AN ANALYSIS OF THE OPEN SPACE-DESIGNED SUBDIVISION CONCEPT AS APPLIED IN HAMBURG TOWNSHIP, MICHIGAN

By

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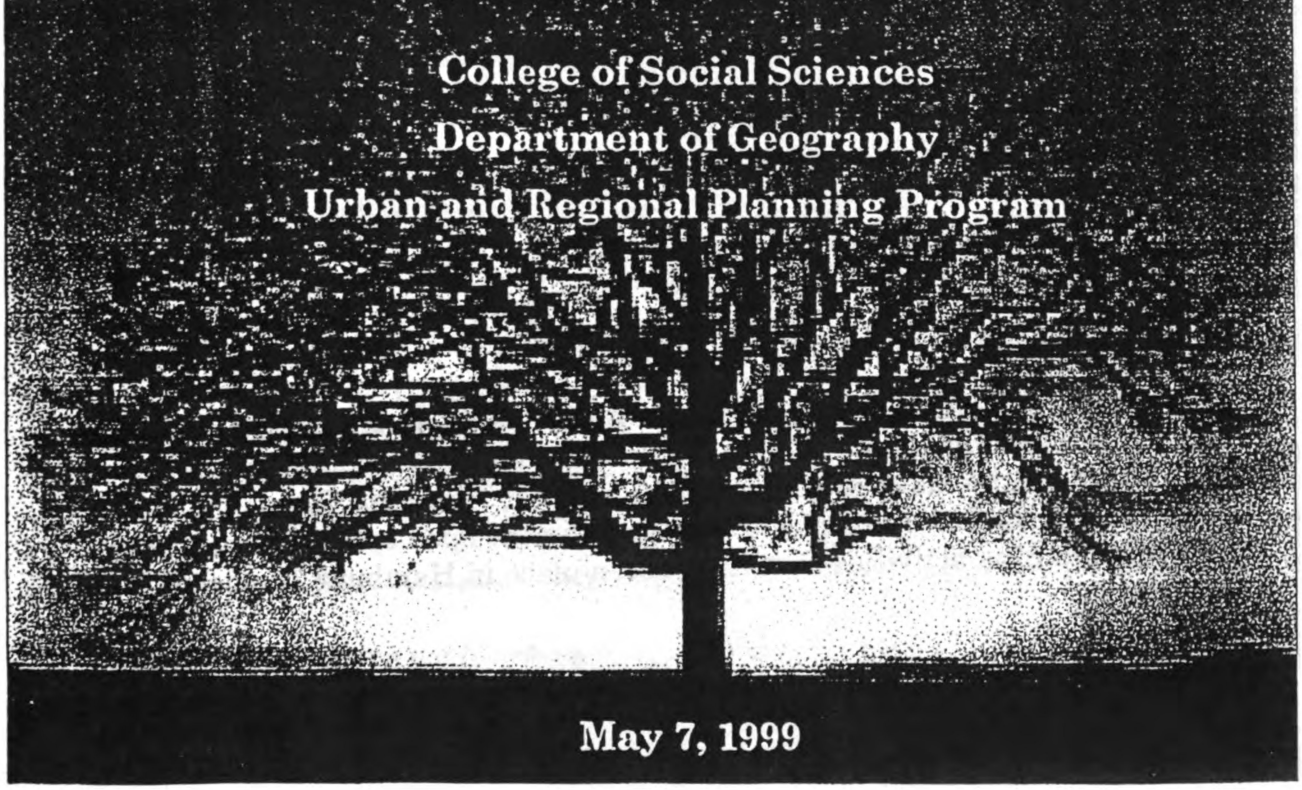

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CHAPTER 1

INTRODUCTION TO THE REPORT

Introduction

Many Michigan towns of varying sizes continue to experience growth pressures in their communities. This is especially true in the suburbs surrounding metropolitan Detroit. Recently, many of these areas have begun to experience unprecedented growth trends. For this reason, planning officials in these communities continue to search for innovative growth control strategies.

This report will present a detailed case study of Hamburg Township, Michigan. What makes Hamburg Township so interesting is the fact that it has adopted a growth management strategy, known as open space planning, in order to retain its rural character, and at the same time control growth.

Purpose for this Report

This report has a two-fold purpose. First, by profiling Hamburg Township's experience with open space planning, it provides rural communities with useful information regarding the procedures involved in implementing an innovative and practical growth management strategy. Second, by examining available research data related to the economic benefits associated with residential proximity to

preserved open space, this report will attempt to provide community leaders and developers alike with evidence to supports its implementation.

Format of the Report

This report is organized into two distinct sections. **Part 1** provides a detailed account of Hamburg Township's efforts to develop an open space ordinance. Chapter 2 begins this process with a basic explanation of the overall concept of open space planning. Chapter 3 then presents a profile of the Hamburg Township community, including its location, demographic information and physical characteristics. Chapter 4 supplies a historical overview of Hamburg Township's efforts to implement its Open Space Community Ordinance. Chapter 5 provides a detailed explanation of the essential elements contained in the ordinance. Chapter 5 also concludes **Part 1** of the report with comments regarding the Open Space Community Ordinance and its implications for future planning in Hamburg Township.

Part 2 of the report addresses a controversial question regarding the concept of the open space planning, that is, whether preserved open space areas affect adjacent residential housing prices. Although Hamburg Township officials have promoted the social and environmental benefits of their open space concept, a study that quantifies the economic benefits associated with the concept has never been performed. In order to accomplish this, **Part 2** centers on a comparison study of

housing prices for units in both open space subdivisions and conventionally designed subdivisions in Hamburg Township.

Chapter 6 of the report defines the scope of the Hamburg Township housing study. Chapter 7 of the report provides a literature review of previous housing studies regarding the economic effects of open space areas on property values. Chapter 8 of the report details the methodology used in the Hamburg study. It also provides a short profile of each subdivision used in the study. Chapter 9 assesses the results of the statistical tests performed in the Hamburg Township housing study and attempts to identify the practical reasoning behind the results. Chapter 10 concludes the report with some final thoughts and implications regarding the results of the housing study.

PART ONE

CHAPTER 2

CHAPTER 2

WHAT IS OPEN SPACE PLANNING?

Background

Open space planning is a growth management technique used to improve the protection of the undeveloped landscape in a community. It promotes clustering homes on the most buildable and least environmentally sensitive portions of a parcel of land. The technique preserves the remainder of the land within the development as permanently dedicated open space. The amount of open space protected generally ranges from between forty to sixty percent of the total acreage for a given development (Livingston County Department of Planning, 1996: 1).

The most important step in the open space development process is to identify the land that is to be preserved. Areas preserved as open space generally include lands with environmentally sensitive features. Open space identification involves delineating both "Primary Conservation Areas" and "Secondary Conservation Areas" (Arendt, 1996: 6) **(Refer to Table 1)**.

Table 1.

Types of Conservation Areas to Identify for Open Space Planning

PRIMARY CONSERVATION AREAS	SECONDARY CONSERVATION AREAS
Unbuildable wetlands Waterbodies Floodplains Steep slopes	Mature woodlands Prime farmland Natural meadows Critical wildlife habitat Upland buffers around wetlands and waterbodies Historically significant sites Culturally significant sites

Source: Conservation Design For Subdivisions

"Primary Conservation Areas" have environmental characteristics that make them effectively unbuildable under modern development standards. "Secondary Conservation Areas" are less environmentally sensitive, and are often built on in other subdivisions, but are preserved in open space developments.

Once the Primary Conservation Areas are deducted from the total development acreage, calculations are made to determine the number of dwellings allowed by local zoning on the remaining parts of the site. The dwellings are then clustered at a high density, around, but not within, the Secondary Conservation Areas (Arendt, 7).

The results of this process provide the community with a development that is "density-neutral". The term "density-neutral" refers to the fact that, typically in conservation-designed subdivisions, half of the dry, *buildable* land can be used for houselots and streets. However, the remaining half must be permanently preserved as open space. Of the remaining open space, at least half should be left undisturbed, while the rest can be used for active recreational uses, such as ballfields, tennis courts and fairways.

In simplier terms, the amount of *buildable* land in an open space development can be divided in the following way (Arendt, 7):

1. At least one-quarter must remain as relatively undisturbed land.
2. One-quarter may be modified for active recreational uses.
3. Up to one-half may be fully developed (at twice the normal density, to preserve the owners equity).

On of the most essential elements regarding the success of the open space planning technique is the act of permanently dedicating the preserved open space as undevelopable land. Typically this process requires the developer to record a separate master deed and plat for the open space area with the local Register of Deeds Office, after the completion of the development. These documents are binding contracts between all homeowners and the developer or property management organization in charge of maintaining the open space areas. The

master deed provides a legal description of the open space area and spells out the legal conditions regarding its use. Open-space subdivision approval by local government authorities should be conditioned upon the creation of a subdivision or homeowners association for the particular development. Once a quorum (majority number) of owners is reached in the development, the homeowners association assumes responsibility for maintenance of the open space areas. This process ensures that lands dedicated as open space remain that way in perpetuity.

CHAPTER 3

CHAPTER 3

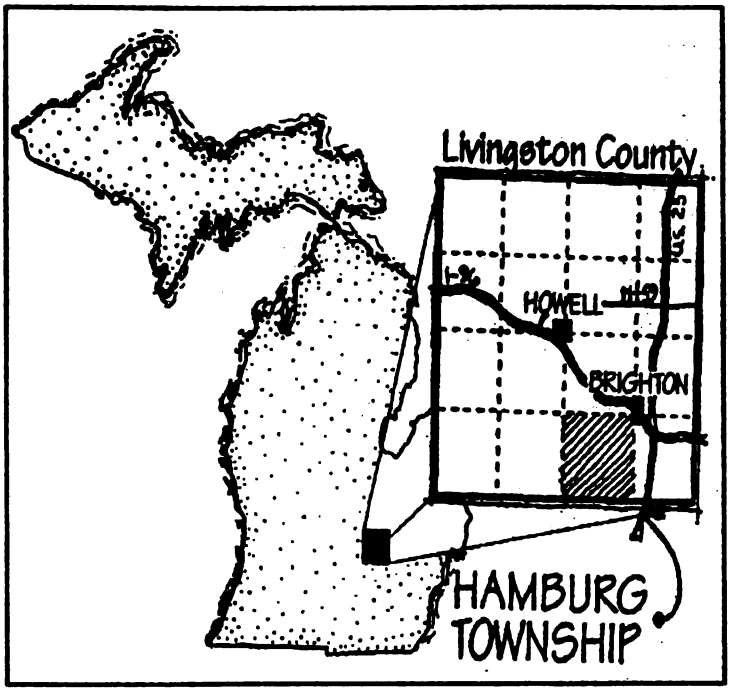
A PROFILE OF HAMBURG TOWNSHIP, MICHIGAN

Location

Hamburg Township is located in the southeast corner of Livingston County, Michigan, approximately 20 miles north of Ann Arbor (**See figures 1 and 2**).

Figure 1.

Location of Hamburg Township, Michigan



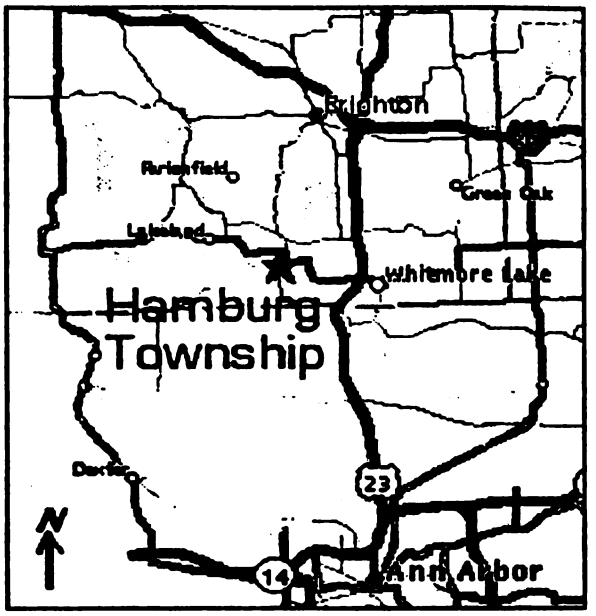
Source: Livingston County Planning Department

The township is bisected east and west by M-36, a two-lane divided highway. The township benefits by being located in close proximity to Interstate 96, a major east-west superhighway that extends across the lower portion of the state. In addition, it is only five miles west of U.S. 23, another major freeway running north and south through the eastern third of the state. By being so close to these important transportation linkages, Hamburg Township has become a booming bedroom community of suburban Detroit and Ann Arbor.

Hamburg Township also has distinctive natural assets. Over 30 lakes are sprinkled throughout the township. Many of these lakes are connected by the Huron River. Others are connected by canals. This network of waterways gives the area its name: "The Chain of Lakes". Most of the lakes allow for fishing, swimming, boating and other water-related activities.

Figure 2.

Hamburg Township - Regional Area



Source: Mapquest (Enhanced)

Population

According to the August 1998 issue of *Partnership in Planning*, a monthly newsletter distributed by the Livingston County Planning Department, Hamburg Township is projected to be the largest municipality in the county by the year 2000. Overall, Hamburg Township is one of only three townships in Livingston County that will realize double digit population between the years 2000 and 2020.

The rapid growth in Hamburg Township also be attributed to several other factors besides transportation accessibility and the attractiveness of lake front or riparian estate homesites. Among these are the public's desire to reside in a community

with a rural atmosphere, the availability of relatively inexpensive large tracts of land suitable for subdivision development and the expansion of public sanitary sewer from the City of Brighton. A new public sanitary sewer system, which opened in the Village of Hamburg in November 1998, will fuel population increases in the future.

CHAPTER 4

CHAPTER 4

A HISTORICAL PRETEXT TO HAMBURG TOWNSHIP'S OPEN SPACE COMMUNITY ORDINANCE

Introduction

The current population explosion has forced many township officials within Livingston County to scramble to implement some form of growth management technique in their communities. Many Livingston County communities have adopted Planned Unit Development (PUD) or mixed use provisions that enable subdivision developments to have some form of open space. However, most of these developments do not provide for the *large, contiguous, shared* open space that is a required feature of a true planned "open space" development. Many of these PUD developments do not incorporate the open space areas in the correct manner, as described in Chapter 2. For the most part, they are simply vacant lands with no associated utility.

Hamburg Township's Experience

Hamburg Township's experience with growth control measures began in the late 1970's. At the time, zoning regulations required 60,000 square feet of lot area per housing unit in the "RAA", or low-density rural district classification, and 30,000 square feet of lot area per housing unit in the "RA", or medium-density rural district classification. This pattern of development continued until the late 1980s. As

Hamburg Township began experiencing growth pressures exerted by its neighbor to the north, the City of Brighton, township officials felt it was time they performed a build-out analysis of their community. Results of the analysis revealed that, given population projections at the time, the amount of developable land in Hamburg Township would be used up very quickly. Township officials realized that immediate changes had to take place (Meyers, 1998).

After conducting numerous meetings, Hamburg Township officials decided to raise the minimum lot sizes for their RA and RAA zoning districts to one and two acre minimums, respectively. The premise behind this action was that given larger minimum lot sizes, township officials would be protecting more of the rural character of the township. At the time, residents in Hamburg Township clamored for this type of development pattern. However, a number of planning related occurrences, and one subdivision development in particular, spurred the need for Hamburg Township officials to rethink these growth management measures (Meyers).

In December 1990, township planners approached the planning commission about developing an open space community ordinance. The township had already adopted a Planned Unit Development (PUD) Ordinance in 1985, but it lacked any real incentives to entice developers to use it as an alternative to traditional development practices. The PUD Ordinance did provide an opportunity to set aside open spaces

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in subdivisions, however, developers did not use its flexibility for saving rural character and natural features (Warbach, 1993). The planning commission agreed with planners to begin the process of developing a better ordinance, one that not only preserved and protected the natural features which drew people to Hamburg, but also provided a "carrot" to entice developers to utilize it (Meyers).

At approximately the same time, Livingston County Planning Department officials initiated a series of open space zoning discussions with cities, villages and towns throughout the county. What emerge from this process was a working paper entitled *P.E.A.R.L: Protect Environment Agriculture and Rural Landscape, an Open Space Zoning Technique* (Livingston County Department of Planning, 1991). *PEARL* was a planning technique which clustered houses together in a smaller area within a development and left the remainder of the property as permanently dedicated open space. Hamburg Township planning officials felt that this technique addressed the issue of preserving rural character better than large lot rezoning had, by promoting more homogeneous subdivision and community development. They immediately began investigating how open space planning could be implemented in traditional subdivision plans that were going through the review process (Meyers, 1998).

Township officials began examining different subdivision development scenarios in order to gain a better understanding of the elements that constituted open space

planning according to *PEARL*. Township planning commission meetings now included reviews of how the implementation of open space planning techniques would affect currently proposed subdivisions. In August 1991, after numerous meetings and discussions, township planners began assembling formal language for an open space community ordinance for the township (Meyers).

About the same time as all this activity was taking place, a subdivision development called Pheasant Brook Village was proposed in Hamburg Township. The subdivision was built under the PUD ordinance and called for 99 housing units to be built on 104 rural acres of open land, located in the westernmost portion of the township. The development lacked "character", as there were no trails or neighborhood recreational spaces designated in the plan, only large, expansive lots, using the full amount of developable area allowable under zoning regulations at the time (Meyers) (**See Figures 3 and 4**).

Figure 3.

Pheasant Brook Village

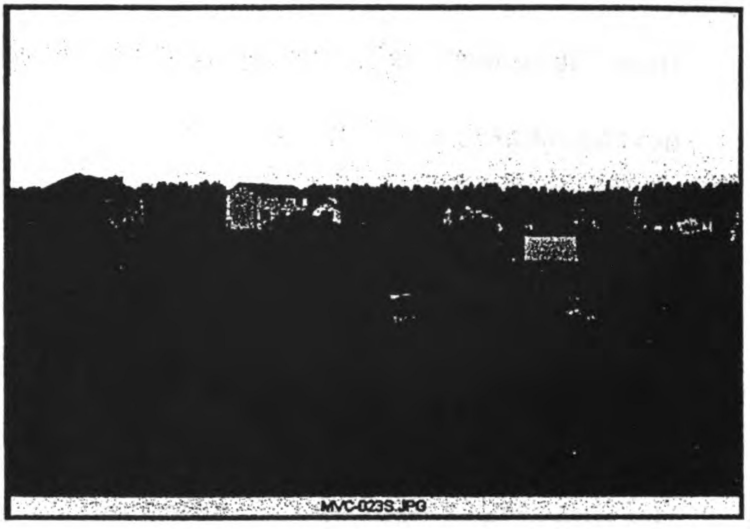
Source: Hamburg Township Zoning Department

As can be seen in **Figure 3**, housing units in Pheasant

Brook were spaced so far apart from each other that the opportunities for residents to socialize with their neighbors were minimal. No steps were taken, by the developers to preserve any natural features on the site, such as mature stands of trees, or wildlife habitats like wetlands. Instead the large trees were removed and wetlands areas were filled. The end result was an unimaginative, land-hogging development. As seen in **Figure 4**, backyards were spacious wastelands.

Figure 4.

Pheasant Brook Village



Source: Hamburg Township Zoning Department

The development lacked any kind of neighborhood cohesion, homes were space far apart on little "islands". It was also devoid of any substantial community recreational areas for the children. Neighborhood streets and cul-de-sacs, designed at highway standards (the trend at the time), cut wide swaths of concrete throughout the development. In Pheasant Brook Village, it seemed that everyone had their "own little acre" and that was all that mattered. For Hamburg Township, this subdivision was exactly the type of development that was being promoted with

large lot zoning regulations. However, it was also this development that really opened the eyes of Hamburg Township officials. They now realized that because of these "land-hogging" planning and zoning practices, they had allowed this type of development to occur, and they weren't pleased (Meyers).

Township officials decided that developments of this type were no longer appropriate in Hamburg Township. They quickly realized that by continuing to approve these large lot, land-hogging subdivisions, they would also be accelerating the rate of land consumption within the Township. They also realized that they were actually encouraging these types of developments, because they lacked better, land-conserving alternatives for developers to choose from (Meyers).

As 1991 drew to a close, township officials put the finishing touches on a new open space community ordinance. The In January 1992, they adopted the Open Space Community Ordinance, which replace the PUD Ordinance, and Hamburg Township never looked back. This ordinance achieved the township's goal better than the PUD ordinance because with the PUD ordinance, the developer could get a 40% density bonus for only preserving 15% open space. Planned Unit Developments were often challenged by the public on this basis, therefore the planning commission began granting approvals for PUDs less frequently. With the Open Space Ordinance, 40% of the development is required to be preserved as open space

(Warbach, 16). Since adopting the ordinance, 33 out of 34 subdivisions have been developed in Hamburg Township utilizing open space design standards (Meyers).

CHAPTER 5

CHAPTER 5

HAMBURG TOWNSHIP'S OPEN SPACE COMMUNITY ORDINANCE

Intent of the Ordinance

The intent of Hamburg Township's Open Space Community Ordinance has seven purposes. **(For additional information please refer to Appendix A)**. It offers developers an alternative to traditional subdivisions, which (Hamburg Township Zoning Ordinance, § 14.1):

A) Encourages the use of Township land in accordance with its character and adaptability.

B) Assures the permanent preservation of open space, agricultural lands and other natural resources.

C) Provides recreational facilities within a reasonable distance of all residents of Open Space Community Developments.

D) Allows for innovation and greater flexibility in the design of residential developments.

E) Facilitates the construction and maintenance of streets, utilities and public services in a more economical and efficient manner.

F) Ensures compatibility of design and use between neighboring properties.

G) Encourages a less sprawling form of development, thus preserving open space as undeveloped land.

In essence, the Open Space Community Ordinance acts as an overlay zone for the township, allowing developers to build at higher densities than normally allowed for

a given zoning district. For example, if a developer is willing to develop an open space subdivision in an RA-zoned district, they are allowed to build at a 30,000 square foot minimum lot size under open space regulations, rather than the normal 1-acre minimum for this district. Thus, by increasing the maximum density levels under open space regulations, Hamburg Township utilizes a "carrot and stick" approach in order to sell the idea to the developer. The developer can get more units, and the township preserves valuable open space.

Details of the Ordinance

In order for an applicant (prospective developer) to be eligible for open space community consideration, the proposed development must demonstrate that the following objectives are met (Hamburg Township Zoning Ordinance, §14.3):

A) The open space plan must demonstrate a recognizable and substantial benefit, both to the residents of the property and to the overall quality of life in the Township. This can be done in many ways:

- Through high quality architectural design.
- Extensive landscaping.
- Provision of transition areas from adjacent residential uses.
- Unique site design features.
- Unified access.
- Preservation of woodlands and open space.
- Buffering development from lakes, rivers, streams and wetlands.

B) A minimum project size of five acres of contiguous land.

C) Provision of at least one of the following benefits:

- Significant natural assets; i.e., woodlands, individual trees over 12 inches in diameter, rolling topography, significant views, natural drainage ways, water bodies, floodplains, regulated or non-regulated

wetlands or natural corridors that connect wildlife habitats which are beneficial to the Township.

- Recreation facilities; i.e., provision for usable recreation facilities such as parks, ball fields, bike paths, etc., which are accessible to all residents of the neighborhood.

- Creation of natural features; i.e., providing perimeter buffer plantings and interior street tree plantings at a rate of twice (2x) what is normally required.

D) Guarantee of open space.

E) Cohesive neighborhood.

F) Unified control; i.e., the development operates under single ownership.

G) Density impact; i.e., the proposed type and density of use shall not result in an unreasonable increase in the need for or impact to public services, facilities, roads or utilities.

H) Master plan; i.e., the proposed development is consistent with and furthers the implementation of the Township Master Plan.

If all these considerations are met, the proposed development can be granted approval by the planning commission and township board as an open space community.

There are several important elements embodied within Hamburg Township's Open Space Community Ordinance. For example, township planning officials offer developers design alternatives concerning internal road networks within an open space community. Internal roads may be public or private (Hamburg Township Zoning Ordinance, § 14.4.12). This essentially encourages the developer to consider utilizing narrower road systems within the development, which would be fully

maintained by the residents of the community. The township embraces American Association of Safety and Highway Transportation Officials (AASHTO) standards for private road construction, a far more lenient measure than Livingston County public road standards. Within an open space development, the township encourages the use of right-of-ways that are less than 50-feet in width, as well as cul-de-sac radii that are less than 100-feet, instead of Livingston County's public road standard of 66-foot right-of-ways and 120-foot radii. Designing neighborhood streets this way presents a three-fold benefit. First, narrower road right-of-ways lessen the rate of destruction for valuable woodlands or natural wildlife habitats. In open space subdivisions, housing lots and street systems are designed *around* significant natural features. Second, the Livingston County Road Commission saves costs by not having to maintain an additional public road. In fact, often these neighborhood private roads are better maintained than public roads (this is due to the homeowners associations in open space subdivisions, which are responsible for their upkeep). Third, narrower streets are reflective of a more close-knit, pleasant type of neighborhood. The ordinance also stipulates that both sides of all internal private roads be landscaped with a variety of street trees. This enhances the overall visual quality of the neighborhood.

The Open Space Community Ordinance also includes requirements for pedestrian circulation within an open space development (Hamburg Township Zoning Ordinance, § 14.4.13). The development must provide pedestrian access to all open

space areas from all residential areas. This includes the provision of trail systems constructed of gravel, woodchip or other similar material.

The Open Space Community Ordinance also allows for the protection of significant structures which may already exist within a proposed development (Hamburg Township Zoning Ordinance, § 14.4.15). If the structure is deemed by the planning commission to be of historic, cultural, or architectural significance, and is suitable for rehabilitation, it may be retained within the development. As a result of this consideration, open space communities in Hamburg Township have adapted these structures into their subdivisions as community meeting halls or indoor recreation facilities.

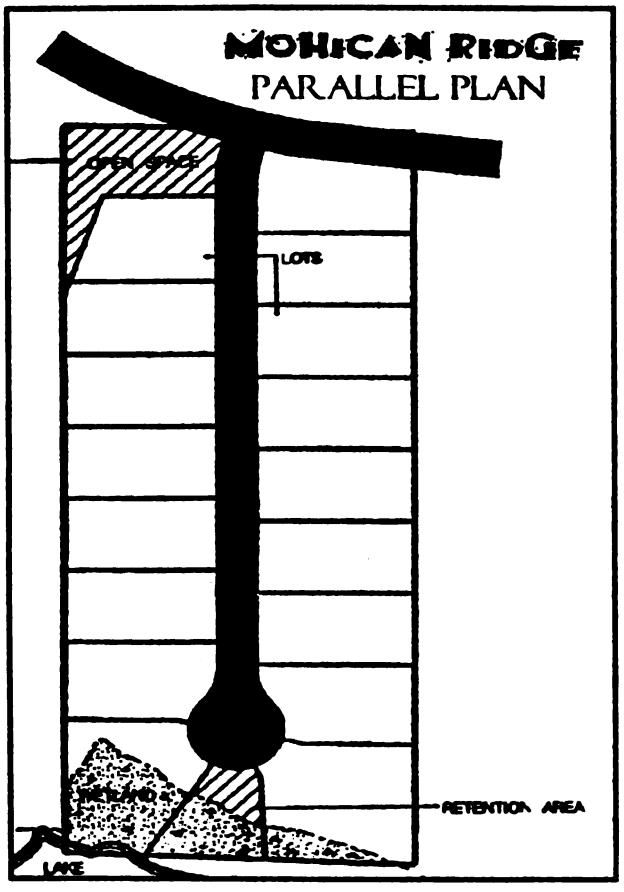
Probably the most important element contained in the Open Space Community Ordinance is that it grants regulatory flexibility to the planning commission regarding any item proposed in a development plan. In essence, this provision allows the planning commission full powers to disregard or dismiss any proposed plan, or element of a plan, as it sees fit. With this "all-or-nothing" approach, the planning commission can also force modifications in proposed plans it deems necessary, in order to protect the rural character of the township. In turn, The developer must comply with these changes it they want approval for their. These modifications cannot be challenged through variance procedures conducted by the Zoning Board of Appeals. This is indeed a very powerful planning tool.

Requirements for Proposing Open Space Developments

When a prospective developer brings an open space proposal to the Hamburg Township Planning Commission for approval, they are required to submit two different site plans for the development. The first is referred to as a "Parallel Plan" and it shows all development components arranged in a traditional "cookie cutter" fashion (**See Figure 5**).

Figure 5.

Example of a Parallel Plan



Source: Hamburg Township

This plan arranges lot areas in a way that resembles conventionally-designed subdivision, using up all *buildable* space for housing lots and leaving the rest along the fringes of the development (**See hatched areas in Figure 5**). The parallel plan is only used to determine allowable density for an open space community project. A parallel plan must be designed with the minimum lot areas shown in **Table 2**.

Table 2.

Minimum Lot Areas

Underlying Zoning District	Parallel Plan Minimum Lot Size (square feet)(acres)	Normal Zoning Minimum Lot Size (square feet)(acres)
RAA-Low Density Residential	60,000 (1.37 acres)	87,120 (2 acres)
RA-Medium Density Residential	30,000 (.68 acres)	43,560 (1 acre)
RB-High Density Residential	7,000 (.16 acres)	10,000 (.23 acres)
NR-Natural River	30,000 (.68 acres)	43,560 (1 acre)
WFR-Waterfront Residential	30,000 (.68 acres)	43,560 (1 acre)
VR-Village Residential	10,000 (.23 acres)	21,780 (.50 acres)

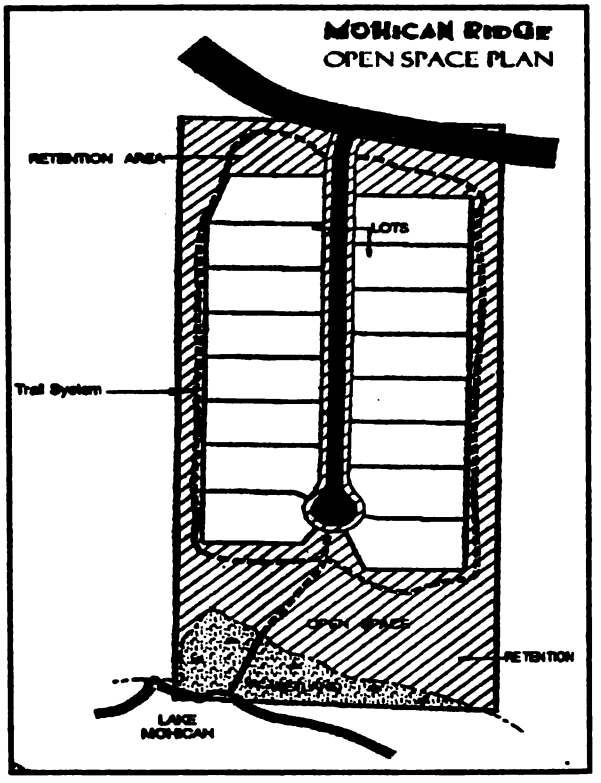
Source: Hamburg Township Zoning Department

The second type of site plan submitted is the open space plan. The open space plan shows all components of the development arranged in a manner that exemplifies the intent of the ordinance **(See Figure 6)**.

As can be seen in **Figure 6**, all land within the development that is not devoted to a residential unit, an accessory use, vehicle access or parking, a roadway, or an approved land improvement is set aside

Figure 6.

Example of an Open Space Plan



Source: Equinox, Inc.

as *shared* common land for all lot owners to enjoy (hatched areas). These areas are used for recreation or conservation uses or are preserved in an undeveloped state (Hamburg Township Zoning Ordinance, § 14.4.7A). For an additional example of open space and parallel plans, please refer to **Appendix B.**

According to the ordinance, a minimum of forty percent (40%) of the gross area of the site is required to be set aside as open space. A minimum of ten percent (10%) of that open space area is required to be upland area, accessible to all residents of the community. Golf course fairways are not included as upland area (Hamburg Township Zoning Ordinance, § 14.4.7B). There are also specific areas that cannot be included as dedicated open space according to the ordinance (Hamburg Township Zoning Ordinance, §14.4.7C), this includes the following areas:

A) The area of any street right-of-way proposed to be dedicated to the public (This also includes private streets).

B) Any submerged land area.

C) Any portion of the project used for commercial purposes.

D) The required setbacks surrounding a residential structure that is not located on an individual lot or condominium site.

The designated open space area located within a development can be centrally located along the road frontage of the development, located to preserve significant natural features, or to connect open spaces throughout the development. In addition, open space areas located along exterior public roads are required to be at

least one hundred feet in depth and include landscaping with canopy trees (Hamburg Township Zoning Ordinance, § 14.4.7D). The inclusion of this design element ensures that a development will not obstruct scenic views or adversely affect the rural character of the township.

A developer must guarantee to the township that open space areas will be protected from all forms of development, except those shown on an approved site plan, and will never be changed to another use (Hamburg Township Zoning Ordinance, § 14.4.7F). This may be accomplished in many ways, among them:

A) Recorded deed restrictions.

B) Covenants that run perpetually with the land.

C) A conservation easement established per the State of Michigan Conservation and Historic Preservation Act, Public Act 197 of 1980 (M.C.L. 399.251).

The above mentioned documents must also include a maintenance provision for the open space. Once the development has been completed, a homeowners or condominium association should be established with the express duty of seeing that proper maintenance of the open space takes place over the life of the development. This is an essential component of any successful open space planning process.

Implementation

The Open Space Community Ordinance has been a guiding force behind the development of some of the most desirable neighborhoods in which to live in Livingston County. To date the ordinance has contributed to the preservation of nearly 1,100 acres of open space lands (Hamburg Township Zoning Department).

One of the most important points that concerns Hamburg Township planning officials is the overall sustainability of their community. For this reason, when an open space proposal is presented to them, they make every effort to ensure that the plan is consistent with the goals and objectives set out in the ordinance. Right from the outset, township planners meet with the developers to hash out the intricate components of their proposals. Prospective plans often require many revisions and modifications to accomplish this mission. This process can become a burden to an understaffed planning and zoning department. It may also increase up front costs to the developer. These additional costs are often realized as extraordinary engineering costs or site design considerations such as wetlands determinations. Developers and builders that decide to do an open space development in Hamburg Township also benefit. First, as previously mentioned, they and their projects have the undivided attention of township officials while going through the approval process. Because Hamburg Township's planning consultants and engineers have done so many open space developments, they possess enough experience to resolve many of the smaller details of a proposal. These are the types of hurdles that could

hamstring the same process in another less "proficient" community. In essence, Hamburg Township has limited the number of "hoops" a developer has to jump through in order to get their plan approved. Because the developer and planning staff have done their homework up front, the planning commission and township board often grants both preliminary and final approvals for open space subdivisions at the same time. This can prove to be a valuable cost savings to the developer.

As Township officials work hand-in-hand with the developer, formalizing the final site design components of an open space community (or any type of subdivision for that matter), they have direct control over Hamburg Township will look like in the future. They also solidify the reputation of the community, portraying it as one that deeply cares about what is contained within its borders.

PART TWO

CHAPTER 6

CHAPTER 6

DEFINING THE HAMBURG TOWNSHIP HOUSING STUDY

General Problem

One matter of concern for developers and real estate professionals regarding open space communities is the effect that open space has on nearby property values. There have been several studies conducted since the 1970's regarding the effect of parks or other recreational facilities on residential property values. In most instances, these studies found that there was some evidence to support the conclusion that residential proximity to open space amenities increases property values.

Specific Problem

In order to determine whether there are any economic benefits associated with preserving open space in Hamburg Township's subdivisions, some form of testing must take place. The purpose of this report is to assess the following hypotheses:

A) Appreciation rates for housing units in open space developments are equal to or greater than appreciation rates for similar housing units in conventional developments in Hamburg Township, Michigan.

B) There are economic benefits associated with residential proximity to open space areas and the preservation open space in subdivisions.

CHAPTER 7

CHAPTER 7

THE ECONOMIC BENEFITS OF OPEN SPACE ON PROPERTY VALUES – A REVIEW OF THE LITERATURE

Introduction

Renowned open space planning pioneer Randall Arendt's book entitled, *Conservation Design for Subdivisions* (1996), provides a list of economic advantages that conservation designed subdivisions have over conventional subdivisions (Arendt, 1996):

1. Smoother Review: The overall review process proceeds more smoothly. This is because the site designers have anticipated and taken into account many of the concerns that would otherwise have become time-consuming and costly issues to resolve.

2. Lower Costs: By clustering development, infrastructure costs can be reduced. If houselots can be narrowed, street and utility runs can be shortened. A reduction in street pavement can reduce the size and cost of stormwater management facilities.

3. Marketing and Sales Advantage: Developers and realtors can capitalize on the amenities that have been preserved within the development. This can be accomplished by organizing a marketing strategy which promotes the benefits of living in a community where a majority of the natural features have been retained. In addition, prospective home-buyers could be made aware that when they purchase a single acre of property within a conservation designed subdivision, they are actually receiving the use of more than just their lot, they have access to the preserved open space as well.

4. Reduced demand for Public Parkland: Natural areas that are preserved as an integral part of the subdivision reduce the need for public entities to provide additional public park spaces. If each new development within a community meets some of its own needs for these types of amenities, pressure on local governments will be reduced.

5. Value Appreciation: Homes in conservation designed subdivisions tend to appreciate faster than their counterparts in conventional subdivisions. Several studies have shown the positive influences of open space on residential property values.

The empirical literature on the effects of open space on nearby property values can be divided into the following 2 categories:

1. Revealed Preference Studies
2. Stated Preference Studies

Increased Property Values – Revealed Preference

A study conducted by Arthur H. Darling attempted to measure the benefits of three urban water parks in California (Darling, 1973). In this study, researchers considered a range of variables that explain property value and attempted to define that portion of the property value which could be attributed to proximity to the water park. The variables which were of most interest to researchers were the distance of the property to the park and the quality and facilities of the park itself. Researchers hypothesized that the value of a property which could be attributed to a park was a decreasing function of its distance from that park. They were interested in determining how much the value would fall, whether it would fall rapidly or slowly, and whether the rate of fall would increase or decrease. By utilizing a regression analysis function, researchers were able to make the following conclusions:

A) The value of an urban water park is not an elusive and intangible quality, it is measurable.

B) The value of an urban water resource is apparently large.

This study showed that those who resided within the closest proximity to the water body reaped the highest monetary benefit. Property values also were shown to decline quite rapidly as one moved further away from the body of water.

Another study attempted to estimate the effects of a public open space, Pennypack Park in Philadelphia, on residential property values (Hammer, Coughlin and Horn, 1974). The findings showed that property values for lots close to the park (within 2,500 feet) were increased because of the park's influence. In addition, the study found that the impact on property value fell sharply with distance away from the park.

A study conducted in Boulder, Colorado examined the quasi-public good effect of greenbelts (Correll, Lillydahl and Singell, 1978). Researchers tested the hypothesis that residential property values declined with distance from a neighborhood greenbelt, everything else held constant. The study found that there was a $4.20 decrease in the price of a residential property for every foot one moved away from the greenbelt, up to 3,200 feet. The results also showed that property values adjacent to greenbelts were 32% higher than those 3,200 feet away.

Another study attempted to uncover the real economic benefit afforded by public open space in subdivisions (Peiser and Schwann, 1993). Specifically, this study attempted to determine whether homeowners valued greenways adjacent to their neighborhoods and whether public open space is valued as highly as private open space. The study revealed that almost all homeowners valued the greenways to some degree. Researchers concluded that greenways extend a benefit that is shared by everyone having the privilege of living *nearby* it. The study also showed that homeowners placed little monetary value on greenways when they purchased their homes. According to the results of the study, homeowners perceived only a limited amount of greenway space as valuable and placed no identifiable value on amounts in excess of this. In addition, the study showed that as long as homeowners had access to greenbelts, they didn't appear pay more for greenbelt frontage if it meant a reduction in their private backyard space. Researchers took this to mean that if a tradeoff were to be made between private and public open space, homeowners were more likely to prefer private backyard space over public open space. Thus, this study affords a somewhat diminished perception as to the economic benefit afforded by *public* open space in residential areas, however it did not diminish the value of *private* open space in subdivisions.

A more recent study, conducted in 1990, found that clustered housing with open space appreciated at a higher rate than conventionally-designed subdivisions (Lacy, 1990). This study examined appreciation rates for one clustered housing

development and one conventional development in the Amherst, and Concord, Massachusetts in areas between 1969 and 1989. Appreciation was measured as the percent increase market sales price. The clustered homes studied in Amherst appreciated at an average annual rate of 22%, whereas the conventional homes appreciated at an annual rate of 19.5%. Similar percentages were found in the homes studied in Concord. The study concluded with these two points (Lacy, 11):

1. Benefits afforded by open space neighborhoods can transcend into a significant reduction in house-lot size.

2. Homebuyers appeared to demonstrate a greater desire for a home with access and proximity to permanently-protected land, than one located on a bigger lot, but without the open-space amenity.

Increased Property Values – Stated Preference

In addition to revealed preference studies which have attempted to quantify observable increases in actual property values associated with proximity to open space, a number of stated preference studies have also been performed, in which subjects have claimed that there are increased property values associated with proximity to open space.

One study conducted in 1988 included a survey of property owners whose land was located adjacent to the Luce Line rail-trail in Minnesota (Mazour, 1988). When asked if the trail affected their property values, sixty-one percent of suburban homeowners responded that they had observed an increase in their property values

as a result of the trail. New property owners believe that proximity to the trail had a more positive effect on adjacent property values the than did long-time property owners. In addition, appraisers and real estate professionals claimed that proximity to the trail was a positive selling point for suburban residential properties.

Another study, undertaken in Seattle, Washington, included a survey of homeowners and real estate agents regarding property values near the 12 mile Burke-Gilman trail (Seattle Office for Planning, 1987). Results of the survey revealed that real estate agents believed properties near, but not immediately adjacent to the trail sold for an average of 6% more. Sixty percent of homeowners surveyed believed that by owning property adjacent to the trail, they would be able to command a higher price when selling their home.

Summary

All the studies presented here indicate that property values increase when housing units are located nearby open space. The potential for increase in property value may indeed depend on the characteristics of the open space and the orientation of surrounding properties. Subdivisions which have fully integrated (private) open space areas into the whole fabric of the neighborhood may have higher observable property value increases than those which have not done so. It is also apparent that neighborhoods which have (public) open space areas nearby or adjacent to

residential properties also realize increased values, but to a lesser degree. Therefore, according to the evidence presented here, those residential properties which possess an affinity with open space areas realize an increase in their property values. One important distinction must be made regarding the studies presented here and the Hamburg Township housing study. All studies referred to in this literature review, except the Lacy study, address increases in property values associated with proximity to ***public*** open space areas. The Lacy study examined appreciation rates associated with ***private*** open space. The Hamburg Township housing study also examines appreciation rates associated with ***private*** open space. However, this study will not only determine whether there are increased appreciation rates for housing units in open space subdivisions (as in the Lacy study) and provide possible reasons for the increase, but will also attempt to identify an actual dollar value that can be attributed to the open space element This is what distinguishes the Hamburg Township housing study from the previous studies identified in this report.

CHAPTER 8

CHAPTER 8

THE HAMBURG TOWNSHIP HOUSING STUDY

Methodology

This study will provide an examination of housing prices for 4 subdivisions in Hamburg Township. Two of the subdivisions selected for this study are considered conventionally-designed subdivisions, while the other two are open space, conservation-designed subdivisions. To isolate the effects of open space design, I selected conventional and open space subdivisions which had housing units of approximately the same age. Because open space subdivision design is still a relatively new concept in Hamburg Township, and virtually all new subdivisions since 1992 have been open space subdivisions, there was a limited number of subdivisions that could be used in a comparative study.

Appreciation was measured as the percent change in the mean (μ) selling price of housing units in both open space and conventional developments over a specified period of time. For this report, percent change is defined in the following manner:

$$\frac{(\text{Mean Selling Price Yr 2} - \text{Mean Selling Price Yr 1})}{(\text{Mean Selling Price Yr 1})} * 100$$

Appreciation rates for open space housing were compared against those for conventional housing between the years 1994-98. Since the majority of units sold

for the first time in 1994, that was selected as the base year upon which to measure subsequent appreciation. All data were obtained from publicly available records kept at the Hamburg Township Assessor's Office. Information collected for each individual housing unit included the following information:

1. Individual Lot Size
2. Individual House Size
3. Year Built
4. Date of Sale
5. Sale Price

Sales data for some units were not available. If any one of the five items listed was missing for a particular unit, that unit was omitted from the study. By utilizing statistical analysis to compare original housing sale prices for both types of developments over the specified period of time, a matrix was developed to compare the mean sale amounts, mean lot sizes and the percent change in sale prices for each year of the study parameter, for both types of developments. An ANOVA statistical test was performed on the mean appreciation rates for the four subdivisions in the sample. This test was performed for the purpose of determining whether there was any statistical significance associated with the differences found in the mean appreciation rates. The unit of analysis for the ANOVA test was the *subdivision*. In addition, a regression analysis test was performed on the identified variables, in order to determine their relationships and to identify significant correlation between them. The unit of analysis for the regression test was the

housing unit. The results of the regression test were then assessed in order to determine whether they could be attributed to actual real-world situations.

Study Areas Defined

As previously mentioned, the two open space subdivisions selected for this study are the oldest of their type in Hamburg Township. For comparison, two conventional subdivisions of similar age were also selected. In addition, units in both types of developments reflect the range of housing sizes, housing types and housing prices available in Hamburg Township. The following section provides a short description of all six selected developments.

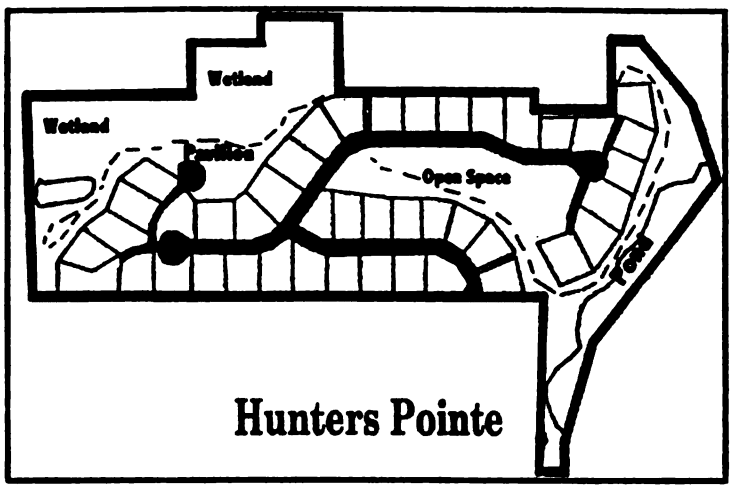
Open Space Developments

The open space developments selected for this study are Hunters Pointe and Partridge Pointe. Units in both of these developments are site condominiums, meaning that homeowners retain ownership of their particular units, but share in the ownership of the land. There are no discernable differences in the appearance of site condo units when compared to traditional houses.

Hunters Pointe, the first open space development built in Hamburg Township, began construction in January 1993 (**See Figure 7**). It is located near the northeast boundary of the township. The development contains 54.85 acres, with 45 single-family homes, and preserves a total of 21.97 acres of open space. The most

striking design features of this development are the amount of woodlands and natural landscaping that were retained on individual homesites and the number of homesites that were placed along on a large ridgeline, with a commanding view of the surrounding area.

Figure 7.



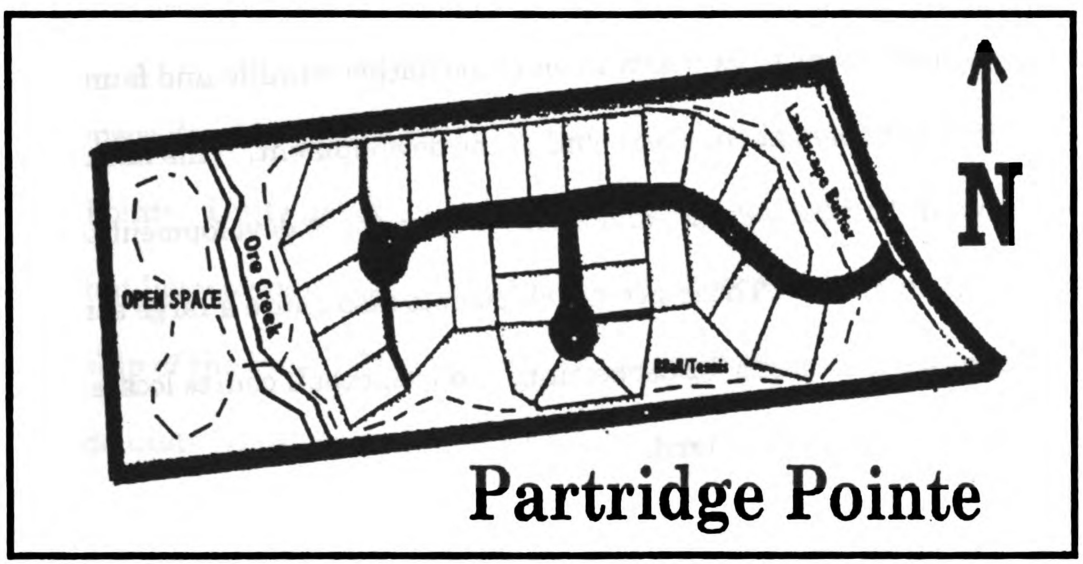
A large portion of Hunters Pointe's open space is submerged wetlands (8 acres). A lighted pavilion located at the midpoint of two wetland areas provides an excellent vantage point from which to view the native wildlife and fauna in the area. A large pond lies at the north end of the development. This natural feature is shared between Hunter's Pointe and another open space development to the north, known as Breckenridge. These two developments also share a large series of hiking trails. There are also areas for barbecuing and basketball courts located within Hunters Pointe's open space land.

This parcel of land was previously a vacant, open space area that possessed no development or active agricultural pursuits. This area is zoned RA Medium Density Residential, which calls for one acre minimum lot sizes (43,560 square feet). Under conventional development standards, a total of 47 lots could have been

developed. Utilizing the Open Space Community option, the developer was able to still get 47 lots, but also preserved 40% of the total development as open space (Livingston County Department of Planning, 1996: 20). By clustering the housing units around the most buildable portions of the site, the developer still netted an acceptable amount of units to make the development feasible, and in turn preserved a large portion of the development as open space.

Construction on the Partridge Pointe subdivision was begun in June, 1993. It is located near the northeastern boundary of the township (**See Figure 8**).

Figure 8.



The development totals 33.16 acres, with 32 single-family homesites and 18.04 acres of open space. Units in Partridge Pointe are placed within lots having much shorter setbacks distances than those found in conventional subdivisions, but are separated by lush landscaping buffers which enhances the feeling of enclosure

and intimacy within the development (**See Figure 9**).

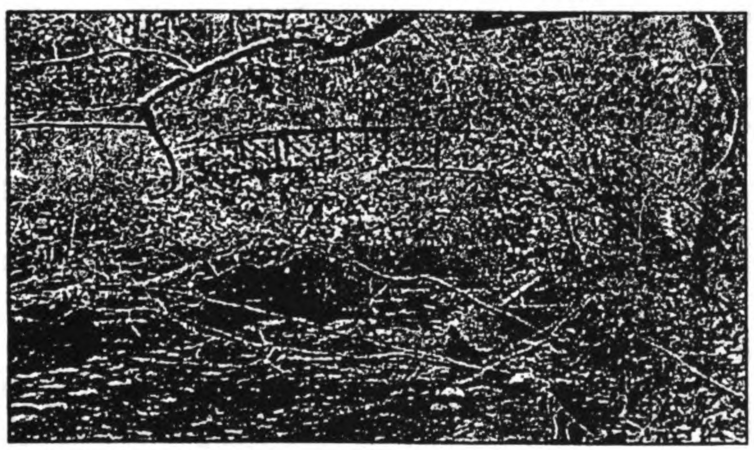
Figure 9.

Landscape Buffers in Partridge Point

Recreational site amenities include a large trail system that encircles the entire development as well as a centrally located side by side basketball and tennis court, which can be accessed by either the natural trail system or a paved pedestrian/bicycle drive. A great deal of the open space land (16 acres) is located in an area of natural woodlands and wetlands in the western portion of the development.

Figure 10.

Ore Creek Pedestrian Bridge



Within this area, the trailway system includes a rustic pedestrian footbridge that crosses a picturesque babbling brook known as Ore Creek (**See Figure 10**).

Once planned as an additional residential phase for Partridge Pointe, the large natural area has instead been permanently protected for the enjoyment of residents. It also preserves a vital wildlife habitat for the area.

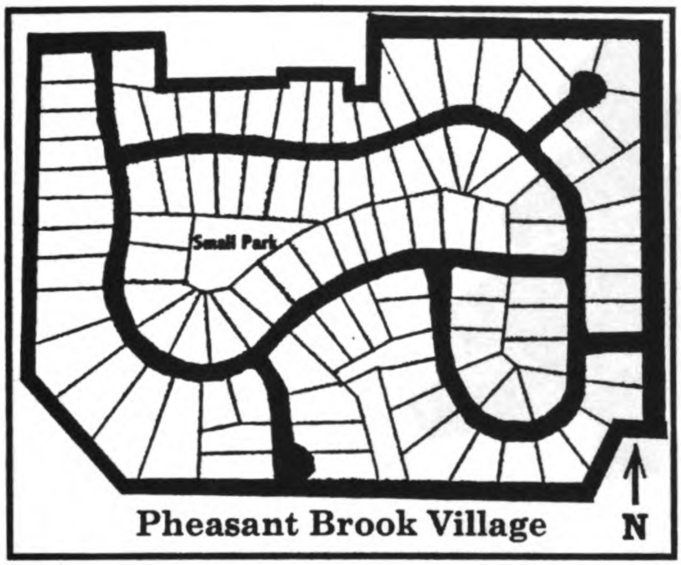
This area is zoned RA Medium Density Residential with a required minimum lot size of 1 acre. Conventional zoning allowed the developer 32 lots. Under the Open Space Community option, the developer still achieved 32 lots but preserved 54% of the development as open space (Livingston County Department of Planning, 1996: 20). As in the Hunters Pointe development, the developer netted an acceptable amount of units to make the development feasible, and in turn preserved a large portion of the development as open space.

Conventional Developments

As previously mentioned, for optimal comparison purposes, the two conventional developments selected for this study, Pheasant Brook Village and West Ridge, were relatively the same age as the open space developments. Units in Pheasant Brook Village (average = 1,664 sq. ft.) are considerably smaller than those in West Ridge (average = 2,324 sq. ft.), however lot sizes in Pheasant Brook (average 45,700 sq. ft.) are a bit larger than those in West Ridge (average 42,600 sq. ft.). While housing styles are also somewhat different in the two developments, prices for these homes fall into the range of average prices for similar conventional-type housing units in Hamburg Township ($180,000 to $220,000).

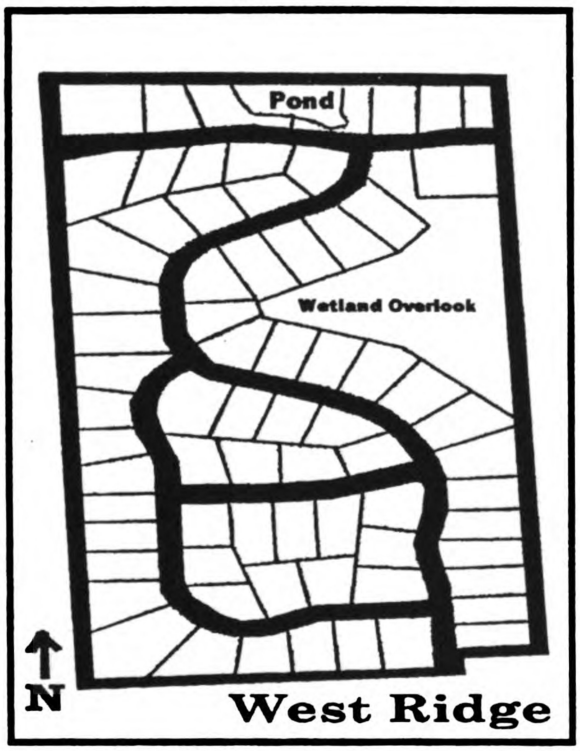
As described earlier in this report, Pheasant Brook Village consists of 99 single-family housing units on 104 total acres. It is located near the western edge of the township border (See Figure 11).

Figure 11.



Housing lots are similar in size and character to each other, with units in the central portion of the development linked together by a small open park space. Housing units are also separated by large side lots that lack any type of significant landscaping or buffering.

Figure 12.



The West Ridge subdivision development abuts the southeastern boundary line of Hunters Pointe. It consists of 71 acres and 70 single-family homesites (See Figure 12). As in Pheasant Brook Village, a majority of the housing units are separated by large sidelots.

However, in contrast to Pheasant Brook Village, the majority of lots in West Ridge back up to either wetlands or other privately-owned lands. A few of the lots are located on a steep ridge, which commands a spectacular view of a wildlife sanctuary.

CHAPTER 9

CHAPTER 9

HAMBURG TOWNSHIP HOUSING STUDY ANALYSIS

Descriptive Analysis

As previously indicated, housing data were collected for all four developments for the years 1994 through 1998. Mean amounts were calculated on a year-by-year basis for each development for the following variables: sale price, lot size, unit size and percent change in sale price. The results are shown in **Table 8**:

Table 8.

Hamburg Township Housing Study Results

Parameter	Hunters Pointe	Partridge Point	West Ridge	Pheasant Brook Village
Number of Units Studied	42	27	49	84
Total Acreage	54.85	33.16	71	101
Open Space (acres)	21.97 (40%)	18.04 (54%)	NA	NA
Mean Lot Size (square feet)	23,958	17,860	42,600	45,738
Mean Unit Size (square feet)	2,595	2,300	2,324	1,664
Mean Sale Price - 1994	$247,117	$200,000	$231,652	$161,777
Mean Sale Price - 1998	$367,000	$283,680	$272,829	$188,846
Appreciation 1994-1998	48.5%	41.8%	17.8%	18.1%
Mean Appreciation Rate Per Year	11.1%	7.5%	3.4%	2.9%

As the results in **Table 3** show, there is a large difference in the yearly appreciation rates for both types of developments. By 1998, average appreciation rates for housing units in the two open space subdivisions are at least double the rate found for units in conventional subdivisions. In addition, average housing prices in both open space subdivisions are also greater than prices in the two conventional subdivisions. Average house sizes in the two open space subdivisions are very similar to units in West Ridge. However, average lot sizes in the two open space subdivisions are approximately half the size of both of their conventional counterparts.

Analysis of Variance (ANOVA) Test

In order to ascertain whether there is any statistical significance in the mean appreciation rates for the two types of subdivisions (open space and conventional), an Analysis of Variance (ANOVA) test was performed. The unit of analysis for the ANOVA is the aggregate "subdivision" level data previously described. An ANOVA test is concerned with differences between samples, and uses the means for each of the samples to summarize their characteristics. The ANOVA tests whether or not there is a difference in the means for the sub-populations being compared. For this example, the results of the ANOVA test should identify whether the increased appreciation rates for open space subdivisions are significantly different from the appreciation rates for conventional subdivisions. Thus, the ANOVA test can provide a basis on which some preliminary conclusions can be formulated.

The ANOVA test was performed at a 90% confidence level, or $\alpha = .10$. The 90% confidence level is appropriate for this test given the relatively small sample size (only 4 subdivisions). The results of the ANOVA test are shown in **Table 4**:

Table 4.

ANOVA test of Mean Appreciation Rates

SUMMARY				
Groups	*Count*	*Sum*	*Average*	*Variance*
Open Space Subdivisions	2	18.6	9.3	6.48
Conventional Subdivisions	2	6.3	3.15	0.125

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*Calculated F*	*P-value*	*Critical F*
Between Groups	37.8	1	37.8	11.5	0.077	8.5
Within Groups	6.6	2	3.3			
Total	44.4	3				

As the results in **Table 4** show, the *calculated F* statistic (11.5) is larger than the *critical F* statistic (8.5). Therefore it can be concluded that there is a significant difference in the rates of appreciation for the two different types of subdivisions. However, the significant difference revealed by the ANOVA could be explained by any number of reasons:

1) Houses in the open space subdivisions selected may have other characteristics that drive the difference in appreciation rates.

2) Home-buyers may have had a change in taste for the type of subdivision they wish to live in.

3) Open space subdivisions may have been undervalued initially, due to early market uncertainties regarding the concept.

4) *Land* is a commodity that does not depreciate.

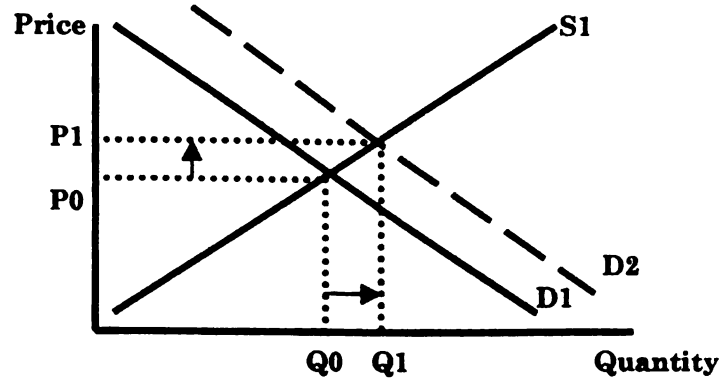
Theoretical Explanations

A change in housing appreciation rates could, theoretically, be affected by other housing characteristics, such as high quality architectural designs, multiple bathrooms, number of bedrooms, etc. A number of the housing studies detailed in Chapter 7 found that a multitude of housing characteristics could drive the rate of appreciation for units located near greenways and public open spaces.

An increase in appreciation rates in open space subdivisions may also be due to a change in consumer preference regarding subdivision types over time, i.e., away from housing in conventional developments and toward housing in open space developments. As has been described previously in this report, the open space design concept has become the accepted trend in residential subdivision design in Hamburg Township. When examining the economics effects of a change in consumer taste in housing, one may think of it as detailed in **Table 5**:

Table 5.

A Change of Taste in Housing Types



Referring to the supply and demand diagram in **Table 5**:

1) At **Quantity (Q0),** Supply and Demand are at equilibrium (**D1 and S1**), which results in **Price (PO)**.

2) A change of taste in housing types, i.e. the demand for more housing in open space designed subdivisions, affects the overall demand curve for housing, shifting **(D1)** to the right **(D2)**.

3) The effect of this change of taste in housing not only results in a higher priced unit **Price (P1)**, but also an increase in **Quantity (Q1)**.

An increase in appreciation rates for housing units in open space developments may also be due to the reason that initially, open space subdivisions may have been undervalued, due to early market skepticism regarding the concept. If today they are valued at prices equivalent to comparable homes in conventional subdivisions, this change would be reflected in higher appreciation rates during the study period 1994-98.

A increase in appreciation rates for housing units in open space developments may also be associated with the theoretical assumption that *land* itself does not depreciate in value, but *housing units* or their associated characteristics can. Housing and accessory units placed on the land can, and often do, contribute to a change in property values. Units that are well maintained realize higher property values than those that are in various stages of deterioration. Therefore, units in the open space subdivisions selected for this study may have retained their value better over time compared to units in conventional subdivisions, due to higher maintenance standards of the specific homeowner or homeowner association that is involved.

In addition, if there is an economic benefit associated with open space, a large portion of this benefit could be attributable to the fact that land, in any form, is a private good that rarely depreciates in value. Thus, one could also conclude that there truly is an economic value associated with preserving open space in subdivisions. However, the entire amount of economic value realized cannot be wholly assigned to the presence of preserved open space on a piece of property, more likely, only a portion can be. Therefore the dollar value of a "unit" of open space remains difficult to quantify. It could be assumed then, that the true dollar value of a "unit" of open space is equal to an amount between the actual assessed value of the land and the additional economic value assigned to the land when its preserved in an open space development.

Evidence Regarding the Theoretical Explanations

Although it cannot test all of these possible explanations, a regression analysis can partially isolate the effect of open space on housing prices. This test disaggregates the known data and utilizes the "house" as the unit of analysis rather than the "subdivision."

Evidence that Open Space, Not Other Characteristics, Drives Appreciation

For this test, an ordinary least-squares model was constructed. In this model, aggregate housing prices were regressed against two other variables: A) Unit Size and B) Whether the unit was located in an open space subdivision. A dummy variable was used for the open space component, a one (1) given for houses in open space subdivisions, a zero (0) given if not in an open space subdivision. Lot size was not included in this analysis due to the fact that the lot size variable is so closely correlated with the aspect of open space. The regression results for the aggregate sample are found in **Table 6**.

Table 6.

Regression Analysis

Variable	*Coefficients*	*Standard Error*	*t Statistic*	*Significance*
CONSTANT	52988.66	14080.05	3.76	*
UNIT SIZE	76.57	7.20	10.63	*
OPEN SPACE	24585.81	7660.21	3.21	*

* Significant at the .05 level

Regression Statistics	
R Square	0.59
Adjusted R Square	0.58
Standard Error	38409.53
F Statistic	126.93
Observations	180

According to the regression results in **Table 6**, the open space variable has a statistically significant, positive effect on the price of residential properties in Hamburg Township. Specifically, all other things being equal, there is a $24,585 increase in property values associated with a housing unit located in an open space subdivision. It is also apparent from this test that each additional finished square foot of unit area raises the property by $75.17. This may suggest that it is not economically detrimental for a homeowner to have a large house on a small private lot, as found in open space developments. Because the homeowner shares in the ownership of the open space area, they actually benefit from having a smaller lot as opposed to a larger lot.

The increase in appreciation rates for housing units in open space developments may be somewhat reflective of the increased construction costs associated with open space designed subdivisions. Because the goal of the open space design concept is to disturb the least amount of natural features as possible (such as large trees) in the design of the subdivision, houses in open space developments are meticulously placed around these features. Given the smaller building envelope with which to work, this process may take considerably more design time and engineering dollars than placing housing units on large lots within large building envelopes in conventional subdivisions. However, there are two caveats regarding these statements which merit further explanation. Specifically, the sample used for this study includes only four subdivisions, and information regarding their development costs was not available at the time of this study. Therefore, it was difficult to determine whether development costs for the four subdivisions were comparable. In addition, due to the small sample size, the regression model may be under specified. However, a number of conclusions can still be drawn from the results of this study.

If one relies solely on the descriptive statistics of the housing study (**from Table 3**), it is readily apparent that appreciation rates for housing units in open space developments increase at a greater rate than similar housing units in conventional developments in Hamburg Township. According to the previous "revealed-preference" and "stated-preference" studies referred to earlier in this report, it is apparent that preservation of open space is economically beneficial. Exactly who

benefits, and when they benefit from it is really a question of timing. Initial returns of investment in a development tend to benefit the developer, however, as the development ages, the benefits associated with an increased return on investment tend to benefit the homeowner.

Evidence that a Higher Rate of Appreciation Reflects A Change In Taste

One indication that a change in taste may have occurred in Hamburg Township is the fact that open space subdivisions are now the standard for subdivision development in Hamburg Township. A conventional subdivision has not been developed in Hamburg Township since 1992, incidentally the same year Hamburg Township adopted its Open Space Community Ordinance. In addition, when observing absorption rates for homes or vacant lots in open space subdivisions in comparison to absorption rates for homes and lots in conventional subdivisions, those in open space subdivisions *appear* to move faster than those in conventional subdivisions. Many conventional subdivisions begun prior to 1992 still have a large number of vacant lots available, whereas in many open space subdivisions, very few lots are ever left vacant for an extended period of time (Hamburg Zoning Department, 1999).

CHAPTER 10

CHAPTER 10

CONCLUSION AND SUMMATION

Returning to the two hypotheses tested in this study:

A) **Appreciation rates for housing units in open space developments are equal to or greater than appreciation rates for similar housing units in conventional developments in Hamburg Township, Michigan.**

B) **The research findings suggest that there are economic benefits associated with residential proximity to open space areas and the preservation of open space in subdivisions.**

In the first case, the descriptive statistics provided in **Table 8** established that appreciation rates for units in open space subdivisions are greater than appreciation rates for similar units in conventional subdivisions. The ANOVA test determined that this difference in appreciation rates was statistically significant.

The results of a regression analysis further strengthen the conclusion that units in open space subdivisions appreciate at a higher rate than units in conventional subdivisions. In the regression model developed for the four subdivisions studied, the open space element is associated with an increase in overall property values by $24,585 per unit. This outcome is consistent with previous housing studies identified in this report, which indicate that there are economic benefits associated with housing units located nearby open space areas.

Interviews with developers indicate that they receive an economic benefit by utilizing open space designs as well. According to developer Rick Demaria, lots in open space developments "are easier to sell, because the open space makes them look bigger" (Warbach, 1993). Former Detroit Tiger Mickey Stanley, now subdivision developer, adds: "It's silly not to do [open space], I give up 40 percent of the land and I gain lots. I love it" (Martin, 1998). George Mansour, another Hamburg Township developer, prefers to do open-space planning: it's more satisfying and, ultimately, he makes a bigger profit, too. According to Mansour:

> "Buyers are willing to spend more to share in the wider natural landscape. People like nature, and that's what open space is all about. Instead of your own five acres, you can share 80 or 100 acres of open space."(Gallagher, 1998).

The Need for Additional Study

Due to the fact that a limited number of housing variables were tested, and that the time series data available for this housing study test consisted of only a five year period, there is a need for further study regarding this issue. Future studies should include a larger number of housing variables to test, a larger sample size and data sets that cover a longer period of time, in order to determine the long-term effects of open space-designed subdivisions in Hamburg Township. The results of this study, however, suggest that there are significant economic benefits associated with open space subdivision design.

Summation

The results presented in this housing study dovetail well with the results of earlier housing studies documented in this report. Previous studies have shown that there are economic benefits associated with residential proximity to both *private* and *public* open space. Results from the Hamburg Township housing study indicate that this particular housing market has come to accept the open space-designed subdivision concept. Hamburg Township planners have provided the necessary tools to developers to make open space designed subdivisions a successful growth management tool for their community. Township planners are not forcing developers to build something that consumers won't buy. That is simply not the case in Hamburg Township. Rather, they are increasing the supply of the types of homes and subdivisions consumers are demanding – larger homes on smaller individual lots, that also provide shared ownership of recreational spaces and wildlife habitat areas, *integral* parts of the whole ***open space development***.

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REFERENCES

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APPENDIX A

ARTICLE 14.00

OPEN SPACE COMMUNITY

(Planned Unit Development)

(Amended 8/13/96)

Section 14.1. Intent

It is the intent of this Article to offer an alternative to traditional subdivisions through the use of Planned Unit Development legislation, as authorized by Section 16(c) of the Township Rural Zoning Act (Public Act 184 of 1943, as amended) for the purpose of:

A. encouraging the use of Township land in accordance with its character and adaptability;

B. assuring the permanent preservation of open space, agricultural lands, and other natural resources;

C. providing recreational facilities within a reasonable distance of all residents of the Open Space Community development;

D. allowing innovation and greater flexibility in the design of residential developments;

E. facilitating the construction and maintenance of streets, utilities, and public services in a more economical and efficient manner;

F. ensuring compatibility of design and use between neighboring properties; and,

G. encouraging a less sprawling form of development, thus preserving open space as undeveloped land.

These regulations are intended to preserve a traditional rural character to the land use pattern in the Township through the creation of small residential nodes contrasting with open space and less intensive land uses. This Article is not intended as a device for ignoring the Zoning Regulations of the Township, the standards set forth therein, nor the planning concepts upon which the Zoning Ordinance has been based.

These regulations are intended to result in a specific development substantially consistent with Zoning Ordinance standards, yet allow for modifications from the general standards to insure appropriate, fair, and consistent decision making.

The open space community district is established as an overlay district applicable to all single family residential districts.

Section 14.2. Scope

For the purposes of this Article, an "open space community" is defined as a predominately single family residential development in which dwelling units are placed together into one or more groupings within a defined project area. The dwelling units are separated from adjacent properties or other groupings of dwellings by substantial open space that is perpetually protected from development. Commercial uses, as stated in Section 14.5.3, may be allowed within open space communities of fifty (50) acres or more.

Section 14.3. Eligibility Criteria

To be eligible for open space community consideration, the applicant must present a proposal for residential development that meets each of the following:

A. Recognizable Benefits. An open space community shall result in a recognizable and substantial benefit, both to the residents of the property and to the overall quality of life in the Township. The benefits can be provided through site design elements in excess of the requirements of this Ordinance, such as high quality architectural design, extensive landscaping, provide transition areas from adjacent residential land uses, unique site design features, unified access, preservation of woodlands and open space, particularly along major thorofares, and buffering development from lakes, rivers, streams and wetlands. This benefit should accrue, in spite of any foreseeable detriments of the proposed development.

B. Minimum Project Size. The minimum size of an open space community development shall be five (5) acres of contiguous land. The Planning Commission may consider development of a site less than five (5) acres in area as an open space community, provided that the parallel plan shall be prepared at the existing zoning minimum lot size (i.e. there is no density bonus for sites less than 5 acres).

C. Open Space. The proposed development shall provide at least one of the following open space benefits:

1. Significant Natural Assets. The site contains significant natural assets such as woodlands, individual trees over twelve (12) inch diameter, measured at breast height, rolling topography with grades exceeding 15%, significant views, natural drainage ways, water bodies, floodplains, regulated or non-regulated wetlands, or natural corridors that connect quality wildlife habitats which would be in the best interest of the Township to preserve and which might be negatively impacted by conventional residential development. This determination shall be made by the Planning Commission after review of a Site Analysis Plan, prepared by the applicant, that inventories these features. If animal or plant habitats of significant value exist on the site, the Planning Commission, as a condition of approval, may require that the Open Space Community plan preserve these areas in a natural state and adequately protect them as nature preserves or limited access areas.

2. Recreation Facilities. If the site lacks natural features, it can qualify if the development will preserve an existing recreation facility or provide usable recreation facilities to which all residents of the development shall have reasonable access. Such

recreation facilities include areas such as a neighborhood park, golf course, passive recreational facilities, soccer fields, ball fields, bike paths or similar facilities which provide a feature of community-wide significance and enhance residential development.

3. Creation of Natural Features. If the site lacks existing natural features, it can also qualify if the development will create significant woodland features. The creation of significant woodland features shall be considered providing perimeter buffer plantings and interior street tree plantings at a rate of twice (2 x) what is required by this Ordinance.

D. Guarantee of Open Space. The applicant shall guarantee to the satisfaction of the Township Planning Commission that all open space portions of the development will be maintained in the manner approved. Documents shall be presented that bind all successors and future owners in fee title to commitments made as a part of the proposal. This provision shall not prohibit a transfer of ownership or control, provided notice of such transfer is provided to the Township and the land uses continue as approved in the open space community plan.

E. Cohesive Neighborhood. The proposed development shall be designed to create a cohesive community neighborhood through common open space areas for passive or active recreation and resident interaction. All open space areas shall be equally available to all residents of the Open Space Community.

F. Unified Control. The proposed development shall be under single ownership or control, such that there is a single person or entity having proprietary responsibility for the full completion of the project. The applicant shall provide sufficient documentation of ownership or control in the form of agreements, contracts, covenants, and/or deed restrictions that indicate that the development will be completed in its entirety as proposed.

G. Density Impact. The proposed type and density of use shall not result in an unreasonable increase in the need for or impact to public services, facilities, roads, and utilities in relation to the use or uses otherwise permitted by this Ordinance, and shall not place an unreasonable impact to the subject and/or surrounding land and/or property owners and occupants and/or the natural environment. The Planning Commission may require that the applicant prepare an impact statement documenting the significance of any environmental, traffic or socio-economic impact resulting from the proposed open space community. An unreasonable impact shall be considered an unacceptable significant adverse effect on the quality of the surrounding community and the natural environment in comparison to the impacts associated with conventional development. The Planning Commission may require that the applicant prepare a quantitative comparison of the impacts of conventional development and the open space community plan to assist in making this determination (such as an overlay of conceptual development plans, on a natural features map, illustrating other site development options to demonstrate the impacts have been minimized to the extent practical). If the cumulative impact creates or contributes to a significant problem relative to infrastructure demand or environmental degradation, mitigation shall be provided to alleviate the impacts associated with the open space community.

H. Township Master Plan. The proposed development shall be consistent with and further the implementation of the Township Master Plan.

Section 14.4. Project Design Standards. A proposed open space community shall comply with the following project design standards:

14.4.1. Location. An open space community may be approved within any of the following zoning districts: RAA, RA, RB, NR, WFR or VR.

14.4.2. Permitted Uses. An open space community is generally restricted to single family detached or attached residential dwellings.

A. Unless modified by the Planning Commission following the standards herein, all residential dwellings shall meet the yard, lot width, and bulk standards required by Article 7.00, except that single family attached dwellings may have zero (0) side lot lines.

B. In projects that qualify under the standards of Section 14.5, a commercial or a multiple family component may be allowed by the Planning Commission.

14.4.3. Dwelling Density. The number of dwelling units allowable within an open space community project shall be determined through preparation of a parallel plan.

A. The applicant shall prepare, and present to the Planning Commission for review, a parallel design for the project that is consistent with State, County and Township requirements and design criteria for a tentative preliminary plat. The parallel plan shall meet all standards for lot size (as shown in paragraph B below), lot width and setbacks as normally required under Section 7.6, public roadway improvements and private parks, and contain an area which conceptually would provide sufficient area for storm water detention. Lots in the parallel plan shall provide sufficient building envelope size without impacting wetlands regulated by the Michigan Department of Environmental Quality. This design shall include all information as required by the guidelines adopted by the Planning Commission pursuant to Section 14.7.1.

B. The parallel plan shall be prepared with the following minimum lot areas. The parallel plan is only used to determine allowable density for an open space community project. The following parallel plan minimum lot areas incorporate a density bonus for qualifying open space community projects that meet all requirements of this ordinance:

Underlying Zoning District	Parallel Plan Minimum Lot Size (square feet)
RAA	60,000
RA	30,000
RB	7,000 *
NR	30,000
WFR	30,000
VR	10,000 *

* The open space community shall be served by public sanitary sewer and water.

C. The Planning Commission shall review the design and determine the number of lots that could be feasibly constructed and be economically viable following the parallel design. This number, as determined by the Planning Commission, shall be the maximum number of dwelling units allowable for the open space community project. The Planning Commission may grant a density bonus for exemplary projects that meet the conditions outlined in Section 14.5

14.4.4. Water and Sewer Service. If there is public water or sewer service available to the site on which an open space community development is proposed, the Planning Commission may require connection into the system. An open space community project located within the RB, High Density Residential or the VR, Village Residential zoning districts shall be required to be served by public sanitary sewer.

14.4.5. Base Zoning Regulations. Unless specifically waived or modified by the Planning Commission, all Zoning Ordinance requirements for the underlying zoning district, except for minimum lot area, and other Township regulations shall remain in full force.

14.4.6. Regulatory Flexibility.

A. To encourage flexibility and creativity consistent with the open space community concept, the Planning Commission may grant specific departures from the requirements of the Zoning Ordinance as a part of the approval process for the following:

1. Yard, lot width, and bulk standards may be modified, provided that such modification results in enhanced buffering from adjacent land uses or public right-of-ways, or preservation of natural features. Any modification to the Natural River District standards must also be approved by the Michigan Department of Environmental Quality, if required.

2. Standards that apply to entryway features such as decorative gates (non-closable), walls and signs may be modified, provided that the overall entranceway design is reviewed by the Planning Commission and found to be consistent with the proposed open space community and the character of the surrounding area in terms of size, materials, color, lighting and landscaping.

B. Any regulatory modification shall be approved through a finding by the Planning Commission that the deviation shall result in a higher quality of development than would be possible using conventional zoning standards. Regulatory modifications are not subject to variance approval of the Zoning Board of Appeals. No part of an open space community plan may be appealed to the Zoning Board of Appeals. This provision shall not preclude an individual lot owner from seeking a variance following final approval of the Open Space Community, provided such variance does not involve alterations to open space areas as shown on the approved Open Space Community site plan.

C. A table shall be provided on the site plan which specifically details all deviations from the established zoning area, height and setback regulations, off-street parking regulations, general provisions, or subdivision regulations which would otherwise be applicable to the uses and development proposed in the absence of this Open Space Community article. This specification should include Ordinance provisions from which deviation are sought, and the reasons and mechanisms to be utilized for the protection of the public health, safety, and welfare in lieu of the regulations from which deviations are sought. Only those deviations consistent with the intent of this Ordinance shall be considered.

14.4.7. Open Space Requirements.

A. All land within a development that is not devoted to a residential unit, an accessory use, vehicle access, vehicle parking, a roadway, an approved land improvement, or, if applicable, a commercial use, shall be set aside as common land for recreation, conservation, agricultural uses, or preserved in an undeveloped state. Grading in the open space shall be minimal, with the intent to preserve existing topography.

B. An open space community shall maintain a minimum of forty percent (40%) of the gross area of the site as dedicated open space held in common ownership. Such open space may be reduced to thirty percent (30%) for lower density projects as described in Section 14.4.7.I. Except as noted in Section 14.4.7.C, any undeveloped land area within the boundaries of the site meeting the open space standards herein may be included as required open space. A minimum of ten percent (10%) of the open space shall be upland area that is accessible to all residents of the Open Space Community and not include golf course fairways.

C. Areas Not Considered Open Space. The following land areas are not included as dedicated open space for the purposes of this Article:

1. The area of any street right-of-way proposed to be dedicated to the public. This provision shall not preclude the future dedication of a private road easement to a public road agency.

2. Any submerged land area.

3. Any portion of the project used for commercial purposes.

4. The required setbacks surrounding a residential structure that is not located on an individual lot or condominium site.

D. The common open space may either be centrally located along the road frontage of the development, located to preserve significant natural features, or located to connect open spaces throughout the development. The open space along the exterior public roads shall generally have a depth of at least one hundred (100) feet, either landscaped or preserved in a natural wooded condition. The open space along the exterior public roads shall be landscaped with a minimum of one (1) evergreen tree or canopy tree for each twenty (20) feet of road frontage. Such plantings shall be planted in staggered rows or clustered into groupings to provide a natural appearance. Preservation of existing trees may be credited towards meeting the frontage landscaping requirement.

E. Connections with adjacent open space, public land or existing or planned pedestrian/bike paths may be required by the Planning Commission.

F. The dedicated open space shall be set aside by the developer through an irrevocable conveyance that is found acceptable to the Planning Commission, such as:

1. recorded deed restrictions,

2. covenants that run perpetually with the land, or

3. a conservation easement established per the State of Michigan Conservation and Historic Preservation Act, Public Act 197 of 1980, as amended (M.C.L. 399.251).

Such conveyance shall assure that the open space will be protected from all forms of development, except as shown on an approved site plan, and shall never be changed to another use. Such conveyance shall:

1. Indicate the proposed allowable use(s) of the dedicated open space. The Planning Commission may require the inclusion of open space restrictions that prohibit the following:

a. Dumping or storing of any material or refuse;

b. Activity that may cause risk of soil erosion or threaten any living plan material;

c. Cutting or removal of live plant material except for removal of dying or diseased vegetation;

d. Use of motorized off road vehicles;

e. Cutting, filling or removal of vegetation from wetland areas;

f. Use of pesticides, herbicides or fertilizers within or adjacent to wetlands.

2. Require that the dedicated open space be maintained by parties who have an ownership interest in the open space.

3. Provide standards for scheduled maintenance of the open space.

4. Provide for maintenance to be undertaken by the Township of Hamburg in the event that the dedicated open space is inadequately maintained, or is determined by the Township to be a public nuisance, with the assessment of costs upon the property owners.

G. Continuing Obligation. The dedicated open space shall forever remain open space, subject only to uses approved by the Township on the approved site plan. Further subdivision of open space land or its use for other than recreation, conservation or agricultural purposes, except for easements for utilities and septic systems, shall be strictly prohibited. Open space may include golf course area, provided that it forever remains outdoor recreation or natural undeveloped land.

H. Allowable Structures. Any structure(s) or building(s) accessory to a recreation, conservation or agriculture use may be erected within the dedicated open space, subject to the approved open space plan. These accessory structure(s) or building(s) shall not exceed, in the aggregate, one percent (1%) of the required open space area.

I. Large Lot Open Space. The Planning Commission has the discretion to allow lower density Open Space Communities with larger lots and less open space. For these Large Lot Open Space Communities, the required minimum open space area may be reduced from forty percent (40%) to thirty percent (30%) where the total number of dwelling units, determined under Section 4.4.3, is reduced by at least ten percent (10%).

14.4.8. Compatibility with Adjacent Uses. The proposed location of accessory uses or structures that are of a significantly different scale or character than the abutting residential districts, such as access drives, parking areas, solid waste pick-up points, swimming pools, tennis courts and facilities of a similar nature, shall not be located near the boundary of the development or so as to negatively impact the residential use of adjacent lands.

14.4.9. Transition Areas. Where the Open Space Community abuts a single family residential district, the Planning Commission may require a transition area. Grading within the transition area shall be minimal unless needed to provide effective buffering or accommodate drainage. If the grade change adjacent to single family residential is to be varied by more than three (3) feet, the site plan shall include cross sections illustrating existing and proposed grades in relation to existing and proposed building heights. Perspective renderings from adjacent residential units are encouraged. The Planning Commissions may review the proposed transition area to ensure compatibility. The Planning Commission may require that the transition area consist of one or more of the following:

A. A row of single-family lots or condominium sites similar to adjacent single family development in terms of density, lot area, lot width, setbacks and building spacing.

B. Woodlands, natural features or a landscaped greenbelt sufficient to provide an obscuring effect.

C. Open or recreation space.

D. Significant changes in topography which provide an effective buffer.

14.4.10. Architectural and Site Element Design. Residential facades shall not be dominated by garages; at least forty percent (40%) of residential units shall have side entry garages or recessed garages where the front of the garage is at least five (5) feet behind the front line of the living portion of the principal dwelling. The intent of encouraging recessed or side entry garages is to enhance the aesthetic appearance of the development and minimize the aesthetic impact resulting from the close clustering of units allowed under these regulations. Building elevations shall be required for all structures other than single family dwellings.

Signage, lighting, entryway features, landscaping, building materials for the exterior of all structures, and other features of the project, shall be designed and completed with the objective of achieving an integrated and cohesive development, consistent with the character of the community, surrounding development, and natural features of the area. The Planning Commission may require street or site lighting where appropriate.

14.4.11. Access. Direct access onto a County road or State highway shall be required to an open space community. The nearest edge of any entrance or exit drive shall be located no closer than two hundred (200) feet from any existing street or road intersection (as measured from the nearest intersection right-of-way line). Open Space Communities shall also meet or exceed the access standards contained in Section 10.8 of this Ordinance.

14.4.12. Internal Roads. Internal roads within an open space community may be public or private.

A. Construction of private roads as a means of providing access and circulation is encouraged. Private roadways within an open space community must meet the design requirements of the Township Private Road Ordinance. The Planning Commission may

modify these requirements, if all of the following findings are made: (As Amended 11/24/92)

1. There is no potential for the road to connect with abutting land or be extended to serve additional land in the future.

2. Significant natural features such as mature trees, natural slopes, wetlands or other water bodies would be preserved through allowing a modification to the Private Road standards.

B. Where private roads are developed, a maintenance plan, including a means of guaranteeing maintenance assessments from the affected property owners, shall be reviewed and approved by the Township Planning Commission.

C. Both sides of all internal roads shall be landscaped with street trees. For road frontages of individual lots or condominium sites, a minimum of two (2) canopy trees shall be provided per dwelling. For sections of road that do not abut lots or condominium sites, one canopy trees shall be provided on each side for every fifty (50) feet or road. Existing trees to be preserved within five (5) feet of the road right-of-way or easement may be credited towards meeting this requirement.

14.4.13. Pedestrian Circulation. The Open Space Community plan shall provide pedestrian access to all open space areas from all residential areas, connections between open space areas, public thoroughfares, and connections between appropriate on- and off-site uses. Trails within the open space community may be constructed of gravel, woodchip or other similar material, but the Planning Commission may require construction of eight (8) foot wide asphalt bike paths through portions of the development or along the any public right-of-way abutting the open space community. The Planning Commission may require the construction of sidewalks for Open Space Communities within the area included in the Hamburg Village Subarea Master Plan. Locations for school bus stops shall be provided on the site plan.

14.4.14. Natural Features. The development shall be designed to promote the preservation of natural features. If animal or plant habitats of significant value exist on the site, the Planning Commission, as a condition of approval, may require that the open space community plan preserve these areas in a natural state and adequately protect them as nature preserves or limited access areas. The Planning Commission may also require a minimum of twenty five (25) foot wide undisturbed open space setback from the edge of any, lake, pond, river, stream or wetland; provided that the Planning Commission may permit trails, boardwalks, observation platforms or other similar structures that enhance passive enjoyment of the site's natural amenities within the setback.

14.4.15. Existing Structures. When a tract contains structures or buildings deemed to be of historic, cultural or architectural significance, as determined by the Planning Commission, and if suitable for rehabilitation, the structures shall be retained. Adaptive reuse of existing structures for residential use or permitted accessory residential uses shall be permitted.

Section 14.5. Optional Provisions for Exemplary Projects. The Planning Commission may allow an exemplary open space community to include one or more of the following optional provisions. In order to qualify for an optional provision, the applicant must demonstrate, to the satisfaction of the Planning Commission, that the proposed project exceeds the minimum standards for open space community eligibility under Section 14.3.

In order to qualify for development under the optional provisions of this section, all structures within the project, including single family dwellings, shall be subject to architectural review by the Planning Commission. Buildings shall provide harmony with adjacent uses in terms of texture, materials, peaked roof lines and massing, but there shall be a variation of front facade depth and roof lines to avoid monotony. Building elevations shall be required for all structures.

14.5.1 Density Bonus. A variable density bonus of up to fifteen percent (15%) may be allowed at the discretion of the Planning Commission, based upon a demonstration by the applicant of design excellence in the open space community. In order to qualify for a density bonus, the Open Space Community must be served by public sanitary sewer. Projects qualifying for a density bonus shall include at least one of the following elements:

A. A high level of clustered development were a minimum of sixty percent (60%) of the Open Space Community is common open space.

B. Inclusion of an integrated mixture of housing types.

C. Providing perimeter transition areas around all sides of the development that are at least one hundred fifty (150) feet in depth.

D. Cleanup of site contamination.

E. Other similar elements as determined by the Planning Commission.

14.5.2 Multiple Family Component. In an open space community with a gross area of fifteen (15) acres or more, up to fifty percent (50%) of the dwelling units may be other than single family dwellings. Such units shall meet the following design standards:

A. Front Yard. The minimum building setback from an internal road shall be twenty five (25) feet from the public street right-of-way or private road easement. The Planning Commission may reduce the setback based upon a determination that off-street parking will be adequate, and that the modification will preserve natural features or that the rear yard buffer will be increased by one (1) foot for each one (1) foot of reduction in the front yard setback. In no instance shall the front yard setback be reduce below a minimum of fifteen (15) feet. Buildings that front on two streets must provide the required front yard setback from both streets.

B. Rear Yard: A thirty five (35) foot rear yard shall be maintained for all buildings. Where the rear of a building abuts the side or rear of another residential structure, the minimum spacing between the structures shall be the combined total of the two setback requirements.

C. Side Yards. A ten (10) foot setback shall be maintained to the side of all residential buildings. Where two buildings are located side-by-side, a thirty five (35) foot spacing shall be maintained between apartment buildings.

D. . Off-street Parking Lots. Off-street parking lots serving three (3) or more dwelling units shall provide a ten (10) foot wide open green space area around the perimeter of the parking lot.

E. The building setback requirements may be varied provided they are specifically indicated on the Open Space Community plan and the Planning Commission determines the variation does not negatively impact adjacent properties and provides a recognizable benefit. Building setback requirements on the perimeter of the development shall not be reduced below thirty five (35) feet.

14.5.3. Commercial Component. An open space community with a gross area of fifty (50) acres or more may incorporate a commercial land use component, provided that all of the following are met:

A. The commercial component shall be located on a lot of sufficient size to contain all commercial structures, parking, and landscape buffering. The total area occupied by the commercial land uses may not exceed five percent (5%) of the gross area of the open space community or five (5) acres, whichever is less.

B. All commercial uses shall be compatible with the residential area.

C. The Planning Commission finds that the architectural design of the structures is compatible with the balance of the development.

D. All commercial structures are connected to a pedestrian access system servicing the project.

E. Vehicular access is available only from an access drive to the open space community that connects directly with M-36.

F. If a proposed project cannot provide direct access to M-36, the Planning Commission may approve a commercial land use component for an Open Space Community project located on any paved County thoroughfare, subject to:

1. A special land use hearing on the location of the use being held prior to consideration by the Planning Commission. The hearing shall be conducted according to the procedures stated in Section 3.5. of this Ordinance, and

2. The Planning Commission making the finding that the overall site layout, including the architectural design and the vehicular circulation pattern, is:

a. Compatible with the surrounding land uses, and

b. Will not have a significant detrimental effect on the character of surrounding residential uses.

G. All parking and loading areas serving the commercial uses shall be to the rear or side of the structure and fully screened from view of any public roadway, except that the Planning Commission may allow up to twenty five percent (25%) of the minimum number of required parking spaces in the front yard. Where the parking lot is visible from residential units or open space, it shall be planted with a landscape buffer consisting of evergreen trees spaced no more than fifteen (15) feet on center.

H. The allowable commercial uses within such an area shall be recorded as a deed restriction on the property and shall be restricted to the following:

1. Food and beverage stores for the sale of: groceries, fruit, meat, baked goods, dairy products, beverages and liquor.

2. Personal service establishments such as barber shops, beauty salons, laundry pick-up, and similar uses.

3. Child care or day care centers.

4. Offices for the professions or occupations of doctor, dentist, attorney, engineer, accountant, architect, financial consultant or broker, publisher, real estate broker, secretarial services, and similar uses as determined by the Planning Commission, may be permitted, subject to findings by the Planning Commission that (a) a use is consistent with the intent of this Article and (b) provides no significant negative impact on the open space community project or other surrounding land uses.

I. No structure within the commercial land use component of an open space community shall be occupied without a valid certificate of occupancy from the Township.

1. A request for a certificate of occupancy for a commercial structure within an open space community shall be reviewed by the Zoning Administrator to insure compliance with this Article.

2. A certificate of occupancy may be approved only for uses identified in sub-section 14.5.3(H). Approval shall not be granted to a use that is inconsistent with the intent and/or requirements of this Article.

3. The initial certificate of occupancy for a commercial structure or portion of a commercial structure within the open space community shall not be approved until fifty percent (50%) of the physical improvements related to the residential components of the total open space community plan are complete, notwithstanding an approved schedule for project phasing.

4. A certificate of occupancy may be revoked by action of the Zoning Administrator, if a use is conducted in a manner that does not comply with the intent of this Article and/or any other requirements of this Ordinance.

Section 14.6. Project Standards

In considering any application for approval of a open space community site plan, the Planning Commission shall make their determinations on the basis of the standards for site plan approval set forth in Article 4.00, as well as the following standards and requirements:

14.6.1. Compliance with the Open Space Community Concept. The overall design and land uses proposed in connection with an open space community shall be consistent the intent of the open space community concept, as well as with specific design standards set forth herein.

14.6.2. Compatibility with Adjacent Uses. The proposed open space community plan shall set forth in detail, all specifications with respect to height, setbacks, density, parking, circulation, landscaping, views, and other design features that exhibit due regard for the relationship of the development to surrounding properties, the character of the site, and the land uses. In determining whether this requirement has been met, consideration shall be given to:

A. The bulk, placement, and materials of construction of proposed structures.

B. Pedestrian and vehicular circulation.

C. The location and screening of vehicular use or parking areas.

D. The provision of landscaping and other site amenities.

14.6.3. Impact of Traffic. The open space community shall be designed to minimize the impact of traffic generated by the proposed development on surrounding uses.

14.6.4. Protection of Natural Environment. The proposed open space community shall be protective of the natural environment. It shall comply with all applicable environmental protection laws and regulations.

14.6.5. Compliance with Applicable Regulations. The proposed open space community shall comply with all applicable Federal, state, and local regulations.

14.6.6. Township Master Plan. The proposed open space community shall be consistent with and further the implementation of the Township Master Plan.

14.6.7 Conditions. Reasonable conditions may be required with the special approval of a Open Space Community, to the extent authorized by law, for the purpose of ensuring that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased service and facility loads caused by the land use or activity, protecting the natural environment and conserving natural resources and energy, ensuring compatibility with adjacent uses of land, promoting the use of land in a socially and economically desirable

manner, and further the implementation of the Township Master Plan. Conditions imposed shall be designed to protect natural resources, and the public health, safety and welfare of individuals in the project, those immediately adjacent and the community as a whole; shall be reasonable related to the purposes affected by the Open Space Community; shall be necessary to meet the intent and purpose of this Ordinance and implement the Township Master Plan; and be related to the objective of ensuring compliance with the standards of this Ordinance. All conditions imposed shall be made a part of the record of the special approved.

Section 14.7. General Requirements

14.7.1. General Application Requirements. The application for approval of an open space community shall be made according to procedures and guidelines adopted by resolution of the Planning Commission. The required materials shall be submitted to the Township Zoning Administrator with all required fees.

14.7.2. Effect of Approval. Approval of an open space community proposal shall not require, nor shall it be construed as an amendment to the Zoning Ordinance. All improvements and uses of the site shall be in conformity with the approved open space community site plan and comply fully with any conditions.

14.7.3. Recording of Action. The applicant shall record an affidavit with the register of deeds containing the full legal description of the project site, specifying the date of final Township approval, and declaring that all improvements will be carried out in accordance with the approved open space community plan unless an amendment is adopted by the Township. In addition, all deed restrictions and easements shall be duly filed with the register of deeds of the County and copies of recorded documents presented to the Township.

14.7.4. Land Use Permit. Following final approval of the open space community site plan and final approval of the engineering plans by the Township Engineer, a land use permit may be obtained. It shall be the responsibility of the applicant to obtain all other applicable Township, County, State or Federal permits.

14.7.5. Initiation of Construction. If construction has not commenced within twenty-four (24) months of final approval, all Township approvals become null and void. The applicant may apply in writing to the Planning Commission for an extension, not to exceed twelve (12) months. A maximum of two (2) extensions may be allowed.

14.7.6. Continuing Adherence to Plan. Any property owner who fails maintain an approved site design shall be deemed in violation of the use provisions of the Zoning Ordinance and shall be subject to the penalties for same.

14.7.7. Performance Guarantee. The Planning Commission may require that a performance guarantee, in accordance with the Section 5.3. of the Zoning Ordinance, be deposited with the Township to insure completion of improvements.

Section 14.8. Scheduled Phasing

14.8.1. Scheduled Phasing. When proposed construction is to be phased, the project shall be designed in a manner that allows each phase to fully function on its own regarding services, utilities, circulation, facilities, and open space. Each phase shall contain the necessary components to insure protection of natural resources and the health, safety, and welfare of the users of the open space community and the residents of the surrounding area.

14.8.2. Timing of Phases. Each phase of the project shall be commenced within twenty-four (24) months of the schedule set forth on the approved site plan. If construction of any phase is not commenced within the approved time period, approval of the plan shall become null and void, subject to the requirements of Section 14.7.5.

Section 14.9. Revision of Approved Plans

14.9.1. Minor Changes.

A. Minor changes to an approved open space community plan may be permitted by the Planning Commission following normal site plan review procedures outlined in Article 4.00. for the following:

1. Reduction in density;

2. Changing non-single family dwelling units to single family dwelling units;

3. Realignment of roads;

4. Modifications to setbacks;

5. Increasing the amount of open space;

6. Changes to landscaping, provided the number of plantings is not decreased;

7. Change in the size of detention ponds by no more than 10%;

8. Changes to phasing plan; and

9. Other minor changes similar to the above, as determined by the Planning Commission.

B. Minor changes shall be subject to the finding of all of the following:

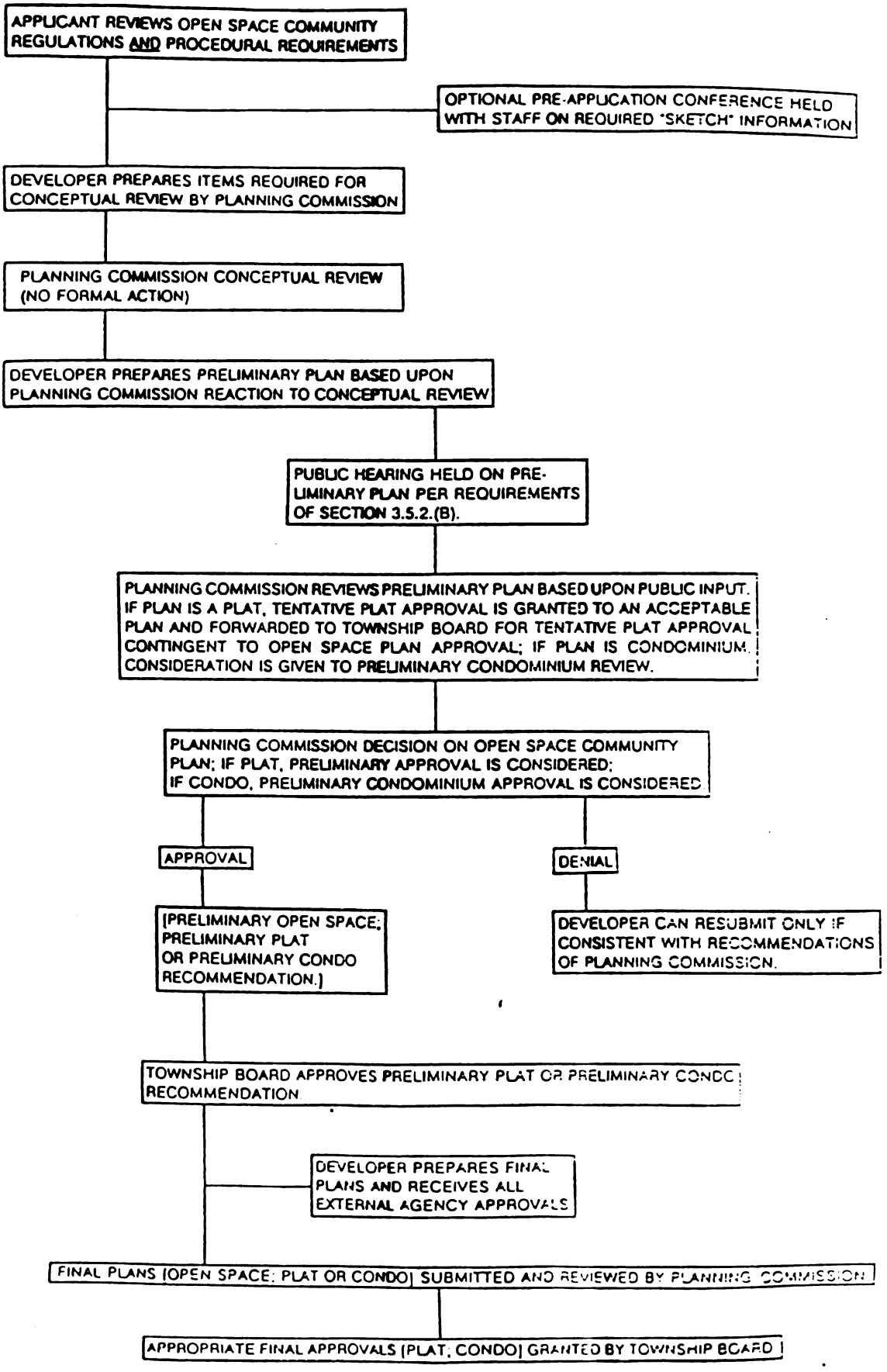
1. Such changes will not adversely affect the initial basis for granting approval;

2. Such minor changes will not adversely affect the overall open space community in light of the intent and purpose of such development as set forth in this Article; and

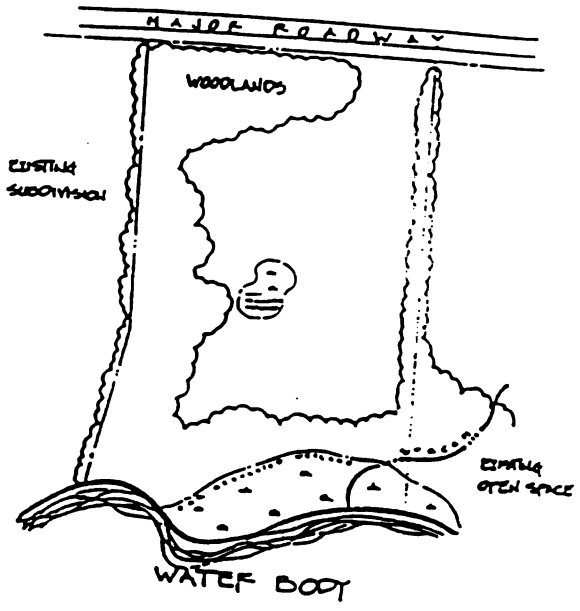
3. Such changes shall not result in the reduction of open space area as required herein.

14.9.2. Major Revisions. Approved plans for an Open Space Community that do not qualify as minor under Section 14.9.1 may be revised by resubmitting a final Open Space Community site plan for approval following the procedures of this Article.

OPEN SPACE COMMUNITY APPROVAL PROCESS

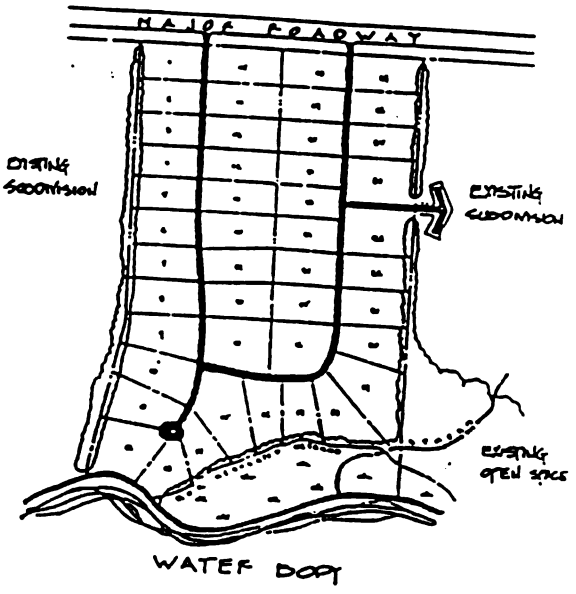


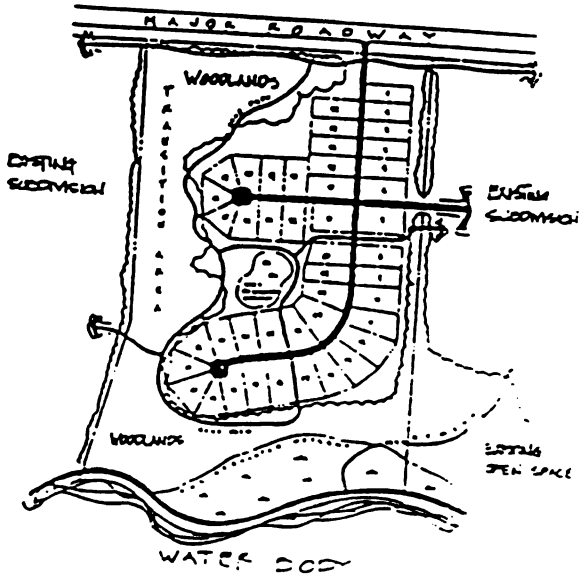
Open Space Community
Examples of Required Plans



Site Analysis - Illustrates key natural and man-made site features.

Parallel Plan establishes maximum feasible density under "conventional" development.





Open Space Community Plan (site plan or subdivision plan).

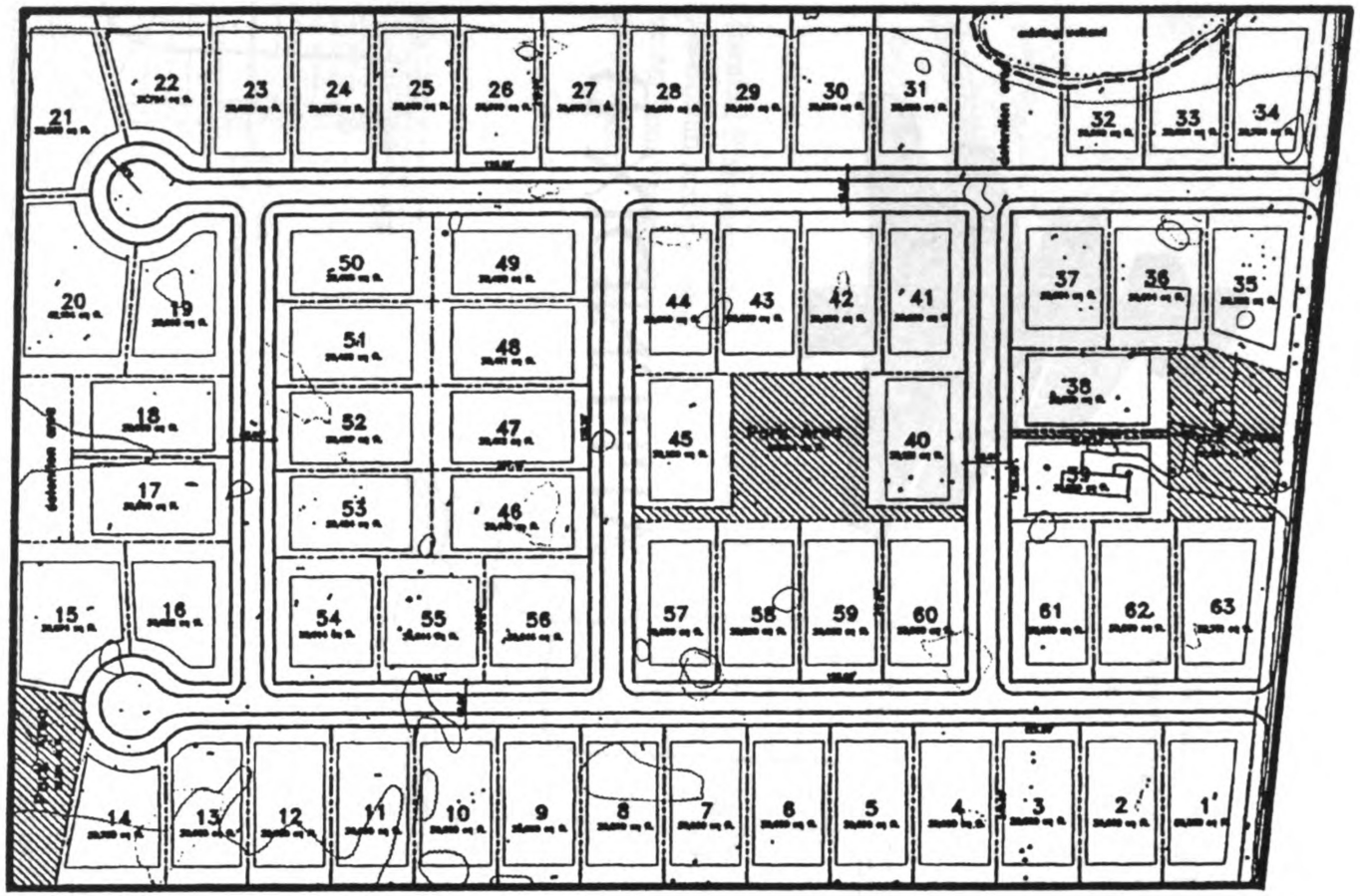
These examples are intended to provide a general illustration of the elements involved in the plans required to be submitted with a request for an open space community. Refer to the ordinance text for a listing of requirements.

APPENDIX B

SETTERS POINTE

Parallel Plan

ADVANTAGE CIVIL ENGINEERING



SETTERS POINTE

Open Space Plan

ADVANTAGE CIVIL ENGINEERING