As part of this study, the Cattaraugus County Department of Development, Planning, and Tourism requested of the Cattaraugus County Attorney and the Cattaraugus County Risk Manager to review this alternative as it would require direct participation by the County. The County Attorney's review focused on the question of who owns Lime Lake. In discussions with LLCOA, it was alternately suggested that the lake itself was owned by the New York State Department of Environmental Conservation (NYSDEC) or by Cattaraugus County. Research by the County Attorney revealed that property owner's rights extend to the center of the lake unless expressly reserved in the deed. His report concludes with the statement: "...based on the above, the water and land under the water of Lime Lake belongs to the lake front property owners...to the center of the lake" (See Attachment No. 12 for a complete copy of the County Attorney's Report, dated July 6, 1988). It appears from this finding that the primary, responsible parties for weed removal are the cottage owners and not NYSDEC or Cattaraugus County.

The Cattaraugus County Risk Manager, in consultation with the County Attorney, reviewed this alternative also and recommended that the LLCOA obtain the funding and operation of the program directly from the Cattaraugus County Soil and Water Conservation District. This recommendation was based on the approach used successfully in the Finger Lakes region. In this manner, the cottage owners would maintain their rights and the county would not take on an unwanted liability which it does not have at the present time. Her report recommended that the County support the LLCOA in its pursuit of one of the following alternatives, which all would seek NYSDEC funding under its local assistance program (See Attachment No. 13 for a complete copy of the Cattaraugus County Risk Manager's report which is dated July 7, 1988):

- The homeowners can apply for the funding directly.

- The Soil and Water Conservation District can apply for the funding.

- The County can apply for the funding and give it to the District to run the program.

Under this approach, the Soil and Water Conservation District would purchase and operate the weed harvesting equipment, not the cottage owners, NYSDEC, or Cattaraugus County.

The Cattaraugus County Legislature (the old Board of Supervisors) created a county-wide Soil and Water Conservation District on April 21, 1941, under the authority of Section 5 of the New York State Soil and Water Conservation District Law which was enacted in April 1940.

The Soil and Water Conservation District is funded by the state, the county, and from earned income programs which the district holds (e.g., its tree program). The Board of Directors controls the District's policies, budgets, and operations, including the following activities:

- Designs special improvements such as ponds, drainage ditches and diversion ditches.
- Operates and maintains the Ischua and Conewango Watershed.
- Conducts Agriculture value assessment (with certain soils on his property, a farmer may get taxes lowered).
- The tree program.
- Conducts site evaluations (e.g., alternatives for erosion control).
- Prepares conservation plans for farmers (in order for farmers to get ASCS funding, or fmHa funding).
- Has authority to operate fish programs.

The district's Board of Directors has five members. They come from the county legislature (2), the Farm Bureau (1), the Grange (1), and a member at large (1).

5. Participate in State and National Lake Management Networks

The Lime Lake community has an alternative available to it which can be pursued at relatively little cost in the short term, and which could generate a significant benefit to Lime Lake property owners in the long run. This alternative is to participate with existing associations and experts in the general field of lake management. Such a step would give the Lime Lake community access to the expertise of existing associations and scientific studies in the state and across the nation, and to special topics such as biological controls, lake management districts, public access requirements, and insurance liability issues.

a. Adopt A Lake Management Strategy

Lake management associations have studied problems such as excessive weed growth for many years. They have benefited from the knowledge and skilled work of scientists such as biologists, water resource experts, environmental management specialists, chemists and engineers.

The Lime Lake community should develop its own strategy and program of lake management in cooperation with these other experts and lake associations, all of whom have experience in developing successful programs elsewhere. In this manner the LLCOA could expect to avoid unproductive steps which "re-invent the wheel". Although each lake is different, they all suffer from similar problems such as aquatic plant growth. An enormous amount of manpower and financial resources have already been expended in New York State and across the nation to investigate and solve lake management problems. The purpose of lake management associations is to gather results of this specialized work together and use it for the benefit of all lakes which are represented. Their collective, general interests are to improve the quality of life around lakes, protect property values and water and wildlife resources, and share information among the membership. Members can learn where successful programs have been developed elsewhere and what may be transferrable back to their respective lakes in a form that gets desired results.

The Lime Lake community would be able to join, for example, the Federation of Lake Associations, Inc. (FLA) for a nominal fee because it has more than 200 members in the Lime Lake Cottage Owners Association. The federation may be contacted through the following address and telephone numbers:

Federation of Lake Associations, Inc.
273 Hollywood Avenue
Rochester, New York 14618
(716) 271-3072
(607) 292-3800

The FLA is five years old. Its purpose is to solve the problems of water pollution in lakes, to control the growth of weeds in lakes, and to lobby elected officials in Albany to assist in protecting lakes and enhancing the use of lakes in New York State. It sponsors conferences at which members can meet and discuss their concerns with various experts, state agency representatives, environmental organizations and others regarding the latest techniques and solutions for lake-related problems. Examples of past sessions include "Building an Effective Lake Association", "Water Quality Monitoring Program", "Resolving Legal Issues Confronting Associations", and "Aquatic Weed and Algae Projects". The federation also publishes an informative newsletter, and assists members in networking efforts.

Another very active, very knowledgeable lake management network in New York State is the Finger Lakes Association, and its Water Resources

Board of the Finger Lakes Association, Inc. (WRBFLA). The WRBFLA works in close cooperation with the Federation of Lake Associations as well as with a variety of state agencies.

The WRBFLA may be contacted through the following address and telephone numbers:

Robert Brower, Program Manager
Water Resources Board of the Finger Lakes
Association, Inc.
309 Lake Street
Penn Yan, New York 14527
(315) 252-8073
(315) 353-1276

The WRBFLA has a 15 member board representing 15 counties in the Finger Lakes region of New York State (including Cattaraugus County's neighbor, Allegany County). It has an experienced technical advisory committee and a professional, full time staff. Its program is well established. It works directly with officials in Albany on state funding for lake management programs and in getting items submitted for the state budget each year (the state's fiscal period starts each year on April 1st). Special studies for specific lakes is a common proposal. A major concern each year in the Finger Lakes Region is how to control excessive growth of aquatic vegetation.

The WRBFLA has been working with Yates County in developing an aquatic vegetation control program for lakes (i.e., with county development official Rob Schwarting, 315/536-7328). The WRBFLA staff also has been working with the NYSDEC staff in Albany on lake related problems (i.e., with Jay Bloomfield, 518/457-7470), which is very knowledgeable about different methods of weed control and the scientific understanding of aquatic plant life.

The WRBFLA also works through local Conservation Advisory Commissions and Environmental Management Councils. Local lake programs may be reimbursed for activities undertaken by local councils up to 25% of eligible costs. Local matching funds have also been used as a technique of supporting a local lake program. The WRBFLA staff indicated that they also are in the process of establishing a special library for its members on lake management, water resources, and problems such as excessive growth of aquatic plants.

The Cattaraugus County Department of Development, Planning and Tourism contacted the WRBFLA staff in the Spring of 1988 with regard to assisting Lime Lake. The WRBFLA staff was very helpful and discussed the matter with their Executive Committee. The response was supportive, indicating that Lime Lake could participate in the coming year as a

non-contributing member. This would give everyone time to assess the need more carefully. For example, membership fees are very expensive for a small lake community such as Lime Lake (i.e., two percent of the local program, up to a maximum $4500 annual fee). The WRBFLA staff, in addition, already serves a 15 county area and they would need to evaluate the time management implications of adding Cattaraugus County to their jurisdiction. On the other hand, from a lakes management lobbying viewpoint, the WRBFLA also could benefit by maintaining its indentity in upstate New York beyond the immediate boundaries of the Finger Lakes.

In summary, the Lime Lake community could benefit greatly from the experience, knowledge and programs of existing lake management networks in New York State and across the nation. It would also find strength in numbers, more so than if Lime Lake tackles its problems and seeks state funding on its own.

For example, the New York State legislature is expected to pass new legislation in the next several years to create a "Clean Lakes Program". This new program will benefit not only the Finger Lakes region, but other regions as well. Another legislative approach is being used already -- the use of "member items" in the state legislature for putting items in the state budget. It would be important for the LLCOA to become involved in this process regarding budget monies for protecting water resources and waterfront properties (e.g., by developing an Aquatic Vegetation Control Program for Cattaraugus County for 1989).

b. Support Scientific Studies

There is a need to start collecting data on Lime Lake and storing it for retrieval in a longitudinal format. The Lime Lake community, and concerned agencies, should begin organizing baseline information on the lake in anticipation of future funding and programming opportunities. In accomplishing this task, the experience and assistance of lake management associations would be invaluable.

The intent of this recommendation is to enable the local community to act quickly when funding opportunities arise, and to develop a clear understanding of the natural and man-made processes which are sustaining Lime Lake in its present form and condition. In this manner, programs that are developed for the Lime Lake environment will actually produce the outcomes that are desired (i.e., by minimizing unanticipated problems). For example, data would be needed for preparing environmental impact statements, and for meeting program requirements for assistance under the proposed statewide "Clean Lakes Program", which is being considered at the present time by the state legislature.

The following types of data illustrate what type of scientific study will be needed in the coming years (i.e., presenting Lime Lake in comparison with other lakes in the state):

1. Develop a base map for the Lime Lake-Machias Junction area, at appropriate scales, and present high quality aerial photographs for comparison and inventory purposes.

2. Compile basic information on physical characteristics of Lime Lake (e.g., its watershed, location of underground springs, surface area, water depths, elevations, type of lake, resident water volume, water inflow rates and net outflow, rate of total water replacement cycle, water outlet structures, and seasonal variations). These data are needed to understand such factors as nutrient loading, water exchange rates, and the effects of waste treatment on nutrient loadings and growth of aquatic vegetation.

3. Monitor water quality by sampling water during clear weather and just after major storms and snowmelts on a spot check basis. Water chemistry should also be sampled each year before and after the busy Summer season in shallow water and deep water (e.g., levels of nitrogen compounds, amonia, phosphates, phosphorus, alkalinity, pH, turbidity, dissolved oxygen, chlorophyll a, temperature and conductivity).

4. Develop an understanding of ecological processes in Lime Lake based on data from samples of sediments, phytoplankton, algae biomass, and all species of aquatic vegetation. Spatial occurance (locations and densities) should be plotted on base maps for future reference. An understanding of the nutrient build-up in the water and sediments and the role played by aquatic vegetation in recycling these nutrients, would be very useful. For example, there is a possibility, even after wastewater management is installed that the lake's sediments will contintue to supply nutrients for excessive weed growth in shallow water areas.

5. Compile inventories on all species in the fish community and its structure, diversity, and condition, in cooperation with NYSDEC's fish stocking program. An understanding is needed of the relationships between healthy fish communities and the population mix and density of aquatic vegetation.

6. Compile inventories of existing and proposed land uses in the Lime Lake, Machias Junction area, including land based drainage systems, wetlands, and wildlife habitats. Areas for future anticipated installation of sewers should be indicated, including the number of septic systems to be replaced by the anticipated sewer system. The location of old dumpsites should also be identified.

7. Study special problem areas. Some lakes have aquatic plant species that can sprout new plants without seeds, from the floating fragments and stem nodes left over from cutting and harvesting operations. In the Finger Lakes region a harvesting program was terminated because the harvesting actually spread problem weeds further (i.e., the Town of Monroe, which was dealing with Eurasian water milfoil, Myriophyllum spicatum, as the dominant weed).

8. Study and test new methods of weed control. For example, the grass carp (white amur) is currently being tested in New York State and across the nation as a biological control method for weed control. This species of fish eats aquatic plants as its food source. Two potential problems exist. First, its favorite foods do not include Vallisneria Americana, the dominant plant in Lime Lake. By eating other aquatic plants than Vallisneria Americana, the white amur could potentially cause it to spread. Second, the white amur eats plants and excretes nutrients into the water. These loosened nutrients become available to algae which can cloud and discolor the water in shallow areas of the lake.

c. Establish An Appropriate Type of Lake Management District

Another promising alternative that is available to the Lime Lake community is to establish an appropriate type of lake management district. Such districts have been established for many lakes in New York State, and the Federation of Lakes would be very helpful in identifying appropriate models for Lime Lake. Once established, the district's board of directors becomes responsible for solving problems at Lime Lake such as excessive weed growth. A district also can play a lead in installing a sewage treatment plant, and for developing a comprehensive, integrated program for protecting Lime Lake and its surrounding properties.

Three example districts are described below as are the general procedures for forming a specialized district under the State's Town Law. The Lime Lake community and the Town of Machias should study this alternative carefully as it could be applicable to the Lime Lake situation. It could offer a long term solution to problems that are now being encountered by the Lime Lake Cottage Owners Association (LLCOA).

(1) Cuba Lake District.

Cuba Lake is located in Allegany County. It was originally created in the 1850's by the New York State Department of Transportation as a reservoir for the Genesee Canal System. With the passing of the Genesee Canal System NYSDOT turned the lake over to the New York State Office of Parks, Recreation and Historic Preservation.

The lake encompasses 493 acres and is surrounded by approximately 300 cottages (33% of which are year round residences). The Office of Parks, Recreation, and Historic Preservation owns the lake and the land. The Cuba Lake cottage owners lease their lots from the state. The lake is stocked by the New York State Department of Environmental Conservation and is open to the public.

The Cuba Lake Association formed an aquatic weed control district through the Town of Cuba, under Article 12 of the New York State Town Law. The Cuba Lake district encompasses two counties (Allegany and Cattaraugus) and is also partially located on the Oil Spring Indian Reservation. Of the 300 cottage owners around Cuba Lake, 24 are located within Cattaraugus County.

The Cuba Lake District has evolved in the following manner. First, a complete description of the proposed district's boundaries was prepared.

Second, a petition was submitted to the town board, signed by district members representing at least 50% of the total assessed property value within the district. A district was then formed.

Third, a Cuba Lake District Commission was formed by state legislative action and consists of commissioners representing the district cottage owners. This commission absorbed the previously formed weed control district. The formation of this district allowed the local community, through the Town of Cuba, to secure a Bond in order to purchase a weed harvester (at a cost of approximately $70,000).

Fourth, the major problem weed at Cuba Lake is milfoil. This weed is cut four to five times each season between June 1st and September 14. Chemicals are not used for weed control at Cuba Lake. The level of the lake is also lowered six feet during the off-season to allow for repair of docking facilities.

Fifth, the district pays for its own programs. Through the Cuba Lake District, a Special District tax is levied against assessed property value of the cottage owners within the district. This tax has provided for the payment and operation of a weed harvester, as well as the operation of the district.

(2) Rushford Lake

Rushford Lake is also located in Allegany County. It was built originally to generate electricity for the Rochester Gas and Electric Company. Rochester Gas and Electric uses the water of the lake for electricity generation only in the Fall, Winter and Spring. During the Summer months the lake is used for recreational purposes. The lake encompasses 58 acres. It is spring fed with a depth of 125 feet at the center and is surrounded by 500-550 cottages of which 10% are year round. This percentage of year round residences is steadily increasing due to retirees making the lake shore their permanent home. The lake is stocked with fish by the New York State Department of Environmental Conservation and is open to the public.

The Rushford Lake Recreation District was formed in 1981 by State legislative action. It consists of district property owners who own the lake. A five member commission operates the district which includes the budgetary process. Funds in the budget are received from a special district tax levied on the assessed value of property within the district. A special allocation is also received and included in the budget from Rochester Gas and Electric Company for lake waters used in electricity generation. Additional funds are acquired through a public launch fee of $15.00 for boats over a specified horse power rate.

Funds in the budget are used for insurance, dam repair, maintenance, mowing, and other necessary actions. Research has fouund that Rushford Lake does not have a weed problem. Each year, for example, the water in Rushford Lake (which is spring fed) is lowered 65-70 feet during the winter months. The water is lowered to take pressure off of the dam, but a side benefit, as has been suggested by residents, is the absence of aquatic weeds.

(3) Chautauqua Lake

Chautauqua Lake is located in Chautauqua County. It was created naturally from glaciers approximately 15,000 years ago. It encompasses 14,868 acres.

The program at Chautauqua Lake has been operated for 40 years by the Chautauqua Lake Association (CLA). It does not have a lake district and they do not impose taxes on property owners. The CLA is operated by volunteers who began meeting in 1941. They incorporated in 1953 as a non-profit corporation. The CLA's lake management program is apparently the most developed program in the Southern Tier West Region of New York State.

In earlier times, the weed problem at Chautauqua Lake was controlled by steam boats dragging a feed sack of weed killer across the lake. More recently, advanced technology has brought five weed harvesters and the application of herbicides to control the lake's aquatic plant growth problem. The CLA is able to employ harvesting and shoreline

maintenance crews through a volunteer board of directors with the help of fund raisers and volunteer, local contributors. The CIA also receives capital funding from state and local government agencies and local foundations. The crews remove 30-40 tons of weeds every day from the lake during Summer months.

In addition to the five weed harvesters, the herbicides Diqual and Aquathol K are used at a concentration of one gallon each per acre. The Chautauqua Lake Association has sprayed annually since 1965 up until 1987. For the past five years (with technical assistance of the NYSDEC, the State University of New York at Fredonia and a marine biologist) the CIA has employed the technique of injection of the herbicides under water aimed toward the bottom of the aquatic plant's roots.

The annual budget for these programs is approximately $300,000. The budget and the programs are managed by the CIA. In addition to weed control, this budget also pays for extensive clean up programs after storms, supports an in-house equipment maintenance and rebuilding program, and conducts the Annual Fourth of July Flare-Lighting Celebration.

The New York State Department of Environmental Conservation (NYSDEC) has recently shown a new level of concern by ordering that an environmental impact statement and a lake management plan be prepared before any additional herbicide spraying can take place. Chautauqua County and the NYSDEC have accordingly started an extensive study to assess environmental and programmatic issues. The goal of these studies is to prepare a lake management plan.

An individual has been hired within the Chautauqua County Planning Department to conduct the EIS study and prepare the lake management plan. The plan must be completed by January 1, 1990. A study budget of $75,000 per year has been established for this purpose. New York State has allocated one half of this amount, and the other half has been allocated by Chautauqua County.

(4) Procedures for Establishing Lake Management Districts

Under New York State Town Law, an Aquatic Plant Growth Control District may be established in two ways, either by a resolution of the town or by a petition of the people.

The town may establish such a district under Article 12A of the New York State Town Law, by passing a resolution after holding a public hearing. This resolution must be subject to a permissive referendum. The resolution must be supported by a map, a plan and a report. These supporting materials may be prepared by town officials or by consultants, and they must be filed with the town clerk. The public hearing must be held before the resolution is voted upon. The town board may then either deny or grant the establishment of the district.

The adoption by the town board of a resolution approving district creation is subject to a permissive referendum. A petition requesting a referendum must be signed by at least 5% of the owners of taxable real property located within the proposed district (or by one hundred owners, whichever is less). Within ten days of the town's adoption of the resolution establishing a district, the town clerk must file an application with the State Comptroller for permission to establish a district (permission is required only when the cost is to be financed by the issuance of bonds or notes). The establishment of the district must be filed with the county clerk and with the State Comptroller.

A second procedure for establishing an Aquatic Plant Growth Control District may be initiated by a petition of the people. The petition which is submitted to the town board must be signed by owners of taxable real property located within the proposed district representing at least one half of the assessed valuation of the proposed district. Boundaries of the proposed district must be included in the petition and must be set forth in detail in a manner sufficient to identify the lands included in the district as in a deed of conveyance (although not mandated, a map and plan may be submitted with the application).

The petition must also include the method of assessment whether "benefit" or "ad valorem".

Upon receipt of the petition the town board must hold a public hearing to consider the petition and hear all interested parties. After the public hearing the town board must make its determination to grant or deny the relief sought in the petition by resolution.

Within ten days after adoption of a resolution establishing the district, a certified copy of the resolution must be filed with the Office of the State Department of Audit and Control in Albany. An application to create the District must accompany the town resolution. The application is to be executed and verified by the town supervisor. The petition may establish limits on expenditures. If the petition requests a specific improvement be made it must include the maximum amount of money to be expended. If the petition requests specific services be provided, then it may include the maximum amount of money to be expended each year for such services.

When the establishment of a district involves no incurrence of indebtedness on the part of the town, an application to the State Comptroller is not necessary. Generally, the permission of the Comptroller is not required to establish a district if the cost is not to be financed by bonds or notes. In any event, a certified copy of the town resolution establishing the district must be filed with the Comptroller.

In summary, lake management districts in general provide an institutional mechanism for solving lake-related problems over the long term. Depending upon its authorized scope and mandate, such a district

may acquire the experience, staff and resources to perform successfully the following types of functions:

- Control areas of the lake which suffer from excessive growth of aquatic plants.

- Adjust lake levels in the different seasons of the year, to repair facilities or control weeds.

- Initiate steps to protect water quality and resources, and work with local and state agencies (e.g. sewage treatment system).

- Impose certain restrictions on the use of the lake and adjacent properties.

- Resolve issues such as public access to the lake, and liability insurance concerns.

- Apply for grants, conduct studies, and propose public improvements for the land around the lake.

- Pay for its operations and programs by assessing properties that are located within the district.

6. Encourage the Town of Machias to Begin Using Available Planning and Zoning Tools

The Town of Machias has never prepared a comprehensive plan to guide development in the areas around Machias Junction and Lime Lake. Such a plan would have guided the location and density of all land uses at the lake, at Machias Junction, and along Route 16. It would also have defined areas that should be served by carefully laid out sewer, water and storm drainage systems. These systems would have been designed to protect assets such as Lime Lake from becoming polluted and overdeveloped. In this manner, the town would have been protecting one of its own landmarks (and tax revenue streams) for future generations.

It is not too late for the Town of Machias to begin preparing such a plan and related zoning districts and standards. The area along Route 16, and surrounding Machias Junction and Lime Lake, has great potential for continued development. Proper design, coordination, and guildelines are needed, however, to prevent problems of over development, congestion, and pollution.

To this end the Town of Machias should consider taking the following steps in the next decade:

a. Recognize that the problem of excessive weed growth at Lime Lake is only a small part of much broader ecological processes and developmental land use trends in the areas surrounding Lime Lake.

b. Develop a proposal to establish a special lake management district which would be designed specifically to meet the unique needs of the broader Lime Lake community. The town should study the extent to which it could delegate various powers to such a district for it to control not only weeds but land uses around the lake, including limiting the types and sizes of buildings and docks such as multi-story docks with sun-decks (Keuka Lake in the Finger Lakes region is currently studying this approach).

c. Study more carefully the extent and implications of the existing trend to convert seasonal cottages into year round residences. Currently 25% of the cottages around Lime Lake (many of which are 40 years old or more) have been converted to year round use (some local estimates are higher). Currently, school busses pick up more than 50 children during the school year from around Lime Lake. Several new homes have been built recently in the price range exceeding $80,000. New homes are being built also along the hillside to the east of the lake. These trends are continuing, with no end in sight.

The Town of Machias should attempt to discourage all land uses that are substandard or that lead to the decline of environmental and property values. For example, all new buildings and conversions of old buildings should meet state building code standards. All streets and storm drainage channels should be examined and adapted to meet town standards, and county and state standards where appropriate. The end result of this type of local policy and enforcement over the next decade would be an up-scale, high quality, protected residential environment in which property values continue to appreciate and tax revenues would continue to increase.

Historically, seasonal cottages have been built on small lots along relatively narrow streets in a resort setting (i.e., a seasonal subdivision has evolved). By converting these seasonal cottages into year round residences, however, the seasonal, resort subdivision is being transformed into a permanent residential subdivision for which small lts and narrow streets are not appropriate. A new, perhaps voluntary, approach is needed to improve design standards for the Lime Lake community.

d. Conduct a survey of the Lime Lake/Route 16/Machias Junction community asking the question "Will you support greater land use regulation to achieve the following objectives (such as are recommended in the this report)." A ten page survey of

this nature was recently conducted at Keuka Lake (with a 70% response rate). This type of survey at Lime Lake could be modeled after the Keuka Lake survey.

e. Re-examine the capacity for continued, scattered growth by preparing a comprehensive plan based on the steps that are recommended above. Such a plan should be based on a careful study of existing and approved land uses. The maps in the following exhibits are presented to illustrate the types of land uses that need to be studied in detail:

- Exhibit No. 16: Seasonal Residences (Map)
- Exhibit No. 17: Year Round Residences (Map)
- Exhibit No. 18: Recreational Properties (Map)
- Exhibit No. 19: Commercial Properties (Map)
- Exhibit No. 20: Vacant Lands (Map)
- Exhibit No. 21: Tax Exempt Properties (Map)

A comprehensive plan should include also community services and infrastructure elements for water and sewer, traffic circulation (e.g., linking Yacht Club Drive to Hazelmere Road by means of a new street one block in length), boat launching facilities, public parking, and public access to the water. The purpose of this plan should be to control the density of (and direct) all future development into certain areas around Route 16, Machias Junction and Lime Lake.

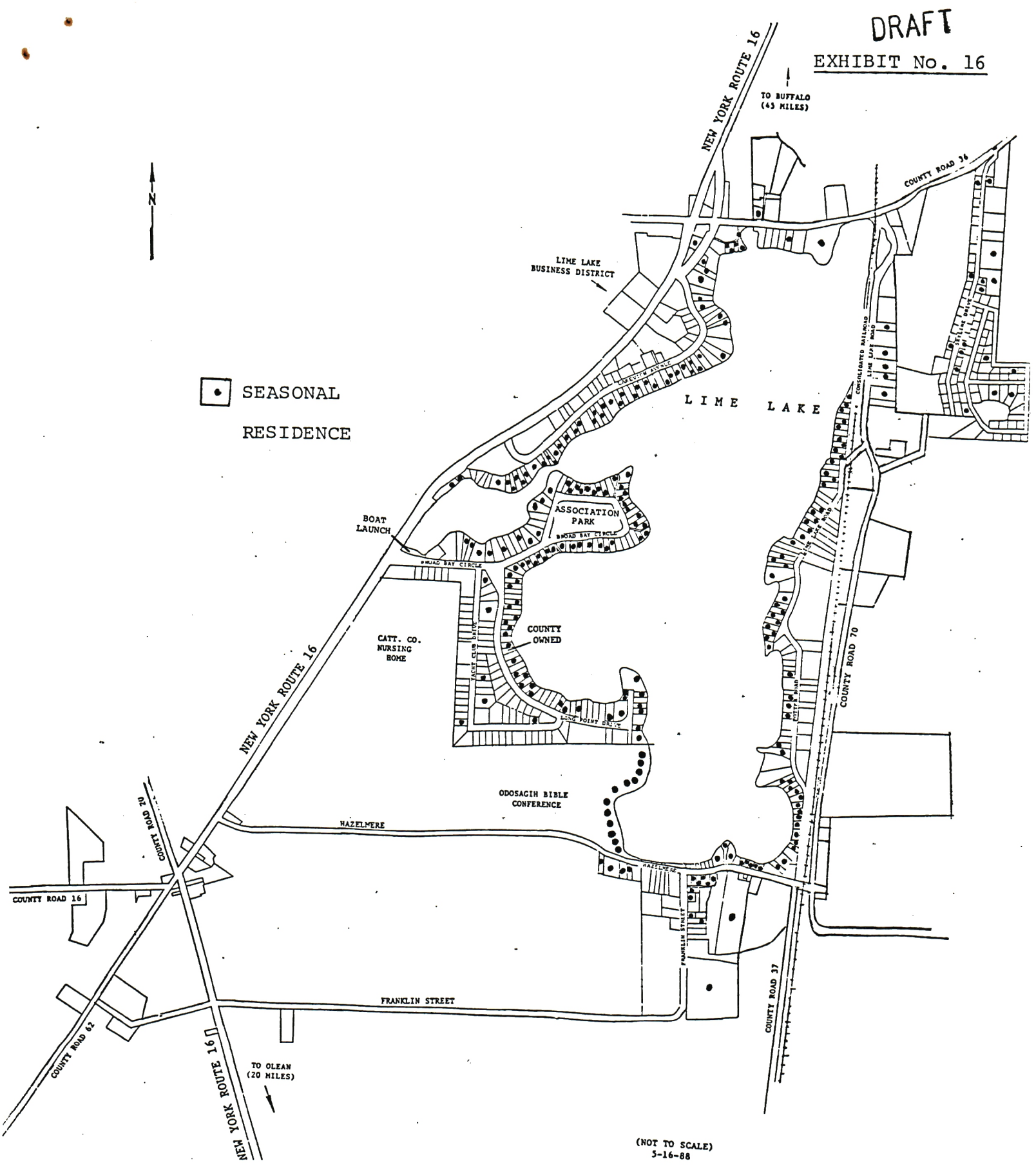
f. Enact appropriate zoning regulations to carry out the purpose and elements of the comprehensive plan recommended above. Under New York State Law, zoning is the only direct power given to local governments to control location of land uses and to set standards for the public welfare and safety which involve locational decision making.

E. FINDINGS AND RECOMMENDATIONS

The purpose of this study is to identify alternatives for controlling the aquatic weed problem at Lime Lake. An ecological approach is used in this study in which the interrelationships between aquatic vegetation and the surrounding environment is examined (i.e., the problem of excessive weed growth in Lime Lake is studied in the context of the Lake's development and use). This assumption is based on the life-cycles of lakes and ponds and the negative effects that settlements, recreational uses and urbanized, storm water run off and septic system leachate can have on these life cycles. This approach has produced the following findings and recommendations.

DRAFT

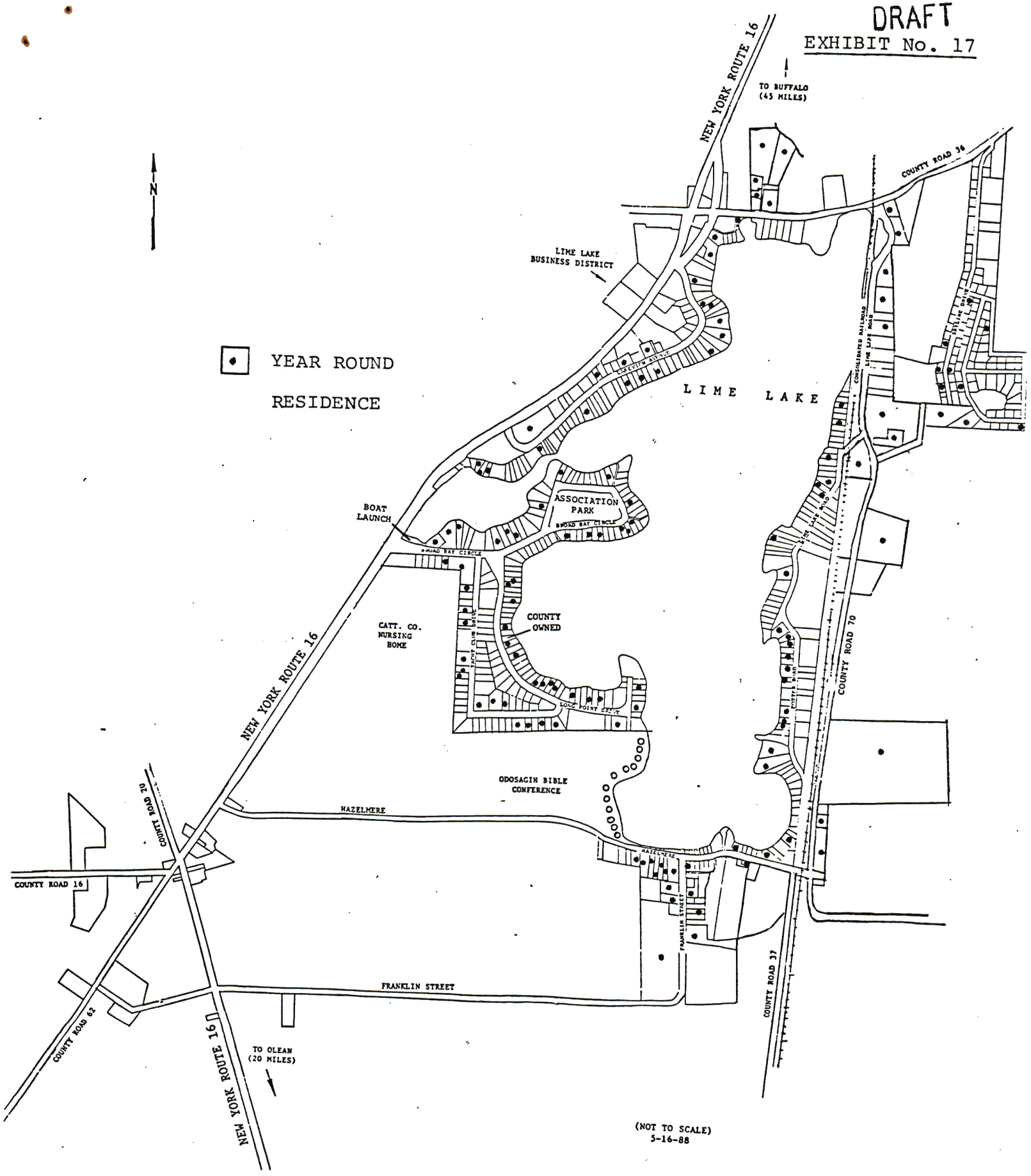
EXHIBIT No. 16



Seasonal Residences: Dwelling units generally subject to seasonal occupancy. This structure is not constructed to accommodate year-round occupancy, i.e., inadequate insulation, heating, etc. It should be noted that many parcels classified as seasonal are suitable for year round residence and the trend is toward that year-round residence.

DRAFT

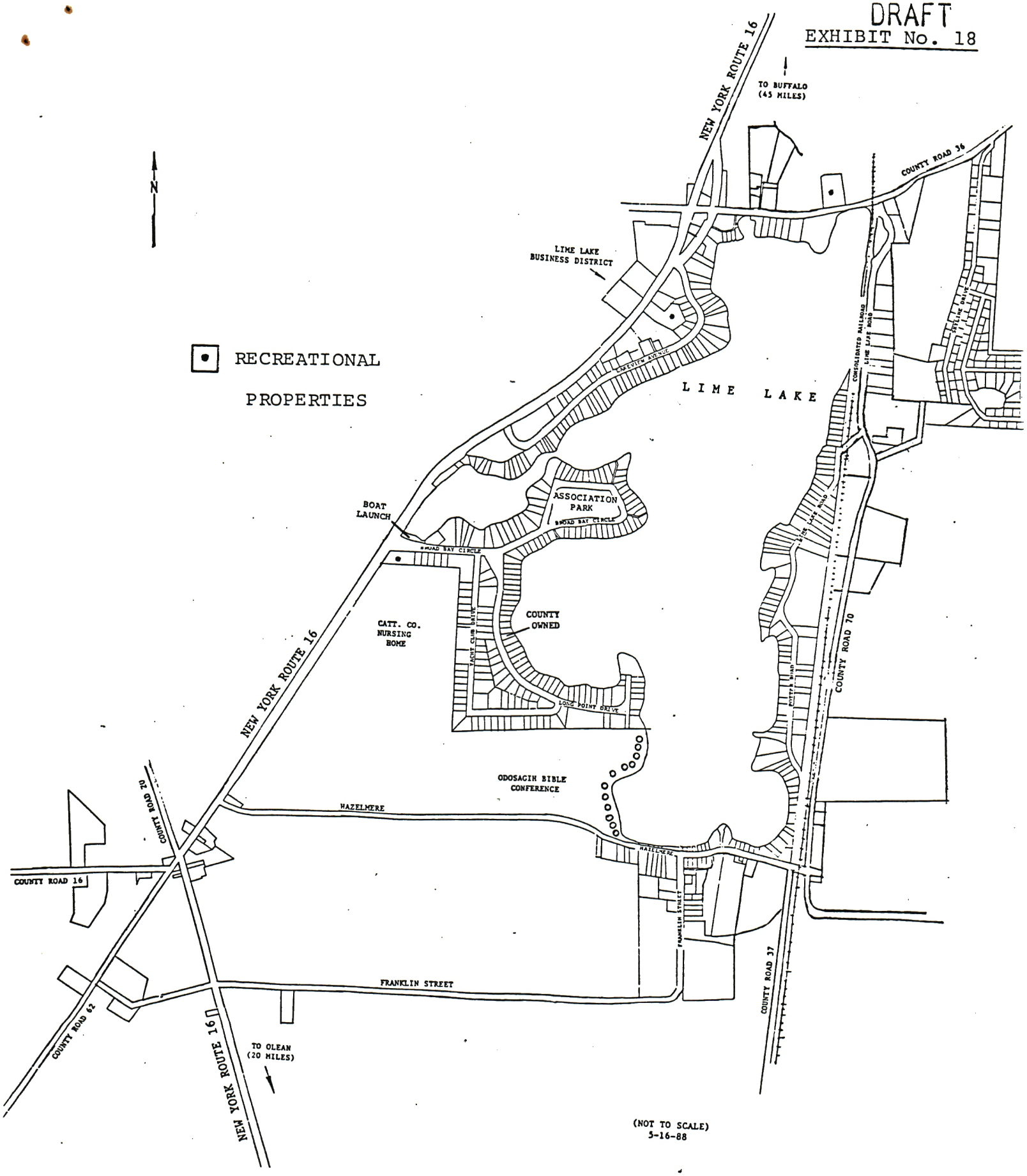
EXHIBIT No. 17



Residential: Property used for human habitation. A family dwelling constructed to accommodate year-round occupancy, i.e., adequate insulation, heating, etc.

DRAFT

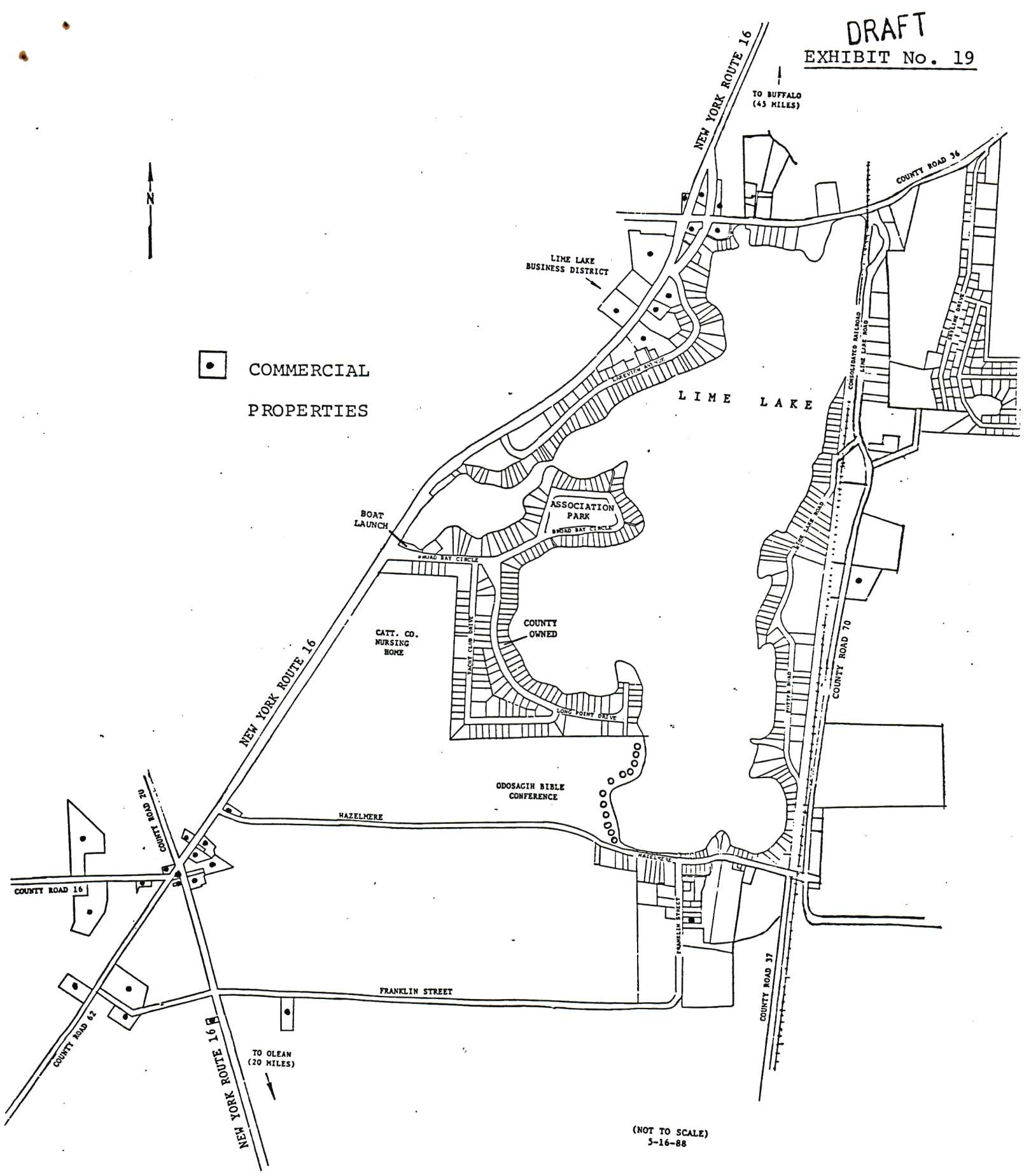
EXHIBIT No. 18



Recreation & Entertainment: Property for the congregation or gathering of groups for recreation, amusement, or entertainment. (e.g., entertainment or sports assemblies; amusement facilities; indoor and outdoor sports facilities improved beaches, marinas, camps, resorts and parks.)

DRAFT

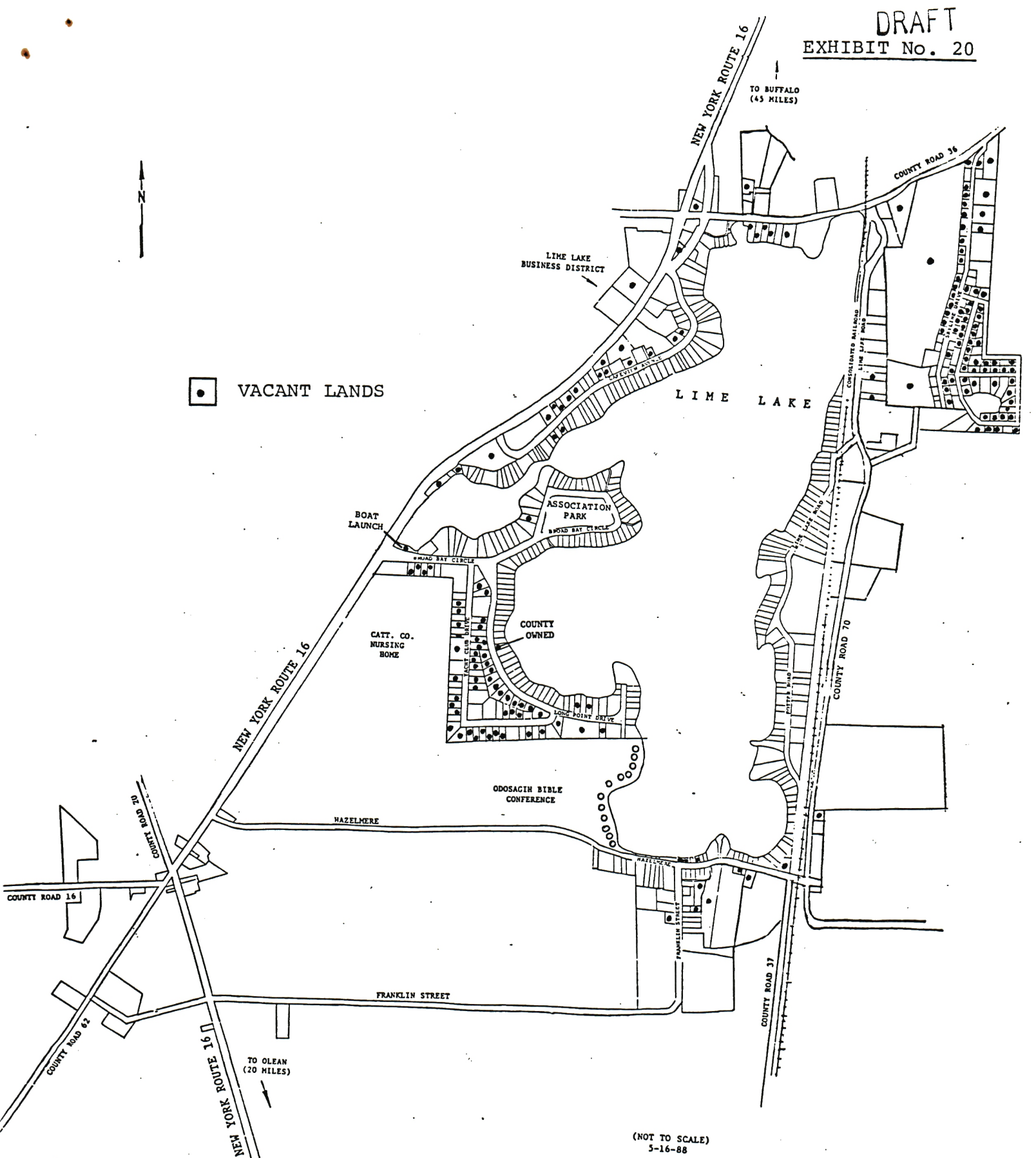
EXHIBIT No. 19



Commercial: Property used for the sale of goods and/or services. (e.g., non-residential living accommodations, dining establishments, motor vehicle services, storage warehouse and distribution facilities, retail services, bank and office buildings and multi-purpose buildings.)

DRAFT

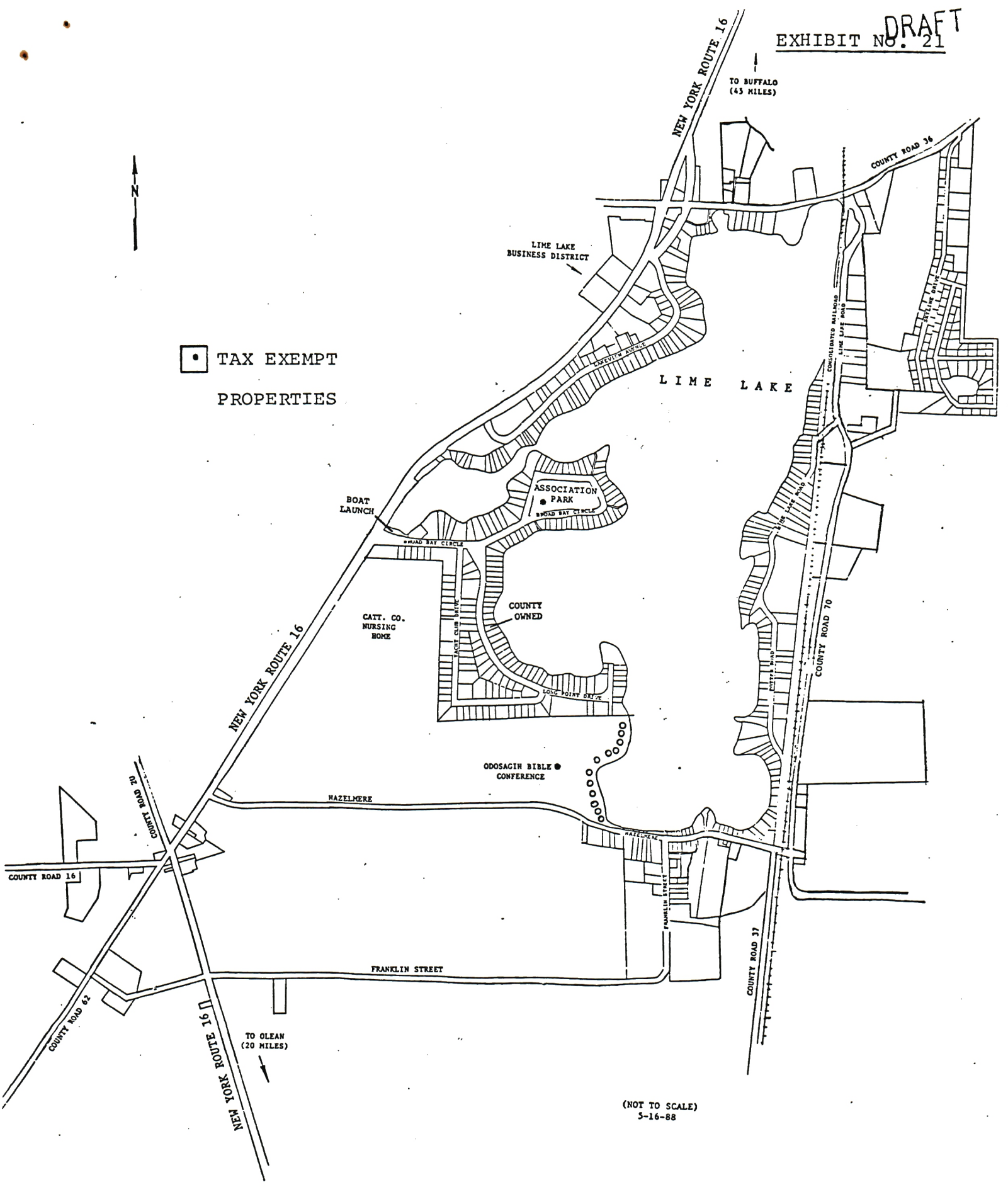
EXHIBIT No. 20



Vacant: Property that is not in use, in temporary use or without permanent improvement. Vacant land include: vacant lots or acreage in residential areas; residential land including a small improvement but not being used for living accommodations. Water front vacant lots are lands considered best suited for improvement for residential or seasonal purposes.

DRAFT

EXHIBIT NO. 21



Tax exempt: are not subject to taxation (e.g., county, town)

1. Protecting the Lime Lake Community

As of 1988, Lime Lake is a fully developed, seasonal resort community. The Lake and its shores are more intensively used now than they were in the 1920's. Today, more than 350 cottages and homes surround the lake. The total land area around the lake has been subdivided among more than 500 property owners. There is a great concern in the Town of Machias that these investments be protected now and in the future.

This process of development as a resort community has evolved since the 1920's and continues to the present day. It has spread completely around the lake, and is currently spreading slowly outward away from the lake and up the hillside on the east side of the lake. The major trend today is converting the older, seasonal cottages into year-round residences with modern conveniences. This is turn is creating an increasingly intensified use of the lake, and year-round use of individual septic systems.

Lime Lake has become a specialized destination point in its own right among the array of western New York destinations and attractions. The market demand for Lime Lake property apparently is driven by a combination of its favorable location in the region along a special segment of Route 16, and its unique attractions and recreational values as a lakeside, predominantly private resort community. The main season for use is the six month period from May to October. On the busiest weekends of Summer, as many as 100 boats can be found on the lake. Water-skiing often begins at 9:00 am and ends at 9:00 pm. Fishing is also popular, primarily from the shore, in addition to boating, water skiing, jet skiing, and swimming.

It is clear that Lime Lake property owners have made a considerable investment in their community since the 1920's. Each year they make significant contributions to the local tax base and to the local economy. This contribution can be expected to grow larger and stronger in future years if Lime Lake can be protected from adverse changes such as uncontrolled congestion, waste pollution, and excessive weed growth.

Lime Lake itself has no watershed in the traditional sense. It is not like other lakes which are located along tributaries and rivers which drain a single large watershed on the way to an ocean. Lime Lake is unique. It is apparently perched at the top of a continental rim dividing two major drainage basins -- one to the north into the Atlantic Ocean, and the other to the south into the Gulf of Mexico. This feature alone could become a tourist attraction with careful development and promotion (which would require careful study and coordination with the local community).

Lime Lake also is an important fish habitat for New York State, which stocks it periodically with Tiger Muskie, an excellent gamefish (a cross between Northern Pike and Muskelunge). Also, an estimated ten million Bluegill, Sunfish, and Bass make up a stable population. This habitat has a food chain, with smaller fish eating insects and plant life, and the larger fish eating insects and smaller fish. The bass population supports an active fishing season, which opens each year in June. An

increasing number of people are discovering Lime Lake to be an enjoyable and fruitful fishing environment. This trend is beginning to create a demand for greater public access to the lake.

In order to protect this community for future generations, and to preserve property values and the quality of life at Lime Lake, it is recommended that the Town of Machias develop a set of public policies to guide lakeside residents and public agencies in all future actions which affect the lake or the community's future development.

The following goals and objectives for Lime Lake are recommended:

a. The long term goal of the Town of Machias, and of the Lime Lake community, should be to rehabilitate the lake and preserve and protect it for future generations as a multiple-use, community resource which has a resort setting, atmosphere and design.

b. The objective in the short term should be to reduce and control the nuisance of aquatic weed growth as a means of:

- Protecting property values and encouraging additional investments that improve and protect the quality of life at Lime Lake.

- Improving the water quality of Lime Lake by reducing the influx of nutrients and contaminents into the lake from outside sources.

- Increasing the recreational use and value of the lake, by making it safe and enjoyable for swimming, water-skiing, boating and fishing.

- Preventing aquatic vegetation's excessive growth from limiting the habitat of game fish populations in the lake.

- Enhancing scenic vistas of the lake and its aesthetic value to seasonal and year-round residents.

2. Guidelines for Developing A Program

During the same time that the Lime Lake community has developed into a mature community, the plants that grow in the lake have also been increasing. The existing "weed problem" in the lake prevents adjacent land owners and the general public from using the lake to its full potential. A new approach is needed to solve this problem. The following approach is recommended.

The first step is to understand the problem. There are very few species of aquatic plants in Lime Lake, compared to natural lakes which have evolved over thousands of years (by contrast, Lime Lake is

approximately only 100 years old). Vallisneria Americana is the dominant plant in Lime Lake today. It is also called eel grass, tape grass, and wild celery. Approximately 90% of all excessive weed growth in Lime Lake is Vallisneria Americana.

Vallisneria Americana grows rooted in bottom sediments in shallow water, although at Lime Lake it has been known to grow as much as eight feet in depth. It has a stem system which spreads in the water, its leaves and flowers floating on the water's surface. It reproduces by means of seeds and, apparently, through floating sprouts if they are uprooted. It is very difficult to control because floating seeds or uprooted plants may re-establish themselves in other locations where shallow water is rich in nutrients.

The growing and reproducing season for Vallisneria Americana occurs between May and September of each year. It reaches its greatest mass usually in August. It becomes excessive, massive. It chokes off shallow, near shore areas and bays of the lake, especially on the east side.

Another problem that has been identified and which should be studied further, is the potential for long term accumulation of the nutrient content in the lake's water and sediments. The nutrient content of Lime Lake is apparently slowly accumulating each year instead of remaining constant or diminishing (i.e., various nutrients are entering the lake in increasing amounts and are recycling within the lake's water and sediments instead of being discharged and eliminated from the lake). The excessive growth of Vallisneria Americana in the lake is being sustained apparently by a long term build-up of nutrients from septic systems and storm water run-off (although, further scientific study of this linkage is needed).

If it were not for the remarkable underground springs that continuously replenish the lake's water (and for the deeper underwater areas that were created by earlier excavations), Lime Lake possibly would be approaching the downside of a natural life cycle (i.e., the natural process of filling and turning shallow areas into land and swampy areas). These findings may be significant because they suggest that a contributing cause for the long term excessive growth of acquatic plants in the shallow areas of the lake may be the build-up of nutrients in the water and sediments of Lime Lake. These findings also suggest that the use of chemicals may not solve the problem.

It is recommended that the problem of nutrient build-up in the lake be studied, and that steps be taken in the future to reduce or eliminate the levels of nutrients in the lake. This should become the long term goal and approach of the Lime Lake Cottage Owners Association and other concerned agencies.

The second step is to design a program that is appropriate to solving the problem which has been defined above. The findings that are reported in this study support the overall conclusion that there are no quick or easy answers to the problem of acquatic weeds in Lime Lake. The weed problem can be controlled, however, if actions are based on the following three guidelines:

- First, acquatic plants are part of the living biota and play a part in sustaining the ecological processes of the lake. A few applications of chemicals and a few bottom barriers will not eliminate the problem. The aquatic vegetation in Lime Lake should be controlled by a combination of techniques which do not damage the environment or destroy property values.

- Second, the underlying task is to control all aspects of the problem. This means that the levels of nutrients in the lake should be reduced. Many alternatives are needed to accomplish this objective. Some solutions can be carried out immediately and others may take a decade to put in place. Actions will be needed year in and year out. This can be done only by "managing" the use and development of the lake for the long term.

- Third, Environmental Impact Statements (EIS's) may be needed before specific actions can be taken. This requirement, when it arises, should be viewed as being a part of the long term management process for Lime Lake. This study only recommends various steps that need to be taken, and is not itself an EIS. An EIS would require a specific proposal in which Cattaraugus County would have some discretionary decisions to make such as approving a permit, constructing a facility, or authorizing funding. As of the Summer of 1988, this is not the case. This study (which uses an ecological perspective) can, however, serve as an input to any future EIS should one be required, especially in the sections pertaining to the evaluation of alternatives.

The following alternatives and related recommendations provide a starting point. The goal is to solve the problem in the long term.

4. Available Alternatives

A variety of alternatives and techniques are available to the Lime Lake community to help in its fight against the weed problem. The alternatives that have been discussed in this study are summarized below.

Not all of these alternatives are equally feasible. Some are appropriate for immediate action and others would require a long term effort to implement. A combination of solutions will no doubt be needed to control the weeds for the long term. The optimal combination of techniques that should be used can be determined only through further study and discussions at the local level.

a. The No Action Alternative

The no action alternative described earlier in this study is not recommended. The apparent advantages of doing nothing may be appealing in the short term. In the longer term, however, existing problems may intensify and the cost of delayed action may be higher as the problem of aquatic weed growth becomes more complicated.

Many of these longer term problems have already become evident in the Lime Lake community. For example, unchecked growth and spreading of aquatic plants is interfering with the use of the lake. Property values, recreational benefits and aesthetic quality can all be threatened if this problem is not brought under control. There is a need to take action in the context of a new, ecological, developmental approach in which weeds are considered to be only a part of a broader problem.

b. Improve Sewer, Water and Storm Drainage Systems

Sewer, water, and storm drainage systems have never been planned and designed in a comprehensive manner for the area of Route 16 surrounding Lime Lake. What has been done has occured piece-meal, in an uncoordinated manner. The results of this history are becoming increasingly visible. The favorable location of the lake in the region has driven the slow and steady trend since the 1920's to develop the adjacent land and to use the lake more intensively for recreational purposes. Long term solutions should include making improvements in the areas of sewage control, water supply, and storm water run-off systems.

First, the area's control of waste water should be improved. The Lime Lake community continues to this day to rely exclusively on individual septic systems and on the dilution effect created by the remarkable underground springs which replenish the lake. The Cattaraugus County Health Department has been concerned for some time about sewage related conditions in the Lime Lake area. County health officials have expressed this concern along with the viewpoint that a sewage collection and disposal system would have a positive impact on the lake and nearby properties.

An immediate, short term solution is to improve existing septic systems by installing the latest technology in septic systems. This could be required, for example for all "high density" homes around the lake (i.e., year-round residences). If a water improvement district were established (under Sections 1100-1107 of the New York State Public Health Law), a local municipal inspector could report substandard and failed systems to the New York State Health Department (NYSHD). The NYSHD in turn could order owners to repair or replace septic systems because Lime Lake is a water supply for cottage owners, farmers, and businesses.

This alternative, however, would not eliminate the increasing volume of leachate entering the ground water, nor would it remove the

nutrients from the ecological system of the lake. The underlying, long term problem would remain mitigated, but unsolved. The weeds would continue to receive an extra source of nutrients from septic systems.

It is apparently only a matter of time before a collection system and treatment plant become a necessity. This would require obtaining funding for design work, land acquisition, engineering work, equipment, construction and operation. Preliminary estimates for such a system at Lime Lake start at $3.5 million. Approximately 600 houses and commercial uses would be needed (350 of which would be the cottages and houses from the Lime Lake community). Assistance could potentially be obtained from a new Self Help Support Section which has recently been formed within the Division of Construction Management, NYSDEC in Albany. The mission of this new section is to assist small communities in constructing needed treatment facilities.

A sewer district may be among the most appropriate and acceptable solutions in the long run. The financial feasibility of a sewer district and its establishment require further study. At this point, however, it is clear that a sewer district would accomplish the following objectives:

- It would provide a public service and domestic convenience to all residents within the district, and protect their health.

- It would protect the lake's water resources, preserve environmental quality, and remove an extra source of nutrients from biological recycling processes within the lake.

- It would be able to raise funds for the project and its continued operation into the indefinite future, and spread the cost only over those property owners who benefit from the service.

- It would (through its district lines) draw a clear boundary between rural areas in the Town of Machias and the urbanizing area around Machias Junction and Lime Lake. The town could use these boundaries to limit the location of future development (through zoning). In this manner, the town would protect adjacent rural areas from strip development, and would promote and protect Machias Junction (by encouraging its development).

Second, the County Health Department found that there is no public water intake located in Lime Lake. There are, however, shallow public water supply wells close to the lake shore. It was found also that there is no known private water supply intakes in the lake and that the cottages around the lake have individual wells close the lakeshore. These private wells are very shallow -- 20 feet is normal. It was found that the direction of ground water flow is from the surrounding hills into the lake. Approximately one third of these water supplies have shown evidence of septic system contamination, apparently, at one time or another -- all