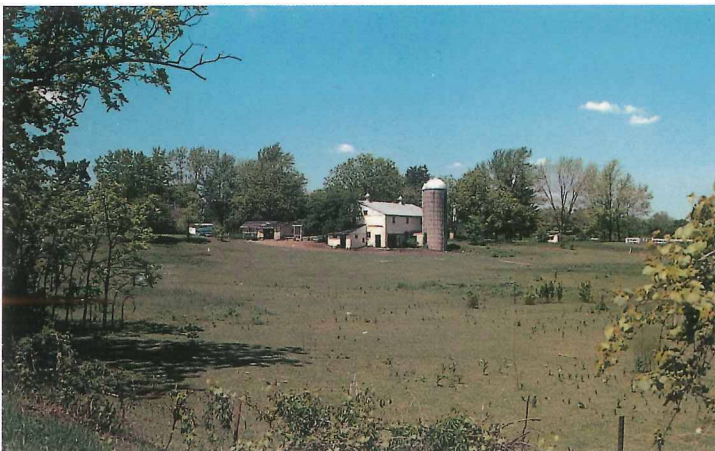


Appendix Literature Search Report

Literature Search Report 5.0

Literature Search Report 5.1



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Shiawassee & Huron Headwaters Resource Preservation Project

LITERATURE SEARCH

5.0

Identifying Tools and Techniques

October 1998

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I. INTRODUCTION

One of the project goals of the Shiawassee and Huron Headwaters Resource Preservation Project (S&H Project) is to "Identify and develop implementation tools and techniques that conserve natural resources and create open space linkages while allowing for economically viable development." This report is a discussion of the various tools and techniques available not only to local governments, but to developers and other private parties for open space protection and will provide the basis for developing the appropriate strategies for the S&H Project.

Communities have for years been involved in protection of public health, safety, and welfare by regulating various aspects of economic activity and providing residents with needed services such as utilities, schools, and roads. Increasingly, communities are recognizing that open space preservation is not only crucial to economic health, but that the natural systems often found within open space areas can provide vital natural functions to the community's overall health. Protected open space areas can serve many functions, including providing recreation opportunities, increasing property values in adjacent neighborhoods, providing scenic vistas and viewsheds for residents and tourists, and serving various natural functions, such as wildlife habitat and water filtration.

The following discussion is organized into five parts: 1) Regulatory Measures - options local governments can use to foster open space protection through regulations and ordinances; 2) Alternative Development and Design Techniques - a discussion of development and design options for developers; 3) Open Space Acquisition and Protection - various voluntary methods of open space acquisition that can be used by private organizations or communities; 4) Miscellaneous - strategies that do not fit into the above three categories; and, 5) Summary Matrix - a summary of all tools and techniques discussed provided for quick reference. Definitions are provided for each tool along with case studies if available. A bibliography is provided at the end of the report.

II. REGULATORY MEASURES

A) Zoning Techniques

1) **Conservation Zoning.** *Conservation zoning is similar to cluster provision with the exception that a high percentage of open space preservation is required, and several development alternatives are available to the developer. The standard subdivision, however, is not an option. After determining the yield under traditional zoning, the developer would be permitted the full density only if at least 50% of the site remained as undivided open space. Other options are available to the developer such as a 25% density bonus for 60% open space, or a 100% density bonus for 70% open space. For developers wishing to sell estate size lots, other options could be a 50% or 70% density reduction requiring four acre and ten acre minimum lots sizes respectively. Conservation zoning is most effective if used in conjunction with Conservation Planning, which maps the desired open space networks in a given community, and Conservation Design, a four-step process that ensures sensitive design and that important natural features are preserved. (Arendt, 1997).*

Garnet Oaks, Pennsylvania. This project has over half of its 58 acres preserved as permanent, privately owned open space. Lot sizes range from 10,000 to 12,000 square feet. The developer stated that small lots did not impede sales due to the fact that two thirds of the lots directly abutted large amounts of wooded open space. The project also includes a mile-long woodland trail, which meanders through the 24 acre conservation area. The developer required all sub-contractors to go through special training for tree conservation practices. The developer also used a low-lying wooded area for temporary storage of stormwater runoff, a more naturalistic design that allowed for the preservation of the wooded area and prevented the need for an engineered basin. (Arendt, 1997).

Farmview, Lower Makefield Township, Pennsylvania. A 418 acre site with 332 single family homes situated on less than half of the parcel. Fifty-one percent of the property, including 68 acres of woodlands and 145 acres of farmlands, is permanently protected. The farmlands were donated to a municipal land trust, which currently leases the land to local farmers, and the woodlands were donated to the township as a permanent preserve. (Tibbetts, 1998.).

2) **Large Lot Zoning:** *Large lot zoning is a common technique used by communities to regulate growth and to encourage agricultural use. Large minimum lot sizes are established to discourage non-farm residences, prevent need for public services, maintain a rural atmosphere, and protect open space. If used to maintain an agricultural base, a 40 acre minimum lot size is recommended as the smallest viable size for ongoing agricultural operations to survive. Depending upon the minimum lot size, large lot zoning can lead to fragmentation of the landscape promoting sprawl.*

Delta County, Michigan. Delta County has three land use zones for timber production, agricultural production, and resource production. The agricultural and resource production minimum lot size is 20 acres, and the timber production minimum lot size is 40 acres. Any use in these zones of less than the minimum lot size requires a special land use permit. (MSPO, 1991).

3) Sliding Scale Zoning: *Sliding scale zoning reduces the number of non-farm dwellings as the parcel size increases. The total number of buildable lots is determined by a "scale" that imposes different development restrictions in relation to the size of the parcel. For example, one buildable lot would allow for the first five acres, two for the next ten acres, and three for thirty acres*

Saline Township, Michigan. Saline Township developed their sliding scale approach in 1986 due to increased development pressure on agricultural lands. The approach is intended to promote continued agricultural use while allowing farmers some smaller scale development on their land. The number of acres and the number of splits corresponds as follows: 11-40 acres = 1 split, 41-80 acres = 2 splits, 81 - 120 acres = 3 splits, 121 - 160 acre = 4 splits, up to over 320 acres = 9 splits. The lot size for parcel splits is one acre and newly created parcels must be 150' in width. (MSPO, 1991).

4) Quarter/quarter Zoning. *Quarter/quarter zoning allows each landowner one buildable lot per 40 acres (one quarter of a one quarter section of land). Once the lot has been created, there can be no more non-farm development. This technique is most effective in areas with 40 acre parcels. Some communities allow for all the developed lots to be concentrated for those landowners with multiple 40 acre parcels.*

Milan Township, Michigan. In an attempt to maintain existing prime farmland areas for agricultural production, the township adopted quarter/quarter provisions. The provisions include the 40 acre minimum parcel size, minimum required road frontage, setbacks, and other requirements. (SEMCOG, 1994).

5) Agricultural Zoning. *Agricultural zoning excludes all non-farm development with the exception of farm related construction such as grain elevators, barns, etc. Most communities allow some residential units to be constructed to allow for family or farm workers. The intent is to maintain ongoing agricultural use in certain areas.*

Delta County, Michigan. Delta County has a great deal of land under federal ownership. There are two exclusive districts: one for agriculture and one for timber production. Any other use must obtain a special land use permit. Special uses must be incidental to the primary specified use and not conflict with the intent set forth in the district. (MSPO, 1991).

6) Performance Zoning. *Performance zoning can be used for a variety of objectives including open space preservation, stormwater runoff, and other development impacts. The main intent is to regulate and reduce the total amount of impacts while promoting developer flexibility and innovation. Performance zoning can supplement or replace existing zoning designations. Developing objective standards can be difficult and time consuming.*

Lake County, Illinois. The Lake County Planning Department calculates the net buildable area of a site, and an acreage where the development will take place. There are four variables for the basic calculation: 1) open space ratio, 2) impervious surface ratio, 3) density, and 4) floor area ratio. Areas designated for resource protection are reflected in the site capacity calculation. (Warbach, 1998).

7) Cluster Zoning: *This technique allows developers flexibility in developing sites by constructing residential units in limited areas while preserving open space. Clustering can be both voluntary or mandatory, depending upon the community. Some communities use a density bonus program to reward large amounts of open space preservation. Density is not calculated by individual lots, but rather for the overall site. Minimum lot size, setbacks, and other placement standards can be waived to allow for more compact development area and greater amounts of open space. Various communities have differing standards regarding the amount of open space to be preserved.*

Montgomery County, Pennsylvania. Montgomery County has a Land Preservation District where clustering is mandatory for development parcels of 10 acre and greater. The main intent of the district is to preserve farmland, while development must be sensitively located and designed to reduce various impacts. The district requires a minimum of 75% of the site be protected as private open space. (Duerksen, 1997.)

8) Planned Unit Developments. *Planned Unit Developments (PUDs) allow for developer flexibility while meeting overall density and land use goals. PUDs can allow for a mix of land uses, reduction of lot size, increase in height, or other waivers from traditional zoning regulations in exchange for some public benefit. PUDs have been used to promote historic preservation, open space preservation, affordable housing, and other community goals. Some communities include a density bonus depending upon the extent of the public benefit. Local communities can zone an area for PUD, or a developer or landowner can request a PUD zoning in a conventional zoning district.*

Hamburg Township, Michigan. Hamburg Township has an Open Space Community PUD option to provide alternatives to standard subdivisions that is used as an overlay district in all single family residential districts. The project must be designed to promote natural feature preservation on the site. A minimum of 40% open space is required, and a density bonus of up to 15% may be granted for those projects with at least 60% open space. (Hamburg Township, 1997).

9) Overlay Zoning. *Overlay zones are special districts that supplement, but do not replace, the existing applicable zoning regulations. Overlay zones can be used for any number of objectives, ranging from commercial corridor improvement to river protection efforts. Overlay zones are especially useful when an area containing unique opportunities or constraints is under several different zoning designations. Important elements of overlay zones for natural resources protection include: protection of vegetation and trees; setbacks from sensitive areas, such as wetlands and streams; percentage requirements for open space preservation; and avoidance of critical habitat areas.*

Environmental Resource Overlay Zone: Tucson, Arizona, Mountain Plan. In 1990, Tucson adopted an environmental resource overlay zone ordinance in order to protect the natural vegetation along washes originating in the national monument and mountain park areas. Maintaining the natural vegetation was a prime objective, as re-vegetation could not compensate for the ecosystem loss in the arid desert climate. The regulations in the ordinance allow for development that is compatible with the wildlife, with strict regulations of the areas near the washes. Another component of the ordinance is that a riparian resource study is required unless all the development falls outside of the 100-year floodplain. In addition, drilling wells for groundwater is prohibited near the designated washes. The ordinance has been effective because it has been applied to both private and public projects. (Duerksen, 1997.)

B) Regulation of Fragile Lands: *Many communities have developed regulations for wetlands, woodlands, rivers, steep slopes, and other fragile land areas*

Wetlands regulations, Independence Township, Michigan. Independence Township developed regulations for the purpose of protecting non-DEQ regulated wetlands between two and five acres in size. The township requires that a wetlands determination be performed in conjunction with development proposals. The township also encourages the use of the cluster option when developing in areas with wetlands. In addition to standards setbacks, all development must be 25 ft. back from the wetland, and permits are required for any work within the wetland or wetland buffer.

Tree Preservation regulations, Oakland Township, Michigan. Oakland Township adopted a tree preservation ordinance in 1990 to aid in the preservation of existing 25 acre or larger wooded tracts of land. The ordinance requires a permit to remove or transplant deciduous trees six inches and greater in diameter, and evergreens 20 ft. tall and taller. Furthermore, 40% of these larger trees are required to be preserved that are not within the building envelope. The township's engineering consulting firm has two foresters on staff who review the applications.

Watershed Management Program, Douglas County, Georgia. Reservoirs on the Dog River, Bear Creek, and the Dog River itself supply the water for the Douglasville-Douglas County Water and Sewer Authority (DDCWSA). Development and runoff pollution have been threatening the water supplies of the 90,000 residents in the area. All of the land in the watershed is under private ownership, therefore outright purchase was not an option. However, the city, county, and DDCWSA officials created a three-part program to manage the watershed and protect the water supply. A zoning ordinance was created that requires 100 ft. to 300 ft. buffer setbacks along the Bear Creek, Dog River, and their tributaries. Furthermore, land owners in the county cannot rezone residential properties to high-density residential, commercial, or industrial zoning. Lastly, the ordinance established minimum lot sizes, such as one unit per five acres, for any home within 1,000 ft. of a major waterway. (Tibbetts, 1998.)

Fleming Creek Management Plan, Michigan. The Fleming Creek Advisory Council, formed from three communities in which the creek is located, developed a Management Plan to protect natural features, property values, and water quality in the Fleming Creek Watershed. Plan guidelines and components include limiting overall imperviousness in the Watershed to under 10% and establishing a Conservation District that includes floodplain of the creek and all its tributaries, as well as contiguous wetlands, and 25 ft. beyond the perimeter of wetlands. Standards for development within the Conservation District include a 35 ft. building setback, and recommendations for stormwater runoff and control, soil erosion control, and protection of natural water treatment systems. (Fleming Creek Advisory Council).

C) Native Landscaping: *The use of native plantings can minimize the negative effects of pesticides and fertilizers, eliminate the need for irrigation, provide habitat and food for local wildlife, and overall save more time and money than conventional landscapes.*

Northeast Illinois Planning Commission. The Northeast Illinois Planning Commission developed in 1997 a source book for local officials regarding native or natural landscaping. The book defines what natural landscaping is, explains what the benefits are, provides "how to" instruction, and provides case studies of projects that have integrated natural landscaping into the site design. Plant lists, sources of

information, and sample ordinances are provided in the Appendix of the book. (Northeast Illinois Planning Commission, 1997).

- D) Master Plans:** *Communities can use their Master Plans to meet preservation goals. Lands to be preserved need to be inventoried, mapped, evaluated, and have policies and recommendations developed which foster preservation. These objectives need to be balanced with private property rights, however.*

Maryland, Sensitive Area Plans Components. The state of Maryland requires local governments to incorporate and implement a "Sensitive Areas" element into local master plans. The plan must include goals, objectives, principles, policies, and standards, which are designed to protect sensitive areas from the negative impacts of development. The areas that must be addressed in the plan include the following: 1) streams and their buffers; 2) 100-year floodplains; 3) habitats of threatened and endangered species; and, 4) steep slopes. An example is Baltimore County's stream protection program. Streams are buffered with a minimum 75 ft. to 100 ft. depending upon the size of the stream. The width may be increased to include steep slopes and erodible soils within 500 feet of the stream. A development setback is imposed in addition to the buffer. (Maryland Office of Planning, 1993).

Holly Township Master Plan, Michigan. Holly Township is on the cusp of adopting a new Master Plan that clearly identifies sensitive natural areas in the township and calls for their protection. The plan is based upon a previous study that identified 22 valuable natural areas in the township. Those 22 identified areas and adjacent wetland or water systems were all incorporated into a new land use designation: Resource Conservation/Residential. This new designation allows for agriculture or low density (5 acre minimum lot size) development, but encourages natural areas be maintained through alternative land development techniques such as clustering.

San Diego County, California, Multiple Species Conservation Program. This program is a comprehensive, long-term habitat conservation plan that addressed the needs of multiple species and the preservation of natural vegetation communities in San Diego County. The program addresses the potential impacts of urban growth, natural habitat loss, and species endangerment to create a plan to mitigate for the potential loss of endangered species and their habitat due to future development. The plan was developed between the county and federal and state wildlife agencies. (County of San Diego, 1997).

Oakland Township, Michigan. Oakland Township's 1974 Comprehensive Development Regulation Plan (amended most recently in 1995) focuses on the natural carrying capacity of the land in terms of designating future land use. The process closely follows that of Ian McHarg in his book, "Design With Nature." The Township also ties future land use to the roadway capacity of existing roads. Overall, the Township's policies serve to manage the growth in the Township in a way that does not threaten the current quality of life yet allows for development in areas that can support growth. (Palacios, 1993).

- E) Parks and Recreation Plans/Acquisition of lands:** *Communities can use their Parks and Recreation Plans and associated funding to purchase open space areas. Some communities have approved a separate tax to fund free-standing open space acquisition programs that does not need to compete with other city services and infrastructure projects.*

Oxford Township, Michigan. Oxford Township purchased a 54 acre parcel on a lake, which is predominately wetland area, as called for in a 1991 Parks and Recreation Plan. The parcel was purchased to provide for passive recreation opportunities. The recent 1997 Parks and Recreation Plan further calls for the development of the parcel by providing nature trails and boardwalks, along with more active recreation opportunities, such as sand volleyball. (Oxford Township, 1996)

Oakland Township, Michigan. Oakland Township has had a dedicated millage since 1974 for park land acquisition, management, and maintenance. Since 1974, nearly 500 acres have been purchased and nearly 100 acres donated. The Township uses a 1974 Natural Features Inventory that designated 27 valuable natural areas in the Township, as one of the resources for identifying lands for purchase. The recently renewed .75 mill will generate around \$300,000 a year, approximately one third of which will be used for acquisition.

- F) Development Agreements:** *Development agreements are negotiated with landowners when development proposals are brought forward. Communities can tailor the agreement to meet certain preservation goals, such as limiting disturbance in certain areas or incorporating certain types of vegetation, to enhance existing ecosystems and habitats. The developer must agree to the terms established in the agreement.*

State of California. California has state legislation which authorizes local communities to use development agreements for large scale projects. The agreements are between the development and the locality, and serve to lay out the land uses, densities, public benefits, and other features as a condition of approval. Development agreements can benefit developers by allowing for more certainty regarding approvals. (Mantell, 1990).

- G) Capital Improvements Programming:** *Local governments can help prevent the encroachment of growth into sensitive areas by incorporating preservation goals into capital improvements programs and budgets, and discouraging development by not planning for or budgeting for water, sewer, and road improvements in these areas. A services boundary area can further be identified in other local plans, outside of which services will not be provided*

Boulder Valley, Colorado. Both the City of Boulder and Boulder County have created a comprehensive plan for the Boulder Valley region. In the plan, the Capital Improvements policies stipulate that new urban development cannot occur until adequate urban facilities and services are available to serve the development. Those required available facilities and services include the following: public water and sewer, flood control and drainage, urban fire protection and emergency medical care, urban police protection, urban transportation, developed parks, and schools. The plan also designates areas where services are to be provided in the future, and Rural Preservation Areas that are not designated for urban growth. (Boulder Valley Comprehensive Plan, 1996).

- H) Subdivision Control and Site Plan Review:** *Local ordinances can address preservation issues during the development review process. Information required on site plans can aid local officials in determining appropriate placement on a given site, such as locations of streams and woodlands.*

Austin, Texas. The City of Austin is attempting to protect the rugged natural beauty of the hill country known as Hill Country Roadways. In this area, the City requires information regarding scenic vistas be included in site plan applications. The site

plan has to illustrate the location and nature of any existing or potential scenic vistas from, or in close proximity to, public roadways or recreation areas, and show how the vistas would be impacted. (Mantell, 1990).

- I) Stormwater Management Utility.** *Some communities have taken measures to assess fees on property owners to fund stormwater systems.*

Lansing, Michigan. Due to Clean Water Act mandates, the City of Lansing started a 30 year program in 1992 to separate the storm sewer and sanitary sewer lines in order to prevent combined overflows into the rivers. The system is being funded partly through a fee assessed to individual property owners based upon the amount of impervious surface. Residential uses are assessed a flat rate based upon lot size. Commercial and industrial properties are individually assessed.

- J) Rural Roadway Preservation:** *Widening, clearing, and grading for road improvements efforts can often degrade the rural character of local roads. Tree preservation ordinances and Master Plan goals and policies can aid communities in protecting the rural character of local roadways.*

Springfield Township, Michigan. Springfield Township is creating a Tree Preservation Program, the purpose of which is to develop a plan to preserve trees and the rural character of road corridors within the township, formulate overall community goals for rural roadway tree preservation, and develop specific implementation strategies. Preservation alternatives, a management program, and sources for funding are all incorporated into the plan. (Springfield Township Tree Preservation Program, 1998 Preliminary Draft)

- K) Official Maps:** *Communities can use official maps to identify and designate land for future location of public facilities. The official map depicts the locations of proposed streets and other public facilities but does not require immediate purchase of those lands. Once adopted, restrictions are placed upon properties within the designated areas. Official mapping under P.A. 22 of 1943 is only available to cities and village with an adopted master plan. No case study is available because currently no communities in the state of Michigan use official maps.*

III. ALTERNATIVE DEVELOPMENT AND DESIGN TECHNIQUES

A) **Conservation Development/Limited Development:** *This technique generally applies to developments that contain unique natural features, which are developed with a sensitivity to the natural environment, with dedicated open space and recreational amenities*

Wildcat Ranch, Snowmass, Colorado, and Spring Island, South Carolina. Wildcat Ranch is a 6,700 acre project with only 2% of the land developed. The project was committed to wildlife conservation and open space preservation. The developer reported higher net profit than if it were developed under a high-density format. Spring Island, South Carolina, is a 3,000 acre island developed with 500 homes. Spring Island Trust was created to "preserve and protect the environment and cultural history of Spring Island." The land trust manages the nature preserve, conducts research initiatives, and runs the nature lab. Other examples with land trusts as part of developments includes: Prairie Crossing, IL, Rancho San Carlos, CA, and Dewees Island, SC. (Chaffin, 1996).

Serrano El Dorado, California. Located near Sacramento, California, the 3,500 acre master planned community has densities of up to 7 units an acre with a build-out of 4,500 units. The developers used the Urban Land Institute's Advisory Services Panel to aid in planning and development. 50,000 trees were planted as part of an Army Corp of Engineer's permit, extensive wetlands were created, and a water reclamation system was developed to irrigate the two golf courses and the landscaped public areas. Almost 800 acres of the site are natural open space, not including a 200 acre golf course, and there are 26 miles of trails. Lots sizes range from 1/4 to just over 1 acre. (Fillip, 1997).

Kiawah Island, South Carolina. A 10,000 acre island with 305 acres of lakes and ponds, 30 miles of hiking and biking trails, 123 acres of parks and common open space, 4,000 - 5,000 acres of lowlands and marshlands, and protected dunes along 10 miles of oceanfront. There are 5,500 units planned at build out including villas, cottages, and single-family homes (lots start at \$300,000). (Urban Land, 1996)

Stonewall Farms, Independence Township, Michigan. This PUD project was developer initiated. The total site is 74 acres in size and bisected by a roadway down the middle. The developer requested PUD zoning in order to develop 38 acres of the property, and donate the remaining 34 acres to the township, which contained open meadows, wetlands, woodlands, and steep slopes. Furthermore, the developer donated a two acre lot with an historic farmstead to the township. The existing zoning would have allowed 25 total lots for the 74 acre site. The applicant did receive a density bonus and is building 40 units on the 39 acre parcel. Strict design regulations will ensure the housing units built are consistent with the Greek Revival architecture of the historic farmstead. This project meets both open space and historic preservation goals of the community.

B) **Sustainable Development:** *There is not universal agreement over the definition of sustainable development, however, the World Commission on Environment and Development states sustainability is: "Providing for the needs of the present generation without compromising the ability of future generations to meet their needs." Generally speaking, sustainable developments balance economic, environmental, and social needs.*

High Desert, Albuquerque, New Mexico. High Desert is a 1,000 acre master planned community with a commitment to sustainability. On the edge of Sandia Peak and national forest area, the site is developed with apartments, townhomes, moderately upscale properties, and estate properties. The development won the Community Award for Excellence from the Albuquerque Planning Commission. Notable aspects include: 22 ft. wide road over buried utilities, building envelopes that also restrict site disturbance, street system designed around natural surface flow of water taking into consideration the arroyos, which are the dry water courses. Preservation of the arroyos was a top priority. Large areas were left undeveloped and enhanced native vegetation planted. A village center with commercial and park areas was incorporated. Each contractor had to comply with the "Guidelines for Sustainability" which included: harvesting runoff by channeling to plants, establishing energy conservation and water conservation standards such as low-flow toilets, orientation of structures, and shade plantings, restoring disturbed areas with a "native palette" of 200 approved species, limited light pollution, and a limited number of fireplaces. (Poling, 1998).

Abacoa, Florida. This 2,000 acre project is considered a Traditional Neighborhood Development and an example of Sustainable Development. The project includes 6,000 homes, a university campus, a major league baseball spring training complex, and a wide variety of mixed-use components, such as retail, office, research parks, schools, and more. The project is laid out in a grid pattern with all common amenities within a 10-minute walk from one another. The project included four driving principles: environmental integrity and sustainability, pedestrian-scaled urban form, economic activity areas, and linked transportation systems. The development teamed up with the University of Florida and a non-profit sustainable development organization to create the Sustainable Development Code (SDC) and Sustainable Construction Code-Residential (SCCR) for the project. The SDC included codes for construction operations, site landscaping, materials selection, energy, water, and indoor environmental quality. The SCCR included codes for reduction of construction waste (maximum allowed one pound per sq. ft. when national average is six pounds per sq. ft.), tree and animal habitat protection plans, non point-source pollution control, and restricted use of construction equipment. Only drought tolerant venation was allowed, resulting in water usage that is 30% of that associated with conventional homes. The local wastewater utility will provide irrigation quality water for irrigation purposes. An extensive greenway system with areas for animal habitat and migration runs throughout the community. Building materials were chosen for resource efficiency such as recycled content materials. Energy conservation was achieved with a combination of high efficiency appliances, high-performance windows, high levels of insulation, etc.. The developers did financial analyses on the cost for homeowners of sustainable design and concluded that the "sustainable" version costs \$29.03 less per month than that of a typical home. (Guy, 1997)

C) New Urbanism/Neo-Traditionalism: *Also known as Traditional Neighborhood Development, this type of development is modeled after neighborhoods typically built during the late 19th and early 20th centuries. Common elements of this type of development include: a strong pedestrian orientation, grid street pattern, mixed uses, central open spaces such as a town square, narrow, tree lined streets, and architectural continuity including shallow setbacks, front porches, alleys, and rear garages. This type of development is championed for using land more efficiently than standard subdivisions, providing more affordable housing, allowing people more transportation options such as walking to school, to work or to the store, fostering a sense of community, and allowing people of mixed ages and incomes to live in the same neighborhood. Many examples of this type of development exist in the United States including Kentlands, MD, Seaside, FL, and Celebration, FL. Neo-*

traditional development can be used for new development, large redevelopment areas, or small infill projects

Laguna West, California. Laguna West is a new neighborhood in Sacramento California. Designed by Calthorpe Associates, Laguna West is a 1,033 acre mixed use community with 3,353 residential units, 180,000 square feet of retail commercial, and 2.7 million square feet of employment (5,000 jobs). Features include a town hall, daycare center, elementary school, five neighborhood parks, village green, interconnected park system, express bus stop, and feeder bus network. The town center component includes 1,000 units of higher density housing with shops, offices, town hall, and the village green. The site is designed around a 65 acre lake, which has bike trails and pedestrian promenades. The project attracted Apple Computer Company, which provided a quarter of the employment base. Housing units range from apartments and townhouses in town, to small lot bungalows, in-law apartments, and larger single family homes further from the town center. (Calthorpe, 1993).

East Ocean View, Norfolk, Virginia. This 90 acre area was declining and becoming overwhelmed with poverty and crime. A 1994 design charette led by Andres Duany and Elizabeth Plater-Zyberk provided a traditional mixed-use concept to guide the reinvestment and redevelopment of the area. The plan sought to promote the existing traditional features of the area including mature street trees, alleys, public squares, and public access to the Bay. Twenty percent of the housing will be dedicated to apartments and retirement housing, and overall housing prices will range from \$70,000 to \$300,000. The City of Norfolk is currently clearing blighted areas to allow for the redevelopment to occur and realigning the streets to provide a grid pattern. (Beyond Sprawl, 1997).

West Village, Dearborn, Michigan. This project is a mixed-use redevelopment project including townhomes, office and retail components in an older urban area. The development has a pedestrian orientation and the architectural design was patterned after the nearby historic Greenfield Village. The townhome units were sold out prior to construction, which is an early indication of the project's success.

D) Transit Oriented Development: *Similar in many ways to Traditional Neighborhood Development as defined above, but with a focus on providing transit options and alternatives. The goal of Transit Oriented Development is to locate growth around a transit system to reduce vehicular traffic and provide alternatives, such as walking, biking, mass transit, etc.. This type of development is characterized by a variety of transit options with reduced automobile dependence, mixed land use patterns, compact development, variety of housing options, and a pedestrian friendly environment. A certain density is required around the transit center in order to be successful.*

Colma BART Specific Area Plan, Daly City, California. Located just south of San Francisco, this project involved the Bay Area Regional Transit system, two cities, and a county. The intent of the project was to create an urban sense of place in what was a semi-urban area for a new BART station (the first new station to be built in 25 years). The plans included a 110 acre site around the station, and provided a mix of uses. Site statistics are: 1,075 residential units, 270,000 square feet of retail commercial, 353,000 square feet of employment (1,380 jobs), and a day care center, church, fire station, two elementary schools, public plazas, park-and-ride facility, bus transfer station, and a commuter drop-off facility (referred to as a "kiss-and-ride"). (Calthorpe, 1993).

E) Alternative Site Development Techniques: *A variety of innovative techniques are available that can be used to lessen impacts of development. Some examples include constructed wetlands, natural stormwater management, and use of native species. These types of techniques can be used to improve water quality by slowing, cooling, and filtering runoff before it reaches natural water systems, such as streams and wetlands.*

Abrahams Lane, St. David's, Pennsylvania. This small scale project is a 13-acre custom home development. Special measures were taken by the developer to protect a wetlands area on the site and a streamhead adjoining the property. Project elements included a 150 foot wide vegetative filter between the homes and the adjacent wetlands. The filter strip was designed with three elements: a dense, primary filter with perennial and ornamental grasses; an expansive wooded area with downy shadblow, red maple, and willow oaks overplanted into the grasses with bare-root stock; and a rooted barrier of erosion-resistant woody shrubs to protect the bare-root whip stock until it became established. The filter strip was designed to mature over time into an existing wooded area. To ensure the velocity of the surface recharge would not impact the fragile wetland system, the project included a level spreader trench to the edge of the vegetative filter strip next to the homes to convert the runoff from a concentrated to a sheet flow. Erosion control devices were used during construction. The total cost of the nonpoint source pollution controls added \$30,000 to the cost of the development. (Land Development, 1993).

Sears Corporate Headquarters, Hoffman Estates, Illinois. The Sears headquarters is located on 780 acres adjacent to Interstate 90. Native plantings were used both in ornamental and functional ways. Areas near the main buildings are landscaped with a combination of traditional landscaping, and the ornamental use of native plants and stone. Water features were developed that use limestone slabs over which water flows into naturalized ponds surrounded with native vegetation. The overall plan called for the preservation and enhancement of existing wetlands, and the creation of wetland systems, as part of the site's stormwater management plan. The landscaping reduces the amount of surface runoff, and runoff is filtered through vegetated filter strips, swales, and a series of naturalized retention and detention basins connected by vegetated swales. (Northeast Illinois Planning Commission, 1997).

Dexter Medical Office, Dexter, Michigan. This project by Insite Design is an example of how a small-scale development can contribute to improving water quality. The three acre site has a 4,000 sq. ft. water treatment and habitat zone to handle stormwater runoff. The location of the constructed system was placed in context with the larger wetland system of the area. A series of three small ponds separated by stone weirs filter runoff before it enters the larger detention area. The detention area then is connected with the existing wetland system. Native wetland and wet meadow species were planted within the flood levels of the ponds and the detention area. The weirs slow the water, allow the sediments to drop out, and the stones of the weirs help aerate the water. Within a few days of the first storm event on the site, wetland insects, frogs and birds began to colonize the site.

Abacoa, Florida. (see example page 10) utilization of Sustainable Development and Sustainable Construction Codes.

IV. OPEN SPACE ACQUISITION/PROTECTION

A) **Land Trusts/Conservancies:** (The following section adapted from presentation given by John Wright of New Mexico State University and Julie Ann Gustanski of the University of Edinburgh at the Lincoln Institute of Land Policy "Who Owns America? II conference, June 1998) *Land trusts, also known as conservancies, are private nonprofit organizations that specialize in land preservation activities. There are over 1,100 local and regional land trusts throughout the country today who collectively manage 1.7+ million acres of lands under conservation easement. Land trusts have a variety of land protection measures including, acquisition and outright ownership, receiving and holding conservation easements, and facilitating the transfer of ownership or conservation easements to other conservation organizations that will ensure the perpetual protection of the land. Other more specific techniques include bargain sale, land exchanges, preservation planning or limited development, right-of-first-refusal, outright donation, restricted sales, leases, mutual covenants, and donation by bequest among others. The following is a list of land resources that land trusts generally strive to preserve.*

- 1) *community open space,*
- 2) *productive agriculture and forest lands,*
- 3) *scenic and recreational lands,*
- 4) *lands of historic or cultural importance,*
- 5) *wildlife habitat, and*
- 6) *ecologically or environmentally sensitive areas such as wetlands, river banks, and groundwater recharge areas*

Michigan Land Trusts: The state of Michigan has several active land trusts, including but not limited to the following:

- Fumee Lake Commission
- Grand Traverse Regional Land Conservancy
- Grosse Isle Nature and Land Conservancy
- Headwaters Conservancy
- Leelanau Conservancy
- Little Traverse Conservancy
- Michigan Karst Conservancy
- Michigan Chapter of the Nature Conservancy
- Michigan Land Trustees
- Michigan Nature Association

- North Oakland Headwaters Land Conservancy (formerly Independence Land Conservancy)
- Oakland Land Conservancy
- Potawatomi Land Trust
- Raisin Valley Land Trust
- Superior Land Conservancy
- Southeast Michigan Land Conservancy
- Southwest Michigan Land Conservancy

B) Open Space and Conservation Easements. (The following section is adapted from Gustanski, 1997). *The conservation easement is the most commonly used preservation tool in the U.S. and can be defined as: "A non-possessory right to control the use of land and buildings owned by another. It is not equivalent to what is often times referred to as 'development rights' An easement is created by deeds executed with formalities associated with other forms of real estate conveyances." Easements are commonly donated, but can also be purchased. Most commonly, land trusts receive the easement, and enforce and monitor its terms.*

The IRS allows a taxpayer to deduct from taxable income the value of a donated easement (up to 30% of gross adjusted income) as a charitable donation. Section 170 (h) of the Internal Revenue Service Code has identified specific criteria for the types of easements that qualify as charitable deductions. Under these criteria, conservation easements should:

1. *Preserve land areas for outdoor recreation by, or education of, the general public; or*
2. *Protect a relatively natural habitat of wildlife, fish, or plants or a similar ecosystem; or*
3. *Preserve open space where such preservation is for the public's scenic enjoyment or pursuant to a clearly delineated public policy and yields a significant public benefit. (e.g., identified important producing farmland or forestland, scenic vistas, or other lands designated by a comprehensive plan as worthy of conservation); or*
4. *Preserve a historically important land area or certified historic structure.*

The conservation easement must also convey a public benefit to qualify as a charitable donation. Some factors that determine the public benefit of an easement include:

1. *The uniqueness of the property (e.g., a last remaining wetland, a significantly large block of productive forest land.); or*
2. *The intensity of development in the area (e.g., the area is threatened by encroaching suburban and urban development); or*
3. *The easement is consistent with public programs and policies designed to promote conservation (e.g., the area is identified as a conservation area within the local comprehensive plan); or*

4. *The opportunity for the general public to enjoy and use the property or appreciate its scenic values (e.g., provides a unique scenic vista from a public road or water body)*

Silver Creek Valley, Idaho. A handful of landowners have protected 9,600 acres of land using conservation easements to conserve a watershed in the Silver Creek river valley. The Nature Conservancy purchased 800 acres in the 1970s, but since then have received donated conservation easements over 8,700 acres worth of ranch land in the valley. The conservation easements still allow for ranching, but the Nature Conservancy helps develop management plans to protect the area such as requiring vegetated buffers along streams. Ranchers who donated the easements receive tax benefits, and are still allowed to do some limited amounts of development as specified in the easement language. (Green, 1997).

Cherry Ridge Farms, Whitewater Township, Michigan. A developer contacted the Grand Traverse Regional Conservancy regarding a 110 acre property in northern Michigan. The site could have been developed into 100 residential units, but the developer decided to scale down the project to 11 single family homes clustered on 37 acres. The remaining 74 acres (66.5% of the land area) would be permanently protected through a donated conservation easement to the Grand Traverse Regional Conservancy. (Chown, 1993)

Bridge Valley, Springfield Township, Michigan. Bridge Valley is a 73 lot cluster subdivision located on a 145 acre site. The site contains many unique natural resources such as wetlands, woodlands, steep slopes, fens, and conifer swamps, much of which will remain as permanent open space as the Bridge Valley Nature Reserve. Although the nature area will remain under ownership and management of the homeowners association, a conservation easement was dedicated to a local conservancy. Within the development, there is a primary and secondary buffer zone, each with restrictions designed to protect the wetland ecosystems. Restrictions include limiting disturbance of vegetation, prohibiting fertilizer and pesticide use, minimum well depths, and minimum separation distances between septic systems and the wetland area.

- C) Transfer of Development Rights (TDR):** *This tool involves the transfer of development rights or density units from and to pre-designated areas: a sending and receiving zone. Generally the sending zone is in an area that warrants protection such as farmland or natural features, and the receiving zone is an area where growth is appropriate, such as within an existing urban area. This tool does not require public funds, as the developer pays for the development rights. The program can be designed to be any combination of mandatory and voluntary in terms of sending and receiving zones. Examples across the country include Montgomery County, MD, Mannheim Township, PA, Long Island Central Pine Barrens, NY, Bucks County, PA, and Dade County, FL.*

Pinelands, New Jersey. One of the most successful TDR programs is the protection efforts of the Pinelands National Reserve in New Jersey. Since its inception in 1981, the program has preserved over 10,000 acres. The TDR program also served to be an important consideration in the rejection of a takings challenge to the regulatory controls of the Pinelands area. (Duerksen, 1997).

- D) Purchase of Development Rights (PDR):** *This tool involves using public funds to purchase the development rights to privately owned land. The landowner is paid the difference between the value of the land based on the development potential, and the value of the land in agricultural use or other limited use. The lands remain in private ownership. Funds can be generated from taxes or bonds.*

Old Mission Peninsula, Michigan. In 1994, voters in Peninsula Township in Grande Traverse County voted to tax themselves for a 1.2 mill 15 year levy to develop a PDR program to preserve agricultural lands in the community. The community was under extreme development pressure yet contained productive vineyards and cherry orchards which contributed to scenic vistas. In 1996, the township secured an additional \$1.3 million in state and federal grants providing matching funds to continue the program. (Kozel, 1994)

- E) **Land Purchase.** *Although this can be an expensive option, communities or organizations can outright purchase lands for protection purposes. The full title to the land and all rights associated with it are purchased at a price determined by the "highest and best" use. Purchasing outright is simple and makes it easier to manage and protect open space. Several different purchase programs are available including: Fee Simple Acquisition, Purchase and Sell-back, Purchase and Lease-back, and Bargain Sale.*

California Coastal Conservancy. This organization is involved in a Purchase and Sell-back program for coastal lands. The organization provides grants to land trusts to purchase lands, and then resell them with conservation restrictions. The program is funded through the state, and the cost of the program is minimized as the sell-back price, which allows continued agricultural use, is close to the original purchase price. (Duerksen, 1997).

Santa Cruz County, California. The California State Parks Department has a purchase and lease-back program in various areas of the state. In Santa Cruz County, the state purchased a 2,300 acre ranch. The state then leased back 635 acres to 11 farmers for agricultural production. The state maintains the remainder of the ranch for a variety of recreational and open space purposes. (Duerksen, 1997).

- F) **Donation.** *Interested landowners can donate outright their property to a land trust, municipality, or other organization. Landowners can donate lands with conservation value so that the land can be managed and preserved for its ecological value. Additionally, land owners can donate other real estate, such as a house, to a private non-profit entity, which can then turn around and sell the property and use the proceeds for purchasing other lands with conservation value. Both types of donation can be claimed as a tax deduction. Another option includes the "reserved life estate" that allows the landowner or others designated to live on the property for their lifetime, in this case the "remained interest" is donated to the organization. Or, a landowner can sell their land to an organization at a price less than the fair market value, this is considered a "bargain sale" and the difference in price can be claimed for a tax deduction.*

Elk Lake, Whitewater Township, Michigan. A former summer camp had 2,300 feet of shoreline on Elk Lake in northern Michigan. Once the camp was sold, the developer contacted the Grand Traverse Regional Land Conservancy to see about donating 1,000 feet of the shoreline. The developer also scaled back the amount of development that could have occurred on the remainder of the property from 30 units down to 12 units. He also donated a conservation easement over a 3.6 acre wetland on the site. A neighboring land owner became interested in the project, and also donated the adjacent 500 feet of shoreline, and 15 acres of property which included the adjacent wetland system to the Conservancy. Both land owners received tax breaks for charitable contributions. (Chown, 1993).

- G) Land Banking.** *Land Banking involves the purchase of lands by a community for later use or development. Basically, land banking is a government operated land trust, funded by real estate transfer taxes at the local or state level, therefore increasing amounts of funding are available as real estate transfers (development) increase.*

Nantucket, Massachusetts. Since 1984, the Nantucket County Land Bank has been purchasing lands "known to be needed by the public in the future." These lands have included ocean, harbor, and pond frontage, barrier beaches, marshes and adjoining wetlands, heathland and moors, land for bike paths, land to protect public water supply, and land for future public recreational facilities. The bank is funded by a two percent transfer fee for real estate. The bank also has authority to borrow and use eminent domain, but only if authorized by a Town Meeting. The first \$100,000 is exempted for first time homebuyers. (Melious, no date).

- H) Tax Programs for Agricultural Preservation:** *Two tax programs exist that promote agricultural use. PA 116 and Use value taxation. PA 116 is available currently to Michigan farmers and allows landowners to voluntarily sign an agreement not to develop their property for at least ten years. The landowner then receives tax credits and exemption from special assessments such as water and sewer projects. Due to Proposal A, however, the tax benefits received have been significantly reduced, and therefore the program is not as effective in preserving farmland. Use value taxation assesses land based on current use and not on development potential. Michigan is one of four states in the country that does not systematically employ the use value system for land taxation.*

- I) Public/Private partnerships.** *Public/private partnerships for open space protection capitalize upon the joint resources of governments (federal, state, and local) and private groups and property owners. Partnerships are becoming increasingly popular solutions to open space protection because of the flexibility of private organizations compared to the government, the ability of private groups to purchase open space with matching governmental funds, and a new emphasis on landscape-scale preservation.*

Ashepo, Combahee, and Edisto Basin, South Carolina. In order to protect the watershed basin of three rivers in coastal South Carolina, a task force was developed in 1987 between Ducks Unlimited, The Nature Conservancy, the South Carolina Department of Natural Resources, the U.S. Fish and Wildlife Service, and private property owners. The task force also determined there was not local support for additional park or wilderness. Therefore, they wanted to maintain the existing productive values of the area including forestry, farming, and recreational tourism, while still protecting the natural resources. By 1997, the task force had protected 125,000 acres. Sixty-five percent of those are in private hands, with 42,798 acres under conservation easements, 10,643 acres owned by nonprofit organizations, and 17,912 acres privately owned and but managed under special agreements. (Tibbetts, 1998.)

- J) Deed Restrictions:** *Deed restrictions can be used to restrict certain future uses of property. The restrictions are generally developed at the time of real estate transfer. A deed restriction may contain restrictions similar to those of a conservation easement, however, enforcement may only be carried out by the prior owner or other parties to the transaction and the restrictions may be canceled at any time by mutual consent.*

Lancaster County, Pennsylvania. Lancaster County uses deed restrictions to preserve agricultural land. The restrictions function as an open space easement on the property by only allowing for agricultural uses and limiting development. (Mantell, 1990).

V. MISCELLANEOUS

- A) Greenways:** *Greenways are networks (usually linear) of open space, consisting of a trail corridor or river protection zone. Greenways can serve multi-purpose functions such as alternative forms of transportation, recreational opportunities by linking existing parks and open space systems, preservation of valuable natural resources, and wildlife corridors. Greenways often result from collaborative efforts between local governments, private non-profit organizations, and an active citizenry*

Portland, Oregon. The Portland area is comprised of Metro, Portland's regional government. In 1990, Metro adopted the Metropolitan Greenspaces Master Plan, which identified open space, natural areas, habitat, and recreation areas that needed to be preserved to maintain a high quality of life. In 1995, a \$136 million open space bond measure passed to fund the purchase and protection of the critical pieces identified in the Plan. Many different groups were involved, including the local university, the Trust of Public Land, local non-profit groups, governmental units and parks and recreation agencies. A combination of open space protection and greenway development, the Plan identified 14 regional natural areas, and six trail and greenway projects 40 miles long. Since 1990, 22 of the 24 cities in the four counties (three in Oregon, one in Washington), which comprise Metro, have passed resolutions supporting the Greenspace program. (Erickson, 1997).

Southeast Michigan Greenways. The Southeast Michigan Greenways project is a partnership project coordinated by the Rails-to-Trails Conservancy, Michigan Department of Natural Resources, Michigan Department of Transportation, National Park Service, the U of M School of Natural Resources and Environment, and the Southeast Michigan Council of Governments. The project objectives include public involvement, resource inventory and assessment, education, and initial implementation for developing the greenway system.

- B) State Growth Management Initiatives:** *Several states have growth management statutes, including Hawaii, Maryland, Vermont, Oregon, New Jersey, and Washington. Growth management laws are designed to control timing of urban growth and to determine the land use patterns at the local and regional levels. Land use patterns are concentrated within urban growth areas or boundaries, and lands with high resource value are protected from development. Some growth management laws require public services be in place prior to new development being approved.*

Maryland's Smart Growth program: In 1997, Maryland adopted several specific programs, which together form the Smart Growth initiatives. Together, these programs serve to promote development and redevelopment in appropriate areas while protecting farmland and natural resources from sprawl. The five different programs include:

- 1) Priority Funding Areas - this program targets State infrastructure funding for areas designated for growth;
- 2) Rural Legacy Program - this program redirects state funds to a dedicated land preservation program designed to limit impacts of sprawl on natural resources and agricultural lands by creating greenbelts through land purchase and conservation easements;

- 3) Brownfields Program - this program limits liability for those developing brownfield sites and creates a voluntary clean up program. Grants and low-interest loans for redeveloping brownfield sites are made available;
- 4) Job Creation Tax Credit - this program encourages mid-sized and smaller businesses to locate and invest within the Smart Growth areas. The program provides income tax credits to business owners who create jobs within Priority Funding Areas; and
- 5) Live Near Your Work - this program encourages people to buy homes near their workplace. The program provides a minimum \$3000 to home buyers moving to designated neighborhoods.
(www.op.state.md.us/smartgrowth/initiatv.)

C) Intergovernmental Cooperation: *Oftentimes, local governments can achieve a common goal by joining together and pooling scarce resources. Intergovernmental cooperation is a good tool to address natural resource protection due to the fact that natural features are often located across governmental boundaries.*

Grand Valley Metro Council: In 1990, the Metro Council Act was passed which allowed for the creation of a voluntary metropolitan board (Metro council), create regional legislation, and impose taxes. Soon after its creation, the Metro council received funding from MDOT, the Grand Rapids Environs Transportation Study, and the Grand Rapids Chamber of Commerce to fund a planning process for the area. Membership is voluntary and operations are funded through fees and grants. The result of this study was the creation of the Metropolitan Development Blueprint, which identified three goals for the region: 1) defining a network of open lands and greenspaces; 2) identifying economic activity centers; and 3) encouraging livable communities. Committees and task forces were set up to address the above issues and a plan for implementation of the Blueprint, the Roadmap, was developed. The Water Resources Institute, the West Michigan Environmental Action Council, and the Land Conservancy of West Michigan are all participating in the creation of a plan addressing greenway and open space issues. (Kilpatrick, 1998).

D) Conservation Based Development: *This concept is based upon the notion that economic development goals and environmental protection goals are not mutually exclusive. Businesses which utilize sustainable practices such as reducing resources or using recycled materials are encouraged.*

Ecotrust Canada: Ecotrust Canada promotes conservation-based development in the coastal communities of British Columbia, on Vancouver Island, and in the Queen Charlotte Islands. They support local entrepreneurs, community organizations, and native peoples by providing technological, financial, managerial, marketing, and networking assistance. An example of a project that is supported by Ecotrust is a selective gillnet fishery, which allows fewer overall fish to be caught, and freshness to be paramount, which results in the company earning three times the going rate for the fish. The fishing practice also allows for by-catch such as steelhead salmon to be released without injury. (www.ecotrustcan.org/northwest.)

E. Urban Growth Boundaries: *Urban growth boundaries (UGBs) are created to identify the outer limits of urbanization, encourage redevelopment within the boundary, and promote the preservation of farmland and open space outside of the boundary. UGBs can be applied at a large scale (a metro area) or smaller scale (a village).*

Portland, Oregon: In 1979, Portland became the first state to enable legislation for Urban Growth Boundaries. Previous to the legislation, the Portland area was losing 30,000 acres of farm land to development a year. By 1996, due to the creation of the UGB and other sprawl control measures, that number had dwindled to 2,000 acres. Portland's UGB includes 24 cities and urban portions of three counties. The UGB encourages redevelopment of blighted or underdeveloped areas, and more efficient use of land and provision of infrastructure and services. (Wilson, et al, 1998).

VI. TOOLS AND TECHNIQUES SUMMARY MATRIX

The following matrix depicts each of the tools and techniques as described in the report, the various parties which may be involved (i.e. government, private sector, etc.) , and whether or not the technique has been used in Michigan.

#	TECHNIQUE	GOVERNMENT INVOLVEMENT	PRIVATE SECTOR/ PROPERTY OWNER INVOLVEMENT	NON-PROFIT AGENCY INVOLVEMENT	USED IN MICHIGAN?
REGULATORY MEASURES					
1	Zoning Techniques	X	X		X
2	Regulation of Fragile Lands	X	X		X
3	Native Landscaping	X	X		
4	Parks and Recreation Plans	X			X
5	Development Agreements	X	X		X
6	Capital Improvements Programming	X			X
7	Subdivision Control and Site Plan Review	X	X		X
8	Stormwater Management Utility	X			X
9	Rural Roadway Preservation	X	X		X
10	Official Maps	X	X		
ALTERNATIVE DEVELOPMENT TECHNIQUES					
11	Conservation/Limited Development	X	X	X	
12	Sustainable Development	X	X		
13	New Urbanism/Neo- Traditionalism	X	X		X
14	Transit-Oriented Development	X	X		
15	Alternative Site Development Techniques	X	X		X

VI. TOOLS AND TECHNIQUES SUMMARY MATRIX

#	TECHNIQUE	GOVERNMENT INVOLVEMENT	PRIVATE SECTOR/ PROPERTY OWNER INVOLVEMENT	NON-PROFIT AGENCY INVOLVEMENT	USED IN MICHIGAN?
OPEN SPACE ACQUISITION					
16	Land Trusts/ Conservancies	X	X	X	X
17	Open Space/ Conservation Easements	X	X	X	X
18	Transfer of Development Rights	X	X		
19	Purchase of Development Rights	X	X		X
20	Land Purchase	X	X	X	X
21	Land Donation	X	X	X	X
22	Land Banking	X	X		
23	Tax Programs for Ag. Preservation	X	X		X
24	Public/Private Partnerships	X	X	X	
25	Deed Restrictions	X	X		X
MISCELLANEOUS					
26	Greenways	X	X	X	X
27	State Growth Management Initiatives	X	X		
28	Intergovernmental Cooperation	X			X
29	Conservation Based Development	X	X	X	
30	Urban Growth Boundaries	X			

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The Nature Conservancy: www.tnc.org

Oakland County: www.co.oakland.mi.us

LITERATURE SEARCH

5.1

Identifying Community Planning,
Zoning, and Development Tools

October 1998

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I. INTRODUCTION

Community planning tools generally consist of the master plan, zoning ordinance, subdivision control ordinance, and other general ordinances that guide the future growth and development of a community. These tools answer several questions: How fast will a community grow? Will a higher quality of life be preserved? Will resource areas be preserved and/or conserved? Will the community character be maintained? The answers to these questions depend on the elements within the planning tool documents that control and manage growth, and how they are enforced.

This section of the Literature Search Report identifies participating communities' planning, zoning, and development techniques used to preserve and/or conserve resource areas. Six communities' tools have been examined for their potential to preserve and conserve resource areas. These communities are: Highland Township, Milford Township, the Village of Milford, Rose Township, Springfield Township, and White Lake Township.

The primary documents reviewed are:

- A. Master Plans
- B. Zoning Ordinances
- C. Subdivision Control Ordinances
- D. Special Purpose Ordinances

The following is a summary of the tools found in each community participating in the Shiawassee and Huron Headwaters Resource Preservation Project.

II. HIGHLAND CHARTER TOWNSHIP

Highland Charter Township's Comprehensive Plan has been fully effective since January of 1983. The Zoning Ordinance was adopted in July of 1986, while the Subdivision control ordinance (ordinance No. 216) has been in effect since March of 1977.

A. Comprehensive Plan

The following points can be made about the Comprehensive Plan in relation to the preserving and/or conserving natural resource areas:

- The Comprehensive Plan contains a **natural features analysis** that **describes and maps physiography** and topography, water bodies and wetlands, woodlands, and septic suitability. This section also contains a summary of natural resource areas in the Township.
- A **visual quality analysis** is included in the comprehensive plan. Its goal is to define the desired visual quality and **identify areas of visual importance** in the Township. The visual analysis **examines the major thoroughfares** in the Township, prioritizes them for visual sensitivity, and maps them in terms of visual sensitivity and visual importance.
- **Phased Residential Zoning Strategy.** This section of the plan sets a policy that **rezoning should occur in a phased manner** to prevent "leap frogging" development. Rezoning from agricultural/rural residential densities to medium and small lot densities should occur first in the central areas, which are immediately contiguous with such development. Only later, when the demand for additional medium and small lot development cannot be met by existing supplies, should more outlying areas be so zoned.
- The following land use policies are directly related to preservation and/or conservation of resource areas:

Residential

- Residential developments should provide **adequate light, air, privacy and quietude.**
- **Higher-density, multiple-family development** should be located in and near visually attractive areas.
- Residential living areas should be **separated from commercial and industrial areas** by functional elements such as open space or buffered thoroughfares.
- Existing housing should be **protected from environmental decay** through code enforcement and provision of adequate Township services.
- Special emphasis should be placed on the **preservation of homes with historic or design interest.**
- **Vacant land** should be subdivided only when a definite need exists.
- The development of residential areas should occur in an orderly sequence with the **proper provision of public improvements.**

- **Open space pathways and linkages** within residential developments should be related to the scenic features, open space, and recreation facilities pattern of the Township.
- Medium- and higher-density residential areas should be **located near the Highland Recreation Area** or other open space facilities in order to create a satisfactory environmental balance.
- Special emphasis should be placed on the **preservation of homes with historic or design interest.**
- **Open space pathways and linkages within residential developments** should be related to the scenic features open space and recreation facilities' pattern of the Township.
- The design of **new residential developments** should provide for **preservation of existing trees, scenic features, and environmentally sensitive areas.**
- **New residential subdivisions** develop in **visually important areas** along major thoroughfares should provide **adequate open space** to help **maintain the rural character** of the Township.
- New residential developments should be designed to ensure that **on-site sanitary sewage disposal systems can function properly**, to prevent contamination of soil, wetlands, lakes and ground water.

Commercial

- Shopping facilities **should be clustered** in order to strengthen existing commercial areas.
- The development of commercial and office facilities should be based upon a realistic determination of market potential so that **excessive speculation and abundance of buildings will not occur.**
- Extension of strip developments along thoroughfares in the Township **should be discouraged.**
- Commercial development should be concentrated in well delineated commercial districts, small shopping centers, or commercial parks.
- Early signs of **blight and decline** in commercial and office areas should be reversed through resolution of traffic ingress and egress problems, prevention of excessive penetration of local driveways into major thoroughfares, elimination of excessive advertising and identification signs, and through provision for improved site planning design and landscaping in remaining developable parcels.
- New commercial facilities should be subject to site plan review, as should existing facilities which are expanded.
- A local **historic business district** with appropriate shopping and office facilities should be encouraged in the Central Highland area.
- Commercial and office development in the form of adaptive reuse of existing residential structures should be discouraged in the Central Highland area.

- The Township should encourage the maintenance of historically significant structures in commercial and office areas.
- Hazards such as **air, water and soil contamination; noise; and excessive vibration** should be controlled by adequate zoning and performance regulations.

Industrial

- Industrial development should **occur in concentrations** unified by land design, structural compatibility, and performance characteristics
- Industrial land use should not be scattered among other land uses.
- Industrial areas should be separated from non-industrial areas.
- Industrial hazards such as air, water, and soil contamination; noise; and excessive vibration should be controlled by adequate zoning and performance regulations.
- Incompatible land uses should not intrude into the industrial area.
- Industrial uses which pose no threat to the adequacy and quality of ground water supplies should be encouraged.

Open Space and Recreation

- A **balanced system of recreation facilities** should be encouraged. Such a system should include major park and athletic facilities, neighborhood recreation facilities, and special facilities such as bicycle, hiking, equestrian, and cross-country ski trails for use by the residents of the Township.
- **Open space areas should be linked wherever** possible in order to create functional relationships.
- Commercial recreation facilities should be related to the planning and development of **public and private open space** areas where possible.
- Open space development should **preserve, protect, and enhance wooded and scenic areas, unique habitats, and environmentally sensitive areas.** Such areas can be preserved either through public or private ownership and maintenance and through strategic preservation of open space areas in sensitively-developed residential areas.
- **Open space should be utilized to delineate residential areas,** to give individuality, and to maintain the rural character of the Township; and Developers should be encouraged to **provide open space and recreation facilities** as part of their overall residential development design.

Other

- **Conservation Easement Program.** This section references the visual quality analysis that identifies **visually sensitive areas** within the Township. This section advocates that the Township should **preserve and restrict the development of the natural landscape within the visually sensitive areas** and should implement a **conservation easement program** under

the provisions of The Michigan Conversation and Historic Preservation Easement act, P.A. 197 of 1980. This section identifies where conservation easements should be established.

- The plan recommends **"open space" subdivision design** and gives good examples of common rectilinear, curvilinear and open space and design subdivisions. This section also discusses the advantages that open space designs present regarding natural resource preservation, minimization of roadways, and utilities.
- The plan recommends **preservation of historic sites and buildings**. A survey of all pre-1935 structures has been conducted by the Michigan Historic Commission.
- An **architectural control program** is proposed to maintain the indigenous rural architectural style of the area.

B. Zoning Ordinance

The following points in the Zoning Ordinance are made in regard to preserving and/or conserving resource areas.

Planned Residential Development

- Section 1200, purpose: Plan residential development procedures and standards. **"The planned residential development designation is designed to preserve the Township's rural character** and sense of spaciousness through the preservation of open space and spots of natural beauty, to provide visual variety to the township development pattern..."

Site Plan Review

- The following **information must be submitted** with a site plan for a planned residential development: **subsurface conditions, location and sizes and types of existing trees, wooded areas.**
- The site plan review procedure and standards make reference to the need to **protect resources from peculiarities in sight of building design** and the site plan review procedure process should provide an **opportunity for consultation and cooperation** between the applicant and the Township.
- Under **general submission requirements** for a site plan, the following must be provided: **topography, subsurface conditions, wooded areas, and mandatory water quality analysis.**
- Under standards for site plan approval, statements are made that **developments will not detrimentally affect resources** and that all resource areas will be considered according to the highest professional standards.

Natural Hazard Area Regulations

- Under general provisions a section is provided on Natural Hazard Area Regulations that is intended to **protect environmentally sensitive natural resources.**

Required Common Usable Open Space

- A section titled "Required Common Usable Open Space in Certain Residential Areas" provides that **common usable open space shall be provided in all single and two family residential district subdivisions**, having average lot areas per dwelling unit of 40,000 square feet or less.

C. Subdivision Regulations

The following points are made in the Subdivision Regulations in regard to the preservation and/or conservation of resource areas.

- The following statement is made in Section 403 **Natural Features**. "The **natural features and characteristics of lands must be preserved wherever possible**. Due regard must be shown for all natural features, such as large trees, natural groves, and similar community assets that will add attractiveness and value to the property, if preserved."
- Section 404 floodplains section mentions that areas that are **subject to flooding or inundation by stormwater shall require specific compliance** with review and approval process set forth in the Subdivision Control Act.
- Section 405 **Subdivision Open Space Plan**. This section sets down the procedures for the requirements for an open space plan.

III. MILFORD CHARTER TOWNSHIP

The Milford Charter Township Land Use Plan was adopted in 1991, while the Zoning Ordinance was adopted in 1979 and has been amended several times. The Township has combined subdivision and land division regulations in a separate ordinance that deals with wetlands and watercourses. (A new Master Plan has been adopted by Milford Charter Township since the Literature Search was prepared. The Charter Township of Milford Land Use Plan Update was adopted on May 27, 1999.)

A. Land Use Plan

The Milford Charter Township Land Use Plan makes the following points in regard to the preservation/conservation of resource areas:

- The Land Plan has a section on Environmental Resources that basically describes natural features, which consist of open water, wetlands, flood prone areas, slope plans, vegetation, and soils. The environmental resources section also contains maps: a natural features inventory and a map titled "Soil Limitations."
- The Goals and Objectives contain the following statements:
 - To **take under advisement all existing land uses** within and adjoining the Township, and to weigh them as factors in the proposed Plan.
 - To consider and **evaluate the social, economic, and regional influences** bearing, or likely to bear, upon the Township.
 - To propose land uses for the Township which take into account the **maximum present and future potential** of its land and residents.
 - **Maintain Community Balance** - A balanced development of land uses is a Plan objective, in order to help provide the greatest living amenity and economic opportunity possible for the Township.
 - **Provide an Adequate and Stable Tax Base** - All land uses, especially multiple housing, mobile home parks, and industrial areas, must be so located and arranged as to contribute to the tax base of the Township and school districts.
 - **Promote Efficient Street System** - The planning for a modern efficient street is desired which will eliminate wasteful "gridiron" road patterns and substitute major, secondary, and local streets which are adequate, efficient, and well located. Needed right-of-way setbacks will reflect expected traffic generation by future land uses. Such standards will be developed after consideration of standards of the Oakland County Road Commission.
 - **Plan for Areas Having Economic Potential** - Future expansion needs of industrial firms, commercial enterprises, housing, and recreation should be considered, without upsetting the basic balance of space allocations for each.
 - **Anticipate I-96 / S. Milford Road Interchange Potential** - The future redesign of this interchange will result in a need to carefully regulate development to achieve an attractive entrance to the Township, minimize traffic impacts, and create an optimum tax base.

- **Locate Public Facilities** - Planned locations of schools, fire stations, and other public and semi-public facilities should be provided based upon future population trends. In this way, costly duplication and early obsolescence of public buildings will be avoided.
- **Establish a Sound Foundation for Zoning** - The Land Use Plan should provide the foundation for a community development structure which can be "filled in" as required by future studies and which supplies a logical and legal base for zoning implementation.
- Maximize the natural social and economic attributes of the Township by the most efficient and harmonious arrangement of land uses.
- Discouraging shoe string development - inefficient, wasteful "shoe string type" development, whether residential or commercial, must be curbed in favor of appropriate subdivisions, site condominiums, planned unit developments, and planned shopping facilities.
- Slow growth policy for future development is desired owing to a lack of public water supply and sanitary sewage facilities and unpaved roads.
- Land use conflicts should be minimized while maximizing the scenic beauty of the Township's woodlands, lakes, and rolling topography.
- Plan for a modern, efficient street system that eliminates wasteful gridiron road patterns.
- The Land Use Plan section makes the following general recommendations: maintain a country residential profile, plan for residential and non-residential uses, keep recreation areas passive, recognize emerging areas of growth, and acknowledge historic areas.
- The following statements are made in regard to residential land use classifications: rural residential - "such opportunity should be provided in planned areas of the Township rather than allowing speculative, small lot developments which will increase demand for services and escalate land assessments."
 - Low density residential - this category generally lies between the rural and low medium density residential areas, reflecting a concentric ring of increasing densities, as one approaches the Village of Milford.
 - Low medium density residential - it should be understood that the actual home site size depends upon the required lot area to properly be served by individual well and septic systems.
 - Medium density residential - care must be taken to avoid allowing small lot development where it appears septic tanks will not function properly.
- The Land Use Plan contains a section on coordination with adjacent communities.

B. Zoning Ordinance

Site Plan Review

- The following information is required for processing site plan review. All natural features of the property such as large trees, natural groves, water courses, groundwater, and other topographic assets that will maintain the natural attractiveness and value to the property.

- For all uses in the C-1 district, there must be site plan review as required.

Recreation District

- In the Statement of Purpose for the Recreation District the following statement is made: "to the extent possible and practical, all the natural features of the property, such as large trees, natural groves, water courses, and all the similar topographic assets that will maintain a natural attractiveness and value to the property shall be preserved."

Cluster Housing Option

- The purpose of the **cluster housing option** is to permit an **alternative means** for development of land which is zoned single-family residential (**R-1-R, R-1-S and R-1 Districts**).
 - The intent of the option is to **permit the preservation of natural features** of a site such as wetlands, woodlands, unusual steep topography, or geologic features (historic sites, unique vistas). The cluster option should be considered **when it is beneficial** for the township, **not when it is a hardship on the developer** due to environmental constraints.
 - **Conditions:** single family only. Clustered homes **limited to 3 or 4. Density based on gross land area, excluding lakes or wetlands**, divided by number of units allowed as established for minimum lot sizes for underlying zoning district. For any project the reservation of land shall be contained in the master deed or subdivision regulations. Developer must also **follow all site plan review procedures**.

Planned Unit Development, C-2 District - Generally

- Flexibility in the development of planned shopping centers - building placement, bulk and interrelationship of buildings and land uses, new design concepts.
 - Standards may be modified by Township Board if adherence results in no public good.
- The section on footnotes contains the following: desirable neighborhood recreation space standards have been included in the community facilities plan for the Township. The following clauses are included in the zoning ordinance as a means of promoting of such recreation space:
 - In circumstances where the subdivider provides space of the character, extent and location deemed suitable by the Planning Commission to the needs created by the subdivision for recreation areas, the Planning Commission may reduce the minimum lot size.
 - Space for recreational purposes can be provided by one of the following methods: provide an area within the subdivision which shall be equal to a minimum of 2.5% of the entire area platted or 400 square feet per lot platted, or one platted lot, whichever shall be greater. Convey by warranty deed to the Township an amount of land within the subdivision equal to a minimum of 2.5% of the entire area platted, or 400 square feet per lot platted, or one platted lot, whichever shall be greater. Contribute to the Township such sum of money as shall be equivalent to the reasonable market value, at 2.5% of the entire area of the subdivision after the same shall have been improved, or 400 square feet per platted lot after the same shall have been improved, whichever shall be greater, which reasonable market value shall be computed at 6 times the state equalized valuation of the land prior to subdividing, in lieu of which such contributions shall be made.

C. Subdivision and Land Division Regulations

- The following points are contained in the subdivision and land division regulations that pertain to the conservation/preservation of resource areas:
 - Information to be provided as part of a preliminary plat subdivision includes description of features, existing and proposed general topography, and soil conditions.
 - A part of the design standards, natural features shall be preserved, in so far as possible, in the design of the subdivision.

D. Wetlands and Water Courses

The following points can be made about the article of wetlands and watercourses in relation to preserving/conserving of resource areas:

- The purpose of this article is to preserve and maintain wetlands and water courses, and the protection of the Township's potable fresh water supply.
- Identifies wetlands and subjects them to the regulatory terms of the article.
- States that a map is on file at the Township offices.
- Sets up a notification procedure for the MDNR, a permitting process, and identifies acts requiring permits and permitted activities.
- Sets up procedures for application of wetland determination and its review is outlined.
- Other sections include: criteria for approval, conditions of issuance, protection of wetland and water courses during and after construction, performance assurances, and emergency remedies, etc.

IV. VILLAGE OF MILFORD

The Village of Milford's Master Plan was adopted in March of 1998. The Village has adopted a modern zoning ordinance and land division and subdivision control regulations that were adopted in 1990 and 1968 respectively.

A. Master Plan

The following points can be made about the Master Plan in relation to the preservation and/or conservation of resource areas:

- The Village's **mission statement** created for the Master Plan states the following: “The Village of Milford is committed to maintaining a safe, family oriented community which pursues cultural opportunities, **advocates historic preservation, and recognizes the importance of the conservation of the natural environment.**”
- **Natural Features Analysis** - this section describes the following: physiography, topography, soils, wetlands, waterbodies, sloped land, and natural vegetation. It contains maps on Building Site Suitability, Septic Suitability, and Natural Features.

Goals

- **Preserve parks and open space** and improve public awareness, and concern for, waterways through the development of protection policies.
- **Develop proper tools and techniques**, based on development policy, to be used in managing growth, maintenance, and development in the Village.
- **Natural Features** - This section suggests a number of policies directed toward natural features. They consist of **directing development away from natural hazard areas** and mapping areas that should be developed in a sensitive manner. Leaving wetlands in their natural state is encouraged. **Areas where there are large wooded tracts should be preserved or developed to retain as much of the natural landscape as possible.**
- Other policies are in regard to soil suitability and development without public sewer and the need for retention and detention ponds to control the runoff from large expanses of pavement.
- Repair, maintain, and **expand the Village's infrastructure**, including the adoption of a Capital Improvement Program.
- Promote policies that **support downtown business areas**, including parking;
- **Work with Milford Township to develop commercial and industrial areas** in which the Village continues to serve as the commercial center; recognizing these entities as economic partners and working toward common goals.
- Stimulate the economic climate of the Village and **increase the tax base through commercial and industrial development**, while maintaining and enhancing the residential character of the community.
- While encouraging expansion of the tax base, **protect ground and surface water quality** by providing modern collection and distribution systems, including wellhead protection.

- **Create a comprehensive vehicular, bike and pedestrian network** which links commercial, residential, and recreational facilities.
- **Promote a close working relationship between the Downtown Development Authority and Village government** to assist and encourage viable shopping districts, including the provision of supporting parking.
- **Maintain and regulate the viability of existing Village structures**, including use of a maintenance code.
- **Preserve and protect the Village's historic character**, and support a beautification commission that will encourage neighborhood beautification, with the focus on streetscape and Milford's unique commercial district.
- Commit to **maintaining a safe, family oriented community** by providing sidewalks, street lighting, crime prevention programs, and support of the local police.

Glossary

- In the glossary the following terms are defined: Environmentally Sensitive Lands, Floodplain, Glacial Outwash, Groundwater, Moraine, Outwash Plain, Slope, and Wetland.

B. Zoning Ordinance

The following points can be made about the Zoning Ordinance in relation to the preservation and/or conservation of resource areas:

Schedule of Regulations

- **Lot size averaging** may be permitted by the planning commission, upon application from the proprietor, if it determines that it will provide a better relationship of lots to the topo, vegetation, or other manmade or natural features.
- **Cross district averaging** - The planning commission may grant a variation from the minimum requirements of the zoning ordinance when the boundaries of two or more zoning districts are located on a parcel.
- **Single Family Cluster Option** - the intent is to provide for more flexibility in design when the normal subdivision approach is not appropriate in regard to environmental sensitivity or the configuration of the parcel. Density can be no greater than that allowed by each residential district. Attaching of dwellings is allowed.
- **Residential open space option** - Promotes: preserving natural character, creative development, open space, and the development of recreational opportunities.
- Modifications may be made to the provisions of the R-1 through R-4 districts: Areas served by sewer and water - building site area can be reduced by 20%, accomplished by reducing widths. Sets up net densities. Dwelling unit density shall be no greater than if the land were developed in a traditional manner following the schedule of regulations.

As lots sizes are reduced, equal amounts of land must be dedicated to open space. Bodies of water, swamps, and excessive grade areas do not count.

- The ordinance promotes **zero lot line development** - restricted to the R-4 district.

Planned Unit Development

- Intent: **flexible design** on large parcels when conventional zoning is impractical, achievement of economy through design, **preservation of natural features**, allow a mix of land uses, open space, and recreational uses (no industrial uses).
- Provide for a **variety of housing types - cluster housing units**.
- Commercial uses permitted in the B-2, central business district, together with other uses deemed consistent by the planning commission with the overall plan, may occupy no more than 25 percent of the gross site area.
- Each PUD shall provide a **minimum of 10 percent of the gross project area as common open space**. Developmental phases will be designed as to provide a proportional amount of open space in each phase.
- Maximum permitted residential densities are set.
- **Hazardous Substances Overlay Zone** - Aquifer/Groundwater Protection.

Site Plan Review

- Review and Approval of **Site Plans**
 - Information Required: Topography, **inventory of vegetation, streams, swamps, drains, marshes, unstable soils**.

C. Subdivision Control

The following points can be made about the Zoning Ordinance in relation to the preservation/conservation of resource areas:

- **Subdivision Open Space Plan** (Planned Unit Development)
 - Objectives: More **desirable living environment by preserving the natural character** of the terrain, use of **creative developmental approaches**, encourage efficient use of the land to **reduce cost and infrastructure, encourage open space**.
 - Must provide - topo, soil types for open land, **description of all natural features**.

V. ROSE TOWNSHIP

The Rose Township Master Plan was adopted in 1993, while the Zoning Ordinance was adopted in 1982 and has been amended several times. The subdivision control ordinance is in effect. (Rose Township has adopted a new Master Plan since the Literature Search was prepared. The Rose Township Land Use Master Plan was adopted on June 3, 1999.)

A. Master Plan

The Master Plan makes the following points that relate to the conserving/preserving of resource areas in Rose Township.

Purpose

- **Improve the physical environment** of the Township as a setting for human activities to promote the general health, safety, and welfare by making the Township more functional, beautiful, decent, healthful, interesting, and efficient.
- **Promote the public interest**, the interest of the community at large, rather than the interests of individuals or special groups within the community.
- **Facilitate the democratic determination and implementation of community policies** and physical development.
- **Inject long-range considerations** into the determination of short-range actions.
- **Bring professional and technical knowledge to bear on the making of political decisions** concerning the physical development of the community.
- Land Use Analysis section discusses water and swamp areas of the Township, which count for 8.7% of the total land area. They have been mapped and defined by the Oakland County Planning Division.
- The section on land types basically describes soils and topography. Maps are included. This section also contains information on drainage basins, topography, glacial geology-maps are included.
- The goals and objectives contain the following statements:
- **Promote development that is attractive and aesthetically pleasing.**
- **Preserve historic and natural resource features** of the Township wherever possible.
- Place the **general welfare of the community** ahead of the purely economic interest of development.
- **Promote development that is attractive and aesthetically pleasing.**
- **Preserve historic and natural resource features** of the Township wherever possible.

Residential:

- **Promote quality housing**, regardless of type in a low and moderate density context to maintain the rural character of the community;
- **Plan medium and high density residential development** in specific areas properly served with public and/or private utilities and adequate ingress and egress.

Commercial

- Provide limited locations for attractive **moderate size neighborhood shopping areas** to serve expected needs for many years.
- Distinguish by location and type the various commercial uses (i.e. community, local, and highway) in **specific zoning districts**.
- Plan for commercial uses where there is existing or projected sufficient support population, or where there will be **adequate draw from the highway or the trade area**.
- Place commercial uses at locations of **easy access where ingress and egress will not impede traffic flow** taking advantage of major access points in the Thoroughfare System.
- **Encourage the use of landscaping and setbacks** to provide pleasant and safe shopping facilities.
- Promote a particular character of commercial development to **establish an identity** for the Township, that will be unique and serve the residents of the Township.

Industrial

- **Maximize the use of available transportation facilities** in the location of industrial areas where appropriate.
- **Protect other uses from the intrusion by industry**, both physical and visual.

Public Facilities

- Recognize the **need for a variety of recreation facilities encompassing** the full range of home yard to community-wide facilities.
- **Provide adequate park and recreation space as an integral part of each development** in accordance with the adopted Recreation Master Plan.
- Provide a **variety of facilities and programs** to accommodate the recreation needs for all segments of the population when and where possible.
- Improve the physical environment of the Township.
- Inject long range coordination into the determination of short range actions.
- Provide sufficient open space to serve each dwelling unit, either through generous yard spaces or common open spaces.

- Preserve the off lake areas of the Township for larger lot and open space residential uses.
- Provide alternative to continue sprawl development by encouraging cluster development, and large acreage-type developments, which recognize natural features and resources of the Township.
- Discourage spot and marginal strip commercial development.
- Encourage commercial development in areas where it is most likely to successfully develop, and in relation to population centers.
- Concentrate any industrial areas and buffer them from all residential uses, with greenbelts and large setbacks.
- Favor uses that do not pollute the air, soils, water, or offend because of noise or sight.
- Utilize natural features for recreation facilities sites.
- Plan development in a way to encourage the efficient extension of sewer and water service where practical and warranted by density.
- Require community water and sewer systems and new development, where the scale of the proposal would justify such a facility when required in the interests of the general health and welfare of the Township.
- Additional statements make reference to "sufficient open space, low density around lake areas to decrease pollution, encourage cluster development which retains natural features."

B. Zoning Ordinance

The zoning ordinance makes the following points in relationship to the preservation and conservation of resource areas.

- The R-1A and R-1B zoning districts include a cluster housing option. It accommodates parcels that will be platted and abut major thoroughfares of at least 120' in width, and have physical features that would benefit from this type of development option. This section sets maximum densities depending on availability of sewer or water.
- The RM multiple family residential district and the MHS mobile home subdivision district requires site plan approval. The RM districts have specific requirements for recreation space.
- The RPS recreation, public, and semi-public districts require site plan approval.
- C-1 local business, C-2 general business, M-1 industrial district, and M-2 industrial district all require site plan approval and contain a section titled "Ground Water Contamination Protection" dealing with substances potentially harmful to groundwater (site plan section 1101, 1201, 1302, 1402) (groundwater sections 1103, 1204, 1304, 1404).
- In the footnotes to section 1500 it states that the Planning Commission can reduce densities if a specific set of conditions are found on a site having to do with resource areas.
- The site plan review section makes statements that developments should be done in a manner to achieve preservation of natural resources to the maximum extent possible.

- All residential development of twelve (12) or more dwelling units are subject to the provisions of the special land use approval regulations, final approval of the Township Board following review and recommendation by the Township Planning Commission. One of the requirements and standards of this section is the sufficiency of the proposal to minimize the impact to natural resources and features.
- Section 1829 Nature Preserve, sets standards/considerations that shall pertain to nature preserves.

C. Subdivision Control Ordinance

The subdivision Control Ordinance makes the following comments that relate to the preservation and conservation of resource areas.

- Muck and Peat areas are defined.
- Usable lot area is defined as excluding swampy, excessive slope, and areas covered by water.
- The Planning Commission shall discuss any unusual problems with the developer.
- An environmental assessment shall be prepared if needed.
- Under the existing conditions section (Section 302.2) the location of natural features/resources must be provided.
- Under Section 4.05.0 easement planning, subsection 405.2, poorly drained areas such as swamp, muck, and peat shall not be considered as part of the minimum required lot area, except for lots that exceed 20,000 square feet.

VI. SPRINGFIELD TOWNSHIP

The Springfield Township Master Plan was adopted by the Planning Commission in December of 1991 and the Township Board in March of 1992. The new zoning ordinance was adopted in September of 1990, having been amended since the adoption. The Township has adopted a land division ordinance in 1997 and a Subdivision Control Ordinance in 1973.

A. Master Plan

The following points are made in the Master Plan related to the conservation and/or preservation of natural areas.

Community Character Descriptors

*Rural Community * Abundance of Open Space * Conservative Attitudes* Committed to Planning * Environmentally Conscious * Availability of Housing Opportunities*

- The Master Plan contains a brief **overview of the natural resources** of the Township.

Goals

Planning and the Natural Environment

- The primary determinant in any land use and development decisions will be the **natural capability** of the land and physical support systems. Recognize the **natural capacity and limitation of land to support development**.
- **Preserve** the **natural features and character** of Township lands.
- **Maintain** the **rural character** of the Township.
- **Improve** the conditions which lead to **private economic growth**.
- **Recognize** the **inseparable relationship between man and land**.

Residential and Community Character:

- A **range of residential densities will be provided** based on the capability of the land and the suitability of its location so as to minimize public service expenditures and impacts on adjacent uses; **Protect** the character, safety and welfare of **existing neighborhoods**; **Strengthen** the sense of **community identity**.
- Primary considerations allowing **low intensity land use**, such as low density residential, open and agricultural land, and recreational land, shall be **natural resource conditions least capable of supporting development**, inadequacy of existing roads and existing low density land use patterns and the need to protect unique and sensitive environmental resources.
- Primary considerations allowing **medium intensity use**, such as **natural resource conditions moderately capable of supporting development**, accessibility to adequate roads and existing medium density land use patterns.
- Primary considerations allowing **high intensity use**, such as high density residential, office, limited industrial and general commercial, shall be **access to major thoroughfares** and expressways, existing medium to high density land use patterns, and **natural resource conditions most capable of supporting development**.

Capability of the Land

- The **natural capability** of land shall govern the **development of individual sites**.
- The **conservation of wetlands is essential** in order to **preserve water quality**, stabilize and filter stormwater runoff, recharge groundwater, provide fish and wildlife habitat and preserve the natural nutrient cycle. While the highest priority is for the preservation of wetlands in their **natural state**, wetlands may be incorporated in the stormwater management system provided the inflow of sediment, pollutants, and nutrients does not damage the value and function of the wetland.
- The **significance of specific wetland areas** must be **determined at the time of review**. Three aspects of wetland conservation should be recognized in reviewing proposed developments within and in the vicinity of wetland areas.
 - 1) Wetland area itself.
 - 2) The adjacent fringe or buffer area.
 - 3) The watersheds which drain into and out of the wetland area beyond the fringe or buffer area.
- The **conservation of woodlands is essential in order to protect water, air, and soil quality**, to **buffer air and noise pollution**, to **moderate local climate and storm hazards**, to preserve **wildlife habitats**, and to **preserve aesthetic values and community beauty**.
- The **significance of specific woodland areas** must be **determined at the time of review**. Development which is permitted in and around wooded areas, or where significant specimens of individual trees are involved, should be planned, constructed, and maintained so that **existing healthy trees and native vegetation are preserved**. The objective should be to **preserve native trees rather than to rely on removal and subsequent replanting**. The **diversity of woodland areas should be protected** to ensure long-term stability.
- Given the **economic and environmental benefit of woodland management**, the Township shall **encourage the reforestation of private lands** and assist private property owners in locating technical assistance and incentive programs available through State and Federal agencies
- **Careful planning around slopes** is necessary in order to reduce erosion, to maintain grade and soil stability, to control amounts and velocities of runoff, and to maintain the community's aesthetic resources.
- The **existing landform should be made a part of land use planning and design**. The primary objective is the preservation of the natural contours, vegetation, and drainage patterns. Grading and site preparation should be kept to a minimum.
- **Slopes** should be considered in terms of both degree and soil composition.
- **Groundwater resources** are the **lifeblood** of the Township because of the reliance on individual wells. **Groundwater recharge areas are vital elements in the hydrologic cycle** because they restore water levels in underground storage areas and supply water to lakes, rivers and streams. The retention and protection of groundwater resources in terms of volume and quality is essential to both Springfield Township and surrounding areas.

- In order to maximize the potential of **recharge areas** to restore underground water supplies, such areas are **best kept as open space** where feasible, or uses limited to low density, so as to retain as much of the permeable surface as possible. Land grading should be minimized to retain the water holding characteristics of the land. Vegetation essential to the water holding characteristics should be preserved, or where necessary enhanced as part of a development program. The **balance and integrity of the hydrogeological system must be maintained** in any part of a proposed development.
- **Recharge areas should be protected from pollution** by prohibiting all uses which discharge wastes into the hydrologic cycle. **Drain field discharges** shall not adversely affect the quality of ground water. **Storm water runoff** should be **controlled** so as to **minimize the percolation of pollutants** from surface runoff into the underground system. Uses which handle hazardous materials which might enter the hydrogeological system through leaks or spills shall not be permitted.
- The **headwaters of three major river basins, the Huron, Clinton, and Shiawassee, are located in Springfield Township.** Due to its strategic location, the Township must be sensitive to the impacts of land use on the watershed systems.
- The stream corridor and the adjacent watershed constitute an ecological unit. **Protection of slopes, woodlands, and wetlands** within the watershed and proper management of land use and development are **essential to maintaining the quantity and quality of stream flow** within the corridor. Consequently, development should be reviewed in the context of not only the stream corridor itself but in relation to the corridor's watershed.
- **Stream corridors should be preserved in their natural condition.** Uses should be restricted to those which offer no danger of topographical disturbance to the corridor, degradation of water quality, increased runoff, sedimentation, or stream channel alteration.
- Policies and regulations for flood plains and stream corridors should be coordinated to prevent overlap and conflict among the various provisions.
- **Surface water runoff should not exceed that which occurs under existing, undeveloped conditions.** This policy will prevent overloading of streams receiving the runoff and will help prevent long-term erosion from uncontrolled, high velocity discharges.
- Erosion control methods and drainage plans should recognize the soil types and land slopes of the specific site.
- A range of residential densities will be provided based on the capability of the land and the suitability of its location so as to minimize public service expenditures and impacts on adjacent uses.

Utilities

- In order to minimize the potential degradation of surface and ground waters, **allow for limited use of sanitary sewers and treatment systems** where existing or proposed population densities and natural resource conditions warrant consideration of central versus individual systems.
- While central public water supply is currently unwarranted due to the cost of transmission, **community wells within new development should be encouraged.**

- Alternative systems such as package treatment systems and Cluster Community/Individual systems for high density development shall not be considered unless soil conditions are ideal.

Parks, Recreation and Open Space:

- The acquisition of park land areas that differ in size, location, natural features, and potential development.
- Acquisition through gifts or purchase and development of private property.
- Acquisition of land as a conservative measure to protect and preserve natural features.
- Cooperate with local school districts to acquire land on school property through lease agreements.
- Provide a multiple-use area as near as possible to the center of major population centers.
- Give highest consideration to those areas of the township containing the highest density of population with severe deficiencies in parks and playfields.
- Encourage planning commission to suggest private developers to reserve a portion of usable open space in any new subdivision developments for the purpose of providing private neighborhood park space, or play lots.
- Recognize that much of the land area of Springfield Township is unique and environmentally sensitive. Work with Township Planning Commission, Township Board, and landowners to protect and preserve significant natural features, i.e.: woodlands, lakes, streams, and steep slopes.
- Encourage planning commission to develop Land Use Goals and Policies which help preserve natural features.
 - Acquire by gifts or purchase lands containing significant natural features.
 - Acquisition of key pieces of land to connect existing recreation and river valley sites, i.e. Shiawassee River Basin.
 - Acquisition of local park sites through the use of Federal Land and Water Conservation Fund, Michigan Land Trust Fund, in conjunction with a portion of our budget set aside for land acquisition, or to acquire land sold for back taxes.
- It is the intent of this plan to achieve continuity of the natural features to preserve systems of open space. Such an open space system may be any combination of natural features, such as streams, woodlands, water bodies, and wetland.
 - Natural features should be used to create boundaries between various areas of land and preserve fish and wildlife habitat, natural habitat, woodlands, and wetlands.
 - Natural features should be combined or connected with existing or proposed public park or school facilities to integrate each into the open space system.
 - The following lands are not suitable for development but are suitable for planned open spaces.

1. Lands which are not developable in their natural state, such as floodplains and wetlands.
2. Lands where development would result in environmental destruction of a larger natural system or create hazards to the environment.
3. Encourage the private preservation of open space through scenic easements and dedication.
4. Achieve continuity of the natural features to **preserve systems of open space**. Such an open space system may be any combination of natural features, such as streams, woodlands, water bodies, and wetlands.

Commercial, Industrial, and Economic Development:

- Encourage clean industrial and research/office land use in park-like settings with major highway systems and **discourage scattered site development**.
- **Encourage centrally located concentrated clusters of multi-use development** to create new tax base, provide necessary goods and services and energize the community around identifiable focal points.
- Discourage strip or linear commercial development and encourage clustered commercial and office-service development. Cluster Commercial is recommended as the primary development concept for new commercial land use in the Township. Cluster Commercial would take the form of either a shopping center or groups of buildings sharing common access, architectural style, and design elements.
- Achieve continuity of the natural features to **preserve systems of open space**. Such an open space system may be any combination of natural features, such as streams, woodlands, water bodies, and wetlands.

Roads and Transportation

- The road network within the Township which consists of I-75, Dixie Highway, County primary and local roads present both opportunities and constraints for development. The capability of **the road network will be emphasized as a primary consideration in land use planning decisions**; In recognition of the increased popularity of non-motorized transportation, and the need to provide a safe way for residents to walk or bicycle through the Township, **the Township will plan for a Pathway System**. The pathway system will link local and recreational and open space areas, as well as residential areas, schools, and other community facilities, and shopping facilities within the Township.

Factors Considered in the Preparation of the Plan

- In the course of preparing the Plan, the following factors were considered: existing development patterns, past development trends, demographic trends, regional influences, projected population growth, existing and projected needs for services and jobs within the community, existing and projected economic balance within the community, natural resource conditions including soils suitable for septic system installation, Oakland County Health Department's current density policy for septic systems, existing road conditions and capabilities, projected road improvements, sewer and water policies, and probable sewer and

water service areas. The Land Use Plan is coordinated with the Thoroughfare Plan, which is described in the next section.

- Land designated for Recreation-Conservation is intended to provide areas for parks, recreation and open spaces which preserve and enhance the rural character of the Township while at the same time broadening recreational opportunities in appropriate areas. This designation also is intended to protect, preserve, and enhance the vital and unique Township natural features while anticipating some limited but appropriate use of the land.
- Areas planned for Low Density Single Family development are characterized by floodplain and wetland areas, extensive steep slope areas, woodland areas, areas of soils with poor suitability for septic systems, and areas which will not be served by improved roads in the near future. Finally, the maintenance of Low Density Single Family Residential uses in certain areas is intended to provide for the continued preservation of open space, natural areas, and the Township's rural atmosphere.
- Some areas designated as Medium Density Single Family Residential may contain natural resource features worthy of preservation or may be accessed by a moderately adequate road system. These issues should be reviewed and taken into consideration at the time when specific development decisions are being made on a particular piece of property.
- High Density Single Family Residential is planned for areas with adequate roads and where natural resource conditions are most capable of supporting development.
- Multiple Family Residential is planned for areas with existing multiple family development, or compatible existing or planned adjacent uses, and direct access to adequate paved roads. It is anticipated that sewer and water systems will be provided for multiple family development rather than septic systems.
- Cluster Commercial is intended to provide suitable locations for general retail, service and office establishments. These types of land uses rely on a market area much larger than the Local Commercial areas and are intended to discourage commercial "strip" development, reduce the number and frequency of curb cuts, and provide a more focused community center. Cluster commercial would take the form of either a shopping center or groups of buildings sharing common access, architectural style and design elements.

Planning Sub Areas

- The Township is divided into Planning Sub-Areas, policies are contained in the plan for each. Where appropriate, descriptions of resource areas are given along with policies for their protection. Goals, objectives, and policies are cross referenced.

Natural Beauty Roads

- Natural Beauty Roads - Act 150 of 1970 established the Natural Beauty Road Program. The goal of the Natural Beauty Road Program is to identify and preserve "county local roads having unusual or outstanding natural beauty by virtue of native vegetation or other natural features within or associated with right-of-way, for the use and enjoyment of local residents and the public in general." Once a road is designated as a Natural Beauty Road, the roadway vegetation is to be maintained as it existed at designation.
- Natural Beauty Roads in Springfield Township. Gibbs Road from Rattalee Lake Road to Kier Road (1.02 miles) was designated February 25, 1980. Woodland Trail east of Ormond Road (.78 mile) was designated August 25, 1987.

Michigan Natural Features Inventory

- Springfield Township has three areas registered as Michigan Natural Features Inventory Sites. The following identifies and briefly describes these sites.
 - **Bridge Valley.** One of only three landscape complexes identified in Oakland County. The combination of several associated plant communities comprises a relatively undisturbed 151 acre example of how the landscape appeared prior to European settlement. Two threatened and one special-concern plant communities are found at this site. Part of the site is registered with the Michigan Natural Areas Council.
 - **Huron Swamp.** Near the headwaters of the Huron River, this is a 417 acre southern swamp of notable significance. Most of this site is located within Indian Springs Metro Park, with the remainder in the Timberland Swamp Nature Sanctuary. A great Blue Heron rookery is known to exist at this site.
 - **Huckleberry Lake.** An 11 acre conifer swamp of notable significance. The swamp surrounds a glacial brown water pond.

B. Zoning Ordinance

The following points are made in the zoning ordinance related to the preservation/conservation of resource areas:

Definitions

- The following definitions are provided:

Cluster Housing: means a development design technique, approved by the Township, which concentrates single family lots in specific areas on a site to allow the remaining land to be used for recreation, common open space, and/or preservation of natural resources and features.

Natural Resources and Features: Elements occurring naturally on a site which have physical, biological, cultural, or aesthetic importance to natural systems, the overall landscape, or the character of the township.

District Regulations

- The intent statement of the RC -Resource Conservation district is to provide for land use compatibility with the natural environment.
- The PL Public Land districts intent is to provide areas devoted to public recreation lands and to enhance the Township's recreation potential and natural resources.
- The R-1, R-2, R-3, and R-1-A One Family Residential districts allow cluster housing as a special use.
- The RM Multiple Housing district requires that developments contain access to common recreation land. Specific square footage is required. All multiple-family developments in an RM District shall contain an area or areas provided for common recreation, which is the equivalent of five hundred (500) square feet per dwelling unit. All multiple-family developments in an RM-1 District shall contain an area or areas provided for common

recreation, which is the equivalent of three hundred (300) square feet per dwelling unit. Such common recreation areas shall be located and designed in a manner which is appropriate to meet the recreational needs of the prospective residents of the development. Such recreational facilities may include, but not be limited to playfields, and jogging trails.

Planned Unit Development

- Purpose and Intent of the Planned Unit Development (PUD) District regulations are intended to provide for various types of land uses planned in a manner which shall: encourage the use of land in accordance with its character and adaptability; conserve natural resources and energy; and encourage innovation in land use planning.
- The granting of a PUD shall encourage long-term protection and preservation of natural resources and natural features of a significant quantity and/or quality. The proposed development shall not result in an unreasonable negative environmental impact on the subject site or surrounding land.
- Natural resources and natural features may be impaired or destroyed only if it is clearly in the public interest to do so.
- PUD - Conditions imposed shall be designed to protect natural resources and the public health, safety, and welfare of individuals in the project and those immediately adjacent, and the community as a whole.
- PUD Phasing: Where a project is proposed for construction in phases, the planning and designing shall be such that, upon completion, each phase shall be capable of standing on its own in terms of the presence of services, facilities, and open space, and shall contain the necessary components to ensure protection of natural resources.

Site Plan Review

- Site Plan Review - The intent of this section is to provide for consultation and cooperation between the developer and the Township of Springfield so as to realize maximum utilization of land and minimum adverse effects upon the surrounding land uses.
- Site Plan Review - Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, groundwater, and woodlands.
- Site Plan Information Required - Natural features - woodlands, slopes, wetlands.

Cluster Housing

- Cluster Housing Regulations - The intent of the cluster housing option is to permit the development of single-family and two-family residential patterns which, through design innovation will: Allow greater flexibility; Encourage a more creative approach to the development of single-family residential areas; Encourage a more efficient, aesthetic, and desirable use of the land; Provide a more desirable living environment through the preservation and conservation of natural features such as topography, wetlands, woodlands, bodies of water, and other natural assets; encourage the provision of open space so that benefits may accrue directly to the residents of the development.

- The cluster housing option may be applied for in the R-1A, R-1, R-2, and R-3 Single-Family Residential Districts and in the RM Multiple Residential District for the developments planned as single-family developments. In the RM District, cluster housing developments shall comply with restrictions applied in the R3 District.
- Criteria for Cluster: The parcel contains natural assets which would be preserved through the use of cluster development. The parcel contains major topographic conditions which make development under the normal subdivision approach impractical. The parcel contains substantial portions of floodplain and wetlands, as verified by a floodplain and wetlands map, issued by the appropriate federal, state, county, or township agency, or prepared by a qualified wetlands consultant.
- Cluster lot development under this section shall be conditioned upon recording of appropriate conservation easements or other instruments for the purpose of providing for long-term maintenance and preservation of common areas, open space areas, wooded areas, and/or other areas with natural resources or features to be preserved on the property. Such easements and/or other instrumentation shall be in a form and contain the content approved by the Township attorney.

Lake Access

- Lake Access Regulations: It is the intent of this Section to establish a framework for study of specific township lakes on an "as needed" basis. The study will have the purpose of determining whether it is appropriate to permit keyhole access to a lake and if so the minimum regulation necessary to eliminate the conditions which are a nuisance, impair important and irreplaceable natural resources, destroy property values, and threaten the health, safety, and welfare of the public.

C. Subdivision Control

The following points are made in the subdivision regulations relating to the preservation/conservation of resource areas.

- The natural features and character of lands must be preserved wherever possible. Due regard must be shown for all natural features such as large trees, natural groves, water courses and similar community assets that will add attractiveness and value to the property if preserved.
- The regulations have a provision for Cluster or Planned Unit Development that must meet the spirit of the zoning ordinance.

VII. White Lake Charter Township

White Lake Charter Township's currently operative plan was adopted in 1984. The plan is currently undergoing an update. The material reviewed consisted of material contained in the 1984 plan, a new vision statement and goals and objectives that were recently adopted. The Township has adopted an M-59 Corridor Plan in 1996. The Zoning Ordinance was adopted in 1967, and has been amended several times since. A Wetlands Ordinance was adopted in 1994 and became effective in 1995. The Township is currently writing a subdivision control ordinance. (A new Master Plan has been adopted by White Lake Township since the Literature Search was prepared. The White Lake Township Master Plan was adopted on May 17, 1999.)

A. Master Plan

The following points can be made about the Master Plan in relation to the preservation/conservation of resource areas:

- The 1984 Master Plan contains a section on natural resources that describes the physical characteristics of the Township.

Purpose

- **Improve the physical environment** of the Township as a setting for human activities to promote the general health, safety, and welfare by making the Township more functional, beautiful, decent, healthful, interesting, and efficient.
- **Promote the public interest**, the interest of the community at large, rather than the interests of individuals or special groups within the community.
- **Facilitate the democratic determination and implementation of community policies** and physical development. The plan is primarily a policy instrument. The plan constitutes a declaration of long-range goals and objectives and provides the basis for a program to accomplish the goals. By placing the responsibility for determining policies with the Planning Commission and providing an opportunity for citizen participation, the plan facilitates the democratic process.
- **Affect political and technical coordination** in community developments through mutual understanding of the plan by Planning Commission and Township Board members.
- **Inject long-range considerations** into the determination of short-range actions; and **bring professional and technical knowledge to bear on the making of political decisions** concerning the physical development of the community.

Goals and Objectives

- **Utilize proper planning standards** that will provide a wholesome atmosphere for a rural recreational oriented community.
- **Reflect the wants, desires, and needs of the residents** in the Township.
- **Preserve the natural features of the community** for future generations.

- **Promote development that will be aesthetically pleasing** and attractive.
- **Promote and protect the general welfare of the residents** of the community rather than letting the economic interest in growth take precedent.

Residential

- **Promote low density single family development** so as to maintain the rural character of the community.
- **Encourage and provide open space** within the residential development areas through the use of common open space or large yard spaces.
- **Limit densities around remaining spaces adjacent to lakes** so as to limit pollution and over-use of lake areas.
- Plan for medium and high density residential growth such as cluster **housing and duplex units** where utilities and adequate roads are available.
- **Provide areas of transition** between areas of multiple family and single family use through open space allocations and buffer strips.
- **Promote the use of cluster development** in an effort to preserve open space, natural features, watersheds, and lake areas.
- Implement the Zoning Ordinance provisions and **remove businesses from residential areas.**

Commercial

- **Promote clustering** of various commercial areas and preclude a continuation of spot and marginal strip commercial areas.
- Provide **limited locations** for commercial development **along major thoroughfares.**
- Encourage and promote the use of landscaping and greenbelts around commercial uses so as to present a well maintained and attractive development.
- Promote the location of **low intensity office development in areas of transition** between residential and commercial use.
- **Promote more attractive commercial and office buildings** in the Township.
- Encourage the **continued development of commercial recreation** areas providing low intensity use therein.
- **Eliminate businesses in residential areas.**

Industrial

- Promote well planned appropriately located industrial parks which would have adequate **access from M-59**, or other roadways planned to accommodate high traffic volumes.

- **Concentrate the industrial areas** in specific locations rather than scatter these throughout the Township;
- **Utilize existing industrial areas** as the base for expansion.
- Favor industrial **uses that do not pollute** the air, soil, water, or offend because of noise or sight.
- **Protect other land uses** from any harmful effects that industrial use might have through the use of setbacks, greenbelts, planting strips, and similar buffer strips.
- Attempt to **set adequate land aside to provide an employment base** for the residents who will live in the Township.
- Promote industrial development through **coordination with the local Chamber of Commerce and with County and State efforts** in economic development.
- **Provide access** to homes, goods and services, places of work, and places of fun.
- **Ensure economic viability** and development potential.
- **Enhance transportation.**
- **Conserve and enhance landscape quality.**
- Provide the corridor with a **distinct identity.**
- Create distinct, lively **concentrations of economic and social activity** along the corridor.
- Identify **development districts with clearly-defined functions and characteristics** to ensure continued economic vigor and to minimize conflicts between uses.
- **Improve traffic flow by identifying north-south routes that should be upgraded**, by accommodating bicycles and pedestrian traffic, and by implementing improvements to safely manage traffic (such as secondary access routes, deceleration lanes, etc.).
- **Preserve environmentally sensitive areas**, particularly wetlands, and native vegetation.
- **Develop guidelines for developers**, builders, architects, and designers to promote excellence in design.
- **Adopt a vocabulary of design elements** (dealing with street lighting, street furniture, signs, and landscaping) for public areas to achieve a coherent, distinctive theme for the White Lake Township portion of M-59.
- **Demonstrate the benefits of design excellence** through construction of efficient and attractive public buildings and facilities.

New Vision Statement (1998)

- The new vision statements describes the Township as a rural community, with state and regional parks and an extensive network of lakes/wetlands and wooded areas. The following additional comments are made.

- Utilization of proper planning techniques is essential to preserving the natural resources and maintain the Township's character.
- Water and sewer should be used to protect the integrity of the Township's lakes and wetlands. Use of open space and buffers in residential development is essential to maintain natural resources.
- Non-residential uses should blend in with the natural environment.
- Wetlands and open space should be used to reduce the visual impact of non-residential uses, especially manufacturing.
- Wetlands, lakes, hills, should be incorporated into recreational opportunities.
- The new goals and objectives contain the following statements:
 - Consider all natural features without harming them.
 - Adopt zoning standards that will encourage clustering and other mechanisms to protect open space.
 - Promote land conservancies.
 - Screen manufacturing uses with natural features.
 - Encourage light manufacturing businesses that handle hazardous materials responsibly.
 - Discourage scattered development.
 - Manufacturers shall install the appropriate equipment to protect the environment.
 - Prevent premature development - requires development to occur where sewers/water is existing or planned.
 - Design residential development standards directly related to the natural capacity of the land.
 - Encourage clustering, single-family, alternatives and other innovating development patterns that result in more open space.
 - Encourage concurrence for development.
 - Areas with the most sensitive natural features should be targeted to receive sewer and water first.
 - Update the zoning ordinance to include provisions to protect woodlands and wetlands.
 - Review zoning ordinance standards that result in the loss of open space.
 - Support land trusts and conservancies.

B. Zoning Ordinance

The following points can be made about the Zoning Ordinance in relationship to the preservation/conservation of resource areas.

- The ordinance contains a section that regulates the splitting of large acreage parcels.
- Section 4.42 regulates access to water lots.
- The R1-A, R1-B, R1-C, and R1-D districts allow a single family cluster housing option (section 10.06). Twenty-five (25)% of the land shall be set aside for open space. The cluster option sets minimum size lot per unit and maximum density, encourages detached (off-set) single family units. The cluster option cannot be used adjacent to a body of water unless it completely surrounds it.
- The ordinance contains Article XIV-c-5 planned business district. This district provides for development in a coordinated, cohesive arrangement, and permits a greater flexibility in the types of land uses. A planned business district is to be located along a major thoroughfare, as opposed to near residential areas that will cause land use conflicts. Requires site plan and a planned business district agreement.
- Site plan review (section 20.10) is required for all multiple family, mobile home park, commercial, industrial, office, and research districts.
- Section 19 footnotes, states that zoning ordinance regulations can be modified by the Planning Commission in recommendation to the Township Board for large developments that provide open space and circulation improvements, etc.

C. Highland Road (M-59) Corridor Plan

The Highland Road (M-59) Corridor Plan makes the following statements in regard to the preservation/conservation of natural areas.

- In the vision statement "the corridor will be planned to achieve compatibility between adjoining adjacent uses, preservation and distinctive natural features and scenic view and high standards of site, landscape, and building design."
- The specific objective is to preserve environmentally sensitive areas: wetlands, woodlands, native vegetation.
- The importance of undeveloped land is discussed - maps, wetlands, and slopes within the corridor, discusses large developmental parcels, and scenic views.
- Key attributes of the corridor are listed in a design perimeter section: substantial wooded areas and lakes provide visual relief.
- Natural features must be considered and incorporated into design plans for the corridor.
- Natural features are mapped along the M-59 corridor in addition to the locational relationship to other land uses.

D. Wetlands Ordinance

The Wetlands Ordinance sets up an administrative review process to determine if a wetland is impacted by development. A 25' setback can be requested by the Building Inspector, or the applicant can submit a wetland determination/delineation. The Township Building Official determines whether a wetland will be impacted and reviews the wetland delineation/determination. If the wetland is Township or MDEQ regulated, a permit is issued.

SHIAWASSEE AND HURON HEADWATERS PROJECT - PRELIMINARY TOOL MATRIX

Community	Master Plan Tools and Policies							Zoning Tools										General Ordinance					
	General Goals and Policies	Natural Resource Overlay Technique	Natural Resource Inventory/ Analysis/Maps Visual Quality	Analysis/ Easement Prod. Clustering	Phased Residential Strategy	Natural Beauty Rds.	Lake Access	Site Plan Review	PUD	Groundwater Protection	Clustering	Riparian Rights/Access	Hazardouse Sub./Aquifer Protect/Overlay	Land Division	Natural Hazard Area Protection	Lot Size Averaging	Cross District Aveaging	Open Space Requirements	Zero Lot Line	Subdivision Control	Subdivision Open Space Plan	Land Division	Wetlands
Highland Twp	X	X	X	X	X	X		X	X						X			X		X	X		
Milford Twp	X							X	X		X							X			X	X	
Rose Twp *	X							X		X	X			X						X			
Springfield Twp	X							X	X		X	X						X		X	X		
Whitelake Twp.*	X		X		X			X	X		X	X		X								X	
Milford Village	X		X					X	X	X	X		X		X	X		X		X	X	X	
*Updating Master Plan																							