



GREAT LAKES

MANAGEMENT PROBLEMS

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ENVIRONMENTAL MANAGEMENT OF THE GREAT LAKES
INTERNATIONAL BOUNDARY AREAS

BY

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NEW YORK STATE SEA GRANT PROGRAM

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ENVIRONMENTAL MANAGEMENT OF THE
GREAT LAKES INTERNATIONAL BOUNDARY AREAS
A CASE STUDY OF THE NIAGARA URBAN REGION

by

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Ithaca, New York

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FOREWORD

One of the major tasks before us as we move into the end of the present century is bridging the gap that persists between the generation of new knowledge at a rate unmatched in human history and the effective application of this knowledge to pressing social and environmental problems. As population grows, industry and agriculture expand and resource consumption increases, the residuals of production and consumption place ever greater stresses on the physical environment. Nowhere is this more evident than in the Great Lakes Basin.

We in North America have reached that point at which environmental quality has taken its place in the arena of public issues. Citizens are now applying pressures on their governments as a means of defending certain values that had lesser priority in earlier days. While recognizing that a beginning has been made, the facts of the matter are that we are not managing well our natural resources and that progress will continue to be slow and halting unless the requisite political will for some fundamental changes emerges.

There are a number of common factors that account for our inability to respond more effectively to the challenges to managing not only our water and land resources, but other social problems as well. A listing of a few of the more significant factors affecting resource management include: the diffused public interest; differing views about national priorities; inadequate legislation and enforcement; special interest politics; fragmentation of responsibilities within and among governments; and organizational jealousies. These elements operate individually and jointly in ways that seriously impede public programs that are designed to yield effective management of our resources.

There is, however, a more fundamental contributive factor and that is our failure to modernize the institutional structure. The institutional problem is defined as that of determining what kinds of government organizations are needed and how these organizations should be related to each other in order to achieve the most effective management of the natural resources of the Great Lakes Basin at the lowest possible economic, political and social costs. There is, of course, an existing institutional apparatus involving all levels of government in both Canada and the United States. This present structure, however, is not the product of any United States - Canadian long-term plan for the Great Lakes Basin. On the contrary, the

present mix of governmental departments, agencies, boards and commissions simply evolved over the years at a rate and to an extent that were determined by the changing limits of political feasibility in each country.

For the past two years, the Water Resources and Marine Sciences Center at Cornell University has been engaged in a series of studies of the institutional problems in the Great Lakes Basin. Perhaps the most important conclusion of our studies is that the present institutional structure for resource management in the Great Lakes Basin is inadequate and is in need of fundamental revision.

The Cornell project focusing on the institutional problems of the Great Lakes consisted of three related yet distinct research efforts.

The first commenced in early 1971 when a group of twenty graduate students representing a wide range of disciplines investigated the water and related land management problems of the Lake Ontario Basin. The approach of this graduate seminar was to attempt a comprehensive, multiple resource-use investigation which included an examination of the social, economic and political factors peculiar to the Lake Ontario Basin. The objective of the group was to consider the need for, and the formulation of an improved management scheme for Lake Ontario. A background report (350 pages) was prepared and a summary report, The Management of Lake Ontario - A Preliminary Report Proposing an International Management Organization was distributed to the Governors and Provincial Ministers Conference on Great Lakes Environmental Problems at Mackinac Island, Michigan in July 1971.

The summary report concluded, among other things, that the improved management of Lake Ontario (and by extension, all of the Great Lakes) would require either a substantial strengthening of the International Joint Commission or the establishment of an altogether new binational agency to supplant the former in the Great Lakes Basin. The report recommended a joint Canadian - United States study in this matter and, as an interim action, a reference to the International Joint Commission authorizing the Commission to establish on a trial basis a management office with rather extensive coordinative responsibilities for the water and related land resources of the lower lakes region.

The graduate student group sought, in effect, a strengthened binational apparatus, preferably one based on the existing International Joint Commission, authorized to carry out a surveillance and mediation function in the lower lakes.

Surveillance is defined in this instance as essentially an information collection, data interpretation and dissemination role. It is an activity concerned with problem definition. Surveillance includes a continuing responsibility to be aware of problems and alert to future developments. Mediation, on the other hand, encompasses the development of joint programs to attack common problems. It involves also the promulgation of regulations, schedules and uniform standards, along with appropriate means to secure implementation of those regulatory mechanisms.

While some consideration might be given to assigning a joint agency a third function - that of control, particularly in the cases of water pollution or air pollution control, that does not appear to be a feasible direction in which to proceed, at least at the present time. The governments will be better able to determine their positions with respect to vesting a joint body with an effective control function once the Great Lakes Water Quality Agreement signed by Prime Minister Trudeau and President Nixon in April 1972 has had time to operate and be evaluated.

The second phase of the Cornell project began in late 1971. In order to further test the tentative findings of the graduate student group and also to encourage a binational focus on the problem, plans were laid for a six-month seminar comprised of interested faculty from universities in Canada and the United States.

A Canada- United States University Seminar was formed by various faculty from some twenty universities and colleges in Canada and the United States. The Seminar met in three formal sessions during the period December 1971 - June 1972. Using the information and data assembled by the Cornell graduate student group as a starting point, the Canada - United States University Seminar took up the question of improving the two countries' capabilities for managing the water and related land resources of the Great Lakes. A principal objective of the faculty group was to produce a report which would promote discussion in both countries on the problems of the Great Lakes. Another purpose was to set forth in general terms the available alternatives for improving the management of the water and related land resources of the Great Lakes Basin.

A final report of the Canada - United States University Seminar has been written and the findings (1) indicate that there is a need for a modified international arrangement to cope more effectively with the existing and emerging resource-use problems affecting the Great Lakes Basin, and (2) present three alternative institutional approaches as possible guides for further discussion and debate in

Canada and the United States.

The third phase of the Cornell research effort on the Great Lakes Basin consisted of an attempt to develop further the idea of a binational management office with wide coordinative responsibilities for the Lake Erie and Ontario Basins. Concurrently with the Canada - United States University Seminar (December 1971 - June 1972), a second graduate student group at Cornell University investigated, under the guidance of Professors Leonard B. Dworsky, C. Donald Gates and David J. Allee, selected elements of a hypothetical joint management office. As part of this effort, ten graduate students completed seven theses for advanced degrees, together with three research papers on some facet of a joint regional management office.

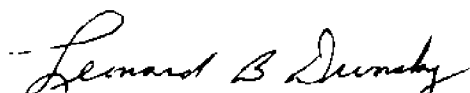
The type of joint office conceptualized is one designed to carry out a coordinative role in the management of a wide range of resource-use problems. The list of such problems used in the investigation included: water quality; municipal/industrial water supply; agricultural water supply; lake level control; hydropower; flood control; navigation; shoreline erosion; fish and wildlife protection; water-based recreation; solid waste disposal; air quality; economic development; agriculture and transportation.

In our attempt to simulate a Great Lakes operations office jointly established and operated by Canada and the United States, we endeavored to examine a selected number of those problems which both the designers of such an office as well as those who are ultimately charged with its direction would be obliged to address.

An obvious initial consideration, for example, would be the structure and functions of a modified joint agency. This topic is dealt with in Natural Resources Management in the Great Lakes Basin by James A. Burkholder. A primary task of an operations office would be the collection, interpretation and dissemination of data and information pertaining to the Basin. This important area is treated in An Information System for the Management of Lake Ontario by Dale Reynolds. The role of public participation in the activities of the proposed Basin operations office is examined in detail in Public Participation in Water and Land Management by Arvid L. Thomsen. Demographic trends and problems are traced on a national scale and then examined with respect to the Lake Ontario Basin as a case study in Toward a National Population Redistribution Policy: Some Policy Issues by Lawrence W. Saunders. The problems of

water quality management of a lake basin are considered in Opportunities for Water Quality Management: A Case Study of the Lake Erie Basin by Ralph P. Meckel. Special problems of environmental quality management along an international boundary are the subject of Environmental Management of the Great Lakes International Boundary Areas: A Case Study of the Niagara Urban Region by Donald R. Kisicki. The opportunities and problems associated with Federal and state grants for wastewater treatment facilities are discussed in two case studies in Cost Sharing in Water Pollution Abatement Facilities - Some Economic and Political Consequences by James M. Foster. Land use management as an integral part of the overall planning process is the subject of a paper Land Management in the Lake Ontario Basin by James M. Wolf. In his paper entitled Management of the Biological Resources of the Lake Ontario Basin, Douglas M. Carlson provides a comprehensive survey of the biota of the lake basin as well as an assessment of present conservation management practices. Finally, in his paper Management of Water Supply, Navigation, and Power Programs, Martin J. Murphy focuses on those water uses in the Lake Ontario Basin and the potential role of a joint operations office with respect to municipal water supply, navigation and hydropower in a new institutional framework.

These papers, of which this by Donald R. Kisicki is one, are offered with the hope that they will contribute usefully to the improved management of the Great Lakes of Canada and the United States.



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January 1973

BIOGRAPHICAL SKETCH

Donald Robert Kisicki was born in Omaha, Nebraska on February 23, 1946. He attended schools in Omaha and received a degree of Bachelor of Science in General Engineering from the University of Nebraska at Omaha in 1969. Since graduation he has extended his education through night courses, concentrating in the field of sanitary engineering.

While attending the University, he worked as a civil engineering designer for Northern Natural Gas Company and as an engineering technician for the U.S. Army Corps of Engineers. In 1969 he was employed by the Corps of Engineers as a civil engineer; since 1970 he has worked in the field of sanitary and environmental engineering.

Mr. Kisicki has attended Cornell University since September, 1971 undertaking a graduate program in water resources planning and management through the Planning Fellowship Program of the Corps of Engineers.

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The assistance provided by my committee chairman, Professor Charles D. Gates, is gratefully appreciated. The advice and inspiration provided by my committee member, Professor Leonard B. Dworsky, in selecting my topic and guiding my research is appreciatively acknowledged.

Lastly, I wish to extend special thanks to my wife for her assistance in typing drafts of this thesis and for her support and encouragement throughout my studies.

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INTRODUCTION

Purpose and Scope

This paper is part of a continuing study at Cornell University on the integrated land and water management of the Great Lakes System. The reason why the Great Lakes have received the amount of attention that they have is due to the significant role that these massive bodies of water play in the social and economic well being of the citizens of the United States and Canada, particularly those who reside on their shores. The problems of managing the Great Lakes System have been well studied and documented; the multitude uses of this resource are well known.

The importance of this resource to both countries was recognized in 1909 with the signing of the Boundary Waters Treaty. While the importance of the entire system has been recognized over the intervening 63 years it has been and must also be realized that there are certain geographical areas in which the problems of the Great Lakes System concentrate themselves and become unique. These areas are known as the frontier areas and border the Connecting Channels of the Great Lakes. It is at these focal points that the problems of the System become real; it is where much of the urban concentrations bordering the Lakes ex-

ist; it is where growth of urban centers originated on the Great Lakes shores and it is the focal point for continued growth.

It is therefore necessary that when discussing the management of the Great Lakes in general that a certain note be made of the significance of these frontiers and their effects on overall management schemes. The International Joint Commission has realized this in stating that while the Boundary Waters Treaty has concerned itself with many problems along the entire U.S.-Canadian border, none however, has been more worthwhile than the control of pollution in the Connecting Channels of the Great Lakes System.¹

Extending beyond water pollution and looking into the future it can be postulated with some degree of certainty that the frontier areas will be the bellweather for emerging problems in the Great Lakes System. Evidence of this fact is the studies done by the International Joint Commission. The first water pollution studies were done in the connecting channels; the first air pollution study was done in a frontier area (Detroit-Windsor); the first mercury scare manifested itself in the St. Clair River; plus numerous docets of the Boundary and Waters Treaty concentrate on problems where the land masses of both countries come close together and are separated by the common waters of the

connecting channels.

Realizing then, the importance of the frontiers and connecting channels the purpose of this paper will be to research the problems of and set a framework for the management of the urban physical environment of one of the frontiers, the Niagara, and its connecting channel, the Niagara River.

Necessarily the intended approach will be not only to examine the physical, economic and social characteristics of the Niagara Frontier, but also the established institutions on both sides of the Niagara River who are charged with the responsibility for the well being of those who populate the frontier, specifically their environmental well being.

The case of water pollution and quality control will be used to assess the effectiveness of past and present integrated land and water management. This case was selected for two reasons:

(1) Water quality management provides probably the best historical outlook as it has received the most attention in the past and appears to be still a top priority problem receiving the majority of concern in the present, (2) It is perhaps the main physical characteristic of the frontier that affects the overall Great Lakes System particularly eastern Lake Erie and west-

ern Lake Ontario.

It is realized however, that management of water quality is not confined solely to the water itself but implies management to a certain extent of land use and to a certain extent economic development. Moreover, when one manages a physical resource or resources he is very well trying to provide for the social well being of those who rely on the resources. It is for these reasons that this paper will not be limited to water quality and water quality control institutions, but will concern itself with the overall management of the physical environment of the Niagara Frontier.

Noting that little has been done in the past to manage other parts of the environment outside of water, a historical analysis of water quality control problems is the only one that provides a means for assessing the effectiveness of past and present institutions on both sides of the Niagara River to cope with current problems, project for future demands and goals, and plan to meet desired objectives.

The historical approach is designed to answer several questions. First, how effective have past and present institutions been in solving problems in the Niagara River and Frontier; second, has one form of agency or government on one side

of the river better capabilities for carrying out a desired mandate; third, as it is well known that what one portion of the frontier does on one side of the Niagara River affects the other portion on the other side, are there functions that the institutions on both sides could have coordinated and worked on jointly and uniformly.

The study on water pollution control has other implications as well. It provides a startling example of what man has done to his environment as well as highlighting the obstacles to his attempts to remedy the situation. It shall be the purpose of this document to project into the future to determine what the Niagara Frontier will be like in the next 30-50 years, what goals and objectives are aspired to by various institutions, and how well they are equipped to meet these goals and objectives. Knowledge of the past is not in itself a totally adequate guide. Decisions must be based also on interpretations of current trends and anticipation of future development. It seems correct to say that if future conditions, future population growth, etc. can be projected then an estimate of future problems can also be made.

The capabilities of government to carry out tasks on either side of the border will be compared using the test case of water pollution control and other forms of physical environmental con-

trol. In recent years it has become apparent that urban environmental problems, such as pollution do not respect jurisdictional boundaries and that one of the obstacles to enhancing the environment has been that management responsibilities are shared by numerous local governments so that comprehensive solutions to problems have largely been non-existent. For this reason local government on both sides of the Niagara River will be case studied to find out if fragmentation exists and if it presents an obstacle to environmental enhancement. If it does then a search, will be made for solutions based on municipal reform that may well take the form of regional government. A framework will then be provided for what appears to be the most logical solution.

This paper will also attempt to determine if there are certain activities, that affect the environmental management of the Niagara Frontier, that institutions of both countries could coordinate and work jointly on. If the answer is affirmative then perhaps an international council of governments under the jurisdiction of the I.J.C. or some other Great Lakes management organization could be initiated.

Now if it is determined that some form of government or management organization on at least one side of the river could

handle the water pollution problem and other environmental problems more effectively and also that perhaps there are functions that could be coordinated better on both sides of the Niagara River the question arises, "could a management agency composed of governments on each side plus an international council of governments composed of members from the separate regional governments handle future problems in the Niagara Frontier more effectively?"

Fifty years ago there was a pollution problem in the Great Lakes that manifested itself first in the connecting channels, particularly the Detroit and Niagara Rivers. It is realized that past attempts to control pollution within the frontier and thus within the connecting channels have largely been unable to keep pace with population and industrial growth; that conflicts and problems remain and in some cases get worse because many agencies and governmental units share responsibility for the environment of the Niagara Frontier.

The following options are at our disposal. The status quo can be accepted and the future not worried about too much; or the future can be planned for, to determine what type of environment is desired and implement new and vigorous programs to meet the desired objectives. If we are going to plan for the

future, what is the best strategy to carry out these plans? It would appear that to determine the best management system we must look hard at two things. First, to determine the best form of government within each country's portion of the Niagara Frontier and second, to determine what problems can be best handled as joint coordinated ventures between these governments. In other words, provide the best form of institutions to handle environmental quality control problems on both sides of the river; i.e., regional governments and then to treat, with regard to certain functions, the Niagara Frontier as a unified system. Perhaps the international function will be only exchange of information, perhaps joint planning in some form, perhaps joint surveillance, perhaps even joint construction.

If there are problems to be solved in the Great Lakes System as a whole then certainly there are the same type of problems, only more critical in the frontier areas. If an international management agency is necessary to deal with the Great Lakes System as a whole then perhaps some form of international-regional body can deal more effectively with problems on a more local basis through some sort of a formal or informal compact arrangement, some type of arrangement that would enable urban areas, separated only by a connecting channel, to work on a uni-

form and joint basis.

In summary this, then, will be the purpose of this paper: to determine what is necessary to bring about the most efficient management of the integrated land, water, and air resources of the Niagara Frontier. In other words to provide modern institutions for the management of the urban environment of the Niagara Frontier. A mechanism that can solve current problems more effectively, provide for more orderly growth, be more responsive to regional needs and priorities, involve greater citizen participation and plan wisely for the future. The main emphasis of this study will be on local agencies and government that have actual implementing responsibilities for the environment of the Niagara Frontier.

Chapter I of this study will be a general description of the study area defining the boundaries, social and economic characteristics, and population trends. Chapter II will be a discussion of the pollution problem within the study area, concentrating on water quality but also considering other environmental concerns. This chapter will also include a perspective on water quality that has certain implications for other environmental concerns and for the future. Chapter III will be a discussion on managing for the future. In this section I will

show the conflicts that arise between various urban densities and the environment. After this analysis is done I will project what trends are evident in the study area, how densities are changing, why and where growth is occurring, and what environmental conflicts are emerging. I will then relate this to the need to handle problems on a broad, comprehensive basis; i.e., regional government.

Chapter IV will be a discussion of local government reform along the line of regional governments. Contained in this section will be a discussion of some of the problems encountered in forming regional governments. Chapter V will be a study of local government in the study area. It will also contain the framework for a regional government on the U.S. side patterned somewhat after the Regional Municipality of Niagara, Ontario.

Chapter VI will be to treat the study area as a unified system. This section will focus on joint cooperative functions between regional governments, the possibility of a loosely formed environmental compact or council of governments, and the inclusion of such framework into the expanded I.J.C. or some other Great Lakes Management Office. This section will become then the framework for managing the land and water of the Niagara and other frontiers.

Although this study will be limited to the Niagara Frontier it may provide the framework for analysis of the other two Great Lakes frontier areas of Detroit-Windsor and Saulte Ste Marie. The conclusions reached with regard to the Niagara Frontier may very well be applied to the other two.

Therefore, I will briefly introduce the three frontiers and their respective connecting channels to give evidence of their degree of commonness as to geography and problems, but then will proceed directly to concentrate the study on the Niagara Frontier.

Description of the Frontier Regions

The frontier areas represent urban concentrations that exist on each side of the connecting channels. These areas are:

<u>Frontier Areas</u>	<u>Connecting Channels</u>
Erie-Niagara Counties, N.Y.	Niagara River
Regional Municipality of Niagara, Ont.	
Detroit-Windsor, Ont.	St. Clair R.-Detroit River
Saulte Ste Marie, Mich.	St. Mary's River
Saulte Ste Marie, Ont.	

In general the areas represent a focal point for urbanization on both sides of the border. Water transportation was the first incentive for growth and water continues to be a dominant factor with high water using industrial development on both sides of the rivers. Urban areas have and continue to grow based on the water resource and related developments such as hydro-power.

Niagara Frontier

On the U.S. side Erie and Niagara Counties border the Niagara River. The major urban centers are Buffalo and Niagara Falls, N.Y. The principal concentration of industrial activity in western New York State is in these two counties, with Erie

County playing the more significant role. Population is expected to increase nearly 100% from the 1960 figures to 2020 figures. Expected population will be over 2,000,000 by 2020 with 85% of the growth in Erie County.² Land development around Buffalo is taking on the typical urban sprawl characteristics; i.e., decline in central city population with large increases in the suburban population.

The major portion of land in these two counties is expected to be largely urban by 2020 and coupled with the highly industrial base should present unique land use, water quality, and other environmental problems.

The Canadian side is not nearly as developed as the U.S. side; the major centers being Niagara Falls and St. Catharines. Administratively the counties of Lincoln and Welland border the Niagara River which have recently formed the Regional Municipality of Niagara. Land use at the present time is approximately 80% urban in this region. The trend of increasing urbanization is evident in the Niagara Region. It is projected that population will grow in the two counties from 146,099 and 178,818 to 240,547 and 241,723 in Lincoln and Welland counties respectively from 1966 to 2001.³ These figures may be somewhat low however as the growth in Lincoln County alone was 64 per cent from 1951

to 1966.⁴ Two major population trends are apparent in Regional Municipality of Niagara; first, concentration in urban centers with shifts out of rural areas; second, the growth of rural non-farm or gentry population accessible to urban centers. The latter effect is very evident in the Niagara Peninsula's fruit belt north of the Niagara Escarpment.

Detroit-Windsor-Port Huron-Sarnia

This frontier comprises two connecting channels, the St. Clair and Detroit Rivers and one lake, Lake St. Clair. The major population centers are on the Detroit River and Lake St. Clair with the exception of the urban center of Port Huron-Sarnia at the source of the St. Clair River.

Both sides of the Detroit River at Detroit and Windsor thrive with automotive, steel, distillery, and chemical industries. The Detroit-Windsor area is a major concentrated urban center supporting a highly dense industrial complex.

The high industrial nature of the economy and the particular nature of the wastes from these industries has presented and will continue to present in the future complex pollution problems.

On the U.S. side Wayne County borders the Detroit River, Macomb County borders Lake St. Clair, and St. Clair County bor-

ders the St. Clair River. The total U.S. population along this frontier was approximately 4,500,000 in 1970 and is expected to double within the next fifty years. Most of the urban concentration is in the Detroit-Wayne County area which acts as a hub for satellite population centers along the channels. The Detroit area is typical of other metropolitan centers with central city growth remaining stagnant or declining and the suburban population burgeoning.

In 1970 out of a total land area of 3,980,400 acres the total urban area was 830,400 acres. In 2020 it is anticipated that urban and built-up acreage will be 1,747,300 or more than double that of 1970.⁵

On the Canadian side Essex County borders the Detroit River, Essex, and Kent Counties border Lake St. Clair, and Lambton County borders the St. Clair River. The major population concentration is in Essex County in the urban center of Windsor. The principal city on the St. Clair River is Sarnia.

The 1970 population statistics and 2001 projections for the three counties are:^{6,7}

	<u>1966 Census</u>	<u>2001 Projections</u>
Essex	293,729	440,049
Kent	96,775	150,077
Lambton	109,952	166,879

Saulte Ste Marie Frontier

A few large steel, paper, and chemical industries center around the development of power and transportation on the St. Marys River. The area is not densely populated on either side of the border and the industries although large number only three, all in Canada.

The principal cities are Saulte Ste Marie, Ontario, population 74,594 and Saulte Ste Marie, Michigan, population 18,500. Although these populations are expected to double during the next fifty years they still will not represent major urban concentrations.

Characteristics of the Connecting Channels

Niagara River

The Niagara River is a 37 mile long stretch delivering flows of 200,000 c.f.s. The river is probably best known because of the world famous Niagara Falls and for this reason has received much attention with regard to preservation and enhancement.

The Falls divide the river into an upper and lower portion. In the upper portion the river is also divided into two channels by Grand Island. These divisions produce significant effects as to transboundary movements of pollutants.

Between industrial and municipal uses the river and its tributaries provide almost a billion gallons per day of water mostly for use on the U.S. side.⁸ Municipal and industrial wastes from both sides of the border are discharged to the river and again the United States side is the largest contributor.

Major industrial inputs to the river include chemical, steel, abrasives, paper and oil refining wastes. Dye manufacturing and alkali-chlorine production constitutes a major portion of the chemical industry in the area.

A large portion of the waste load on the Niagara River is contributed by the slow moving Buffalo River. Although the Buffalo drains into Lake Erie it must be considered in conjunction with the Niagara because of its direct influence on the Niagara River quality.

The Niagara River also provides important benefits in the form of recreation and tourism. In addition to Niagara Falls, which is the major tourism attraction in the area, fishing, water skiing, swimming, and waterfowl hunting are also important recreation uses of these waters.

Detroit River

The Detroit River is a 31 mile long link between Lake St.

Clair and Lake Erie. The flow of the Detroit is exceptionally uniform, because of the tremendous reservoir of Lake Superior averaging 182,000 c.f.s.⁹

The city of Detroit and suburban communities occupy the United States side and the City of Windsor, and smaller communities occupy the Canadian side. The banks of the river are lined with residential and industrial development.

In addition the river contains several islands which are used for a combination of industrial and recreational uses. There is a steel mill on Zug Island; Fighting Island and the upper end of the Grosse Ile are being used for the disposal of waste materials resulting from the manufacture of caustic soda and soda ash; Grassy Island and Mud Island are being used for the disposal of material from dredging operations; and Belle Isle and Bois Blanc Island are devoted to recreational purposes.

St. Clair River

The St. Clair River is a 40 mile stretch that connects Lake Huron to Lake St. Clair. It has an average width of one-half mile and a depth varying from 25 to 75 feet. The average flow is 177,000 c.f.s.¹⁰

The principal cities along the river are: Port Huron, Maryville, St. Clair, Marine City, and Algonac on the United States

side; and Sarnia on the Canadian side.

Water uses of the river include public water supply (10 municipal intakes), waste assimilation (9 municipal sources, 8 industrial plants), cooling water for steam electric power generation (2 plants), recreation, boating, sport fishing, and commercial navigation.

The industries discharging wastes into the river include petroleum refineries, petro-chemical plants, chemical manufacturing, paper products manufacturing, and metal plating.

St. Marys River

The St. Marys River is the connecting channel between Lake Superior and Lake Huron. The width varies from 18,000 feet to 2,000 feet and the depth varies from 25 to 55 feet. The flow averages 73,000 c.f.s., but is regulated because of the hydropower and navigation works.¹¹

The waters of the St. Marys serves a variety of purposes including public water supply, industrial water supply, waste assimilation, hydropower works, recreation, boating, waterfowl, sport fishing, and commercial navigation.

Both communities of Saulte Ste Marie use the river for public water supply; both countries use the hydropower. The river receives municipal discharges from both communities.

There are no significant industries on the U.S. side in comparison to the Canadian side which has three large water users involved in steel manufacturing and paper products.

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CHAPTER I

THE STUDY AREA

A brief description of the Niagara Frontier was presented in the Introduction. The purpose of this section will be to probe more deeply into the characteristics of this frontier, including problems and conflicts particularly those relating to water quality and integrated land and water management. To discuss the Niagara Frontier a delineation of boundaries is necessary.

For the purpose of this paper the region considered on the United States side is Erie and Niagara Counties, New York and on the Canadian side the Regional Municipality of Niagara, Ontario, formerly Lincoln and Welland counties. The study area is shown in Figure 1.

This delineation of study area may be justifiably contested on the grounds that I have cut off a small portion of the Erie-Niagara Drainage Basin consisting of parts of Genesee, Wyoming, and Cattaraugus Counties, New York. Neglecting these small and relatively undeveloped portions of the drainage basin greatly simplifies the intended analysis of trends and institutions and should not introduce serious error particularly for academic purposes. Also the Canadian side may be contested due to the fact

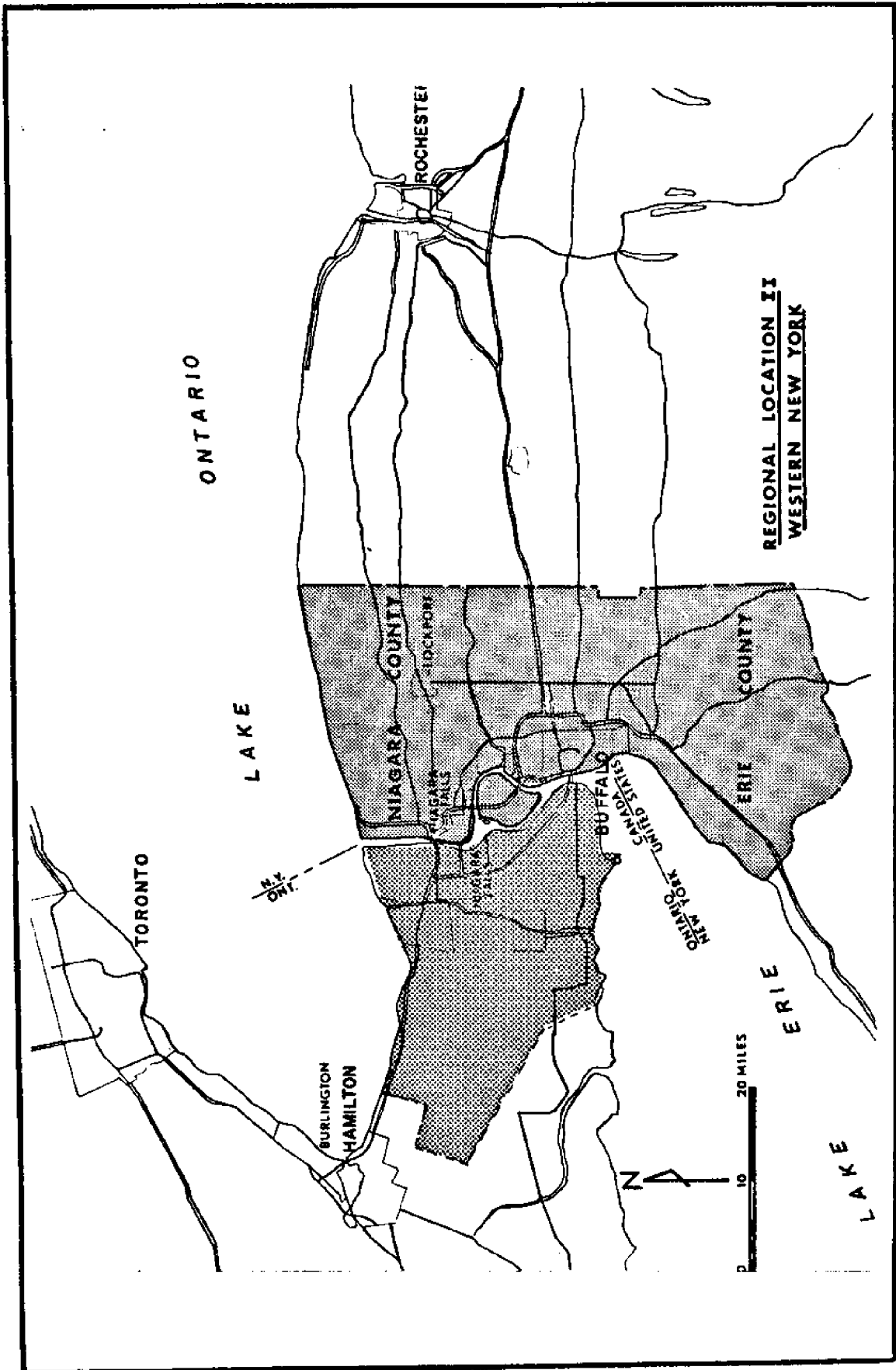


Fig. 1 - The Study Area

that the urban areas of Saltfleet, Hamilton, and Burlington lie in a line just westward of the Regional Municipality of Niagara (RMN). However, the concentration of this paper is centered on urban areas immediately adjacent to or that have a significant effect to the Niagara Frontier. Therefore, the Canadian portion of the study area will be limited to the RMN. It is not, however, the intent of this study to neglect the population concentration around the western end of Lake Ontario, sometimes referred to as the "Golden Horseshoe" and its effects on the Niagara Frontier. These effects will be given due consideration.

The Study Area in Canada

The Niagara Peninsula is one of the fastest growing regions in the Province of Ontario. Its sustained growth can be attributed in large part to three factors: favorable location in the large Central Ontario market area; its proximity to the United States; and the presence of a combination of unique natural resources including tender fruit soils, tourist attractions, and extractable mineral resources. The major urban centers are Niagara Falls, St. Catharines, and Welland. The growth pattern has been in an arc stretching from the northwestern end of the Municipality around the southwestern shore of Lake Ontario to Niagara Falls.

The highest densities of population in the RMN are in the north and east sections mostly in the former Lincoln county. The rapid rate of growth has been a result of its location, between Wentworth and Welland counties, the effect of the Niagara Escarpment, and the location of transportation routes such as the Q.E.W. This area has experienced a population growth of 64 percent between 1951 and 1966¹ and is exhibiting the trend common to a large part of Southern Ontario of concentrations in urban centers plus growth of rural non-farm population in areas accessible to established urban centers. The population of RMN is estimated to be 348,000.²

The rural portions of the northern portion contain the Peninsula's specialized fruit growing zone and many of the Regions' workable non-metallic mineral deposits. While the concentration of population in this area has produced benefits due to scale economies, it also has produced many negative benefits. The process of "rurbanization" has eroded much of the acreage of the fruit growing zone; the extraction of mineral deposits has defaced the Niagara Escarpment; and the general pollution of the areas water resources are attributable partly to the high concentration of activity in this area.

The southern portion of the RMN is not as developed as the

northern portion. However, when the entire region is analyzed with respect to the emerging Great Lakes megalopolis pressures for urbanization and industrial development against the environment will in all probability equal those of the north.

The Design for Development Studies outlined five regional problem areas for the RMN: problems associated with the economic base, transportation problems, land use problems, environmental problems, and social problems.³ As this study is mainly concerned in water quality and environmental problems the problems associated with land use and the environment are of prime concern. However, the other three areas are also indirectly related to the prime problem areas and therefore must be considered in the overall management problem particularly the economic base which consists of mostly old, marginal industries in the area.

The loss of fruit lands not only affects the agricultural base, but also detracts from the recreational aesthetics of the fruit belt. Uncontrolled development in this area can only further endanger the recreational potential. With regard to recreational areas water pollution is causing problems as are industries who are defacing scenic areas such as the escarpment, raising conflicts between the exploitation of non-renewable resources

and recreational and visual amenities. The excessive development of tourist attractions such as billboards and high rise facilities, going on unchecked, is reducing the potential of tourism areas such as Niagara Falls.

Increased population and lack of coordinated development of private and public facilities will further add to the conflicts mentioned above.

The projected population for the RMN to the year 1991 will be between 421,670 and 553,329⁴ depending on the fertility and migration rates used. This will represent an increase of between 30 to 70 per cent over 1966 population levels. Using a median fertility rate and median net immigration the population by 1991 would be 469,568 representing a 42.5 percent increase over 1966 levels. Whatever population statistics are used the result is clear; that a fairly rapid growth rate will occur during the next twenty years and combined with the emerging Great Lakes megalopolis will manifest itself in ever increasing pressures on the water and environmental quality in the RMN and also in the eastern portion of the Lower Great Lakes System.

Study Area in U.S.

The study area on the U.S. side, consisting of Erie and Niagara counties, New York, centers around the major hub of the

City of Buffalo and owes its present significance and growth potential to its proximity to the Great Lakes, its position as a focal point for transportation to the eastern United States, and its link to Canada and Canadian markets.

The area accounts for 7 percent of total New York State employment, concentrating on primary metals, heavy chemical, and machinery industries. Although new or expanded industry has entered the area the majority of plants are old. New industry, particularly in transportation equipment and the rapid growth of the State University at Amherst are expected to stimulate new industrial development in the region.⁵

The population of Erie and Niagara Counties is expected to increase from a 1970 level of 1,350,441 to a 1990 level of 1,662,718 or a 22 percent increase over the next twenty years.⁶ A more moderate estimate made by the Office of Planning Coordination sets the 1990 estimates for the Buffalo urban area at 1,581,677 representing urbanization of a land area of 847.8 square miles.

Although the Erie-Niagara County Region has been described as an urban region the bulk of the region's land area is not utilized for urban purposes as 84 percent is vacant or used for agricultural purposes. Past and present trends indicate that

the urban land use is extending to the north and east from Niagara Falls in Niagara County and to the northeast and east from Buffalo in Erie County.⁷

This proposed population increase is expected to place development pressures on the eastern Lake Erie and western Lake Ontario Plains and on the entire U.S. portion of the Niagara Frontier. In light of the fact that the entire U.S. study area is plagued with pollution of all kinds this increase in population can only be expected to make problems more critical.

Combined Study Area

Combining the study areas on both sides of the Niagara River reveals that the area will be supporting a combined population of 2,118,568 by 1990, representing a 25 percent increase over present levels. By the year 2020 it can be easily anticipated that the total population will reach close to three million.

The situation may be even more critical than it appears after consideration of the emerging Great Lakes megalopolis as shown in Figure 2, as identified in both the Doxiadis Study and the New York State Study, entitled Change, Challenge, and Response.^{8,9} Both of these studies identify the Niagara Frontier as being an integral part of the embryonic megalopolis.

While the types of urbanization and industrialization may

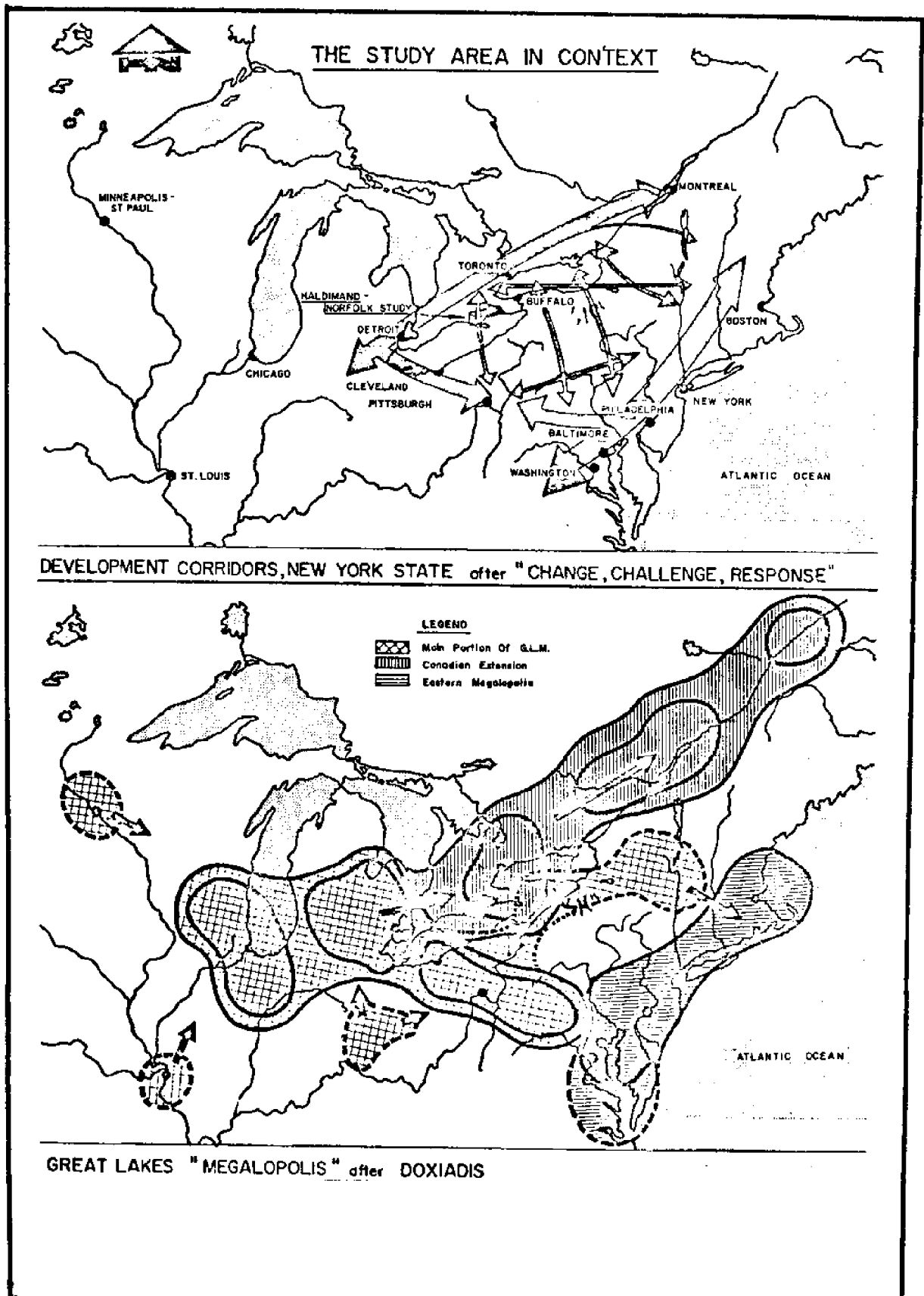


Fig. 2 - Great Lake Megalopolis

differ somewhat in both countries the overall experience to the environment is the same. The conflict between land-water and urbanization will become even greater when considering today's trend for higher quality environment and hence higher quality of life competing against increased urbanization and industrialization in an area that already has problems in practically all environmental areas.

Niagara Frontier-Keystone for the Lower Great Lakes

In discussing the study areas on both sides of the Niagara River it was noted that both areas owe their existence and continued development to their proximities to the opposite country, to transportation routes, and to the Great Lakes. The Niagara Frontier can truly be classified as the keystone for the ecologic and economic well being of the Lower Great Lakes System and for the populations that inhabit both shores. The Frontier is not only a focus for all forms of transportation, but also because of the unique natural environment, including the world famous Falls, is a focus for tourism. The importance of the Niagara Frontier cannot be overestimated; it is the only point along the 434 mile combined length of Lake Erie-Ontario where the land masses are close enough to be crossed relatively easily with transportation routes and people. The regional setting

of the Niagara Frontier is shown in Figure 3.

Transportation

Since the early days of its development, the Niagara Peninsula has acted as an important connecting land link between Ontario and the United States. The special geographic configuration has caused a concentration of travel routes within the region. Water transportation on the Great Lakes was the original incentive for growth within the region. Both sides of the river acted as port facilities for goods finding their way in and out of the countries on each side. Today water transportation is still of economic importance to the frontier.

The Welland Canal, located in RMN, connects Lake Erie with Lake Ontario providing an important link between the center of the North American continent and the rest of the world. In 1970, 7,200 vessels passed through the canal carrying 61,965, 510 tons of cargo consisting mainly of iron ore, coal, steel products, and agricultural products.¹⁰ The canal therefore serves as a major transportation corridor across the Niagara Region.

In addition to providing the water transport link the Niagara Region provides the only land transportation link between the U.S. and Canada for a length of 434 miles along the

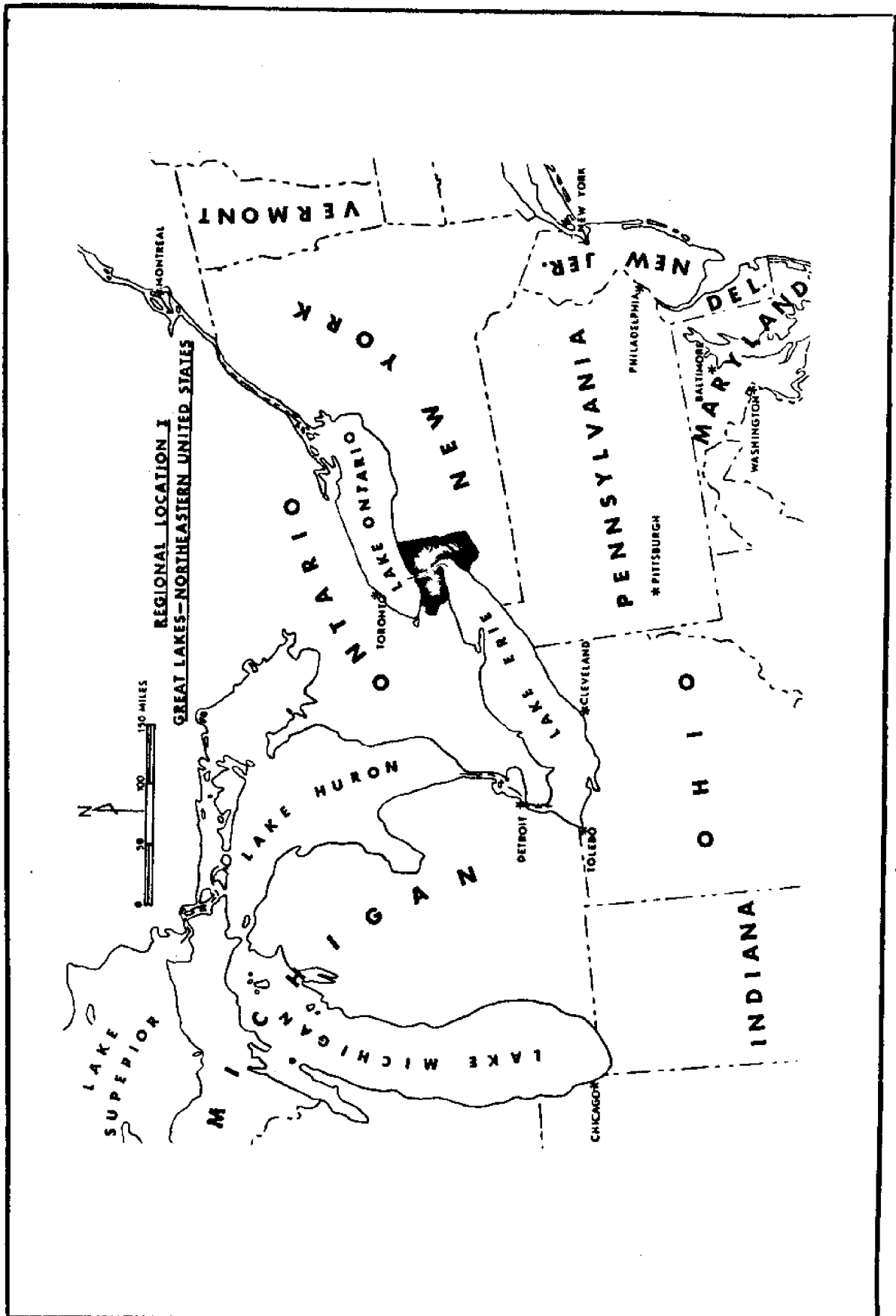


Fig. 3 - Regional Location of Study Area

international border. The connecting link for land transport is provided by major highways and rail lines.

The rail lines crossing the Niagara River are used for both passenger and freight service. The rail lines cross the river at two points; one at Buffalo-Fort Erie and the other at Niagara Falls. The Penn Central Company has its Detroit-Buffalo main line passing across the river and along the north shore of Lake Ontario. The Penn Central also connects at both crossings to the Canadian National Railroad. Data is not available on the amount of freight transported across the river but a large portion of the railroad services are designed to meet extra-regional needs.¹¹

The highway system crosses the Niagara River at four locations all connecting to the Queen Elizabeth Way in Ontario and to Interstate Highways 90, 190, and 290 in New York State. Combined crossings are estimated to be somewhere between 25,000-30,000 vehicles per day.¹² Again the Niagara Frontier provides the only international link between these main highways from Detroit on the west to the St. Lawrence River on the east.

The Niagara Frontier is located in the path of one of the major urban development corridors coming into existence in North America. It is part of the Great Lakes Megalopolis containing

the urban center of Buffalo and is flanked by Detroit, Cleveland, Toronto, and Rochester. These urban centers affect each other and have strong social and economic interactions. Trips made in the Niagara Frontier are not only intraregional trips but also include a large proportion of trips made between the Toronto-Centered Region and most of the Eastern United States.¹³ The function served by the Niagara Frontier is a critical one in the North American transportation network. It has become increasingly clear that the frontiers transportation system cannot be planned in isolation from other developments in the Great Lakes area.

Tourist Attracting Characteristics of the Region

The Niagara Region is one of the most visited areas in the world. The Falls area, the main tourist attraction, has been worldly famous for decades. The fact that the region is located in the megalopolis path results in a large number of tourists particularly in the summer months. Because there are few land access points to Canada and the Falls the region hosts large numbers of tourists. The principal focus for interregional trade in the study area appears to be tourism.

The top ten origins of vehicles visiting the Queen Victoria Park, Ontario, in 1961 are as follows:¹⁴

<u>Origin</u>	<u>Percent</u>
Ontario	35.8
Ohio	12.1
New York	11.7
Michigan	8.2
Pennsylvania	6.7
Quebec	4.0
New Jersey	2.3
Illinois	2.1
Massachusetts	1.5
Connecticut	1.4

It is suspected that because of the completion of the interstate highway system since 1961 the figures from various states may have changed considerably and that the touristic appeal is even more widespread.

Areas on both sides of the Niagara River depend on and benefit from the economics of the tourism industry although the Canadian side predominates in this regard. In 1969 36 million visits were made to Canada, 60 percent of these entering through Ontario. Approximately 70 percent of these visits were for less than one day spending an average of \$5.00 each. Roughly 35 million Canadians visited the U.S. in 1969, 75 percent remaining for less than one day and spending an average of \$2.00 each. The visitors who stayed more than one day averaged expenditures of \$66.00 and \$75.00 for United States and Canadian visitors respectively. The main mode of travel for these tourists in each case was the automobile.¹⁵

The above information highlights the importance of the

Niagara Frontier. First, the visitors from Canada are mainly from Ontario (Ontario being the most highly populated Province). Second, because of the Great Lakes, access points to either country are limited, therefore, one can suspect that most of these travelers entered either through the Detroit-Windsor-Frontier or the Niagara Frontier. Third, the high percentage of one day visits indicates that tourists are travelling to points of significant interest within one-days automobile drive. Fourth, and finally the Niagara Falls being the predominant tourist attraction in the Lower Great Lakes, must be considered the main gathering point for these tourists. Furthermore, economic base analysis for both sides of the river indicate a high interest in the tourism market potential for the region indicating that tourism plays an important role in the Niagara Frontier.

Implications

The Niagara Frontier is in a unique position to the Great Lakes System and the emerging Great Lakes Megalopolis and because of its unique position deserves special attention and study. The Frontier lies athwart the access routes between the U.S. and Canada along a 434-mile combined length of Lakes Erie and Ontario. It is because of this unique geography that the Niagara Frontier is a unique area to the Lower Great Lakes re-

ceiving perhaps more than its share of benefits but also receiving far in excess of its share of problems; economic, and environmental.

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CHAPTER II

THE POLLUTION PROBLEM

Generally speaking the entire study area is plagued by pollution of all the primary resources. It will be the purpose of this section to give a brief overview of water pollution and other environmental pollution concerns in the study area. By integrating a somewhat historical approach, particularly with regard to water quality control a perspective can be gained on the need for more effective management of all the primary resources.

Agencies on both sides of the Niagara River have expressed concern over their environment. The Erie-Niagara Counties Regional Planning Board in their Initial Environmental Survey of 1970 identified nine functional areas and/or topical concerns in the region as:¹

- Water quality
- Water pollution
- Air quality
- Air pollution
- Land quality
- Land pollution
- Waste disposal
- Provision of services
- Coordination

The study based on questionnaires sent to 20 agencies concerned with the environment indicated that for the primary resources of land, air, and water, concern was greater for pollu-

tion than it is for quality. Outright concern for land was greater than for water and far greater for water than that for air, although the greatest amount of agency resources were being devoted to water pollution. The situation is at least partially crisis oriented; high priority problem areas such as pollution of the primary resources must be resolved before interest can be generated in quality building.

On the Canadian side the Design for Development Studies have given the following priorities to environmental concerns:

TABLE 1

COMMUNITY AND REGIONAL ENVIRONMENT PRIORITIES²

<u>Needs</u>		<u>Regional Municipality of Niagara</u>
Municipal water supply		M
Municipal sewage treatment		H
Reduction of air pollution		H
Reduction of scenic pollution		H
Reduction of environmental pollution		
by chemicals, pest controls		H
Urban noise abatement		?
Protection of prime farmland		
from urban development		H
Preservation of prime recreation areas		H
Protection of fish and wildlife habitat		H
Reduction of erosion		L
Conservation of prime forest resources		L
Use and restoration of mineral sites		H
Retain open space between urban centres		H
Prevent urban sprawl along highways		H
Concentrate urbanization in selected centres		H
Maintain variety of different sized centres		L
Maintain quality of urban neighbourhoods		H
Prepare urban & rural land use plans		M

H - High Priority, M - Medium Priority, L - Low Priority.

From the chart it noted the wide predominance of high priority areas among all the community and regional environmental needs. It also must be realized that these high priorities exist at the current time and that if projected population increases, combined with a lack of coordinated effort continue, these priority areas can only be expected to become more severe.

Specific Pollution Problems

Water Quality

Since this report is partially concerned with integrated land and water management in the Niagara Frontier and as it pertains to the Great Lakes System the primary water quality concern is the Niagara River.

The Niagara River is probably the major environmental resource within the Niagara Frontier and has been and will continue to be the most important concern of those who reside on or near her banks. Therefore, in discussing the role of the Niagara Frontier with regard to the management of the Great Lakes System an investigation of the physical quality of the water is important along with the effectiveness of past and present institutions responsible for improving and maintaining a high level of quality.

However to adequately evaluate the effects of wastes gen-

erated in the frontier on the Niagara River one must go beyond the immediate vicinity of the River and include waste discharges and land practices within the entire study area. This includes sources entering Lake Erie from the Buffalo-Lackawanna area and those going into the Buffalo River because of their effect on the Niagara River.

Figures 4, 5, and 6 show the areas of either questionable water quality or severe water pollution within the study area. Figure 4 reveals the areas of questionable water quality in the Niagara River itself while Figures 5 and 6 depict areas of severe water pollution within the region.

In the Erie and Niagara Counties portion of the study area most of the region's water resources are contaminated to some degree by excessive solids, chemicals, or wastematter. In the Regional Municipality of Niagara several of the inland streams and creeks have serious water quality problems. Most of the inland water problems in the combined study area are due to industrial and municipal discharges, combined sewer overflows, septic tank systems, and land runoff.

Before discussing the water quality in the Niagara River it is best to take some frame of reference or objectives to compare against. To accomplish this we can use the recommended In-

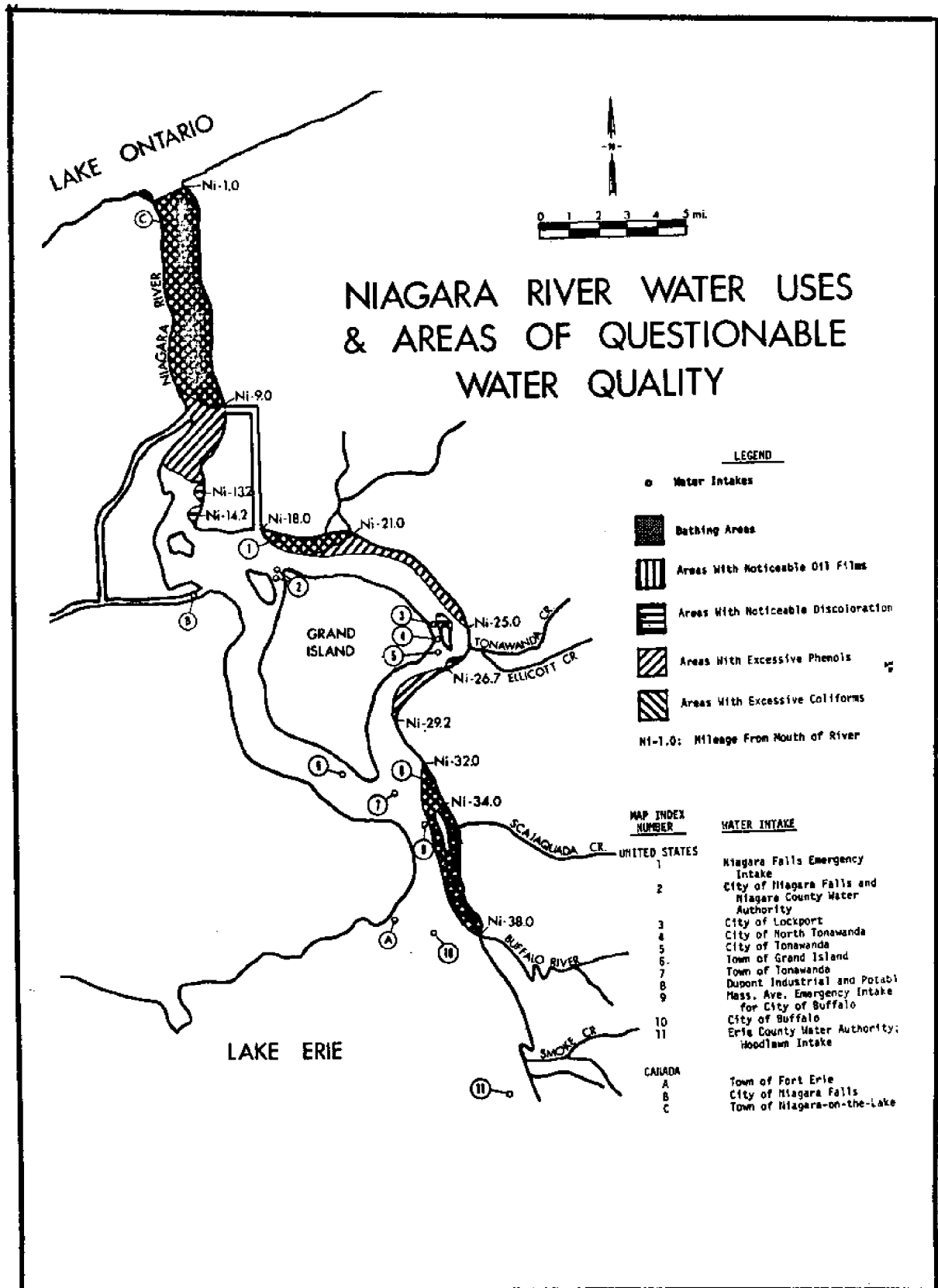


Fig. 4 - Niagara River Water Quality - Ref. 5

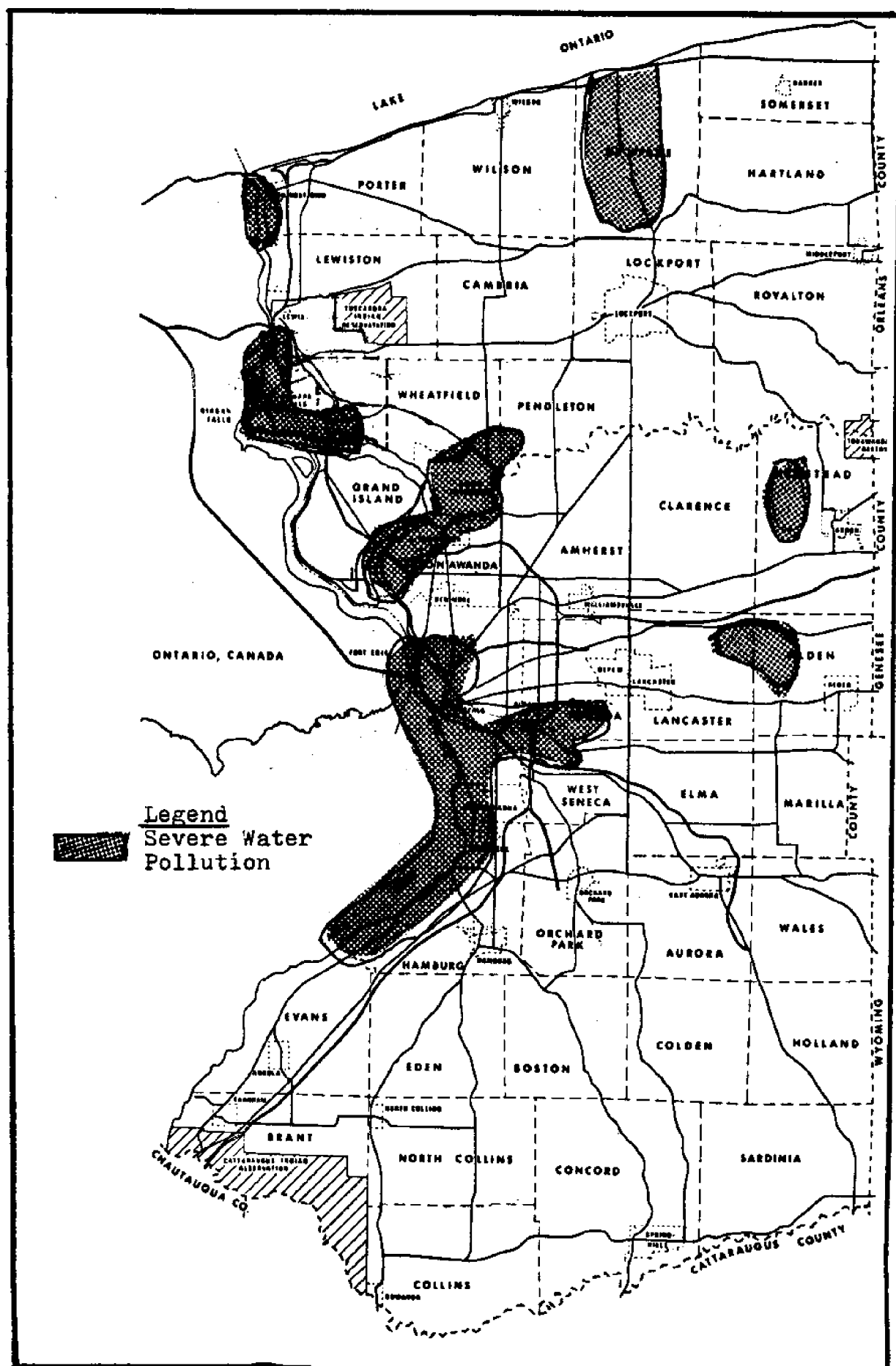


Fig. 5 - Water Pollution-Erie-Niagara Co. - Ref. 6

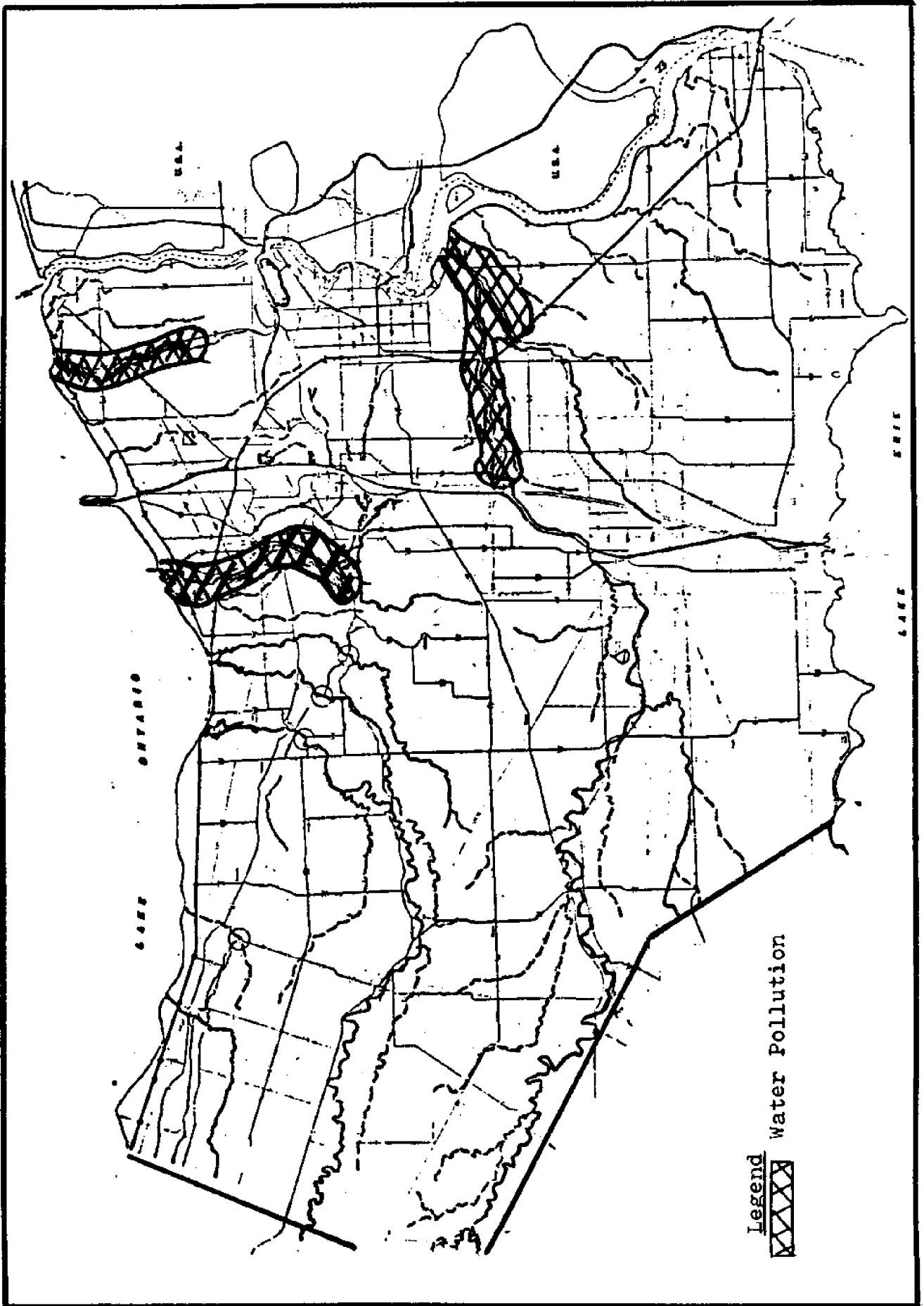


Fig. 6 - Water Pollution - Regional Municipality of Niagara - Ref. 7

ternational Joint Commission Standards³ and the new Executive Agreement Standards which in some instances go beyond the I.J.C. recommendation.⁴

Niagara River

The Canadian waters in the Upper River generally meet the I.J.C. objectives. Excessive concentrations of phenols and coliforms predominate near much of the United States shores of the Upper River and the entire portion of the Lower River. Areas of discoloration are evident near several United States outfalls. Oil problems seem to have decreased perhaps due partially to the publicity given oil pollution.

Specific Pollutants

The following summarizes the latest report available for the Niagara River:⁸

Bacterial Contamination. One good measure of the hygienic quality of the water is the density of coliforms present in the sample. Current analytical results indicate that the I.J.C. and Executive Agreement objectives of a median value of 1,000 organisms per 100ml of water are being exceeded along the U.S. shore in the Upper River.⁹

A major source of the bacterial contamination from the U.S. side comes from the Buffalo River discharge. The Buffalo River

receives treated municipal and septic tank discharges in the upper reaches along with combined sewer overflows. The Buffalo River discharge and the discharges from the communities of the City of Buffalo, Town of Tonawanda, City of Tonawanda, and the City of North Tonawanda, noticeably increase the concentration of coliforms below their outfalls. Coliform concentration in excess of 20,000 organisms per 100ml have been recently recorded in the Upper Niagara.¹⁰

In the lower Niagara the coliform densities are constant across the river and median concentration ranges from 1,000-3,000 organisms per 100ml of water. The major source of the coliforms is the overloaded plant at Niagara Falls, New York which provides only fine screening and chlorination. The plant receives wastes from a population equivalent of 450,000 while designed only for 110,000.

Phenols. The I.J.C. objectives for phenol are a maximum of 5 ug/l, an average of 2 ug/l, and a revised average of 1 ug/l. This objective is being exceeded in many areas in both the Upper and Lower River.

In the Upper Niagara River the Buffalo River is a principal source of phenols. Industries contributing to the phenol problem appear to be refineries and coke plants. The I.J.C.

report states that these industries have made significant reductions in their phenol discharge since 1967, however, an analysis of the phenol concentrations between 1967 and 1970 immediately below the Buffalo River reveals a significant increase particularly near the shore.¹¹

On the Canadian side of the Upper Niagara the waters are essentially free of phenol contamination.

The Lower Niagara phenol concentrations are fairly constant across the river and generally are not in excess of the I.J.C.'s maximum objective, although they are in excess of the desired limitation. Niagara-On-The-Lake, Ontario, which is located at the mouth of the Niagara River does treat for phenols using carbon absorption.

Oil. Oil is one of the more obvious pollutants and usually creates the most public interest. Because of this great public interest and involvement the amount of oil discharged to the Buffalo and Niagara Rivers has been greatly reduced. The I.J.C. reported that 29 million pounds of oils were discharged into the Niagara River in 1967 and that 40% came from municipal treatment plants.¹² Part of the reduction may be due to increased public pressure on gasoline service stations to properly dispose of their waste oil.

Oil will continue to be a problem however due to occasional spills. Also the Buffalo River continues to accumulate heavy surface oil films which are occasionally flushed into the Niagara during flood flows.

Iron. The I.J.C. objective is 0.3 mg/l and this objective is at times being exceeded on the U.S. side in the Upper Niagara. Iron is objectionable mainly from an esthetic point of view causing red water stains. In the Lower River the concentrations are consistently below I.J.C. objectives.

Chloride. The concentration of chlorides are not critical at this time in the Niagara. Chlorides are of historical importance, however, because of their persistent nature and their addition into the total solids accumulation. The I.J.C. objective for total solids is 200 mg/l for Lake Erie and Lake Ontario. Lake Ontario is approaching this limit and since 80-85% of the flow into Lake Ontario is from the Niagara River, this could be of concern for the near future.

Chlorides are particularly difficult to remove in the waste treatment process and are usually present in large quantities from alkaline-chlorine manufacturing as in Niagara Falls, N.Y. and also from municipal plant effluents and salt used for snow and ice removal. If chlorides do become a problem this

should add to some interesting debate which is already going on as to the effect of chlorides in the water and their benefits in preventing accidents and body injury on ice covered walks and streets.

Phosphorous. Phosphorous is not as much of concern in the Niagara River, due to the swift current which eliminates quiescent conditions favorable to algal growth, as it is in the western end of Lake Ontario which accumulates large quantities of phosphorous from the flow of the Niagara. It has been estimated that the Niagara basin adds a total of 5,500 short tons annually into Lake Ontario.¹³ In addition certain quiescent water pockets in the Niagara are capable of sustaining algal growth.

Esthetic Impairment Of The Niagara River. Discoloration, odors, and foams are particularly noticeable to the public and prompt a response much in the same way as does oil films. There are several areas in the Niagara River that are esthetically undesirable and that are also within the view of large numbers of tourists.

The City of Niagara Falls, N.Y. diversion sewer which carries large quantities of suspended solids from an industry (Carborundum) enters an eddy current and carries gray colored water to the base of the New York State Observation tower and

the "Maid of the Mist" loading docks. The main effluent from the Niagara Falls, N.Y. treatment plant discolors water about a mile downstream.

A considerable amount of foam is generated below both the American and Canadian Falls. The foam initially white, quickly turns an unsightly brown color producing a strong "manure type" odor at the "Maid of the Mist" loading docks. This foam is known to contain high concentrations of bacteria and other microbiological organisms. The odor and development of the brown color is due to the decomposition of the dead organisms, algae and other organic debris contained in the foam.

At the source of the Niagara River the waters of the Buffalo River are of different color. This frequently causes the color of the Niagara near shore to be of different color than that of the rest of the river. No solution to this problem is foreseen.

Benthic Biology. An Ontario Water Resources Commission study done in 1968 showed that benthic fauna population on the U.S. side from the mouth of the Buffalo River to range 19.3 was dominated by sludge worms and pollution tolerant snails. On the Canadian side the benthic population contained a large variety of clean water species.

The Lower Niagara benthic population was, for the most part devoid of clean water species and contained a restricted variety of species of sludge worms indicating pollution of the Lower Niagara.

Mercury. Mercury pollution is a new and emerging problem. The first scare and recognition came in the St. Clair River in 1970¹⁴ and prompted concerned agencies in the Niagara area to investigate possible users and dischargers of this material. It was found that many industries and institutions use mercury either in their industrial processes or in laboratory equipment. With regard to laboratory equipment often appreciable quantities of mercury could not be accounted for as indicated by replacement needs.

Four major industries had until recently discharged significant quantities of mercury but have ceased using the process or have installed corrective measures.

Investigators of the Niagara Falls, N.Y., treatment plant influent indicate concentrations of mercury in excess of known sources, therefore, presenting a problem in detecting all the mercury sources.

The discovery of high mercury concentrations in the fish presents a dilemma... To use an example the levels of mercury

in the St. Clair River, in all the samples ever taken, was less than the detectable limit of 5 micrograms/liter. For years it was thought that metallic mercury was very stable and would remain locked into sediments. However, the mercury manifested itself in high concentrations in predator fish, as much as 3000 times the level found in water.¹⁵

Although the I.J.C. and the new Executive Agreement set no specific standards for most metals they recommend adoptions of such standards. It still remains a problem however, to accurately assess the impact of mercury in the environment.

Dredged Material. Most of the dredged material from the polluted Buffalo River and Black Rock River are currently being disposed of in diked areas which have so far been successful in containing the disposed polluted dredgings. The problems manifested with decreased availability of land in urban areas present unique problems in dealing with local officials and others in developing future disposal sites.

Progress in Water Pollution Control

In order to shed some light on current problems a brief historical approach is necessary. The following table represents an historical look at quantities discharged into the Niagara River:

TABLE 2

WASTE QUANTITIES DISCHARGED TO THE NIAGARA RIVER

1948 16

lb./day

<u>MGD</u>	<u>BOD</u>	<u>COD</u>	<u>T.S.</u>	<u>S.S.</u>	<u>OIL</u>	<u>CN</u>	<u>PHENOLS</u>	<u>CL</u>	<u>FE</u>	<u>OTHER</u>
496	96,000 ⁺		757,130	16,000	1,755	6,370				NH ₃ ⁺ 10,565
1959 16										
			495,550	4,000	245	9,730				NH ₃ ⁺ 8,120
1967 17										
900	240,000 ⁺	213,000	880,000	813,000	64,500	970	1,300	425,000	16,300	Lead 50 PO ₄ 300 Sil. 42,500
1971 18										
370	266,000 ⁺	13,200	244,000	388,000		26.8	1,640	273,000	5,800	NH ₃ ⁺ 5,200 SO ₄ 43,000 Alk. 87,000

To briefly describe the changes or progress is complex and will require more evaluation than of just the figures in Table 1. However, due to certain limitations these are the best figures at hand and will be evaluated accordingly.

The only meaningful figures are those of 1967 and 1971, although we know that the large increase in BOD is attributable to population increase from 1948 to 1971. The large drop in daily flow from 1967 to 1971 is harder to explain. One reason is that several industries changed their inplant processes and thereby reduced their daily flows. A second major reason is that some industries have ceased operation. Thirdly, Bethlehem Steel which was using 350 MGD in 1967 has recently installed treatment at their Lackawanna Plant and, therefore, was dropped from the list. However, by adding all the industries that were either dropped or changed flows from 1967 to 1971 still does not account for the large discrepancy, a fact that will require future research.

On the positive side, however, we can see that there was significant reduction in total and suspended solids, cyanides, and oils indicating that some progress has been made. However, by I.J.C.'s own admission "the limited number of projects completed and in operation have produced localized improvement,

but have not appreciably changed the overall quality of Niagara River water.¹⁹

Water Pollution Control Problems

All of the municipalities and many of the industries are considerably behind schedule in meeting their abatement schedule. Some factors contributing to the delay are listed below:

1. In order to receive federal funding and to receive state funds the municipal sewage treatment plans have to comply with comprehensive regional studies. These studies were not completed until 1970 thereby delaying any real studies or construction by municipalities.
2. In any regional planning two or more governmental entities are involved and developing agreements between them are time consuming. Such was the case in the Niagara Basin.
3. Many more pilot studies were required than originally anticipated, particularly where joint municipal-industrial treatment was considered and also in all cases where phosphorous removal was necessary.
4. In cases where municipal-industrial treatment was considered the industry had to wait until the mu-

municipality had completed their plans before industry could make a proposal which lead to further agreement reaching difficulties and in some areas caused still further delays.²⁰

Also not included in the above, is the fact that New York State's 1.7 billion dollar bond issue has been exhausted largely on prefinancing the federal share of treatment plant costs. A large part of each new federal pollution control budget is spent paying back the states for their previous prefinancing. This process could conceivably cause further delay, particularly when considering that the federal budget for the environment, for 1973, will be the lowest that it has been in the past three years.

Also federal planning such as the regional wastewater strategies by the Corps of Engineers and the Federal legislation such as the Muskie Bill and the House Legislation (Blatnik Bill) might be causing some apprehension on the part of industry and communities, as to just what degree of treatment will be expected in the near future. Also, the Muskie Bill has provisions for the federal share of financing to be increased to 70% and under certain conditions repayment of all construction previously done is to be made on this 70% basis. A dilemma exists in that if the

total federal budget for pollution control in 1973 is \$3 billion. 70% repayment to N.Y.S., would amount to \$1.2 billion itself. This dilemma may cause additional financing delays.

Adequate financing appears to play a very significant role in controlling water pollution. In an interview with the Erie-Niagara Counties Regional Planning Board it was discovered that plans for adequately controlling all municipal pollution were ready for implementation, but were awaiting adequate funding from federal, state, and local governments.²¹

Financing municipal pollution control facilities will only solve part of the water quality problems in the Niagara Frontier. Industrial wastes in the region, because of the predominance of 'heavy' industry, is a larger problem than municipal wastes. Currently there are no direct provisions for federal aid to industry for controlling water pollution. To make the industrial situation more complex there are no provisions for economic development aid to assist regions whose industries may be forced to close down because of pollution control requirements. This problem is significant in the Niagara Frontier because much of the industry is old and operating at marginal efficiency. This industrial problem will not be discussed further to any extent, but is indeed a problem that requires sig-

nificant future research.

Other Forms Of Environmental Pollution

Other forms of environmental pollution were outlined earlier in this section. These include pollution of land, air, and scenic resources and the need for preservation of natural areas and open space.

Almost without exception the majority of available funds and efforts have been employed to combat water pollution with the result that other sources of pollution have largely been uncontrolled and unregulated. Some of the areas of other types of environmental pollution are shown for Erie and Niagara Counties in Figures 7 and 8 and for Regional Municipality of Niagara in Figure 9.

Land pollution as shown in Figure 7 is due to a combination of overhead power lines and abandoned quarries. Part of the air pollution outlined in Figures 8 and 9 is due to urbanization and industrialization, but part is also due to the heavy loads of traffic on certain transportation routes.

Figures 7, 8, and 9 do not take into account scenic pollution nor the destruction of natural or open space areas.

As for the Niagara River itself it can easily be seen that the entire length of the River is plagued by pollution in one

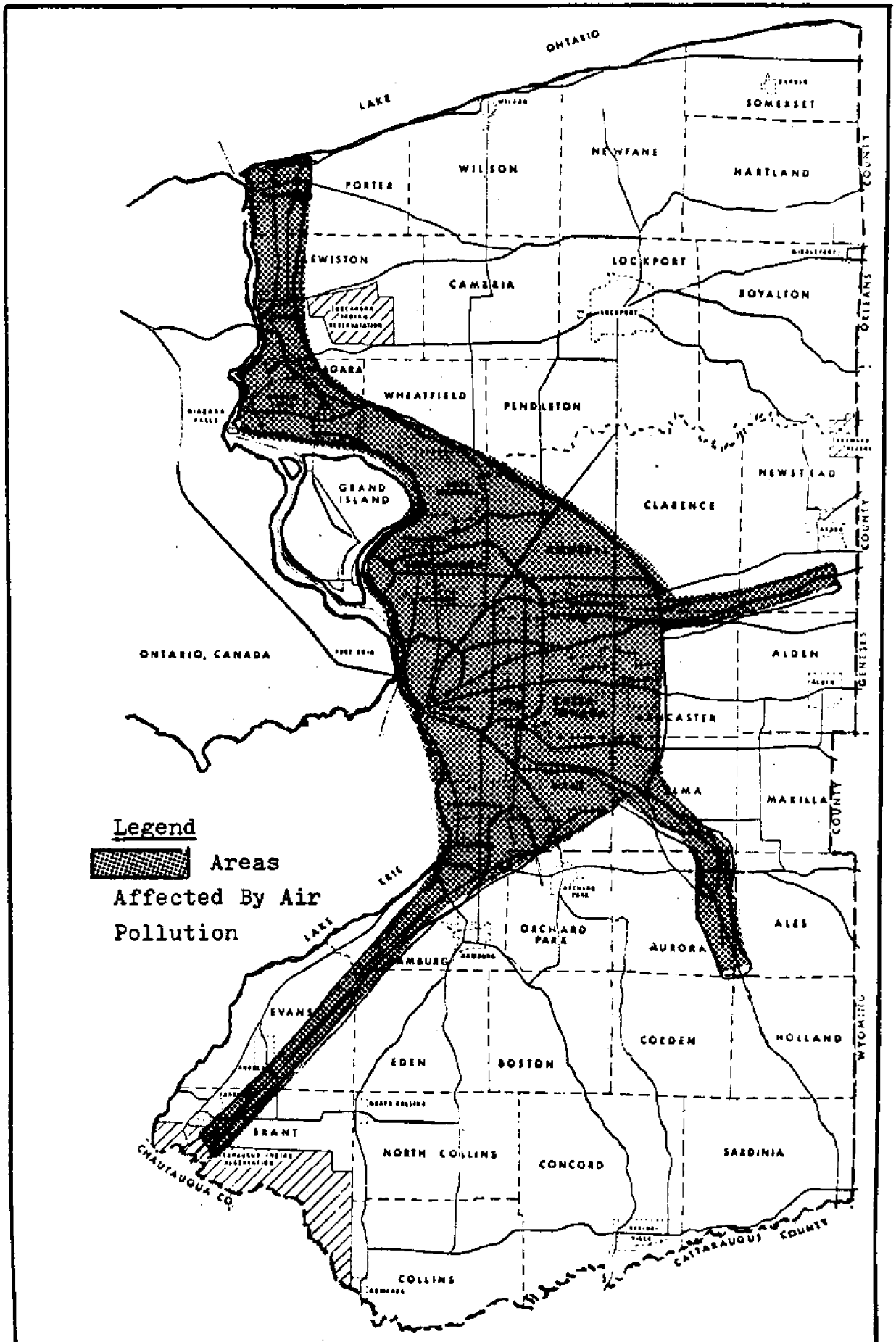


Fig. 7 - Air Pollution-Erie-Niagara Co. - Ref. 22

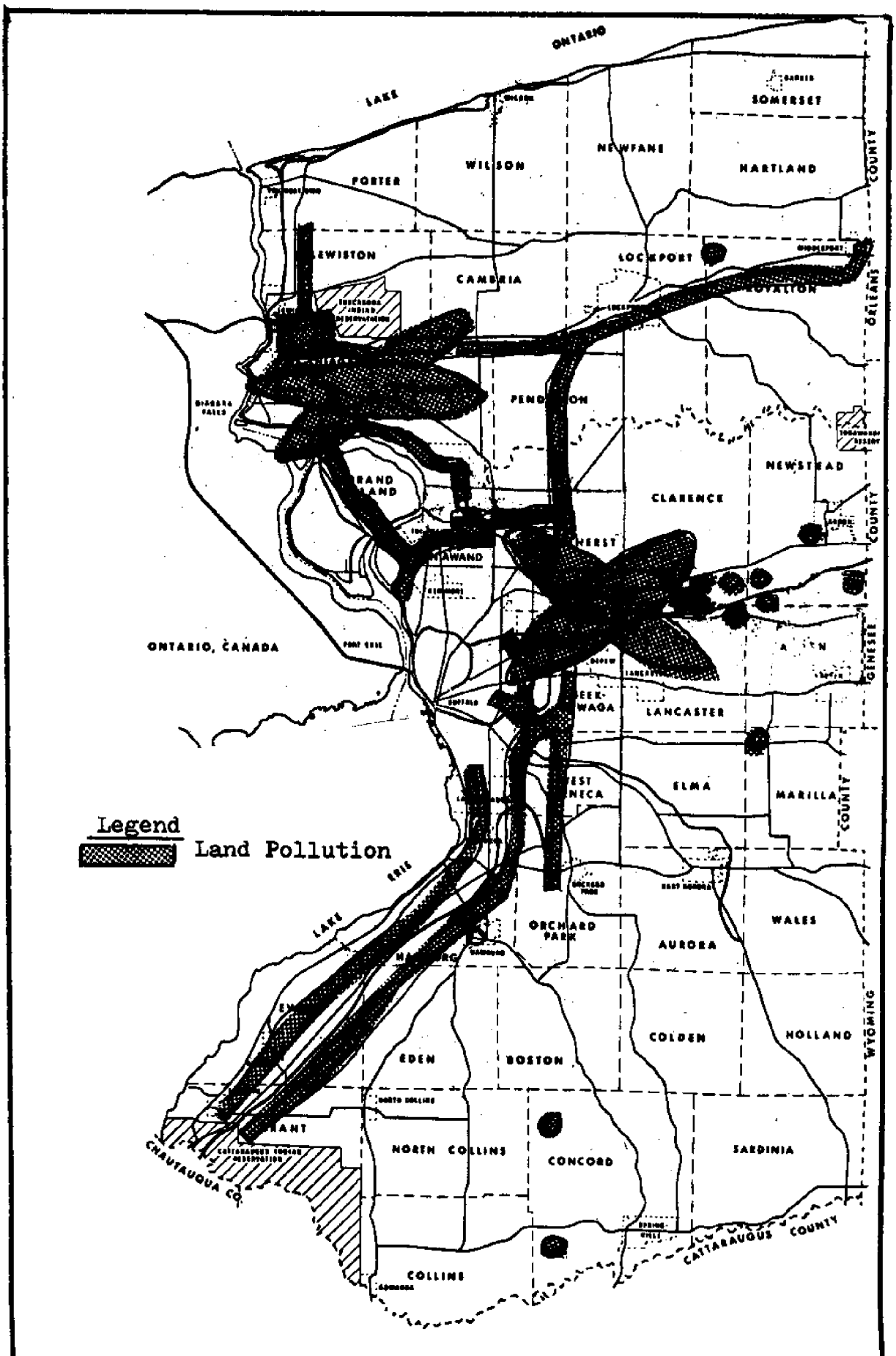


Fig. 8 - Land Pollution-Erie-Niagara Co. - Ref. 22

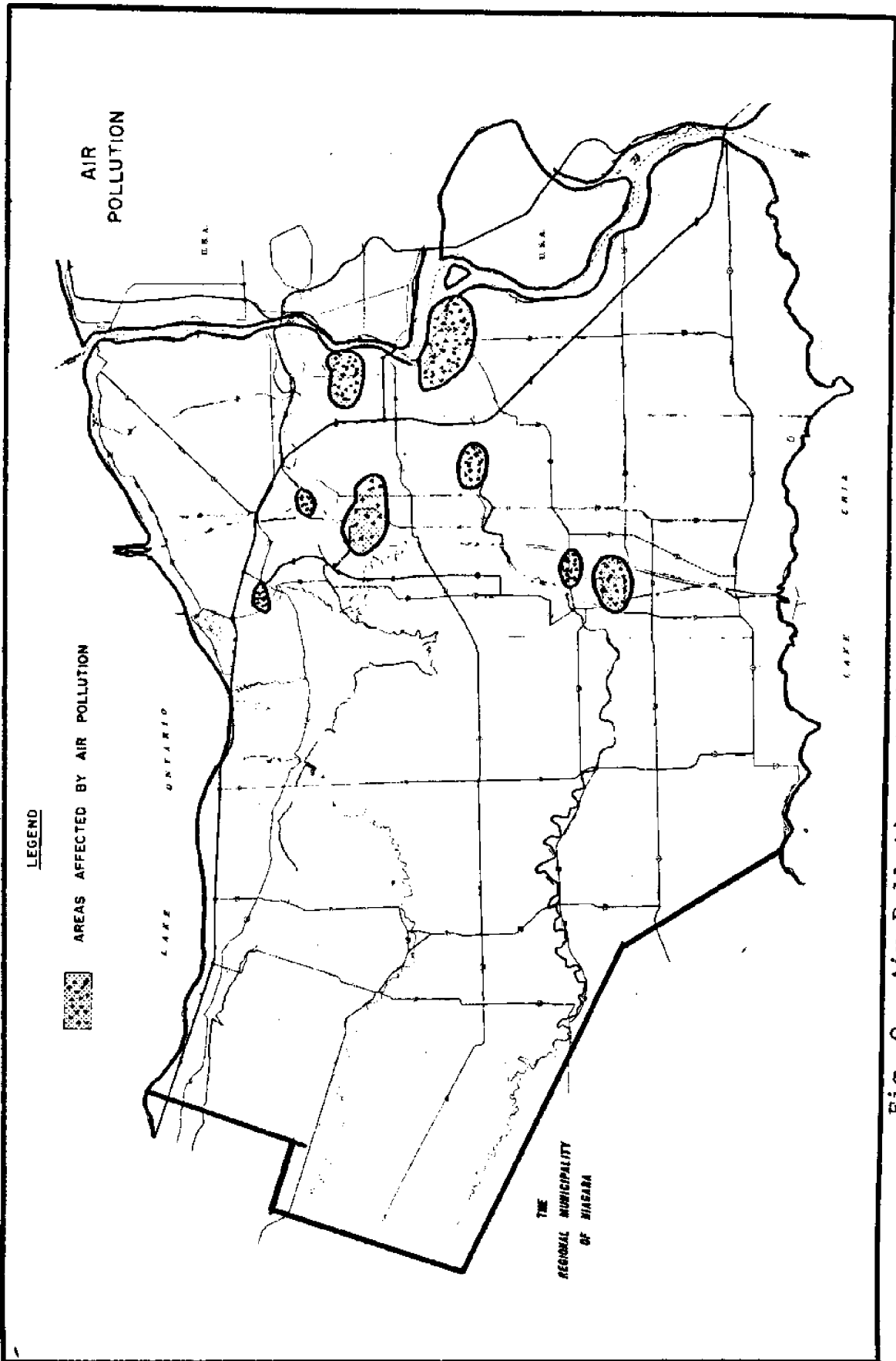


Fig. 9 - Air Pollution - Regional Municipality of Niagara - Ref. 23

form or another. In addition to air and water pollution land development along the shoreline has been unregulated and highly disorganized. Competition for industrial and residential development and recreational and conservation interest for more water and shoreline is strong and has resulted in numerous conflicting and an adverse effect upon the scenic and economic uses of the River. In many cases the public has been forever denied access to this connecting channel for recreational or aesthetic purposes.²⁴

A Perspective On Water Quality

To gain a better perspective on how effective governments at all levels have been in controlling pollution in the Niagara River the historical route can be taken to find out what conditions existed previously, what were the attempts to solve the problem, how successful the attempts were, and if they were not successful, why not. Although parts of this section is general in nature and includes other parts of the Great Lakes System the Niagara River and Frontier is certainly no exception to the points raised.

The first recognition of potential pollution problems came with the signing of the Boundary Waters Treaty of 1909 in Article 4 which stipulated that "boundary waters and waters flowing

across the boundary shall not be polluted on either side to the injury of health or property on the other side."²⁵

The first study carried out by the I.J.C. from 1912 to 1918 called the Great Lakes pollution "chaotic and disgraceful."²⁶ This early study was based largely on bacterial contamination, reflecting the almost complete lack of municipal treatment at that time.

A later report in 1950 indicated that although corrective measures had been partially implemented to ensure safe water supplies the extension of sewer services and the installation of treatment plants for domestic and industrial wastes had not kept pace with the problems arising from continued urban and industrial expansion in the Lower Lakes Basin.²⁷ Changes in manufacturing processes and commodity use had caused new and widespread pollution problems; urban and industrial complexes in the Lower Lakes were developed without adequate knowledge of the effects of multiple releases of wastes to the water.²⁸ The 1950 I.J.C. report concluded that the waters under reference (St. Clair River, Lake St. Clair, Detroit River, St. Marys River, and Niagara River) were being polluted contrary to the Treaty. Remedial measures were recommended along with objectives for boundary waters quality control.²⁹ Even though 96 percent

of the population of 3,597,900 in the combined Frontiers was being served by sewer systems and 85 percent had primary treatment the bacterial contamination in certain places in the connecting channels was found to be three to four times the average found in 1912.³⁰

The recommendations that came out of the 1950 report were subsequently approved by the two Governments to satisfy the Treaty and were reflected somewhat in pollution abatement programs in both countries.

In its 1961 report on the Boundary Waters System the I.J.C. reflected on progress from 1950 to 1959.

"Progress in achieving the objectives for connecting channels in so far as individual communities and industries has been fairly good. For example, eight years after the Governments (1959) had approved the Objectives the total daily discharge of wastes from all industries had been reduced from 13,000 to 2,500 pounds of phenols, from 9,000 to 4,000 pounds of cyanides, from 18,000 to 2,500 gallons of oil, and from 3.1 to 1.6 million pounds of suspended solids. However, the Commissions' Water Quality Objectives are not being met currently in all reaches of the Connecting Channels because the responsible authorities and industries have not provided sufficient treatment facilities to keep pace with population growth and industrial expansion."³¹

A review of two more recent reports by the I.J.C. on the connecting channels one in 1967, the other in 1968 revealed that the following wastes were being discharged into the channels:^{32,33}

TABLE 3

WASTES DISCHARGED INTO CONNECTING CHANNELS

1000 Lb./Day

	<u>BOD</u>	<u>T.S.</u>	<u>S.S.</u>	<u>OIL</u>	<u>CN</u>	<u>PHENOLS</u>	<u>CL</u>
Niagara	240 ⁺	880	813	65	1.0	1.3	425
Detroit	693	2,672	1,488	N.A.	N.A.	2.0	4,750
St. Clair	50	5,558	134	N.A.	N.A.	0.2	1,777
St. Marys	<u>94</u>	<u>755</u>	<u>149</u>	<u>N.A.</u>	<u>N.A.</u>	<u>4.0</u>	<u>4</u>
Total	1,077	9,865	2,584	65	1.0	7.5	6,956

N.A. - Not Available

With the exception of cyanides the progress reported in the 1961 report had been largely negated. The BOD being discharged had increased from 688,400 lb/day to 1,077,000 lb/day. Obviously if the objectives were not being met in 1961 they certainly were not being met in 1968. Again it is readily apparent that responsible authorities had not kept pace with the problems brought on by increased population, urbanization, and industrialization.

In 1964 under the provisions of the Boundary and Waters Treaty the Governments of Canada and the United States requested the I.J.C. to find out if the treaty was being violated with respect to pollution and if it was, to what extent, by what caus-

es, and in what localities is such pollution taking place, and what remedial measures would the I.J.C. recommend.

The Commission responded with a three volume, 800 page report in 1969 and published a summary report in 1970. With regard to the connecting channels the Commission recognized: the Detroit River is by far the greatest source of contaminants to Lake Erie and that the highly industrialized Detroit-Windsor area is responsible for most of the waste input. The Niagara River contributes over one-half of the pollutants going into Lake Ontario and that pollutants from Lake Erie outflows are augmented by local sources in the Niagara Basin. Organisms that are dominant in enriched wastes were evident at inshore locations such as the mouth of the Niagara River. Bathing beaches in the Detroit River and near Buffalo are a direct hazard to health. The highest coliform, fecal coliform, and fecal streptococcus densities in Lake Ontario were recorded near the mouth of the Niagara River indicating that the river is responsible for much of the degradation of water quality at this location. In 1969 more than 1000 barrels of oil were being discharged daily into the Detroit River. In 1967 more than 29 million pounds of oil were discharged into the Upper Niagara River. Oils discharged by industries to the eastern end of Lake Erie and

the Upper Niagara River not only destroy wild life on the Niagara, but may also kill waterfowl in Lake Ontario 100 or more miles away.³⁴

In summary, answering the requests referred to the I.J.C. in 1964, the Commission concluded that:

"...the waters referred to (Lower Lakes Basin) are being seriously polluted on both sides of the boundary to the detriment of both countries and to an extent which is causing injury to health and property on the other side of the boundary. On the basis of transboundary movement....the commission concludes that contaminants originating in one country do move across the boundary and degrade the quality of the waters in the other country... the Commission finds the polluted waters lakewide in extent; that the two principal causes are wastes discharged by municipalities and industries into the above waters in all jurisdictions which share these boundary waters."³⁵

The Commission went on to conclude that "The contribution of very large quantities of pollution materials from heavily industrialized areas such as those along the St. Clair and Detroit Rivers, the Maumee River, the Cayahoga River, the Buffalo-Niagara Falls, Rochester and Hamilton-Toronto regions has: caused eutrophication of the lower Great Lakes; depleted the dissolved oxygen in the hypolimnium of the lakes; induced adverse biological changes; been partially responsible for the dramatic changes in fish population; caused bacterial contamination along the shorelines; increased the accumulated dissolved solids and wastes in the lakes; increased water treatment problems; impaired the recreational and aesthetic values of the

Lakes..... The Upper Lakes and the connecting channels of the Great Lakes, particularly the Detroit and Niagara Rivers, have a profound effect on the water quality of the Lower Lakes. Thus it is incumbent on both countries, as a matter of urgency, to take appropriate action to preserve and where necessary enhance the quality of all the boundary waters of the Great Lakes System and its tributaries."³⁶

In addition the Great Lakes Basin Commission, in late 1971, in its 'Framework Studies on Lake Erie and Lake Ontario' summarize their planning subarea 4.1 as "the planning subarea includes that portion of Lake Erie within Michigan, the Detroit River, Lake St. Clair, the St. Clair River,... The upper 10 miles of the Detroit River, from Lake St. Clair to the junction of the Rouge River is substandard in quality due to high coliform densities and iron concentrations; the lower 20 miles of the Detroit River from the junction of the Rouge River to Lake Erie is decidedly substandard in water quality.... displaying excessive levels of coliforms, phenols, toxic substances, nutrients, suspended solids, and residue. Objectionable color, oil, and debris are also present." The GLBC describes planning subarea 4.4 as "the planning subarea including Erie County, Pennsylvania, and the New York Counties of Cattaraugus, Chautauqua, Erie, and

Niagara. The lower five miles of the Buffalo River is severely degraded by major municipal and industrial waste discharges; high ammonia, phenol, and chloride concentrations are present."³⁷ The conditions of the Niagara River are summarized by the GLBC as follows: "The nutrient-laden waters of Lake Erie, wastes from the industrial complex along the Buffalo River, and direct discharges from municipalities constitute the major pollution load to the Niagara River. Excessive growths of Cladophora in the Niagara River, along with algae from Lake Erie and the Upper Niagara River tributaries, form large accumulations below the Falls."³⁸

It is very clear that the desires and goals of past generations to protect water quality in the Great Lakes System in general and in the Detroit and Niagara Rivers in particular have not been realized. The measures that were anticipated to be effective in controlling pollution and enhancing water quality were not successful. It is readily agreed that the measures incorporated over the years have been partially successful, that is to say conditions today would be far worse if no control measures had been implemented over the past 63 years. However, the facts remain, and the evidence is clear, that past attempts have not kept pace with population growth, urbanization, and industri-

alization; that the environment desired has not been obtained, even though that desire has existed for over 50 years. In summarizing this section the following points are evident:

- 1) The Lower Great Lakes have declined in quality over the past 60 years.
- 2) The connecting channels, particularly the Detroit and Niagara Rivers and their respective drainage basins are significant determinants of the quality of water in the Lower Great Lakes and have been at least partially responsible for the decline in quality.
- 3) Past control measures have not kept pace with pollution problems.
- 4) What was said was not done; that is, Governments or responsible agencies have not been able to conform to Article 4 of the Boundary and Waters Treaty.

One may ask why haven't the desired goals been met. Why hasn't the water quality in the Niagara or any other place in the Great Lake System been restored.

Part of the answer may lie in the changing objectives. Problems were never perceived to be as acute as they have become; planning did not extend far enough into the future; more

importantly. still, either planning was not done at all or for one reason or another plans that did exist were never fully implemented.

The primary objective of the I.J.C. report of 1918 was to ensure safe drinking water supplies or in other words prevent bacterial contamination. As late as 1950 this rather simple objective still had not been met. Also between 1918 and 1950 little concern was given to industrial wastes or to wastes that contribute other constituents to the receiving stream.

In 1950 the Governments of both countries started to recognize that continued urban and industrial expansion was outpacing pollution control attempts. In the 1961 I.J.C. report full recognition of industrial wastes was given. A greater emphasis was beginning to become evident as to the complexities of the industrial pollution problem. In addition to bacterial contamination phenols, ammonia compounds, cyanides, oils, wastes from navigation, and dredging were recognized as requiring careful planning to avoid interference with the proper use of the connecting channels; the full scope of the problem was still to be recognized. The objectives at this time were to provide primary treatment for all municipal wastes plus specific objectives for stream quality of a coliform density of 2400 organisms per

100 ml of water, phenol concentration limits of an average of 2 ug/l and a maximum of 5 ug/l. As of 1967 the I.J.C. had established the above objectives plus criteria relating to pH, iron, odor producing substances, oils and floating solids, and highly toxic wastes such as cyanides and chromium. With regard to highly toxic wastes no specific criteria was set, only that "adequate protection should be provided for these wastes if substances highly toxic to human, fish, aquatic, or wildlife are (to be) eliminated or reduced to safe limits."³⁹ The lack of specific objectives can be attributed to lack of understanding at that time of the true nature of toxic materials in the food chain. It is also noticed that mercury was not mentioned. As late as 1969 scientists believed that mercury was a fairly stable compound and could remain tied up in bottom sediments. To support this belief toxic levels of mercury in St. Clair River water samples had never been above acceptable limits. Then in 1970 the mercury scare erupted in the St. Clair River-Lake St. Clair areas. It was then learned that mercury could accumulatively manifest itself in certain types of fish. This, again, is evidence of the lack of true understanding of the physical, chemical, and biological nature of industrial waste materials.

In 1970 the I.J.C. proposed new water quality objectives

for the Great Lakes and connecting channels. These objectives were:

"General Objectives:

- (a) free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits, or that will adversely affect aquatic life or waterfowl.
- (b) free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious.
- (c) free from materials attributable to municipal, industrial or other discharges producing color, odor or other conditions in such a degree as to create a nuisance.
- (d) free from substances attributable to municipal, industrial or other discharges in concentration that are toxic or harmful to human, animal or aquatic life.
- (e) free from nutrients derived from municipal, industrial and agricultural sources in concentrations that create nuisance growths of aquatic weeds and algae.

Furthermore, no substance should be introduced into these waters unless reasonable efforts have been made to ensure that it will not lead to the violation of any of the foregoing objectives.

Specific Objectives:

The Specific Objectives are for the receiving waters except in the restricted mixing zones at outfalls. (The periphery of the restricted mixing zones should be prescribed by water pollu-

tion control agencies).

- (a) Microbiology (Coliform Group)-The geometric mean of not less than five samples taken over not more than a 30-day period shall not exceed 1,000/100 ml total coliforms, nor 200/100 ml fecal coliforms in local waters.

Waters used for body contact recreation activities should be free from bacteria, fungi, or viruses that may produce enteric disorders, or eye, ear, nose, throat, and skin infections.

- (b) Dissolved Oxygen-In the Connecting Channels and in the upper waters of the Lakes not less than 6.0 mg/l at any time; in the hypolimnetic waters not less than the concentrations necessary for the support of fishlife, particularly cold water species.
- (c) Total Dissolved Solids-Less than 200 mg/l in Lake Erie, Lake Ontario and the International Section of the St. Lawrence River; in the St. Marys River, pending the results of a study of the Upper Great Lakes, a level of total dissolved solids not exceeding that of 1970; and in the other Connecting Channels a level consistent with maintaining the levels of total dissolved solids in Lake Erie and Lake Ontario less than 200 mg/l.
- (d) Temperature-No change which would adversely affect any local or general use of these waters.
- (e) Taste and Odor-No objectionable taste or odor, Phenols desirably absent but not to exceed a monthly average of 1.0 micrograms/l. Other taste and odor producing substances absent.
- (f) pH-No change from the range of levels, 6.7 to 8.5 which now exist.
- (g) Phosphorous-Concentrations limited to the extent necessary to prevent nuisance growths of algae, weeds and slimes which are or may become injurious to any beneficial water use. (Meeting this objective will require that the phosphorus loading to Lake Erie be limited to 0.39 g/m²/yr and the phosphorus loading to Lake Ontario be limited to 0.17 g/m²/yr).
- (h) Radioactivity-Elimination of radioactive materials to the extent necessary to prevent harmful effects on health. Pending the adoption of more stringent limits, in no event is gross beta activity to exceed 1,000 pCi/l, Radium-226 not to exceed 3 pCi/l and Strontium-90 not to exceed 10 pCi/l.

Additional Specific Objectives - When required, appropriate specific objectives will be established for water quality parameters including but not restricted to toxic materials, oils, and heavy metals."⁴⁰

The basic changes in these new objectives from the previous objectives were in the coliform group with a new objective being 1000 organisms per 100 ml of water, dissolved oxygen of 6.0 mg/l, a total dissolved solids limit of 200 mg/l, temperature criteria, a new phenol maximum of 1.0 micrograms per litre, a phosphorous objective, radioactivity limits, and the recognition of establishing specific objectives for other parameters in the future.

The Executive Agreement between Canada and the United States on Great Lakes water quality signed in April 1972 basically adopted the 1970 water quality recommendations of the I.J.C. with regard to microbiology, dissolved oxygen, total dissolved solids, pH, and iron. The Agreement did not set numerical specific objectives for taste and odor, phosphorous and radioactivity, although general criteria were set forth for these contaminants in the Agreement.

The Agreement also stated interim general objectives for temperature, mercury and other toxic heavy metals, persistent

organic contaminants, settalable and suspended materials, oil, petro-chemicals, and immiscible substances.

In signing the Agreement the Parties agreed to consult within one year from the date of entry into force of the Agreement for the purpose of considering specific water quality objectives for the following substances:

Ammonia	Lead
Arsenic	Mercury
Barium	Nickel
Cadmium	Oil
Certain Organic Chemicals	Phenols
Chloride	Selenium
Chromium	Sulphate
Copper	Zinc
Cyanide	
Fluoride	

Beyond the International Agreement there is a move on the national level for more stringent pollution control requirements such as the Muskie and Blatnik Bills. Legislation such as these will move objectives even higher.

Implications for the Study Area

What implications does this chapter leave for the study area? First, although this chapter mainly concentrated on water quality, it revealed that the entire study area is plagued with pollution of all the primary resources. Second, the historical perspective on water quality revealed that past control attempts have not been adequate to provide the water quality de-

sired; have not been adequate to keep pace with urbanization and industrial expansion. Third, the goals and objectives for water quality have been and are becoming ever more stringent, as more information to the effects of certain wastes on the water environment are being discovered or suspected. A catch-up game is being played to conform to previous objectives while objectives are constantly being set higher. Although this historical perspective was not limited solely to the study area, the study area is no exception and conforms to the perspective.

One may ask what significance the perspective on water quality has on other segments of the environment and for the future in the study area. In trying to combat other forms of pollution responsible agencies in the study area must recognize that some better form of management must be implemented or the road to restoring total environment quality may be much like the one followed in the case of water pollution control. In planning to provide the quality of environment desired for the future, responsible agencies must recognize that objectives and goals for the desired quality will be continuously upgraded, much in the same way as they have for water quality, and that they must plan ahead in anticipation of such changes.

Historically progress in pollution control has lagged in

meeting stated requirements. It appears that it has always been relatively easy to set the objectives, but that it has been very difficult to carry these objectives to commitment.

The attempts to determine and set objectives, although in some cases it has been painstakingly slow, is to be applauded. The action on implementing these objectives has been disappointing at all levels of government, Federal, Provincial, State, and local. The concepts have come about, particularly in the past decade rather readily, agreements have been reached on the concepts; however, if past history has anything to tell it will tell that actual commitment has lagged far behind the agreement on concepts. How long can the people in the Niagara Frontier afford to wait between the setting of objectives and the implementation of programs? It has been stated that the decade of the 70's may be the last chance to retrieve the environment. Can the people of the Niagara Frontier therefore afford to wait 10, 20, 30 or more years for actual implementation of programs?

To remedy the situation it must be decided what the study area will be like in the future, what pressures this will create on the environment, what type of environment is desired by the people in the area, and last, but most important what measures are necessary to most effectively and efficiently bring

about the desired results.

The remainder of this study will largely concentrate on the measures for effective and efficient environmental management at the lowest and perhaps the most important level of government; the local level. This is not to downgrade the importance of other levels of government, but is meant to concentrate study on the level where the action is in managing the total urban physical environment.

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CHAPTER III

MANAGING FOR THE FUTURE

Conflicts Between Urbanization and the Environment

In the past most of the emphasis on environmental quality has been on water pollution. The problems of maintaining and enhancing water quality are fairly well recognized and understood although as reported earlier attempts to restore the water environment have only been partially successful.

Because it has been anticipated that a large portion of the area will be completely urban within the next 20 years or so it is important that the conflicts between urbanization and the environment be determined. This is particularly important when considering that the Niagara Frontier contains many unique and unrenewable environmental resources such as the Falls, the Niagara River Gorge, the Niagara Escarpment, the Niagara River shoreline, the shorelines of Lakes Erie and Ontario, tender fruitbelts, etc.

After assessing the current conflicts and environmental problems in the study area the following table is constructed, relating degree of urbanization to compatibility with the environment.

TABLE 4

URBANIZATION AND COMPATIBILITY WITH THE ENVIRONMENT

	LOW INT. URBAN		MED. INT. URBAN		HIGH INT. URBAN
POP. PER SQ. MILE	200- 499	500- 999	1000- 1999	1999- 9999	10,000 ⁺
HIGH QUALITY AIR	2	2	3	3	4
HIGH QUALITY WATER	2	3	3	4	4
MAJOR WATER BODIES	2	2	2	3	4
WET LANDS	3	4	4	4	4
STEEP SLOPES	4	4	4	4	4
VEGETATION	2	2	3	4	4
NATURAL AREAS	2	3	4	4	4
MINERAL DEPOSITS	4	4	4	4	4
SCENIC FEATURES	3	3	4	4	4
FISH & WILDLIFE HAB	3	3	4	4	4
CROPLAND	2	3	4	4	4
ORCHARDS	2	3	3	4	4

1 - highly compatible

2 - generally compatible

3 - generally conflicting

4 - strongly conflicting

In the chart the categories of highly compatible, generally compatible, generally conflicting, and strongly conflicting are defined as:

1. Highly Compatible - a high quality environment can be maintained with little public action on a simple, low cost basis. Preventive planning is needed to ensure that the area does not drop to one of the other categories. Generally, high compatibility will arise where areas are rural in nature with few man made features.
2. Generally Compatible - Maintenance of a high quality environment requires some public action to keep unavoidable conflicts to a minimum; Preventive planning important but remedial planning becoming a factor.
3. Generally Conflicting - Maintenance of a suitable environment requires high expenditures, considerable public action, legislative, administrative, and fiscal measures. Some opportunities for preventive planning have already passed; remedial planning is most important. This type of conflict occurs in suburban areas facing urbanization; urbanization and suburbanization in areas where natural features predominate.

4. Strongly Conflicting - Areas where it is already difficult to protect ecological values. Environmental protection will require maximum public action, major legislative, administrative, and fiscal measures. Preventive planning is almost entirely precluded, urgent need for remedial planning and implementation. Coordination, education, demonstration projects, and citizen involvement are crucial. These conflicts will occur in areas where urban development is proposed for natural areas of high ecological value.

To determine the criticality of the conflict between urbanization and the environment it is necessary to determine what the current population densities are, what the predicted growth trends and resulting densities will be within the next few decades, where this growth is taking place, and the nature of the environment that will be affected.

On the U.S. side the Erie-Niagara County Region contains a total land area of 1,550 square miles. The region supports a population in excess of 1.3 million people with the greatest urban concentration in the western portion of the region in northwestern Erie County and southwestern Niagara County.

In 1965 the following population densities per square mile

were reported.

TABLE 5

POPULATION DENSITIES ERIE-NIAGARA COUNTIES

Densities (Persons Per Sq. Mile)	200-499	500-999	1000-1999	1999-9999	10,000 ⁺
Towns & Cities In Range	11	2	3	7	1
Area In Sq. Miles	409.6	48.4	117.3	89.6	41.4

By 1990 Erie and Niagara Counties are projected to have the following population densities per square mile.³

TABLE 6

PROJECTED DENSITIES

Densities	200-499	500-999	1000-1999	1999-9999	10,000 ⁺
Towns & Cities Proj. for Range	9	8	2	9	1
Area In Sq. Miles	354.3	301.1	51.2	165.2	41.4

The direction that this growth will take is shown in Figure 10. The Figure shows that there are three 'growth poles'. Figure 11 shows the approximate extent of potentially urbanized areas by the year 1990. By comparing the regional growth trends and urbanization pattern with Figure 12 which shows high priority problem and protection areas and second order environmental prob-

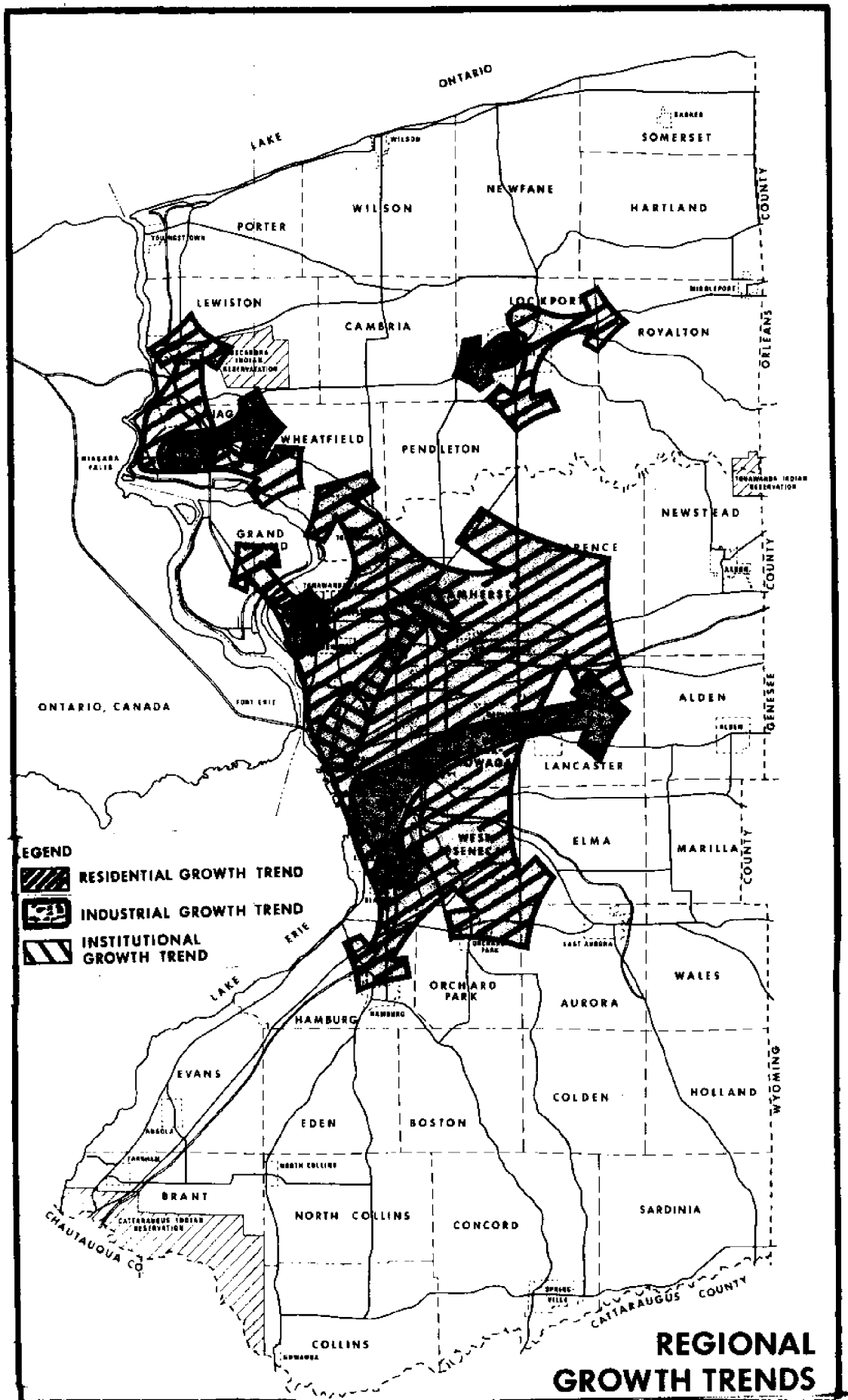


Fig. 10 - Ref. 4

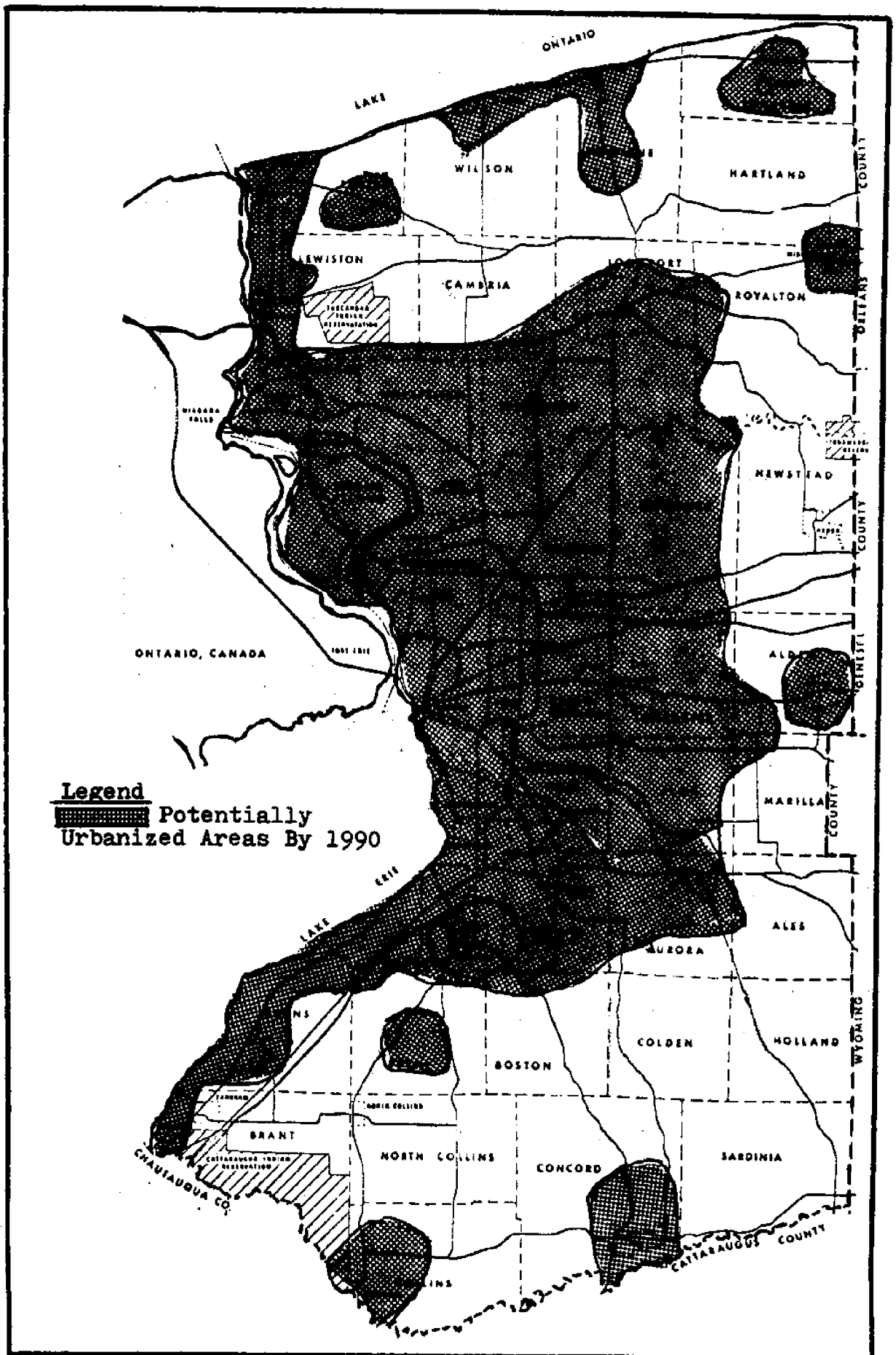


Fig. 11 - Potential Urbanization by 1990-Erie-Nia. Co.-Ref. 5

Fig. 12 - Protection and Problem Areas-Erie-Niagara Co.-Ref. 6

lem areas, it can readily be seen that much of the current and projected urbanization pattern will occur in environmentally conflicting areas. It also should be noted that much of the projected growth will occur along the Niagara River and eastern Lake Erie.

On the Canadian side the Regional Municipality of Niagara contains a total land area of 718.4 sq. miles supporting a population in 1971 of 345,012.⁷ The extent of urbanization is shown in Figure 13 and the population and area of each jurisdiction within the Regional Municipality is shown in Figure 14.

As of 1966 the following approximations of population densities and areas of each were:

TABLE 7
POPULATION DENSITIES RMN

Density Persons Per Sq. Mile	30-99	100-399	400-1499	1500-4999	5000 ⁺
Area In Sq. Mile	210	382	48	62	16
Jurisdictions Containing Density In Range	Wainfleet West Lincoln	Niagara-On-The-Lake Pellam Lincoln Grimsby Thorold Fort Erie Port Colborne	Niagara Falls	St. Catharines Welland	

The Table reflects the population densities of the majority of land area within each area municipality. There are al-

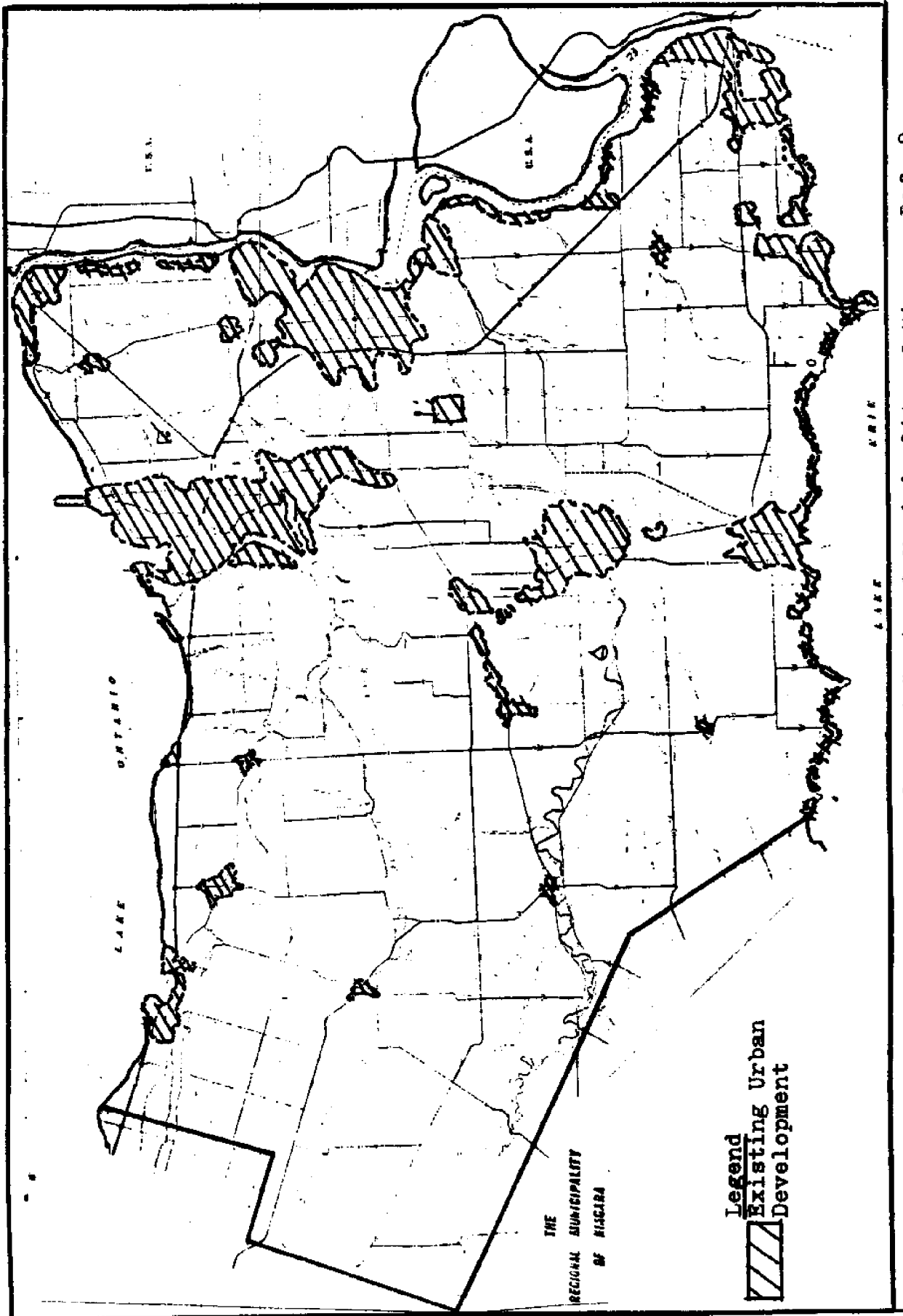


Fig. 13 - Existing Urban Development-Regional Municipality of Niagara-Ref. 8

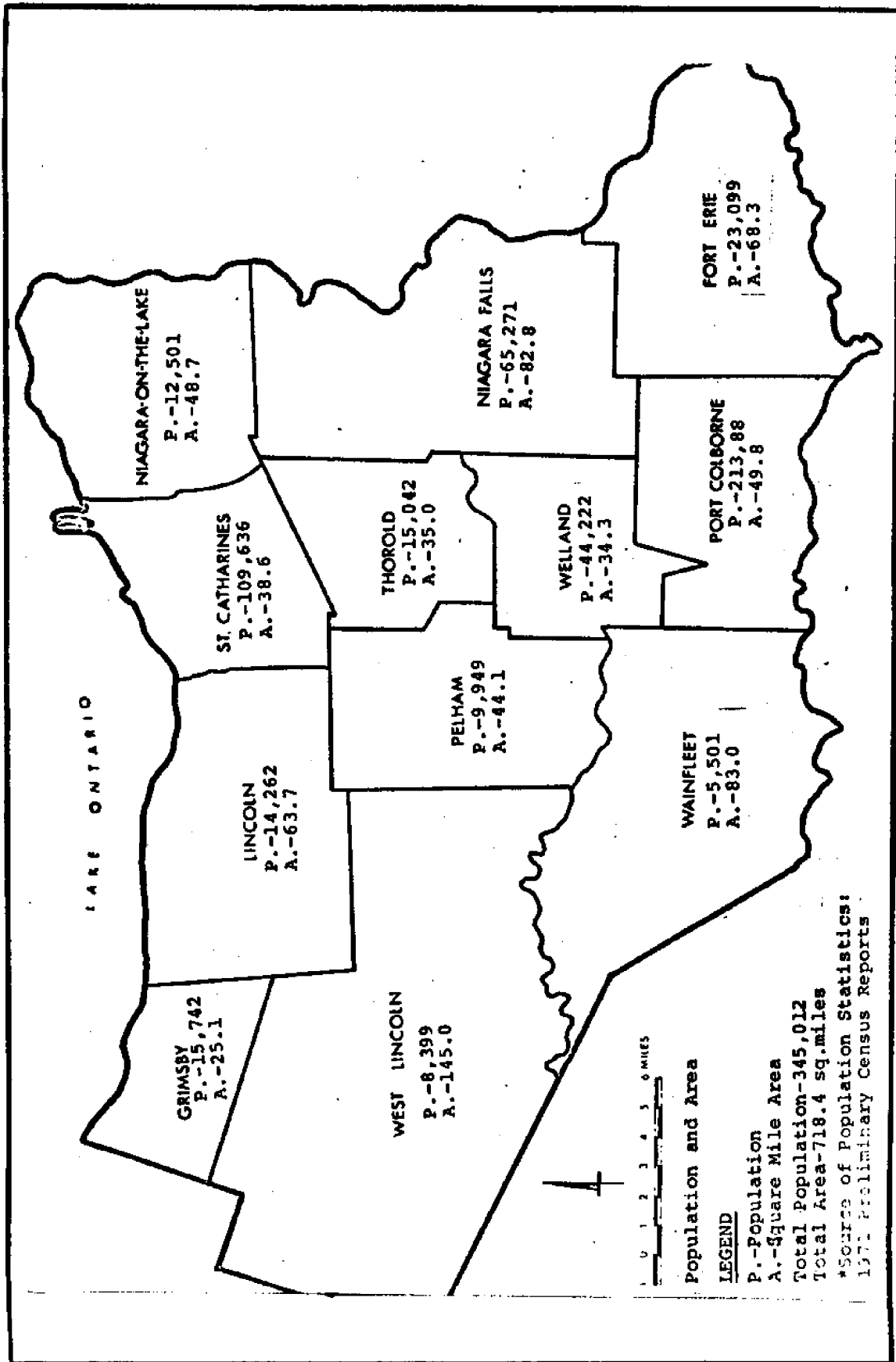


Fig. 14 - Area Municipalities-Regional Municipality of Niagara

so density concentrations within most of the jurisdictions that represent pockets of higher density concentrations.

Although the area municipalities in RMN have not been projected for future population densities as have been areas in Erie and Niagara Counties, insight can be gained by observing the population projections for some of the larger area municipalities.

TABLE 8

POPULATION PROJECTIONS FOR SOME MUNICIPALITIES IN RMN⁹

	<u>1966</u>	<u>1970</u>	<u>1991</u>	<u>2001</u>
RMN	324,917	335,698	469,568	525,167
City of Niagara Falls	61,898	64,043	100,834	117,834
City of St. Catharines	99,936	105,403	186,547	219,676
City of Welland	<u>41,478</u>	<u>43,583</u>	<u>98,961</u>	<u>115,710</u>
Total 3 Cities	203,312	213,029	386,342	453,220

If these figures are assumed to be correct, then it is relatively clear that the growth of the entire RMN will be located in these area municipalities.

This growth will manifest in three ways, the major occurrence depending on actual land use control used in the regional municipality. First, some of the urban areas may shift in

area while remaining in the same density range, second, the urban areas may shift into a higher density range, third, or what is more likely to happen is a combination of the first two; i.e., increase in population density, and increase in higher density areas. Almost certainly a proportion of the lower density areas will move up into a higher density range. Based on current trends the population increase will locate in the low and medium intensity ranges or population densities of 400-1499 and 1500-4999 persons per square mile respectively and near the three largest area municipalities. Making rough assumptions assuming 50% of the projected increase will locate in each of the two density ranges, and using as average density of 900 persons per sq. mile (p.s.m.) and 3,000 p.s.m. for the two ranges, the areas of the two density ranges will increase by 122 sq. miles and 37 sq. miles respectively for the low and medium urban intensities.

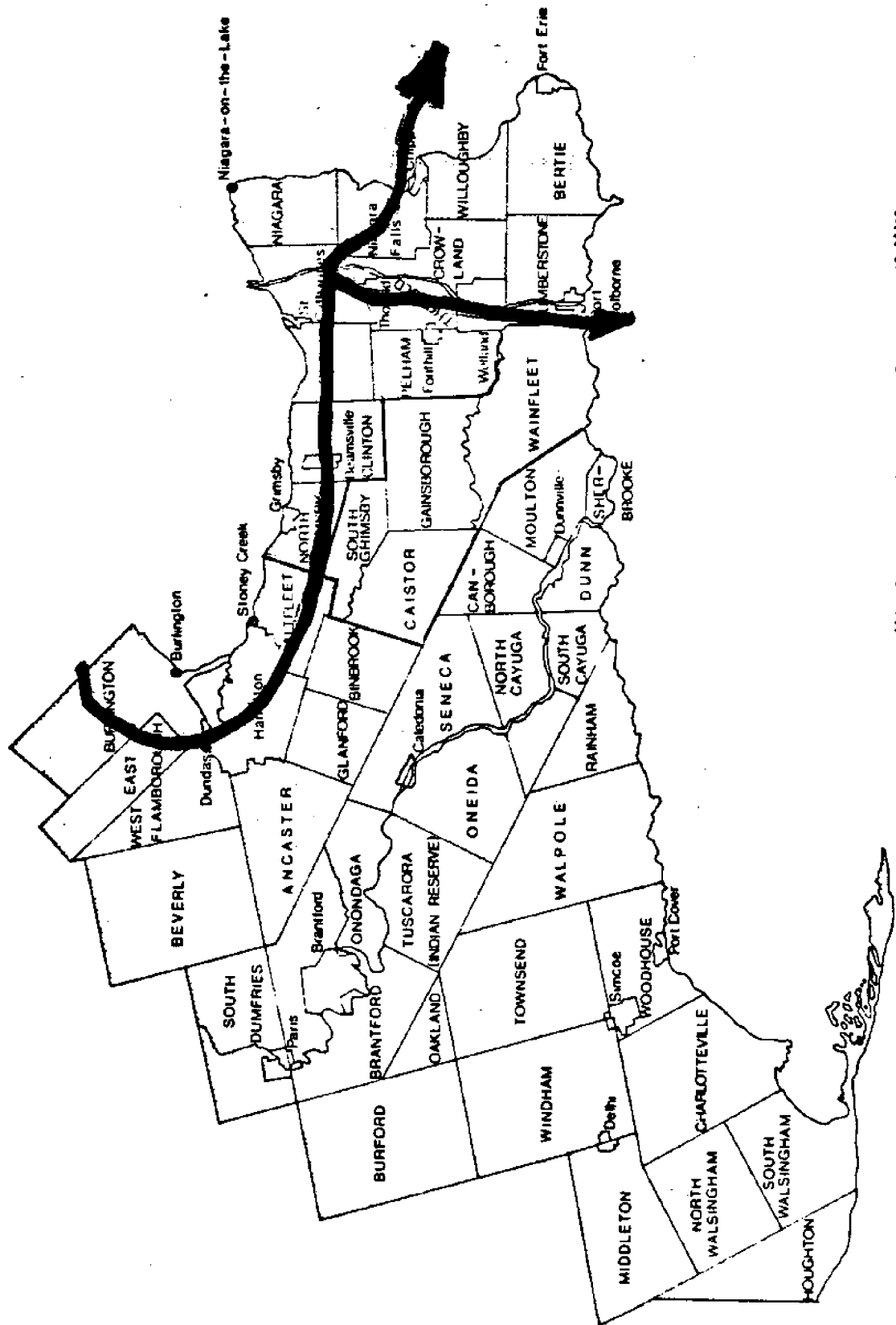
Although the above analysis shows that the main growth during the next twenty years will take place largely in the north-east and east sections of the regional municipality the growth centered on the north just west of the municipality cannot be neglected. The towns of Saltfleet and Hamilton, represent high density concentration and start an arc for population concentration in the Niagara Region which follows the Lake Ontario shore-

line from Hamilton to St. Catharines and then curves toward Niagara Falls with a secondary axis running along the Welland Canal. The line of population concentration is shown in Figure 15. This arc mentioned above is part of a larger arc that forms part of the "Golden Horseshoe" which extends from Toronto on through Buffalo-Niagara Falls to Rochester.

Figure 16 shows the extent of urban development along with the extent of prime agricultural lands (Mainly tender fruit soils reported on earlier) and natural areas. It is evident that the main growth stream will be in direct conflict with these prime agricultural lands. Referring back to the section on the pollution problem it is also evident that the main population growth will occur in areas that are already subject to air and water pollution.

If we look at both sections of the study area in the total context what is happening is readily visible. The western portion of the United States section is becoming more and more urbanized at the same time as the eastern portion of the Canadian study area particularly in the north. These type of growth patterns will almost necessarily create more and more pressures at points where the value of the environment is most important such as the Niagara River, affected portions of Lake Erie and Ontario,

NIAGARA (SOUTH ONTARIO) DEVELOPMENT REGION



REGIONAL DEVELOPMENT BRANCH DEPARTMENT OF TREASURY AND ECONOMICS
Source: Dominion Bureau of Statistics Census of Canada, Population 1966

Fig. 15 - Niagara Ontario Region Growth Pattern

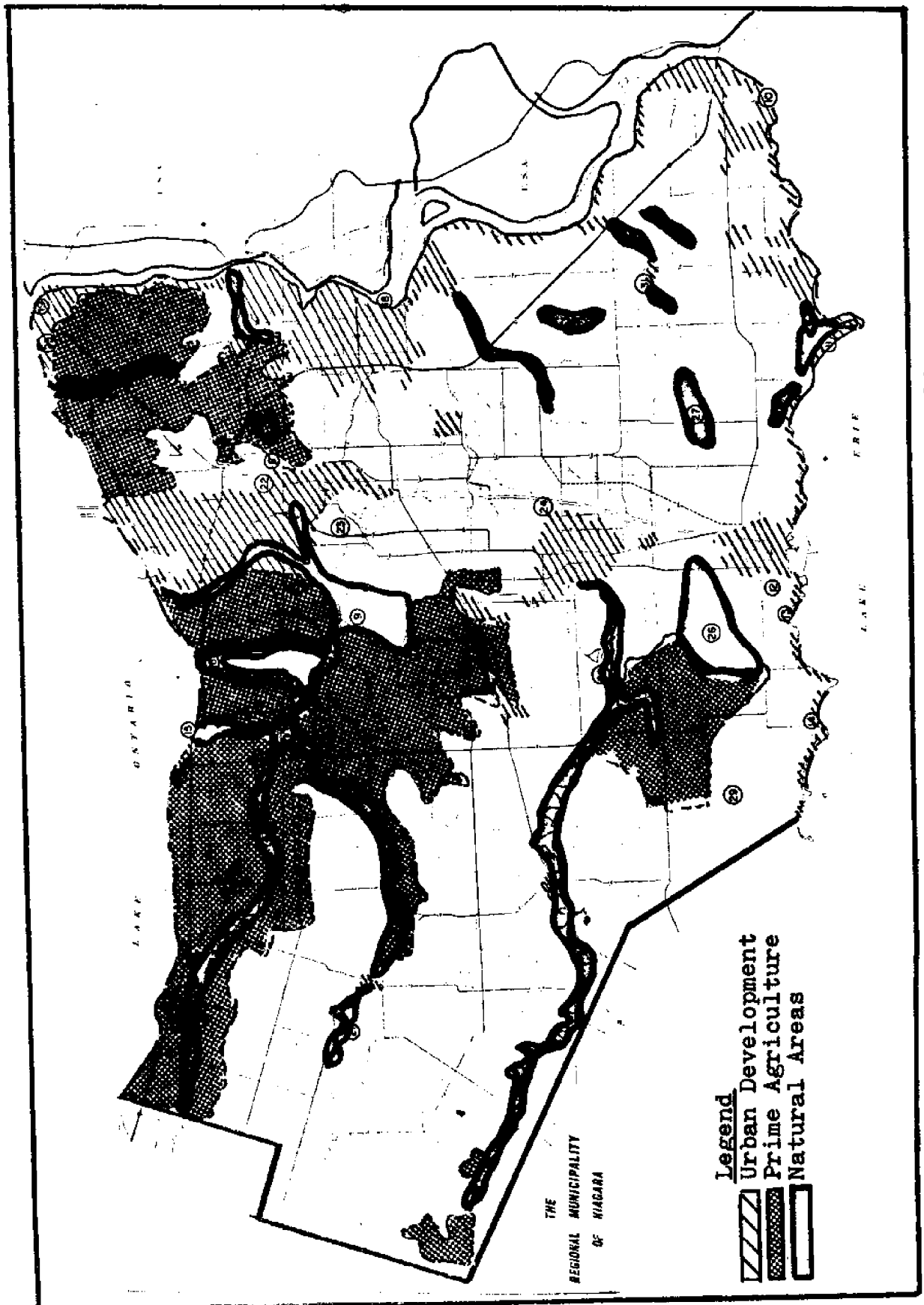


Fig. 16 - Environmental Protection Areas-RMN-Ref. 10

the Escarpment, prime agricultural lands, etc.

Regional Goals

Listing the goals of the region will help to clarify the impact between what is desired and what is happening. Without goals that are clearly defined one could say, "so what", to conflicts between urbanization and the environment.

The physical environment comprises all those natural and man-made elements and their interrelationships which shape man's physical surroundings and the quality of his life. The goals for a physical environment are to advance the social and economic well-being of its citizens, to provide physically and aesthetically favorable surroundings and to achieve a balanced ecology of man with nature. For the Niagara Frontier these goals can only be achieved through providing clean air and water and an orderly pattern of land use and population settlement. The following goals reflect a search for an enhanced quality of livability, a concern shared by both portions of the study area:¹¹

1. Economic Development Goal aimed at assisting the Niagara Region to its full potential for economic development.
- In the RMN this goal includes reducing out-migration and increasing in-migration where necessary. In Erie and Niagara Counties this goal includes diversification of

the economic base for reasons of environment as well as economy.

2. Transportation Goal aimed at providing increased accessibility between urban and rural communities in the economic movement of goods and people and increased accessibility between urban centers and natural resources, recreation areas, airports, etc. In Erie and Niagara Counties this goal includes drastically reducing transportation pollution, revitalizing public transport, and providing transportation corridors that will route future major highways, rail lines and pipelines together between urban areas to significantly reduce the negative environmental effects inherent in the region's transportation system. In the RMN this goal includes protecting the scenic nature of areas of outstanding natural beauty, particularly along highways.
3. Environment Goal aimed at conserving the regional environment in a manner which will provide the optimum livability for current and future generations. This goal transcends all other regional goals and involves solving environmental pollution problems of all forms, controlling urban areas and those of ecological value. The

goal calls for the reduction of air, water, land, noise, and scenic pollution; reduction of environmental pollution by chemicals, pest controls; and protection of fish and wildlife and their habitat. This goal indeed is shared by both sides of the Niagara River. In Erie and Niagara Counties this goal included regionalization of solid waste disposal.

4. Recreational and Cultural Goal aimed at enhancing the opportunities for residents and touring visitors to attain maximum recreational enjoyment and cultural enrichment in the use of leisure time. This goal includes the provision of open space. In Erie and Niagara Counties this goal includes providing facilities for all residents in the region including central city groups; a provision that has been lacking up to the present time.
5. Utility Goal aimed at providing a coordinated system of public utilities and services in appropriate locations based upon service area needs and development priorities; to improve the quality of treatment in public water and sewer systems in the region, and; to establish priorities for the provision of utilities and their future extensions. This goal is shared by both portions of the study

area.

6. Land Use Goal aimed at protecting and preserving both the agricultural activity and the natural environment in the rural areas of the region; providing a sufficient amount of housing for all residents in the region while recognizing the hazards, limitations and advantages of the Region's natural physical features in the planning of residential areas; concentrating urbanization in selected centers; and halting the spread of further deterioration and blight.

Since the Niagara River is the most important environmental resource it is fitting to also mention goals specifically aimed at solving the River's problems. The following, then, are goals for the Niagara River:

- Preservation of the scenic beauty of the River, Falls, and Gorge;
- Expansion and intensification of shoreline recreation;
- Improved public access to the river;
- Improvement of the quality and scope of commercial development along the river;
- Heighten public awareness of the historical heritage of the river.

Implications

Referring back to the chart relating degree of development to the environment it is clearly evident that the population densities on both sides of the Niagara River will increasingly move into ranges that either generally conflict or strongly conflict with all types of the environmental resources. Moreover the growth is taking place in areas already seriously environmentally polluted.

Based on the historical perspective on water quality and noting the lack of success with solving the problems in this one narrow activity the necessity for better planning, both preventive and remedial, and for improved legislative, administrative, and fiscal measures, to both prevent and remedy conflicts in other areas of environmental concern are clear.

The great need for the above measures, plus the need for coordination of services, and citizen involvement may lead to some questions as to the adequacy of the current system of planning and government at all levels to cope with present and future conflicts between urbanization and maintaining a high quality environment and hence high quality of life. If, as in water quality control, the system is not operating as best it could, then what type of reform is necessary, what type of ob-

stacles must be overcome to institute such reform, and how can the system best provide for the environment desired at present and in the future. Although population growth in the area is more likely to be steady than explosive; such growth will continue to place pressures upon the unique environment of the Niagara Frontier, on services and governments capabilities to plan for the avoidance of conflicts. A strong form of local government is essential to provide the necessary physical and social services, leadership, and planning.

As in the case of water quality control progress has always been limited because many governmental agencies share responsibilities in this area. The success of any plan or program, relating to the environment, is based on its ability to handle matters on a broad and comprehensive basis. This is inherent in the mere nature of the ecological cycle. Piecemeal attempts to solve problems may be successful in bringing one segment of the environment in line with society's goals at the cost of other segments of the environment. In other words when problems are handled on a piecemeal basis the gains from some types of programs may not outweigh the losses to the region as a whole.

And what about society's goals? The general goals have been stated by responsible goal setting agencies on both sides of the

Niagara River. In addition both sides have further refined these goals into more specific objectives. Furthermore, the goals and objectives, if they follow the pattern of water quality, will be expanded and set higher. Who will implement these goals and objectives at the local level?

Small scale local governments are ill-equipped either to prevent or to eliminate environmental problems, or to meet desired goals and objectives on a regional basis. The somewhat widespread use of regional water and sewer systems is one example of the realization of this fact. These types of regional authorities are rarely given any preventive powers; they are mainly assigned clean-up tasks. Controlling environmental quality and providing for regional needs must remove itself from a remedial position to one of planning and managing for the future interrelated to many aspects of community government. It is evident that a fragmented system cannot adequately meet the goals and objectives in the Niagara Frontier and is a major impediment to the speedy solution of environmental conflicts.

To some extent the newly formed (1970) Regional Municipality of Niagara has recognized the problems wrought by expanding population and urbanization and the need for some degree of municipal reform to cope with problems on a broad and comprehensive

basis.

The next two chapters will be concerned with government reform at the local level. It will discuss regional governments in general; local government on both sides of the river, including the Regional Municipality of Niagara; and the necessity for some form of regional government in managing the environment. The chapters will include recommendations to removing existing major impediments to solving urban-environmental conflicts and impediments that are preventing the regions goals and objectives from being obtained.

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CHAPTER IV
MODERNIZING LOCAL GOVERNMENTS
A REGIONAL GOVERNMENT APPROACH
TO MANAGING THE URBAN ENVIRONMENT

The Committee for Economic Development has generalized the problems of urban America, including managing the urban environment by the following statement:

"The bewildering multiplicity of small piecemeal, duplicative, overlapping local jurisdictions cannot cope with the staggering difficulties encountered in managing modern urban affairs. The fiscal effects of duplicative suburban separatism create great difficulty in the provision of costly city services benefitting the whole urbanized area. If local governments are to function effectively in metropolitan areas they must have sufficient size and authority to plan, administer, and provide significant financial support for solutions to area wide proposals."¹

Complex problems caused by a growing population, dramatic technological changes and rapid urbanization are placing intensive demands on the balanced system of national, state, and local government. It has become increasingly evident that a major obstacle to solving today's problems has been a lack of action at the community level. A major factor for this is that often local government lacks the kind of structure flexible enough to meet public needs. While modern day problems have become increasingly more complex, to a large degree, attempts to solve them have operated within a framework designed for a simpler age. This is true particularly with problems re-

lating to the physical urban environment.

Citizens in metropolitan areas are confronted with a maze of bureaucratic jurisdictions, possibly numbering a dozen or more. A citizen in the study area on the United States side may at one time, depending where he lives, be expected to exercise an informed control over city government, village and town government, county government, school district, fire district, street lighting district, sewer districts, drainage district, water district, refuse and garbage district, park district, health districts, not to mention the state and federal districts and regions. The baffling array of local units has made it difficult for citizens to gain access to public services, to have a voice in decision-making, has created apathy in the public, has discouraged local action, straitjacketed public flexibility and initiative, made regional planning only partly effective, resulted in a lack of progress on programs particularly as they involve the environment, and has placed greater reliance on national levels.

The overall course of urban development generally has been disorderly, destructive, and distasteful. It is the result of a 'laissez faire' in land use by government at all levels. Local government has been marked by economic competition, exclu-

sionary zoning, and building code anarchy. State governments usually have been passive in challenging the status quo of local units. The Federal role has been contradictory. While Congress enacted area-wide planning requirements and strengthened regional bodies, the Federal-State highway program, FHA, and location decisions by various Federal agencies have more often than not collided with long term urban development needs.²

The adverse combination of restricted annexation and unrestricted incorporation, the mushrooming of special districts, limitations on the fiscal powers of municipalities, the powers of land use delegated to a multiplicity of governments are the result of State governments timidity to mettle into urban affairs.³

The federal government has sought to aid urban areas but has only been partially effective. In the 1930's Congress started its grants-in-aid programs to assist State and local government with their financial needs. In the late 1960's the number of available programs passed the 400 mark. In 1970 Graham Watt on behalf of the National League of Cities and U.S. Conference of Mayors expressed doubt that anyone really knows how many Federal grant-in-aid programs exist, but that estimates range from 500 to 1000.⁴ This maze of grant programs at the fed-

eral level makes it near impossible for local units even to keep tract of programs that exist.

The fact that fragmentation exists at the local level indicates a strong sense of home rule. While this attitude is great for local pride it also results in a failure of local units to unite on matters of area-wide importance, such as environmental pollution which undermines the quality of urban life.

The question perhaps then is the one put forward by the Committee for Economic Development:

"Can existing forms of government in metropolitan areas be modified to permit solutions of area-wide problems and at the same time permit local communities to manage their own affairs and maintain their own identities."⁵

Unless local government is revitalized, our political and economic systems, as we now know them, will have little chance to solve public problems effectively. Institutions must not only be revitalized to handle today's needs, but more importantly tomorrow's.

There is no argument whatsoever on the need for reform, campaigns have been mounted that stress the fact that the economic and social interdependence of metropolitan areas has created problems which can only be solved on an area-wide basis. The

type of reform is what has come under argument and scrutiny.

Steps Toward Reform

Centralization vs. Decentralization

Steps towards centralizing functions into area-wide governments is not new to history. Cities have expanded their boundaries through annexation, states have assumed new functions or taken over old ones, the national government has broadened its role in domestic affairs largely through grant programs.

It is probable today that because of specialization, equipment, and professional knowledge many of the local functions could be handled most efficiently at higher levels of government; i.e., state, provincial, or national levels.⁶ But in the broader term of efficiency, effectiveness, or providing for the real needs of the community, the participation of citizens in government is keener and government more responsive to local needs where services are provided at the local level. There is therefore a conflict in a modern democratic community between the need for more technically efficient service and the need for participation and responsiveness, which will help achieve effectiveness.

Therefore, what is needed is a system that recognizes both centralization and decentralization forces. It must recognize a larger unit to permit economies of scale, area-wide planning

and control, and equities in finance. It must recognize a smaller unit with local power over the matters which effect the everyday lives of local citizens.

Forms of Governmental Reorganization

One Government Approach

Annexation. Annexation has been the most common means of changing governmental boundaries in urban areas.⁷ In the context of this study the term annexation is defined as the addition of unincorporated territory. On the surface annexation would appear to be a good device of achieving an area wide government. They have brought an appreciable amount of land under the jurisdiction of a single municipal unit. Annexations do not however represent a device for obtaining metropolitan wide services. First, they have taken place in urban areas already containing a considerable number of municipalities and one or more county governments. Second, cities that have utilized this device still control only a small portion of the metropolitan area. Therefore it does not appear that annexation can be considered a means for providing area wide services.⁸ Furthermore, there is no way to provide a two-level system under the annexation approach.

Municipal Consolidation. Municipal consolidation (Municipal annexation) is also not a viable means of incorporating area wide

government mainly for two reasons: First, state laws have largely prohibited annexation of incorporated jurisdictions; Second, and most important is the fact that even if municipalities were consolidated the rural sections of the region would be left unaffected. Inclusion of the more rural areas is of prime necessity in implementing land use control and resolving urban-rural-environment conflicts.⁹

City-County Consolidation. City-county consolidation is a broader form of one government approach to reorganization than the two methods mentioned above. The process usually consists of the complete or substantial merger of county government with the principal city or all municipalities in the county. The concept has not been used extensively, in fact, it is only functioning in eight metropolitan areas. As there is a growing feeling that many functions can best be performed on an area wide basis there is also a counterbalancing feeling, and quite justified, that some of the governmental functions may be best handled by lower units of government. Just because there are a considerable number of local governmental units in a metropolitan area does not mean that they should all be replaced by a single unit such as the city-county consolidation would provide. Furthermore, city-county consolidations are almost always a one county affair

whereas in modern times some SMSA's are intercounty.

In general, the one-government approach to area-wide problems has largely passed its usefulness.¹⁰ In terms of handling regional type situations it is almost certain to be bypassed by other reorganization techniques.

The Cooperative Approach

The cooperative approach embodies both service agreements and metropolitan councils. Many factors have prompted interlocal cooperation throughout the past years. First, the mutual needs and problems of communities faced with urban expansion, has prompted forming agreements on services that definitely were of an area wide nature and that do not pose too much of a threat to local authority, i.e. water and sewage treatment. Second, the cooperative approach has been employed deliberately as an alternative to the formation of metropolitan or regional governments that would pose a threat to local authority. Third, the cooperative approach has been employed as the last means available for some sort of reorganization after all other methods have been turned down by local voters.¹¹

In general interlocal agreements may cover a broad set of local services and facilities including airports, building inspection, civil defense, construction and operation of public

buildings, correctional facilities, election services, fire protection, flood control, health facilities, law enforcement, libraries, parks and recreation, personnel services, planning, refuse disposal, road construction and maintenance, sewage disposal and treatment, tax assessment and collection, welfare services, and water supply.

A common characteristic of interlocal agreements is that they cover one function between two governments, or a number of lower tier governments contracting to a higher government (county level) to provide services for them.

Although interlocal agreements represent a means for providing some functions on an area-wide basis there are critical limitations to this method. The first limitation is that this type of reorganization represents another piecemeal, fragmented approach to the comprehensive needs and problems of a region. The functions generally are limited to only those of a non-controversial nature. A more critical limitation is found in their financial nature. In the overwhelming number of instances, they involve the provision of services for an exchange of money.¹² An intergovernmental contract cannot very easily meet the difficulty of providing services where communities lack the fiscal resources to enter into such an agreement.

The metropolitan or regional council of governments (COG) is the newest form of institutionalized cooperation in the metropolis. Sometimes called a "new political animal" a metropolitan or regional council is a voluntary association of governments designed to provide an area-wide mechanism for key officials to study, discuss, and determine how best to deal with common problems. COG's are not a government, not a mandatory organization, they are strictly voluntary.

The councils, which are multi-governmental in membership and outlook fill a gap or need for a unified spokesman for a region. State and national governments increasingly prefer to deal with one organization than with a multitude of local units. To an important degree, the national government is counting on the councils and other regional planning organizations which are a form of the councils to bring about significant achievements.¹³

Although it is generally agreed that COG's have produced increased inter-governmental communications and regional awareness, judgements about its effectiveness have been divided. Adherents of COG's feel that they will lead to consensus while detractors believe that only talk will result.¹⁴ One can visualize, however, that the effectiveness of COG's will depend on

the particular function involved. Non-controversial functions may lead to action while controversial matters may result only in discussion. Discussion does, however, have its merits and should not be considered a negative result.

The key challenge is for councils to adopt an evolutionary rather than a static pattern of behavior. A basic problem in meeting this challenge is that members of the councils are tied to primary political loyalties to and duties in their own organizations.

Typically, local representatives to the council are unable to commit their own governments to a consensus of regional policy.¹⁵

Councils also compete with other organizations for the time and interests of its members. This is part of a problem of representation and public and political visibility of the council as an institution.

"So far councils of governments have tended to operate at a low level of public and official consciousness. For them to be successful, their roles, as program producers and opinion leaders in regional affairs, will have to be enhanced."¹⁶

The Two-Level Approach

Under the two-level approach area-wide functions are allot-

ted to an area wide government while more local functions are retained by local units producing a two-tiered organization. The majority of the two-tiered systems fall into three categories; metropolitan district, the comprehensive urban county plan, the federation. This type of system particularly meets legitimate demands for centralization and decentralization. The specific arrangements may vary to fit the economic, cultural, and political characteristics of each area. The two level approach is an alternative to those reform proponents who find a single level approach too difficult to apply.

Metropolitan Districts. Metropolitan districts are the mildest form of reorganization according to functional nature under the two-level approach. Their areas may be wide in extent and when so may in fact be considered regional governments. They are, however, generally limited in the functions that they control, often exercising control over only one function and therefore are governments of a strictly limited scope or more properly are regional special districts. This type of government represents no major upheaval in the existing governmental system.¹⁷

While the record of established metropolitan districts is impressive, they get the task assigned to them completed very well, the metro districts have their drawbacks. First they are

generally removed from public control or access, many times district governing bodies are appointed rather than elected. Some districts allow the directors to issue bonds without voter approval and allow them to annex territory through state legislatures bypassing the consent of residents within either the annexed or annexing areas. A second major criticism takes the form of the limited functional areas of concern.¹⁸

The piecemeal service by service solution to problems tends to divide a region along functional lines rather than to achieve a coordinated approach to the total complex of problems.

The Advisory Commission on Inter-governmental Relations has developed five criteria for the evaluation of special districts as a unit of government.¹⁹ These criteria are:

1. Effective Performance of the Service Involved;
2. Economy in Providing the Service;
3. Political Responsiveness;
4. Fragmentation of Governmental and Political Responsibility;
5. Perpetuation of Existing Governmental Structure.

The Commission states that the last two criteria would militate against utilization of special districts in most circumstances.²⁰ The ACIR terms the metropolitan district the "cafeteria" approach and concludes that this approach takes far too

little account of the need for equitable financing, functional coordination, political accountability, promotion of area-wide interests and matching area-wide economic unity with a large measure of political unity.²¹

Attempts to meet this criticism have come in the form of multi-purpose districts. There is little evidence that multi-purpose districts will become common.²² As the district becomes more multi-purpose in nature opposition to it increases. Multi-purpose districts pose a threat to the powers of established governments.

Urban County. The Advisory Commission on Inter-governmental Relations supports the need for stronger county governments. They underscore the need for stronger counties as a mechanism below the State level and above the localities in the following manner:

- When we seek effective regional answers to urban service problems, we, in effect are seeking an effective county government in a majority of cases;
- When we struggle with the imbalances that characterizes urban growth, economic plight of rural areas, we confront the agenda of many counties;
- When we see the consumption of valuable land on the urban fringe, ineffectiveness of land use controls, we see, in many instances, a weakness of many county governments;
- When we criticize special districts we are criticizing a shackle that limits too many counties;
- When we weigh the pros and cons of new towns and growth

centers, we end up assessing the capabilities of the counties affected;

-When we come to grips with the areawide implications of the various environmental programs and proposals requiring urgent attention, we will see a new role for counties;

-When we strive to reconcile bitter conflicts between States and larger cities, we look for an intermediary force, hopefully counties."²³

The comprehensive urban county plan involves the simultaneous reallocation of various functions from all municipalities to a county, forming a metropolitan government. The functional shifts are comprehensive and occur at the same time, usually through adoption of a charter. Through this reorganization the county assumes all area-wide functions while the localities remain in existence to perform the functions they do best.

One of the advantages of the urban county plan is that existing governmental units are utilized rather than creating a new level of government. For the reorganization to be effective major structural, functional, and financial modifications to county governments must be made. The county governments often imbedded into the state constitution, and county officials who see the reorganization as a threat to their own security generally oppose such plans.²⁴

Federation. Federation involves the creation of a new area wide government, either intercounty or one county. A metropolitan or

regional unit handles area-wide functions while local units continue to exist to handle the more local problems. Under some plans the local units are consolidated or are made larger in territorial extent to make them more viable units.

This type of reorganization provides for representation on the higher tier governing board by members from the lower tier governments.

The federation may be similar to the comprehensive urban county plan or the multipurpose districts discussed earlier. The enlargement of the local municipalities may be the only difference in some cases. If the federation is intercounty in nature it may resemble a combination of the comprehensive urban county plan and the multipurpose districts, however, the county level will no longer represent a governmental unit but the boundaries of two or more counties may represent the boundaries of the new metropolitan or regional government.

Even though federation may seem to be the logical form for governmental reorganization few serious efforts have been made to formulate plans into action. Those plans that were placed before the voters were rejected in all cases. Major attempts to form federations in the United States came prior to the 1950's, the last attempt being a federation plan for Metropol-

itan Miami in 1955 which was converted into a comprehensive urban county plan prior to adoption.²⁵

Interestingly when attempts to form federations almost vanished in the United States in the 1950's Canada started to adopt this form of reorganization. Metropolitan Municipality of Toronto was formed in 1954 and modified in 1967, Regional Municipality of Ottawa-Carleton formed in 1969, Regional Municipality of Niagara formed in 1970, Regional Municipality of York and the District Municipality of Muskota both formed in 1971.²⁶ Governments in other urban areas of Canada, particularly in Ontario are being studied and the plans for reorganization will largely be a two-level approach resembling federation or being closely similar to it.

Federation may still be a logical approach to reorganization in the United States although it faces competition from the comprehensive urban county plan and metropolitan districts. One of the disadvantages frequently mentioned is that it would create another level of government. In order not to create another level of government the elimination of county government would be necessary, an action that would incur strong opposition from county officials and their supporters.

CONCLUSIONS

This section has been devoted to a brief review of govern-

ment reorganization following three approaches; the single level approach, the cooperative approach, and the two level approach. It would appear that the two level approach, although it faces obstacles, represents the most logical approach to solving urban and related environmental problems. The single level approach does not recognize the fact that some functions can be best handled at the local level; the cooperative approach is based on cooperation, cooperation of which is not likely to come about on controversial issues.

The two level approach itself contains three alternatives. The first alternative, metropolitan district, should only be considered in the multipurpose context. Uncoordinated area-wide special districts, fragmented by function are no better than governments fragmented geographically. They do not permit a genuine approach to regional problems, nor do they create a regional system of decision making and power sharing capable of dealing with political conflicts.²⁷ Multipurpose districts, more comprehensive than special purpose districts, are frequently removed from public responsiveness, and create another, often autonomous level of government.

In order to solve area-wide problems on an area-wide basis, preserve public representation, and prevent yet another level of

government from being formed either the comprehensive urban county plan or a federation with the elimination of county government offers the best prospects.

Multipurpose districts may be left open as an alternative if resistance to the other two methods would prevent their adoption. However, in this case constituent representation should be provided.

The above conclusions are in keeping with the Committee for Economic Development recommendations:^{28, 29}

- "1. To gain the advantages of both centralization and decentralization, we recommend as an ultimate solution a governmental system of two levels. Some functions should be assigned in their entirety to the area wide government, others to the local level, but most will be assigned in part to each level. More important than the division of functions is the sharing of power. Local communities must be assigned some power over area-wide decisions...this will not provide neatness and symmetry, but effectiveness, responsiveness, and adequate resources.
2. In situations where the metropolitan area is within a single county a reconstituted county government should be used as the basic framework for a new area-wide government.
3. In cases where the metropolitan area spreads over several counties a new jurisdiction should be created which embraces all of its territory.
4. In addition to an area-wide level, modern metropolitan government should include "community districts." These units might consist of existing local government with functions readjusted to the two-level system, together with new districts in areas where no local units exists."

Even though some form of the two-level approach appears to offer the most logical solution, it must be remembered that re-

organization must be tailored to the physical, social, and economic needs of the area. Also the new organization must be flexible so that it itself can change to meet changing problems. Combating changing, evermore complex problems with straitjacketed organizations has been the mistake of the past; can it be allowed to be the mistake of the future?

The States' Crucial Role

The Advisory Commission on Intergovernmental Relations has placed the greatest emphasis on the pivotal role of the States in the federal system, believing that the States must play their role forcefully if the federal system is to survive. While this study is aimed at more local problems and needs it is important to include a few words on the States role because of their relative importance.^{30, 31} Also what is generally said about the States applies to the Provinces and as will be shown later the Province of Ontario is exercising its role much more strongly than are the States.

Since the 1930's with the advent of federal or grant-in-aid programs urban areas have found a receptive ear in Washington. In fact over the years Washington has tried to help urban areas so much through grants that now the grants-in-aid program has become a jungle in excess of 500 different types of grants.

The reason why the federal government has been limited to the grant programs is because it lacks the requisite authority, through the 14th Amendment to become involved in the problems that are under State jurisdiction.

On the structural and legal fronts, only the States can provide leadership for urban America. Unless the States reassert their responsibility, maintain their position in the partnership triangle, the balanced federal system will erode. The values of the democratic system of diversity, pluralism, protection from arbitrary majoritarianism, over centralization, and citizen participation will no longer obtain.

Most attempts to provide for reorganization on a comprehensive area wide basis, even though they may contain elements that are more favorable to public access and representation in the affairs of the urban community, have been voted down due, in part, to the vehement opposition of local officials and their supporters who would be affected by the reorganization. Smaller communities place great trust in the local officials and will tend to support them regardless of the advantages of the reorganization. This is not surprising as their local officials may be the only government at all levels that they have any visibility of. The elected officials in turn will try to block any re-

organization attempt if it threatens their security. This is an area where the States should exercise their authority in promoting and if need be enforcing reorganization.

The ACIR has made several proposals for States to initiate or legislate.³² One of these proposals, authorizing official metropolitan study commissions to plan restructuring of local government, is crucially needed in most areas immediately. Before any reorganization reform is conceived a local government review is essential. In the face of local leadership the state governments should initiate such review. Later in this paper we shall see how this review was the first step toward reorganization in Regional Municipality of Niagara, Ontario.

While this section has been brief, and admittedly only scratches the surface of reform, it has introduced some of the problems and needs of urban areas. Furthermore, this section has discussed some of the pro's and cons of various reform methods. It is important to note that the reform methods all involve steps toward providing functions or services on an area-wide or regional basis. It is not the need to provide certain services on an area-wide basis that has generated conflict but the manner in which government carries out these functions.

The above leads to the conclusion, almost accepted, unani-

mously that many of the urban problems, including environmental problems, must be managed on an area-wide or regional basis.

Politics and Criteria for Regional Government

Politics

In discussing regional governments, and in particular trying to apply the concept to the United States portion of the study area, a number of factors enter into determining the desirability for some sort of governmental reform. The need for regional government must be related to a set of specific managerial, administrative and programmatic considerations that apply to a given geographical area. How well is the existing system working, what problems does the region face, will regionalization help to solve these problems? These questions are key clues to the desirability of reform.

Earlier in this report the environmental problems of the study area, the need for legislative, administrative and fiscal reform, and the need for government to govern some functions on a broader and more comprehensive basis were discussed. Later a look will be taken at governments on both sides of the Niagara River to investigate what steps, if any, are being taken to accomplish such reform. However, in talking about regional government there is one question that should not be completely forgot-

ten and that is the political desirability of the regional concept. Although the political issues may not be critical in regionalizing such items as sewage and water treatment they do become critical when considering all the functions necessary to control the quality of the total environment.

Although this issue is left to the political scientist a few words about the political forces and problems are in order if merely to recognize their existence.

The political forces to be dealt with are composed of internal and external forces. Internal forces can either support or oppose a regional program. What can be expected from local bodies, in the way of support or opposition, that will affect regional reform programs?

External forces are those higher levels of government, state, provincial, or national, which must become involved in a regional reform effort.

Generally speaking local groups who are in opposition to governmental reform will be more aggressive than the local groups who support the reform.³³ The Advisory Commission on Intergovernmental Relations (ACIR) has put out a report entitled, Factors Affecting Voter Reactions To Governmental Reorganization In Metropolitan Areas.³⁴ The report covered eight-

een reorganization efforts in the United States from 1950 to 1961. The report lists thirteen groups, mostly central city, that normally tend to support regional efforts and eight groups, mostly urban fringe, that normally tend to strongly oppose reorganization efforts. The overall analysis of the report is that there is a "central city versus fringe" split between the groups. This phenomena is quite understandable when considering that many of the fringe groups will lose their identity under reorganization plans. The supporters of regional plans are normally fighting for marginal gains while those that are in opposition are fighting against absolute losses.³⁵ Because of the bitter struggles, witnessed in most cases, between these opposing groups a program of regional reform has little chance of succeeding without the support of external forces.

Before a higher level of government can support a reform it must be in favor of it. The desirability of a more rational local government, fewer units to control and monitor, provision of better services, all can influence higher government to support local reform.

There is, however, a counterbalancing force that would tend to cause higher government to oppose reorganization. Eventually an effective regional government, with highly capable leaders,

will become a political power in its own right. Politically they will be in a far better position to challenge State government than the relatively politically impotent separate municipalities. State governments, however, have tended to mature somewhat over the past few years, they have to some extent become more sophisticated, and generally more responsive to social needs. Realizing this they generally have come to favor the dual objectives of efficiency and access that a regional reform can bring.

In this section no solutions have been proposed to these political issues and it is also recognized that the forces mentioned may be incomplete, that there may be other forces and issues operating as well. The significant point is, however, that in any plan to reorganize to provide a higher quality environment these types of forces must be recognized and dealt with.

Criteria

If it is found desirable to regionalize functions or government then it must be determined just what is meant by a region. The Province of Ontario has developed eight criteria that a region should possess:

- "1. Community Criterion - A region should exhibit a sense of community identity based on sociological characteristics, economics, geography, and history.

2. Balance Criterion - A region should have a balance of interests so that no one group can completely dominate the region;
3. Financial Criterion - There must be a financial base adequate to carry out regional programs at a satisfactory level;
4. Functional Criterion - The region should be large enough so that local responsibilities can be performed efficiently by taking advantage of economics of scale;
5. Cooperative Criterion - Regional boundaries should facilitate maximum interregional cooperation;
6. Participation Criterion - Regional government proposals should be developed with community participation and where possible community acceptability;
7. Usability Criterion - New regional boundaries should be usable by other institutions;
8. Design Criterion - In cases where there are two tiers of government within a region both tiers should be designed with the same criteria."³⁶

Since efficiency and access are the two tenets to a viable regional government, regional schemes should try as much as possible to satisfy the eight criteria with a consideration of the twin objectives. Efficiency should not be achieved at the expense of access; nor vice versa.

A brief overview to see if the Regional Municipality of Niagara meets these criteria is in order. Earlier in this paper the physical, social, and economic characteristics of the Niagara Frontier were reviewed. It appears from that analysis that RMN very well met the community and balance criterion. For the financial criterion Provincial studies indicate that

a population of from 150,000 to 200,000 is necessary to support a full range of regional programs.³⁷ The RMN with a population in excess of 300,000 meets this criterion.

The RMN consuming the area of two former counties with a land area of nearly 800 sq. miles can easily be viewed as being large enough to satisfy the functional criterion. Also being set up along former county boundaries will aid in meeting the cooperative criterion. Later in this paper the amount of community involvement will be reported on revealing satisfaction of the participation criterion. Prior to the formation of the RMN the Counties of Lincoln and Welland already represented a single health unit. Functions such as conservation and education were already serviced on a basis larger than the two counties. Therefore, the usability criterion was fulfilled in creating the RMN.

The remaining criterion is that if there is a need and desire for a two-tiered governmental system then both tiers should be designed by the same criteria. In RMN there exists a two-tiered system, a system which promotes greater access while not degrading efficiency. The lower tier represented by an area municipality council appears to have been designed on the same basis throughout, using much of the same first seven criterion

as the Regional government thereby satisfying the last criterion.

Although these eight criterion may be reduced or added to they do represent a good framework for setting up regional governments with the least amount of difficulty.

This chapter has been devoted to modernizing local government in order to eliminate multijurisdictional problems in managing the environment. The main concept has been in providing for management on an area wide or regional basis. Now, armed with this brief overview attention will be focused on local government within the study area.

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CHAPTER V

LOCAL GOVERNMENTS IN THE STUDY AREA

For the area as a whole, the density of population has caused many common problems such as the pollution of the air, water, and to some extent land. As the area is becoming more urbanized demands are also being generated for more recreational land and greater public access to the lake and river shores. Demands for these types of resources are being generated not only from within the region but also from outside the region.

The use and problems of the environment is not the responsibility of any one single local unit. This is true particularly in the U.S. Study Area where government is highly fragmentized; it is not so true in Regional Municipality of Niagara where a regional type government has been formed.

As long as government remains highly fragmented, there can be no proper understanding of its role or activities. Progress in solving the problems of the environment has been limited because many governmental agencies share managerial or environmental control responsibilities particularly on the United States side.

Where fragmented types of government exist, it appears that some structural reform of government is essential to en-

sure that the role of government is understood, that it remains subject to democratic control, and that it has the capabilities for effectively controlling pollution and enhancing the quality of the environment.

It further appears, after a general survey of much of the literature, "that it is hard to avoid the conclusion that the use of land and resources, like common problems such as pollution, can only be tackled satisfactorily on a regional basis..."¹ It is interesting to note that all of the local government review studies going on in Ontario are recommending a push toward regional government. As of November 1971, four regional governments have been formed with another ten approaching the regional government stage. The scope of the program can be measured by the fact that these areas represent a population of 1.9 million or approximately forty per cent of all Ontario people living outside of Metropolitan Toronto.²

New York State, which contains the U.S. portion of the study area, has moved in some areas to dealing with problems on a more comprehensive basis with the formation of stronger county governments. However, as to date, only nine counties in the entire state have strengthened county governments.

The Federal U.S. government has given significance to region-

alization by funding regional planning boards like the Erie-Niagara Counties Regional Planning Board. This however still lacks the effect of a regional government.

For government, a measure of its effectiveness is its success in meeting change with sound and positive action. Earlier in this study the changes of urbanization, population growth, land use, goals and objectives, concepts of living, and others in the study area were reported on. Also the conflicts that some of these changes would have on the environment were discussed. The question to be answered now is if the governments on both sides are capable of meeting these changes with sound and positive action and if they are not then what possible changes could be instituted.

It is the intent at this time to suggest changes in governmental functions that will make government more effective in dealing with problems more or less specific to the study area. In the past regional government has come to be viewed as a cure-all for problems. It can accomplish the dual objectives of efficiency and accessibility. Centralizing some local government functions into a regional structure can overcome many inefficiencies inherent in a fractionalized system. Local representation on the regional government may allow for a more meaningful

dialogue between local residents and the regional government insuring that the regional government will be responsive to local needs.

Regional government is not, however a cure-all for all problems. Some functions are best handled at the regional level; some best at a local level. For a regional government to be effective and not just another cumbersome level of government, a clear distinction must be made regarding functions that will be regional in nature and those which will be left under local control. This distinction is sometimes hard to resolve. There is also the problem of local autonomy to be resolved.

The Ontario Economic Council also brings up two other interesting problems involved in regionalization.³ The first is that most theories on regional government neglect the financial aspect of providing municipal services. While it is generally agreed that the tax base of many municipalities is inadequate, that a regional government might well improve the current situation in equalizing assessments and collection of property taxes, the fact that both tiers of government would remain in a weak financial situation without the assistance of a state government has largely been ignored.

Impact of regional governments on existing higher levels of

administration has also been largely ignored in regional government proposals. Inevitably the regional governments will become centers of political power and may come into conflict with higher levels of government.⁴

Perhaps unfortunately, these last two points will not be taken up in this report in any depth. This is due to the personal limitations of the author and also because this is a more comprehensive study; indepth analysis of these two areas will be left to the political scientist.

This study will concentrate more on those functions of government that affect the environment and related activities. Whether recommendations on reform takes the form of a regional government or perhaps just an environmental management agency the same type of problems, i.e. local autonomy, distinction and distribution of functions, sharing of power, equalization of tax base, etc. will have to be dealt with.

Regionalization of government or of certain functions is a compromise between local control and higher level state, provincial, or federal control. It can provide the efficiencies and access that the more common state-municipality structure has historically been unable to provide. It is very evident that while society has changed the structure, of local government has

remained fairly stagnant. The federal, state, local municipality relationships that worked fine for an agrarian society is no longer strong enough or flexible enough to cope with present and emerging problems. While arguments as to the type of reform needed, whether more centralization, or more decentralization, vary widely it appears that regionalization, even though it in itself is not a cure-all, may be the best compromise available. While there is no doubt that local government plays a vital role in a rapidly changing society there also is no doubt that local governments are frustrated due to lack of resources and from having to operate in a framework that is no longer relevant to contemporary society and the demands of that society. A revitalized system appears to be essential for solving current problems and for providing wellbeing and high quality of life for future generations.

Revitalized local government structure for modern management of the environment has been recommended by the Advisory Commission for Intergovernmental Relations, the Committee for Economic Development, the provincial government of Ontario, and numerous authors of metropolitan texts.

The Regional Municipality of Niagara

The Regional Municipality of Niagara (RMN) is a two-tiered

governmental system consisting of a regional tier, governing on a broad scope the former Lincoln and Welland Counties, plus a local tier consisting of 12 area municipalities which govern on a local basis. Formerly there were 26 municipalities within the two counties; under the reorganization these were reduced to 12.

In setting up the RMN the Ontario Department of Municipal Affairs realized the great need for coordination between both tiers of government.

"The need for continuous coordination between both tiers of government in the region cannot be over-emphasized. Issues facing the entire region will affect local area municipalities. Similarly, decisions made by the area municipalities may often affect the region. Local water, sewers, road development and other decisions cannot be separated from related decisions at the regional level."⁵

To provide this type of coordination the Regional Government is headed by a Regional Council composed of 29 members including the chairman. Membership on the Council comes from within the area municipalities; members are directly elected to serve on the Council and their number is determined by the population of the area municipality. Population, and members from each area municipality are:

TABLE 9
MEMBERSHIP AND REGIONAL COUNCIL

<u>AREA MUNICIPALITY</u>	<u>1971 POPULATION</u>	<u>MEMBERSHIP</u>
St. Catharines	109,636	Mayor + 5 members
Niagara Falls	65,271	" + 3 members
Welland	44,222	" + 2 members
Fort Erie	23,099	" + 1 member
Port Colborne	21,388	" + 1 member
Grimsby	15,742	" + 1 member
Thorold	15,042	" + 1 member
Lincoln	14,262	" + 1 member
Niagara-On-The-Lake	12,501	" + 1 member
Pelham	9,949	"
West Lincoln	8,399	"
Wainfleet	5,501	"

The system of having local officials serve on the Regional Council has the disadvantage of perhaps increasing their workload, but this disadvantage is greatly outweighed by the officials becoming better informed on issues facing both regional and local governments.

The following table represents the responsibilities of the

Regional Council and those of area municipalities:

TABLE 10

REGIONAL AND LOCAL FUNCTIONS OF RMN

	Area Municipality	
	<u>Regional</u>	<u>Local</u>
<u>WATER</u>		
Supply & Purification	x	
Distribution	x	
Const. & Maint. of trunk & Dist. Mains	x	
Local Dist. Mains		x
Regulation & Stds. for local H ₂ O	x	
Inspection of all water mains in Region	x	
<u>Sewage System</u>		
Treatment	x	
Const. & Main Sanit. and storm trunk sewers.	x	
Separation of storm & san. sewers	Costs shared (25% max. regional contribution)	
Local coll. of sewage		x
Const. & Maint. local san. & storm sewers		x
Regulations & stds. for all sewers connecting to Regional System	x	
Inspection all sewers	x	
<u>Roads & Traffic</u>		
Arterial Roads	x	
Planning, Const. & maint. powers		Power of a local council over land within 150 ft. of a metropolitan road; may prohibit or restrict gas pumps within 150 ft. of a regional road. Province pays 50% of road-improvements may pay up to 80%

	Regional	Local
Local Roads		x
Traffic Control	x On access to regional roads - may close municipal roads that intersect a regional road with OMB approval -veto power over area traffic control by-laws	
Sidewalks		x
Parking	x (regional roads)	x (local roads)
<u>Health & Welfare</u>		
Board of Health	x	
Municipal financing of health unit	x	
General welfare asst.	x	
Homes for Aged	x	
Child Welfare	x	
Juvenile Del.	x	
Nurses & Day nursery	x	x
Ambulance Service		x
Mental Hospital	x	
<u>Police</u>		
Board of Commissioners	x	x
<u>Finances</u>		
Tax Collection		x
Regional Tax Levy	x	
Local Tax Levy		x
Regional & Local borrowing	x	
<u>Other Functions</u>		
Solid waste		x (may make arrangements to have region handle waste disposal)
Fire		x
Appointments to conservation authority	x	
Park lands		x
Recreation & Comm. Centers		x
Expenditures for promoting regional area	x	
Public Transportation		x
Aid to Agricultural Bodies	x	

The main functions necessary to protect and enhance the environmental resources have been delegated to the regional government. The regional government not only has the power to plan but it also can implement its programs.

The most important functions with regard to the physical environment are those functions that either directly affect the quality of environment such as pollution control, parks, recreation, conservation, land use, planning, or those that indirectly affect the environment through either fiscal or administration capabilities to carry out programs or that affect growth patterns such as water and sewer distribution and roads.

Direct Environmental Control Functions - RMN

Sewage Treatment. The Regional Council has the responsibility for design, construction and maintenance, and extension of sewage treatment plants. The Council has authority to collect fees to pay all or part of the costs of construction and operation of such facilities on approval of the Ontario Municipal Board.

Parks, Recreation, and Conservation. The Regional government has responsibility for the regional park system and some related recreation and conservation. The parks, recreation, and conservation system is rather complex in Ontario; therefore it was necessary for the Regional Council to distinguish which parks are

regional in character. Also the Province is divided into conservation authorities; RMN being part of the Niagara Peninsula Conservation Authority. The Regional Government represents all area municipalities on the Authority.

Fiscal Capabilities. The Regional Council has sole authority for obtaining financing of capital expenditures for regional or local purposes. It can therefore obtain financing at the least possible cost and provides for a unified, long range capital works program in a rational setting of priorities. In other words the Regional Council has sole authority over all capital expenditures done for either regional or local purposes.

Control of Growth Pattern Functions

Planning. With regard to framework planning the regional area is a joint planning area with local area municipalities being subsidiary planning areas. In regional planning the Regional Council exercises the duties and responsibilities of a planning board. The local area municipalities are considered to be the planning board for their municipality. The Ministers powers of approval under the Planning Text may be delegated to the Regional Council. The Regional Council of Niagara is to submit an Official Regional Plan to the Provincial Government before De-

cember 31, 1973. Local plans must conform to the regional plan.

The Regional Council is responsible for developing and updating a comprehensive land use and development plan for the region recognizing that local planning boards cannot be expected to create an integrated plan that will provide the broad scope necessary for sound and continuous planning at the regional level to resolve land use conflicts between specialized agricultural, industrial, and residential land uses.

The American counterpart to this regional planning body is the Erie and Niagara Counties Regional Planning Board.

Water Treatment and Distribution. The supply and distribution of water, including major mains, on a wholesale basis is the exclusive responsibility of the Regional Council. The distribution of local mains is left to the area municipalities.

Major Sanitary and Storm Trunk Sewers. The design, construction, and maintenance of major sanitary and storm trunk sewers and drainage outlets is the exclusive responsibility of the Regional Council.

Regional Roads. The Regional Council is responsible for the construction, repair, and maintenance of arterial roads and highways, including all former county and suburban roads, local area municipalities are responsible for local roads.

Benefits of the RMN Regional System

The Regional government in RMN therefore not only has the power to act on abating current problems on a broader scale and with more financial and administrative power than do local governments but also has the power to control growth patterns. This power to control the pattern of growth is very important. If a regional government has the power to direct growth away from high priority problem or protection areas then it in effect has the power to protect a large part of the physical environment.

The local area municipalities are left with control over some functions; they are still responsible for providing such items as fire protection, police protection, local streets, lighting, garbage collection, local water distribution, local sewer distribution, and local parks. These are services, by being of a local nature, are handled most efficiently through local control.

The lower governments also have an outlet for grievances against the Regional Council. They can appeal decisions made by the Regional Council to the Ontario Municipal Board which is at the Provincial level. This appeal system prevents the Regional Council from becoming too powerful.

The Regional Council is further checked in that its comprehensive plans must conform to the Provincial plans for the entire Southern Ontario Region. Much of what the regional government does must be approved by such agencies as the Ontario Municipal Board, the Department of Municipal Affairs, and the Ontario Water Resources Commission (now within the Dept. of Environment), among others. Any plans that the regional government develops can be voided by unfavorable comments by one of these higher agencies as to not meeting the overall goals of the Province.

In essence, the regional government system, as applied in RMN, provides for not more government, but less. True an additional tier of government has been added, but the number of jurisdictions have been reduced significantly. Moreover by entrusting those functions that affect the environment most significantly to the regional government the chain of responsibility has been greatly simplified. In governmental systems where a multitude of agencies and governmental units interact it is often very difficult to distinguish who is responsible for what. By regionalizing the most important functions this problem has been greatly reduced in RMN.

Because the regional government actually has the combined

powers of all the twelve area municipalities, it has the capability to plan and implement on a much broader, comprehensive scope, and with greater fiscal authority.

Benefits are also derived from the Provincial level in that now the Provincial agencies do not have to deal with 26 individual jurisdictions, but with only one regional government. Likewise the tasks of the area municipalities are simplified. No longer need they plan, finance, construct and operate major programs. They are thereby released to provide for and be attentive to more specific community needs.

The formation of the RMN also enabled the region to reap benefits in grants payable under the Regional Government Act. This increase in benefits was estimated to be \$1,300,758.⁶

The concept of regional government for the RMN seems to have been initiated with few obstacles, seems to be set up to function quite well, and symbolizes the near ideal municipal reform in Ontario.

The system was implemented with relative ease partially because the people in the area were among the first to realize that the old system must be altered to meet the demands of modern times.⁷ The region was fortunate in having local citizens and politicians with the insight and courage to seek

effective solutions to the problems brought on by rapid population growth.

In 1963, the public within the region, realizing that problems accompanying rapid urban growth could no longer be remedied by piecemeal, single municipality action formed 'The Niagara Peninsula Municipal Committee on Urban and Regional Research' to study the problems and consider research on the system of municipal government in the region.⁸

As the result of this initiative, seven years later, the first regional government in Ontario was formed and was named the Regional Municipality of Niagara. It appears that part of the success of this venture was due to the keen amount of public interest in the affairs of their government.

However, to say that the regional government was formed and is functioning without any problems would be a mistake. The next section of this chapter will be to investigate some of the problems experienced by the regional government in the hope that knowledge of these problems will better enable the formation of some similar type of government in the U.S. study area.

Creation of RMN

It may appear that the formation of RMN was an immediate and simple task, that it was placed upon the public with relatively

little discussion. This is far from the truth. The Province of Ontario has been studying municipal reform for a number of years and specifically the Niagara Region since 1963. The Provincial government has approached municipal reform with "deliberate caution."⁹

Subsequent to a preliminary study of the area, locally initiated in 1963, the Minister of Municipal Affairs announced a full scale local government review to be headed by Dr. H.B. Mayo. The initiation of this study was brought about by the work of a local committee known as "The Niagara Peninsula Municipal Committee on Urban and Regional Research." The study covered Lincoln and Welland counties. The study was conducted with full public involvement through hearings and widespread coverage by the press, television, and radio.¹⁰ The study was completed in 1966 at which time the Department of Municipal Affairs requested all concerned to make a serious study of the report and submit their views to the Department. After careful review of numerous briefs, a proposal for a regional government was made by the Minister on January 23, 1969. An intermunicipal committee was formed which worked out the details of the new system with Provincial officials. On October 6, 1969, municipal elections were held and the new regional government went into operation on Jan-

uary 1, 1970.¹¹

It appears therefore that the formation of the regional government was a very well planned, very well publicly involved, step-by-step affair. The Province actively sought local citizens and groups to get into the action of deciding what kind of local government they should have. This dimension of democracy is a basic tenet of Ontario's municipal reform program. Regional governments are only proposed in areas where there appears to be a great need and then only following a good deal of study, analysis, and discussion.¹² This type of approach applied during the seven year study period experienced in RMN probably was largely responsible for avoiding many of the conflicts and obstacles that would normally have arisen. It is also important to note that although the establishment of regional governments in Ontario is done by the Province, the need for some type of governmental reform was first recognized by the local citizenry in RMN. In other words local government reform was clearly desired by the people.

The reasons why there existed this keen public interest are probably varied and can only be guessed at. There are two major theories one could make: either the people in the Niagara Region were far-sighted enough to visualize present and on-

coming problems that would require local governmental reform, or; the situation in the area was at crisis proportions and the need for reform was essential.

The initial Mayo report sampled what the local people considered to be the problems of the region. Some persons interviewed thought the only problems were minor, while others considered the whole region in a mess. A minority of city spokesmen felt that there were no regional problems, only problems internal to the city (possible local autonomy feelings).

In order of frequency mentioned, the problems were listed as:

1. The common problems such as water pollution
2. Need for overall or joint planning
3. Provision of joint services; e.g. policing, welfare
4. Lightening of the financial burden on localities
5. Devising a new form of government for the area
6. Promotion of industry
7. Decline of farm lands
8. Relations between cities and townships
9. The loss of local "autonomy" and decline in power of rural townships.¹³

Whether this list of problems represents a "crisis situa-

tion" is a matter of debate, however, several interesting points can be made about the ordering of the problems. First, the common pollution problems, of which much of this study is about, headed the list. This has certain implications for the U.S. study area and also represents a keen awareness of the public about the condition of their environment. Second, the desire for joint planning and services received a high priority. This desire is almost a necessary environment for reforming government on a broad basis. Items 5 and 8 go along with each other and to a certain extent are tied in with the need for joint functions. Lastly, and quite interesting, is that loss of local autonomy received the lowest concern of all, although it still was a concern to be dealt with. It also is important to place particular emphasis on the fact that the above list of problems was made in 1963, a full seven years before the formation of the regional government:

Although there is sufficient evidence to argue that the time was ripe for change there were several other problems that had to be worked out such as agreement on boundaries, the form of the regional government, the distribution of powers, and the method of representation. Although it is not the purpose here to document how all of these problems were resolved, a summary may be

helpful.

The distinction of boundaries was greatly simplified because of the geographical nature of the Niagara Peninsula, being bounded on three sides by water. This left only the western boundary to be determined which was done along existing county lines. The form of the regional government, a regional council composed of members from each municipality seems to be the one that provides for good democratic representation. The distribution of powers as outlined earlier are those that can be best handled on an areawide basis. The powers left to the local area municipalities are those that commonly initiate the most pressure from local residents on the local government. Let the garbage collection system fail, the snowplow skip a street, the chuckholes on local streets remain unfilled, the street lighting remain inadequate; these are all problems that will cause the average local citizen to seek remedy from his own local government. Therefore, the functions that are nearest the hearts of local residents have been retained under local control. This two-tiered system avoided many of the conflicts and problems that a single tier regional government would have created. The election to representation on the Regional Council is both direct and indirect being composed of the head of council of each area mu-

municipality and an additional representative for each 20,000 population to be directly elected. This guarantees that every municipality will have representation while representation by population will assure more democratic representation.

While it appears that the formation of the RMN may represent an example of adequate and methodological planning it must have certainly had problems particularly with regard to the 14 jurisdictions that lost their identity under the reorganization. There is also a problem surfacing on the equitable distribution of tax revenues. The City of St. Catharines may desire to opt out of the regional government based on a brief presented by the Mayor and Members of the area council to the Ontario Municipal Board.¹⁴ The main feature of this dissent appears to be in the distribution of tax revenues as St. Catharines is the largest urban center in the regional municipality.

Local Government - U.S. Study Area

The American portion of the study area is composed of Erie and Niagara Counties, New York. Erie County is composed of 3 cities, 26 towns, and 15 villages. The town boundaries are contiguous so that every portion of the county outside of the corporate limits of a city is included in a town. This is not unique to the study area, but is representative of the entire

State of New York. Municipal corporations are villages and cities. The following is a table of cities, towns, and villages in Erie County.

TABLE 11

CITIES, TOWNS, VILLAGES OF ERIE COUNTY

<u>CITIES</u>	<u>TOWNS</u>	<u>VILLAGES</u>
Buffalo	Tonawanda	Kenmore
Tonawanda	Grand Island	Williamsville
Lackawanna	Amherst	Akron
	Clarence	Sloan
	Newstead	Depew
	Cheektowaga	Lancaster
	Lancaster	Alden
	Alden	Blasdell
	West Seneca	Hamburg
	Elma	Orchard Park
	Marilla	East Aurora
	Hamburg	Angola
	Orchard Park	Farnham
	Aurora	North Collins
	Wales	Springville
	Evans	
	Eden	
	Boston	
	Colden	
	Holland	
	Brant	
	North Collins	
	Collins	
	Concord	
	Sardinia	

In 1966 in addition to the cities, towns, and villages mentioned above Erie County contained 30 school districts, 33 fire districts, 51 fire protection districts, 315 street lighting districts, 110 sewer districts, 78 drainage districts, 148 water districts, 9 refuse and garbage districts, 2 park districts, 2

consolidated health districts, 4 county districts, 6 housing authorities, and 4 urban renewal agencies.

Niagara County contains 3 cities, 12 towns, and 5 villages. The following is a list of cities, towns, and villages in Niagara County:

TABLE 12

CITIES, TOWNS, VILLAGES - NIAGARA COUNTY

<u>CITIES</u>	<u>TOWNS</u>	<u>VILLAGES</u>
Niagara Falls	Porter	Barker
North Tonawanda	Wilson	Wilson
Lockport	Newfane	Middleport
	Somerset	Youngstown
	Hartland	Lewiston
	Royalton	
	Lockport	
	Pendleton	
	Cambria	
	Lewiston	
	Wheatfield	
	Niagara	

In 1966 in addition to the cities, towns, and villages mentioned Niagara County contained 10 school districts, 2 fire districts, 12 fire protection districts, 14 street lighting districts, 14 sewer districts, 6 drainage districts, 40 water districts, 9 refuse and garbage districts, 1 consolidated health district, 2 county districts, 4 housing authorities, and 2 urban renewal agencies.¹⁶

In total the two Counties of Erie and Niagara contain 64 governmental units, plus the two County Legislatures, plus nu-

merous special districts.

At first glance it is relatively easy to realize that the study area on the American side is much more complex as far as jurisdictional bodies are concerned than is the RMN. With the RMN it is relatively simple to find out who does what and who is responsible for what. The situation on the American side is not so clear. Even the Erie and Niagara Counties Regional Planning Board (ENCRPB), probably the most aggressive regional oriented agency in the U.S. study area, concluded their 1970 Initial Environmental Survey with the following three points:¹⁷

1. One agency must assume overall responsibility (control or review) for regional environmental action.
2. Emphasis must be placed on action rather than studies which may or may not refute previous studies.
3. Needed immediately, and apparently not anywhere available is a documented structure of environmental management; who is responsible for what and how do they exercise their authority in the Erie-Niagara region.

The Planning Board based their conclusion on a survey of 19 agencies with varying degrees of environmental responsibility in the region. Of the 19 responding agencies the following patterns were revealed:

1. 18 agencies were active in providing information;
2. 17 agencies see themselves as being active in the functional area of waste disposal;
3. Agency concern of every primary natural resource is greater for pollution than it is for building quality;
4. In general, agencies appear to be more oriented to generating information than controlling, reviewing, or developing action to affect the frontier area;
5. Development appears to be the least common activity.

That multiplicity of government in both Erie and Niagara Counties has led to certain inadequacies was brought out by the same survey. The following obstacles to solving environmental problems were listed by respondents to the questionnaire:

- Lack of implementation of studies;
- Lack of public concern;
- Lack of sufficient funds;
- Home rule impedes consolidation;
- Exorbitant sewerage and sewage treatment plant costs;
- Multiplicity of planning agencies;
- Lack of uniform penalties for water pollution;
- Apathy of taxpayers to bear the cost of pollution;
- Lack of regional cooperation;

- No citizen interest or representation;
- Lack of leadership;
- Narrow minded local leadership irresponsive to anything except home rule;
- Lack of aggressive programs on environmental issues;
- Lack of innovative regional concepts-greenbelt and multipurpose utilities;
- No intergovernmental agency coordination;
- Lack of municipal leadership;
- Inadequate municipal resources;
- No true regional approach to problems;
- Home rule attitudes;
- Property tax differential;
- No decisions, only studies;
- Lack of political leadership.

The above indicates that there is a multiplicity of organizations providing various amounts of services and that this multiplicity has limited the amount of effective programs, resulted in duplication of services, and resulted in a very evident state of confusion to the local citizen.

If one looks back at what was said earlier on regional governments and particularly the RMN he would find that the list of

problems and obstacles that helped to promote the RMN as the first regional government in Ontario also exist in Erie and Niagara Counties, New York. The only difference is that conditions in the American study area are more severe and more critical than those that exist in RMN.

Whether the time is ripe for some type of governmental reform in Erie and Niagara Counties or not may be a debatable matter, but a certain amount of evidence exists that it is. The survey done by the ENCRPB and the conclusions reported above certainly indicate that a better system of environmental management is needed. Many of the functions of government either directly or indirectly control the quality of the environment; this may indicate that governmental reform is necessary.

Speaking specifically on the Niagara River the ENCRPB states:

"There is little doubt over the need for a unified and comprehensive management system for the restoration of the Niagara River. Progress in this direction has been limited, however, because many governmental agencies share managerial and/or environmental control over the river and its shoreline."¹⁸

The 1971 International Joint Commission report on the Niagara River listed four main reasons why all of the municipalities and many of the industries were considerably behind schedule in treating their waste discharges. These have been

reprinted earlier in this report but some of the main points bear repeating. Development of comprehensive regional plans took approximately two years to complete and municipalities tended to proceed slowly until the plan was formalized. The regional plan required in many instances two or more governmental entities to develop a joint project. Development of necessary agreements was particularly time consuming.¹⁹ More pilot plant studies than anticipated had to be carried out. (It also appears that there may have been some lack of coordination between various pilot plant studies. This can conceivably arise when each municipality has to hire its own consultant). Industries were unable to proceed with their plans until municipalities had defined their needs in cases where joint treatment was being considered.

Another problem has arisen in that the comprehensive regional water and sewer plans were done by a consultant before the ENCRPB had adopted a regional growth plan.²⁰ Since water and sewer plans directly affect growth patterns the cart has been applied before the horse. Fortunately the ENCRPB is now correcting the regional water and sewer plans to conform as much as possible to regional growth plans.

Regional Agencies

The realization that a comprehensive regional approach was necessary to cope with problems, whether in the Erie-Niagara Region or any other region in the United States, came from the federal level. When Congress investigated urban problems in the early 1960's it found that local governments were severely hampered by excessive costs and jurisdictional problems as they sprawled across local boundaries. Congress realized that financial aid was necessary to keep local governments viable and that federal monies would not be used efficiently unless they were coordinated with a comprehensive regional plan. Therefore the Congress instituted five criteria that must be met in order for a particular project to become eligible for federal funding.

These criteria are:

1. "That the project is part of a long range development program or plan for that public facility or service.
2. That the development plan encompass all problems and requirements of a region.
3. That the project is a part of or consistent with short range plans of a regional planning program in meeting immediate necessities, and can be expected to serve long range needs.
4. That all development programs are incorporated into and form a composite or comprehensive regional development plan for the economical, efficient and orderly growth of the region.
5. That the comprehensive planning process be continuous and designed to define and meet region-

al goals and objectives under the policy direction of local elected officials."²¹

All five of the criteria had an effect on regional efforts. The last criteria, however, is most important to this analysis. This criteria had the effect of grouping the 64 local governments into a two county region and the establishment of a single comprehensive planning agency. In 1966 the Legislatures of Erie and Niagara Counties by a joint resolution created the Erie and Niagara Counties Regional Planning Board.

As the Planning Board is the only regional and comprehensive agency in the region it is desirable to briefly describe the functions, activities, and powers of the Board. Early in the history of the Board its major work objective was the protection of local applicant certification for federal aid and satisfaction of the Federal planning requirements. Under the Intergovernmental Cooperation Act the Board was designated as the review agency, for applicants for Federal funding in Erie and Niagara Counties. The Board was required to submit its plans, programs, and qualifications for review by the Department of Housing and Urban Development in October 1970 for certification that the Board had fulfilled the requirements that Congress had mandated to obtain HUD grant and loan moneys. The Board consequently was certified and this meant that there would

be no interruption in the flow of HUD monies to local municipalities.

Initial studies in the work program of the Board involved economic and population projections, inventory studies of land uses, public utilities, parks, recreation areas, open space housing, regional growth pattern report, development goals and objectives, and regional land use. In addition to the above studies the Board produces studies and plans in the following areas: transportation, housing, the environment, project review procedures for federal grant programs, and various feasibility studies for the region.

One misconception about the Board is that it acts on applications for federal aid to local municipalities. This is not true. The Board does have the power to review, make comment and recommendations on the application as to whether or not the project is consistent with the regional criteria as mandated by Congress.²² Therefore, the Planning Board does have some indirect power over what the municipalities do within the region as many of the local projects such as water and sewer, roads, and recreation, are done with federal assistance.

Regional Planning Board vs. Regional Government

The Erie-Niagara Counties Regional Planning Board (ENCRPB)

is a planning organization; it is not a government, does not have the power to provide services and functions other than planning, does not have the power to impose tax levies, and is not directly responsible to the public. The benefits of the ENCRPB are that it develops and promotes programs on a regional comprehensive basis. Unfortunately it does not have the authority, except through indirect means to implement its programs and plans.

In solving problems related to existing environmental pollution the Planning Board has little authority with which to act. It can survey and report on the current problems, trace sources of pollution, and can recommend courses of action. The Board can recommend that communities develop joint facilities, and indirectly can force them to do so. Admittedly these functions are of great significance but what is needed is some power and authority to act.

As far as solving current problems is concerned action is left to the State-local system; a system that for a number of reasons has been ineffective in the past. All of the problems of this type of system mentioned in Chapter IV and the first part of this chapter now obtain.

The ENCRPB is relatively effective in developing compre-

hensive regional plans such as for water and sewer. However, any type of regional system involves agreements between local municipalities as to sharing of costs and other responsibilities. Earlier, in the report on water pollution, it was indicated that reaching agreements between local municipalities was particularly time consuming. Furthermore local governments, even though they have a comprehensive plan to follow are still left to obtain their own financing, consultants, etc. Faced with inadequate resources, both in terms of personnel and finances, the local municipalities are often incapable of carrying out these tasks.

If some form of regional government were instituted to carry out programs for solving current problems such as water pollution the following advantages could be foreseen. Because the regional government would have the power to raise its own revenue it could do its own planning, design, construction, and operation. Agreements between municipalities would no longer have to be negotiated since the entire region would now be sharing in the costs. This is not unrealistic since the whole region shares in the benefits also. Likewise the obtaining of financial arrangements could be handled more effectively by a regional government. A regional government having a broader

tax base and being more viable is almost always more likely to arrange for financing at a lower interest rate. In the matter of hiring consultants to design municipal facilities, a regional government, having more professional staff, would be in a position to choose from a wider range of consultants. Likewise better consultants would be attracted by the larger volume of work available, thereby reducing the possibility of inept consultants being hired.

Another area that regional governments could operate more efficiently is in the area of obtaining federal grants-in-aid. A statement from the National League of Cities and U.S. Conference of Mayors indicates that it has become as expensive to put together an application for a \$10,000 grant as a \$1 million grant.²³ Now if a regional government were allowed to apply for block grants on a regional basis the saving are obvious.

In solving problems related to controlling development and enhancing the quality of the environment the Planning Board is only partially effective. Again, it has only a limited amount of control and then only over projects that involve federal funds. While this control is an incentive for the majority of municipal projects to conform to regional plans it does not cover all the projects that affect the environment and has lit-

tle or no control over private development. A regional government, if granted land use control authority, would have the capability of controlling development in areas that are either high priority protection areas or where high priority problems exist. The ENCRPB through its Initial Environment Study has already defined these areas and has recommended that development be discouraged in them.²⁴ Actual implementation of the regional land use plan is largely left up to local zoning ordinances.

Another important defect with the ENCRPB is in dealing with matters of an interregional nature. In this regard it is limited in the same way as COG's in that it cannot speak as a spokesman for the jurisdictions within the region. A regional government on the other hand could be empowered to do so and therefore could work on joint programs with other regions.

Lastly the formation of a Regional Planning Board does little to solve the maze of jurisdictions confronting the citizen. It does little to clear up the jungle of governments that a citizen is taxed to support and that in the democratic system he is expected to exercise control over. A regional government could possibly eliminate eighty per cent of the local jurisdictions that confront the voter, making the government more visible and more responsive to the electorate.

One could possibly go on in greater detail but the fact of the matter should be clear by now that a regional planning board, although effective as far as its legal authority is concerned, lacks some significant benefits that a regional government would possess. If the above is not clear by now then perhaps the following case will be more convincing.

The ENCRPB through a Technical Advisory Board is working on an "International Design Study" for the Niagara River. Although the Study is not complete the Board has made certain preliminary environmental improvement program recommendations for the Niagara River. The Board calls for treating the Niagara River as a single resource management unit by one agency. To carry out this task the Board cites several alternatives among them being a state created agency such as the Adirondack Park Agency or broadening the powers of the ENCRPB.²⁵

The citing of the need for a more powerful agency to handle environmental matters clearly points up the fact that the ENCRPB, by its own admission, is not authorized to carry out its programs in a manner to truly protect and enhance environmental quality. Furthermore these recommendations also bring to surface the fact, that has been stressed all along in this chapter, that all of the other governmental units in Erie and Niagara

Counties, N.Y., are not capable, as presently organized to carry out a comprehensive environmental quality program. Something more than presently exists is needed, something beyond the current institutional system.

The regional goals have been stated by the ENCRPB for the two counties. These goals have been further refined into objectives. The goals and objectives are clearly desired by the people of the region. There is, however, no agency or government in Erie and Niagara Counties that can carry the goals and objectives to implementation. The responsibility for managing the regional environment is still left to numerous local governments. Major fiscal, legislative, and administrative reform is needed. One agency must become responsible for the regional environment of the two county area.

The remainder of this chapter will discuss the feasibility of and provide the framework for a way to accomplish this reform in the Erie-Niagara Region. The Province of Ontario has found a way to accomplish this reform and has implemented it in the Regional Municipality of Niagara. The purpose here will be to hypothetically implement a similar type regional government into Erie and Niagara Counties.

Political Feasibility For Regional Government In Erie-Niagara Co.

From the comments made by the ENCRPB and reported on earlier it would indeed seem that conditions for some type of reform are ripe. However, establishing this reform is another matter. Home rule appears to be strong, much stronger than it was in Ontario. Although the same complaints in the common problems, pollution, lack of leadership, lack of cooperation, lack of financial resources exist in Erie and Niagara Counties as existed in Lincoln and Welland Counties prior to the formation of RMN there appears to be little local movement toward governmental reform. The only comprehensive body that now exists in the region, the Erie and Niagara Counties Regional Planning Board, was formed as a necessity to meet the external forces placed by the federal government. It is to the credit of the region, however, that the ENCRPB was the first Regional Planning Board to be credited by HUD in New York State and among the first nationally. It still remains, however, that the incentives were external rather than internal.

The general political forces mentioned earlier will certainly come into play particularly in the Buffalo area. This area will especially undergo central city vs. urban fringe conflicts. These conflicts will not be dealt with in detail here,

but will have to be resolved before reorganization.

The Provincial government appears to be the main stimulator for local governmental reform in Ontario, although in certain instances, as in RMN, the impetus for reform was first generated locally. However the fact remains that the Provincial government has reasserted its right over control of local government. The cities and municipalities in Erie and Niagara Counties are similar legally to those in RMN in that they exist at the will of the State just as those in RMN exist at the will of the Province. The State of New York has not however exercised its powers over municipalities to the extent that Ontario has. Political forces in the United States, through state legislatures, may be such that it may never be able to do so.

There are ways that the State of New York could provide incentives and impetus for governmental reform. The first step to be taken would be to authorize a local government review much the same as was done in RMN prior to its creation. Before local residents can be convinced of the need for reorganization it is necessary that a well documented study be made as to what the local government capabilities are, what problems face the region, and what the benefits of reform would be. Also included in this study would be alternatives that reform could take,

preferably along the lines of the two-level approach presented earlier. This local government review, funded by the State, could be aided to a large extent, by the staff of the ENCRPB.

To a certain extent reform towards regionalization appears to be happening incrementally in Erie and Niagara Counties. The joint resolution between the Legislatures of the two counties to form a regional planning board is one example. The county Legislatures have realized that what is done in one county generally affects the other county and vice-versa. To this extent water and sewerage facilities, recreation, open space, transportation, solid wastes, and land use, are being planned on a regional basis.

Some governmental functions within the two counties also have been placed on a regional basis. The counties have consolidated their health units. They have also formed countywide air pollution control divisions. Erie County has a countywide parks and recreation division. Both counties have health departments that see themselves active in control, review, and information regarding all types of environmental pollution. Pursuant to section 107a of the Clear Air Act the counties of Niagara and Erie were designated as the Niagara Frontier Intra-state Air Quality Control Region by the federal government.

planning on a strictly county by county basis.

It appears then that there are two opposing forces operating in Erie and Niagara Counties. One force that is dissatisfied with the problems of the area and the lack of governmental action on them. This group would be the easiest to convince that reorganization would have outstanding merits over the current system.

The second force, the home-rule group would tend to oppose reorganization based on the endangerment of the security of local officials and the visibility of their community. This group will be the hardest to convince of the merits of reorganization. This group would particularly have to be shown that under the two-level reorganization approach -for the most part- the community would not lose its identity; that area-wide functions taken over by the upper tier would reduce many of the burdens on the lower tier and allow them to be more responsive to local needs, that consolidation of the special districts would make government more responsive and visible to local citizens; that there would be savings in their personnel and financial resources if a regional government could apply for federal grants on a regional basis; and that a performance of certain functions on a regional scale would lead to economics of scale, etc.

Earlier in this chapter when obstacles for solving environmental problems in Erie and Niagara Counties were listed, many of the obstacles indicate that many of the local agencies and groups would favor governmental reform. In fact a good, strong, progressive regional government could eliminate almost every one of the obstacles listed.

Therefore, perhaps one could say that regionalization is growing incrementally in the two counties. It is well accepted however, that when one or two functions are placed on a regional level few political obstacles will arise. But when multiple functions are taken over then there appears to be a direct relationship between the number of functions regionalized and the opposition encountered.

Federal and State incentives also have a very significant role to play in prompting governmental reform. In part the reason why the formation of the ENCRPB encountered little opposition was because some type of regional body like ENCRPB had to be formed so that local municipalities could continue to receive their fair share of federal funds. Local governments, therefore, could hardly oppose such a move. It is to the credit of the two County Legislatures that a two-county regional planning board was formed, instead of implementing regional

The federal grant procedure requires comment. In reviewing Subcommittee Hearings on Grant Consolidation and Intergovernmental Cooperation²⁶ a main argument for grant consolidation was that local municipalities after devoting most of their resources to competition for federal funds, neglected some of the local needs of the local citizens. Centralizing the grant application procedure into a regional government has its obvious advantages in this matter.

Admittedly this section on political feasibility has been superficial, but it has pointed out some of the political factors to be dealt with. Some of the conflicts may be eliminated or at least lessened if, in a reorganization attempt the following points were considered:

1. Initiation of a state-funded local government review in Erie and Niagara Counties listing among other things; the municipal services and functions in the region, present trends and the pressures on local government, review of what local people consider to be the problems of the region, local government units in the region, alternative forms of government including the status quo, and recommendations for reform

2. Initiation of federal and state support for reorganization, without which any reorganization attempt is likely to fail, including financial incentives for regional governments
3. A straightforward easy to read document, including an economic analysis, of the advantages of forming a regional type government in Erie and Niagara Counties
4. Full public representation and participation through the media and through public hearings at all stages of the reorganization attempt starting with the local government review and continuing through the implementation of the governmental reform.

These are just a few steps that must be taken in order to be successful in any reorganization attempt, more could be added, but the main point is to convince the local citizenry of the advantages of a regional concept, advantages that should far outweigh any disadvantages.

New forms of government are hardly ever set up except to meet crisis situations. Whether a crisis situation exists in Erie-Niagara Counties is perhaps open to debate. Certainly

with regard to the environment a crisis situation does exist. For reform to take place or be effective persons in position of power (state, federal) must believe strongly in reform. It is uncommon for reform of local government to be demanded by local government.

A Note On Local Autonomy

There is a good deal of talk about local "autonomy." A serious belief in it leads to the following considerations:

1. The range and quality of services offered by municipalities varies widely depending on (a) tax resources of the area (b) willingness of governments, and the public to spend and tax. It is because of this wide variation that much of the State and Federal assistance is given to local governments;
2. Cooperation between local municipalities may range from nothing, perhaps even hostility, to full cooperation in all matters. Autonomy, in short, means that local governments are largely free to go their own way. If one believes in good local government it is hard to visualize how one could believe in full local autonomy.²⁷

It may be necessary that the formation of some type of a regional government may have to come about through a step type approach, possibly spanning a period of fifteen years or so. Perhaps as a first step the County governments might be strengthened. This would be in keeping with the ACIR report M-61 entitled, For A More Perfect Union-County Reform,²⁸ and also would avoid many of the immediate political problems that the formation of a regional government would create. The strengthening of the county governments may well take the form of the comprehensive urban county plan alternative as discussed earlier in Chapter IV.

I do not view the strengthening of county governments in Erie and Niagara to be the ultimate step. Based on the foregoing analysis it is concluded that the ultimate would be the formation of a regional government from the two Counties. This regional government formation may be accomplished more readily if first the two county governments were strengthened.

Although the two strengthened county governments would be a step in the right direction it will have certain drawbacks in itself. The county governments, as they now exist and as most county governments are, are more responsive to rural areas. If these two county governments were made more powerful, along the

lines of urban-county, they would be more politically powerful in their own right. They may then impede with more strength the possible formation of a regional government between the two counties.

The problems of leaving the system as two strengthened county governments may be summarized in the following three points:

1. The region of Erie and Niagara Counties is a unit; to leave its government divided into two would perpetuate the difficulty of co-ordination, and of treating common problems on a common basis.
2. Problems of citizen representation would be no more acute under a comprehensive regional reorganization than would be under strengthening the two counties. Indeed equitable representation in dealing with common problems on a common basis would be more difficult on a two county basis than it would be with a single regional basis.
3. A proposal to form two urban county governments would cause some upheaval now, while further upheaval would again be required to create one regional government.

Framework For A Regional Government

For Erie And Niagara Counties, N.Y.

It is the intent of this section to present, in the opinion of this author, and based on conclusions derived from a short term research, what the ideal would look like, in other words what a regional government would look like in Erie and Niagara Counties. It is fully realized that this may represent the ideal and that in actuality a less stringent method of reform, perhaps along the lines of the multipurpose district or the comprehensive urban-county plan may be the only acceptable alternatives that can be politically implemented. These two alternatives are the only acceptable ones in that they are the only proposals that provide a two-level system of government and that take a comprehensive approach to comprehensive problems.

The approach taken here involves the creation of a new area-wide, intercounty government. This approach has a considerable similarity to the comprehensive urban county and metropolitan multipurpose district arrangements. The ideal approach, federation, if applied on a one county basis, would differ from the comprehensive urban county plan in that the former calls for replacing the county government with a new metropolitan agency while the latter remains the county government. Whether a new

agency is formed or the county government is strengthened there would be substantial reorganization in structure, therefore differences between a one-county federation and the comprehensive urban-county plan may be minor. Of course, in terms of inter-county reorganization the federation is the only one possible.

Federation and metropolitan multipurpose districts can both be used either in one-county or intercounty situations. However, federation often involves the enlargement of local boundaries to make them more inclusive and viable, this is unknown to the multipurpose district concept.

Since 1955 support for the federation concept, an area wide municipality plus lower-level, possibly enlarged local municipalities has almost completely vanished from the United States scene despite the not uncommon belief that it is the logical form of governmental organization for a number of SMSA's.²⁹ However, in 1953 the concept gained strength in Canada with the formation of Metropolitan Toronto. Subsequently several other areas were formed along the federation concept including the Regional Municipality of Niagara which was reported on earlier. The concept seems to be working well in Ontario and there has been no movement back toward a fragmented government approach even from those groups who initially opposed the reorganization attempts.

Metropolitan Toronto is perhaps the only one that has been in existence long enough to completely assess its gains and limitations. In Metro Toronto changes that have emerged since its creation have been in the direction of a more comprehensive reform, as witnessed by more functions being assigned to the area government and the reduction of lower-tier governments by one-half.³⁰

Perhaps it is time to try this concept again in the United States, but this time learning from the mistakes of the past and borrowing some experiences from Ontario. This sharing of ideas and experiences is not novel, it has existed as long as both countries have. To be sure many of the Canadian reorganization attempts were made with knowledge of the failures in the United States. Similarly United States organizations, particularly the Advisory Commission on Intergovernmental Relations are looking at Canadian experiences. This is witnessed in the ACIR's recent pamphlet entitled In Search of Balance-Canada's Intergovernmental Experiences.³¹

To facilitate the establishment of a regional government in Erie and Niagara Counties some of the latest Canadian experiences particularly those for Metro Toronto and those for Regional Municipality of Niagara should be used.

It is of course fully realized that the political and traditional systems of Canada and the United States are importantly different. LeBlanc and Allensworth state:

"It would be a mistake to attempt to use the Toronto experience as a guide (for good or bad) for metropolitan areas in the United States."³²

Their statement is both true and false. One definitely does not assume that the political situation is the same in the United States as in Canada and any proposals made must make recognition of this fact. The main difference is that the Province of Ontario exercised unilateral control over metropolitan areas, created regional governments, and assigned functions without a local popular vote. While it is theoretically true that State governments in the U.S. have the same authority they are generally reluctant and sometimes politically incapable of changing local government structure and powers. Metropolitan change in the U.S. must come about through local voter approval. This approval admittedly has been a roadblock to reform programs of the past. In other words, American state governments may have the legal authority but do not possess the power or desire to become involved in metropolitan government. State governments, in reality, are more reflections than manipulators of local power structures. Apparently this is not the case in Ontario.³³

The statement that government reform in Canada cannot be used as a guide is false as much as it is true. Every book or pamphlet written on metropolitan government referenced in this paper has included a discussion on regional or metropolitan government in Canada. It is true that the Canadian examples cannot be used without mentioning the political differences; it is equally true that one can gain some ideas, experiences, and problems that government reorganization in Canada also had to face. Many of the problems faced in Canada are the same as those in the U.S.; the major difference being that perhaps local people in the U.S. will have to be more convinced of the merits of reorganization-there will have to be more community involvement and participation.

In summary, experiences in Canada can be used as a guide, in some matters, but used wisely noting differences between the two countries.

This section will present a framework for a regional government in Erie and Niagara Counties patterned somewhat after the Regional Municipality of Niagara. This approach appears to be the most logical for solving problems that are common to the two county region; it is patterned much along the lines of the federation approach.

The framework presented here, because of certain limitations and the complexities of the issue, will be of a general nature. The idea is to shape a two level system of government; one that recognizes the need for both a community level and a metropolitan level. This will enable regional issues to be debated and policies adopted for the good of all citizens in the area while retaining a measure of independence when deciding issues that are contained within their own jurisdictions. As stated previously the specifics of the regional government may be varied to fit the economic, cultural, and political characteristics of Erie and Niagara Counties. It would be folly here to state the specifics; this can only be done after a rigorous local government review as recommended earlier. However, a few general comments may be made to set the stage for general purpose regional government, the form concluded by this author to be the ideal for modern environmental management in Erie and Niagara Counties.

Regional Level

First, the regional level would cover the entire territory of Erie and Niagara Counties. This is in keeping with a statement made by the Committee for Economic Development.

"In cases where the metropolitan area spreads over

several counties or towns, a new jurisdiction should be created which embraces all of its territory."³⁴

This is also in keeping with the Bureau of Census description of Erie and Niagara Counties as the Buffalo SMSA. Also the Legislatures of both Counties have recognized that the two counties are a unit in jointly forming the ENCRPB.

The area wide level would be governed by a regional council. The regional council will be composed of the heads of the remaining local communities plus an additional member for a certain number of population. These members would be directly elected. This system will facilitate representation by population and will guarantee that every citizen is represented. Guidelines for the number of population to be represented by one member could be determined by the state.

An alternative to this method of representation on the regional government has been made by the Committee for Economic Development.³⁵ They suggest electing delegates representing legislative districts on a one man, one-vote basis instead of representing the community units as such. They state that representation based on community units rarely produces an area-wide point of view but rather a bargaining process through which the various smaller units try to protect their parochial

interests.

There is a problem with this approach in that certain community levels might not have representation. The solution may rest in allowing the heads of lower-tier governments to sit on the council while electing additional members representing legislative districts on a one man-one vote basis. This indeed is similar to the system used in RMN where members on the Regional Council are both directly and indirectly elected. In RMN the members directly elected represent a population of 20,000. This would produce an extremely large council in Erie and Niagara Counties. Therefore perhaps each directly elected member in these counties should represent a population of 40,000.

Community Level

To provide for access to government, to retain independent visibility and to satisfy proponents of centralization and decentralization a community level of government should be retained. The boundaries, however, should be changed to make the local government more viable. Although much of the literature on government organization places heavy emphasis on appropriate size of the community level there is little hard economic evidence what the optimum size should be.³⁶ The provincial government of Ontario suggests a minimum lower tier population of be-

tween 8,000 and 10,000. The size of the lower tier must meet two criteria. First, be large enough in population to be effective in providing services and second, be small enough to be accessible and responsive to the local people. Meeting these two criteria will vary from area to area, therefore, flexibility to size should be permitted although the minimum used by Ontario seems to be valid as a minimum. 1985 population projections made by Cornell Aeronautical Laboratory and by the New York State Office of Planning Coordination (now Office of Planning Services) for the towns in Erie and Niagara Counties could serve as a guide for determining the size and area of the community tier. These projections are shown in Fig. 17.

Structural Organization Of Lower Tier

The lower-tier governmental level may well consist of existing local governments with their functions revised for the new two-level system. The structure of the new community level governments should not be imposed from without but should be determined by local people working within broad state guidelines.

The total land area of Erie in Niagara Counties is divided into cities and towns. The town boundaries comprise all the

land area outside the cities of Buffalo, Tonawanda, Lackawanna, Niagara Falls, North Tonawanda, and Lockport. It is suspected that many of the town governments in Erie and Niagara Counties already possess a strong community identity. There are only a few towns in the area that do not possess the minimum population suggested above. In most cases these low population towns could be combined with adjacent towns of similar low population. Therefore it might be suggested that the lower-tier communities be organized along existing town boundaries with some combinations. In most cases then, existing town boundaries will not have to be changed. The town governments might then be maintained as the governing bodies for the lower-tier level. Figure 17 shows the city and town boundaries along with populations in each.

The Cities

One question that the Ontario government had to face was whether or not to include cities in the regional government for Niagara. They concluded that indeed cities must become a part of the regional government.

In early days the separation of cities from rural areas made good sense but not today. Today's trend towards urbanization and influences of the city extend far beyond the bound-

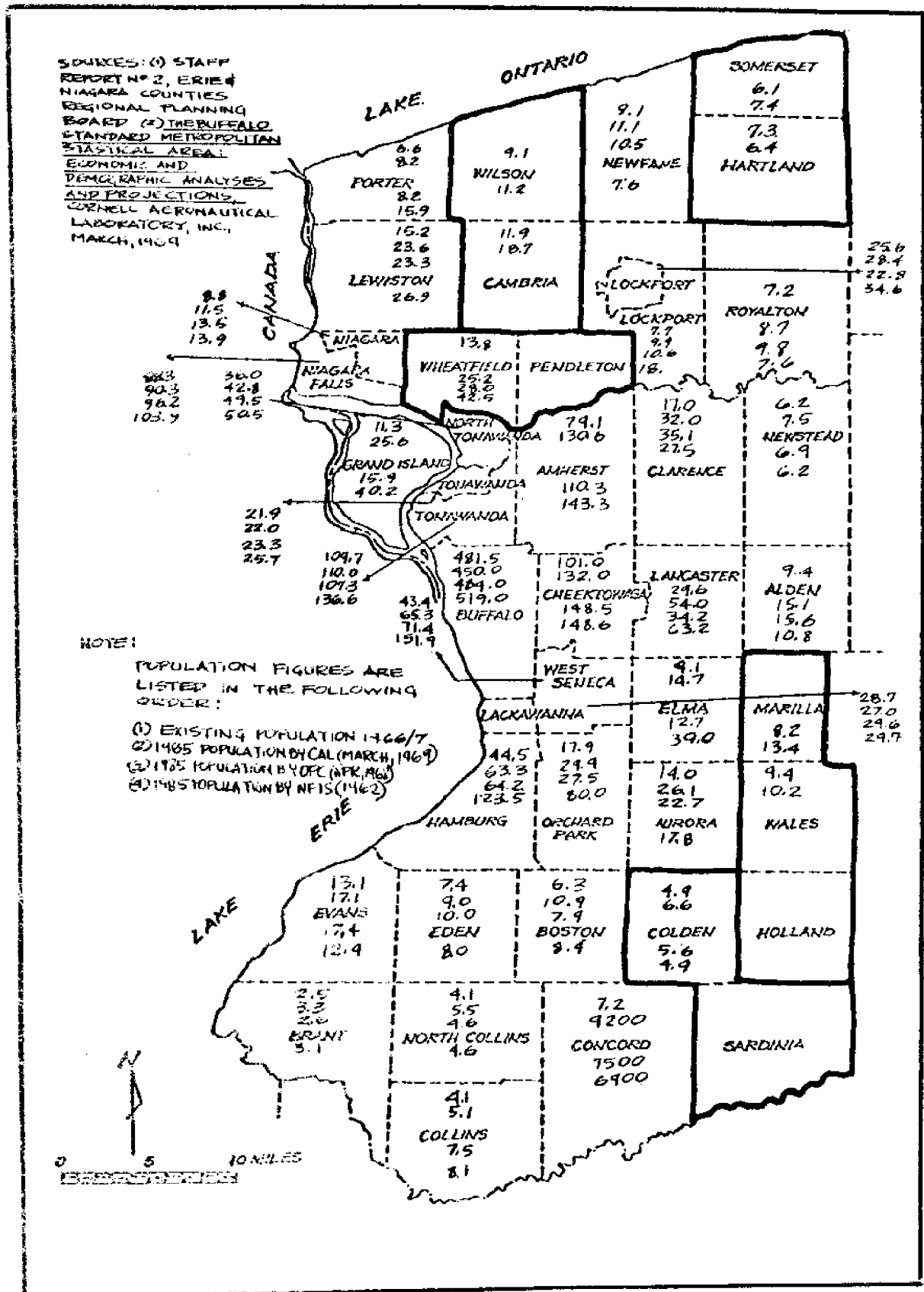


Fig. 17 - Population Statistics-Erie-Niagara Co.-ref. 37

aries of the city. To leave cities out of the regional government would perpetuate the conflicts of rural vs. urban. Therefore, to be effective the regional governments must include the cities.

The inclusion of the cities should cause no great problems with the exception of Buffalo. The population of Buffalo, approximately 500,000, is rather large compared to the other cities in the area. It may be so large that isolation and alienation of some groups within the city, particularly minority groups is occurring. This causes a diminishing in the sense of community within the city. Therefore, it may be necessary to establish community districts, or boroughs, within the city, if only as a matter of establishing a stronger sense of community. Groups that feel alienated within the city now, will feel even more so once a regional government is established if they are not represented on the regional council.

The Distribution Of Functions

In an age where it has become increasingly difficult to divide powers between national, state, and local levels it is also difficult to divide functions between a regional level and local level. It is, however, possible to outline some basic arrangements between regional and lower-tier governments

particularly in those areas that affect the regional-urban environment. The key appears to be in the sharing of power and responsibility over functions rather than in allocating a function entirely to one level or the other.

Planning.

An obvious function for regional government is comprehensive regional planning. The area has already realized this by forming the Erie and Niagara Counties Regional Planning Board. The planning board would necessarily be under the control of the regional government. Planning must be a divided function because of the division of responsibilities for services.

Localized planning is needed for coordination of urban functions in order to produce effective overall local programs and for the guidance of local development within accepted area-wide guidelines prepared by the regional planning board.³⁸ Lower tier governments must establish their own planning agencies where they are not now established. The regional government must have the right to veto local plans, a right not now possessed by the Erie and Niagara Counties Regional Planning Board. The effects of adequate planning at both levels with regard to the physical environment have been discussed previously and need no repeating.

Land Use Control

Zoning is land use control by physical planning to bring about physical results for public welfare. Zoning is regulation under police power of land use and density of population.³⁹

"It is hard to avoid the conclusion that the use of land and resources, like common problems such as pollution, can only be tackled satisfactorily on a regional basis, and that it will not be so tackled by a multiplicity of units with varying degrees of planning."⁴⁰

The ENCRPB has produced a regional land use concept plan for Erie and Niagara Counties. This plan specifies broad areas of industrial, and residential activity. The ENCRPB does not, however, have control over the zoning process but must implement its plan through the following devices:⁴¹

- Advice to county and local governments in the location and timing of public facilities;
- Technical planning assistance to county and local governments;
- Coordination of regional and county planning work programs;
- Adoption by the county legislatures of functional plans which reflect ENCRPB plans;
- Increased participation of citizens and their officials

in the planning process.

In the framework presented here it is suggested that zoning for land use be a divided responsibility; that the regional level adopt the plan of the ENCRPB, but that the community level have some say over zoning in their own area in order to control their own character. The regional level, in adopting the ENCRPB plan, would be zoning broad areas which local communities could zone into smaller sub-areas.

The regional level must be given veto powers over the communities zoning powers in regard to some aspects such as preventing community level zoning from becoming an institutional block against minority groups.

Transportation

Because of its nature, transportation cannot be planned solely as an intra-metropolitan basis. The ENCRPB is already involved to a large extent in regional transportation planning through its two reports: Urban Transportation And Land Use Coordination and Evaluation Of Transportation Planning and Its Impact On Regional Development. Transportation policies of course also involve State and Federal participation. It is necessary that the regional government handle the planning, design, construction, and maintenance of transportation con-

sidered to be of regional importance. The transportation system must be handled on a comprehensive basis because it is one of the functions that largely determines where growth will take place.

Because transportation is so important to community development the formulation of area-wide transportation policies must involve community level participation. While the planning and construction of regional roads should be mainly the responsibility of the regional level there are certain aspects of a transportation system that affect local residents only, among these are local streets, sidewalks, etc. These should be left under the jurisdictions of the lower-tier governments.

Water Supply And Sewage Disposal

Although a comprehensive plan for water and sewerage has been developed by the ENCRPB for Erie and Niagara Counties the remaining activities under this function are left to local governments and special purpose districts.

Water supply and distribution, and sewage disposal are area-wide functions in the same manner as transportation. The distribution system will largely control where growth will take place; the distribution and treatment systems, if done on a regional basis, can be strongly supported by potential economies

of scale.

Water supply and sewage disposal can be a divided function or it can be done solely by the regional government. The Regional Municipality of Niagara has divided the function with treatment and trunk lines the responsibility of the regional government and lateral lines and house connections the responsibility of local governments. This division of responsibility is suggested for Erie and Niagara Counties with the intent of leaving the local governments to perform as many non-area wide functions as possible.

Solid Waste Collection And Disposal

Again this function can operate with a sharing of power. The disposal of solid waste is becoming increasingly a regional environmental priority. Landfill sites are growing scarce and need to be managed professionally. Incinerator costs are expensive and usually can only be efficient when operating under the economies of scale that a regional basis can provide.

The projections for solid waste disposal in the two counties is that by 1990, the region will be generating approximately 9.2 million tons of refuse per year, or enough to fill up 22 city blocks to the height of the Empire State Building. There are 43 disposal sites in the region, varying from incinerators to sani-

tary land fills to open dumps which violate the State Sanitary Code.⁴² With these figures there is little need to justify solid waste management on a regional basis.

Collection is another matter. There is a consensus of opinion that collection should be performed wholly at the local level. There is little spillover of costs and benefits to collection at the local level. Therefore, it is recommended that collection be handled at the lower-tier level.

An argument often used against regional management of disposal sites is the extra costs involved in transportation. These costs can be reduced by the use of transfer stations which could act as a dumping station for local municipalities. These transfer stations could also compact the wastes before shipment if the landfill method is to be used.

Parks, Recreation, and Conservation.

With more time for leisure, demand for adequate recreation is increasing. Recreation specialists generally believe that at least 10 acres per 1000 population of recreational area must be provided in a well-balanced city park system, plus an additional 10, 20, or more acres per each 1000 persons of scenic and natural parks outside the city but under the control of county, state, or other non-municipal authority.⁴³ This addi-

tional non-municipal acreage may be classified as regional park land. The existing standards in Erie and Niagara Counties are 15 acres of regional park land per 1000 persons.⁴⁴ Under these standards, and planning for approximately 1.7 million people in the Erie and Niagara Region, the regional park needs would be 25,500 acres and municipal park needs would be 17,000 acres. The current inventory is that New York State owns 5,000 acres of park and recreation land in the Erie-Niagara Region, Erie County owns 5,000 acres, Niagara County owns 1000 acres, and local municipalities not providing significant acreage of park or recreational facilities.⁴⁵ While it may be hazardous to make assumptions on these data it would appear that park and recreation land in the region is inadequate and that park land acquisition is necessary. The question to be asked is who should make the acquisitions and who should manage the park system.

The present park and recreation system is complex with facilities being provided at federal, state, county, and municipal levels. Has the present system worked? The answer is yes and no. Certainly park and recreation facilities have been provided and may be the best that could be developed with limited funds. But in evaluating previous park, recreation, and open space plans for the region the ENCRPB has stated that

these plans, which relied on standards drawn up at the national level, have violated good sense, have assumed that every family is highly mobile, have neglected the young, the senior, and lower income classes and has been too restrictive to integrate into a comprehensive plan. The ENCRPB went on to "lash out at the false economy in human terms inherent in not adequately planning to serve the recreation needs of all the various groups of people who make up the region's population."⁴⁶ Another problem with the current system in the region is that if federal and state governments have provided a large number of facilities in the area, the county level tends to fall behind in providing recreation; if the area is well supplied with county parks, municipal governments tend to fall behind in providing local parks and recreation. The problem is that state, county, and community recreation do not always serve the same recreational need for various groups within the region.

Based on the above information it is therefore concluded that the regional government become responsible for a complete park system to serve the needs of all the people in the region. This can be done in several ways and could be worked out later but the principal feature is that one organization must become responsible for the provision and coordination of the park,

open space, and recreational facilities in the region. The regional government would assume the responsibility for channeling federal and state efforts into programs that meet the needs of all groups. Some local parks may remain under local jurisdiction.

Air Quality Control

There is little need to reiterate the severity of air pollution in the Erie-Niagara Region. It is well known that the region is one of the most seriously air polluted areas in the United States. The most permissive New York State standards are being exceeded in Lackawanna and South Buffalo, Niagara Falls, North Tonawanda, and Tonawanda.⁴⁷ Anyone driving through the region can attest to the severity of the air pollution problem.

Air pollution control is currently the responsibility of the Erie and Niagara Counties Air Pollution Control Divisions which are funded through the Air Pollution Control Office of the Environmental Protection Agency. Air pollution control is clearly a regional matter as evidenced by the designation of the Niagara Frontier Intrastate Air Quality Control Region on May 1, 1969 which consists of the entire counties of Niagara and Erie.

Since the region has been classified by the federal government as an air quality control region and because of the trans-county effects of air pollution it is concluded that the regional government should assume responsibilities for monitoring and abatement programs. This is in keeping with the Advisory Commission on Intergovernmental Relations who state:

"The strong consensus of air pollution control experts seems to be that since the area of pollution sources and effects frequently overlaps the boundaries of local governments units, pollutional control activities should be performed by an agency with a real jurisdiction encompassing that of a number of municipalities and perhaps even counties."⁴⁸

The regional government must, however, provide access to community involvement in air pollution control. It must act as an outlet for grievances initiated at the community level. It must be the initiator of public hearings on air pollution cases that are inflicting danger to the residents of the region.

Capital Borrowing

One function that is often sidestepped in proposals to allocate functions to one level of government or the other is the issuing of debentures for the financing of capital expenditures. This could be a divided responsibility but the full benefits would be reached only if the regional government assumes sole responsibility for this function. It

is therefore concluded that all debentures be issued by the regional government for both regional and local capital expenditures. This scheme has double benefits; First, capital will be obtained easier and at the least possible cost and; second, the regional government will have the authority to control the capital budgets of the lower-tier jurisdictions providing a rational setting of priorities.

Other Functions

There are a variety of other general purpose government functions that could be covered including; education, fire protection, police, welfare, health, housing, etc. It is not the purpose here to provide the framework for the division or sharing of these functions. This is due to the limitations of this report and because this report is more concerned with those functions that affect the physical environment.

The other functions are ones that reformers had hoped would be one of the greatest benefits of regional governments but for which most reform methods have seen fit to avoid. These are also some of the functions which have caused the most debate and controversies particularly between central city and suburban and rural groups. However, the basic pattern of assignment contemplated is illustrated by those functions already discuss-

ed. The greatest note to be made here is the conclusion that no hard lines can be drawn between functions; that the emphasis should be on the sharing of power and responsibility.

Therefore, somewhat reluctantly, the complexities and discussion of some of the other vital functions will be left to writers with more knowledge and less limitation than those faced by the current author.

The Problem Of Taxes And Financing In Reorganization

The problem that most governmental reform will have to face and which some have avoided is the problem of equitable taxation. The problem of taxation is important because it is a measure of governments willingness to tax and spend to provide for an adequate living environment for present and future generations. A regional government like any other government must be supported by an adequate tax base if it is to be effective. Regional needs must be met with regional funds. The problems of the higher density centers do not respect the town boundaries in Erie and Niagara Counties. The public must be convinced of the true nature of the regions problems and that financial support must be given not only to solve local problems within the lower-tier boundaries but also to solve regional problems. In earlier days, when communities were more

separated, taxing and support of only the local government may have made sense; but this is not the case today.

The main problem is with the property tax. While some authors have claimed that the property tax amounts to 70 to 75 per cent of local government revenue this is not true in New York State. In 1958 the real property tax amounted to approximately 50 per cent of local government revenue; in 1968 the percentage declined to approximately 30 per cent.⁴⁹ While it is agreed that the property tax may be diminishing in importance, 30 per cent of the local government budget still represents a large sum of funds.

Real property tax suffers from two major sources of inequity: unequal assessment and under assessment. Its administration has been described as inequitable, inefficient, incomplete, or corrupt. There is no more vivid illustration of the need for reform of local institutions.⁵⁰ The property tax differential across Erie and Niagara Counties has been listed as an obstacle to solving environmental problems.⁵¹

While the importance of providing an equitable tax base cannot be underestimated it is difficult and complex to assess the current taxing situation. There are many factors that cause differences among property taxes. The City of Buffalo real es-

tate taxes cover school expenditures while other communities levy separate school taxes. Some of the larger cities rely partially on city sales and use taxes, while other communities rely more heavily on the real property tax. Therefore, the following table showing the property valuation based on state equalization rates and the property tax collected by randomly selected cities and towns in Erie-Niagara Counties should be used with some discretion. It does appear, however, that the amounts paid based on property valuation do vary widely in the region.

TABLE 13

PROPERTY TAXES FOR SELECTED COMMUNITIES *52

<u>COMMUNITY</u>	<u>PROPERTY VALUATION</u>	<u>PROPERTY TAX</u>	<u>TAX/1000 VAL.</u>
City of Buffalo	11,512,000,000	34,484,000	3.00
City of Lackawanna	387,000,000	2,871,000	7.42
City of Tonawanda	98,000,000	1,111,000	11.35
Town of Alden	34,000,000	54,000	1.60
Town of Amherst	463,000,000	1,342,000	2.90
Town of Aurora	78,000,000	66,000	0.845
Town of Boston	25,000,000	15,000	0.60
Town of Brant	11,000,000	27,000	2.46
Town of Cheektowaga	455,000,000	834,000	1.83
Town of Clarence	102,000,000	160,000	1.57
Town of Colden	12,000,000	48,000	4.0
City of Niagara Falls	525,000,000	6,379,000	12.2
Town of Lewiston	84,000,000	192,000	2.28
Town of Lockport	32,000,000	156,000	4.87
Town of Wheatfield	57,000,000	135,000	2.37

* Based on 1965 assessed taxable valuation by the 1965 state equalization rates

Although the table is not conclusive evidence that the property tax situation is inequitable in Erie-Niagara Counties it would certainly lead one to suspect so.

It is not the purpose here to go into greater depth on the taxing situation. The problem is too complex and lengthy to accomplish anything here except to mention that the problem exists. Whether a regional or metro government can accomplish the assessment, administration, and collection of taxes in a more efficient and equitable manner is perhaps up to speculation. No governmental reorganization plan has yet to untangle the jungle. Metro Toronto, long benefiting from a larger jurisdiction, increased professionalization of assessors, and automation, has failed to compile a distinguished assessment record.⁵³

The Mayor of St. Catharines, a municipality in the Regional Municipality of Niagara, has presented a brief for opting out of the regional government to the Province based on taxation matters he feels are unfair to the citizens of St. Catharines. Three American cities, Nashville, Tenn; Jacksonville, Fla; and Indianapolis, Ind; who have recently consolidated city and county governments have also failed to solve the problems of the property tax. In fact Unigov, the new name for government in Indianapolis has aggravated the matter by increasing the taxing

units from 61 to 75.⁵⁴ The urban county comprehensive plan used by Dade County, Florida (Miami) has not solved the problems of taxes.

It can only be hoped that regional government proposals find some way of solving the tax situation; it is conceded that a regional government might well improve the situation at least insofar as assessment and collection are concerned. But the problem is deeper, it carries into state and national levels. Perhaps revenue sharing and other means of financing local government will greatly diminish the property tax as a main source of revenue for local government.

Alternatives To The Intercounty General Purpose Approach

A drawback to what I have presented in this chapter, a regional government for Erie-Niagara Counties, N.Y., is its political feasibility. Therefore, in order to satisfy those who would say that this will never work I will suggest some alternatives.

Urban County

This first alternative is to reorganize along the lines of the urban county comprehensive plan as briefly discussed earlier. The alternative is simple; simply divide the framework presented

for the regional government by the two counties, utilize the existing county legislatures as the new county governments, and reallocate functions along the same lines as presented for a regional government.

This method utilizes the existing structure, existing boundaries, and does not call for the dissolution of the existing counties. It will have many advantages and is more of a political reality. The two-level approach can still be maintained, indeed it must be maintained. Other recent governmental reforms, of this nature, as in Nashville, Tenn., Jacksonville, Fla., and Indianapolis, Ind., are all suffering from internal stress because they were organized as a one level government with no community level.

What this alternative does not do is to treat regional problems and needs on a regional basis. It should be perfectly clear by now that the two counties form one region; leaving the counties divided will make it more difficult to treat regional problems with regional solutions.

Multi-Purpose District

A second alternative would be the formation of metropolitan districts to handle such functions as sewage and water, transportation, and planning. The metropolitan district was discuss-

ed earlier in Chapter IV. The advantages of this approach would be its political feasibility if limited to perform one or only a few functions. The disadvantage is that the district is usually removed from the people and is usually allowed to perform only a limited number of functions. The Metropolitan Sanitary District of Greater Chicago, the Detroit Metro Water Department, and the Seattle Metro are examples of metropolitan agencies who are doing outstanding jobs but are limited to only water and sewage. In addition these districts, when removed from general government are usually given only remedial powers and little if any preventive powers.

Some theorists feel that this is the best way, within the political and technical context of the Great Lakes SMSA's, to solve certain problems.. This may be true.. Others feel that after the single purpose agency solves one problem citizens may be willing to allow the agency to undertake additional duties. There is no indication that this has or is about to happen; this may be classified as wishful thinking.

Therefore, it is suggested that the metropolitan district approach be only used when the first two alternatives have already been turned down by the voters. If it is used it should be implemented to be as multipurpose as possible; possibly

through the broadening of the powers of the Erie-Niagara Counties Regional Planning Board.

Numerous other alternatives could be advanced. They all will, however, fall into two categories; either reorganization of general purpose governments, or, providing for special purpose agencies or commissions. The route taken in this chapter has been to reorganize general purpose government on the belief that environmental quality control cannot be accomplished on a special purpose 'ad hoc' basis but must be an integral part of overall community development.

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CHAPTER VI

INTERNATIONAL MANAGEMENT OF NIAGARA FRONTIER

The purpose of this section is to view the combined study area as a unit. To a limited extent certain previous sections of this report have touched on this subject. The intent of this section is to go into greater detail on the interests, goals, and problems shared by the two separate study areas and the vehicle by which the two areas may cooperate on joint matters.

In the next few decades the urban areas of both countries will grow closer and closer together until perhaps one large metropolitan-urban unit emerges. In fact the combined study area has already been recognized as a metropolitan area international in territorial extent, thus being involved in decisions of international importance.¹ The region's location gains added significance from its international position as a major contact point between the United States and one of Canada's most heavily urbanized sections, that of Southern Ontario.

The late President Kennedy in his address to the Two Houses of Parliament in Ottawa on May 17, 1961 stated:

"Geography has made us neighbors. History has made us friends. Economics has made us partners. And necessity has made us allies... Thus ours is the unity of equal and independent nations, cotenants of the same

continent, heirs of the same legacy, and fully sovereign associates in the same historic endeavor..."²

Although Kennedy was speaking of the nations as a whole the words are even more significant to the frontier areas. The two study areas not only share the same history and geography, but are close enough and interrelated enough to share and be affected by common problems particularly common environmental problems. In the Niagara Frontier international environmental problems are not only academic words but real facts. Certainly if concern is generated for global environment, for the environment of the Great Lakes System, then concern for the international environment cannot be more acute than where the land masses and urban masses of two countries are separated only by a few thousand feet of water.

The closeness of the land and urban masses, the common problems, made even more common by transboundary movements of pollutants, the common interests such as regional development and concern for a high quality environment, lead to the conclusion that the Niagara Frontier is an environmental and economic unit, its division being political not geographic.

Political boundaries are not recognized by pollutants in the air and water, by fish that swim in the water, nor by environ-

mental aesthetics. Furthermore, in modern times political boundaries are less evident in regional economic development particularly with regard to United States and Canada. Not only do companies based in one country establish branches in the other but people may live in one country while being employed in the other. Not only does economic development take place across the border but the Niagara Frontier is located so that the number of people within easy driving distance determines to a large extent the demand for facilities at that site, these people may or may not be residents of the same country in which the facility is located. To illustrate the case of accessibility between the two study areas figures 18 and 19 are presented showing areas within one-half and one hour driving time respectively.³

Because of the close proximity and ease of accessibility it may be beneficial to look upon the Niagara Frontier as a unified system neglecting the fact that an international boundary exists. As the last chapter viewed governments on both sides of the River in a regional context it may be beneficial to now view the entire Frontier in the same manner. The purpose of this chapter will be to do the following:

1. Report on in more detail the common problems and interests that might lead to mutual accommodation between the two separate study areas.

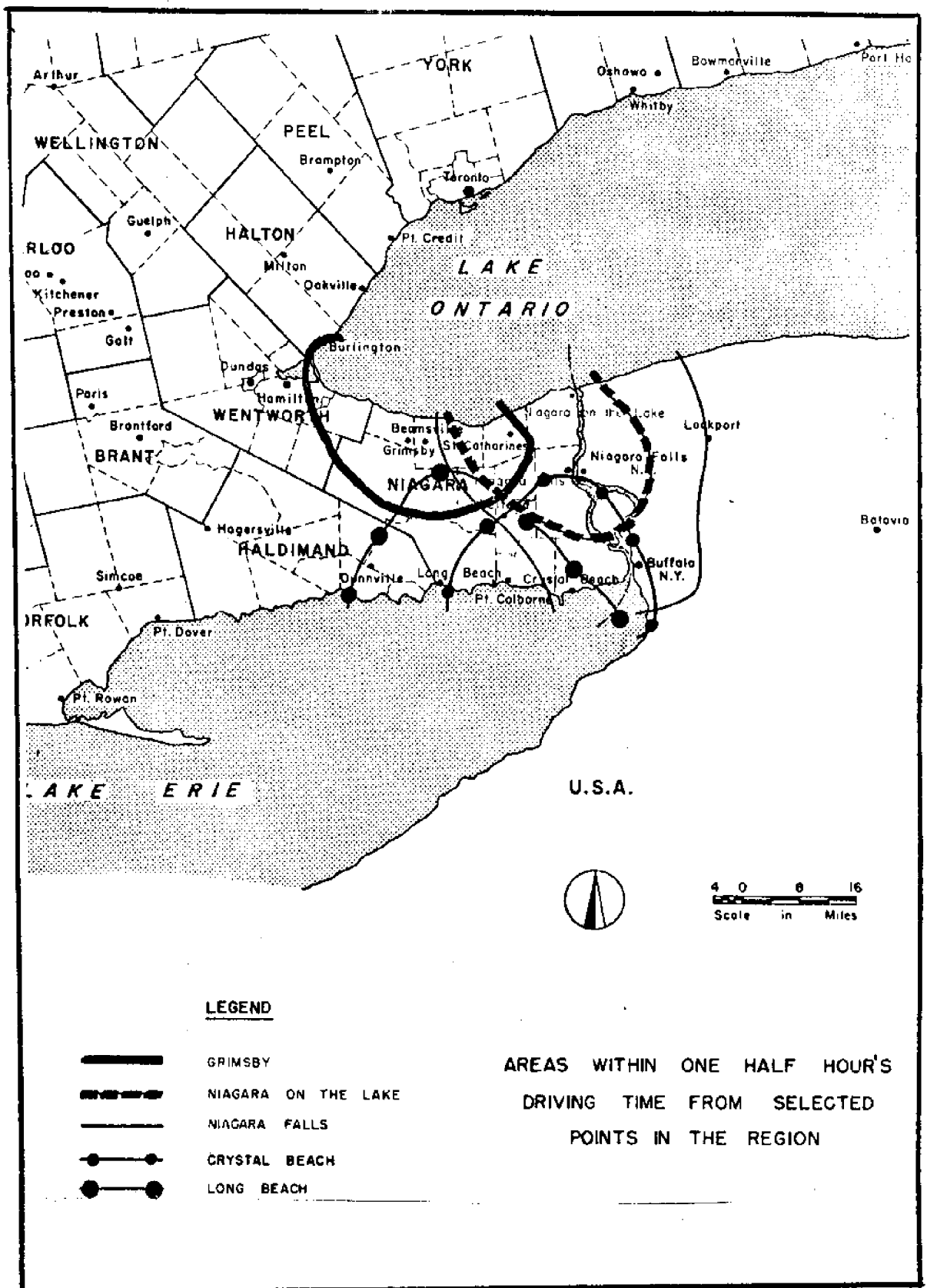


Fig. 18 - Ref. 3

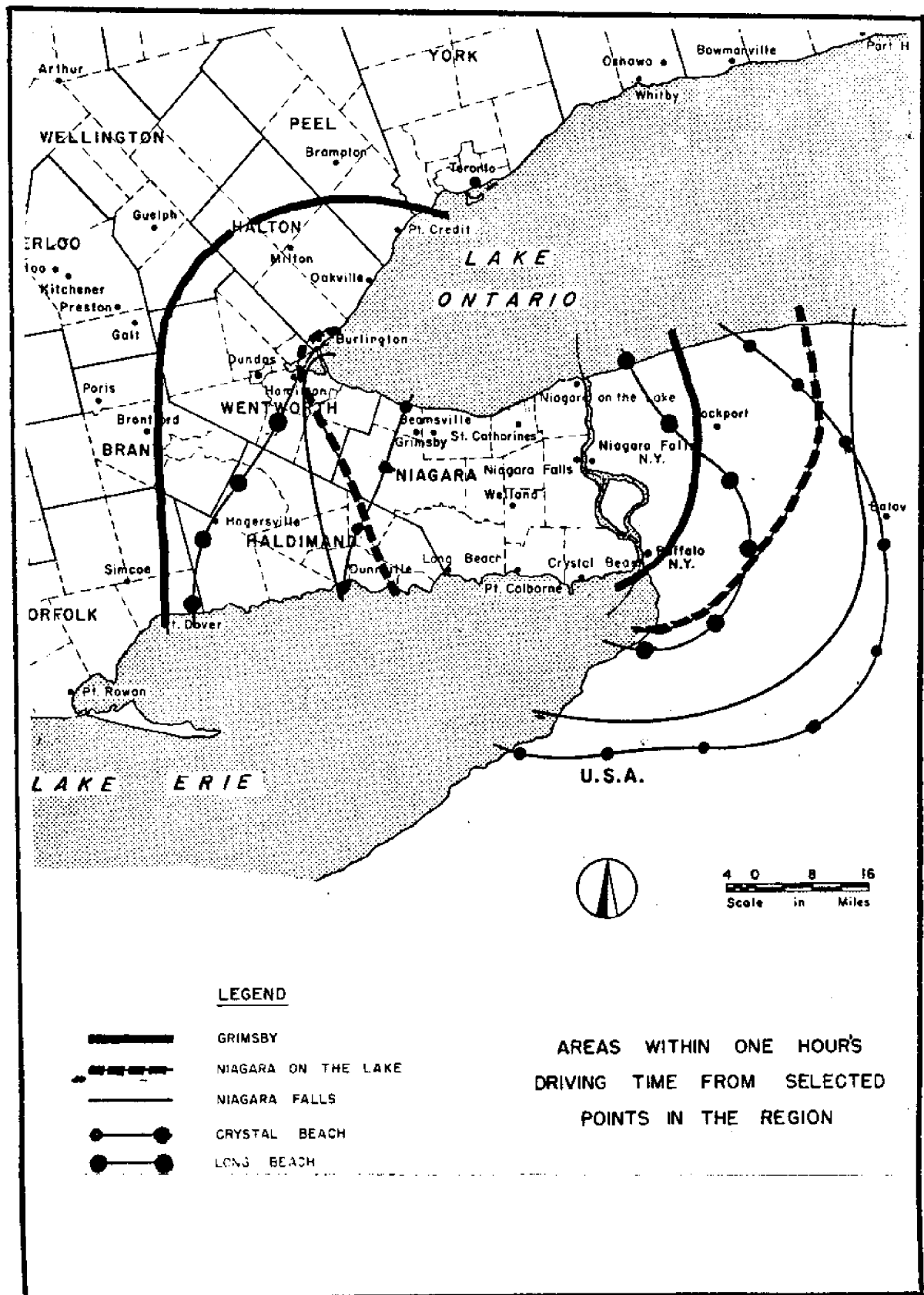


Fig. 19 - Ref. 3

2. Determine types of functions politically and legally possible, that might add to more efficient management of the total living environment of the Frontier.
3. The form that some type of formal (informal) cooperative structure might take.
4. How the structure mentioned in (3) would fit into a comprehensive overall Great Lakes Management organization, such as a strengthened I.J.C.

Common Interests

The common interests of both study areas goes beyond the common resource pool of air and water discussed throughout this report, indeed the common interests extend to a full range that form a sense of community within the combined study area. To explain more fully the common interests one might investigate some of the factors that lead to thinking of the Niagara Frontier as a community.

First, the study areas on both sides of the Niagara River share the same history. Without the navigation of the Great Lakes and without the early development of hydropower it is very doubtful that either side would exist as they do today. In fact all of the urban centers in the region are located adjacent to water bodies whether it be Lake Erie or Ontario, the Niagara River, or Welland Canal. Therefore, both sides owe their existence to a utilization of the common water resource.

In more modern times the picture has changed somewhat.

Navigation and transportation on the Great Lakes System is still important to some industries in the area, while the location factor of being near a source of hydropower no longer obtain. Navigation and transportation have become a factor more than of a strictly commercial nature through a combination of recreational and cultural activities. To cite an example, one could use the Welland Canal. The Canal's history and its mechanics make it an interesting feature, attracting many visitors, both Canadian and American, to the area. At lock 3 in St. Catharines, a viewing area, picnic facilities, and information center have been set up with an estimated 60,000 visitors during the summer tourist season.⁴

The common interest of recreation is one that bears amplification. Referring back to figure 19 it is seen that within one hour's driving time a person can travel from one extremity of the frontier to the other. This means that essentially all points in the region are accessible to approximately 2 million people within one-hour's driving time.

Parks, recreation, and open space form an important and complex function in the region. In recent years it has become recognized that the physical and mental health of an urbanized region requires that provision be made for relaxation, exer-

cise, and release from everyday pressures.⁵ Furthermore, in a study done by the RMN based on experiences in Toronto, it has been found that a large percentage of the urban population demands outdoor, water oriented recreational activities. This places the Niagara Region in a vital position as a result of its high potential for further water based recreation since a large population lives nearby in urban centers of Toronto, Hamilton, Buffalo-Niagara Falls-Lockport, N.Y. and St. Catharines, Niagara Falls, Welland, and Port Colborne.⁶

Increased demand for recreation is also related to rising per capita incomes and the desire for a higher quality environment. Since in the combined study area the majority of the population lives in urban areas, and incomes have been rising at approximately the same rate as for the nations, and demand for a higher quality environment has been expressed on both sides of the border, the implications for high quality recreation in the region are clear. The assessment of and need for more high quality recreation on both sides of the Niagara River is being investigated to the credit of regional bodies involved.

Regional recreation appears to have more implications and potential for the RMN than for Erie and Niagara Counties. This is probably due to a number of factors including the more unique

nature of the Niagara Peninsula and certainly the lower population densities on the Canadian side. Whatever the factors are the facts are clear that many Americans travel to the Canadian side for both day recreation and also for cottaging. The reverse does not appear to be true. The Niagara Parks Commission data reveals that American visitors accounted for 50-65% of the visitors to their parks and that approximately 17% of these came from New York. In addition to day-type visits a large number of the cottages bordering Lake Erie in the Town of Fort Erie and the City of Port Colborne are American owned. This cottage development provides an important percentage of the total tax assessment in these areas amounting to 35 per cent and 15 per cent for the Town of Fort Erie and the City of Port Colborne respectively.⁷ Two implications are evident; first American recreation is an important market potential for development in the Niagara Peninsula and second, water pollution in Lake Erie has resulted in decreased demand for further cottage development along the lake.

The tourism element of recreation is also very important to the economics of both study areas, particularly in the Falls area. The Niagara Falls and related developments are the most outstanding inter-regional facilities in the Region and provide

the basis for a significant portion of the regions' tourist economy. Both sides of the River benefit; the Canada-United States border presenting no artificial barrier to the movement of tourists. Again the RMN appears to benefit more from American visitors than vice-versa where expenditures by United States visitors are believed to approximate 75 per cent of total tourist expenditures in the RMN.⁸ Tourism has been responsible for approximately 10 per cent of the gross provincial product and income generated in RMN from tourism is estimated to be about six times higher than the provincial average. The Niagara Parks Commission has indicated that between 12 and 13 million visitors visited the Canadian side of the Falls area in 1969. This compares to an estimated visitor attendance on the American side of 7.5 million people in 1975.⁹

Although the RMN may be a large supplier of recreation to people on the U.S. side, it is dependent on the dollars spent by the vacationers and partially on the tax assessment provided by vacation homes. The RMN is certainly also dependent on its relationships with the large market area of the Buffalo SMSA. A substantial proportion of the outputs produced in Regional Niagara is sold to markets outside the region, 16 per cent being exported to the U.S. In fact only 5 per cent of Regional

Niagara's products are consumed within its boundaries.¹⁰ Certainly the Buffalo SMSA containing approximately 1.5 million people would be a factor for industry to locate in RMN.

It may be interesting to note that the study areas on both sides of the border contain approximately the same percentages of the labor force employed in manufacturing, trade, or services as shown by the following table:¹¹

<u>Buffalo-Niagara Falls-SMSA</u>		<u>RMN</u>
Manufacturing	38.0	37.9
Trade	17.9	13.5
Services	21.6	23.5

Therefore, there is a sense of community interest between the two sides on factors that affect employment in any one of these three industries.

Up to this point this section has shown that each area is somewhat dependent on each other, that the two portions of the study area have a sense of community of interests regarding history, recreation, tourism, and economic development. But along with the community of interests there is also a community of problems.

Common Problems

Common problems could be defined as those that affect the common pool resources of air and water in the region. Land may

also be considered as a common pool resource even though it is largely individually owned. Various types of land use not only affect the aesthetics of the environment and recreational potential but also regional economic development. In fact the utilization of all natural resources affects regional economic development.

The common environmental problems have been related to earlier in chapter II. These common problems affecting all the primary resources of the frontier have resulted from the economic-exploitive ethic of the past which stated that the greatest good is to control and exploit nature in order to produce projects and generate wealth. This ethic has been practiced on both sides of the Frontier and has resulted in the problems of the present.

It has become increasingly clear that man can no longer follow either the economic-exploitive ethic or a maximum-use ethic which states that the use of a primary resource as a waste receptacle is a legitimate use. What appears to be emerging as the most logical ethic for man to follow is not a preservation ethic which would oppose the use of natural resources but an ecologic-human ethic, which recognizes and appreciates the primacy of man, his legitimate needs and wants,

and the need to fit and reconcile man with his environment both as an individual and as a community.¹²

What does the ecologic-human ethic mean for the Niagara Frontier? First, it means that the entire frontier, on both sides of the river must solve the present problems created by the earlier ethics, problems created by development and utilization of the environment without regard to its necessary role in the ecologic cycle. Second, as a community the Niagara Frontier must preserve and enhance the environment not only for the benefit of present citizens but also for the benefit of future generations. Third, the frontier must plan for future development in such a way not only to provide for the economic needs of the citizens but also to provide for a high quality life for the community. These three goals apply to both sides of the border. Furthermore, what one side does will affect the other side and vice-versa.

Evidence of the statement that what one side does affects the other may be obtained through the transboundary movement of pollutants. It was shown in chapter II that the major source of water pollution in the Niagara River is in the Buffalo-Niagara Falls, N.Y. area and that pollutants from these sources are transboundary in nature particularly in the Falls and Lower Ni-

agara River area. This water pollution not only affects the municipal, industrial, and recreational use of the Niagara River on both sides, but perhaps more importantly affects the tourism aesthetics in the Falls area to viewers on both sides of the River. Sources on the Canadian side are also emitters of pollutants but because the United States side is greatly more urbanized and industrialized it is responsible for the major harm created by water pollution as it affects both sides of the study area.

As the United States sources of water pollution harm the Canadian side more than vice-versa sources of air pollution on the Canadian side affect the United States side more than vice-versa. This is due to the direction of prevailing winds which travel in a northeasterly direction. Therefore, air pollution generation in the St. Catharines, Welland, and Niagara Falls, Ontario areas affects the quality of the environment particularly in the Niagara Falls, N.Y. area.

Visual aesthetics on both sides of the river affects the recreation and tourism values of both portions of the study area. Visual aesthetics are not only affected by industrial development, but also by commercial development. A report recently issued by the International Joint Commission urged both

countries to work together to prevent high-rise construction from blighting the American Falls.¹³ The report noted three new projects planned for the Canadian shore: a 14-story hotel, a 24-story condominium and an elevated monorail overlooking the Falls. On the American side, the report said, new buildings are expected to sprout up near Niagara Falls convention center, which is now under construction.

The report went on to say "If this process were to continue unchecked, there is a serious risk that the viewing towers, high rise buildings and commercial structures would become such dominating elements in the scene that the appeal of the Falls themselves would be diminished." The report called upon the two countries to recognize that "mistakes that are made on one side are suffered principally by the country on the other side." Although the report was addressed to national governments on both sides ultimate enforcement of any resultant proposals would depend on local governments in the Falls area.

The statement that mistakes made on one side are principally suffered by the country on the other side is an important statement for this section. Without any doubt this is certainly true with respect to development along the Niagara River. This is also true to a large extent beyond the river. Certainly not

all the water pollution in the Niagara River is discharged directly to that body but is also discharged within the drainage basins on both sides. Certainly also, air pollution is not only river wide in extent, but is more correctly frontier-wide. Recreation, tourism and regional development are also not limited to the Niagara River but again the mistakes or solutions made by one side do affect the other.

A common problem not often considered as an international situation having transboundary effects is the economic effects of the regional environment. Almost every area that has environmental problems would like to attract "light-type" industry which does not seriously affect the environment. But to do this the region must attract highly skilled technical and professional manpower.

The ENCRPB surveyed what effects the regional environment played in recruiting professional and technical personnel and thus retaining and attracting light industry. The survey concluded that "there is a definite environmental input when persons' consider job positions, an input which does not work to the advantage of the region. This input is especially important with highly trained persons, who are both more mobile than the general population, and in greater demand, thus allowing

considerations other than financial." The report went on to say that the region possessed significant and potential environmental assets but that they are not well publicized nationally to the detriment of personnel recruitment.

This survey was only concerned with Erie and Niagara Counties region but there is an international implication. If the regional environment is important to the recruitment of highly trained personnel and if the flow of people is not restricted by an international boundary, then does not or should not the environment of the international Niagara Frontier play a significant role in economic development? Furthermore, would not publicizing the international regional assets aid in personnel recruitment? The answer to both these questions is of course yes, but the real fact is that the two separate areas do almost nothing in terms of publicizing the entire region, though it may be to the benefit of both.

Therefore, it should be clear that decisions made on one side of the frontier could and in fact do affect the other side. The international boundary is little more effective in isolating one area from the other than are local jurisdictional boundaries.

International-Intraregional Cooperation

To Manage Community And Regional Environmental Priorities

Earlier in this study the pollution problems of the Niagara Frontier was discussed along with urbanization trends citing the need for administrative, legislative, and fiscal reform in order to avoid conflicts and to provide for a high quality environment in an urban setting. Later the concept of regionalism was discussed with a review of the Regional Municipality of Niagara and the setting of a framework for a regional government for Erie and Niagara Counties, N.Y. Up to this point in this chapter some of the common interests and common problems that exist between the study areas on both sides of the Niagara River were discussed. All of the above now leads to the present section on international intraregional cooperation.

Here the term intraregional is used because it has become evident that the combined study area does truly represent a region even though it is divided by an international boundary. A region that is a community sharing a common history, common geography, fairly common social and economic characteristics, and common interests and problems.

The discussion on common interests and problems might lead one to suspect that since the two areas share mutual interests

there might be areas of concern that would be mutually advantageous for both areas to cooperate on. The setting up of some form of a multipurpose regional government for Erie and Niagara Counties is necessary to provide for international-intraregional cooperation. A regional government in Niagara, Ontario simply could not cooperate well with the existing 64 local jurisdictions on the United States side. It could cooperate to some degree with the ENCRPB but as was shown earlier the ENCRPB cannot truly speak for the governments in its area. Certainly then, if there were one regional government opposite to the RMN cooperation between the two would then be structurally ideal. In the event that a regional government in Erie and Niagara Counties could not be established then the international-intraregional system would still be operative if the two county governments were strengthened along the lines of the comprehensive urban county plan. At any event intraregional cooperation cannot exist at the present imbalance in local government jurisdictions and possibly could not exist if any more than two regional governments existed on the United States side.

Because decisions made on one side of the frontier mutually affect both sides rethinking of existing arrangements for getting things done in the light of present and prospective

events is essential. New and innovative techniques are required at all levels of government including the regional level. General purpose regional governments are necessary because:

"It has become fully evident that pollution control cannot be administered on a 'special purpose', ad hoc basis. It and all other water (environmental) management problems must be considered as part of the Regional Governments' responsibility for land use planning, the location of industry, housing, schools, recreation, health facilities and all other inter-related matters of regional development."¹⁵

To accommodate the above a step toward forming a regional government, of a general purpose nature, on the United States side has been made in the preceding chapter.

Now, with the formation of a general purpose regional governments on both sides the institutional model for the management of the Niagara Frontier takes on a new shape. Regional governments on both sides will eliminate many of the problems of a common pool resource, problems that would normally arise if a large number of users retained independent rights to the use of the resources, problems that would normally arise if voluntary agreement or willing consent of every user would be required in joint action involving the community of users.

In the article Principal for Partnership-Canada and the United States the following statement is made:

"There is a mutual advantage to developing a more

effective working partnership....not only a willingness to exploit acceptable opportunities for joint understanding but also the willingness of each government to examine existing hindrances to cooperation with a view to their removal."¹⁶

Since there is probably no place in the Great Lakes System that cooperation in managing the physical environment is more critical or more feasible the attempt in the previous chapter to remove an existing hindrance to cooperation, that of fragmented government, is in keeping with the above statement.

The environment of the Niagara Frontier represents a classic example of a common pool resource offering the possibility of many joint and alternative benefits if users can avoid some of the negative spillovers engendered by the very nature of the complex open environment which does not recognize an international boundary. Hypothetically, the stage is now set, with two workable governments, one on each side of the Niagara River to reap the joint benefits and avoid the negative spillovers. Now international-intraregional cooperation can take place.

The question now to be asked is what types of cooperation would be or could be made possible?

Surveillance

Information Exchange. Probably the simplest function that gov-

ernments on both sides of the river could cooperate on is an information exchange. An exchange of information could be done informally and would not disrupt any existing governmental responsibilities, i.e., there would be no loss of sovereignty. Since everything done in the Niagara Frontier is of concern to people on both sides of the border a flow of information is important.

The important concept of information is that it is data of value in decision making. Information plays such a vital role because of the rapidly changing nature of society which has created problems of an interdisciplinary and interregional nature. In modern society there is an increasing demand for providing for needs other than material goods. Public services such as protecting and preserving the environment, providing for open space and recreation, enhancing regional development all involve decision making by public policy. This public policy must be based on adequate information of the needs and aspirations of the particular area involved.

In the Niagara Frontier, needs and problems are not restricted to one country or the other, but are international in nature. Public policy decisions made on one side affect the people on the other side. Decisions that affect the quality of life in

the entire frontier should not be made on a unilateral basis; the two areas are plainly too interacting.

Agencies on both sides of the river are excellent producers of information on the physical, social, and economic characteristics of their area.

The following studies have been or are being prepared by the RMN and the ENCRPB:

TABLE 14

STUDIES ACCOMPLISHED BY RMN AND ENCRPB

RMN

Agriculture Study
Environmental Study
Land Use and Development Study
Economic Base
Transportation Study
Servicing Study
Community Facilities Study
Preliminary Goals and Objectives

ENCRPB

Initial Environmental Study
Land Use
Economic Analysis
Transportation
Economic and Demographic
Predictions and Analysis
Housing
Open space, Parks, Recreation
Regional Growth Patterns
Regional Water and Wastewater
Study and Plan
Preliminary Concept Plans
and Regional Development
Goals
Population; Inventory and
Analysis of Existing Data.

Therefore, it appears that a very adequate information base exists on both sides of the river. The idea now is to provide a mechanism for the joint exchange of this information.

Not only are the above agencies producing information but they are in fact producing regional plans for all of the com-

munity and regional priorities listed above. The problem here is that all the studies and plans are based solely on either the RMN area or Erie and Niagara Counties. All the maps and diagrams show only the facilities, problems, or characteristics for that particular area with little regard for what exists on the other side of the river. This is surprising and unfortunate because of the many common interests and problems shared by both sides of the river.

The main problem with the system as it now exists is that based on the studies made by the two agencies plans are being prepared for two million plus people on one side and for a half-million plus people on the other side with little thought or concern for the 2.5 million people in common let alone the megalopolis belt from Toronto to Boston of which the Niagara Frontier will certainly be a significant part.

In summary then it is suggested that the free flow of information should be the first function to cooperate on and should be facilitated by every means possible. This flow of knowledge will help to assure that all participants are aware of what their opposite numbers are doing at all times, what the levels of responsibility on the opposite side are, and how their decisions may affect decisions on the opposite side.

Joint Information Collection. Along with information exchange joint information collection could readily be facilitated in the Niagara Frontier. This implies joint undertakings for research, monitoring, and analysis.

There is often a misconception that research is carried on only by state, provincial, or federal levels. This is not true. Research and monitoring are carried out at all levels of government including the regional (local) level. The amount of studies and plans developed by regional agencies on both sides of the Niagara River testifies to a tremendous amount of research done by these agencies and their consultants.

Conventional monitoring, as carried out in water pollution studies done by state, provincial, and federal levels comes too late. It is done after the damage has already occurred. Monitoring for the purpose of predicting future problems before they take place can be best carried out at the regional (local) level.

Joint research and monitoring activities will not only provide for a rich exchange of knowledge and ideas but will help to insure that common problems and interests are recognized and treated in a manner in line with the community of interests between the two areas. This would be in addition to economies of

scale resulting from joint efforts and the joint pooling of professional staff. The financial and staffing arrangements for effecting a joint international Niagara Frontier research and monitoring team should be no more difficult to negotiate than those between any two intragovernmental agencies.¹⁷

Public Hearings. The collection and exchange of information, if it is truly to be used as information rather than just data, has to be utilized for some purpose, i.e. decision making. However, prior to any decisions made by regional governments, indeed during the preliminary stages of drafting any plans, expressions of public opinion from citizens and organized private agencies should be obtained. This will enable full public access to the process by making their expressions and opinions a matter of public record. This need of public input cannot be overemphasized as it is part of the democratic process. The way to carry out this process is through public hearings.

However, at the present time there is no mechanism by which citizen opinion on one side of the border can be made a matter of record at public hearings on the other side. It is doubtful that public hearings held, say at St. Catharines, would be advertised in the Buffalo-Niagara Falls, N.Y. area and doubtful that citizens in the Buffalo-Niagara Falls, N.Y. would be

invited to be heard and submit material for the record. Of course the vice-versa would be true also.

At present there appears to be a dividing line in communication created by the international border. This again is unfortunate because of the transboundary effects of public policy decisions.

Therefore, it would seem important for a full exchange of ideas and opinions, not only of politicians, experts, and administrators, but also from the general public, that through an international-intraregional agreement advertisement of public hearings should appear on both sides of the border and citizens of both sides should be invited to participate and submit material for the record.

The underlying principle should be that where the collection and exchange of information, and the involvement of citizens are concerned, the international boundary and, indeed, all other barriers to the free flow of knowledge should be eliminated.¹⁸

Information Services. To involve citizen participation and community interest and to make the information effective to the public there is a need for the dissemination of technical and administrative knowledge through pamphlets and of all the

media.

Often the information produced by the individual regional agencies and by other agencies as well is too voluminous and technical to provide information for the public. It is not necessary, or even desirable, that much of the detailed information, plans and concepts produced by a regional agency for use by people within their own area be distributed throughout the entire frontier. It is important, however, that pamphlets, etc. be distributed that explain the general concepts of the proposed actions. This dissemination of information is not only necessary for regional (local) actions, but there is also a need for a body to disseminate information on state, provincial, or federal programs, as they affect the Niagara Frontier. Therefore, an international body in the Niagara Frontier could cooperate on providing joint pamphlets on the effects of higher-level governmental proposals on the frontier. The end result would be to make local people more aware of the decisions that are being made at higher levels.

A recent example will put into focus the need for an international body to disseminate information from higher levels to the more local level. The recent signing of the Executive Agreement on Great Lakes Pollution between the U.S. and Canada

committed governments to spend millions of dollars on pollution control, part of which would have to be financed by local governments. These local governments were not consulted and had no input into drawing up the Agreement. While the Agreement for the most part is not appreciably more stringent than New York State and Ontario water quality standards the implications are clear. The fact that federal governments on both sides of the border can commit local governments to a course of action without consultation with these local governments means that the communication system between local government and government at higher levels is not operating effectively. If an international-regional body was formed in the Niagara Frontier representing over 2 million people it is assured to have more of a voice and be recognized more in international affairs between the U.S. and Canada.

Another example illustrating the need for this information service is the current method of reporting on international problems in the Niagara Frontier such as water pollution. In order to carry out its investigations the I.J.C. must draw upon the services of federal agencies in both countries. The work produced is a product of the priorities, constraints, funding, and biases of the participating agencies. Furthermore

the reports largely remain in federal, provincial, or state circles. They generally are produced with little public input and are rarely given regional discussion or debate. In addition little attention is given to the historical significance of the data or to the obstacles that prevent solutions to problems. The perspective on water quality, in Chapter II, points to the lack of adequate reporting to show what is really happening, over the years, in the Niagara Frontier.

Machinery to provide full exchange of information and for undertaking joint research and monitoring projects would certainly be a movement in the right direction and may be good enough to stand by itself as a cooperative effort to jointly manage the Niagara Frontier. There are other functions, however, that may be considered if only to stimulate discussions and thought.

Mediation

The above cooperative functions between regional governments on both sides of the Niagara River may be termed a surveillance role, i.e., information gathering, data interpretation, and dissemination. In addition to a surveillance role an information exchanging role is necessary and complementary to surveillance.

The next cooperative role may be thought of as a mediation role which includes surveillance and information plus a more active role concerned with the development of joint programs to attack common problems.

Joint Recommendations. One of the functions a mediation role may take is the issuance of joint recommendations to be submitted through parallel channels to both countries respective higher level governments.

Because regional (local) governments are more knowledgeable about the problems and needs of their areas they are in the best position to make recommendations to their respective state, provincial, or federal agencies. Again, however, there are benefits of preparing joint recommendations on common problems and needs. This may result in making governments on both sides aware of the common problems and needs of the frontier. Joint recommendations, endorsed by both regional governments, would tend to recognize and promote the international importance of the regional priorities. It would tend to create an atmosphere that monies spent in the area will not only aid the citizens in one country but will also aid citizens in the other country as well, promoting a better international partnership. Even if joint recommendations could not be achieved the inter-

national body could still be the stimulus for submitting parallel and separate recommendations.

Promulgation of Regulations and Standards. Forming joint recommendations would be the least restricting area under the mediation role. It would not present a danger to overtaking some of the functions of the existing governmental structure. However, joint cooperation under the mediation role may take on more demanding restrictive functions. These functions include the promulgation of regulations and standards and therefore must include closer coordination and mechanisms by which to resolve conflicts.

Mediation could take place on setting air and water quality standards and criteria that are higher than those called for by state or provincial governments. Mediation may take place in setting construction and zoning standards and regulations along the shorelines particularly on the Niagara River. This might also include visual appearance and landscaping standards with emphasis on zoning and subdivision controls particularly along the riverfront.

Standards and criteria through zoning control may extend beyond the riverfront. These might be placed in effect in preserving scenic open space corridors particularly those of

a historical, recreational, and cultural value to citizens of both sides of the border.

The areas that could be covered under a mediation role between regional governments on both sides of the river could go on at some length. These areas however would have to be jointly "mediated" between the respective governments. Therefore it is not proper at this time to go into any greater depth on the mediation role.

Control

The setting of objectives, standards, and regulations has always been relatively easy. This can historically be seen in the perspective on water quality presented earlier. Enforcement is another matter, being difficult on a national scene, and very difficult, almost impossible, on an international scene.

A control function would include the functions mentioned above plus an oversight function. An international organization, as well as unilateral government can only exercise control functions through legal mandate. On the international scale the legal mandate would probably be a treaty. At any extent an organization exercising a control function could initiate civil court actions when appropriate.

It is not intended, at this time, to suggest giving the international-intraregional organization a control function of its own, but that the organization could refer matters of such a nature as to be handled under the control function to a higher level body, perhaps a strengthened I.J.C., or a separate Great Lakes Council.

Planning

Planning is a technique or process to determine which steps need to be taken to accomplish stated goals. Planning covers old and new problems, indeed planning should be done to prevent the occurrence of anticipated problems. Planning must be continuous because society is dynamic; it must not be done in a vacuum because so many factors are interrelated.

Planning to a certain extent has been done in a vacuum in the Niagara Frontier. The following statement has been made in a preliminary report by the ENCRPB on the Niagara River:

"At the present time, significant planning relating to functional systems is a multi-agency responsibility. Agencies doing planning have a somewhat narrow goal orientation to adequately plan for the river system as a whole. The environmental program requires simultaneous planning of the major functional systems along the entire river, as well as specific geographic area planning."¹⁹

The ENCRPB was speaking mainly of the U.S. side of the river. At present the Regional Municipality of Niagara side cannot.

evaluated because the official plan for RMN has not yet been completed. It appears, however, that planning along the Niagara River will still be a multiagency responsibility with the RMN, the Niagara Parks Commission, and Niagara Peninsula Conservation Authority being the primary planners.

Whatever the planning conditions are along the river and even within the two components of the combined study area the international planning situation is clear. There is no joint coordination of the planning functions between study areas across the river. Planning for the problem areas of water quality, fish and wildlife protection, water based recreation, air quality, economic development, tourism, protection of historical landmarks, open space and scenic corridors, all of which are of primary interest for the international situation in the Niagara Frontier are done exclusively on a unilateral basis with little thought to their international significance. Both sides are planning in a vacuum with regard to each other.

Rethinking of planning policies is necessary not only to recognize the consequences on the immediate Niagara Frontier, but also in light of the emerging Great Lakes Megalopolis. There is time to prevent the Niagara Frontier from becoming another western Lake Erie, but the time is short.

Planning agencies on both sides of the River must recognize that their plans are not only of concern to the citizens within their own boundaries but of concern also to those citizens across the River.

Therefore, it is concluded that some joint planning input be established by agreement of agencies delegated planning responsibilities on both sides. It is also concluded that regional organizations aid a higher Great Lakes Agency (Strengthened I.J.C. or Great Lakes Council) in the coordination of Federal, state/provincial, interstate, local and non-governmental plans within the Niagara Frontier.

The planning function of the new international-intraregional organization could also recommend and set up both short range (covering perhaps 5 years) and long range schedules of priorities for the frontier and to set the basis for the joint collection and analysis of basic data relating to these priorities. It would also carry out other planning functions as agreed upon by the regional governments.

Form of Cooperative Structure

"Environmental studies clearly indicate that air, land, and water within environmental entities... should be managed within the context of some 'designed future' and by institutions which can carry regional inventory, planning development, use and management, in a manner recognizing that the air,

water, and land resources are integrally the environment which surrounds us all."²⁰

So far this paper has shown that the air, water, and land resources are common pool resources to the entire Niagara Frontier and that because of urbanization, industrialization, increased recreation demands, and rapidly changing technologies the environment should be jointly managed within the context of a designed future.

The task now is to suggest a mechanism to ensure that joint efforts will take place at the regional level and that this mechanism will be recognized and utilized in conjunction with a higher level Great Lakes Agency (Strengthened I.J.C. or Great Lakes Council) and form an integral part of such an agency.

A number of alternative arrangements could be suggested to provide the mechanism mentioned above. It may be simpler however to first note the factors that constrain this mechanism and then choose the best alternative available.

The first constraint is that the "status-quo" is not acceptable. This has been shown earlier in this chapter. There is currently no mechanism by which a higher Great Lakes Agency, if initiated, could issue common directives to joint regional agencies.

The second constraint would be that the mechanism would necessarily have to respect the political integrity of both countries. This constraint eliminates any proposal that would call for the political and administrative unification, integration, or federation of the two portions of the study area. While this type of union was suggested for Erie and Niagara Counties it could not be recommended on an international basis.

Working within these two constraints a wide range of alternatives would still be available. It may be wise to further refine the criteria that this new mechanism would operate within. It should be noted that this international-intraregional organization is expected to carry out only surveillance and mediation functions thus leaving the control function to respective agencies on both sides or possibly to a higher level Great Lakes Agency.

Therefore an association of governments on both sides of the Niagara River designed to provide an area-wide mechanism for key officials to study, discuss, and determine how best to deal with common problems is needed. It should be a continuing agency to furnish research, plans, advice, recommendations, and coordination.

It is concluded then, based on the above and in chapter

IV that a regional council of governments might be formed between the Regional Municipality of Niagara and whatever regional opposite number on the other side finally emerges. The new association might be called the Niagara Regional Council. This council would have some authority to carry out their decisions on frontier-wide issues, but would mainly make recommendations to respective state, provincial, and national agencies as well as to an international agency such as a strengthened I.J.C. or Great Lakes Council to carry out the proposals of the regional council. This would be a moderate method of attacking problems, one based on voluntary agreement with no major threat or disturbance to existing or proposed governments in the frontier. In fact, now that a hypothetical two-regional governmental system has been developed for the frontier there need only be the two regional general purpose governments involved in the international organization.

Councils of Governments

The use of the council of government approach originated in 1954 with the establishment of the Supervisors Inter-County Committee in the Detroit area.²¹ Councils in other urban areas were subsequently created in San Francisco, Los Angeles, Salem, Oregon, Seattle, Philadelphia, Atlanta, and Washington, D.C.

Up until 1965 these were the only metropolitan councils in existence. Then, expansion was prompted by two stimulants. In 1965 federal housing legislation (Sec. 701 of the Housing Act of 1954) was amended to make COG's eligible for 2/3 financing by the U.S. federal government. Second, in 1967, the Demonstration (Model) Cities and Metropolitan Development Act, section 204, stipulated that federal grant applications must be reviewed by an area-wide agency that performs metropolitan or regional-wide planning. COG's were designated as one type of such an agency.

Another stimulus to COG's was the support given to the National Service to Regional Councils by grants from HUD and the Ford Foundation. The current activities of the National Service include: (1) clearinghouse for information on the organization, programs, and progress of regional councils, (2) consultation with local officials to assist them in developing COG's (3) information on federal and state agencies and their effects on regional activities and conversely alerting federal and state agencies to the needs of regional councils, and (4) evaluation of such councils and local government structures as they are developing in order to improve techniques of intergovernmental cooperation and communication.²²

Typically the councils that have been formed to date have involved cities and counties. However, state agencies or even private citizen groups may be represented on the council.²³

What is suggested here is a council between regional governments on both sides of the frontier. However, to achieve this international cooperation any type of government agency, or even citizen group may be represented. Therefore, the council approach is very attractive in that it is flexible to the form of structure that its membership may individually possess. If a regional government as suggested for Erie and Niagara Counties could not be established then the international regional council could still function well if only strengthened county government were achieved. The international regional council could still function even if nothing were done in Erie and Niagara Counties, could function through the ENCRPB, but would have to operate at a lower level due to the multitude of fragmented government upon whose voluntary actions the success of the council would depend. Furthermore special purpose governments, of which there are many in Erie and Niagara Counties, do not normally join in regional councils.²⁴ This would leave a large gap in any effectiveness the international regional council might achieve. Therefore, it is desirable that this council be

composed of regional general purpose governments in the area.

A main advantage and disadvantage to the council approach is that it is based largely on voluntary cooperation, both as to initiating programs and to membership. Members have in the past been free to withdraw from the council within 60 days notice. This freedom, where members can choose to join or not to join, or withdraw is the weakest element in the council approach. It has proved to be an effective deterrent, in some instances, to discussion and action by local officials, particularly in controversial functional areas.²⁵ It is however this voluntary cooperation that makes the council easy to implement since initially it does not pose a threat to the powers of existing government at all levels.

In general the council approach has received mixed responses from political scientists. Some political scientists believe that regional councils can serve a useful purpose, their chances of success being greatest when they consider non-controversial issues, where the solution will not adversely affect any member and when the proposal costs the member little or nothing.²⁶ A generally favorable comment came from the Advisory Commission on Intergovernmental Relations stating that the councils may have the political capability to become action organi-

zations in some areas, with the ability to perform operating programs.²⁷ This political capability to be an action organization stems from the fact that regional councils may be so effectively linked formally or informally with organizations that do have executing powers that they may be influential in the area-wide decision making processes.²⁸

One statement on councils of government that has not received any argument is that they are in a state of rapid growth and transition. LeBlanc and Allensworth in The Politics Of States And Urban Communities states that:

"Today councils of governments are certainly in a state of transition moving from metropolitan discussion groups to institutions grasping for an independent power base within the metropolitan area.....all signs point to their continued growth."²⁹

In a similar manner, Royce Hanson, after making a case study of Metropolitan Washington Council of Governments speculated whether the organization was "transitional rather than perpetual."³⁰

To sum up the effectiveness of councils of governments LeBlanc and Allensworth state:

"....the fears of some that councils of governments are not effective institutions for the advancement of metropolitan-wide leadership, policy innovation, and more or less independent action programs should be allayed, at least for the time being."³¹

It is worthwhile to look back at the preceding chapter on what was said about reorganization in Erie and Niagara Counties in order to avoid misconceptions. In the preceding chapter, COG's and ENCRPB, a form of a COG, were not found totally effective in solving the environmental and other problems evident in Erie and Niagara Counties. Now in proposing an international-regional organization a COG has been suggested and it also has been noted that its formation may lead to action programs. At first this may sound contradictory but really it is not.

There are 64 jurisdictions in Erie and Niagara Counties. Forming an organization that is based largely on voluntary agreement between them would be most difficult. Earlier, it was shown that the need on this one side of the frontier was for action programs and that the ENCRPB, itself admitted that it lacked authority to implement action programs. A need for a regional government, two strengthened counties or intercounty, is clearly evident.

When investigating an international-regional organization the situation is markedly altered. We are no longer dealing with unilateral politics but bilateral, binational politics, politics which must recognize the political identity of the two countries. The ability to initiate action programs always thought

to be a deficit in organizations, particularly river basin commissions, may not be critical in the international-regional sense. Indeed these types of programs would necessarily pose a threat to existing government at all levels on both sides and may prevent the establishment of such an organization if it were initially to be given such powers.

In summary the use of a council of governments as a cooperative structure between the two portions of the study area has several advantages. First, the general consensus among political scientists is that it is probably the best cooperative mechanism available where unification of political and administrative responsibilities is not possible. There is practical evidence that any arrangement spanning the international border must recognize this fact.³² Secondly, it would be relatively easy to establish as it does not conflict with established authority, at least initially. Such conflict would almost definitely exclude a more progressive organization. Metropolitan reform in the United States for area-wide general purpose government has almost always met with failure because of political forces, forces that would be exponentially stronger in an attempt to provide more aggressive control across the Niagara River. Thirdly, it has been suggested that regional councils of

governments may become action organizations, incrementally, particularly when the councils are effectively linked to organizations that do have executing powers. A council between regional governments on both sides of the river would necessarily have this effective linkage. In fact it would not be a linkage at all, but would be inherent within the structure.

Other Activities

The main activities of the international COG, basically surveillance and mediation plus some joint planning, have been described earlier. There are also a few other activities that the COG could consider that do not normally fall within any specific management function.

First, the international COG might consider joint promotion of the Niagara Region. Much has been said earlier about the common interests between the two sides of the frontier, among them being regional economic development. It would appear that if governments on both sides would prepare joint promotional material based on regional assets then both sides would benefit; not only from the economies of scale of the venture but also from promoting a broader base of the regions' assets, particularly the recreational, historical, and cultural assets on both sides of the river. This is particularly important for promot-

ing off season tourism where now both sides suffer because of seasonal fluctuations.

Second, the international COG could engage itself in lobbying at the local, state/provincial, and national levels. The international COG could act as a proponent at the various levels of government on both sides as to the international significance of their decision making.

Third, the international COG, if empowered to do so, could act as a review agency, on proposals submitted to it by various governmental levels. The ENCRPB and indirectly the RMN currently act as such a review agency for their respective jurisdictions. An international COG could blend a transboundary flavor into the review process on activities that have been described to be international in nature.

Membership

Typically the members of a COG are cities and counties, although occasionally other local governments (including school and other special districts), state agencies, and even private citizens designated by civic organizations may be included.³³

The membership on this international COG would certainly best be determined by the local governments or people within the area. However, a few comments, sketched only in a very general

way, may be in order.

The main membership would consist of elected officials from the regional governments on both sides or of strengthened county government officials on the New York side. Membership from other bodies within the region may be permitted and should be determined at the local level. It is important that mechanisms be available for public participation in the international COG. This may be done through advisory groups, or having channels for appeals.³⁴ It may also be done through direct membership of private citizen groups on the council.

There appears to be no general structure formula for the councils of governments. The international COG may contain a general assembly (actually a ratifying unit) plus an executive committee who would submit proposals to the joint assembly. This form would be used if the ultimate membership on the council becomes large. It is not necessary that the international council become this formal however. It may be sufficient to provide a framework for representatives from governments on both sides (hopefully regional governments), who already are elected to represent the people, to come together to combat joint problems and recommend programs for the enhancement of the regions environment.

Legal Status

Theoretically, councils of governments can be private agencies existing by general agreement between local governments or they can be governmental organizations operating pursuant to enabling legislation, laws, or authority.³⁵

In the initial stages the international council may operate without legal statute, operating through a member government rather than a separate and distinct identity. Legal status, however, could facilitate organizing and operating the council and make clear the powers of the group to engage in joint activities or to hire a joint staff or consultants. Also some form of legal status is necessary for the receipt of state (Provincial) or Federal financial assistance.³⁶ Therefore it appears best that the international council receive legal status from state, provincial, and federal governments.

In order to set up the legal foundation for the council parallel legislation may be required. If the region were interstate instead of international the problem would be simplified. New York State statutes authorize local governments to enter into regional councils, in metropolitan areas that are interstate in area.³⁷ On the federal level Section 701 of the Housing Act contains advance Congressional approval for interstate compacts

for metropolitan areas that are interstate in nature.³⁸

While neither piece of legislation mentions foreign nations the intent of the legislation would be carried out in the formation of an international council of governments for the Niagara Frontier. Both pieces of legislation recognize that the problems of metropolitan areas do not respect state boundaries; it is no less true that the problems do not respect international boundaries. Since the Niagara Frontier has been described as a metropolitan area international in extent, it is clear that the intent of both pieces of legislation would be carried out in the formation of a Niagara Regional Council.

A piece of pending legislation that does recognize the international significance of metropolitan problems is S. 907 allowing preconsent of Congress for states to enter into Interstate Environmental Compacts for planning, data gathering and sharing, monitoring, construction of necessary facilities, cost sharing, and land use regulation.³⁹ This legislation recognizes that metropolitan area organizations capable of handling area wide problems cannot exist without interstate arrangements. The important part of this legislation is Article 4.08 which is:

"4.08 Special Supplementary Agreements-Signatories may enter into special supplementary agreements with foreign nations....for the same purposes and with the same powers as under Article 4.06 upon

condition that such non-signatory party accept the general obligations of signatories under this compact: Provided, that special supplementary agreements shall become effective only after being consented to by the Congress."⁴⁰

Article 4.06 provides for: "agreements for joint, co-ordinated or mutual environmental management activities relating to interstate environmental pollution problems common to the jurisdictions of such signatories and for the establishment of common or joint regulation, management, services, agencies, or facilities for such purposes or may designate an appropriate agency to act as their joint agency in regard thereto..."⁴¹

Therefore it appears that on the U.S. side enabling legislation for the legal basis of the international council of government may indeed be a political reality. It is not the purpose here to examine Canadian enabling legislation although parallel legislation would be necessary in order to implement the international council.

The legal status of the international council may come about from a somewhat different direction. Throughout this section a Great Lakes Management Agency has been mentioned frequently, an agency that might provide an international basis for the management of land and water resources of the Great Lakes Basin.

This overall agency, what ever form it might take, may very well be empowered by treaty or agreement, to charter subarea councils one of which might be the Niagara Regional Council.

In fact this authority has already been given to the International Joint Commission through the Agreement between Canada and the United States on Great Lakes water quality.⁴² Thus the international council for the Niagara Frontier could be established or at least facilitated and financed through a higher level Great Lakes management agency. This is not unrealistic and in fact may be desirable because of the effect the lower Great Lakes environment has on the people of the Niagara Frontier and the effects that the people of the Niagara Frontier have on the environment in the lower Great Lakes. The next section of this chapter will describe how the Niagara Regional Council would fit into a Great Lakes management agency.

Niagara Regional Council As Part Of

A Higher Level Great Lakes Management Agency

During the past year (1971-1972) faculty members from approximately twenty universities in the United States and Canada have joined in a seminar to explore ways to strengthen the management of the water and land resources in the Great Lakes basin in order to safeguard these invaluable resources. Preliminary results of the seminar conclude that:

"...What is needed is a substantially modified international arrangement to more effectively meet existing older problems and, more importantly, to be prepared reasonably in advance to meet emerg-

ing problems about which people and their governments can take action."⁴³

This "substantially modified international arrangement" was developed in the form of three alternatives: (1) a strengthened International Joint Commission (I.J.C.), (2) a Great Lakes Council separate from the I.J.C., (3) strengthened management by developing closer relationships among existing federal, provincial (state), and regional governments, using the International Joint Commission for progress evaluation, management and coordination of information, and liason with operating and research agencies. Alternatives (1) and (2) differ at the policy making level but utilize the same administrative structure operating through a Great Lakes Management Agency (GLMA).

At the third seminar meeting held in June, 1972 the general consensus appeared to be that a combination of a strengthened I.J.C. operating through a Great Lakes Management Agency, plus a joint regional cooperation scheme might best be suited to managing the Great Lakes. This selection will be developed on that basis. This paper will not discuss the high-level policy group whatever it may eventually be. This analysis only need be concerned with the interactions of the GLMA and the Niagara Regional Council although it will be assumed for the purpose of this study that the high level policy group will

be the I.J.C. Hereinafter, in this report the combination of the I.J.C. and the Great Lakes Management Agency will simply be referred to as a Great Lakes Management Agency (GLMA).

Parallel to the university seminar ten graduate students at Cornell University established a 'experimental Great Lakes Management Office' investigating and exploring many of the functions and areas that a Great Lakes Management Agency would be concerned with.

This paper and study forms a part of the research done pertaining to the experimental office and follows much along the lines of alternative three above, setting the framework for a joint regional cooperation scheme. Chapters II, III, IV, and V developed the need for reform and removal of some of the obstacles (fragmented government particularly) that would make such a joint regional scheme practically impossible.

Because of the impact of the Niagara Frontier on the Great Lakes System and in turn of the Great Lakes System on the frontier it is necessary that the programs of the Niagara Regional Council be coordinated with and within the scope of some higher level organization. The efforts to preserve the resources of the Great Lakes Basin will only be partially effective without the cooperation of the urban area of the Niagara Frontier.

Likewise, programs developed within the Niagara Frontier, even with the aid of the proposed Niagara Regional Council will be only partially effective unless they are parallel to and coordinated with the Great Lakes System as a whole, particularly the Lower Great Lakes. It is therefore the purpose of this section to coordinate the proposal for a Great Lakes Management agency with the Niagara Regional Council presented earlier in the chapter.

Eric Beechcroft states:

"...the regional communities... on account of their evolving importance...are the most promising levels for achieving an intimate and fruitful joint staff effort between U.S. and Canadian counterparts. The regional centers are the places where concrete problems of research, monitoring, and control arise. If experts with explicit instructions to collaborate, cannot arrive at common or joint recommendations through Canada-U.S. team work at that level, with easy and frequent access to their politically-responsible colleagues and with no physical barriers to their common research and consultation, it is unlikely that any politically-detached secretariat of a joint nature could do so. In fact, we are not lacking in examples of impressive reports already made by high-level joint bodies (for example on air pollution in the Ontario-Michigan border region) which have gone unimplemented because there was no regional machinery (linked with regional or state or provincial governments) to implement them or even give them regional study and debate."⁴⁴

The 'high-level joint body' mentioned above is the International Joint Commission. While it is clearly agreed that the I.J.C. has been needed and has performed well it is also generally agreed that problems have not been solved both due to the

lack of power by the I.J.C. itself and also due to the lack of a suitable regional mechanism by which to carry out programs. There is clearly the need for a high-level joint group that could act as a management group for the Lakes as a whole and also to issue common directives to regional agencies, like the Niagara Regional Council, to cooperate on information exchange, joint research and monitoring, and preparing joint recommendations. This cooperation could be enhanced by providing partial funding of the Niagara Regional Council through a Great Lakes management agency.

The Niagara Regional Council could actually become one of several small Great Lakes Offices, partially funded, and partially controlled by a Great Lakes management agency. This type of arrangement would provide a two-way cooperation scheme. The GLMA will now have some regional mechanism tied into state and provincial levels to implement programs or at least to give them regional study and debate. Likewise the communities and citizens in the Niagara Region would have a greater voice in what is being done in parts of the Great Lakes which affect their lives but which they now have no control over. This arrangement would have the effect of blending in a Great Lakes view with the Niagara Frontier.

The Niagara Regional Council could very well become the official spokesman for the needs and problems of approximately 3 million people. It could make the GLMA recognize and become responsive to these needs. Likewise the GLMA would now have a regional office that could carefully assess and report on the impact of the GLMA's and other federal, provincial, and state programs such as the recently signed Great Lakes Water Quality Agreement.

In fact the International Joint Commission has already been authorized to establish such offices pursuant to Article VII of the Great Lakes Water Quality Agreement which states:

".....the Commission shall have the authority to establish as it may deem appropriate such subordinate bodies as may be required to undertake specific tasks as well as a regional office, which may be located in the basin of the Great Lakes System, to assist it in the discharge of its functions under this Agreement."⁴⁵

One could go on at greater length describing the benefits and necessity of the scheme presented above, but the fact is clear that drawing in more local government, in the regional form, is a necessity. Eventually the GLMA will discover that there is a limit to the success of their programs and cooperation achievable if public participation is not drawn into the operation. The Niagara Regional Council would be one way to facilitate the necessary public input to enlist knowledgeable public

opinion and to convince local people that the management of the land and water resources of the Great Lakes System is indeed a part of their community building program. This scheme would better enable local people to understand what senior levels of government are doing. Without this public involvement municipalities and industries may resist programs of the GLMA. This scheme, of joining an international regional council of general purpose governments to a Great Lakes management agency will facilitate relating the importance of community planning and intergovernmental cooperation to the Lakes. Figure 20 diagrams the scheme presented above.

Based on the above discussion it is concluded that the Niagara Regional Council should become a Great Lakes management agency experimental frontier office. This office, among other functions, could act as a field laboratory for special problem areas in the Great Lakes Basin. It could become an office where possible programs of the GLMA on such matters as public and community participation, information exchange and services, monitoring of progress on pollution control programs, etc., could at least be given experimental practice plus regional discussion and debate.

If the GLMA were ever to get into programs that would try

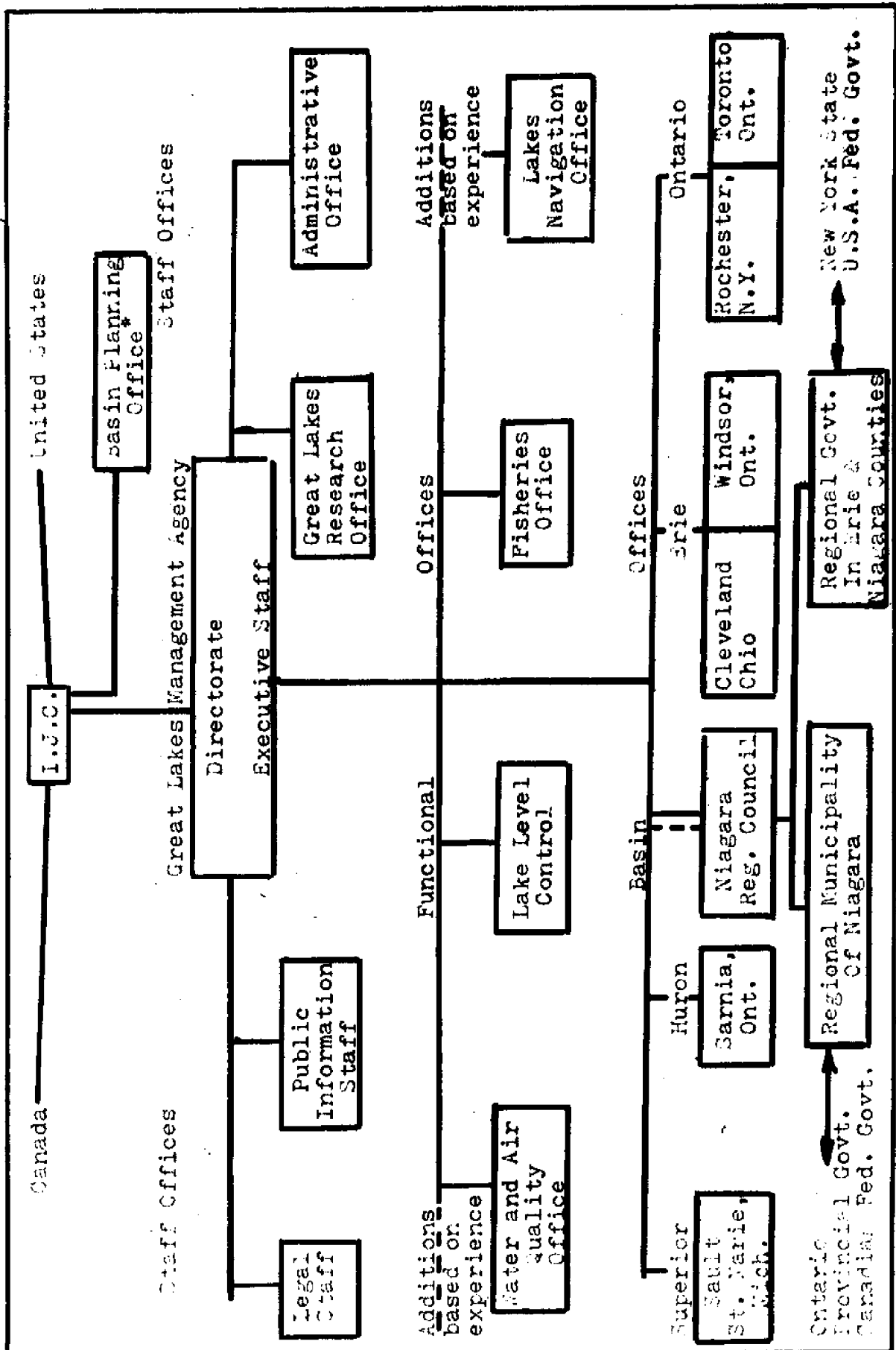


Figure 20 Niagara Regional Council As Part Of A Great Lakes Management Agency.

to control and manage the emerging Great Lakes Megalopolis, a necessity for controlling environmental pollution in the Great Lakes Basin just as much as the control of urban growth is necessary for avoiding environmental conflicts in the Niagara Frontier, then the Niagara Regional Council could initially provide the experimental regional mechanism that must exist at the local level in order for any type of growth control programs to be effective.

It is further concluded that the Niagara Regional Council, by necessity, must be initiated on a cooperative basis. The success of the experimental programs and the amount of opposition raised would provide good indicators as to the future success of trying to implement stronger international-regional programs and the success of truly managing the land, air, and water resources of the Great Lakes Basin through a Great Lakes management agency.

Implication For Other Frontier Areas

This study started with a description of the three frontier areas on the Great Lakes and perhaps then it is fitting to conclude this chapter with them. Earlier it was noted that the frontiers have much in common, share common pool resources, have similar interests, and all play the prominent role of the only

connecting links between the United States and Canada along the entire length of the Great Lakes. The other two frontiers, particularly Detroit-Windsor, are also geographical areas where international problems become real and visible to citizens on both sides. Although no analysis of the other frontier regions will be made here other than that already presented in the Introduction a few remarks are in order.

The Detroit-Windsor and Niagara Frontiers are similar as to urban concentrations and international problems and interests; the Saulte Ste Marie Frontier less populated and less prominent in the international scene. The Detroit-Windsor and Niagara Frontiers are indeed very much alike, although it would appear that environmental problems in the former are more severe. In fact, it was noted in Chapter II that the Detroit River is the most severely polluted water body in the Great Lakes System and that it is a major factor in the advanced aging of Lake Erie. Air pollution in the frontier, like the Niagara, is among the most severe in each nation. Land development conflicts and land pollution certainly exist in an international metropolitan area that currently contains in excess of 7 million persons and expected to double within the next 50 years. Common international interests and problems are probably much the same in the

Detroit-Windsor Frontier as in the Niagara with the exception of perhaps less emphasis on tourism in the former.

Based on the results of this study on the Niagara Frontier it is concluded that the same type analysis should be done for the other two frontiers particularly the Detroit-Windsor. While no comments can be made now as to the results of these studies it is safe to note that no mechanism for international cooperation as presented in this chapter currently exists at any of the frontiers. Therefore the conclusions reached in this chapter could well be transferred to the other frontiers as the framework for the modern environmental management of these international metropolitan areas.

If international concern can be generated for the Great Lakes in general then international concern should be even more acute in the frontier areas where environmental problems become real, where one side can actually see and feel the effects of the other side, where what one side does can both benefit and harm the other side, where achieving an intimate and fruitful joint international management effort offers the most promise.

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SUMMARY-CONCLUSIONS-RECOMMENDATIONS

Summary

It is evident that the majority of citizens in the United States and Canada will increasingly live urban lives. The quality of life in an urban environment depends partially on the quality of the physical environment. If man is to live in a high quality urban environment he must adequately plan and manage for the future. Rethinking of old traditions is required; reorganization of old institutions is essential.

The Niagara Frontier urban area was selected as a case study. This area was selected for a number of reasons; First, it contains adequate population to be considered urban in character; Second, it is an area containing pollution of all the primary resources; Third, it is a unique area that is interrelated to the Great Lakes System and contains international implications; Fourth, its unique ecological nature makes the area particularly important to citizens in the United States and Canada.

This study has looked at environmental problems and government in an international urban environment. It has suggested devices to modernize government that would facilitate improved planning and management to provide a better urban environment for both present citizens and future generations. The main

theme used throughout has been the removal of multijurisdictional obstacles to modernize environmental management.

This study has found that the Niagara Frontier, already inflicted with environmental pollution in all forms, can only expect further conflicts between man and his environment as a result of urban population growth. That the current institutional system is incapable of producing an efficient and effective environmental management program.

The Niagara Frontier was found to be an international metropolitan area; where policies on one side have significant effects on the other. It was noted that many benefits could result from international cooperation if certain obstacles could be removed. This study has proposed arrangements that could eliminate these obstacles.

The history of the Niagara River is but one example of the environmental deterioration in the Niagara Frontier. A deterioration caused, in part, by a lack of regional action on regional issues. Man in the frontier regions must avail himself of the opportunities to reduce expense and increase social, economic, property and aesthetic values by planning and managing in anticipation of future developments. Whenever planning and management can be improved the international

boundary should be eliminated. This paper has set the framework for doing this in the Niagara Frontier.

Conclusions

Based on this study the following conclusions have been reached by this author.

-Many of the obstacles to enhancing the environment in the Niagara Frontier are governmental rather than technical and are the result of fragmented government particularly in Erie and Niagara Counties, N.Y. The proliferation of small units of local government, unable to finance their own services or solve their own problems, as well as regional problems, has resulted in older problems remaining unsolved and presents a bleak outlook for the solution of future problems.

-There can be no solutions to regional problems until improved means of providing for urban needs and services are found. Regional planning, as undertaken by the Erie-Niagara Counties Regional Planning Board will have only limited effect unless linked to a process to insure effective implementation. This link to implementation means that regional problems, such as environmental pollution must met with regional solutions. For Erie and

Niagara Counties this will require that comprehensive regional planning, major water and sewage works, broad land use controls, regional transportation, solid waste disposal, recreation, conservation, air quality control, and capital borrowing be the responsibility of regional government.

-Local government has an important place in the American federal system. Local municipalities can perform some functions better at the local level. Localized planning within accepted area-wide guidelines, local distribution of water and sewer lines, specific zoning, local streets and sidewalks, and solid waste collection should be left under local control.

-Emphasis should be placed on the sharing of power and responsibility over functions rather than on the assignment of entire functions to either level.

-In order to provide for the implementation of the regional functions local government in Erie and Niagara Counties should be reorganized to provide for a more comprehensive type government. This reorganization could take the form of a general purpose intercounty regional government, strengthened urban comprehensive counties, or

a metropolitan multi-purpose district.

-This study has concluded that a general purpose inter-county regional government would be most effective for managing the urban environment in Erie and Niagara Counties. Environmental, social, and economic interactions are strong between the two counties, to leave them separated would not permit regional solutions to regional problems. A general purpose government is required because environmental management cannot be done on a special purpose 'ad-hoc' basis but must be part of overall community development. A two-level system, an area-wide level plus a community level is required to provide the dual objectives of efficiency and responsiveness.

-The Niagara and other frontiers are international metropolitan areas where public policy decisions have international significance. There are mutual benefits to be reaped from international-intraregional cooperation between governments on both sides of the Niagara River if certain obstacles, such as fragmented government, are removed. To reap the benefits of international cooperation regional (local) governments on both sides of the Niagara River should cooperate in the full exchange of

information, in undertaking joint research projects or joint monitoring activities, in preparing joint recommendations to be submitted through parallel channels to the respective state, provincial, and federal agencies on matters of mutual concern.

-Planning by regional agencies on both sides of the Niagara River should be accomplished with consideration of the urban areas on both sides of the river and with a concern for a larger Great Lakes region.

-An international council of governments consisting of regional (local) governments on both sides of the Niagara River should be instituted to facilitate international cooperation. This council, based on voluntary membership would respect the political and administrative integrity of both nations but at the same time will provide a forum for key officials to discuss, debate, and research international-intraregional interests and problems.

-This international council should cooperate with and possibly become part of a higher level Great Lakes management agency. This will permit a Great Lakes view to be recognized in the frontier. It will help insure that the Great Lakes System can be managed as an environmental unit.

-The problem of managing the urban environment cannot be approached in the abstract or on a piecemeal basis; a real measure of the dimension of urban environmental problems is needed. The urban area must be considered as a whole, including internationally, rather than dealing with pieces.

Recommendations

Based on the conclusions I have reached as a result of this study the following recommendations are made.

1. Initiation of a local government review for Erie and Niagara Counties.

It is recommended that a local government review be made in Erie and Niagara Counties N.Y., which would include an assessment of municipal services and functions in the region, present trends and pressures on local government, and an assessment of alternative forms of reorganization.

Many of the obstacles to environmental enhancement listed in this study dealt with multi-jurisdictional problems, making regional solutions to regional problems an impossibility. This leads to the conclusion that a large part of the problem

is governmental rather than technical. As a first step toward governmental reform a detailed review of the current situation is necessary.

This review will probably have to be promoted and funded at the state level because it is rare for local government to demand reform; although in this paper it has been noted that many citizens are dissatisfied with local governments action on regional issues.

Local government and citizens in the two counties should participate in the review and weigh the advantages and disadvantages of reorganization that will permit regional solutions to regional problems including regionalization of the functions mentioned in the conclusions. In the United States, unlike Ontario, local reform cannot be accomplished without voter approval. Therefore, the support of the citizens is essential to the success of any reorganization plan.

2. Formation of an International Council of Governments.

Regional (local) governments and agencies on both sides of the Niagara River should investigate the possibility of joining in a cooperative international council to give regional issues study, debate, and

possibly action and to facilitate the international functions mentioned in the conclusions.

The environment of the Niagara Frontier represents a classic example of a common pool resource offering mutual benefits to both sides if negative spillovers engendered by the nature of the complex open environment, which do not recognize the international boundary, can be avoided. Environmental problems do not respect international boundaries just as they do not respect town, city, county, or state boundaries. Arrangements that provide for inter-community, inter-county, and inter-state cooperation recognize this fact. There is no reason why this fact should not be recognized for an international metropolitan area as well.

An association of governments on both sides of the Niagara River would provide an area-wide mechanism for key officials to study, discuss, and determine how best to deal with common problems. It should be a continuing agency to furnish research, plans, advice, recommendations, and coordination.

This council could also insure that regional studies accomplished by agencies like the RMN and the ENCRPB include pertinent information from both sides of the river. This would ensure that planning will be more effective.

3. Cooperation with the International Joint Commission.

It is recommended that governments in the Niagara Region cooperate as much as possible in aiding the I.J.C. or other future Great Lakes management agency in carrying out its terms of reference contained in the Boundary Waters Treaty, particularly in carrying out the terms of the Agreement on Great Lakes Water Quality, and in carrying out whatever future management functions the I.J.C. or other Great Lakes management agency may become involved with.

This recommendation implies close coordination between the Regional Municipality of Niagara, the ENCRPB, and the I.J.C.

The efforts to preserve the resources of the Great Lakes Basin will be only partially effective without the cooperation of agencies in the Niagara Frontier urban area. Likewise, programs developed within the Niagara Frontier will be only partially effective unless they are parallel and coordinated with the other activities in the Lower Great Lakes System.

In this paper it was noted that impressive reports made by the I.J.C. have gone unimplemented because there was no regional machinery linked with regional, state, or provincial governments, to implement recommendations or to give them

regional study and debate. The international council of governments recommended in (2) working in cooperation with the I.J.C. or other Great Lakes management agency would be such a mechanism.

4. State and Provincial involvement in the Niagara Frontier.

It is recommended that the State of New York promote and fund local government review studies in Erie and Niagara Counties similar to those accomplished by the Ontario Government; that state and provincial agencies involved in the Niagara Frontier promote the international significance of the frontier by recognition of the importance of the urban area on the opposite side of the river; that state and provincial governments investigate the legislation required to permit the international cooperation recommended in (2) above.

Basically the above recommendation implies two things: (1) that the state must become more involved in metropolitan government at least by providing the incentives necessary to initiate reform studies; (2) that state and provincial agencies, whether they are involved in information collection, research, planning, or development must recognize that the

Niagara Frontier is a international metropolitan area. These agencies include the Office of Planning Services, the Urban Development Corporation, and the Department of Environmental Conservation, among others, from the State of New York and the Department of Municipal Affairs, and the Department of Treasury and Economics, among others, from the Province of Ontario.

At present these agencies view only their respective part of the Niagara urban area. Because of the strong environmental, social, economic, and cultural interactions across the Niagara River it is recommended that the agencies recognize the total international significance of their policies.

The states and province have the responsibility for the welfare of their citizens. This welfare would be enhanced by an international council in the Niagara Frontier. Therefore, it is incumbent upon both governments to investigate the legislation necessary to implement the council.

5. International Joint Commission involvement in the Niagara Frontier.

It is recommended that the International Joint Commission (or other future Great Lakes management agency) investigate the possibility of establishing the Niagara Region as an experimental laboratory for

its activities pursuant to Article VII of the Agreement on Great Lakes Water Quality; that the I.J.C. promote and encourage citizen participation and regional cooperation through the international council in the Niagara Region as recommended in (2) above; and that the Niagara international council become an experimental operations office for whatever future management functions the I.J.C. or GLMA may become involved in.

This recommendation is similiar to recommendation (3) and is founded basically on the same logic. In this paper a Great Lakes Management Agency, which would work under the policy guidance of the I.J.C., has been briefly discussed. If such an agency were instituted the international council in the Niagara Region recommended in (2) could become a regional Great Lakes Office. This would provide the I.J.C. or the GLMA with a regional mechanism tied into state or provincial levels to implement programs or at least give them regional study and debate.

It has also been noted that the success of a Great Lakes management agency will rest partially on the support given to it by citizens. Citizen participation through a Niagara inter-

national council working closely and being part of the Great Lakes Management Agency would be one way to achieve such involvement.

6. Recommendations for study on the other frontiers.

It is recommended that the same type of analysis accomplished here for the Niagara Frontier be done for the other two frontiers, particularly the Detroit-Windsor, and that the following steps be taken as a framework for the analysis.

- A. Define the study area to be covered. This was relatively simple for the Niagara Frontier but may be more complex for the other two frontiers.
- B. Inventory and evaluate the study areas' environmental pollution problems, this should include all environmental problems on both sides of the connecting channel.
- C. Project the growth and urbanization trends in the study area and relate these to present and future conflicts. This would also include evaluating the obstacles, including institutions, to environmental enhancement.
- D. Make recommendations for the elimination of the obstacles evaluated in point C that prevent modern environmental management.

- E. Inventory and evaluate common problems and interests, such as a transboundary movement of pollution, that do not recognize the international boundary. This should not be limited to only air and water quality but should extend to all common interests, such as economic development, etc.
- F. Provide for an international cooperative mechanism at the regional level for governments on both sides to work together on joint programs under the supervision, guidelines and coordination of a Great Lakes Management Agency. It has been recognized that unless cooperation can be effected between urban areas on both sides of the connecting channels there is little hope that the proposed Great Lakes Management Agency, or the current I.J.C., can be effective in managing and solving the problems of the land and water resources of the Great Lakes. These frontier offices could act as experimental regional offices for special problem areas under the Great Lakes management agency.

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