RELIANCE ON VERNACULAR FORM

presented by

Grant Elliott Bauman

has been accepted towards fulfillment
of the requirements for

Master's degree in Urban and
Regional Planning


Major professor

Date 6/18/95

PLACE IN RETURN BOX to remove this checkout from your record.
TO AVOID FINES return on or before date due.

DATE DUE	DATE DUE	DATE DUE
NOV 8 2003	_____	_____
JAN 12 2004 011204	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**CIVIC DESIGN AND
A RELIANCE ON VERNACULAR FORM**

By

Grant Elliott Bauman

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

MASTER OF URBAN AND REGIONAL PLANNING

Department of Geography

1995

ABSTRACT

CIVIC DESIGN AND A RELIANCE ON VERNACULAR FORM

By

Grant Elliott Bauman

This thesis explores how vernacular architectural and land use characteristics can be used to protect community identity in the exurban regions of polycentric cities by providing suggestions as to how new development should appear and how it should relate to existing conditions.

A secondary resource, the Michigan Rural Property Inventory (MRPI), was utilized to provide information about vernacular architecture and land use on Centennial Farms located in Peninsula Township, Grand Traverse County, Michigan. This information was then used to formulate suggested architectural guidelines for new developments in the agricultural portions of the Township.

The study showed that a survey of vernacular architecture and land use can be used effectively to create recommendations for contemporary development. The MRPI was found to be an excellent secondary source of information for surveys of this kind.

ACKNOWLEDGEMENTS

I would like to thank the members of my committee, Drs. Jon Burley, Patrick McGovern, and Joanne Westphal as well as my father, Mr. Larry Bauman, PCP, AICP, for the considerable time they spent in editing the various manifestations of this document. Further thanks goes out to Dr. Westphal, my committee chair, who encouraged me to undertake the initial research which led to this thesis.

TABLE OF CONTENTS

List of Tables	v
List of Figures	vi
Introduction	1
Hypothesis and Assumptions	4
Literature Review	6
Methods	15
The Study Area	15
The Study Population	17
Methodology	18
Results and Discussion	26
Results	26
Architectural Characteristics	26
Land Use	41
Discussion	45
Conclusion	53
Glossary of Terms	57
Bibliography	60

LIST OF TABLES

1	Centennial Farms and Associated Properties	18
2	Centennial Farm Homes	27
3	Attached Farm House Structures	30
4	Unattached Farm House Structures	32
5	Farmstead Barns	33
6	Farmstead Structures	36
7	Farmstead Fences	38
8	Farm House Characteristics	39
9	Barn and Farmstead Structure Characteristics	40
10	Land Use Inventory of Centennial Farm Parcels	42
11	Building Setbacks	44
12	House and Associated Farmhouse Structure Recommendations	48
13	Barn and Farmstead Structure Recommendations	51

LIST OF FIGURES

1	Location Map of Peninsula Township	16
2	Michigan Rural Property Inventory Card (Side 1)	24
3	Michigan Rural Property Inventory Card (Side 2)	25

INTRODUCTION

At the close of the twentieth century, most Americans live in what can be best described as polycentric cities. The author defines a polycentric city as a metropolitan area composed of one or more densely developed incorporated areas, with the urbanized portions of the unincorporated areas surrounding the center(s) of dense development, and the exurban developments found at the periphery of the metropolitan area. Most of the development currently taking place in polycentric cities is in the exurban fringe.

Due to prevailing growth patterns, most exurbs are developed as "islands of nonrural housing in a very rural context" (Szczygiel, 1995). Standardized construction methods, architectural styles, and building materials have led to the homogenized appearance of contemporary structures (e.g., houses built in Sacramento, California, look similar to houses built in Alexandria, Virginia, or Saginaw, Michigan). These factors cause an exurb to be divorced from the region in which it is developed. The exurbs, in effect, become as interchangeable as the houses located within their boundaries. Interchangeable exurbs lead, in part, to a loss of community identity. Some scholars believe that a loss of community identity contributes to a loss of quality of life in the United States (Jackson, 1985; Krieger, 1991; Kunstler, 1993; Massachusetts Department of Environmental Management, 1990; Williams et al, 1987).

A reliance on vernacular form may help to save the identity of the region in which an exurb is developed. This is achieved by designing exurbs to complement existing vernacular development (i.e., buildings and land use patterns of a specific region built before World War II; it was after World War II that the loss of regional identity began a dramatic acceleration with the introduction of the ubiquitous ranch home (Jackson, 1985)). Vernacular land use characteristics can be used to help design large-lot exurban developments (i.e., mini-farms with lots large enough to be economically farmed) by emulating regional agricultural practices; thus, an important part of the region's identity is preserved. Vernacular architectural features and characteristics may be used to design houses for new large-lot exurban developments or for proposed hamlets and villages; they also may aid in the design of farmstead structures.

Proponents of the argument outlined in the preceding paragraphs should advocate the commission of a survey of a region's vernacular architectural form and land use before new exurbs are developed. This information can help to develop architectural and land use recommendations that will help to retain the region's identity. Since development is rarely static, these surveys are often hard to complete. Fortunately, existing secondary sources may be used to obtain this information.

This document employs and analyzes information that is recorded in an architectural and land use study of rural Michigan conducted during the 1930's (Michigan State Tax Commission, 1935-1942) known as the Michigan Rural Property Inventory (MRPI). Information from the MRPI, for Peninsula Township, Grand Traverse County, Michigan, was adapted to formulate contemporary recommendations

for the new construction of farmhouses, mini-farms, structures associated with the farmhouses, barns, and other farmstead structures. The intent here is to provide the means for achieving a complementary relationship between the old and the new, the historic and the contemporary.

HYPOTHESIS AND ASSUMPTIONS

The primary function of this analysis is to illustrate that a secondary source, like the Michigan Rural Property Inventory (MRPI), may be used to further the third major priority of Civic Design: a reliance on vernacular form.

- H₀ Rural Property Inventory data cannot be used to profile the vernacular (non-urban) architecture of Michigan due to the content, validity, and reliability of the data set.
- H₁ Rural Property Inventory data can be utilized to provide at least a gross approximation of the vernacular (non-urban) architecture of Michigan.
- H₂ Rural Property Inventory data are a valid and reliable source of information on the vernacular (non-urban) architecture of Michigan.

These hypotheses are based upon several premises:

- 1) information gleaned from the MRPI is accurate;
- 2) information taken from the MRPI is complete;
- 3) the MRPI will provide only historical, coarse information on vernacular architectural and land use characteristics; more timely, finer, detail requires fieldwork or the use of other secondary sources (i.e., other surveys, photographs, etc.);
- 4) the MRPI captures only a single reference point in time; therefore, normal landscape change will not be recorded in this secondary source.

An unpublished study of the MRPI, written by the author as an undergraduate at Michigan State University, indicates that the MRPI is a valuable research tool if the researcher is willing to accept some of its limitations (Bauman, 1990). This was

completed by comparing property sketches of several farms on Peninsula Township, which were generated as part of the MRPI, with aerial photographs and plat records of the farms taken during the same time period. This study also revealed that farmstead organization (i.e., building placement in relation to other buildings) was not included as a part of the MRPI. Information regarding these items must be obtained from other sources.

LITERATURE REVIEW

Americans often think of the homogenization of the American landscape as being a phenomena that occurred after World War II. However, significant changes in American society leading to suburban and exurban development occurred prior to World War II. An appropriate description of these changes can be found in Winesburg, Ohio, Sherwood Anderson's (1919) modern American classic novel, first published in 1919:

In the past fifty years a vast change has taken place in the lives of our people. A revolution has in fact taken place. The coming industrialism, attended by all the roar and rattle of affairs, the shrill cries of millions of new voices that have come among us from overseas, the going and coming of trains, the growth of cities, the building of the interurban car lines that weave in and out of towns and past farmhouses, and now in these later days the coming of the automobiles has worked a tremendous change in the lives and in the habits of thought of our people of Mid-America. Books, badly imagined and written though they may be in the hurry of our times, are in every household, magazines circulate by the millions of copies, newspapers are everywhere. In our day a farmer standing by the stove in the store in his village has his mind filled to overflowing with the words of other men. The newspapers and the magazines have pumped him full. Much of the old brutal ignorance that had in it also a kind of beautiful childlike innocence is gone forever. The farmer by the stove is brother to the men of the cities, and if you listen you will find him talking as glibly and as senselessly as the best city man of us all.

As the preceding quote illustrates, Anderson, early in the century observed those things which each of us has had the opportunity to recognize and observe in

contemporary society (i.e., an industrial emphasis, increasingly efficient and speedy models of transportation, and enhanced methods of communication). Many contemporary features far exceeded the most facile imaginations at the time of World War I (i.e., jet travel, space exploration, television, computers, and FAX machines). Many of these contemporary features, however, have exerted a profound influence upon the characteristic land use patterns unique to the United States.

Development in the United States has been markedly different from that of most other Western nations. For example, there is no sharp demarcation between urban and rural localities in this country; the line between city and countryside has been eradicated by suburban development. Contemporary American development is the result of three distinct factors that began evolving prior to World War II:

- 1) an anti-urban cultural bias;
- 2) increasing technology;
- 3) inexpensive real estate.

The rapid suburbanization of the United States after the War was in large part an acceleration in the evolution of these three factors (Jackson, 1985).

Before World War II, most metropolitan areas had one central city around which all other development was arranged. Towns, villages, hamlets and the countryside outside of the geographic boundaries of a metropolitan area also were outside of its economic and social sphere of control. The interstate road system, improvements to other road systems, ever increasing advances in communications and technology, and the expansion of suburban development have erased many of the distinctions between city, town, village, hamlet and countryside. Most of these once

distinct geographic entities are now part of one or more indistinct metropolitan areas; new nodes of commercial, office, and industrial development also have been introduced into the metropolitan mix. This new pattern of development has resulted in geographically indistinct metropolitan areas with multiple nodes of concentrated development; thus, residents of these polycentric cities are no longer tied solely to a central city for their economic or social welfare.

Polycentric cities contain many advantages: they are very easy to traverse if one has access to an automobile; the majority of the population can generally find employment somewhere in a metropolitan area; and social and civic institutions and events, such as museums, specialized recreation facilities, and sporting events, provide metropolitan residents with a variety of leisure-time activities. Many of these advantages cannot transpire without a large number of people available to support them. Polycentric cities, however, also exacerbate many of the problems characteristic of the human condition:

- 1) isolation due to a loss of community access for the young, the elderly, the poor, and other segments of society without access to an automobile (Calthorpe, 1988);
- 2) communities unable to function as a coherent whole because of multiple units of government that control different segments of our polycentric cities (Hamlin, 1992);
- 3) a loss of community identity;
- 4) rural local governmental units which are financially unable to adequately respond to the demand for [local] services (Szczygiel,

1995).

There now exists "a profound mismatch between the old suburban patterns of settlement that have evolved prior to World War II and the post-industrial culture in which we now find ourselves" (Calthorpe, 1991).

The problems with current suburban growth listed in the preceding paragraph, combined with a myriad of others, cause some people to advocate a policy of managed growth in their own communities. Growth management programs are traditionally instituted to address a specific growth issue or problem. For the purpose of this study, traditional growth management programs are divided into three areas of concern:

- 1) environmental quality concerns such as wetland, agricultural land, and wildlife habitat preservation; air, water, and scenic quality; soil erosion, groundwater contamination, and solid waste disposal (deHaven-Smith, 1988);
- 2) municipal fiscal concerns caused by various factors:
 - a) a loss of property values and the tax-base because of inflation, tax law changes and an economic shift from a manufacturing-based to a service-based economy;
 - b) increased energy, material, and administrative costs which cause the cost of government to rise at a faster pace than the rate of inflation;
 - c) significant cuts in state and federal aid to local governments as they struggle with their own goals and responsibilities;

- d) and the national credit crunch contributes to a higher debt service charge for local governments (Hamlin, 1992);
- 3) quality of life concerns which stem from various issues (e.g., a loss of community, a loss of affordable housing, and diminished visual quality of a community or region).

When disparate growth management programs are employed in conjunction with each other, they can do much to improve the condition of most American citizens. Traditional growth management programs used in isolation, or in opposition to each other, however, may create some unintended consequences of the action, or exacerbate preexisting inequities.

The unintended consequences caused by the narrow application of specific growth management programs are beginning to be clarified and documented. For example, economic studies have revealed that growth controls increase property values and lessen the amount of affordable housing (Levy, 1991). It is now evident that growth management programs need to be designed so that they can work together. When planners have attempted to address the entire development problem, the focus has always been on integrating the different growth management programs at the local level to achieve balanced development. This application of growth management programs is not, however, always the most effective solution for avoiding unnecessary exurban development or encouraging and facilitating desirable intensive redevelopment of urban acreage.

There has been no formal move by planners, however, to try to integrate all of the different growth management concerns into one program. Fortunately, the design

community (i.e., architects, landscape architects, and urban designers), and other interested parties, have recently formulated several design oriented solutions (i.e., transit oriented development, small community design, and neotraditional developments) aimed at ameliorating the environmental and social problems caused by the evolution of polycentric cities (Calthorpe, 1988, 1991; Nelessen, 1994; Katz, 1993). Civic Design is a term coined by the author to encompass the programs listed above.

Civic Design strategies recognize that concentrating new growth into distinct nodes within a region, along with selected redevelopment and infill projects, is often an effective growth management policy that may be advocated and enforced by a growing region. Total reliance, however, on infill and redevelopment projects to accommodate new growth is unrealistic. An inadequate supply of land, community opposition, and the problem of displacement would tend to limit the success of the policy (Calthorpe, 1991).

Civic Design strategies cover a wide variety of concerns. Each program is apt to have a very different focus; most civic design strategies, however, also possess some common attributes:

- 1) the reintroduction of multimodal transportation. Three different modes of transportation --automobiles, public transportation, and walking-- help to make civic communities, and the polycentric city they serve, accessible to people who cannot obtain a drivers license, cannot afford an automobile, or who do not care to drive (Calthorpe, 1988, 1991; Cervero, 1994);

- 2) a small community scale (e.g., physically autonomous hamlets and villages and individual neighborhoods that are a part of a larger community). All three community types take into consideration four basic principles: a jobs/housing balance, ecological responsibility, mobility and linkages, and settlement patterns (Nelessen, 1994; Katz, 1993);
- 3) a reliance on vernacular form. In order to do this, the actual site, its immediate surroundings, and the region in which it is located, must be thoroughly inventoried. Studies should concentrate on vernacular buildings and land use patterns. That is to say, buildings and land use patterns of a specific region built before World War II. It was after World War II that the loss of regional identity began a dramatic acceleration. Through careful study, civic designers will be able to successfully integrate the new community into the fabric of the region while also producing Civic Developments that have their own distinct character (Nelessen, 1994; Katz, 1993; Anderson, 1991; Mohny & Easterling, 1991).

The application of Civic Design methods have always been urban in nature (i.e., in the form of hamlets, villages, or contiguous neighborhoods). Civically Designed settlements, however, are most often sited in the exurban portions of a polycentric city. As a result of this situation, it is the contention of the author that the methodology used to create a reliance on vernacular form could have rural, as well as urban, applications. Vernacular farmhouses, and the structures associated

with the farmhouses, could be used to guide the appearance of some of the residential structures in Civically Designed communities in addition to the exurban residential structures placed at the peripheries of these new communities. Vernacular barns, and structures associated with the barns, however, would only be used to guide the appearance of structures on the peripheries of civically designed communities and in other rural applications. Vernacular land use patterns based on farms may also be applied to larger parcels of land located on the peripheries of Civically Designed communities as well as in other rural applications.

The traditional neighborhoods, villages, and hamlets, upon which Civic Communities are based, and the countryside that surrounds them, should not be overly romanticized. The perfect small American towns showcased on television programs are not an accurate representation of small town life (e.g., the *Andy Griffith Show's* Mayberry). "For each Mumfordian sentiment about the organicism of small town life, there has been a Sinclair Lewis proclaiming that life to be 'tediousness made tangible in dullness made God'" (Krieger, 1991). The fictional accounts of Winesburg, Ohio and Lake Wobegone, Minnesota, written by Sherwood Anderson and Garrison Keillor respectively, are more accurate portraits. They also convey the provincialism and intolerant attitudes that are often a part of the small town collective psyche. Sinclair Lewis (1920), in his 1920 novel Main Street, provides his readers with an excellent example of small town provincialism:

"What Ole Jenson the grocer says to Ezra Stowbody the banker is the new law for London, Prague, and the unprofitable isles of the sea; whatsoever Ezra does not know and sanction, that thing is heresy, worthless for knowing and wicked to consider."

It is important to note, however, that contemporary Civic Communities, and the countryside that surrounds them, are not intended to be as insular as their predecessors, nor could they be as evidenced by the tremendous advances in travel and communication which characterize contemporary life. Rather, Civic Communities are intended to become important parts of the polycentric cities of which they are a part. The obvious extension of these circumstances is that they also will become a vital part of the national socioeconomic fabric, as well as integral parts of the world-wide "global village." This observation, however, goes far beyond the essential scope of this analysis.

A major impediment to the implementation of vernacular architectural and land use characteristics in contemporary building practices is a lack of quality information about vernacular form. It is difficult, time consuming, and expensive to gather the information needed to develop recommendations for development based on vernacular form. Planners and developers dedicated to this course of action often have to commit themselves to develop and administer extensive field surveys in order to garner pertinent information. However, the use of existing secondary resources can often lower the amount of personnel and field work one has to invest in a survey. Development professionals in the State of Michigan are fortunate to have such a resource at their disposal: the Michigan Rural Property Inventory (MRPI). The remainder of this thesis is a case study which employs the MRPI in developing vernacular development recommendations for Peninsula Township, Grand Traverse County, Michigan.

METHODS

THE STUDY AREA

The geographic area selected for the case study is Peninsula Township, Grand Traverse County, Michigan. Peninsula Township is located on the peninsula that bisects Grand Traverse Bay, Lake Michigan. The peninsula is located in the northwestern portion of the Lower Peninsula of Michigan. The Township serves as one of the northern political boundaries to metropolitan Traverse City (Figure 1).

Peninsula Township is one of the premiere tart cherry growing areas in the United States; it also is undergoing great pressure for residential development due to the growth of polycentric Traverse City. Competition for land is centered on existing farm operations with a great demand for both vacation homes and primary residences. These circumstances are causing significant conflicts in land use between agriculture and residential development. It is this conflict that makes the Township an excellent laboratory for this study. Understanding the vernacular form may help to preserve regional identity and protect agricultural land as well as provide for new housing opportunities if elements of this form can be integrated into new developments -- especially new town developments and/or mini-farm areas.

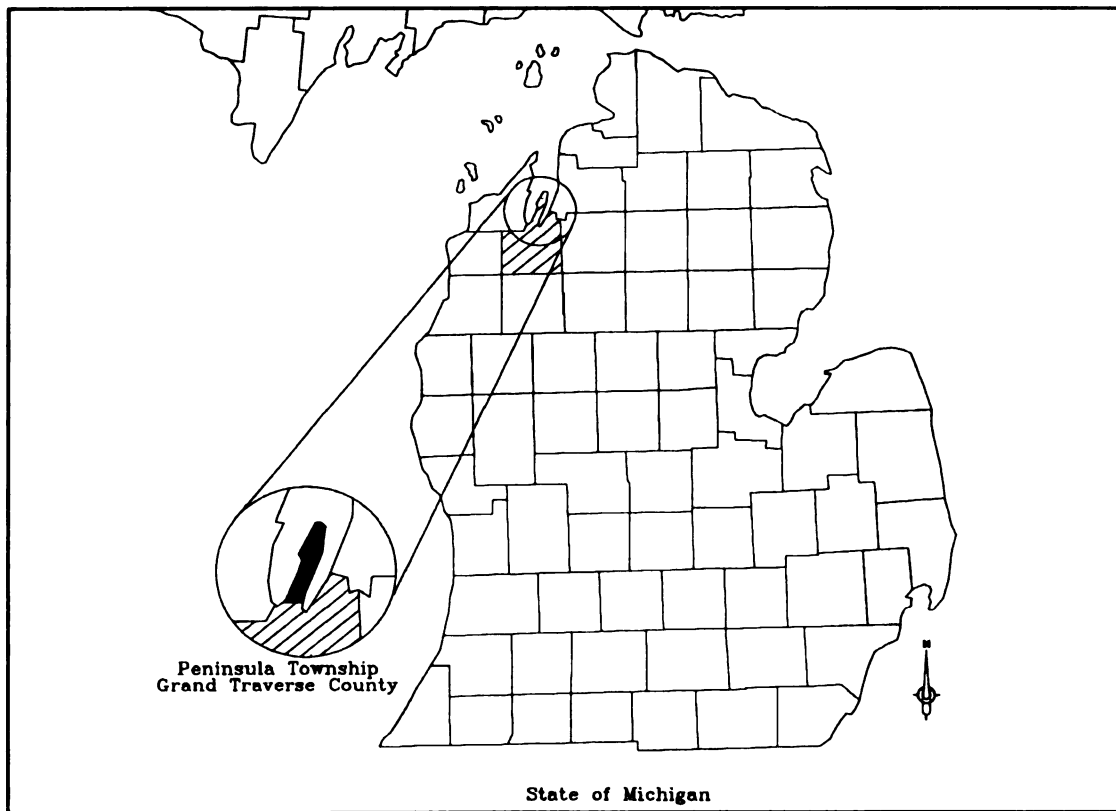


Figure 1
Location Map of Peninsula Township

THE STUDY POPULATION

To study vernacular architecture, a study population composed of eleven Centennial Farms was selected. These farms are recognized as Centennial Farms by the State of Michigan since they have been in the same family continuously for at least one hundred years. They were selected because they are marked by a single family ownership philosophy, were part of the Rural Property Inventory, and they continue as viable farms today. As a result of the many generations of inheritance within the same family, Centennial Farms represent the most stable agricultural properties in an area; they also are more apt to follow sound agricultural practices (i.e., soil conservation).

A comparison of MRPI data show that some of the centennial farms are larger than they were in 1939. In order to address this situation, plat records of the Township for the years 1930 and 1957 were used to ascertain the borders of the present day centennial farms. The plat records show that separate parcels are now portions of eleven centennial farms. As a result, this is a study of twenty-four separate parcels of property that existed in 1939; Table 1 is a listing of these properties. The listing is divided into the eleven parcels that exist as centennial farms in 1993 and also by the twenty-four properties that existed in 1939. The numbers in the code column of the table are associated with the present day farm operation.

Table 1
Centennial Farms and Associated Properties

Code	Township, Range & Section	Owner in 1939	Code	Township, Range & Section	Owner in 1939
1a	T28N R10W S18	Wilson, Margaret	7c	T29N R10W S28	Coolidge, Fred
1b	T28N R10W S18	Wilson, Willard	8a	T29N R10W S34	Holman, Bernard & Ethelywn
2a	T28N R10W S08	Gray, E.P.	9a	T29N R10W S27	Lardie, Chas. A.
2b	T28N R10W S08	Gray, E. Paul & Ellen	9b	T29N R10W S27	Kroupa, Joseph
3a	T28N R10W S04	Neason, Belle	9c	T29N R10W S27	Lardie, Oakley
4a	T29N R10W S03	Tompkins, Murry	9d	T29N R10W S27	Lardie, Mike
5a	T29N R10W S10	Gore, Leslie V.	10a	T29N R10W S33	Hoffman, William & Irma
5b	T29N R10W S10	School Lot #3	10b	T29N R10W S33	Cemetery
6a	T29N R10W S14	Boursaw, Garret	11a	T30N R10W S34	Pratt, Wm. R. Est.
6b	T29N R10W S14	Boursaw, James L.	11b	T30N R10W S35	Pratt, Mary L.
7a	T29N R10W S28	McManus, Harold	11c	T30N R10W S35	Pratt, Mary L.
7b	T29N R10W S28	McManus, Verle	11d	T30N R10W S35	Pratt, Mary L.

METHODOLOGY

The main resource used for the case study on centennial farms is the Rural Property Inventory (State of Michigan, 1939), housed at the State of Michigan Archives in Lansing, Michigan. Before the results of the study are chronicled, it is important to summarize the scope of the Michigan Rural Property Inventory (MRPI). This information was obtained by reading the biennial reports of the Michigan State Tax Commission during the years in which the inventory was conducted (Michigan State Tax Commission, 1935-1936, 1937-1938, 1939-1940, 1941-1942).

The MRPI, conducted between 1935 and 1941, covered the entire State of Michigan, excluding Wayne County and all incorporated cities (Wayne County already had a unified property tax system). There were three phases to the MRPI. First, the legal descriptions of the rural parcels of property were corrected and maps of the congressional townships were prepared (this phase did not include any actual field survey work). Second, the content of each individual parcel of land (i.e., major

buildings, accessory structures, fields, orchards, and natural features) was inventoried in the field. Third, the data from the inventory was then transferred to a two-sided card (Figures 2 and 3). The following information is found on the front of the MRPI cards:

- 1) general information, such as the year in which the survey was taken and the school district, section, geographic township and range, political township and county in which the property is located. (Please refer to the glossary for definitions to these terms);
- 2) the legal description and the total acreage of the property. If a property is located in more than one section, it will be split up and described by section;
- 3) information about the farmhouse includes a floor plan and a detailed written description (i.e., use, year built, building materials, heating, plumbing, number of stories, lights, porches, and condition). A written description of outbuildings associated with the farmhouses is also given (i.e., use, year built, dimensions, condition and building materials);
- 4) additional information such as the number of miles to the nearest school and town, the types of utilities (i.e., electricity, telephone and gas), water supply, and the type of road the property is adjacent to (i.e., gravel or improved).

The proceeding information is recorded on the back of the MRPI cards:

- 1) written description of barns (i.e., type, year built, dimensions, condition, building materials, roof type, and basement) other farmstead

structures (i.e., type, year built, dimensions, condition, and building materials) and farm fences (i.e., kind, post material, and condition);

- 2) a sketch of the property including detailed information on the types of crops in the fields, the presence of roads, and the area the buildings occupy as a group;
- 3) a listing of the acres employed in several classifications: Class A Agricultural (i.e., cropland and farmstead, wild hay, and untillable pasture), Class B Special Agricultural (i.e., onion, celery, mint, or truck), Class C Swamp (i.e., huckleberry, cranberry, etc.), Class D (i.e., commercial orchard, vineyards, berries), Class E Non-agricultural (i.e., forest and timber area, farm woodlot, cut-over, sugar bush, road, marsh, lake, and waste), and special land type (i.e., designate, golf course, and recreational).

These cards were intended for use by property assessment officers at the local governmental level. The contents of these cards were copied into ledger books.

Finally, township maps showing the location of each card were prepared.

An unpublished study of the MRPI, written by the author as an undergraduate at Michigan State University, indicates that the Inventory is a valuable research tool if the researcher is willing to accept its limitations (Bauman, 1990). This was completed by comparing the 1939 MRPI property sketches of several farms in Peninsula Township with 1938 United States Department of Agriculture (USDA, 1938) aerial photographs and 1930 plat records of the farms taken during the same time period (W. W. Hixson and Co., 1930). The study was conducted on a section

instead of on a property basis; in order to accomplish this, MRPI property sketches for entire sections were cut out and taped together. The study found that the MRPI property sketches are very accurate when compared to the USDA aerial photographs and plat records. In fact, they were found to be superior to aerial photographs and plat records in two ways:

- 1) the plat records show little more than the outlines of the properties in a section, while the MRPI cards graphically represent the entire property;
- 2) the MRPI provides descriptions of the land uses, roads, and buildings. Aerial photographs require an interpretation of land use cover while the plat records do not provide any of this information.

However, the MRPI also were found to have two major limitations:

- 1) the homes and farmstead structures are not located on the property sketches. Aerial photographs must be utilized to locate these buildings;
- 2) MRPI cards are often missing. Plat records, aerial photographs, and other secondary sources must be used to fill in the voids created by the missing cards for a section of land.

The remainder of this section is a summary of the methodology utilized to create the first draft of possible architectural and land use recommendations in Peninsula Township, Grand Traverse County, Michigan, based on vernacular form:

- 1) centennial farm vernacular structures were profiled (i.e., farm homes and farmstead structures) for their form (i.e., construction, number of stories and roof type) and the materials utilized in their construction (i.e., wood for the frame, concrete for the foundation, and wood

shingles for the roof);

- 2) the Michigan Rural Property Inventory (MRPI) was utilized by the author to compile various summaries about vernacular structures (e.g., farm houses, barns, and other farmstead structures) and land use;
- 3) the information recorded on the MRPI cards facilitated the creation of various inventories about the centennial farms: farmhomes, farmstead barns, and land use;
- 4) the inventories facilitated the compilation of various summaries regarding vernacular structures: farmhouses and barns and farmstead structures;
- 5) contemporary uses for vernacular forms could be discussed at this point (e.g., barn basements and tool sheds used as garages or wood sheds and lean-tos used to enlarge a farmhouse). Discontinuation of various vernacular structures should also be addressed (i.e., silos that may have no contemporary use). This step was omitted from the scope of this study, since these decisions need to be made at the local level;
- 6) acceptable architectural forms and materials also were discussed.

Information recorded in the MRPI concerning the year the structure was built, any information concerning the interior of structures (i.e., number of rooms, interior wall materials and flooring materials), and other miscellaneous building information (i.e., water source) were not considered in this analysis because they are not believed by the author to affect community identity. It is at this point that contemporary

substitutes for traditional materials are addressed (e.g., farm houses and structures associated with farm houses, and barns and farmstead structures associated with barns);

- 7) land use decisions were based on vernacular farm size and the size of individual orchards. The only building placement information located in the MRPI was the distance of the farmhouse to the road. Aerial photographs and field work must be conducted in order to ascertain average building placement on centennial farms. As a result of this, no recommendations were made on building placement.

Figure 2
Michigan Rural Property Inventory Card (Side 1)

Figure 3
Michigan Rural Property Inventory Card (Side 2)

RESULTS AND DISCUSSION

RESULTS

Architectural Characteristics

The discussion of architectural characteristics will be limited to the exploration of building types, uses, methods of construction and materials. Other features such as building conditions, infrastructure and the farm's relationship to the urban center, while available in the rural property inventory, are not included in this analysis. Tables 8 and 9, located at the end of this section, are summaries of the following architectural characteristics.

Farm Houses

All of the centennial farm homes were built from 1860 to 1932. However, only thirty-eight percent (38%) of the main structures were built before 1900 (see Table 2). Out of the thirteen homes built on the centennial farms before 1939, ninety-two percent (92%) of the homes were constructed for single family use by the farm owners. Only one building was built for tenant use.

All homes were of wood frame construction. This means that the floors, roofs and load bearing walls of a building were made of wood. Any stone used, except for the foundations, was for aesthetic purposes.

Table 2
Centennial Farm Houses

C o d e	Building Use	Year Built	Found- ation	Roofing		Exterior Walls	Con- struc- tion	Basement	Story	R o o m	Interior Walls	Floors	Garage
				Material	Type								
1a	Single H	1922	concrete	pat shg	gable	st./pat. shg	wd fr	full	1.5	7	pine pl	hdw	Unattached
1b	Single H	1900	concrete	roll	gable	wd. siding	wd fr	full	1.0	4	wall bd	pine	---
2b	Single H	1878	stone	wd shg	gable	wd siding	wd fr	part	2.0	14	pine pl	hdw/pine	Unattached
3a	Single H	1900	st/conc	comp	gable	Wd. siding	wd fr	part	1.5	5	pine pl	hdw/pine	---
4a	Single H	1890	stone	pat shg	gable	wd. siding	wd fr	full	2.0	9	hdw pl	hdw	Unattached
5a	Single H	1929	concrete	pat shg	gable/sh	wd. siding	wd fr	full	1.5	6	pine pl	hdw	Attached
5b	School	1910	stone	pat shg	hip/gable/sh	Wd. siding	wd fr	full	1.0	---	---	---	---
6a	Single H	1928	stone	pat shg	gable	wd. siding	wd fr	full	1.0	4	wall bd	pine	Unattached
6b	Single H	1890	stone	roll	gable	wd. siding	wd fr	part	1.5	6	pine pl	hdw/pine	Unattached
8a	Single H	1908	st/conc	wd shg	gable	fin. lbr.	wd fr	part	1.5	8	pine pl	hdw/pine	Unattached
9d	Single H	1860	stone	roll/wd shg	gable/sh	wd siding	wd fr	part	1.0	7	plaster	hdw/pine	Unattached
10a	Single H	1895	stone	pat shg	gable/sh	wd sd/ab shg	wd fr	part	2.0	8	plaster	hdw/pine	Unattached
11c	Single H	1904	st blk	roll/pat shg	gable	wd siding	wd fr	part	1.5	8	pine pl	hdw/pine	Unattached
11d	Tenant H	1932	conc	roll/Wd shg	gable/sh	wd siding	wd fr	none	1.0	5	plaster	hdw	---

There were two basic roof types utilized in the construction of the centennial farm homes. All of the buildings used a gable roof. However, only sixty-nine percent (69%) of the thirteen buildings employed gable roofs exclusively. The remainder of the farm houses applied a combination of gable and shed roofs. Porch roof types were not recorded in the rural property inventory. The combination of roof types used on a single structure was a consequence of the continuing evolution of these buildings; gable roofs, however, appear to characterize the original part of the farm homes.

Approximately forty-six percent (46%) of the thirteen farm houses were listed as one and one-half stories. Single and two-story homes made up the remaining thirty-one percent (31%) and twenty-three percent (23%) of the homes, respectively. However, it should be pointed out that fifty-four percent (54%) of the thirteen farm houses had appendages with fewer stories than the main portion of the home. These factors contributed to complex roof lines for a portion of the centennial farm homes.

The tenant house was the only house which did not have a basement. Out of the twelve remaining farm houses, fifty-eight percent (58%) had partial basements and five had full basements. Foundations for centennial farm houses were stone and concrete in 1939. Approximately thirty-one percent (31%) of the thirteen foundations were comprised exclusively from concrete and forty-six percent (46%) were comprised exclusively of stone. An additional fifteen percent (15%) of the buildings utilized a combination of stone and concrete. Only one house used stone block.

Most of the thirteen centennial farm houses, approximately seventy-seven percent (77%), utilized wood siding on their exterior walls in 1939. An additional

home had a combination of wood siding and asbestos shingles on its exterior walls. The remaining two homes had finished lumber or a combination of stone and patterned shingles on their exterior walls.

Centennial farm houses were roofed with a variety of materials in 1939. Approximately thirty-eight percent (38%) of the thirteen roofs were exclusively of patterned shingles. These shingles appear to have some type of a pattern embossed onto, or cut into the face of the material. Wood shingles were employed on thirty-one percent (31%) of the homes: two exclusively and two in conjunction with roll shingles. An additional twenty-three percent (23%) of the houses use roll shingles: two exclusively and one in conjunction with patterned shingles. A roll appears to be a three foot wide composition shingle packaged in a roll. A single home was clad in composition shingles, which are currently made of asphalt impregnated felt that is coated with colored granules. It is unclear whether this is the same composition of the shingles used in 1939 on this house.

The majority of the farm homes, sixty-nine percent (69%) of the thirteen, had porches. Of these nine farm houses, fifty-six percent (46%) had two porches. One farm house had five porches and another had three. Of the twenty porches, fifty percent (50%) were covered porches and fifteen percent (15%) were open porches. Only ten percent (10%) of the porches were completely enclosed. Screened-in porches and cut-in porches made up twenty percent (20%) and five percent (5%) of the porches, respectively (see Table 3 for an inventory of the porches).

Table 3
Attached Farm House Structures

Code	Porches		Sheds		Other	
	Type	Qty	Type	Qty	Type	Qty
1a	screen-enclosed	1	---	---	---	---
1b	screen-enclosed cut-in	1	shed	1	---	---
		1	---	---	---	---
2b	open covered	1	---	---	---	---
		2	---	---	---	---
3a	covered	1	lean-to	1	---	---
4a	enclosed	2	---	---	---	---
	open	2	---	---	---	---
	covered	1	---	---	---	---
5a	---	---	lean-to	1	garage	1
5b*	cut under cover	2	lean-to	3	---	---
8a	covered	2	lean-to	1	---	---
9d	covered	2	lean-to/wood shed	1	---	---
10a	covered	2	lean-to	1	---	---
11c	screen-enclosed ---	2 ---	wood shed ---	1 ---	bay window turret	1 1
11d	---	---	lean-to	1	---	---
* School House						

Approximately sixty-two percent (62%) of the thirteen centennial farm houses had some type of a structure attached to the main part of the home in 1939 (see Table 3). The majority of these nine structures, approximately sixty-seven percent (67%), were classified as a lean-to. One structure was listed as a wood shed and one as a shed. The final structure was listed as a lean-to/wood shed.

Of the thirteen farm houses, seventy-seven percent (77%) had a garage associated with the house in 1939. However, only one of these homes had an attached garage (See Tables 2 and 3). In the case of the attached garage, it was located at the back of the house, where it was less intrusive visually. One of the garages also had a lean-to attached to it. Sleeping quarters also were associated with one farmhouse.

Foundation materials were recorded for eighty-nine percent (89%) of the nine unattached garages (see Table 4). Concrete foundations were used for seventy-five percent (75%) of these eight garages. A stone foundation was utilized for one garage. Wood post foundations were employed for one garage, the lean-to and the sleeping quarters.

Wood (i.e., clapboard) siding was used as the wall surface of forty-four percent (44%) of the nine unattached garages; wood siding also was utilized on the sleeping quarters. Finished lumber was employed on twenty-two percent (22%) of the garages. Wood, rough lumber and a roll were each selected to surface the walls of one garage.

Table 4
Unattached Farm House Structures

Code	Building Type	Year Built	Dimensions	Foundation	Exterior Walls
1a	Garage	1930	20x18x10	Concrete	Roll
2b	Garage	1914	30x16x10	Concrete	Wd Siding
4a	Garage Slp Qrts	192- 1920	41x28x18 16x08x08	Concrete Wd Post	Wd Siding Wd Siding
6a	Garage	1928	38x12x08	Stone	Wd Siding
6b	Garage	1900	18x14x10	—	Wood
8a	Garage	1912	18x18x10	Concrete	Fin Lbr
9d	Garage	1920	16x12x08	Wd Post	Rgh Lbr
10a	Garage	1918	18x12x10	Concrete	Fin Lbr
11c	Garage <i>ln2</i>	1929 <i>1930</i>	20x12x10 <i>12x09x06</i>	Concrete <i>Wd Post</i>	Wd Siding —
<i>The entries appearing in italics are additions or lean-tos. They are attached to the structure listed directly above them.</i>					

Farmstead Structures

There were twelve farmsteads associated with the centennial farms. Barns will be analyzed separately for construction types and building materials. Other farmstead structures will be analyzed together.

Farmstead Barns

Approximately eighty-three percent (83%) of the twelve farmsteads with farm buildings had a main barn (see Table 5). Out of these ten structures, sixty percent (60%) had a basement and another sixty percent (60%) had an addition or lean-to built onto the main structure. Two of the ten barns had both amenities. There were, however, eleven additions and eight basements. Only two of the additions had basements.

Most of the ten barns, seventy percent (70%), had a gable roof. Gambrel roofs accounted for the remaining thirty percent (30%) of the barn stock. All of the additions or lean-tos had shed roofs. Of the seven gable roofed barns, seventy-one percent (71%) had shed roofed lean-tos or additions. One gambrel roofed barn also had shed roofed lean-tos.

Roll shingles and patterned shingles were each used to roof thirty percent (30%) of the ten barns. Wood shingles were utilized to roof twenty percent (20%) of the barns. Metal, and a combination of wood shingles and metal, were each employed to roof one barn. Wood shingles were used to roof eighteen percent (18%) of the eleven additions or lean-tos. Roll shingles and patterned shingles roofed fifty-five (55%) and eighteen percent (18%) of the additions or lean-tos, respectively. Only thirty-three percent (33%) of the six barns with additions or lean-tos applied the same roofing materials on the barn and the addition(s) or lean-tos(s).

Half of the ten barns utilized rough lumber as a wall surface. Finished lumber was used on forty percent (40%) of the barns. Wood siding was only used on one of the barns. Rough lumber was employed on sixty-four (64%) percent of the additions or lean-tos. Wood siding and finished lumber were each used on eighteen percent (18%) of the additions or lean-tos. Of the six barns with additions or lean-tos, sixty-seven percent (67%) applied the same exterior wall material on both the barn and the additions. Stone and concrete walls each accounted for fifty percent (50%) of the eight barn basements.

Stone was used for the foundations of sixty percent (60%) of the ten barns; a stone wall was utilized as the foundation of one barn. Concrete was employed for the

foundations of the remaining thirty percent (30%) of the barns. Concrete was also used for the foundations of forty-six percent (46%) of the eleven barn additions or lean-tos. Wood posts and stone posts were used for the foundations of twenty-seven (27%) and nine percent (9%) of the barns additions or lean-tos, respectively. Stone was used for the foundations of eighteen percent (18%) of the barn additions or lean-tos. Thirty-three percent (33%) of the six barns with additions or lean-tos used the same foundation material for the barn and the addition(s) or lean-to(s).

Other Farmstead Structure Types

There were thirty-eight farmstead structures other than barns on the centennial farms in 1939. Food storage structures such as granaries, silos and corn storage buildings were represented on thirty-three (33%), seventeen (17%), and forty-two percent (42%) of the twelve farmsteads listing farms structures, respectively (see Table 6). Only one farmstead had a smoke house when the inventory was taken in 1939. Animal structures such as hen houses were present on fifty percent of twelve farmsteads with farm structures; only one farm had a brooder house.

A bee house and a hog house were each present on a single farmstead. Storage buildings such as sheds and tool sheds were present on fifty (50%) and twenty-five percent (25%) of the twelve farmsteads, respectively. An inventory card for a single farm also listed buildings labeled store and storage. Only one farmstead had a well house. This also was true for a pump house. Only two of the thirty-eight structures had lean-tos. There were, however, three lean-tos listed in the inventory; two of the lean-tos were attached to one structure.

Table 6
Farmstead Structures

Code	Building Type	Year Built	Dimension	Foundation	Exterior Walls
1a	Gran. Shed	1900 1900	24x24x16 16x10x08	Stone Wood Post	Wd Siding Rgh Lumber
1b	Shed	1900	08x06x06	Concrete	Rgh Lumber
2b	Silo Hen House Brooder Well House Hen House Bee House	1904 1893 1931 1932 1910 1915	22x10x-- 35x20x07 33x13x06 12x08x07 15x13x10 15x10x8	Concrete Concrete Concrete Concrete Concrete Concrete	Wd Siding Matched Lbr Wd. Siding Stone Rgh Lumber Wd Siding
3a	Tool Corn	1890 1920	18x12x10 --x16x08	Wd Post Wd Post	Rgh Lumber Rgh Lumber
4a	Tool Store Corn Hen Smoke Storage	1890 1900 1920 1900 1890 1892	36x20x10 30x18x18 20x16x09 14x12x08 08x06x04 36x18x14	Wd Post Concrete Tile Post Concrete Stone Stone Pier	Rgh Lumber Wd Siding Rgh Lumber Wd Siding Stone Wall Fin Lumber
5a	Hog House Shed Silo	1930 1925 1930	10x10x06 20x20x08 30x10x--	Wd Post Concrete Concrete	Wd Siding Wd Siding Fin Lumber
6b	Hen House Corn-Tool Granary	1890 1890 1900	18x10x05 16x14x12 12x12x10	Wd Post Wd Post Stone Pier	Rgh Lumber Rgh Lumber Wd Siding
7b	Shed	1920	20x08x09	Stone Post	Fin Lumber
8a	Granary Hen House	1900 1935	16x12x10 14x12x08	-- Concrete	-- --
9d	shed <i>In2</i> <i>In2</i> Corn shed	1907 <i>1907</i> <i>1907</i> 1900 1900	20x14 <i>20x12x06</i> <i>20x10x06</i> 16x04x08 06x06x06	Wd Post <i>Wd Post</i> <i>Stone</i> Wd Post Wd Post	Rgh Lumber <i>Rgh Lumber</i> <i>Rgh Lumber</i> Rgh Lumber Rgh Lumber
10a	Granary <i>In2</i> Hen House	1880 <i>1938</i> 1928	16x14x10 <i>14x09x07</i> 14x12x06	Wd Post <i>Wd Post</i> Concrete	Rgh Lumber <i>Rgh Lumber</i> Roll
11c	Pump H Corn Crib Shed Shed Hen House Hen House Hen House Water Tank Water Tank	1930 1910 1910 1910 1920 1930 1925 1935 1935	10x06x08 24x04x06 24x10x06 12x07x04 08x06x06 21x10x05 10x08x08 6' dia 6' dia	Concrete Wd Post Wd Post Wd Post Wd Post Concrete Concrete Concrete Concrete	Wd Siding Rgh Lumber Rgh Lumber Rgh Lumber Wd Siding Wd Siding Rgh Lumber Steel Steel

The entries appearing in italics are additions or lean-tos.

Concrete foundations accounted for forty-two percent (42%) of the thirty-eight farmstead structures. Although thirty-nine percent (39%) of the structures had a wood post foundation, only one foundation was comprised of tile posts. Stone foundations were used on five percent (5%) of the farmstead structures. Stone posts and piers comprised the foundations of the remaining three (3%) and five percent (5%) of the structures, respectively. Wood post foundations accounted for sixty-seven percent (67%) of the three lean-tos. A stone foundation was employed for the remaining lean-to. Only one of the structures with a lean-to applied the same type of foundation for the structure and the lean-to.

Rough lumber accounted for the exterior surface of forty-five percent (45%) of the thirty-eight percent of farm structures. Wood siding and finished lumber were utilized on thirty-two (32%) and eight percent (8%) of the structures, respectively. Matched lumber, stone, a stone wall and a roll were each employed on a separate structure. Rough lumber was used on all three of the farm structure lean-tos. All of the farm structures with lean-tos used the same siding on both the structure and the lean-to(s).

Fence Types and Materials

Fences were recorded on five of the properties (see Table 7). Barbed and woven wire were used on sixty-seven percent (67%) of the six fences. Woven wire without barbs was utilized on the remaining two fences. A wood stud was employed for one of the fences while wood posts supported another four fences. Steel posts supported the final fence.

Table 7
Farmstead Fences

Code	Type	Posts	Condition
2b	Woven Wire Barbed and Woven Wire	Wood Wood	Fair Poor
4a	Barbed and Woven Wire	Wood	Fair
8a	Barbed and Woven Wire	Wood Stud	Fair
10a	Barbed and Woven Wire	Wood	Fair
10b	Woven Wire	Steel	Good

Table 8
Farm House Characteristics

Construction		Siding		Unique Features	
wood	100.0%	wood siding	76.9%	bay window ¹	7.7%
		wood siding/asbestos		turret ¹	7.7%
Roofs		shingle	7.7%	none	92.3%
gable	69.2%	finished lumber	7.7%		
gable/shed	30.8%	stone/patterned		Additions	
		shingle	7.7%	present	61.5%
Stories				none	38.5%
one	46.2%	Roofing Shingles			
one and one-half	30.8%	patterned	38.4%	Addition Types	
two	23%	roll	15.4%	lean-to	66.7%
		wood	15.4%	wood shed	11.1%
Rooms		wood/roll	15.4%	shed	11.1%
eight	23%	composition	7.7%	lean-to\wood shed	11.1%
seven	15.4%	roll/patterned	7.7%		
six	15.4%			Garages	
five	15.4%	Interior Walls		unattached	69.2%
four	15.4%	pine planks	53.8%	attached	7.7%
fourteen	7.7%	plaster	23.1%	none	23.1
nine	7.7%	wallboard	15.4%		
		hardwood planks	7.7%	Foundations	
Basements				concrete	75.0%
partial	53.8%	Porches		stone	12.5%
full	38.5%	two	38.4%	wood post	12.5%
none	7.7%	zero	30.8%		
		one	15.4%	Siding	
Building Materials		five	7.7%	wood siding	44.4%
stone	46.2%	three	7.7%	finished lumber	22.2%
concrete	30.7%			rough lumber	11.1%
stone/concrete	15.4%	Porch Types		wood	11.1%
stone block	7.7%	covered	50.0%	roll shingles	11.1%
		screened-in	20.0%		
Floors		open	15.0%		
pine/hardwood	53.8%	enclosed	10.0%		
hardwood	30.8%	cut-in	5.0%		
pine	15.4%				

¹These features were on the same farmhouse

Table 9
Barn and Farmstead Structure Characteristics

Farm/Barn Ratio		Addition Walls		Farm/Structure Ratio	
present	83.3 %	rough lumber	63.6 %	bee house	2.6 %
none	16.7 %	wood siding	18.2 %	tool shed	25 %
Barn Foundations		finished lumber	18.2 %	corn storage	41.6 %
stone	60.0 %	Addition Roofs		storage	2.6 %
concrete	30.0 %	shed	91.0 %	smoke house	2.6 %
stone wall	10.0 %	not recorded	9.0 %	pump house	2.6 %
Barn Walls		Addition Shingles		hog house	2.6 %
rough lumber	50.0 %	wood	18.2 %	storage	2.6 %
wood siding	10.0 %	roll	54.6 %	Structure Foundations	
finished lumber	40.0 %	patterned	18.2 %	stone	5.3 %
Barn Roof Types		Addition Floors		stone pier	2.6 %
gable	70.0 %	wood	18.2 %	stone post	5.3 %
gambrel	30.0 %	concrete	27.3 %	tile post	2.6 %
Barn Roof Shingles		dirt	45.5 %	wood post	39.5 %
wood	20.0 %	not recorded	9.0 %	concrete	42.1 %
roll	30.0 %	Barn Basements		not recorded	2.6 %
patterned	30.0 %	present	60.0 %	Structure Walls	
metal	10.0 %	none	40.0 %	rough lumber	44.7 %
wood/metal	10.0 %	Basement Walls		wood siding	31.6 %
Barn Floors		stone	50.0 %	finished lumber	8.0 %
wood	70.0 %	concrete	50.0 %	matched lumber	2.6 %
rough lumber	10.0 %	Basement Floors		stone	2.6 %
dirt	10.0 %	concrete	75.0 %	stone wall	2.6 %
plank	10.0 %	dirt	25.0 %	roll	2.6 %
Barn Additions		Farm/Structure Ratio		not recorded	5.3 %
present	60.0 %	granary	33.3 %	Structure Additions	
none	40.0 %	shed	50.0 %	present	5.3 %
Addition Foundations		silo	16.7 %	none	94.7 %
stone	18.2 %	hen house	50.0 %	Addition Foundations	
stone post	9.0 %	brooder house	2.6 %	stone	33.3 %
concrete	45.5 %	well house	2.6 %	wood post	66.7 %
wood post	27.3 %	Addition Walls		Addition Walls	
		rough lumber		rough lumber	100.0 %

Land Use

The following section is dedicated to a discussion of land use occurring on present-day centennial farm parcels in 1939. Table 10 provides an inventory of land use on a parcel by parcel basis.

Parcel Sizes

Centennial farm parcels ranged between 5.5 acres and eighty acres in 1939. Parcels forty to fifty acres in size accounted for thirty-three percent (33%) of the twenty-four centennial farm parcels. An additional thirty-eight percent (38%) of the parcels ranged between five and one-half acres and nineteen acres in size. Only thirteen percent (13%) of the centennial farm parcels on Old Mission Peninsula were over fifty acres in size.

Parcel Composition

The Rural Property Inventory cards also looked at the composition of farms in 1939. The cards listed the average of several agricultural types, including data on orchards, non-agricultural lands, agricultural lands and "other uses"; these data are included in this paper.

Class "A" agricultural lands were divided into two sub-categories: "Cropland and Farmsteads" and "Untillable Pasture." A farmstead is the area of a farm that is occupied by the farm home and other farm structures. Approximately seventy-one percent (71%) of the twenty-four centennial farm parcels on Old Mission Peninsula had acreage dedicated to cropland and farmstead in 1939. The acreage ranges from

Table 10
Land Use Inventory of Centennial Farm Parcels

C o d e	Acreage								
	Class "A" Agricultural				Class "D"	Class "E" Nonagricultural		O t h e r	T o t a l
	Cropland and Farmstead			Untillable Pasture		Road	Wooded Area		
	Total	Crops ^a	Farmstead ^a						
1a	14	11.7	2.3	—	16.5	1	8.5	—	40
1b	1	—	1.0	—	3	1	3	—	8
2a	5	5	—	29.5	—	—	5	.5 ¹	40
2b	22.5	19.3	3.2	3	35.5	3	16	—	80
3a	12.5	11	1.5	11.5	10.5	—	6	—	40.5
4a	16.5	12.75	3.75	—	23.5	3	7	—	50
5a	2	—	2	—	34.5	1	7	—	44.5
5b	—	—	—	—	—	—	—	1 ²	1
6a	13	11	2	11	27	.5	11	—	62.5
6b	—	—	—	—	4.5	—	1	—	5.5
7a	9.5	9.5	—	—	7.5	—	.5	—	17.5
7b	1.5	15	—	—	3.5	.5	—	—	19
7c	25	25	—	—	—	—	20	—	45
8a	16.5	15.56	.94	8	14	1.5	—	—	40
9a	8	8	—	—	—	—	—	—	8
9b	7.5	7.5	—	—	—	—	—	—	7.5
9c	—	—	—	—	7.5	—	—	—	7.5
9d	2	.5	1.5	—	7.5	.5	—	—	10
10a	47.5	45.7	1.8	—	11.5	1	19.5	—	79.5
10b	—	—	—	—	—	—	—	1 ³	1
11a	21	21	—	—	19	—	—	—	40
11b	—	—	—	—	—	—	—	—	3.46
11c	—	—	—	—	—	—	—	—	10.9
11d	—	—	—	—	—	—	—	—	—

^a These acreage estimates are made by the author

¹ Waste land

² School lot

³ Cemetery

approximately one to 47.5 acres.

Only forty-two percent (42%) of the inventory parcels recorded having acreage in the "cropland and farmsteads" category and a farmhouse. These farmsteads ranged in size from approximately one acre to 3.75 acres. However, fifty-four percent (54%) of the inventory cards recorded farm or tenant houses in 1939. The average farmstead was approximately two acres in size.

It should be noted that the farmstead acreages were not listed on the inventory cards. However, many of the land use sketches on the cards included a scale or the outside dimensions of the farmstead. These sources of information were used to approximate the areas occupied by the farmsteads.

Only twenty-one percent (21%) of the twenty-four centennial farm parcels had untillable pastures in 1939. Pastures ranged from three acres to 29.5 acres. Of the five pastures, two contained around eleven acres each. Only one pasture was 29.5 acres in size. Orchards were found on sixty-three percent (63%) of the twenty-four centennial farm parcels in 1939. An average orchard was around fifteen acres in size. Orchards ranged from three to 35.5 acres. Sixty percent (60%) of the orchards covered less than fifteen acres.

Wooded areas could be found on fifty percent (50%) of the twenty-four centennial farm parcels in 1939. Wooded areas ranged from half an acre to twenty acres. Of the twelve wooded areas, thirty-three percent (33%) were over ten acres in size. Other uses such as a school lot and a cemetery were listed on thirteen percent (13%) of the twenty-four centennial farm parcels. Both of these land uses were an acre in size. One farm parcel listed a half acre of waste land.

Farm House Setbacks

There were a wide range of setbacks listed on the rural property inventory cards (see Table 11). The setbacks for homes identified as single family ranged from nine to four hundred feet from the road right-of-way (ROW) fronting the farms. However, it should be noted that sixty-seven percent (67%) of the twelve single family homes were setback less than one hundred feet. An additional twenty-five percent (25%) of homes are setback between one hundred and two hundred feet. Only one home was setback four hundred feet. The tenant house was setback two hundred and eighty feet.

Table 11
Building Setbacks

Code	Setback	Code	Setback	Code	Setback
1a	10.0	5a	9.0	9d	132.0
1b	30.0	5b ^a	5.5	10a	72.0
2b	80.0	6a	30.0	11c	193.0
3a	93.0	6b	15.0	11d ^b	280.5
4a	105.0	8a	400.0		
^a School ^b Tenant House					

Based upon the ease of profiling the Michigan Rural Property Inventory (MRPI) data recorded in this section, the null hypothesis (H_0) is rejected. H_1 is accepted because it is clear from Tables 2-11 that at least a gross approximation of the vernacular architecture of an area can be profiled. H_2 is accepted because earlier work confirmed the validity of the MRPI, and data from this thesis, when compared to other sources, confirms the practical and valuable nature of this research.

DISCUSSION

I believe that contemporary development practices are destroying many of the qualities of exurban areas that first attracted existing residents. This degradation, however, is not inevitable. Application of the three common Civic Design principals to proposed exurban developments, in my opinion, can help to preserve positive rural qualities (i.e., open space, agricultural identity, scenic quality, etc.). The *reintroduction of multimodal transportation*, however, is a difficult and expensive principal to implement; as a result of this factor, it may be an unobtainable goal for many regions. Fortunately, *small community scale* and *a reliance on vernacular form* are easier principals to implement. These principals can be enacted through local ordinances (i.e., building recommendations and zoning) and private deed restrictions.

Building recommendations, the focus of this thesis, should be proffered in such a way that architectural diversity is encouraged. If architectural diversity is not encouraged, it is my opinion that Civic Communities will only trade one form of sterile homogeneity for another, albeit regional, form. In order to achieve this diversity, other architectural forms should not be prohibited; as long as a majority of structures in a small community adhere to the regional vernacular form, I believe community identity will be enhanced. Vernacular building materials, or their acceptable contemporary substitutes, however, should be encouraged in all instances. These materials are appropriate to the region's climate, and adds an extra level of continuity to diverse vernacular forms. Limiting this stricture to exterior materials should be adequate. Home interiors are not readily accessible to the general public; because of this factor, I see no reason to regulate interior spaces.

I propose that Civicly Designed exurban developments in Peninsula Township, Grand Traverse County, Michigan, and other regions whose citizenry wish to preserve commercial agriculture, have dense development patterns in order to conserve farmland; the application of vernacular residential structure characteristics will help to provide visual continuity despite the greater development densities. Large-lot (i.e., lots large enough to be economically farmed) exurban developments, located on the periphery of proposed Civic Communities, could utilize both vernacular architectural styles and land use characteristics to make a smooth transition between the Civic Communities and their rural surroundings.

The profiles of Centennial Farm vernacular architectural and land use characteristics of Peninsula Township, generated by utilizing the secondary information gathered from the Michigan Rural Property Inventory (MRPI), were used to determine a portion of the agricultural sense of place that contributes to the Township's unique character. This action proves that MRPI data can be used to provide at least a gross approximation of the vernacular (non-urban) architecture of Michigan. MRPI data are a valid and reliable source of information on the vernacular (non-urban) architecture of Michigan. However, gaps in the information provided by the Michigan Rural Property Inventory (MRPI) necessitate further study (e.g., field inventories and the use of other secondary sources). For example:

- 1) the homes and farmstead structures are not located on the property sketches. Therefore, aerial photographs must be used to locate these buildings on the property;
- 2) data concerning windows, doors, and architectural detailing was not

collected for the MRPI. Other sources (e.g., photographs), or field work, must be utilized in order to obtain this information;

- 3) MRPI cards are often missing. Plat records, aerial photographs, and other secondary sources must be used to fill in the voids created by the missing cards.

Table 12 provides possible building recommendations for houses and associated farmhouse structures in the agricultural portions of Peninsula Township if one were to use Centennial Farms as the models for vernacular architecture; these recommendations could have an urban, as well as a rural, application. Table 13 provides possible building recommendations for barns and farmstead structures; these recommendations will have only rural applications. Both tables relate acceptable architectural forms and materials for contemporary building activities based on the MRPI. It is important to note that these tables contain only suggestions for maintaining continuity with past vernacular architecture; they are not meant to be definitive or to be slavishly applied in the contemporary housing market.

Table 12
House and Associated Farmhouse Structure Recommendations

Construction - <i>balloon frame</i> - <i>wood frame</i> Originally, balloon framing predominated architecture of the late 1800's and early 1900's. However, this has been replaced by standard story framing construction. Houses, and their associated structures, can now utilize standard wood frame construction. Wood frame construction is characterized by a frame of 2-by-4 inch studs upon which interior and exterior siding is attached. Nails are most often used to attach building frames together. Nails are also used to attach siding to the building frame.
Number of Stories - <i>one story</i> - <i>two stories</i> - <i>one and one half story</i> Houses should be comprised of one, one and one half, or two stories. Different portions of a home may be comprised of different stories (i.e., a porch, room, or a shed attached to the home may only be one story while the main structure is two stories). A one and one half story building has two floors. The exterior walls of the second floor, however, are only half as high as the interior walls; the roof intersects the exterior walls.
Siding - <i>wood siding</i> - <i>asphalt shingles</i> - <i>finished lumber</i> - <i>vinyl and aluminum siding</i> Architects and home builders may use wood siding (i.e., horizontal wood siding), asphalt shingles, or finished lumber as home siding. Vinyl and aluminum siding may be used as a substitute for wood siding. Different sections of a home (e.g., a porch, room, or a shed attached to the home) may be sided in different materials.
Roof Types - <i>gable</i> - <i>gable and shed</i> All new homes should be covered by a gable roof. Portions of a home (e.g., a porch, new room, or a shed attached to the home), however, may be covered by a gable, shed, or a combination of the two. Roofing Materials - <i>wood shingles</i> - <i>asphalt (composition) shingles</i> Roofs of homes may be covered by wood or asphalt shingles. The roofs of porches, additions, and sheds may be clad in a different roofing material than the main structure.

Table 12 (continued)

Basement Presence

- *none*
- *partial*
- *full*

Homes should have a full, or at least a partial, basement. Seasonal homes do not need basements. Many seasonal homes, however, are winterized at a later date; they would be much more comfortable in the winter if they had a basement.

Basement Materials

- *stone*
- *concrete*
- *stone block*
- *concrete block*

Basements may be constructed of stone, concrete, or stone block. Concrete block may be substituted for concrete. Secondary portions of a home may or may not have a basement; if they do, the secondary basements may be composed of a different material than the main basement. Concrete should not be formed to look like brick or stone.

Porch Occurrence

- *zero*
- *one to two*
- *up to five*

New homes are encouraged, but not required, to have porches. Most homes should have one or two porches. New single-family and multi-family structures may have up to five porches. Multiple porches should make it easy to give each unit its own entrance.

Porch Typology

- *covered*
- *screened-in*
- *open*
- *enclosed*
- *cut-in*

Porches may consist of many different forms (e.g., covered, screened-in, open, enclosed, or cut-in). Each home may have more than one type of porch. Suburban-style decks are discouraged. If decks are constructed, they should be completely screened from the road.

Table 12 (continued)

Attached Structure Presence

- *none*
- *presence*

Attached structures are encouraged, but not required, of new homes. Homes designed, however, to look as though additions and attached structures were added to the main part of the home will better represent the rambling nature of the Township's vernacular farmhouse architecture.

Attached Structure Typology

- *lean-to*
- *wood shed*
- *shed*

Attached structures may consist of structures designed to look like a lean-to or some type of a storage shed. These structures, however, are not required to function as a shed or a lean-to.

Garage Type and Occurrence

- *unattached*
- *attached*
- *none*

New homes may include a garage. Garages should be encouraged, but not required, to be unattached. Attached garages, however, should be required to be at the rear of a home.

Garage Foundation Materials

- *concrete*
- *stone*
- *wood post*

Garage foundations should be comprised of one of three materials: concrete, stone, or wood posts. A garage foundation does not need to be comprised of the same materials as the basement of the home to which it is associated. Concrete should not be formed to look like brick or stone.

Garage Siding

- *wood siding*
- *finished lumber*
- *rough lumber*
- *vinyl and aluminum siding*

Garage siding may be comprised of one of three materials: wood siding (i.e., horizontal wood siding), finished lumber, or rough lumber. Vinyl and aluminum siding may be substituted for siding. The siding of a garage also does not need to be comprised of the same materials as the home to which it is associated.

Table 13
Barn and Farmstead Structure Recommendations

Barns
Barn Foundations - <i>stone</i> - <i>concrete</i> - <i>stone post</i> - <i>wood post</i> - <i>concrete block</i> Barn foundations are to be comprised of one of two materials: concrete or stone. Concrete block may be substituted for concrete. Addition foundations may be composed of one of the following materials: stone, concrete, stone post, and wood post. Concrete should not be formed to look like brick or stone.
Barn Siding - <i>rough lumber</i> - <i>finished lumber</i> - <i>wood siding</i> - <i>vinyl and aluminum siding</i> Barn siding may be comprised of one of three materials: wood siding (i.e., horizontal wood siding), finished lumber, or rough lumber. Vinyl or aluminum siding may be substituted for wood siding. The same materials may be used to side barn additions. Addition siding, however, does not need to match barn siding.
Roof Types - <i>gable</i> - <i>gambrel</i> - <i>shed</i> Barns should have gable or gambrel roofs. Additions, however, may employ a shed roof.
Roofing Materials - <i>wood shingle</i> - <i>asphalt shingle</i> - <i>metal</i> Barns, and their associated additions, should be roofed in wood shingles, asphalt shingles, or metal. Addition roofs may employ a different roofing material than the main barn.

Table 13 (continued)

Presence of Basements - <i>present</i> - <i>none</i> Barns should not be required to have basements. However, barn basements should be encouraged; they can be used as additional parking for automobiles, boats, or other recreational vehicles.
Basement Materials - <i>stone</i> - <i>concrete</i> - <i>concrete block</i> Basement walls should be composed of stone or concrete. Concrete block may be substituted for concrete. Concrete should not be formed to look like brick or stone.
Farmstead Structures
Farmstead Structure Foundations - <i>stone</i> - <i>concrete</i> - <i>stone post</i> - <i>wood post</i> - <i>concrete block</i> Structure foundations, and the foundations of associated additions, may be composed of one of the following materials: wood post, concrete, stone, or stone post. Concrete block may be substituted for concrete. Additions, however, should not be required to be the same materials used for the main portion of the farmstead structure. Concrete should not be formed to look like brick or stone.
Farmstead Structure Walls - <i>rough lumber</i> - <i>wood siding</i> - <i>finished lumber</i> - <i>vinyl and aluminum siding</i> Structure walls, and the additions associated with the structure, may be composed of rough lumber, wood siding (i.e., horizontal wood siding), or finished lumber. Vinyl and aluminum siding may be substituted for wood siding. Additions, however, are not required to be the same materials used for the main portion of the farmstead structure.

CONCLUSION

Most of the residents of the United States currently lead a suburban lifestyle. Much of this contemporary development is exurban in nature. Most exurbs are developed as "islands of nonrural housing in a very rural context" (Szczygiel, 1995). Individuals striving to maintain this lifestyle must be willing to sacrifice the substantial amount of time required to travel between work, home, shopping and leisure-time activities. People often work and live in two separate municipalities within the same polycentric city; shopping, recreational, and other leisure-time facilities are often located in municipalities unrelated to where they work or live.

Polycentric communities have many advantages (i.e., it is easy to travel to most destinations and there are enough people to support quality sporting and cultural institutions). It should now be clear, however, that those same virtues of polycentric cities, in their current form, also exacerbate many of the problems of the human condition.

"Design [and other] professionals have been decrying sprawl for decades, on the grounds that it obliterates farmland, open space and local character, not to mention the local funds required to pay for [an expansive] infrastructure. ...[T]heir struggle has had only spotty success, [however,] as sprawl continues to be fed by government subsidies, growing population and public demand for country lifestyles, automotive convenience and economic growth" (Henderson, 1995). Many proposed

solutions to the problems of suburbia have been tested in the past (i.e., environmental, municipal fiscal, and quality of life). Normally aimed at specific problems, these solutions were not comprehensive. They also were most often incremental in nature. Civic design strategies, however, are comprehensive. They are designed to look at environmental, municipal fiscal, and quality of life issues together, rather than as mutually exclusive entities. Civic Design strategies normally have three distinct foci:

- 1) the reintroduction of multimodal transportation;
- 2) a small community or neighborhood scale;
- 3) a reliance on vernacular form.

The author utilized vernacular structures located within the agricultural portions of Peninsula Township, Grand Traverse County, Michigan as a case study to show how vernacular architectural characteristics can be applied to contemporary building practices. The study resulted in the following methodology:

- 1) a sample of vernacular structures is analyzed (i.e., farm homes and farmstead structures) in order to ascertain their form (i.e., construction, number of stories and roof type) and the materials used in their construction (i.e., wood for the frame, concrete for the foundation, and wood shingles for the roof). Previous studies, such as the Michigan Rural Property Inventory (MRPI), can often be utilized to provide much of the needed information;
- 2) the information recorded on the MRPI cards facilitated the creation of various inventories about the centennial farms:

- a) farm homes;
 - b) farmstead barns;
 - c) land use;
- 3) the inventories allowed facilitated the compilation of various summaries regarding vernacular structures:
- a. farm houses;
 - b. barns and farmstead structures;
- 4) contemporary uses for vernacular forms are then discussed:
- a) barn basements and tool sheds used as garages;
 - b) wood sheds and lean-tos used to enlarge a farm house;
- 5) Acceptable architectural forms and materials are discussed. It is at this point that contemporary substitutes for traditional materials are addressed.
- a) farm houses and structures associated with farm houses;
 - b) barns and farmstead structures associated with barns.

Vernacular development characteristics can be used to protect community identity in the exurban regions of polycentric cities. This can be accomplished by using vernacular architectural and land use characteristics, and the methodology summarized in the preceding paragraph, to develop suggestions as to how new development should relate to existing conditions (i.e., architectural and land use recommendations).

Based upon the results of the case study, the author accepted both of the hypotheses that guided the development of this thesis. Secondary resources can be

utilized to provide much of the information about vernacular architecture and land use needed to formulate suggested guidelines for new exurban developments. Michigan's development community is fortunate to have the Michigan Rural Property Inventory (MRPI) as an excellent secondary source regarding vernacular architectural characteristics and land use.

GLOSSARY OF TERMS*

Asbestos Shingle--	"A fire-resistant roofing shingle, composed largely of asbestos" (Harris, 1975).
Composition Shingle--	<i>See Asbestos Shingle.</i>
County--	Every township in Michigan is located in a county. County governments assume responsibility for providing elements of infrastructure that are too expensive for the townships to handle individually.
Finished Lumber-- (Dressed Lumber)	<i>"Lumber having one or more of its faces planed smooth" (Harris, 1975).</i>
Gable Roof--	"A roof having a gable at one or both ends" (Harris, 1975).
Gambrel Roof--	"A roof which has two pitches on each side" (Harris, 1975).
Geographic Range--	The location of a township or section, east or west, of the Michigan survey meridian line.
Geographic Township--	The location of a township or section, north or south, of the Michigan survey base line.
Hip Roof--	"A roof which slopes upward from all four sides of a building, requiring a hip rafter at each corner" (Harris, 1975).
Lean-To--	"A small extension to a building with a roof (having but one slope) whose supports lean against the building" (Harris, 1975).

**Terms that appear in italics are the best approximations of the author. They should be taken in that context.*

Matched Lumber--	"Lumber having dressed edges and prepared for tongue-and groove joints" (Harris, 1975).
Plank--	"A long, wide, square-sawn thick piece of timber; the specifications vary, but often the minimum width is 8 in (20 cm) and the minimum thickness is 2-4 in (5-10 cm) for softwood and 1 in (2.5 cm) for hardwood" (Harris, 1975).
Political Township--	Normally a township contains 36 sections or 36 square miles. However, Peninsula Township is composed of three geographic townships and two geographic ranges which contains a total of forty-five sections.
Roll--	"A roofing material manufactured by saturating a dry felt with asphalt and then coating the saturated felt with a harder asphalt mixed with a fine mineral, glass-fiber, asbestos, or organic stabilizer; available in the form of rolls. All or part of the weather side may be covered with mineral granules or with powdered talc or mica" (Harris, 1975).
Rough Lumber--	"Sawn lumber that has not been planed" (Harris, 1975).
Section --	A section is one square mile of land (640 acres).
Shed Roof--	"A roof shape having only one sloping plane" (Harris, 1975).
Pattern Shingle--	¹ <i>A shingle with a pattern on its face.</i> ² <i>Shingles that are arranged into a pattern.</i>
Wallboard--	"A rigid sheet composed of wood pulp, gypsum, or other materials; may be fastened to the frame of a building to provide an interior surface finish" (Harris, 1975).

**Terms that appear in italics are the best approximations of the author. They should be taken in that context.*

Wood Frame--	"Construction in which exterior walls, bearing walls and partitions, floor and roof constructions, and their supports are of wood or other combustible material, when the construction does not qualify as heavy timber construction or ordinary construction" (Harris, 1975).
Wood Shingle--	<i>A shingle made out of a thinly split wedge of wood and placed in an overlapping pattern on a roof.</i>
Wood Siding-- (Clapboard Siding)	<i>"A wood siding commonly used as an exterior covering on a building of frame construction; applied horizontally and overlapped...thicker on the lower edge than along the upper" (Harris, 1975).</i>

**Terms that appear in italics are the best approximations of the author. They should be taken in that context.*

BIBLIOGRAPHY

BIBLIOGRAPHY

- Anderson, Kurt. "Oldfangled New Towns." Time, 20 May 1991.
- Anderson, Sherwood. Winesburg, Ohio. New York: Signet Classic, Penguin Group, 1919.
- Bauman, Grant. "The Validity of Using the Michigan rural Property Inventory When Conducting Research and Planning Projects in Rural Michigan." E. Lansing, MI: Landscape Architecture Program, Michigan State University, 1990.
- Calthorpe, Peter. "Pedestrian Pockets: New Strategies for Suburban Growth." Whole Earth Review, Spring 1988.
- _____. "The Post Suburban Metropolis." Whole Earth Review, Winter 1991.
- Cervero, Robert. "Transit Villages: From Idea to Implementation." Access, Fall 1994.
- deHaven-Smith, West Jo. Growth Management Innovations in Florida. Fort Lauderdale FL: FAU and FIU Joint Center for Environmental and Urban Problems, 1988.
- Hamlin, Roger. "Current Status of Local Government Finance," UP 854, Economics of Planning and Development, E. Lansing, MI: Michigan State University Course Packet, 1992.
- Harris, Cyril M. [ed]. Dictionary of Architecture and Construction, New York: McGraw-Hill Inc., 1975.
- Henderson, Harold. "Coping With Sprawl." Landscape Architecture, April 1995.
- Jackson, Kenneth T. Crabgrass Frontier: The Suburbanization of the United States. New York: Oxford University Press, 1985.
- Katz, Peter [ed]. The New Urbanism: Toward an Architecture of Community. New York: McGraw-Hill, 1993.

- Krieger, Alex. Andres Duany and Elizabeth Plater-Zyberk: Towns and Town Making Principals. Cambridge MA: Harvard Graduate School of Design, 1991.
- Kunstler, James Howard. The Geography of Nowhere. New York: Simon and Schuster, 1993.
- Lewis, Sinclair. Main Street. New York: Signet Classic, Penguin Group, 1920.
- Levy, John M. Contemporary Urban Planning. 2nd ed. Englewood Cliffs, NJ: Prentice Hall, 1991.
- Mohney, David and Keller Easterling. Seaside: Making a Town in America. New York: Princeton University Press, 1991.
- Massachusetts Department of Environmental Management. Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development. Lincoln Institute of Land Policy and the Environmental Law Foundation, 1990.
- Michigan State Tax Commission. "Report of the State Tax Commission and The State Board of Assessors." 19th ed. (1935-1936). Lansing MI: Franklin DeKline Co., state printers.
- Michigan State Tax Commission. "Report of the State Tax Commission and The State Board of Assessors." 20th ed. (1937-1938). Lansing MI: Franklin DeKline Co., state printers.
- Michigan State Tax Commission. "Report of the State Tax Commission and The State Board of Assessors." 21st ed. (1939-1940). Lansing MI: Franklin DeKline Co., state printers.
- Michigan State Tax Commission. "Report of the State Tax Commission and The State Board of Assessors." 22nd ed. (1941-1942). Lansing MI: Franklin DeKline Co., state printers.
- Nelessen, Allen B. Visions For a New American Dream. Chicago: American Planning Association Planners Press, 1994.
- Szczygiel, Bonj. "Meeting the Exurban Challenge." Landscape Architecture, April 1995.
- Williams, Norman, Jr. and Edmund H. Kellog and Peter M. Lavigne. Vermont Townscape. Brunswick NJ: Rutgers, The State University of New Jersey, 1987.

W. W. Hixon and Co. Plat Book of Grand Traverse County, Michigan. Rockford
IL: W. W. Hixon and Co., 1930.

MICHIGAN STATE UNIV. LIBRARIES



31293014112886