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By

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ABSTRACT

CLINTON COUNTY RESIDENTS' PERSPECTIVES ON LAND USE TRENDS AND FARMLAND PRESERVATION STRATEGIES

By

Stacy Eileen Sheridan

Agriculture is Michigan's second largest industry, second only to manufacturing and contributes $37 billion annually to the economy. However, even with statistics that boost the industry's production rates and ranking among other industry's, it is struggling to remain viable.

Clinton County, Michigan, a rural community, north of the city of Lansing, lost over 22,000 acres of farmland between 1982 and 1997 – the equivalent of one entire township. Furthermore, if these trends continue at the same rate, Clinton County could lose and additional 40,000 acres of farmland by the year 2020.

This study evaluates the perspectives of Clinton County residents on land use trends, their effects and strategies to effectively slow them. The study determined if residents' recognized the loss of farmland as a very strong concern in the scope of other concerns facing the county. Although the survey revealed support for farmland preservation strategies, a lack of understanding of these programs was found.

ACKNOWLEDGEMENTS

I dedicate this work to my parents, Bill and Sally Sheridan, who taught me, among a myriad of lessons, the value of working hard, always have dreams and to persevere. Also, for pushing me to accomplish ambitions that I thought were too large to try, let along accomplish, and for always pushing me to realize my true potential. Your love and support has carved a person I am proud of. Thanks for being my steady drop that melts rock (E.D. "Bim" Franklin) I love you both.

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Introduction

Michigan has lost over 1 million acres of farmland from 1982 to 1997, equivalent to a piece of land larger than the size of Rhode Island. The migration of urban residents to rural areas has created low-density development and fragmentation of large parcels in 5, 10 and 15-acre lots. These trends have far reaching impacts on natural resources and agriculture, including increased nuisance complaints on neighboring farms when non-farm neighbors move in.

Agriculture is the state's second largest industry, second only to manufacturing and contributes $37 billion annually to Michigan's economy. Agriculture employs 1 in every 8 people and is second to California for diversity of products. This

Agriculture's economic contribution can also have a large impact at the local level. Clinton county agriculture is a large contributor to the local economy accounting for 23% of all economic activity in the county and generating over 100 million dollars a year.

Clinton County is also experiencing a loss of farmland to other uses. Between 1982 and 1997 the county lost over 22,000 acres of farmland – the equivalent of one entire township. If these trends continue at the same rate, Clinton County could lose an additional 40,00 acres of farmland by the year 2020.

The leadership of Clinton County recognized the need for action and assembled a diverse 18-member Agriculture and Open Space (AOS) committee composed of city representatives, county and drain commissioners, farmers, realtors, and township officials. The group came together to investigate land use trends, including loss of farmland, and develop workable solutions. The committee heard presentations on

various tools including the purchase of development rights, transfer of development rights, agricultural security areas and agricultural development. To gain broader input and feedback, the committee allowed input and discussion from committee members and the general public.

Preliminary recommendations from the committee were to encourage the completion or update of the county's comprehensive land use plans, create a county wide purchase of development rights program, research a county wide transfer of development rights program, assist MSU Extension in promoting value added agriculture initiatives and to pursue other economic initiatives to preserve farmland in the county. The committee created and charged four working subcommittees: The Green Space Commission, Advocacy Subcommittee, Agriculture Value-Added subcommittee and Farmland Preservation Subcommittee.

The Green Space Commission was charged with developing recommendations for a county parks and recreation commission, encouraging private conservancy efforts in Clinton County, developing inventory of unique and scenic areas and coordinating with other governmental recreation plans. The Advocacy subcommittee's charge was to urge the state to approve legislation supporting land preservation through resolutions, sending informational mailings and contacting legislators.

The Agriculture value-added subcommittee was organized to partner with MSU Extension and Conservation Districts to develop cutting edge hands-on educational programming, explore areas of Agricultural tourism opportunities and pursue Agricultural Renaissance Zone opportunities. The Farmland Preservation subcommittee was charged with developing a countywide purchase of development rights program

including selection criteria, application process, and easement language and appraisal method. The Farmland Preservation subcommittee invited Dr. David Skjaerlund and Stacy Sheridan of Rural Partners of Michigan to assist with the technical details of developing a purchase of development rights program.

The committee felt it was critical to obtain a consensus of the residents of Clinton County. A survey was conducted with the approval of, and funding allocated by Clinton County Board of Commissioners in cooperation with MSU-Extension and overseen by a Michigan State University Graduate advisory team.

Problem Statement

Michigan loses ten acres of farmland every hour of everyday an equivalent of a 1500 farm operation a day. Many agencies and organizations have conducted studies to determine land use trends, and their effects. According to research, it is clear farmland and open space loss is a problem and demands immediate attention. However, a critical element often forgotten is the bridge between statistical data and community residents. Many residents do not have proper access to information or, are relatively oblivious to the issue.

Moreover, officials are charged with creating positive change and representing the interests of the public, yet may be reluctant to vocalize their intentions or opinions for fear of lack of support due to this gap and lack of awareness among constituents. Trends are prevalent and statistical data confirming them are startling, however being unaware of the publics support level could mean the difference between a pass or fail ballot initiative.

It is critical elected officials know and understand the publics desire for sound land use planning which includes action towards protecting farmland.

Purpose of the Study

The purpose of this study was to investigate the perceptions of Clinton county residents on the effect land use trends are having on their community and to evaluate the opinions and concerns of these Clinton County stakeholders regarding various techniques that could be used to help sustain their community. The purpose of the study was to also investigate how public opinion surveys help create and shape policy change. The study perhaps, will allow officials confidence and insight into the desires of their public when developing recommendations for land use change. Upon completion, the study will hopefully be used as a model for other communities to follow as they search for information and guidance on workable solutions to manage and control land use trends in their area.

Research Questions

Research Question #1	What are the current resource/land use concerns facing Clinton County?
Research Question #2	Among other county priorities where does farmland preservation fall in terms of resource management and public needs?
Research Question #3	What are reasons for protecting farmland and open space in Clinton County?

Research Question #4	What is the level of importance, according to residents, for protecting farmland in Clinton County?
Research Question #5	Is there a significant lack of understanding of farmland preservation techniques?
Research Question #6	Would residents be willing to support a modest tax or fee to support farmland preservation programs?

Definition of Terms

Purchase of Development Rights	A means of compensating farmers for their willingness to accept a deed restriction on their land that limits future development of the land for non-agricultural purposes.
Transfer of Development Rights	A means of maintaining designated areas in agricultural use while transferring those development rights or housing units to other areas where increased development can be accommodated.
Agriculture Security Areas	A three way contract between the landowner, local unit of government and the state. Enrollment is voluntary on behalf of the landowner, however the authority to establish

	(reject) an agricultural district, remains with the local governing body. An Agricultural District is a voluntary tool to strengthen agriculture within a community and to help establish a long-term business environment for agriculture.
Sprawl	The conversion of farmland and open space for the use of residential development outside the access of services such as water/sewer, police and fire protection and various other community services. Sprawl can also be characterized by anything that is automobile dependent.
Sustainability	The ability of an entity to keep in existence; keep up or prolong over time.
Smart Growth	A means of defining areas inside urban service districts for developmental purposes and also creating disincentives for growth outside service areas.

Limitations

1. The simple random sample survey involved in the study was confined to Clinton County residents who are registered as eligible voters.

2. Conclusions for the study will only be applicable to residents and officials in Clinton County.

Assumptions

The aim of this study was to identify the perspectives of Clinton County residents on land use issues in their county. An assumption of this study was that respondents provided honest and accurate feedback needed for the study. Another assumption of the study was residents were aware of surrounding land use occurrences and they understood all questions provided in the instrument. The researcher also assumed that the respondents went through a reflective process and understood each tool and the trends associated with them.

Chapter 2

Literature Review

Literature Review

This chapter contains a review of literature related to the study. It was organized into the following sections: Land Use Trends in Michigan, Impact of Trends on Agriculture, Local Survey Results, Possible Solutions for Land Use Trends, Other Research Projects, Local Trends in Clinton County.

Land Use Trends in Michigan

It is important to consider these Michigan trends; population continues to move from urban to rural areas; development values are greater and increasing faster than agricultural values; over half of all agricultural production comes from metropolitan-influenced counties; forty-five percent of farmland is owned by farmers older than 55 years of age; half of all farmland is rented.

Michigan has always seen changes in land use trends, however, not until recently did the trends have such a large impact on agriculture. According to a 1995 study, Trend Future Report, conducted by the Michigan Society of Planning Officials, Michigan will experience over an eleven percent population increase equating to 1.1 million more people in the year 2020. Michigan will also experience a 63-87 percent increase in the amount of urbanized land area that is utilized (Michigan Society of Planning Officials, 1995 Study).

According to these trends, as much land will be converted for 1.1 million more people as existed in 1978 for nine million people. In this regard, the same amount of land

used to sustain nine million people since the first settlement will be converted and used to sustain only 1.1 million more people. Michigan is consuming land at six to eight times its population growth rate.

The migration of people from urban areas to the suburban rings of growth has placed additional strain and pressures on surrounding productive farmland. According to the Michigan Society of Planning Officials' Agricultural Trends Fact Sheet (1997), in the last 35 years, over one million people have left central cities. They have left to follow the American dream of acreage and country living, only to find everyone else had the same dream. Suburban areas grew 20 percent in the last 20 years, whereas urban areas only experienced a one percent growth (MSPO Ag Trends Fact Sheet, 1997).

This trend indicates a vicious cycle created by the migration of residents from urban cores to rural areas. As this migration occurs, large urban cities suffer significant revenue loss and tax base. Revenue generated from the tax base, helps fund infrastructure, services and the overall general city up-keep and improvements. Therefore, Michigan urban core areas continue to decline with increase crime, lack of adequate educational facilities and an overall increase in blighted areas. These trends contribute to the desire for residents to leave and migrate to the suburban or rural areas.

Despite smaller population growth, the number of households has increased due to more single parent families, smaller families, childless families and retirees. This trend has increased the need for housing, according to a study conducted by Michigan Society Planning Officials, (1995). Housing lot sizes have continued to become larger as the number of dwelling units per acre has declined 75 percent since World War II, accelerating land consumption in rural areas. The lots continue to be an inefficient use of

natural resources. Creating lots too small for production agriculture and too large to mow. Michigan also has the largest number of second homes and second largest number of golf courses, next to Florida, in the nation.

Michigan legislation contributed to these trends. A recent study linked the Subdivision Control Act of 1967 with accelerating rates of land fragmentation and a significant increase in ten-acre or larger building sites. This Act was amended in 1997 to again further assist the acceleration of land fragmentation.

Impact of Trends on Agriculture

Michigan agriculture represents over $3.5 billion dollars at the farm-gate and is often multiplied ten fold by the time it reaches the food-plate, making the food and fiber industry or agriculture, the second largest industry in Michigan next to manufacturing. Often times, agriculture is the number one economic contributor in rural communities.

In 1920, Michigan had 19 million acres of farmland. From 1954 to 1974, Michigan farmland decreased 280,000 acres per year – a 34 percent reduction or 5.6 million acres. Michigan's farmland loss has been greater and more rapid than any other state in the Great Lakes Region, (Michigan Society of Planning Officials, 1995). Michigan currently has approximately 46,500 farms, one half of the number in 1964 and less than a quarter of the number in 1940. Contrary to popular belief, over 87 percent of the farms are still individually owned and operated and only .3 percent of all farms in Michigan are owned by non-family held corporations.

More than 1 million acres of farmland have been lost in fifteen years from 1982 to 1997, according to the U.S. Census of Agriculture Study (1997). This trend equates to

losing an average sized farm (215 acres) almost every day or a 1500-acre farm every week. Therefore, more than 53 percent of the total loss of farmland occurred within the last five years.

Contributing to the impact of farmland loss is that 53 percent of all agriculture production comes from the 25 urban-influenced counties (Metropolitan Statistical Areas – MSA) in which more than 45 percent of all the cropland in Michigan is located. These areas have the greatest development pressure, and collectively, represent over 75 percent of Michigan's total farmland lost, according to U.S. Census of Agriculture (1997). Leelanau and Grand Traverse counties lost 7,866 acres, Grand Rapids (and surrounding areas) lost 38,095 acres, the counties encompassing the Detroit area lost 24, 315 acres and the Lansing area lost 17,720 acres of farmland. This farmland loss trend can be seen in many counties across the state.

Ironically, nearly 40 percent of all farmland in Michigan is rented. Therefore, much of Michigan's farmland in not even under the ownership or control of those who actually farm the land. These trends have far reaching consequences, effecting both rural and urban residents. However, the group experiencing the greatest degree of impact are those farms that choose to remain. Incompatible land uses create competitive scenarios between agricultural and developmental land values. Competing land uses raise real estate prices higher than a farm operation can afford. Obviously, the areas experiencing the highest development pressure (south of Saginaw – Muskegon line) have the highest farmland values. Keep in mind, these areas experiencing the highest amount of pressure account for 75 percent of the total agricultural production in the state (U.S. Census of Agriculture, 1997)

Land use trends also impact local municipalities burdened with having to bear the economic cost of servicing new fragmented development. Fragmented land development causes traffic congestion, air and water pollution, loss of open space and farmland and overall increase on the demand for public services. Many urban residents migrating to rural areas still demand the same services associated with city living. A study conducted by the University of Michigan in Scio Township, Washtenaw County (1996) found for every $1 generated in property tax, residential development demands $1.40 in services; for every $1 generated in property tax, agricultural land demands $0.62 in services.

Therefore, keeping a strong agricultural base makes fiscal sense for a community because the large amounts of acreage most often associated with farmland do not demand services such as infrastructure, fire and police protection or schools. It appears agriculture subsidizes fragmented growth in some areas by paying more in property tax than they demand in public services (U of M Cost of Community Service Study, 1996).

Agriculture stands on two legs; first, it must cash flow and pay the bills, and second, it must have an environment to recoup any investment 10 to 15 years in the future. Like many other investments, it takes time to recoup and gain revenue generated from initial investment.

Local Surveys

Lapeer County Survey

Lapeer County conducted a survey to investigate support levels and assess whether a farmland preservation program was feasible in their county. The survey results indicated a strong desire to keep the landscape rural and residents acknowledge and appreciate the

value of agriculture. The results also indicate a need for action by public officials to insure nature and rural resource protection. "The level of citizen response was impressive. At a 48 percent return rate, the survey results help to form a mandate for action on farmland and rural landscape preservation," said Dr. Raymond De Young, Survey Consultant, University of Michigan (Lapeer County Land Use and Farmland Survey, Executive Summary, Nov. 2000, pg 2).

When respondents where asked "what extent do you believe each of the items is currently a problem in Lapeer", the highest percentage (71.4%) indicated the loss of family farms as the biggest problem facing the county followed closely by loss of farmland (70.6%) and rapid business and/or commercial growth (70.5%) (Lapeer County Land Use and Farmland Survey, Executive Summary, Nov. 2000; Table 6.1; pg # 29).

Over 87 percent of the respondents indicated they would be willing to live within ½ miles of an operating farm with 40.5 percent agreeing that farmers and non-farm families living near farms are prone to conflicts due to farm odors, operations etc. Many respondents indicated they feel land use zoning ordinances which limit new homes in rural areas, should be used as a method for preserving farmland (77.7%) followed closely by loans to new farmer or businesses and keeping land in production (76.3%). Almost 56 percent indicated they would support additional public financing to pay for a farmland preservation program in Lapeer County. When asked how important it is that state and local government take action to preserve farmland, 76 percent indicated it was very important or extremely important. When asked why Lapeer residents feel farmland should be preserved, 80.4 percent indicated to preserve family farms, 81 percent indicated to save land for future food production and to maintain open and rural areas

(Lapeer County Land Use and Farmland Survey, Executive Summary, Nov. 2000; Table 7.4, pg# 42).

Public Sector Consultants Survey

Public Sector Consultants was charged by the W.K. Kellogg Foundation to conduct a statewide survey of 800 Michigan residents ages 18 and older to explore various land use issues facing Michigan communities. The survey was designed to investigate factors people consider when deciding where to live, knowledge and level of concern about urban sprawl and related environmental problems, attitudes about property rights issues, public trust of individuals who are involved in land use decision-making and views about the success of and need for land use planning in Michigan.

When asked, "how well informed would you say you ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997) are at the present time concerning land use issues in Michigan generally", 18 percent responded as being very well informed or well informed; 44 percent were somewhat informed and 38 percent were not very informed or not informed at all about land use issues in Michigan (pg #31).

The most common responses to questions regarding important land use issues facing Michigan were water/wetland, waste/landfills and over development/sprawl. The importance of some issues varied by type of community. For example, the most important issue to those in small towns and cities was water and wetland concerns at 14 percent and the most important to those living in urban or suburban areas was pollution at

11 percent ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997).

The survey asked respondents to indicate "in which type of community would you most like to live?" Over 65 percent of those surveyed said they would like to live in either a small town or a rural area; 35 percent would like to live in a rural area (in the country), and 31 percent would like to live in a small town or city (pg #21). The majority of Caucasians indicated they would prefer to live in a rural area (38 percent), and the majority of African-Americans would most like to live in a medium or large city (36 percent) ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997, pg# 22 - 23).

Therefore, individuals are relatively satisfied with the type of community in which they currently live; those that do want to make a change do not wish to make a major change. Those who currently live in a rural area are the least likely to live in a different type of community, and those who live in a large or medium city are most likely to live in a different type of community.

When asked to describe the area in which they would like to live, 49 percent of all respondents indicated they would like to live on a large rural lot, and 15 percent would like to live in a newer subdivision. Twenty-three percent of all respondents would like to live downtown or in an established neighborhood, and four percent are interested in living in either an apartment or condominium ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997, pg# 23).

When asked to prioritize what respondents felt was currently a problem in Michigan, water pollution and the loss of forests and natural habitats were the top-ranked land use

problems in Michigan. Those who live in rural areas were more concerned about how land use affects natural and wildlife habitats and land pattern uses. Those who live in urban areas and African-Americans were more concerned about how land use affects air pollution, traffic congestion, decline of older cities and the geographical segregation of the races ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997, pg# 21-22).

Question 13 on the survey asked, "In your opinion, do private property owners generally have an absolute right to develop or use their land as they see fit?" Fifty-five percent said property owners do not have an absolute right to develop or use their land as they see fit (41 percent indicated they do, and three percent did not know). Of the 41 percent who believe property owners have absolute rights, 35 percent believe landowners have a right even if the land has environmental limitation, and 27 percent say the owner has absolute rights even if the public has to bear some of the development costs ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997, pg# 18-19).

"It is going to be extremely difficult to increase support for comprehensive and meaningful land use policy in Michigan. First, citizens need to perceive either a current or future problem with enough significance to capture their attention and raise consciousness. They need to know of the many interconnections between development, policy, individual action and the impact on quality of land, air, water, wildlife, plants and people. To increase vocal support and advocacy efforts, Michigan residents will need to truly believe that their efforts will be worthwhile. If levels of awareness, perceptions of empowerment and knowledge of linkages increase, it is entirely possible that land use

could be more effectively managed in the future" ("Shaping Our Future; A report to the W.K. Kellogg Foundation on Land Use Issues in Michigan," 1997, pg# 14 of Concluding Remarks).

Solutions for Land Use Trends

Michigan is not the only state experiencing pressures associated with unexpected growth pains. Many states across the country have experienced the same conflicts, however many have developed solutions to help cope with land use trends while still accommodating growth.

Maryland developed the Smart Growth Initiative, which attempts to target the issues with the highest impact. Maryland's Smart Growth Initiative focuses on four target areas, Priority Funding Areas, Rural Legacy, Voluntary Cleanup and Brownfield's, Live Near Your Work and Job Creation Tax Credit (Maryland Smart Growth Initiative Summary, 1998).

Maryland has permanently protected over 30,000 acres of farmland through purchasing, donating or transferring development rights associated with the land. Some counties in Maryland have voluntarily agreed to raise their own funds in order to contribute to the state program. Harford County, MD passed a 5 percent conversion fee to be paid by developers when farmland is converted to other uses, and generates about 25 million dollars annually to the program (Dall'Acqua, J. 1997; Fighting Sprawl by Growing Smarter: Maryland's "Smart Growth Initiative").

New Jersey is also committed to natural resource protection. New Jersey has aggressively pursued a farmland and open space preservation program through a variety

of state, county and municipal programs with a goal of compensating those landowners who voluntarily agree to preserve their land. New Jersey is fortunate to have enjoyed active leadership from their former Governor, Christie Todd Whitman. Governor Whitman was responsible for championing a billion dollar bond initiative to preserve farmland and open space. Ten million dollars for ten years in the form of grants administered to those municipalities interested in developing natural resource protection programs (O'Connor, J., 1998; Remarks of Governor Christine Todd Whitman, National Land Trust Conference).

Whitman (1998) Radio Message

"The farming industry in New Jersey faces a real threat – not blight or drought but development. So much of the new office parks, shopping centers, and housing complexes that have risen up on the New Jersey landscape have been built on former farms. Why? Because farmland offers wide open spaces that are easy to clear and in attractive areas of the state. But developing farms means losing that farmland forever. It also creates a need for infrastructure that wasn't needed before, such as more roads, more sewers, and new schools. Just as important, it shrinks this vital industry. More than half of all our farmland has disappeared since 1950. The Department of Agriculture underscored the urgency of farmland preservation by stating that New Jersey needs to save at least another 500,000 acres to keep farming as a viable industry in the Garden State"(O'Connor J. October 16, 1998; Governor's Weekly Radio Message Addresses Farmland Preservation).

New Jersey's farmland and open space preservation programs include, Eight-Year Programs, The Easement Purchase Program, The Transfer of Development Rights Program and Right-To-Farm Ordinances (Burlington County Board of Chosen Freeholders, brochure on New Jersey's Preservation Programs).

Other Research Projects

Across the country, 24 states currently have farmland and open space protection programs. The first examples of permanently protecting agricultural land can be seen in many of the eastern coast states including Maryland, Pennsylvania, New Hampshire, Vermont and many others. Utilizing other states experiences of developing farmland preservation programs is important for Michigan to consider. Programs in the eastern part of the United States have more than 30 years experience with farmland preservation. Associated with these mature programs are both benefits and challenges.

Studies have been conducted on the subject of farmland preservation since the mid 1980's. Research has shown, although many programs are over 20 years old, more study is still needed to determine the long-term outcomes of farmland preservation initiatives.

Another study was conducted to investigate the historical development of the Suffolk County Farmland Preservation Program (New York) and to determine the importance of long-term programs. Cromarty, 1999, explored the Suffolk County Farmland Preservation Program as it approached its twenty-fifth anniversary and examined the relevance to present day concerns about growth management. To appreciate the significance of the program as a model for communities currently facing agricultural conversion pressures, Cromarty, 1999, established an historical context

through which a larger understanding of the Suffolk County experience can be realized (Cromarty, 1999, Historical Index, pg #2).

The research approach examined the growth of farmland preservation programs in the United States; the founding and expansion of New York; the development of Long Island and Suffolk County, from their colonial beginnings to the present; the transition of the county's farming tradition; the origins, politics, implementation, and evolution of the Suffolk County Farmland Preservation Program; and the local, national and international implications of the program. The result of the exploration was the creation of a historical context which promotes a richer understanding of this pioneering preservation program.

The urban-rural fringe in the past has been referenced in theoretical terms. Dunphy, 1997, conducted a study to evaluate the conflict occurring at the urban-rural fringe. Dunphy, 1997, proposed an innovative strategy which would contribute in forming a more imaginative land use planning approach to address the problem of farmland preservation and land use conflict between residential development and commercial agriculture in the urban-rural fringe. The strategy explored in this thesis was called the site-scale design planning approach. The key operating elements of the site-scale design planning approach are that solutions derived must be site or project specific, involve buffering that are stable and unbreachable, and require that the proposed development be compatible with the surrounding rural community character in terms of form, materials, design and open space. Inherent to the successful application of this type of approach is that the community must first clearly define which elements of the community's rural character are desirable and should be preserved (Dunphy, 1997).

To achieve the goals of conflict mitigation and farmland preservation, the site-scale design planning approach relies heavily upon a number of factors: support by the political authority of the area, inclusion in the community planning strategy, application in a legal venue, ability to permit development that meets the design standards that maintain the local community character (Dunphy, 1997).

Although farmland preservation programs that result in permanent protection of land have existed for over 20 years, few economic studies have attempted to explain landowners' decision to sell development rights in voluntary purchase of development rights or transfer of development rights programs. Nickerson, 2000, sought to investigate the factors that influence landowners to sell development rights in these programs. Expected returns were modeled as functions of factors that affect the value of the land in alternative uses, in a way that explicitly treats development as a mutually exclusive land use alternative to preservation.

Features of parcels that factored into agencies' priorities when funds must be rationed were also included. For the most part, measures that were specific to the landowner were not included because they were rarely observable. The data used to model preservation and development decisions consisted of parcel level data from four Maryland counties, where preservation occurs through several different programs.

Empirically, preservation decisions were modeled in both a multinomial logic and a competing risks framework. Even though these models mimic different theoretical approximations to the land use decision process, the empirical results from these models are quite similar, in large part because of the importance of censored observations in the data set (Nickerson, 2000).

Among the finding was that Calbert County's transfer of development rights program tends to favor the preservation of land that is likely to be the least productive in agriculture, while Maryland's State purchase of development rights program (which is the prevailing preservation mechanism in Carroll and Frederick Counties) tends to preserve land that is likely to be the most productive. Land owners who recently purchased land, and who may have the greatest debt loads, also tended to be the first to preserve. Evidence also existed that agency preferences for preserving parcels in clusters encourage landowners to enroll parcels closest to existing preserved parcels. This and other results relating to the location of preserved parcels relative to major employment centers hold implications for the partial patterns of preserved farmland (Nickerson, 2000).

Farmland preservation programs exist, in some form, in all states. Most programs pursue agricultural objectives, such as preserving productive soils and viable farms. However, in some states the public may believe that programs should pursue broader foals often associated with preserving open space. As farmland amenities have become relatively more scarce than food and fiber, public concern has shifted away from protecting agricultural production, toward preserving rural environmental quality (Kline, 1996).

Choosing appropriate policies requires accurate information describing public preferences regarding farmland preservation. Kline, 1996, sought to investigate public preferences. Qualitative information provided by focus groups survey data from a sample of Rhode Island residents, was used to identify and compare public objectives regarding farmland and open space preservation (Kline, 1996).

A system of structural equations was used to examine preferences for farmland preservation goals among residents with different socioeconomic characteristics. Paired comparisons data from the survey were used in a dichotomous choice model to measure public preferences for preserving hypothetical farmland and open space parcels. An intertemporal conceptual model of farmland preservation was used to drive optimal farmland preservation paths. The analysis showed that Rhode Island residents believe environmental objectives should be important goals of farmland preservation programs (Kline, 1996).

Public preferences for preserving farmland compared favorably with preference for preserving other types of open space. Lands that protect endangered species and groundwater were preferred. Broadening the scope of farmland preservation programs to address environmental goals may increase the public benefits generated by those programs (Kline, 1996).

Wentzien, 1996, attempted to analyze attitudes toward the new Delaware Purchase of Development Rights (PDR) program. The Delaware PDR program was designed to preserve farmland in production agriculture by compensating farmland owners for "selling" the development rights inherent in their property. When development rights are sold, an easement is placed on the deed prohibiting future development. The attitudes of Delaware residents toward and their willingness to pay (WTP) to financially support the Delaware PDR program were measured (Wentzien, 1996).

The attitudes about opinion statements and preferences toward hypothetical future development scenarios were presented to survey participants, and a bootstrap hypothesis test was utilized to determine if the attitudes varied between members and non-members

of social subgroups. A conjoint design was chosen to analyze how respondents traded off different levels of land, farmland preserved, and an increase in income tax to financially support the Delaware PDR program. A logistic regression was used to fit the model parameters. The negative of the ratio of the marginal variable was used to estimate the WTP for several subgroups. A bootstrap re-sampling procedure was then used to construct a 90% confidence interval for each WTP estimate (Wentzien, 1996).

The survey results indicated that the Delaware residents supported the new Delaware PDR program. A majority of the survey participants supported the use of tax money to preserve farmland and a WTP of $35.66 in additional income tax to preserve 1,000 acres of farmland in NCCO over the next ten years was derived. Although different WTP estimates were measured for different subgroups, the null hypothesis of no difference could not be rejected (Wentzien, 1996).

More than 750,000 acres of farmland have been lost since the enactment of Public Act 116 of 1974, the Michigan Farmland and Open Space Preservation Act. The rate of farmland loss is expected to continue at a similar pace if land use policies remain unchanged. Numerous initiatives have been recently undertaken to reduce the loss of farmland. P.A. 116 has not been considered, likely due to its performance record. The purpose of this study was to determine if enhancements to P.A. 116 incentives could reduce the loss of farmland. One thousand three hundred and forty landowners with P.A. 116 farmland development rights agreements were surveyed to research questions. The study was conducted after landowners had an opportunity to terminate or change farmland agreements due to a statewide reduction in property tax that reduced the tax relief value of the P.A. 116 program (Weintzien, 1996).

More than three-quarters of the farmland agreements were not changed under the window of opportunity. Landowners who did not change their farmland agreements indicated to maintain agricultural use of the land and percent the development of farmland. Landowners who change their farmland agreements, did so to take advantage of potential non-agricultural development opportunities. Enhanced P.A. 116 incentives would encourage landowners to continue their farmland agreements, thereby reducing farmland loss. The most preferred incentive was the elimination of the property tax lien (Weintzien, 1996)..

Eligibility for a P.A. 116 tax credit was also important for landowners to continue their farmland agreement(s). Landowners preferred a 3.5 percent of household income circuit breaker threshold to provide tax credit eligibility. Given the results of this study, policy makers were encouraged to consider enhancements to the Farmland and Open Space Preservation Act incentives as a viable alternative to reduce the loss of farmland. The study also showed landowners were not very knowledgeable of contemporary land use issues and concepts. Michigan State University Extension was encouraged to explore forming partnerships with public and private groups to improve land use educational programming for citizens and public officials (Weintzien, 1996)..

Controversy over land allocation in the urban fringe (rural land experiencing pressure from suburban development) often results from the direct conflict of tow competing uses—agriculture and residential development. Carver, 1998, evaluateded the use of multi-criteria/multi-objective decision making for land use allocation in Tippecanoe County, Indiana. The goal of such an analysis was to develop a predictable, reliable, and effective method of inventorying land resources and identifying future

development patterns which conserve a landscape's agricultural productivity and viability while satisfying demands for urban expansion. Carver's study also integrated multi-criteria evaluation techniques and GIS to provide a methodological platform for decision analysis and an operational framework for decision-making. Results show that changes in preferences for spatial allocation of land uses. Specifically, as the importance of the agricultural objective is decreased, a sprawling development pattern results.

The loss of agricultural land to urban uses has increasingly become a subject of major concern to planners, governments, and the rural community. In following, it was the purpose of this research to investigate the loss of agricultural lands to other land uses and the methods employed to prevent such losses. There are three basic types of land use controls (i.e., the police power, the power of eminent domain, and the power to tax) available to state and local governments. Of these, police power and the power to tax are the most commonly used land preservation techniques. The first state to create a tax relief program to preserve agricultural land was Maryland in 1956. Since then all 50 states have adopted some form of prevention measure. The various methods include: (1) Preferential Property Tax Assessment; (2) Preferential Property Tax Assessment with Deferred Taxation; (3) Preferential Tax Assessment with Deferred Taxation; (4) Circuit Breaker Tax Credits; (5) Capital Gain Tax; (6) Inheritance and Estate Taxation; (7) Comprehensive Planning; (8) Agricultural Zoning; (9) Agricultural Districting; (10) Purchase of Development Rights; (11) Purchase and Resale or Lease with Restrictions; (12) Development Permit System; (13) Transfer of Development Rights; (14) Right to Farm; and (15) Land Banking. The "inheritance and estate taxation" technique followed

by "preferential property tax assessment with deferred taxation" and then by "right to farm laws (Weintzien, 1996).."

This research investigated the effectiveness of three state agricultural land preservation programs (i.e., California, North Carolina, and Wisconsin) and identified and evaluated those shortcomings and/or patterns that existed in these programs. Each state program utilized different land preservation techniques, each with varying degrees of success. The degree of success was based upon the amount of local government participation with the stage program and/or with their own localized program. Based on the analysis of the research data, a model (Rural land preservation model) was formulated for planning and implementing new agricultural land preservation programs. The loss and protection of the Nation's agricultural lands is a problem that local jurisdictions cannot handle effectively. The solution to this problem must be accomplished by State and/or Federal government involvement (Weintzien, 1996)..

Bonti-Ankomah, 1997, assessed the economic rational of farmland protection policies in Ontario. The property rights literature was reviewed to discuss the externality rationale of government regulation of farmland development. The findings are that property rights along with nuisance and trespass laws can be used as an alternative to land use regulation in the allocation of land, and thus argues against the externality rationale of farmland protection policies.

An analysis of farmland area, cropland area and food production in Ontario was undertaken to assess the food security rationale of farmland preservation. The results indicate that food production in Ontario has consistently increased over time. Conversion

of farmland to non-farm uses is therefore not a major threat to food production at the present time (Bonti-Ankomah, 1997).

An economic model was developed to determine the optimal land allocation. A farmland rental demand function was also estimated. The result indicates that the demand for farmland has an elasticity of $0.14 for the counties and period investigated.

Sensitivity analysis indicated that shadow values of farmland protection policies are larger the higher the price ratio of non-farmland to farmland and the more elastic the non-farmland demand elasticity. A comparison of the shadow values of this study with estimated willingness to pay for amenity benefits associated with farmland indicates that the shadow values of farmland protection policies are greater than the willingness to pay for amenity benefits (Bonti-Ankomah, 1997).

However, the shadow values estimated in the study were gross values and did not take into account all external benefits and costs associated with farmland and non-farmland. Furthermore, future benefits and cost of alternative land uses were not known. Estimation of those benefits and costs were beyond the scope of the study. It could not, therefore, be concluded on the basis of the shadow values, that current farmland policies were unjustified. The conclusion on the justification of farmland protection policies can only be made after including all benefits and cost and weighing these shadow values to the discounted future benefits of farmland protection policies (Bonti-Ankomah, 1997).

Ramsey, 1994, examined one particular constraint faced by agriculture: the implications of land competition and the resulting land use conflicts. This was done by identifying and describing land competition issues at two scales: a provincial overview

and a detailed case study of one agricultural region in the Province, the Lethbridge-Musgravetown Agricultural Development Area (LMADA).

The issues were identified through questionnaires completed by professionals in the Agriculture Branch of the Department of Forestry and Agriculture (provincial overview) and to the farmers in the LMADA (case study). The issues were then clarified and reinforced with key informant interviews with resource users and agencies identified as competing for land with agriculture. Following the examination, two main policy options were described. These options were drawn from the existing literature, including experiences in Newfoundland and Labrador (Ramsey, 1994).

The first option was for the implementation of farmland preservation policies, including restrictive zoning differential taxation, Purchase of Development Rights (PDR's) and Right-to-Farm Legislation. The second option was for a policy of Integrated Resource Planning (IRP), also known as Integrated Resource Management (IRM). These options were presented with reference to both the existing literature, examples of such policies in other jurisdictions throughout North America, and information obtained in the questionnaires and key informant interviews (Ramsey, 1994).

In recent years many urban fringe areas have been experiencing rapid population growth. This has led to the conversion of land from agricultural to residential use at a fairly rapid rate. Therefore, farmland preservation zoning laws have been passed in many of these areas. Thornson, 1991, wanted to determine the effect of such a zoning ordinance on the local land market. The study area was McHenry County, Illinois. In 1979 the county increased the minimum lot size for agricultural land from 5 acres to 160 acres. This decreased the substitutability of agricultural land for residential land. If the

zoning board does not allow rezoning then the supply of residential land would be restricted (Thornson, 1991).

Two tests were used to determine the effect of zoning on the land market. The first was a test for selectivity bias. If there was evidence of selectivity bias in the land value equations, then zoning was said to be following the market. The other method was to look at the trend coefficient in the residential land value equation. If the zoning ordinance is restricting the conversion of land from agricultural to residential use, then the supply of residential land will be relatively constant. Therefore, given increasing demand for factors such as population growth, the value of land is expected to increase over time. This was found to be the case (Thornson, 1991).

The final part of the dissertation dealt with the program of outliers. An alternative estimation method, least median of squared (LMS) was used. This was a more robust regression technique than ordinary least squares. The results were compared with the ordinary least squares estimates. In addition, various outlier diagnostics were examined (Thornson, 1991).

In June 1979, The National Agricultural Lands Study was undertaken to assess the status of the nations farmland and examine methods of protecting this vital national resource. Prime agricultural land was being converted to housing and commercial developments at an alarming rate. Existing preservation programs including comprehensive, zoning, agricultural districting, tax incentives, purchase or transfer of development rights, conservancies and combinations of these were studied (Wolosiewicz, 1989).

The current investigation was conducted to determine the status of those programs in 1989. Substantial amounts of farmland are being protected through various preservation methods. New programs are being implemented and existing programs modified to afford more protection to agricultural land. Loss of farmland is now more widely recognized as a problem and is being successfully addresses on the state and local levels throughout the United States (Wolosiewicz, 1989).

Lehman, 1998, examined twentieth century concerns for the adequacy of the nation's agricultural lands and federal policy responses designed to preserve farmlands from conversion to other uses. Against a backdrop of agricultural abundance, and particularly the rapid settlement of western lands in the late nineteenth century, the need for agricultural conservation has been a minor but important theme.

Various strands of concern about wasteful agricultural land use, the Progressive conservation movement, High Bennett's soil conservation crusade, and the land utilization movement of the 1920's, all culminated in New Deal efforts towards agricultural land use planning. A land acquisition program, soil conservation districts, and county land use planning under the Mount Weather agreement all contained elements of federal agricultural land use planning, but none of these policies were entirely successful (Lehman, 1998).

Scarcity concerns were muted during the 1950s and 1960s as agricultural productivity soared, but in the 70s agricultural land use issues re-emerged for a variety of reasons. Decades of sub urbanization, domestic and global population growth, renewed worries about soil erosion, fears of oil and water shortages, and the United States' sudden

increase in farm exports beginning in 1972 all contributed to a new concern about the adequacy of the nation's supply of farmland (Lehman, 1998).

This idea became a theme of the federal land use planning legislation in Congress, and found some support in the Department of Agriculture, although most of the bureaucracy remained hostile to land use development and were often only partially successful. Moreover, this, combined with USDA reports of increasingly rapid rates of farmland loss and a relatively small reserve supply of cropland, prompted a small band of farmland preservationists to introduce farmland protection legislation in Congress in 1977. Lehman, 1998, argued that the program of the conversion of agricultural land to other uses remained unsolved, largely because of the short-term mindset under which the issue was discussed.

Dischinger-Smedes, 1997, examined the relationship between rural land divisions for residential purposes and the use of the minimum allowable lot size for such development as stipulated in local zoning ordinances, and to determine any association between lost size ordinances and the extent to which agricultural land is affected in residential parcel creation. A two-stage cluster design was utilized to inventory parcels activated in 213 township quarter sections between 1975 and 1995, with evidence, from aerial photography, of residential use, or that were deemed by the researcher as likely residential use parcels.

Results for the parcel data from the seventeen townships stratified by agricultural zoning district minimum lot sizes, indicated that this particular technique was effective in limiting the amount of rural or agricultural land being parceled for urban use. Analysis of

residuals form the regression model showed small lot size requirements to be associated with greater residential parcellation (Dischinger-Smedes, 1997).

Townships with small minimum lot size requirements also had significantly greater agricultural conversion ratios than townships with minimum lot size ordinances of 10 acres or greater. Among the most significant factors in parcellation were the population growth rate, the extent of agricultural land use, and the acreage of farmland enrolled in Michigan's Farmland and Open Space Preservation Programs (Dischinger-Smedes, 1997).

Washtenaw County, Michigan township planning commissioners, farmers and other citizens completed a photo-questionnaire dealing with (1) preferences for various natural and developed settings, (2) the adequacy and satisfaction associated with three cluster housing development scenarios, and (3) land planning issues concerning development and preservation (Sullivan, 1991).

The results indicate that residents of the rural-urban fringe hold very strong preferences for agricultural and natural settings, and strongly dislike multiple family housing developments devoid of trees. Individuals support the preservation of rural character and show little enthusiasm for economic development strategies designed to increase the population of their community. Participants provided adequacy and satisfaction ratings of three cluster housing development designed to preserve varying amounts of farmland. Results indicated that cluster housing developments were most acceptable when the site and development had a high degree of compatibility. Individuals living in multiple family housing and those living on relatively small lots

found cluster housing developments more acceptable than those living in single family housing, or on relatively large lots (Sullivan, 1991).

Further research was called for two scales of observation. At the scale of an individual dwelling, the questions relate to needs residents of the rural-urban fringe had for ownership, privacy and contact with nature. At a larger scale, there was the question of what makes for compatibility between residential site development and adjacent rural land uses (Sullivan, 1991).

Participation in the agricultural land district enrollment and development rights acquisition program of the Maryland Agricultural Land Preservation Foundation (MALPF) was examined as the adoption and diffusion of an innovative agricultural land preservation policy by Maryland farmland owners (Pitt, 1986). In personal interview, each of the 104 study participants answered a series of 128 questions relating to nine hypotheses on MALPF program participation. Point biserial correlations were calculated to differentiate non-participants, participants, district members who have not offered easements, from those who have, and participants who have sold easements from those who have not. Factor analysis and logic regression were used to develop predictive models of: (a) joining a district; (b) offering an easement; and (c) successfully selling an easement (Pitt, 1986).

Contact with other landowners already engaged in successively higher levels of participatory behavior and contact with formal agricultural land policy communication channels are important to both differentiating among the four levels of MALPF program participation and predicting landowner participatory behavior. Higher levels of

participation are evident among landowners located in more remote portions of rapidly growing counties (Pitt, 1986).

Landowner attitudes toward government institutions, environmentalism, and farming as a way of life influence MALPF program participation, as do landowner practices in financial management of the farm enterprise. These findings suggest MALPF program modifications may be needed in the form of: offering a period of trial district enrollment and trial easement sales; intensifying efforts in marketing and information dissemination; and targeting recruitment efforts at specific segments of Maryland farmland owners (Pitt, 1986).

Local Trends in Clinton County

Clinton County is a diverse bedroom community located north of Lansing on I-69 and US-127 corridors. The southern tiers of the county have experienced rapid residential and commercial growth causing rural communities to become suburbs of Lansing. Many residents live, shop, and have their children attend local schools, yet work in Lansing.

This trend of "bedroom communities" has caused increased strain o existing resources by increasing the need for road repair due to the increase in commuter traffic, noise complaints and congestion. From 1980 to 1990 the number of commuters, with a 10-minute drive remained constant, however commuters who must drive 20 to over 45 minutes a trip increased (U.S. Census Bureau). These trends indicate an increase in commute time due to urban residents relying more heavily on vehicular travel than public transportation (Tri-county Regional Growth Study, 2001; U.S. Census Bureau, 1997).

According to the most recent census data the majority of the county's population is concentrated in the lower three townships, Dewitt, Bath and Watertown. These three townships are also experiencing the most rapid loss of farmland to 5, 10 and 15-acre lots. These parcels are split in rural areas demanding at least a 10-minute commute just to drive to town. With an increase in the commute distance and drive times over 20 minutes, much of this is due to land fragmentation into small rural lots. The majority of households own more than 1 vehicle causing greater strain by doubling commuter traffic on rural roads (Tri-county Regional Growth Study, 2001)

Clinton County land base is approximately 571 square miles and currently accommodates 64,753 residents with the majority being female, representing 50.3 percent of the total population (Clinton County U.S. Census, 1997). Therefore, there are approximately 113 people per square mile in the county. The most densely populated areas of the county are the three southern townships, Watertown, Bath and Dewitt. According to the U.S. Census Bureau Michigan accommodates 175 persons per square mile.

The rate at which the population is growing in Clinton County does not exceed the density of people per square mile. Clinton County residents are not densely populated in the urban areas, which perhaps accounts for the land fragmentation and loss of productive farmland. Clinton County's population only increased by 11.8 percent from 1990 to 2000. However the number of persons per household has decreased to only 2.7 as of 2000 (U.S. Census, Clinton County, 1997).

The number of housing units relative to population is inversely related. In the past, as population increased so did the demand for additional housing. However, today our

population is remaining fairly constant, yet the number of housing units is increasing at twice the rate and the number of persons per household is decreasing. No longer are extended families sharing dwelling units. This requires more space for less people and using increased resources to service those few people per household (US Census, Clinton County, 1997).

Many residents of the Clinton County area prefer the "open space" and rural atmosphere of the community. What many do not realize is that by fragmenting the land into 5, 10 and 15-acre lots, they destroy the very reason they desired the community in the first place (Tri-county Regional Growth Study, 2001).

The Michigan Society of Planning Official recently conducted a study which illustrated how population rates and land consumption are becoming *inversely* related. The study said that with an 11.8 percent increase in population, Michigan will use the same amount of land for one million more people as was used for nine million people in 1970. Perhaps a good definition of sprawl is consuming land at six to eight times the population growth rate (Trend Future Report; Michigan Society of Planning Officials, 1995).

As population increases, so do burdens of funding public services. Clinton County's public schools are experiencing a tremendous amount of growth due to the influx of urban residents (US Census, Clinton County). Conversely, schools in Lansing are struggling to keep enrollment constant from year to year as they are experiencing a loss. It is not difficult to see, parents are taking children out of Lansing schools and transferring them to school districts in surrounding areas (Tri-County Regional Planning data).

As reported earlier, agriculture is Michigan's second largest industry contributing 37 billion dollars to the economy every year. Agriculture has a relative impact in Clinton County. Agriculture is a vital component to the local economy contributing $100 million annually and accounting for 23 percent of all economic activity in the county (Ag census, 1997). However the county is experiencing a rapid loss of farmland. Between 1982 and 1997 Clinton County lost over 22,000 acres of farmland or equivalent to the size of one township. Forecasters predict that if current trends continue Clinton County could loose an additional 40,000 acres of farmland between 2000 and 2020 (Tri-county Regional Growth Study, 2001).

In 1991 the agricultural parcel count was 5,055 and the residential was 17,936. In 1999 the agricultural parcel count dropped to 4,769 with residential parcels increasing by almost 4,000 total acres equally 21,894. The trend Michigan has experienced is also happening in Clinton County. Agricultural parcels are rapidly decreasing while residential is increasing almost twice as fast (Tri-county Regional Growth Study, 2001).

The number of septic systems has also increased. Therefore public sewer and water usage is no longer an accurate account of development pressure because it does not consider the number of new homes on individual well and septic systems. Unfortunately, soil types conducive for agricultural practices are also best suited for septic systems, due to drainage and perk ability (Tri-county Regional Growth Study, 2001).

Summary

The migration of urban residents to rural areas has created low-density development and fragmentation of large parcels in 5, 10 and 15-acre lots. Michigan has lost over 1million acres of farmland from 1982 to 1997, equivalent to a piece of land larger than the size of Rhode Island. The migration of people from urban areas to the suburban rings of growth has placed additional strain and pressures on surrounding productive farmland. According to the Michigan Society of Planning Officials' Agricultural Trends Fact Sheet (1997), in the last 35 years, over one million people have left central cities. Suburban areas grew 20 percent in the last 20 years, whereas urban areas only experienced a one percent growth (MSPO Ag Trends Fact Sheet, 1997).

Not only do negative land use trends affect urban and rural areas, but perhaps even more importantly they have far reaching consequences for an entire industry – agriculture. More than 1 million acres of farmland have been lost in fifteen years from 1982 to 1997. Contributing to the impact of farmland loss is that 53 percent of all agriculture production comes from the 25 urban-influenced counties (Metropolitan Statistical Areas – MSA) in which more than 45 percent of all the cropland in Michigan is located. These areas have the greatest development pressure, and collectively, represent over 75 percent of Michigan's total farmland lost, according to U.S. Census of Agriculture (1997).

Moreover, based on these staggering land use trends, a study of the threshold for Clinton County was determined as the most appropriate course of action. Much speculation has occurred over whether the state-wide land use trends were also prevalent in rural areas, and if the assumptions drawn from land use trends on average across the

state could in-fact be realized in Clinton County. Local officials felt they needed a much stronger platform of quantatative data to pledge support for farmland preservation and gain feedback from their constituents. Based on land use trends, impacts on the agricultural industry, other local surveys such as Leelanau, Lapeer and Public Sector Consultants, which all concluded basically the same findings, that the loss of agricultural lands and land use trends were creating negative impacts on our states resource base, a survey instrument was developed to determine the level of concern for Clinton County residents and the knowledge level of farmland preservation strategies.

Chapter 3

Methodologies

Introduction

The primary purpose of this study was to identify the perspectives of Clinton County residents, both rural and urban on land use trends, community understanding of these trends, the need for governmental action, level of community support and the use of farmland preservation strategies.

This chapter includes a description of the sample and population, instrument development, procedures used for data collection and a discussion of validity and reliability of data collected.

Research Design

This study used survey research methodology. The identification of the population was a critical step in the research process. Two types of population are generally described in the research literature: The "target" population and the "survey" population. According to Rossi et al. (1983), the target population is described as the audience that the researcher would like to study. The survey population is the population that is actually sampled and for which data may be obtained. Therefore all individuals in the population have an equal and independent chance of being selected as a member of the sample.

A list of eligible units comprising a population was developed, from which, the sample was obtained. This list was called the sampling frame. Members of the

population were selected one at a time and independently. Once they were selected, they were not eligible for a second chance and were not returned to the pool.

A sample of 1500 registered Clinton County voters was produced. The primary list (population) consisted of all registered voters in the county, approximately 45,000 voters. The estimated population of Clinton County according to the latest census data is 60,000 people. The voter's registration list was obtained from the county clerks office and was in Microsoft Access format. The data had to be unzipped and converted from Access into Microsoft Excel to be in a usable format. After the data was converted, a random sample of 1500 was completed using Microsoft Excel. The list was compiled and saved as a separate file. Over 490 surveys were returned yielding a 31 percent response rate.

Instrument Development

The instrument questions were primarily derived from the literature reviewed. However, the Clinton County committee met several times and discussed questions they wanted answered. Modifications were made to the instrument to include appropriate committee questions. Examples of similar surveys were presented and questions that were appropriate and applicable were also considered for the instrument. The instrument was taken to the broader Agriculture and Open Space (AOS) committee, which included county commissioners, for a series of discussion meetings to obtain feedback and input. The committee considered wording of questions and content. The instrument was revised to reflect the suggestions of the committee.

The committee recommended adding an open space component to the survey instrument. The committee felt investigating both open space and farmland preservation

efforts would minimize cost and assist the county in developing its county parks and recreation plan. The first half of the instrument was dedicated to open space questions in order to reflect the committee's recommendations. Approximately four questions were dedicated to open space issues in the county including access, usage and diversity of options. For purposes of this study, farmland preservation was decided to be the primary focus of the research project. Although open space was a concern for the county, the researcher felt it was too broad to include both in the study and farmland preservation was more specific. The mail questionnaire was also designed after specific research question reflecting the objectives of the study.

Open space, land use trends, farmland preservation and demographic information were included in the instrument. The AOS committee reviewed the final draft of the survey and approved it for dissemination. The survey was also reviewed and approved by MSU's University Committee on Research Involving Human Subjects (UCRIHS) to insure non-discrimination, non-bias and confidentiality.

A Likert-type questionnaire was designed to measure the impact, importance and priorities of land use by county residents. The instrument contained both closed and open-ended questions. The instrument was based on a number of questions. The first set of questions asked residents to identify issues in the county they felt to be a concern. 1 = not a concern, 2 = slight concern, 3 = concern, 4 = strong concern and 5 = very strong concern. After the first two sets of questions, respondents were asked to "write" the answer they felt was of the greatest importance. This question helped to insure that respondents were consistent and also indicated their commitment. The number of responses dropped relative to selecting a numeric answer. Respondents were perhaps less

likely to take the time to *write* an answer as they were to *circle* a response. Therefore, the researcher can assume, respondents who *wrote* answers to questions two and four on the survey instrument felt strongly about expressing their opinion.

The second set of questions asked what priority should be placed on specific efforts in the county: 1 = not a priority, 2 = a slight priority, 3 = a priority, 4 = high priority, 5 = a very high priority. The third set of questions asked voters to indicate the extent to which they would support additional public financing to pay for additional services (listed below the question), 1 = don't support, 2 = slightly support 3 = support, 4 = strongly support and 5 = very strong support.

The forth set of questions asked respondents to indicate how important protecting farmland and open space and state and local government involvement are to them, 1 =not important, 2 = slightly important, 3 = important, 4 = quite important, 5 = extremely important. The fifth set of questions pertained to funding and whether respondents would support a modest tax or fee, 1 = don't support, 2 = slightly support 3 = support, 4 = strongly support and 5 = very strong support.

The sixth set of questions required respondents to indicate how their level of support would perhaps change if the state were willing to provide a 3:1 funding option ($3 of state money for every $1 generated locally). Voters were asked to circle one of the following responses: *much less likely, less likely, no difference, more likely and much more likely.* Respondents were then asked respondents to evaluate the ways government agencies use various programs to regulate the use of private property, 1 = don't support, 2 = slightly support, 3 = support, 4 = strongly support and 5 = very strongly support.

The next set of questions asked respondents to indicate the approaches they would like to see used to protect farmland through a series of different strategies including limiting the number of new homes in rural areas through stricter land use and zoning regulations, direct or encourage more development in and around existing cities and/or villages and provide reduced property taxes to farmers who voluntarily agree to not develop their land. Respondents were also asked how to felt about paying farmers who voluntarily agree to permanently protect farmland from future development through conservation easements and allow developers to build more homes than zoning currently allows in exchange for financially supporting a farmland preservation program in Clinton County.

The next four questions of the survey instrument asked respondents specific questions regarding funding options. These options include a dedicated restaurant meals tax, a real estate transfer tax, and a dedicated mileage. The last set of questions ask demographic information used to access where respondents live, in what type of community, in what type of community would they prefer to live, how long have they lived in the county, how long do they intend to live in the county, age and education level.

Validity, Usability and Reliability

To determine the validity and usability of the instrument, a diverse 18-member Agriculture and Open Space (AOS) committee consisting of city representatives, county and drain commissioners, farmers, realtors and township officials was used. The committee was developed prior to the instrument development to investigate Clinton

County land use trends and develop workable solutions. The committee served as a panel of experts for content, validity of the instrument. Faculty at MSU served as a panel of experts for face validity of the instrument. A pilot study was conducted with a like group of individuals not included in this study to determine reliability. Based on the reliability test, the instrument was deemed reliable.

Data Collection

Data were collected by sending the instrument, with a detailed cover letter outlining the need for the study and importance of the samples response, to the selected sample of registered Clinton County voters. Two weeks after the initial introduction of the survey was sent, a reminder post card was sent to *all* (not just non-respondents) individuals sampled, urging them to take 5 minutes, fill out the survey and return it.

As returned survey's were entered and tabulated a list of non-respondents was formed. Non-respondents were mailed a third and final follow-up letter with a survey included. Another copy of the survey instrument was included to non-respondents in case of it being lost or thrown away with the first mailing.

Approximately 1300 individuals of the total 1500 sampling received a third and final return notice. The third and final mailing including a letter stressing the urgency of returning the survey, that it was the *last* opportunity . The follow-up letter proved to be successful as approximately 200 additional surveys were received. Early and later respondents were compared to control for non-response error. No significant differences were found, therefore the results can be generalized to the total population.

Data Analysis

The data collected from the survey instrument was analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (e.g. frequency, mean, percentage, standard deviation, etc.) were used to analyze the data.

Chapter 4

Study Findings

The purpose of this study is to identify the perspectives of Clinton County residents on land use and farmland preservation trends and impacts. Furthermore, the study determined if a farmland preservation initiative would be feasible in Clinton County through identifying the level of understanding and support of each strategy. This chapter will describe the responses of the survey respondent using tables and narrative of each question. As reported in chapter three, 1500 questionnaires were mailed to a random sampling of registered voters in Clinton County. Of these, 493 were returned, representing a return rate of 31 percent. Graphs were used to show relations, comparisons and distributions in a set of data. Graphs may show absolute values, percentages, or index numbers. Graphs were used to help convey a memorable image of the overall pattern of results.

Tables were used due to their efficiency, enabling the researcher to present a large amount of data in a small amount of space. Tables usually show exact numerical values, and the data are arranged in an orderly display of columns and rows, which aids comparison.

Demographic Profile of Clinton County Residents

The respondents of the survey were registered voters in Clinton County. Selected demographics are displayed in figures and tables. Of the survey respondents, 57.9 percent were male and 41.9 percent were female.

The majority of respondents held "some college education accounting for 35.5 percent followed by high school diploma, 25.8 percent then college graduates at 22.5 percent then advanced degrees at 14.1 percent and finally less than a high school diploma only accounted for 4.2 percent of the respondents.

The age of respondents was distributed throughout with 29.6 percent being between 50-59, 23.5 percent between 40-49, 16.1 percent between 60-69, 13.8 percent between 30-39. As reported in Chapter 3, the average age of farmers in Michigan is 55 years of age. This is an accurate representation of the age group of farmers that will be determining how their land will change hands.

Approximately 30 percent of the respondents live on a rural lot less than five acres, 25.5 percent live in subdivisions on less than five acres and 17.3 percent live on a large rural lot, non-farm (more than five acres.) Therefore, the majority of residents in Clinton County live in fairly low-density areas with large tracts of land suitable to sustain more than one dwelling unit. Fourteen percent live on an operating farm.

Thirty two percent of the respondents indicated they would prefer to live in a farming area, followed closely by 26.4 percent wanting to live on large rural lost and 11.2 percent indicating they would prefer to live in a village. Moreover, the residents living on large rural lots prefer to stay there that do not, would prefer to.

Of the respondents that live within a city limit of Clinton County, 52.5 percent live in Dewitt, 41.7 percent live in St. Johns and 1.7 live in Laingsburg.

Of the respondents that live within a village limit, 21.4 percent live in Wacusta, 19.6 percent in Fowler and Ovid, 14.3 percent live in Elsie, 12.5 percent in Westphalia, 7.1 percent in Eureka and only 5.4 percent live in Maple Rapids.

Of the respondents that live in a township of a city or village, the majority live in Dewitt and Bath townships with fairly equal representation across the broad of all other townships. This data set is consistent of population distribution with recent Clinton County census data. The Census determined the majority of residents reside in Dewitt and Bath.

As reported in Table 1, 96.5 percent of the respondents own their current residence while 3.5 percent rent. Additionally, of those that own their residence, 65.8 percent own under 10 acres, 18.9 percent own between 10 and 40 acres and 15.2 percent own 40 or more acres (see Table 2).

Table 1.
Do you own or rent your residence? (N = 485)

Characteristics	N	Percent
Own	468	96.5
Rent	17	3.5
Total	485	100

Table 2.
If you own, how many acres do you have? (N = 407)

Characteristics	Number	Percent
Under 10 acres	268	65.8

(Table 2. continued)

10-40 acres	77	18.9
40 or more acres	62	15.2
Total	407	100

Nearly seventy nine percent of the respondents live within a half mile of an operating farm. Of those, 90.5 percent indicated it had been a pleasant experience for them (see Table 3.)

Table 3.
Do you live within ½ mile of an operating farm? (N = 481)
If yes, has the experience been pleasant for you? (N = 377)

Characteristics	Number	Percent
Yes	379	78.8
No	89	18.5
Uncertain	13	2.7
Total	481	100

If yes...

Characteristics	Number	Percent
Yes	341	90.5
Uncertain	19	5.0
No	15	4.0
Total	481	100

The distribution of concerns in Clinton County are the loss of farmland, loss of family farms, loss of open space, rapid residential growth, fragmentation of land by low density development, rapid business and/or commercial growth, loss of wetlands, loss of outdoor recreation lands, deterioration of downtown areas, loss of sense of community, lack of affordable housing, lack of park and recreational facilities, lack of adequate public transportation and time spent commuting to work. Finding indicated that the loss of farmland was the highest concern for respondents on a scale of 1 – 5.

One out of every two people indicated loss of farmland as the number 1 concern facing Clinton County today, followed closely by loss of family farms. Clinton County is predominantly a rural community composed of agriculture and related industries (Table 4).

Table 4.
Distribution of current concerns in Clinton County

Concerns in Clinton County		*Not a concern*	*Slight concern*	*Concern*	*Strong concern*	*Very strong concern*	*Mean (St. Dev)*
	N	%	%	%	%	%	%
Loss of farmland	471	4.0	8.1	11.7	22.1	54.1	4.14 (1.15)
Loss of family farms	474	4.2	8.2	14.8	21.5	51.3	4.07 (1.17)
Loss of open space	468	4.3	9.3	16.6	29.0	35.7	3.87 (1.27)
Fragmented land by low density development	452	8.0	13.9	24.8	24.3	29.0	3.52 (1.26)
Rapid business or commercial growth	471	8.9	14.9	24.0	25.5	26.8	3.46 (1.27)
Loss of wetlands	467	9.0	18.6	20.1	23.8	28.5	3.44 (1.32)
Loss of sense of community	468	12.2	20.7	28.0	22.6	16.5	3.10 (1.25)
Deterioration of downtown areas	467	11.3	21.0	31.3	21.8	14.6	3.07 (1.21)
Lack of affordably housing	469	16.2	20.7	27.7	19.4	16.0	2.98 (1.30)
Lack of park & recreational facilities	463	21.2	23.3	27.9	17.9	9.7	2.72 (1.25)
Lack of adequate public transportation	461	28.2	25.4	23.6	12.4	10.4	2.51 (1.30)

As reported in Table 5, Protecting forest and woodlands was the area residents felt was a priority, high priority and a very high priority (88.6%) (combined). However, Protecting farmland from development was second at (a priority, high priority and a very high priority, combined) 87.1 percent with 52.2 percent of the respondents indicating it was a "very high priority" compared to protection of forest and woodlands at 42.4 percent of the respondents indicating it as "high priority". Protecting land along river ways was third (85.4% a priority, high priority and a very high priority, combined) and preserving wetlands and marshes was forth (78.5% a priority, high priority and a very high priority combined).

Table 5.
Distribution of priority of efforts in the county

Effort		Not a priority	Slight priority	A priority	High priority	Very high priority	Mean (St. Dev.)
	N	%	%	%	%	%	%
Protecting farmland from development	479	5.4	7.3	12.1	22.8	52.2	4.18 (2.29)
Protecting forest and woodlands	474	2.5	8.2	18.4	27.8	42.4	4.13 (2.60)
Protecting land along river ways	468	4.1	10.5	20.1	27.1	38.2	3.85 (1.16)
Preserving wetlands and marshes	470	7.4	13.8	20.2	22.3	36.0	3.70 (1.54)
Expanding public hunting and fishing opportunities	467	24.0	23.6	21.8	13.5	16.9	2.77 (1.43)
Building more hiking and biking trails	464	24.6	27.6	23.3	16.2	8.4	2.56 (1.25)
Building more county parks and sporting activities	464	20.3	32.5	27.8	13.6	5.8	2.52 (1.13)
Expanding existing state parks	462	23.6	32.0	27.1	11.5	5.8	2.44 (1.14)
Building public golf courses	465	68.2	20.6	7.7	2.2	1.3	1.48 (.83)
Scale Mean							3.40 (1.49)

When asked what services the public would support additional financing for, road repair and maintenance came first (86.8% a priority, high priority and a very high priority; combined) then emergency services such as fire and police protection (82.5% a priority, high priority and a very high priority; combined) followed by farmland preservation programs (76.1% a priority, high priority and a very high priority; combined).

However, 29.9 percent of the respondents indicated they "very strongly support" compared to road repair and maintenance at 20.5 percent and emergency services such as fire and police protection at 19.8 percent. Farmland preservation programs are clearly supported by the public in terms of public financing for services (Table 6.)

Table 6.
Distribution of public financing to pay for services

Services	N	Don't support %	Slightly support %	Support %	Strongly support %	Very strongly support %	Mean (St. Dev.) %
Road repair and maintenance	478	4.6	8.6	32.4	33.9	20.5	3.57 (1.05)
Natural areas/open space preservation programs	470	9.1	14.7	29.6	20.0	26.4	3.47 (1.93)
Emergency services	479	8.8	8.8	35.1	27.6	19.8	3.41 (1.16)
Upgrading and expanding school facilities	475	13.3	16.8	32.4	22.1	15.4	3.09 (1.24)
Public Parks	470	20.2	33.0	30.6	10.6	5.3	2.52 (1.44)
Farmland Preservation Program	472	11.5	12.3	25.1	21.1	29.9	2.18 (1.13)
Public Transportation	472	34.7	29.2	24.6	6.4	5.1	2.18 (1.13)
Expansion of sewer and water for future business and land development	469	41.6	29.4	18.3	7.9	2.8	2.01 (1.08)
Scale Mean							2.80 (1.27)

Clinton County residents value farmland and support its protection to maintain environmental benefits of open space (90.9% a priority, high priority and a very high priority; combined), to save farmland for future food production (88.4%) and to preserve the rural character of Clinton County (87.9% a priority, high priority and a very high priority; combined). Moreover, 50.8% of the respondents indicated saving farmland for future food production as being "extremely important" (Table 7).

Table 7.
Reasons for protecting farmland in Clinton County

Reasons	N	Not important %	Slightly important %	Important %	Quite important %	Extremely important %	Mean (St. Dev.)
Maintain environmental benefits of open space	473	3.8	5.3	18.6	25.2	47.1	4.07 (1.10)
Save farmland for future food production	482	5.4	6.2	16.2	21.4	50.8	4.06 (1.18)
Help family farms remain in the future	484	3.9	8.9	16.5	23.1	47.3	4.03 (1.22)
Slow down and control development	478	6.5	9.4	17.2	22.2	44.8	3.89 (1.25)
Preserve rural character	475	4.4	7.6	22.5	26.9	38.5	3.88 (1.14)
Support local agricultural related business and jobs	473	6.3	7.4	22.8	29.8	33.6	3.77 (1.18)
Avoid public cost of services	469	12.2	17.7	22.6	21.1	26.4	3.32 (1.35)
Expand public access for recreational use	470	20.2	26.6	33.4	10.0	9.8	2.63 (1.20)
Scale Mean							3.71 (1.20)

When asked which option residents was most important for action to be taken, 45.7 percent indicated it was "extremely important" to take action to preserve farmland and 39.3 percent indicated it was "extremely important" to take action to preserve open space and natural areas (Table 8).

Table 8.
Distribution of importance for government officials to take action

Action	N	Not important %	Slightly important %	Important %	Quite Important %	Extremely Important %	Mean (St. Dev.) %
Local gov. preserve farmland	481	5.0	9.8	15.2	24.3	45.7	3.96 (1.20)
Local gov. open space natural areas	476	3.8	10.5	23.5	22.9	39.3	3.83 (1.17)
Scale Mean							3.90 (1.19)

Respondents indicated maintaining environmental benefits of open space (88.9% important, quite important and extremely important, combined), to slow down and control development (82.2% important, quite important and extremely important, combined) and to preserve rural character (82% important, quite important and extremely important, combined) as the main reasons for protecting open space and natural areas in Clinton County (Table 9).

Table 9
Distribution of reasons for protecting open space and natural areas

Reasons	N	Not important %	Slightly important %	Important %	Quite important %	Extremely important %	Mean (St. Dev.)
Maintain environmental benefits of open space	474	3.2	8.0	17.1	26.4	45.4	4.03 (1.11)
Slow down and control development	474	7.2	9.5	19.4	20.3	43.5	3.85 (1.32)
Preserve rural character	480	6.5	11.5	20.2	26.0	35.8	3.73 (1.24)
Expand access for recreational opportunities	469	17.1	26.7	33.3	13.9	9.2	2.71 (1.17)
Expand public hunting and fishing opportunities	472	22.2	24.6	25.2	15.5	12.3	2.79 (2.19)
Scale Mean							3.42 (1.41)

As reported in Table 10, respondents value the importance of farmland preservation (66.7% important, quite important and extremely important, combined) and indicated support for a modest tax or fee to help protect it. Approximately sixty four percent support a modest tax or fee to help protect open space and natural areas and 42.8 percent (important, quite important and extremely important, combined) support a tax or fee for maintaining county park and recreational areas. These responses tend to indicate residents prefer to "see" open space and farmland and not use it, as a park and/or recreational area.

Table 10.
Distribution of respondents support for a modest tax or fee

Service	N	Don't Support %	Slightly Support %	Support %	Strongly Support %	Very Strongly Support %	Mean (St. Dev.)
Help protect farmland	484	20.0	13.2	20.0	20.9	25.8	3.19 (1.46)
Help protect open space or natural areas	476	19.1	17.4	24.2	19.7	19.5	3.03 (1.39)
Establish & maintain co. park and recreational areas	473	29.0	28.1	26.8	10.0	5.9	2.36 (1.17)
Scale Mean							2.86 (1.34)

If the state contributed a 3:1 match, for every one-dollar generated locally, the state would match three dollars, 61.1% indicated they would be more likely to support a modest tax or fee to fund a farmland preservation program (Table 11.)

Table 11.
More or less likely to support a modest tax or fee to fund farmland preservation if the state provided a 3:1 match

Character		Much less likely	Less likely	No difference	More likely	Much more likely	Mean (St. Dev)
	N	%	%	%	%	%	
	460	9.1	5.2	24.6	40.0	21.1	3.59 (1.15)

As reported in Table 12, 83.3% (support, strongly support and very strongly support, combined) indicated they would support restricting development to protect farmland, 82.9% support restricting development to protect open space and 81.1% support regulating the development and/or expansion of mobile homes (Table 12).

Table 12.
Distribution of support for government regulatory practices

Regulation	N	Don't support %	Slightly support %	Support %	Strongly support %	Very strongly support %	Mean (St. Dev)
Regulating the development of mobil/manufactured homes	470	10.9	7.9	14.9	18.1	48.1	3.85 (1.38)
Restricting development to protect farmland	473	9.3	7.2	16.7	25.4	41.2	3.83 (1.30)
Restricting development to protect open space and natural areas	473	6.8	10.1	19.2	23.7	40.0	3.81 (1.26)
Regulating development for the protection of wetlands	470	8.3	13.6	26.0	20.0	32.1	3.54 (1.29)
Regulating development for the protection of wetlands	470	8.3	13.6	26.0	20.0	32.1	3.54
Regulating design of development projects to incorporate open space	464	12.3	16.4	33.4	23.7	14.2	3.11 (1.20)
Regulating the location of single family homes	471	18.0	14.9	28.5	21.9	16.6	3.05 (1.33)
Acquiring private property for public use	469	25.2	28.4	34.5	8.7	3.2	2.36 (1.05)
Scale Mean							3.36 (1.26)

Directing or encouraging more development in and around existing cities and/or villages is the approach most Clinton County residents prefer to see used to help preserve farmland (81.2% support, strongly support and very strongly support, combined). Seventy nine percent prefer to provide reduced property taxes to farmers who voluntarily agree to not develop their land and 74.8% support limiting the number of new homes in rural areas through stricter land use zoning and regulations (Table 13).

Table 13.
Support for approaches to preserve farmland in Clinton County

Approaches	N	Don't support %	Slightly support %	Support %	Strongly support %	Very strongly support %	Mean (St. Dev)
Provide reduced property taxes to farmers who voluntarily agree to not develop their land	476	12.2	8.4	14.3	23.7	41.4	3.74 (1.39)
Direct or encourage more development in an around existing cities and/or villages	474	9.5	9.3	26.6	23.0	31.6	3.58 (1.28)
Pay farmers who voluntarily agree to permanently protect farmland from future development through a conservation easement	473	15.9	9.7	18.4	21.1	34.9	3.49 (1.45)
Limit the number of new homes through stricter zoning	480	12.9	12.3	20.2	22.7	31.9	3.48 (1.38)
Allow a developer to build more homes than zoning currently allows in exchange for financially supporting farmland preservation programs	463	50.1	18.4	17.3	7.8	6.5	2.20 (1.25)
Scale Mean							3.30 (1.35)

There are many options for funding a farmland preservation program. Seventy five percent support a farmland conversion fee, which is paid by developers when farmland is developed. Over 68% support reprioritization of existing general funds and 25 percent support a bond referendum using existing revenues to pay off debt (Table 14).

Table 14.
Support for funding mechanism for a farmland preservation program

Mechanism	N	Don't support %	Slightly support %	Support %	Strongly support %	Very strongly support %	Mean (St. Dev)
A farmland conversion fee	464	16.6	7.8	15.3	22.8	37.3	3.57 (1.47)
Using existing general funds	458	18.1	13.5	29.3	17.7	21.2	3.12 (1.42)
A real estate transfer tax	461	37.1	15.8	15.6	16.9	14.5	2.56 (1.48)
Bond referendum	446	28.7	19.3	29.6	11.9	10.5	2.56 (1.30)
A property tax mileage	457	41.8	20.6	22.5	8.3	6.8	2.18 (1.25)
A restaurant meals tax	462	63.9	13.6	11.5	4.1	6.3	1.77 (1.24)
Scale Mean							2.63 (1.36)

Lastly, as reported in Table 18, lack of knowledge and awareness for the potential farmland preservation options was significantly lower than expected. Many people do not fully understand the programs and how they operate. Eighty percent were unfamiliar with the purchase of development rights program, 82% were unfamiliar with the transfer of development rights program and 84% were unfamiliar with agriculture security areas or districts program. Understanding and articulation for each of these programs must be raised if a successful farmland preservation program is implemented in Clinton County.

Table 15
Familiarity of government and other land use programs among Clinton County residents

Program	N	Not familiar %	Somewhat familiar %	Very familiar %	Mean (St. Dev)
Michigan Farmland & Open Space preservation Act (P.A. 116)	471	56.5	28.9	14.4	1.62 (1.15)
Conservation Reserve Program	471	66.2	22.9	10.8	1.45 (.68)
Purchase of Development Rights (PDR)	468	79.5	16.0	4.3	1.37 (2.81)
Transfer of Development Rights (TDR)	467	82.2	15.4	2.4	1.20 (.46)
Urban Growth Boundaries or Or Urban Service Districts	467	83.7	13.7	2.6	1.19 (.45)
Agriculture Security Areas or Districts	464	84.1	14.4	1.5	1.17 (.42)
Scale Mean					1.33 (1.0)

Chapter 5
Summary, Conclusions, Implications and Recommendations

Summary

There is a great deal of support for farmland preservation efforts in Clinton County and throughout Michigan. Communities understand the importance of sound land use planning, design regulations and protection initiatives. Like any issue, the rubber meets the road when discussions of how to fund a program are brought to the surface. Citizens and public officials alike would like to see a project brought to fruition, however are uneasy regarding funding mechanisms.

As reported in Chapter 2, Literature Review, there is a clear direction on supporting a program, however the question comes down to how does public opinion influence officials and their desire to change and influence policy. It also begs the question: If officials understand the desires of the public with clear quantitative date, can they shape policy without extreme repercussions? The answer depends on two components. One, does the official posses leadership characteristics enough to champion an issue and expand political capital for it? Two, what are the values and beliefs associated personally? Farmland and Open space preservation programs have clear emotional characteristics attached to them. It is important to assess both political and *personal* views.

Therefore, this study was designed to investigate the perspectives of residents of Clinton County on farmland and open space preservation efforts, if they feel trends are occurring and affect them, and also to perhaps develop a countywide farmland preservation program. A simple random sample of 1500 registered voters in Clinton

County was drawn and had a 30 percent response rate. A closed and open-ended questionnaire was designed to measure trends and perspectives on land use issues. Descriptive and inferential statistics were used to analyze the data.

The statement of a major study conclusion is presented under each research question. A brief discussion is also presented along with recommendations. At the end of this chapter, recommendations for future research are also made. Based upon the finding presented in this study the following conclusions, recommendations and implications were formed.

Research Question 1

What are the current resource and/or land use concerns facing Clinton County?

Conclusion

- The loss of farmland in Clinton County is clearly a high concern among residents. Nearly 88 percent of the respondents indicated it as a concern, strong concern or very strong concern.
- The loss of family farms was the second most popular concern with 87.6 percent of the respondents indicating it was a concern. Respondents chose the loss of farmland and the loss of family farms as the two highest concerns in Clinton County over other concerns such as affordable housing, public transportation, commute time, loss of wetlands and loss of sense of community.

Recommendation

- Residents understand and recognize the landscape change in their communities and contribute much of it to the loss and fragmentation of agricultural land. These trends must be investigated to award merit and creditability to the urgency of the

issue. It is in public officials best interest to develop an agenda for addressing the land use concerns of its citizens as a high importance issue in the county.

- Officials must recognize that residents are aware of land fragmentation and encourage grass-roots, community action groups to organize and help address much the concern. They must also encourage partnership among local officials and these action groups for feedback and input throughout the process.

Implication

- If public awareness is not heightened in terms of landscape change and rural character, communities will continue to grow as they always have. Allowing growth to occur by chance rather than by choose.
- Communities have conducted survey's, held public forums and hosted many events to investigate the concerns of the citizens. Through further investigation must come action. Many questions in the survey instrument lead in the direction of creating change.

Research Question #2

Among other county priorities where does farmland preservation fall in terms of resource management and public needs?

Conclusion

- One out of every two respondents indicated protecting farmland from development was very high priority, even over wetland preservation, state park creation, hiking and biking trails and county parks for sporting activities.
- Many resources demand protection, however respondents on this survey indicate farmland protection to be the highest priority over other priorities for protection.

Recommendation

- Clinton County must place a priority on farmland preservation through further investigation of "inadequate resources".
- Investigate the revenue streams, which enhance or help create larger sprawling problems. For example, large minimum lot sizes, expansion of sewer and water services to areas outside of growth zones, road expansion, etc.

Implication

- Although much of the growth follows the market, public policies can create incentives for growth in unwanted or unplanned areas.
- If changes are not made in areas of revenue spending to cut unwanted incentives for growth, the market will continue to allow development to occur in the same manner it always has.

Research Question #3

What are reasons for protecting farmland and open space in Clinton County?

Conclusions

- Over 90 percent of the respondents indicated protection farmland was important, quite important or extremely important for maintaining the environmental benefits of open space.
- Over 50 percent of the respondents indicated it is extremely important to protect farmland to ensure future food production.

Recommendations

- Create an internal county committee to make recommendations of how to better use public dollars and resources. This committee should be knowledgeable of land use trends in Clinton County and understand available programs.
- Their recommendations should include shifting resources from the growing rural areas to redevelopment and expansion of downtowns. Incentives for Brownfield re-development and walkable communities are great ways to deincentivize unmanaged growth in rural areas.

Implications

- Are there techniques and tools already in place that can be utilized to help protect farmland? Perhaps zoning, and other planning tools could be used to dove-tail with more permanent solutions.
- It is critically important to not use public tax dollars for programs that create incentives for unmanaged growth and expansion. As indicated, respondents feel strongly about the reasons for preserving farmland and entrust public officials to use revenue in a responsible manner.

Research Question #4

What is the level of importance, according to residents, for protecting farmland in Clinton County?

Conclusions

- Over 45 percent of the respondents indicated it was extremely important state and local officials take action to preserve farmland. Nearly 85 percent indicated it was either important, quite important or extremely important for local and state officials to take action to preserve farmland.
- Farmland preservation is clearly a concern citizens feel is critical enough to address at the county level. Residents recognize that the "market" is not adjusting for natural resource protection and therefore requires county officials to intervene with action.
- Residents are perhaps not aware of the environmental, social and economic benefits farmland generates in a community. They only understand their contentment for farmland being bulldozed and housing developments constructed next door.

Recommendations

- Develop a Purchase of Development Rights program in Clinton County to allow interested landowners and opportunity to be reimbursed for equity in their land in exchange for a permanent conversation easement.
- This program would include selection criteria, administration guidelines, easement language, points based appraisal methods and installment purchase agreements.

- The county after adopting the PDR ordinance should fully implement the program following the administration guidelines and including appointing an Agricultural Preserve Board to oversee and make recommendations back to the County Commissioners.

Implications

- If Clinton County wants to continue to enjoy growth and prosperity among its community, it must implement strategies, specifically the Purchase of Development Rights Program to ensure those resources, which attract people to locate there, are preserved and protected.
- Discussion have occurred, the citizens have voiced their concerns and intent for protecting farmland, however, action must be taken to ensure these issues can be meaningfully resolved.
- Developing and implementing a Purchase of Development Rights program will not only aide farmers but send a message to all citizens that county officials are concerned and willing to take action.

Research Question #5

Is there a significant lack of understanding of farmland preservation techniques?

Conclusions

- When asked "How familiar are you with the government and other land use programs including Purchase of Development Right, Transfer of Development Rights, Agriculture Security Areas or Districts, Michigan Farmland and Open Space Act (P.A. 116), Conservation Reserve Program (CPA) and Urban Growth Boundaries or Urban Service Districts, there is a significant lack of familiarity.
- Almost 80 percent of the respondents indicated they were unfamiliar with the Purchase of Development Rights Program, over 82 percent indicated they were unfamiliar with the Transfer of Development Rights Program and 84 percent were unfamiliar with Ag Security Areas or Districts.
- There is a severe disconnect between the tools used to address the land use issues of highest priority or greatest concern and county residents. Clinton county residents are feeling the effect of scattered and hap-hazard growth however do not fully understand the tools that are available to address these issues. Furthermore residents are not only unaware of the programs but even further disconnected with program administration and how these tools could directly impact them.
- Percentages ranging from 80 to even 90 percent of residents who are unaware of these programs send a clear message that strong and concerted educational efforts must be put forth in order to enjoy the success outcomes these programs could offer.

- It is clear, growth and the manner in which it occurs is a concern to Clinton County residents. If residents' only understand how these programs could benefit their community and even achieve the goals they desire, they would perhaps be more inclined to engage in public discussion and support these programs on the ballot.

Recommendations

- Workshops and educational seminars on the specifics of each program need to be coordinated and open to all interested or concerned citizens.
- A workshop designed specifically for public officials should be conducted as well.
- Evaluations and surveys need to be conducted upon conclusion of these workshops to indicate an increase in awareness and understanding.
- Pilot programs should also be considered as an option for bringing awareness to county residents. Offering a pilot program/study for a TDR, PDR Ag Security Area or Urban Services District, allows elected officials a cushion – they neither have to support nor oppose a program. Officials can take a wait and see stance, allowing program coordinators an opportunity to demonstrate the value of the tool.

Implications

- Knowledge, awareness and understanding by all citizens, especially public officials and the agricultural community, are essential to a successful farmland preservation program.

- Lack of understanding and awareness will cast confusion and doubt among voting citizens, and could ultimately lead to an unsuccessful program.

Research Question #6

Would residents be willing to support a modest tax or fee to support farmland preservation programs?

Conclusions

- Almost 60 percent of the respondents supported some form of mileage/tax, or were not sure with no opinion. Many respondents support alternative methods of funding such as a farmland conversion to be paid by developers, a real estate transfer tax or bond referendum.

Recommendations

- Form a campaign team to poll the possibility of a successful mileage or ballot initiative.
- Begin campaign strategies and make recommendations to the county commissioners for educational and awareness strategies.

Implications

- Survey response indicates there is a significant amount of citizens that due to lack of understanding are unsure of how they would vote.
- In almost every election "fence sitters" can make or break a successful ballot initiative. This group must be identified and reached.

Farmland preservation efforts are clearly a priority for residents in Clinton County, the State of Michigan and perhaps across the country. The question is not is this a concern, but what will come our landscape if nothing is put into action. The disconnect between the concerns of the citizens and action taken by local units of government

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