

LONG ISLAND: A SITE FOR RECREATION

by

Jasenska Ivana Diminic

Dipl. Ing. Arch., University of Zagreb

1967

SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE OF MASTER OF

ARCHITECTURE IN ADVANCED STUDIES

at the

MASSACHUSETTS INSTITUTE OF

TECHNOLOGY

June, 1974

Signature of Author _____
Department of Architecture
May 24, 1974

Certified by _____
Thesis Supervisor

_____ Thesis Supervisor

Accepted by _____
Chairman, Departmental Committee
on Graduate Students

Rotch



LONG ISLAND: A SITE FOR RECREATION

by

Jasenska Ivana Diminic

Submitted to the Department of Architecture on May 24, 1974, in partial fulfillment of the requirements for the degree of Master of Architecture in Advanced Studies.

This thesis is an attempt to analyze and evaluate recreational potential of Long Island in Boston Harbor. The present user of the island is the Chronic Disease Hospital (CDH). Its residents are aged chronically ill, and for many of them the hospital is the only home they have. It is most likely that the hospital will continue its presence on the island in the foreseeable future.

The presence of the public on Long Island will undoubtedly affect the life of the patients in CDH. It might be an opportunity to alleviate their social isolation through possible contacts with members of the outside community. On the opposite side, recreational development, with its spatial demands and by bringing great numbers of unknown people into the immediate vicinity of CDH, might inhibit any desire for such contacts, and influence negatively the already settled patterns of patients' use of the island.

All of this implies certain alternative ways in which recreational development could proceed. Proposing these alternatives and evaluating them is the main purpose of this thesis.

The thesis is divided into three parts. In the first part, physical characteristics of Long Island are examined and analyzed to identify its potentialities for recreational use.

The second part is a portrait of CDH patients, and the analysis of ways in which their lives might be affected by recreational development.

The third part is an analysis of demand for outdoor recreation in Greater Boston, and people's preferences for it. Future users of Long Island are identified and their

activities spatially organized. Transportation systems for access to Long Island are considered and evaluated, and a development plan for the maximum utilization of Long Island for outdoor recreation is proposed.

Thesis Supervisors:

Kevin A. Lynch, Professor of City Planning
Department of Urban Studies and Planning

William A. Southworth, Lecturer
Department of Architecture

ACKNOWLEDGEMENTS

Many people have contributed to the formulation of ideas in this thesis. In this way I would like to thank them all for their generous support.

The following members of the Long Island Hospital Planning and Development Committee set aside some of their valuable time to introduce me to CDH and comment on my ideas: David S. Sherman, M.D., Chairman, and Director of the Chronic Disease Division, Department of Health and Hospitals, City of Boston; Edward L. Tyler, Jr., Assistant Deputy Commissioner; Renato A. Gazmuri, M.D., Clinical Director, Long Island Hospital; Sarla Gnanamuthu, M.D., Long Island Hospital; Joseph Scally, Head Social Work Supervisor; Robert T. Day, Assistant Deputy Commissioner, Fiscal; Leo Ronan, Senior Administrative Assistant; Miribah Stanton, R.N., Executive Director of Nursing, Chronic Disease Division; Ann Piver, R.N., Assistant Director of Nursing; William Donnelly, Plant Superintendent; and Charles Fraggos, Staff Resource, Social Service Department.

Several members of the MAPC Project Staff: Barbara J. Bernard, Susan S. Davis, Elissa M. Landra, John Cormory and Julia O'Brien (MDC) met with me to explain the ideas and concepts behind Boston Harbor Islands Comprehensive Plan. They were also very kind to provide me with base maps,

aerial photograph and other information concerning the Long Island site.

Rachel Schwartz from the Department of Public Health and Hospitals was very kind to give me some of the information pertaining to CDH.

Last but not least, I would like to express my gratitude to my thesis advisors, Professor Kevin Lynch and William Southworth for their bearing through with me, for their patience, comments and suggestions.

1



TABLE OF CONTENTS

Abstract. i

Introduction. 1

Part One: Site Analysis. 4

 1.1 Long Island in Physical Terms. 4

 1.2 Climate. 5

 1.3 Vegetation and Wildlife. 6

 1.4 Water Environment. 7

 1.5 Noise. 10

 1.6 Human Use of the Island: Past and Present. 12

 1.6.1 History 12

 1.6.2 Building Remains. 14

 1.6.3 Access. 15

 1.6.4 Present User of Long Island 16

 1.7 Advantages and Problems. 19

Part Two: Present User. 23

 2.1 Aged Ill and Their Problems. 26

 2.2 CDH Patients 30

Part Three: Planning for Recreation 38

 3.1 Demand and Preferences for Outdoor Recreation
 in Greater Boston. 38

 3.2 Future User of L.I. and his Activities 40

 3.3 Spatial Organization 43

 3.4 Intensity of Use - Maximum Daily Capacity. 49

 3.5 Transportation Systems 55

 3.5.1 Description 55

 3.5.2 Method of Analysis. 58

 3.5.3 Evaluation. 62

 3.6 Implications of the Recreational Planning
 for CDH. 80

 3.7 Conclusion 89

Footnotes 91

Bibliography. 94

Appendix: Graphic Illustrations 96

APPENDIX: GRAPHIC ILLUSTRATIONS

- 1) The Boston Harbor Islands
- 2) Major Municipal Discharges and Average Coliform Densities
- 3) Noise Levels
- 4) Site Analysis
 - a) Vantage Points 2 and 3
 - b) Vantage Points 4 and 5
- 5) CDH
- 6) Land Uses: PA Access
- 7) Land Uses: PT Access
- 8) Land Uses: PTA Access
- 9) Typical Picnic Areas
- 10) Campground Arrangements
- 11) Children's Playground and Alternative Playfield Developments
- 12) Beach Density Standards
- 13) PA Alternative
- 14) PTA Alternative
- 15) PTA Alternative when Moon Island is Developed
- 16) Moon Island: Site Analysis and Recreation Development
- 17) Section Through Sea Bank and Incinerator
- 18) Land Uses: Final Proposal

INTRODUCTION

At the present time, Long Island is a remote place, largely inaccessible to the public. It is located in Boston Harbor, and its only present user is the Chronic Disease Hospital (CDH).

Long Island is unique in the sense that it represents available open space in proximity to dense urban core surrounding the Harbor, and its size and location contribute enormously to its significance.

Recreational planning for Long Island began as a part of a comprehensive planning effort for the Harbor Islands in 1970, when a Legislative Act charged the Department of Natural Resources (DNR) to acquire the Harbor Islands for recreational and conservation purposes.¹ DNR contracted the Metropolitan Area Planning Council (MAPC) to make a study and planning proposal for the Boston Harbor Islands Park. The Comprehensive Plan was submitted to DNR for approval in October, 1972.² At the same time, DNR began to acquire islands by purchase and/or eminent domain. In August, 1973, ten out of fourteen privately owned islands were acquired.³ DNR stated that there will be no efforts to acquire Long Island, which is owned by the City of Boston.⁴

According to the MAPC plan, Long Island would be de-

veloped as a major attraction of the whole Harbor Island Park, with large outdoor and indoor recreational facilities such as swimming pools, playfields, boat launch ramp, camping (150-200 sites), cafes, restaurants, and visitor centers.⁵

Maximum daily use would be 3,000 visitors by 1990, after the third phase of the development plan had been implemented.⁶ The Plan is flawed by a recommendation for the relocation of CDH as a condition for development of Long Island for recreation. It was the opinion of MAPC that CDH should be relocated for various reasons, but primarily for its being substandard in any respect (non-compliance with requirements for fire and safety codes, public health licensing and hospital accreditation standards).⁷

At the same time, when MAPC's planning was in progress, the City was considering closing the hospital for financial reasons. Publicity given to the MAPC Plan and its recommendation for relocation of the hospital aggravated already existing fear and anxiety the patients and staff had about closing the hospital. It is true that the hospital had at that time a lot of problems related to medical care and condition of the physical plant, but nevertheless it served a vital social need by caring for aged and chronically ill residents of Boston. From those turbulent and uncertain

days, up to the present day, the hospital has succeeded through the cooperative effort of staff and management to improve its conditions. In Fall, 1973, it was granted a certificate of accreditation for the next two years. Funds are becoming increasingly available, so that the hospital can be expected to expand in range and quality of services it offers.

Now that it is certain that CDH will continue its presence on the island, there are questions which impose themselves: Is it possible, and under what circumstances, to develop L.I. for recreation? What would the costs and benefits of such development be for the hospital patient and public as well?

To answer these questions and propose the ways in which such development would take place, is the main purpose of this thesis.

PART ONE: SITE ANALYSIS

1.1 Long Island in Physical Terms

Long Island is the largest in a group of thirty islands in Boston Harbor. It is located in the middle position of the Outer Harbor, and together with Squantum peninsula, the causeway, and Moon Island, forms a long spine of land dividing Dorchester Bay from Quincy Bay.

Its length is about 3 miles and the width across the middle portion about 500 yards. The total area, including CDH grounds is 213 acres (Appendix A, No. 1).

Geologically, Long Island is three drumlins of various heights connected with sandy low-lands. Drumlin edges are eroded, especially around West Head and the middle drumlin. Fort Strong drumlin is protected from erosion by rip-rap sea wall. Long Island is surrounded by beach, which is partly sandy (around Bass Point and West Head), partly coarse sand and gravel mixed with shells and rocks. The beach is easily accessible at Bass Point, and in the Fort Strong area, and is of varying depth depending on high or low water marks, but on the average at high water mark, it is between 30 and 50 feet. There is a lot of debris, tree trunks, beer cans and miscellaneous litter on the beach all around the Island (App. A, No. 4).

Topographically, Long Island is mostly of easy slope

gradients (0-10%), suitable for most recreational activities. Only the steeper slopes are eroded drumlin edges, and Fort Strong drumlin itself (10-50%). There are large areas of flat terrain between the middle drumlin and Fort Strong drumlin and in the vicinity of Bass Point. They tend to be wet after rain storms. Marshland on the north side of the main island road is a protected area under the Wetland Acts¹ (App. A, No. 4).

1.2 Climate²

Climate, general and micro, is a very important element considering the future use of the Island for recreational purposes.

The main characteristics of Boston weather are its variability and unpredictability. There are three well-defined seasons: winter, summer and fall. Spring is usually very short, and Memorial Day is traditionally the beginning of summer water-contact activities, which go on through Labor Day. Fall is long and pleasant and sometimes it extends well into December. This time of the year is suitable for walking and other outdoor activities, except swimming and boating. Thus, the high intensity recreational season, which is based on water-contact sports, is relatively short in the Boston area.

Temperatures are variable and subject to rapid change within a couple of hours. They average 25° F. in January and February, and about 78° F. in July. Summer temperatures in July can go as high as 100° F.

In the average year, there are about 100 clear days, 106 days of partly cloudy, and 159 days of cloudy weather. For an average week, it is most likely that three days will be cloudy, two partly cloudy and two clear.

Humidity is high (80-90%) during the months of July and August.

Prevailing winds are from the northwest in winter and the southwest in summer. There is practically no day without a wind. Wind speeds are on the average 15 mph, and are somewhat higher in winter months, when they can reach between 40 and 70 mph.

Long Island's air temperatures in summer are somewhat lower than those of the mainland, because it is surrounded by a body of relatively cold water. In winter, on the other hand, its temperatures are somewhat higher than the mainland, but because of strong wind exposure, they are felt to be lower.

1.3 Vegetation and Wildlife³

Drumlins were covered with forests of native trees before the colonial days. Vegetative cover was altered when

early colonists cleared away the trees to plant crops. In the course of history, the vegetation cover changed as did the user of the island. Today, the predominant vegetation is thick and impenetrable brush (sumac, aspen). There is a nice stand of pines at the West Head, and scattered groups of pines, maples and elms can be found throughout the island. Sandy grass and weeds grow on sandy flats between drumlins.

The most common form of wildlife on the island are birds, especially herring gulls. Marsh areas are abundant with resident and migratory birds: ducks, geese, and brants. Of the mammal population, rats are predominant. The area of West Head is especially rat infested. They represent a health hazard if the area is developed for recreational purposes. There are some rabbit habitats in the vicinity of Bass Point and on the northern side of the main island road.

1.4 Water Environment⁴

Water temperatures vary from an average of 35° F. in winter to an average of 64.8° F. in summer. The annual mean water temperature is 53.3° F.

Waves in the vicinity of Long Island are generally less than two feet high. They can reach a height of 4 to 8 feet in high winter winds and they are generally higher

on the northeastern side of the island.

Mean low water depth around Long Island is less than 10 feet. At low tide substantial areas of beach are exposed around Long Island shores.

The water in Boston Harbor is known to be polluted by: 1) raw and treated sewage, industrial wastes, and 2) all kinds of debris, which comes from destroyed or delapidated piers along Boston Harbor shorelines, or is discharged from watercraft.

1) Raw sewage enters Boston Harbor waters from sewer outlets unconnected to the M.D.C. Nut Island and Deer Island sewage treatment plants, and from tributary rivers entering the Harbor (Charles, Mystic, Neponset, etc.).

M.D.C. primary treatment plants dispose of about 440 million gallons of treated sewage and sludge into the harbor. The sludge is flushed out of the Harbor by tidal currents but some of it is deposited on the Harbor floor, and can occasionally be carried to the surface, creating unsightly and malodorous conditions. Raw sewage carries pathogenic bacteria, which are health hazards, plant nutrients and organic matter which produce unpleasant odors. Treated sewage contains also nutrients for plant life and sometimes harmful bacteria. Three factors are important in the measurement of water quality: presence of bacteria,

levels of dissolved oxygen, and levels of dissolved plant nutrients.

Water suitable for swimming must show tolerable levels of coliform bacteria. Lack of dissolved oxygen and abundance of plant nutrients are not direct health hazards, but have effects on marine life.

Most of the Inner Harbor waters are rated "SC" (by Commonwealth standards), i.e., unsuitable for swimming, but suitable for boating and fishing. The waters around Long Island are classified by State Standards as "SB", i.e., suitable for all water-contact sports. Nevertheless, Federal ratings classify the water in Dorchester Bay, as well as in Quincy Bay, as unsuitable at the present levels of pollution. This difference between State and Federal standards leaves some doubt that the pollution level around Long Island, at the present time, is still very high. P. Hagan's study⁵ suggests that the level of pollution in Dorchester Bay is higher than in Quincy Bay, although Quincy Bay shorelines of the island are affected by the flow of sludge and treated sewage from M.D.C.'s Nut Island treatment plant. (App. A, No. 2).

2) The other pollution problem is debris in the water or on the beaches of Long Island. Most debris comes from the piers and communities along the mainland shores.

Although the present level of pollution around Long Island (L.I.) is still high, the improvements in water quality might be expected in the near future because of various measures already undertaken to improve this condition.⁶ Dramatic improvement has been achieved by chlorination of the M.D.C. treatment plant outflows and the surveillance of the State Division of Water Pollution control.⁷ Planned measures, which will especially affect quality of Quincy Bay water, is the discontinuation of sludge disposal from M.D.C. plants at Nut Island by 1976, and the building of secondary treatment at this facility. Control of discharge sources is the responsibility of the whole community and the Boston Harbor Pollution Committee has worked to identify these sources and create and enforce applicable programs for pollution abatement in the Harbor.

If the water pollution level cannot be brought under control in the near future, it will influence Long Island's development for recreational purposes.

1.5 Noise⁸

Boston Harbor is affected by the aircraft noise from Logan Airport. Airport noise is dependent on the proximity of certain locations to the airport and direction of take-off and landing paths. Individuals respond to noise subjectively and its impact is difficult to judge.

There are two basic noise measurements: perceived noise level (PNdB) and composite noise level (CNR). CNR corresponds more closely to various levels of human tolerance to aircraft noise and relates it to noise interference with normal activities.

Long Island's northeastern part lies in the path of 15-33 runway, which is used for landings all year round. In CNR ratings during daytime operations in 1967, the northeastern third of Long Island was in the zone which is incompatible with hospital uses (unless noise reduction devices are built in buildings) and outdoor amphitheatres and performances. It is compatible with residential use and outdoor non-spectator activities.

During nighttime operations, the upper half of Long Island lies in CNR rating zones where noise levels are incompatible with residential and hospital uses and outdoor performances (App. A, No. 3).

The aircraft operations at Logan have increased since 1967 and it is likely that more of Long Island territory is presently under impact of aircraft noise.

My own observation and discussion with hospital employees suggest that, at first, the noise is unpleasant but gradually one gets used to it. Thus, the noise would not be a serious obstruction to recreational activities.

1.6 Human Use of the Island: Past and Present

1.6.1 History

Long Island has a long history of human use and its traces are evident all over the island in the remains of buildings, litter and vegetation. There are generally three periods of various use that can be distinguished in L.I. history: agricultural and maritime, military, and institutional.

In the 17th and 18th centuries, Long Island was owned by the City of Boston and was used for farming. This is the time when L.I. forests were cleared for firewood and to plant crops. The 19th century is a transitory period between agriculture and maritime use. A small colony of Portuguese fishermen lived on the island about 1850-1887. At the same time, it became a Civil War conscript camp (Camp Wightam). From this time, there exists a battery of guns at the northeastern tip of the island, which contributes to its historic interest.

In 1867 the Wightam camp was named Fort Strong and underwent extensive renovation. In 1872 a new use appears on the island. A large hotel was built on the site of what is today the Chronic Disease Hospital (CDH), which in 1882 was purchased by the City for city charities. This is the beginning of the institutional use which extends to

the present day.

Military use continued through World War I, when 1500 men were quartered at Fort Strong, and through World War II, when it served as a mine operation center. After 1946 Fort Strong was declared as Army surplus property and given to the City. The other military installation is the Nike Site (1950) in the southwestern part of the island near West Head. It housed two missiles in underground silos. After its abandonment, the Boston Public Library used it as a storage for books. The Library moved out this winter. Institutional buildings and uses expanded steadily from 1882 through the present day.

In 1885 city paupers were stationed in the building of the former hotel, today the Administration building of the CDH. Toward the end of the 19th century (1892) a new facility was added and it became known as the Boston Almshouse. Hospital use dates from 1921 when the Almshouse was converted into a home and hospital for unwed mothers. After that, a dormitory for homeless men was added in 1928 and a large recreation hall (Curley Building) in 1933. Most of the present hospital buildings were built in the period of 1921-1946.

Recreational use of the island was limited mostly to the owners of private boats or the organized groups who

had to obtain permission from the CDH if they wanted to come to Long Island, for picnics or walks.

1.6.2. Building Remains

The most extensive building remains are located in the Fort Strong area. They include gun emplacements at the north side of the drumlin, brick foundations, two partially concealed bunkers, concrete building shell, cistern and railroad track remains.

Some foundation remains can be found in the vicinity of the Nike Site, which besides the underground silos (35 feet deep), contains several abandoned brick and concrete block structures. The silos were covered by buildings when the Library used them as storage for books.

Some of the above mentioned remains have historic value and should be preserved and renovated (i.e., Fort Strong). Other miscellaneous building remains should be removed and their sites utilized for recreational purposes.

Miscellaneous Remains:

There is an abandoned wooden pier with wood building which was partly destroyed by winter storms in the Fort Strong area. Litter of various origin, but mostly bottles and cans, can be found throughout the island in the brush and on the sea-banks.

At Bass Point there is a site of a previous dump, and pump house. Adjacent to the Bass Point area, there is a site of a cemetery with unmarked graves, and a cemetery and monument to Civil War dead, all protected by the Doctrine of "Prior Public Use".⁹

1.6.3 Access

Long Island is accessible from the mainland via a single vehicular route beginning at Moon Island Causeway in Squantum, running across Moon Island Causeway, Moon Island and Long Island bridge. In its entire length, the route is standard two-lane paved road. The bridge is a steel construction completed in 1951. It is maintained by CDH, and is currently in need of resurfacing. Long Island main road is also maintained by CDH. The access to the island is controlled by CDH Security Force. There is a guard house at the entrance to Moon Island Causeway and the gate is closed between 4 p.m. and 7 a.m. Another control point is at the hospital entrance, where the main island road merges with hospital vehicular road systems. Fort Strong area is accessible by private automobile only through the hospital grounds. Boat access in this area is not possible, because the landing pier was destroyed by winter storms a couple of years ago.

Well-defined footpaths run along the northern and

southern edges of the island from West Head toward the hospital grounds. In the Fort Strong area, well-defined paths run around the gun emplacements and lighthouse (App. A, No. 4).

1.6.4 Present User of Long Island

Present and only user of the island is the Chronic Disease Hospital (CDH). It is owned and operated by the Department of Health and Hospitals, City of Boston. It provides medical, nursing and supportive services to chronically ill residents of Boston. In addition to chronic disease unit, there is an alcoholic rehabilitation unit. Total count of chronic beds is 377, with 91% occupancy rate, custodial care beds (including alcoholic unit) is 212, with occupancy rate of 50-75% for alcoholic beds and 50-55% for others.¹⁰

There are several different types of chronic illnesses, which result in various degrees and kinds of disabilities and classification of patients in groups is difficult. It seemed that the most convenient classification of Long Island patients is according to their mobility, and ability to perform independently certain tasks of daily living.

Ambulatory patients do not require intensive medical and nursing care and the nature of their illness is such that they can participate in various recreational and re-

habilitation activities. At the present time, there are about sixty ambulatory patients at CDH. A much larger group of patients is non-ambulatory. These patients have various degrees of physical and mental disabilities ranging from total body immobility to total mental confusion. Some of them (usually about 20) are terminally ill. All of them need intensive and multiple medical services: physiotherapy, occupational and speech therapy and physician and nursing care. If there are some whose chronic condition improves to such a degree that they are able to take care of themselves, they are transferred into ambulatory groups. Many non-ambulatory patients never reach this level of improvement.

Special groups of patients are alcoholics in rehabilitation programs. They can be classified as ambulatory, because they are mobile and can participate in various activities. Their main concern is to remain sober.

CDH occupies about 20 buildings scattered on sixty acres of land. Patient wards, and medical and supportive services, are located in the northern part of the hospital grounds (App. A, No. 5). Various supporting facilities (fire station, power plant, laundry, garage, etc.) are located in the southern part of the grounds.

There are remains of the previous hospital building

and old chapel in the center of the hospital grounds. Several buildings are unused: old Nurses Home, old kitchen building, and women's quarters. Sewage treatment plant is a certain distance to the east from the hospital buildings complex. There is a parking lot for employees and visitors at the western edge of the hospital. The prominent visual feature of the whole complex is the water supply tank, erected in the middle of the parking lot and on the highest elevation of the site.

Spatial relation of various hospital units is such that it impedes proper and efficient functioning (App. A, No. 5). Circulation of patients, staff and services is complicated and interferes with each other. Confusion is increased by the fact that all of the buildings are interconnected by underground, half-under, half-above ground, or above ground passageways. The paths between different functional units are long and circuitous.

Patient wards are dispersed through the whole complex and organized in such a way that it makes it difficult to administer medical services or food to patients. For example, physical therapy, used by non-ambulatory patients, is separated from the wards and located in another building. Patients have to be wheeled out of the building where they are residing, and pass through the yard to reach

the building where physical therapy is administered. Recreation Hall, housing library, games area, and movies, is almost inaccessible for non-ambulatory patients, who often used to pay somebody to wheel them out of their ward up the hill and back. Indoor recreation spaces are located in such a way that they do not relate to the outdoor recreational spaces.

Those are only a few of the disfunctions illustrating the general condition. This will be somewhat alleviated by renovation of Nichols Building, which will house all the services needed for non-ambulatory chronic care patients.

Vehicular roads within the hospital grounds are used for maintenance and supply of various buildings. New service road supplies kitchen and dining facility. The fishing pier at the north side of the hospital grounds was used as the access point before the bridge was built in 1951. At the present time it is used by the patients for fishing.

1.7 Advantages and Problems

This was, then, in general terms, a description of Long Island's physical and institutional environment. From the standpoint of the utilization and development of the island for recreational purposes, collection of ad-

vantages, problems, and potentialities is needed to suggest a possible direction for programming and organization of activities and spaces. The advantages and problems were derived from correlation of purpose with the site characteristics. When the other component of planning, projected needs, demands, and preferences of users, is added, assimilated and weighted against these advantages and problems, this will yield a set of detailed criteria for Long Island development.

These are the advantages, which are decisive for recreational development of Long Island:

- considerable size of the area available for recreation (153 acres)
- varied character of topography
- approximately 10,000 feet of south exposed beaches
- existence of historic sites
- possibility of access from the mainland via water and ground transportation routes

The greatest Long Island potential is in the available resources for water-contact sports, especially swimming, fishing and boating. The area most suitable for swimming is on the south side of the island from West Head to the Fort Strong drumlin. Potential boating areas are in the Quincy Bay water as well as in Dorchester Bay.

The whole island, with its varied historic sites, topography, and exciting views from the shorelines, is ideal environment for walking and bicycling. Areas especially suited are Fort Strong drumlin, West Head drumlin, and portions of the middle drumlin not occupied by the CDH.

As the low lands tend to be wet after rain, the best camping areas would be on the high grounds of the middle drumlin. The marsh on the north side of the island between West Head and the middle drumlin could be preserved and become wildlife habitats, which would give an additional opportunity for public recreation--wildlife study and observation.

Besides these favorable conditions, there are certain constraints and problems for recreational development which should be considered:

- present level of water and beach pollution
- short season
- scarce and low quality vegetation cover

The quality of the water environment is decisive for participation in water-contact sports, especially swimming. If the present level of water pollution cannot be controlled, emphasis for recreational development will be on other activities than swimming. Boating and fishing is allowed at the present water pollution level. According to unofficial sources, water in Quincy Bay is tolerable

for swimming at the present level of pollution.

The short season for swimming (June-September) is not a serious constraint, considering that the other water contact activities can be pursued much longer and the intensity of recreational use would not be lowered considerably from April-November. More or less passive months would be December, January, February and March, when only occasional use might be expected.

Scarce vegetation cover implies extensive landscaping if sufficient buffer zones between conflicting uses are to be provided. Also, most recreational activities (walking, camping, picnicking, swimming) require a certain amount of sun and wind protection. The only valuable vegetation is on West Head and partly on Fort Strong drumlin. Large portions of the Fort Strong flats and middle drumlin are bare or covered with low quality vegetation (grasses, weeds, poison ivy).

PART TWO: PRESENT USER

Long Island, besides being perceived as valuable and desirable open space for public use, is also valued by CDH patients, who consider the hospital and the island as their home.

Recreational development might influence the lives of patients and the institution through spatial implications which might disturb the pattern of movement and life within the institution, or offer a new opportunity for the realization of additional bonds to a larger community.

As for the public, CDH and its patients might deter them from coming in great numbers, which is most unlikely, judging from present interest in L.I., or it might become a valuable source of new social contacts for them. In this part, I will try to identify and analyze problems and advantages of future co-existence of public and CDH on the island. The discussion is based largely on these sources of information:

- 1) theoretical literature dealing with problems and needs of elderly and chronically ill
- 2) informal discussions with hospital's medical and administrative staff
- 3) analysis of CDH conducted by P. Hagan and summarized in his M.C.P. Thesis (1969)
- 4) statistical data available from CDH

- 5) my own observation of CDH. This was limited in a sense that I was not allowed to interview patients. The reason for this imposed limitation is understandable when one knows what impact the entire uncertainty about the hospital's future and constant threat of closing it in the last couple of years had on the patients, and staff as well.

Patients who reside in CDH are a very fragile group in a physical and social sense. They are chronically ill, old and poor. All of these makes them vulnerable in a society which highly values health, youth and wealth. An old, sickly man, who cannot take care of himself, has little status not only within general society, but also among his elderly peers.¹ When he is also poor, and has no home, socially this is the "bottom", from which there is little chance for upward movement.

CDH is for many of its patients the only home they have, and the hospital staff the only "family" who cares about them. Some statistics about patients collected by CDH's administration might help to portray the group.

The majority of them belong to a "65 and over" category (75%). Length of their stay varies, but 65.8% spend two years or more in the hospital. Their usual occupation prior to entering the hospital was semi-skilled or less (52.5%). Classification of patients made in 1972 indicated that 20% were unemployed at that time, and only 12.9% had as usual living arrangements private residence. When this

information was compared to the same kind of data from other chronic disease hospitals (Maryland and New York), where only 2.4% were unemployed and 64.9% usually lived in private residence, it is evident that patients at CDH are a special group in a social sense.²

The statistics, unfortunately, however vital, do not convey feelings the patients have about the place where they live, the people with whom they communicate problems and needs they experience, and especially, having in mind the future purpose of developing Long Island for public recreation; they do not suggest how the patients would react to many unknown people coming into the immediate vicinity of their home.

Would they like and have a need to meet them and talk to them? Or could they care less about it? This is not a simple question to answer. It involves an understanding of psycho-social problems of the aged, ill and institutionalized, identification and evaluation of efforts done by CDH to alleviate specific problems of their patients, and interpretation and understanding of needs and wishes as expressed by the patients themselves.

Yet, it is an important question to answer, if any planning decision can be made about the extent of recreational development on Long Island.

2.1 Aged Ill and Their Problems

There is a certain negative image of the elderly as a subculture in our society. They are perceived as dependent, often intellectually, physically and socially disabled. They aren't respected, especially by young people who never used to think about the inevitability of themselves becoming old too.

Diminished status and prestige of the elderly is magnified by the absence of the usual marks of prestige attached to the aging in other societies, such as the attribution of wisdom, etc.³

A sense of loss is a universal feeling among elderly. Social losses of status and prestige cause feelings of uselessness and non-participation. Personal losses, involving loss of marital partner, children and other significant persons cause isolation and loneliness. There are innumerable other factors contributing to the psychological problems of the elderly. One brings his life history, personality, abilities, his past decisions and his regrets into "old age". There is subjective awareness of aging, the deterioration of the body, the increasing rapidity of the passage of time, and the approach of death.

Ability to cope with these problems and to adjust to the personal and social pressures depends on one's personality. Given equal personal and social losses in old age,

one person may thrive where another may fail. Robert L. Butler, M.D.,⁴ describes contrasting cases illustrating this statement and concludes that the individuals who showed during their lives a tendency to be independent and always agitated over their fate, respond to the losses of their old age with great courage and ability to cope with all arising problems. The others, not psychologically prepared for old age and its realities respond with great dependence despite the fact that many of them had past histories of apparent independence and success in coping with life.

Physical disabilities, usually associated with chronic illness or aging body changes, deplete the older person even more. Chronic illness is characterized by permanency; it leaves residual disability and is caused by non-reversible pathological alteration.⁵ The multiplicity of disorders not only reduces his capacity to perform the necessary tasks of daily life, but also frequently requires participation of many professional disciplines in the evaluation and treatment of the disease. If the disease is such that intensive nursing and medical care is required, the person is institutionalized. Over-emphasis has long been given to institutional care of long-term ill persons as the solution to their problems. Many of the ones who

are in such places could, under suitable conditions, be cared for as well or better at home by providing better home health care programs. Institutions for the aged are, as it is often heard, "dumping grounds", housing many who do not need to be there, but have no other place to go. A lot has been written about the way institutions operate, and many research papers have focussed on the determining and depersonalizing influence which they have on their residents. One of the most poignant accounts is written by anthropologist J. Henry (1963):⁶

"In many primitive societies the soul is imagined to leave the body at death or just prior to it-- here, on the other hand, society drives out the remnants of the soul of the institutionalized old person, while it struggles to keep his body alive. Routinization in attention, carelessness and deprivation of communication, the chance to talk, to respond, to read, to see pictures on the wall, to be called by one's name rather than "you", or no name at all--are ways in which millions of once useful but now obsolete human beings are detached from their selves long before they are lowered into the grave."

Institutional settings imply permanent or indefinite residence involving for an individual a major change from community or family living patterns. For an aged person living in an institution, emphasis is usually on the most basic of physical needs. Most institutions operate on a pathology model of chronic disease viewing the individual as a medical care problem. Therapeutic efforts are directed

at curing a specific disease instead of the overall needs of the person. A person entering an institution adopts the role of a "sick" person and lives up to the expectation of his illness. He does not feel only useless as a member of the larger community due to his old age and illness, lonely because his ties to family or friends are disrupted, but also insignificant as a human being.

It is possible that CDH patients have all the problems associated with old age, illness and institutionalization in general. They might be lonely and isolated, not only because they are old, but because they live so far away from the community and in an institution. If they do feel lonely, they will welcome interaction with visitors to L.I. Park. Thus, it is important to establish how lonely the patients really are, and what their attitudes toward the visitors would be.

At the same time public attitude toward patients is also important. Visitors might refrain from any contact with the patients, because of the negative image so commonly associated with old age and illness. Finally, the degree of institutional flexibility is critical in planning for social contacts between patients and the outside world. The ways of handling patients by staff, existence of volunteer or similar programs, which give an attention not to

patients at large but to individuals' needs, are telling about the institution's willingness to treat patients as human beings and recognize their needs for social contacts outside the institution.

2.2 CDH Patients

For patients in CDH, by being old, sick and poor and thus extremely socially deprived, the institutionalization is a welcome change to their previous living conditions. There they find shelter, food and care of a dedicated hospital staff. The hospital is the home for them. Those who are mobile wander around freely, fish at the pier, play softball or are enrolled in various rehabilitation programs created for them. They do some woodworking, manufacturing various objects of their choice (once they made a sailing boat). Some of them make pottery, draw or paint. There is a group tending small garden plots and working in a Greenhouse.

The hospital administration and staff created a special program to facilitate interaction between patients. The objective of the program was to bring together groups of patients through various group activities. Ambulatory patients were brought together through the organization of indoor and outdoor recreational activities. Part of these activities was the New Lounge Development. Patients them-

selves, in a joint working effort, renovated a space in the basement of one of the hospital buildings for indoor recreation. They painted the pipes, moved and installed furniture, put up wall posters. This is now a very popular congregation spot, where they spend much of their time, playing pool, games and reading or just sitting around and watching.

In this Plan, non-ambulatory patients, who are not mobile and have behavioral difficulties, will be brought together in special groups where they will learn under the auspices of trained staff, how to interact, communicate and play simple games. Certain hours/day are set aside in patients' schedule for this group session. The goal of this part of the program is to bring patients to such a level of skill (physical and social) that they can independently come together with patients in ambulatory groups.

The patients who are the most difficult to handle and are confused and disoriented will, through special activities, be brought to such a level of skill that they can be transferred to higher physical and mental skill groups.

The idea of the program is to physically and socially rehabilitate all the patients, regardless of their degree of physical and mental disability, through a gradual process of learning basic social interaction skills.

The program was planned to be implemented in three phases, starting with ambulatory patients. Thus far, the first phase is well off the ground and its progress is dependent on the availability of funds to finance equipment for games and other utensils. Involvement of patients varies, depending on their interests. Most involved patients are from the Alcoholism Rehabilitation Unit, but as their stay in CDH is relatively short, many activities which some of them initiated went to ground when they left CDH because the others did not show any interest to continue.

Contacts with members of the outside community are organized through various volunteer groups. As patients have very infrequent family visitors (50% never have a visitor), the volunteers visit often with patients. Outside groups also perform at the hospital on various occasions. Outdoor picnic for patients and staff on Independence Day is a traditional affair.

After considering all of these efforts, it appears that patients feel happy at the hospital and that their needs are taken care of. It is the opinion of the medical and administrative staff that, indeed, patients are happy, that they feel at home there and consider themselves all together as a large family. They are secure and there is always a helping hand and trusting word if they need it.

They think of the patients as a sensitive group, which should have contacts with people who are able to communicate with them; in other words, people who are dedicated and able to face and understand the old age and illness problems. The above was confirmed by P. Hagan in his study.⁷

When asked about their opinion about the reaction of patients to recreational development and possible interaction with the public, the medical staff felt strongly that they do not need any contacts besides what they already have and that there is already enough trouble in getting patients to respond to existing programs.

The administrative staff felt that patients would respond to outside contacts, but that these contacts should have a certain, well-structured and organized form (such as already existing volunteer group programs).

Patients themselves (when interviewed by P. Hagan⁸) liked the hospital, because they get free board and clean bed, and in this sense the hospital is a home for them. It was very important for them to be able to walk around outside the hospital. That patients value greatly open space and the possibility to wander around (especially in the Fort Strong area) was agreed upon by the staff, and I observed several patients walking or jogging around. They possibly use Fort Strong area when they want to escape and

be alone, and depriving them of this possibility would probably result in their feeling of being like in prison.

Patients did not say that they feel isolated, but they thought that it is a good idea to develop L.I. for recreation so that "they might have a chance to talk with new people and sell some of the things they make...and it won't be so lonely on the island." ⁹ They reacted also very positively to the idea of bringing children into the hospital, and expressed the wish to teach them some skills (pottery, painting, etc.). These reactions should be taken with reserve, because the sample of the patients was very small and perhaps not representative of the entire population. Nevertheless, it is an indication that there is a need to meet and talk to others outside the institution. They would like to meet strange people, but they might be reluctant at first to approach them independently, on their own impulse.

The public coming to Long Island for recreation will be for the patients the big Unknown, somebody who does not belong to their Family and does not react in predictable ways. Physical environment of Long Island would change through development. There will be more traffic, unknown paths and facilities. All this might be frightening and threatening for the patient. There, he would need a Family's support at first, somebody with whom he could

visit the new developed areas and meet the other people. Once the patient gained confidence, he might do it independently.

Those are the various forms in which this might take place. Visitors coming to CDH could take patients with them when they want to use the recreational areas outside CDH. Patients involved in crafts making could sell some of the things they do to recreationers. Face to face interchange by selling is a very good way to strike up conversations. Such limited contacts should be made at first to introduce gradually the patients to the recreational areas and the people using them.

Some patients, who are physically able, could participate in recreational grounds maintenance, what they already do within the hospital.

The administrative staff felt positively about these possibilities as long as there is a certain amount of control over the activities and their implementation does not represent a financial burden to the institution. They had a comment regarding patients' involvement in Park maintenance. This might represent a problem because it is very difficult to get patients to do any work on a voluntary basis. They would have to be paid minimum wage acceptable to Union, if they were involved in the Park's maintenance work.

The staff also would be glad to have the public come to the hospital grounds, meet patients and staff, and get acquainted with the institution, its role and functioning (joint picnics, etc.). Nevertheless, these occasions would have to be adequately funded, and security measures introduced.

They also did not have any doubts that difficulties may arise in the patients' communication with the public, because "patients meet the public now too" (referring to volunteer groups). It should be pointed out that although this is true, the present public is the Known to the staff and through them to the patients too. The public is sympathetic to patients and hospital and it is there because of this reason. I think that the staff does not realize who the Unknown public is and what its reactions to the patients and the hospital would be.

The general public attitude toward patients might be one of disrespect, ignorance and avoidance, partly because of the negative image associated with the elderly and ill, and partly because of a specific negative image the public might have about the hospital owing partly to the dreary history of Boston Harbor as the place for the socially unwanted, and partly to Long Island's own role in this history.

Therefore, involvement of patients with the general public must be carefully planned and approached on a small scale first. Voluntary programs bringing to the hospital groups of children and elderly should serve as a preparation and encouragement for patients to get out of the hospital and meet other people in the Park.

PART THREE: PLANNING FOR RECREATION

Long Island is a site which lends itself, by virtue of its physical characteristics and natural beauty, to a variety of outdoor recreational activities.

Before any developmental proposal can be done, it is necessary to understand the magnitude and nature of demand for outdoor recreation in Greater Boston, to identify and characterize future users of Long Island, and specify possible ways in which he might use it.

3.1 Demand and Preferences for Outdoor Recreation in Greater Boston

In its study of the Boston Harbor Islands conducted in 1970-72, MAPC concluded that demand for outdoor recreation in Greater Boston is by far larger than available resources of all Harbor Islands.¹ Conservative projections indicate that in 1990 on a peak summer day, there might be 300,000 potential swimmers, 15,000 pleasure boaters, 10,000 campers and 40,000 others with various requirements for outdoor recreational facilities.

If all Harbor Islands were developed, as proposed in MAPC Comprehensive Plan, their maximum daily use in 1990 would be 12,000 visitors/peak summer day, which compared with total demand of 300,000 shows clearly the disparity

between demand for and supply of recreational facilities.

Preferences of Boston residents for types of outdoor recreational activities were also established by MAPC's 1965 telephone survey of a sample of 5,000 residents, who were questioned as to their leisure time activities.

Most popular summertime outdoor recreation activity of Boston residents is swimming. At least 3/4 of the population participates in it and even greater numbers would do so if they had the opportunity. It is not surprising that swimming is the favorite form of recreation, because it is an attractive sport in which individuals of all ages, incomes and family group can participate.

Fishing and picnicking ranked second on the list, with 50% and 66% of the population participating. Again, both activities are accessible to all income and age groups and do not require possession of expensive equipment.

Hiking and walking were third in popularity with slightly more than 1/4 of population participating.

Camping and boating ranked fourth with 1/5 of the population participating in these activities. Both are becoming increasingly popular, although boating is somewhat more expensive than camping and this is the main reason that these activities did not rank higher on the preference list.

Although one might consider these data irrelevant, be-

cause of changes which might have occurred in recreational habits since 1965, the other literature sources suggest similar preference patterns for general United States public.

3.2 Future User of Long Island

Future users of Long Island Park will come most likely from Quincy and Dorchester. MAPC's 1965 survey of license plates of visitors to ten major recreational areas to trace origin of travelers, confirms this possibility. The survey indicated that Charles River is a dividing line for internal recreational travel. Those south of it use facilities south of the river, and those living north of it use facilities to the north. The other findings of the survey were also that the largest group of visitors to the recreational areas (75%) was using beaches, and that the beaches had relatively local "market areas".²

As a major physical asset of Long Island is its beach and swimming is the most popular summer outdoor activity, the entire recreation activity should be organized and revolve around swimming. Water has always been attractive to people, regardless of the form in which it was available (pond, stream, lake, ocean, etc.). Once they arrive near it, they tend to stay around as long as possible, participating in water related activities or just enjoying the sight and sound of it.

Besides swimming, many families and groups coming to L.I. will want to try the excitement of boating and fishing. Boating is popular, but still inaccessible to many, because it presupposes ownership of a boat or sailboat. Provision of inexpensive sailing boat rental and instruction on L.I., similar to the arrangement at Charles River sailing marina, would enable many of the future users to enjoy boating without owning a boat.

Swimming, boating and fishing will then be the main recreational activities on L.I. to which all the other activities will be, in a way, subordinate. People will camp on the island because they want to be near water as long as possible. Most of their picnicking, game playing and walking will originate or take place on the beach. Everything will begin from the beach and most likely return to it.

Various groups of users, according to their age and social structure, will have their own day cycles of activities after they arrive at L.I. For example, families with small children will arrive very early, carry with them a lot of beach equipment, choose a spot on the beach, and settle down for the rest of the day. They are not very mobile in terms of changing the place and radius of activities. Parents will be occupied with children, carrying or leading them to the water and back, feeding them, and putting them asleep. They will picnic near or on the spot

where they initially settled, and most likely leave for home early in the afternoon. The other group, families with school children, teenagers, and young adults, will also primarily use the beach for swimming, but they are more mobile in a sense that they will participate in other activities, such as game playing, boating, fishing, etc. They might use the beach as a base, from which some of the group members will go to play or walk and then return back to the beach, or after a while spent in swimming they might change their focus of activity and center it around some other activity such as boating. For this group, certain variety of activities and places will have to be provided, to satisfy their changing needs.

The type of user groups could be expected to change from weekday to weekend. Weekends will be mostly "family days" on Long Island. On the other hand, weekday users will be various types of organized groups, such as school-children, tourists, or senior citizens.

This pattern of activity, centered around swimming, will be prevailing in the summer season, from June to September, which period is generally considered as being comfortable for swimming. In May, September and October, depending on air temperatures and general weather conditions, emphasis will shift from swimming to boating, picnicking, walking and camping. In this transitory period, it is most

likely that each group of visitors will come to L.I. for different purposes, and there will not be a single attraction beside which all other activities would have less importance.

Winter is a time of year when L.I. becomes a very unpleasant environment for any outdoor activity. It is exposed to the beating of wind and ocean, and protected locations suitable at least for walking are few and limited to the portion of the south side beach shielded from wind by drumlins. Therefore, winter will be the period of least recreational use intensity.

3.3 Spatial Organization of Activities

There are two basic steps in spatial organization of activities:

- 1) selection of appropriate site, which is suitable for a certain recreational activity because of its physical attributes; and
- 2) it's linking to other activity sites.

As swimming is the major attraction for the future user of L.I., location of a beach and its access determine the spatial organization of most of the other activities.

Southside beach, on Quincy Bay side, with its lower level of water pollution, is best suited for swimming. Its length is approximately 10,000 feet, but not all of it is easily accessible. The entire L.I. beach has quite a nar-

row sand and gravel strand, which is backed-up by a sea-bank of various heights and slope gradients. This bank, here and there, separates the strand visually and physically from adjacent land suitable for other activities. Therefore, the best places for swimming are the portions of beach where the sea-bank is very low and easily accessible. There is no sea-bank on East End, from approximately CDH's east boundary to Fort Strong Hill, and at Bass Point. The remaining portion of the beach on West End, from West Head to the line running in the height of Memorial Cemetery, has a very low bank. Therefore, these portions are suitable for public beaches.

Unequal distance from the main island road to the beach on West End will cause some crowding of the portion closest to the road, but gradually as more people arrive, they will spread out to other portions of beach, thus easing the crowding at the portion closest to the access point.

All user groups, although mostly settled on the beach, will require some variety of this activity during the day. Many of them at some time will want to participate in games, informal or competitive. Tennis, volleyball and basketball will be played on courts, and softball, badminton, soccer, etc. on meadows. The suitable place for such activities, with regard to slope gradient and proxi-

mity to the beach, is a stretch of land on south side of the main road, as well as on East End of Long Island. For convenience of those who want to picnic on the beach, groups of tables should be provided on the strand.

In this way, the entire south side of the island's East and West End is organized for use of "beach goers". They can easily circulate between the beach, playfields, and picnic areas without any interference of traffic (App. A, No. 6,7,8).

When locating sailing, boating, and fishing facilities it was important that the activities around them, on land (boat launch, repair, etc.) and in the water do not interfere with beach activities. Therefore, the entire south side of L.I. was excluded from consideration as a site for marinas. On the north side two locations were considered: location of the old wooden pier at Fort Strong Hill, and on the West End, the site between Nike site on one side and marsh on the other (App. A, No. 6,8).

Both of them are easily accessible from the main road, but disadvantaged by exposure to high winter winds and waves, which implies provision of pier construction resistant to both.

Camping facilities on L.I. are provided for a camping family of 3-4 people, who pile gear into the car to spend a weekend outdoors. During weekdays, the campground might

be used for school day camp.

For siting the campground, privacy and proximity to beach and marina were considered most important. On West End, there would be a suitable site for camping south of the main road, in terms of its physical characteristics and proximity to the south side beach, but it would not offer much privacy, because of expected heavy visitor circulation to and from the beach. Another site on the north side of the main road was chosen for its separation from high intensity areas, but still was within walking distance to the south side beach. Besides, the site offers greater opportunity for eventual later expansion of camping facilities, if interest shown for camping exceeds capacity of initially provided facilities.

A disadvantage of both sites is that it lacks natural plant cover, and some landscaping will have to be done when campground is developed (App. A, No. 6,7,8).

Summer picnicking is usually associated with water activities, swimming or fishing, and it is most convenient to provide facilities for it on a beach or in immediate vicinity of a fishing pier and boating harbor. On L.I. some sites are provided on the beach, near marina on West End and three larger picnic areas are provided alongside the main road and are intended primarily for the use of those who come to L.I. because of picnicking. Picnic areas are

connected to the main walking paths (App. A, No. 9).

The old Nike site suggested a use for itself. In its original configuration, with huge silos, paved surfaces and circuitous paths, artificial earth berms, it offers an opportunity for free and imaginative children's play. Missile silos could be desheltered and filled up with sand or earth to a certain safe level, climbing ladders or ropes lowered into them, and tunnels dug through the berms, to serve a variety of purposes children would have in mind. (App. A, No. 6 , and No. 11). It is easily accessible from marina, camping and picnic sites.

Hierarchy of walking paths and vehicular roads connects and relates these various use areas. Primary importance in L.I. Park is given to pedestrians and their circulation was separated from vehicular traffic whenever possible.

Walking paths are the principal structuring element of the Park. They originate from various access points along the main island road and diverge toward south and north shores of the island, where they merge with circular walking path running around the island along the shores (App. A, No. 6). Footbridges are erected where paths cross main road. Within each use area (camping, picnic ground, playgrounds) there is also a network of paths serving for circulation within these areas.

Main vehicular road serves the purpose of access to

West and East End use areas. If both spatially separated parts of Long Island are utilized for recreation, then a new road portion will have to be built along south side of CDH's grounds to join existing roads on West and East Ends (App. A, No. 6,7,8). This portion of the road would have to be constructed in such a way that it does not disturb existing CDH building located close to the edge of the sea-bank at the south side (App. A, No. 17). Marina and camping access roads branch off the main island road.

Parking lots are distributed to various use areas proportionately to their maximum use capacity. The greatest proportion of parking is located along the south side of the main road for use of beach visitors. Parking is grouped in lots ranging in size from 40-100 with an average of 60 spaces/lot.

Typical L.I. parking (App. A, No. 11) is unpaved, covered with chipped stone or gravel to give the whole surface a pleasant texture and avoid vast expanses of pavement. The scale is broken down by shrub planting between the cars, and the lots are partially shaded with a row of trees and shrubs from the main roadside. To avoid undesirable roadside parking, boulders, steel or stone stumps, or timber guardrails should be used.

3.4 Intensity of Use - Maximum Daily Capacity

Intensity of use of a certain recreational site (beach, picnic ground, campground) depends on its natural limitations (slope gradients, exposure, etc.) and on the quality of human experience desired to be achieved. High intensity areas on L.I. will be West and East End beaches and adjacent playgrounds. Intensity of use for each site is expressed in the number of visitors/acre of site at any time. I used general standards found in various recreation parks manuals³ as guidelines and developed characteristic densities: for L.I. Park use areas from the peculiarity of the sites in question.

Beach: General standards for beach densities vary from 50 sq.ft./person⁴ to 200 sq.ft./person⁵ for urban and rural beaches, respectively. As L.I. beach will be used by an urban population, critical densities would lie in the lower portion of this range.

Theoretically, each person lying on the beach occupies 12 sq.ft. (6' by 2') of strand. Practically, this figure is higher because it includes a place for one's beach equipment and circulation space. It is easier to think about beach densities if groups of people and their habits of settling on a beach are considered.

When a beach is near empty, groups of people tend to

settle down at a distance of 10-15 feet from each other, which when converted into sq.ft./person corresponds to about 200 sq.ft./person (App. A, No. 12). Later arrivals fill in the places between the initial groups and separation of groups becomes smaller and sq.ft. of beach per person approaches 70 sq.ft. This is still less crowded than Nantasket Beach, where every person has only space enough to be able to lie immobile for the whole day (but nobody seems to be utterly unhappy).

After analyzing and comparing several general standards for beach densities (App. A., No. 12), it seemed to me that a reasonable figure would be 70-75 sq.ft./person. In this arrangement there is still enough space between groups to allow for free access to water, without jumping over each other's bodies, and there is also sufficient place for beach equipment.

Playfields: Capacity of playfields depends on how they are developed. The portion of paved courts, used for games, has a capacity determined by the rules of the corresponding games played on the courts (App. A, No. 11). Meadows are places where density may vary according to interest shown by recreationers, and the purpose they use it for. In my proposal for L.I. development, playfields will contribute to the total L.I. capacity only about 5-10%. This will seem extremely low, considering the available site,

but I assumed that the majority of players (80%) would come from the beach and the rest (10%) from other use areas within the Park.

Marina facilities: They were developed to accommodate initially 120 rental sailing boats, 80 at West End pier and 40 at East End, with option to expand, if enough interest is shown. 50% of the boats would be used by one person at a time, and the rest by 2 persons at a time. At East End pier, space for landing of 40 private boats carrying 3 persons on the average per boat is provided. Boat launch ramps for 40 private boats is also provided at West End pier.

Picnic areas: There are two types of picnic areas on Long Island: a) those used mostly by swimmers, and b) those used by visitors whose main purpose in coming to L.I. is picnicking.

ad a) These picnic areas are located on the main beaches and do not add to overall capacity of L.I. Park. They are used by 50-80% of the swimmers for lunch picnics. One picnic table accommodates a group of 4-6 and occupies 80-100 sq.ft. (App. A, No. 9).

ad b) This type of picnic area contributes 5-10% to the overall capacity of L.I. Park, and its location is dependent on proximity to main access points. Space provided for each table is more generous than in beach picnic areas

and amounts to 200 sq.ft./table, including landscaping and circulation paths (App. A, No. 9).

Campground: General standards for family campground density vary as low as 1 camper/acre⁶ to 17-20 sites (58-80 campers)/acre⁷. In my version of campground arrangement, where sites are organized in terraced clusters around the same access road (App. A, No. 10), there are roughly 6 family sites/acre, including access roads. Each campsite has 16' x 16' tent space, space for table and car parking. Various literature sources⁸ suggest that minimum of 60 spaces is necessary for economical operation of campground. L.I. sites could support more, but initially only 60 sites are provided and if interest shown is great, more campsites should be provided.

Maximum recreational capacity of Long Island:

The following table shows maximum capacity of L.I. Park at any time. It equals maximum daily use, because the assumed turnover rate is zero. There is some turnover rate within the Park, resulting in differing utilization of each use area during the day.

MAXIMUM RECREATIONAL CAPACITY OF LONG ISLAND

Use Area	Description	Area size in acres	No. of visitors per acre	Total no. of visitors
WEST END				
Beach		3.5	600	2,100
Picnic	20 tables/acre 4 people/table	2.0	80	160
Campground	4 people/site 1-2 tents 1 car 1 table 6 sites/acre	10.0	24	240
Sailing, boating				
1) private	40 launches 3 persons/boat	-	-	120
2) rental	40 boats 1 person/boat 40 boats 2 persons/boat	-	-	120
Walking trails	50 people/mile of path 3 miles of trail	-	-	150
EAST END				
Beach		1.5	600	900
Picnic	20 tables/acre 4 people/table	1.5	80	120
Sailing, boating				
1) private	60 slips 3 persons/boat	-	-	180
2) rental	20 boats= 1 person/ boat 20 boats= 2 persons/ boat	-	-	60

MAXIMUM RECREATIONAL CAPACITY OF LONG ISLAND (Continued)

Walking trails	50 persons/mile 1.5 miles of walk	-	-	70
				SUBTOTAL 4,220
East and West End Playfields are 5% - 10% of subtotal	-	-	-	340 (8%)
				TOTAL 4,560

3.5 Transportation System

Maximum utilization of Long Island recreational resources depends strongly on the provision of an adequate transportation system for access to the Island. By virtue of its location and connection to the mainland via the bridge, Long Island will mostly be used by people living in surrounding communities. Therefore, a priority in this study is given to analysis and evaluation of a transportation system, which makes use of existing land access.

There is the possibility of water access from Long Wharf in downtown Boston. At the present time, Mass. Bay Lines operates regular boat trips between Boston and Nantasket, and its route runs close by the northeastern tip of Long Island (Fort Strong). There would be no technical difficulty in rerouting it to make stops at L.I. But it is most unlikely, considering the present high level of fares, that demand for this type of transportation would surpass, or even equal, demand for other types of transportation using land access. Only if L.I. became an integral part of the larger Boston Harbor Islands Park development would water transportation become equally attractive to the prospective visitor.

3.5.1 Description

There are three possible transportation systems that

can be suggested for land access to Long Island:

- 1) access by private automobile (PA)
- 2) access by public transportation (PT)
- 3) access by private automobile and public transportation (PTA)

The PA alternative is considered because the automobile is without a doubt the preferred mode of transportation in the United States. It has many advantages over other transportation modes: it is relatively cheap, available, popular and convenient, especially when travelling for recreational purposes. Although weekend traffic is heavy in general and has disadvantages, many families still prefer their own automobile to any other mode of transportation.

The PT alternative is chosen here as an ideal opposition to PA access. It is analyzed to show drastic differences which occur not only in traffic volumes along the access route, but also in the organization of recreational areas on L.I.

The PTA alternative seemed to be the most realistic in terms of demand. There will always be families and individuals who do not own an automobile, and for whom this might be the only opportunity for access to L.I.

The nature and operation of PA access need not be described in detail because it does not involve any special

circumstances which would not be commonly known, or be concluded upon from the previous discussion of L.I. access in the Site Analysis part of this study.

When using PA, the journey to L.I. for a prospective visitor is a continuous event, without interruption and mode change. Corresponding number of parking spaces is provided at L.I.

In the PT alternative, regularly scheduled bus lines would serve L.I. and have connections to Boston's MBTA system. At the present MBTA coverage, L.I. bus lines could have main connection points at various stations of the Red Line subway and other existing bus routes covering Quincy and Dorchester. The journey from home to L.I. for potential users of such a system would preferably be continuous, without transfers between different lines and modes.

In PTA alternative, there is the possibility of reaching L.I. by private automobile, but the possibility is limited. Only a certain number of cars is allowed access to L.I. The proportion of those is determined by the number of parking spaces which could be provided on L.I. without undesirable effects upon the island's natural environment. It is assumed that, although there is a public bus line, most people (80%) will try to reach L.I. by automobile. Visitors arriving by PA would be informed if any parking were available on the island as they pass Quincy Shore

Drive and E. Squantum Road crossing (QSD and ESR). If there is still parking available, they will proceed along ESR to L.I. In the case that parking on L.I. is filled, visitors would have a choice of: 1) parking in, for this purpose, specially provided parking lots at Old Squantum Naval Base (OSNB) and transfer to buses, which would make stops at OSNB en route from Fields Corner, or special buses running only from OSNB to L.I.; and 2) turning back and looking for another place to spend the day outdoors (Wollaston Beach, Tenean Beach, Nantasket).

In any case, they would have to arrive at OSNB before they can make their decision. To alleviate heavy traffic flows, which would occur on ESR from QSD to OSNB, messages about availability of parking on L.I. should have to be posted alongside main directional roads (QSD, ESR).

To make the costs of travel equal for visitors using public transportation and for those who succeed in reaching L.I. by private auto, and to have a source of subsidy for this bus system, parking fees should be introduced at L.I. (\$1.00-1.20/car).

3.5.2. Methods of Analysis

All three systems were analyzed for maximum expected flows of visitors on a peak summer day. It was assumed that maximum expected flows, for the purposes of analysis,

would equal maximum recreational use ("carrying capacity") of L.I., as previously estimated. In reality, expected flows of prospective visitors will always be higher than can be accommodated by recreational facilities on L.I., and many of them would have to be turned down to avoid over-crowding on the island.

The first step in the analysis was to estimate capacities of the access routes and develop frequency distributions of visitors' flow to and from L.I.

Access route capacities are mostly my own estimates and the main criteria in these estimations were:

- 1) type of facility (main road, highway, bridge, causeway, etc.)
- 2) number and nature of side obstructions (side streets, parking)
- 3) configuration (width, curves, gradients)

The access route, for purposes of analysis, can be divided into several parts, distinguished from each other in type and capacity:

1) ESR from QSD to Bellevue	500 VPH/lane	2-way main residential road
2) ESR from Bellevue St. to Moon Causeway	285 VPH/lane	"
3) Moon Island Causeway	500 VPH/lane	2-way road
4) Moon Island Road	400 VPH/lane	"
5) L.I. Bridge	500 VPH/lane	"
6) L.I. Road: at present time if L.I. developed	500 VPH/lane	"
Due to side obstruc. only	200-300 VPH/lane	"

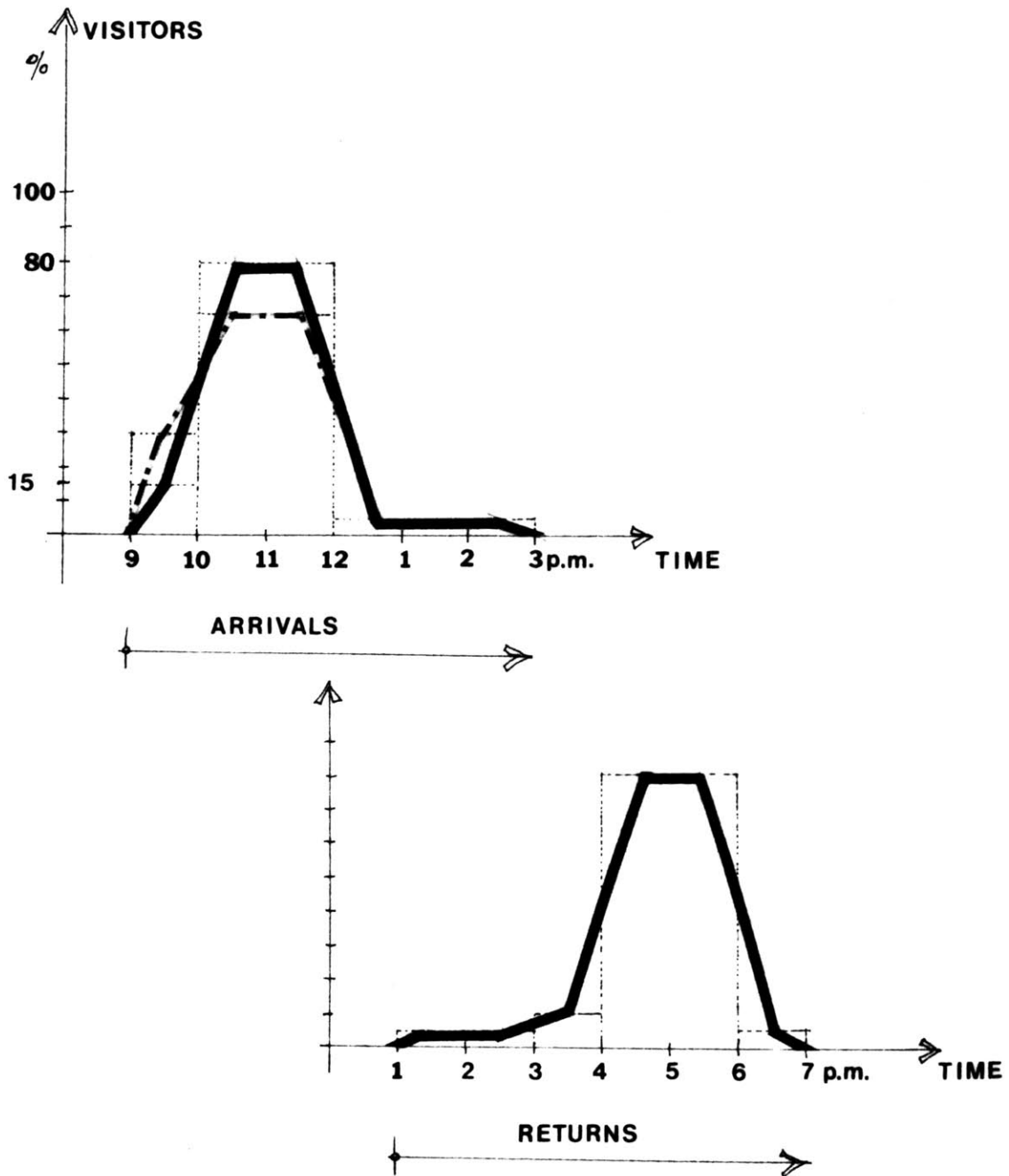
Visitors' frequency distribution curve for peak day was developed on the basis of the following assumptions:

- 1) L.I. Park will be open daily for 10 hours, from 9 am to 7 pm
- 2) Minimum duration of park use by individual or family is 4 hours, average stay 6-8 hours
- 3) Most visitors (80%) will arrive at L.I. between 10-11 am, 15% between 9-10 am, and 5% from 12-3 pm. A similar pattern will occur on the return from L.I., with peak volumes of 80% between 4-6 pm.
- 4) Average number of passengers per car = 3
- 5) Bus capacity = 40 passengers
- 6) Refusal rate at transfer point in Squantum is zero, i.e., all visitors who cannot use their own car to reach L.I. will transfer to bus at Squantum. This assumption is valid only for PTA alternative, and it will later be relaxed to analyse its impact on Park utilization.

Frequency distribution curve (Table 1) was then used to calculate expected traffic volumes (VPH) along access route during different times of peak day. As the peak proportion of visitors in both directions (to and from L.I.) is assumed to be equal, only visitor flows to L.I. were used in analysis.

In PT and PTA alternatives, passenger volumes on bus line, bus trips/hour, and number of parking spaces needed in Squantum were calculated. All these were tabulated and evaluated.

TABLE 1



VISITORS' FREQUENCY DISTRIBUTION

When evaluating all three alternatives, I looked at the following:

- 1) Can existing facilities support expected traffic volumes?
- 2) If they cannot, what kind of changes (reconstruction) will be necessary to accommodate expected flows?
- 3) Are those reconstructions possible technically or otherwise?
- 4) If the reconstructions cannot be done for any reason, how would this affect recreational potential of L.I.?

When evaluating PTA alternative, I considered, in addition to the above:

- 1) How refusal rate influences utilization of L.I.?
- 2) What impacts would possible Moon Island development for recreation have on traffic volumes along access route to L.I.?

3.5.3. Evaluation

1) PA: Long Island can accommodate a maximum of 1500 cars in parking along the main road (App. A, No. 6,13), but environmental and visual impact of excessive parking facilities is disastrous. There is virtually a continuous band of parking lots along the road. Forest on West Head and memorial cemeteries fell as victims of parking lots. Peak traffic volumes of 597 VPH (Table 2) cannot be accommodated along entire access route. It would be necessary

TABLE 2: PA and PT Alternatives

Maximum No. of visitors =	4,560
Arrive by private boat = -	180
<hr/>	
Total no. of visitors =	4,480

a) PA Alternative

Time Intervals	No. of Visitors	Traffic Volume VPH
9-10 am	670	224
10-11	1,790	597
11-12	1,790	597
12-1	76	26
1-2	76	26
2-3	77	26
<hr/>		
Total	4,480	

b) PT Alternative

Time Intervals	No. of Visitors	No. of bus trips/hour	Traffic Volume 1 bus = 1.6 VPH
9-10 am	670	17	27
10-11	1,790	45	72
11-12	1,790	45	72
12-1	76	2	3
1-2	76	2	3
2-3	77	2	3
<hr/>			
Total	4,480		

to widen the entire route by adding a third lane. A limit on this alternative is imposed by an automobile capacity of Long Island.

2) PTA (App. A, No. 14): In this alternative, the number of parking spaces on Long Island is critical. If it is held at a level of 700, which is half of the maximum capacity, peak traffic volumes of 477 VPH have to be accommodated along the entire access route (Table 3). Moon Island road and the portion of ESR from Bellevue to Moon Causeway are critical links, which at present capacity, cannot accommodate the expected volumes. These volumes can be somewhat eased by redistribution of arrivals. Most people would try to arrive as early as possible to have a better chance of getting to L.I. by car. If 30% of the visitors arrive between 9-10 am, peak volumes will be lowered to 373 VPH, which could be handled all the way to L.I. except on the critical position of ESR at Bellevue (Tables 1 and 4). Back-up parking at OSNB would have to be provided for 493 cars.

The reasonable threshold for parking on Long Island is 400 cars (App. A, No. 8). This will lower peak hour volumes along the access route to 222 VPH, which can easily be accommodated all along the route even at the most critical portion of ESR at Bellevue. Massive back-up parking

TABLE 3: PTA Alternative

a) No. of Long Island Parking Spaces = 700 cars = 2100 visitors = 47%
No. of visitors arriving by bus = 2380 visitors = 53%
 Total number of visitors = 4480 visitors = 100%

Time Intervals	No. of visitors	No. of visitors arr. by car=80%	Traffic Volume VPH	Allowed to L.I. No. of Vehicles	Park at OSNB No. of vehicles	No. of visitors transfer to bus	No. of visitors using bus from home = 20%	Total bus pass.	No. of bus trips/hour
9-10 am	670	536	178	178	0	0	134	134	3
10-11	1,790	1,430	477	477	0	0	360	360	9
11-12	1,790	1,430	477	45	432	1,296	360	1,656	42
12-3 pm	230	184	61	0	61	184	46	230	6
TOTAL	4,480	3,580		700	493	1,480	900	2,380	

TABLE 4: PTA Alternative - Distribution Shift

(Compare with Table 3)

No. of parking spaces at L.I. = 700

Time Intervals	No. of visitors	No. of visitors arriving by car = 80%	Traffic Volume (VPH)	
			to OSNB	OSNB-L.I.
9-10 am	1,340	1,070	356	356
10-11	1,400	1,120	373	45
11-12	1,400	1,120	373	0

at OSNB will have to be accommodated (Table 5).

At this point, refusal rate of those visitors who would have to park their cars at OSNB and transfer to a bus, and its possible effects on L.I. utilization should be considered.

There will always be some proportion of visitors who would refuse to transfer and turn back to find some other place for recreation. If the expected number of visitors arriving at Squantum during peak day is exactly the same as maximum recreation capacity of L.I., then refusal would influence its utilization (Tables 6 and 7). The higher refusal rate, the lower is utilization. At 50% refusal rate, utilization is 80% and falls gradually to 47% if refusal rate becomes greater.

In reality, the expected volumes of visitors who would arrive at Squantum will always be higher than can be accommodated by recreational facilities on L.I. and this will offset the effects of refusal rate. A quick look at Table 7 shows that at 20% refusal rate, only 270 additional visitors would have to arrive at Squantum to achieve 100% utilization. Thus, refusal rate would not significantly affect utilization, because demand for recreation will always be much higher than available facilities.

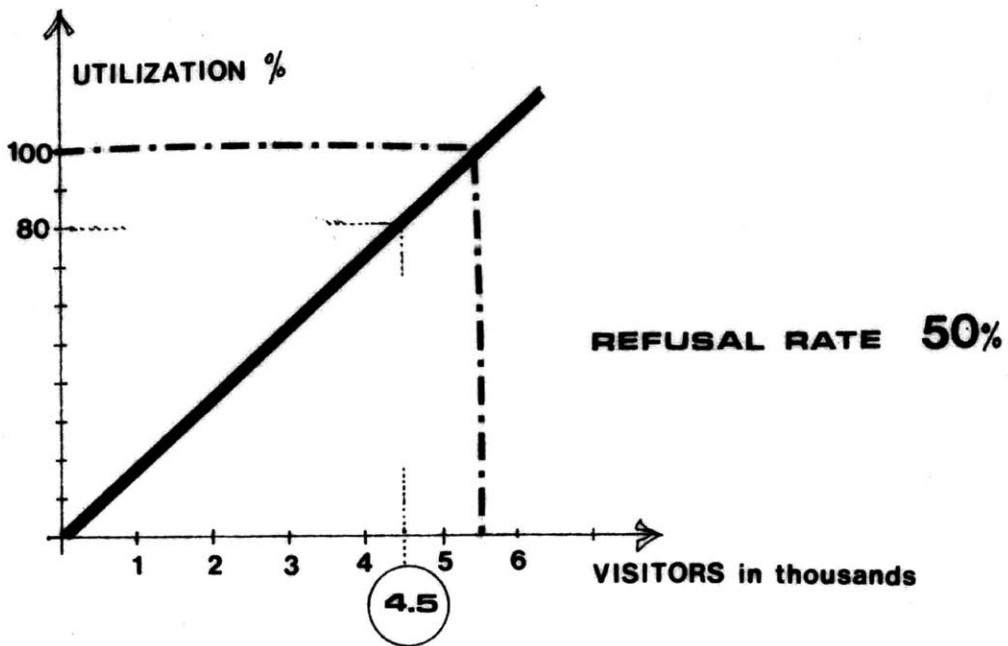
Before a final conclusion can be reached on the feasi-

TABLE 5: PTA Alternative

b) No. of Long Island parking spaces = 400 cars = 1200 visitors = 27%
 No. of visitors arriving by bus = 3280 visitors = 73%
Total number of visitors = 4480 visitors = 100%

Time Intervals	No. of visitors	No. of visitors arr. by car=80%	Traffic volume VPH	Allowed to L.I. No. of vehicles	Park at OSNB No. of vehicles	No. of visitors transfer to bus	No. of visitors using bus from home = 20%	Total bus pass.	No. of bus trips/hour
9-10 am	670	536	178	178	0	0	134	134	3
10-11	1,790	1,430	477	222	225	765	360	1,125	28
11-12	1,790	1,430	477	0	477	1,431	360	1,791	45
12-3 pm	230	184	61	0	61	183	46	229	6
TOTAL	4,480	3,580		400	793	2,379	900	3,279	

TABLE 7



EFFECT OF REFUSAL ON L.I. UTILIZATION

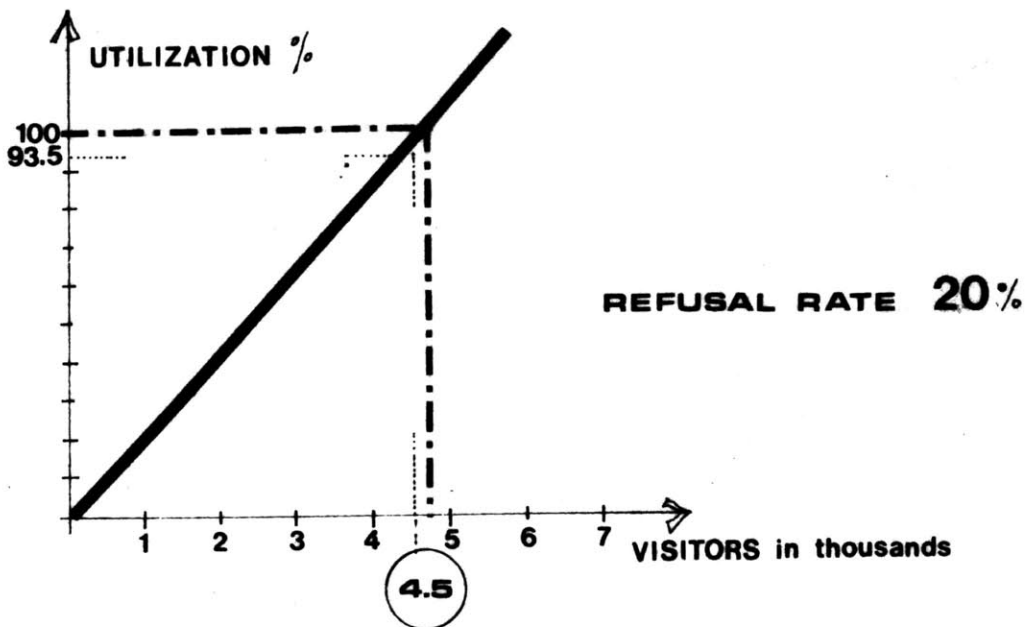


TABLE 7 CONT.

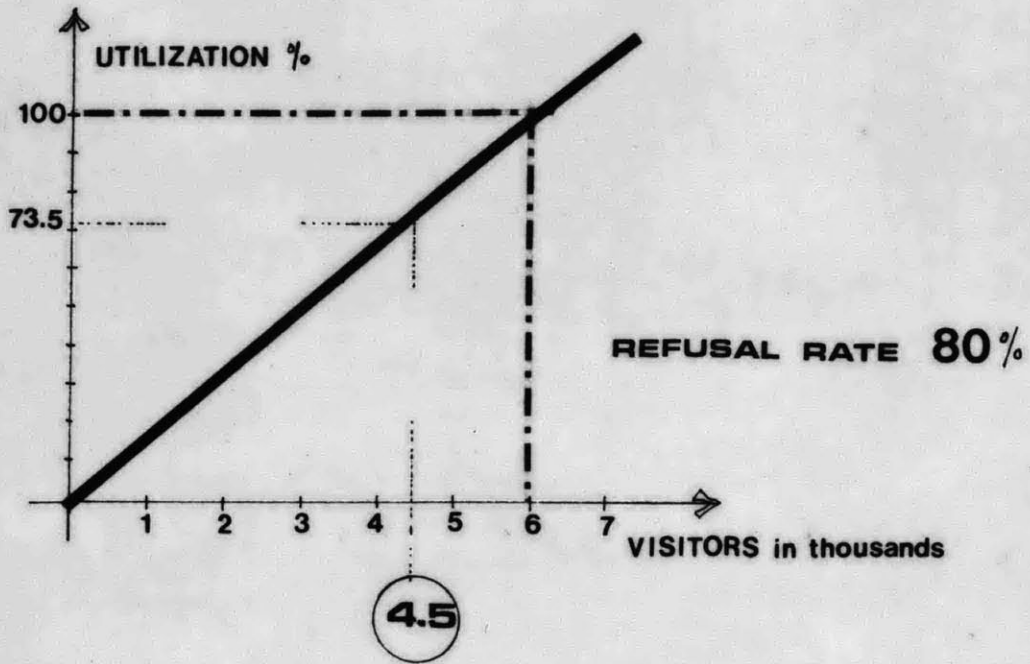


TABLE 6: PTA Alternative with 20%, 50% & 80% Refusal Rate

Maximum expected flow of visitors = 4,480 Rate of Refusal = 50%

Time Interval	No. of visitors	Traffic volume VPH	Allowed to L.I. No. of cars	Park or return No. of cars	Refuse to transfer 50% cars	Transfer to bus No. of visitors	Arr. by bus No. of visitors	Total bus pass.	Total Cumulative No. of visitors
9-10 am	670	178	178	0	0	0	134	134	668
10-11	1,790	477	477	0	0	0	360	360	2,459
11-12	1,790	477	45	432	216	648	360	1,008	3,467
12-3 pm	230	61	0	61	30	90	46	136	3,602
TOTAL	4,480		700		246	738	900	1,502	3,602 =
									80% utilization

Rate of Refusal = 20%

Time Interval	No. of visitors	Traffic volume VPH	Allowed to L.I. No. of cars	Park or return No. of cars	Refuse to transfer 20% cars	Transfer to bus (80%) No. of visitors	Arr. by bus No. of visitors	Total bus pass.	Total No. of visitors
9-10 am	670	178	178	0	0	0	134	134	668
10-11	1,790	477	477	0	0	0	360	360	2,459
11-12	1,790	477	45	432	86	1,038	360	1,398	3,857
12-3 pm	230	61	0	61	12	147	46	193	4,185
TOTAL	4,480		700		98	1,185	900	2,085	4,185 =
									93.5% utilization

TABLE 6 (Continued)

Rate of Refusal = 80%

Time Interval	No. of visitors	Traffic volume VPH	Allowed to L.I. No. of cars	Park or return No. of cars	Refuse to transfer 80% cars	Transfer to bus 20% No. of visitors	Arr. by bus No. of visitors	Total bus pass.	Total No. of visitors
9-10 am	670	178	178	0	0	0	134	134	668
10-11	1,790	477	477	0	0	0	360	360	2,459
11-12	1,790	477	45	432	346	248	360	608	3,067
12-3 pm	230	61	0	61	49	36	46	82	3,284
TOTAL	4,480		700					1,184	3,284 =
								73.5%	utilization

bility of the PTA alternative, two other factors should be considered:

- 1) impact of Moon Island development for recreational purposes on the transportation alternative
- 2) impact of increased expected volumes on ESR

ad 1) Previous analyses have been based on the assumption that Moon Island is not developed for recreation. Nevertheless, it is likely that this will happen, if not sooner, then when the Harbor Island Park project gets underway. In this case, additional traffic flows are to be expected along the access route to L.I. A quick estimate of Moon Island minimal recreational potential yields a figure of about 1,000 visitors (App. A, No. 16,15). If the same assumptions used for analysis of L.I. transportation system are used here, 800 people will try to reach Moon Island by car and the rest by bus. The location of parking lots at the entrance to Moon Island from the mainland direction and on the site of the Police Range will lower Moon Island Road capacity from 400 VPH to a maximum of 300 VPH. Transition between Moon Causeway and Moon Island may even be rated lower because of sharp turns in the road (similar to a turn ESR makes at Bellevue). Therefore, parking on Moon Island would not be allowed and all visitors will have to transfer to a bus at OSNB. Peak

flows will be identical to those in PTA alternative, but parking at OSNB would have to be increased to over 1,000 (Table 8).

ad 2) The portion of ESR from QSR to OSNB is especially vulnerable to peak traffic volume of the joint flow of visitors to both parks. It is rated as 500 VPH and peak expected joint flows are 583 VPH (Table 8). As always, more people would want to come to the islands than can be accommodated. These flows may increase, and result in back flows in the same portion of the road. This would have an impact on the QSR and ESR crossing, resulting in traffic congestion on QSR, ESR and Hancock Street.

Such a situation could be alleviated by the addition of a third lane to ESR from QSR to the entrance to OSNB at Victory Street.

Such reconstruction is technically possible, but there might be some objections of another nature. Squantum residents are very vocal about any increase of traffic in their community, resulting from recreational development of Long and Moon Islands and it is most likely that they would fight any road reconstruction. This opposition would make acquisition of land necessary for widening of this portion of ESR a difficult, expensive and lengthy procedure. To avoid this, the alternative access to OSNB should be con-

TABLE 8: PTA Alternative When Moon Island is Developed

Maximum no. of visitors on Long Island	= 4,480 visitors
Maximum no. of visitors on Moon Island	= 1,000 visitors
<u>TOTAL</u>	<u>= 5,480 visitors</u>
No. of parking spaces on Long Island	= 400 = 2,100 visitors
No. of parking spaces on Moon Island	= 0 = 0 visitors
<u>TOTAL</u>	<u>= 400</u>

Time Intervals	No. of visitors to L.I.	No. of visitors to M.I.	Visitors to L.I. arr. by car (VPH)	Visitors to M.I. arr. by car (VPH)	Traffic volumes between OSNB-M.I. (VPH)	Traffic volumes between M.I.-L.I. (VPH)	No. of cars allowed to L.I. (VPH)	No. of cars parking at OSNB
9-10 am	670	150	178	40	178	178	178	40
10-11	1,790	400	477	106	222	222	222	328
			583					
11-12	1,790	400	477	106	151	45	0	578
12-3 pm	230	50	61	13	13	0	0	61
<u>TOTALS</u>	<u>4,480</u>	<u>1,000</u>	<u>1458</u>				<u>400</u>	<u>1007</u>

sidered.

My inspection of OSNB suggested that space currently occupied by new car storage (opposite to Jordan Marsh) would have to be acquired and the access made from QSR at Neponset Circle (App. A, No. 14). Visitors' traffic would have to be redirected from ESR and QSR crossing to the new entrance to the OSNB parking.

Nevertheless, traffic flow from OSNB parking to L.I. would merge with EST traffic again at the crossing of Victory Road and ESR. This still might raise some objections by Squantum residents, but as the emphasis in the proposed transportation system (PTA) is on bus transportation, peak hour flow on ESR would not rise significantly over present traffic flows at this location, especially on weekends when there is no to-and-from-work rush hour traffic. (Addition to present flows = 72-90 VPH, assuming that 1 bus equals 1.6 cars, and peak recreational flow 45-50 bus trips/peak hour.)

The other possible difficulty might arise, if for any reason the land for OSNB parking were not possible to acquire. The only larger existing parking space in the vicinity is at North Quincy MBTA station (NQS), having a capacity of 400 cars, which is much lower than that which would be needed to accommodate all prospective visitors (App. A, No.

14), and this would inevitably influence the Parks' utilization on weekends. During weekdays, the situation is even worse, because this parking lot is used by nearby offices and commuters to CBD. This will influence L.I. utilization if weekday demands are higher than can be accommodated by parking capacity on L.I. It is also likely that there would be a competition for Sunday parking with Wollaston Beach visitors, who at the present time park at NQS and walk to the beach when unable to park at Wollaston Beach.

In any case, if NQS is to be utilized for Long Island's visitors' parking, this should be regulated in a way that Wollaston Beach visitors are not allowed to park there.

If L.I. is developed for a capacity of 4,480 visitors, joint flows kept at approximately 300 VPH, and the number of parking spaces provided on L.I. is 400, the PTA alternative would approach PT alternative in the sense that only 27% of the visitors arriving at OSNB will be allowed on the island by car and a great majority of them will have to transfer to buses.

To avoid confusion of those who did not succeed in getting to L.I. by private automobile, it would be desirable to introduce policy for the accessibility to L.I. During the week when demand is lower, private automobiles

should be allowed on L.I. and some additional PT link be provided for those who will eventually have to transfer. On weekends, when demand is high, no one should be allowed access to L.I. by private automobile. All visitors would have to transfer to buses at the OSNB parking lot. This policy would be publicly announced and known, and some of the frustration and crunch over who gets to L.I. by private automobile first will be avoided.

In this alternative, emphasis is clearly on public transportation. Full utilization of L.I. cannot be achieved unless public transportation used for access is efficient, cheap and comfortable. On peak days and in peak hours, the number of bus trips/hour might approach 50, assuming 100% bus load. Bus trips from OSNB to L.I. and back take about 20-30 minutes (including stops) and one bus can make two trips to L.I./hour. By peak demand of 50 trips/hour, 25 buses at least would be needed on this route to carry visitors to Long Island.

Massive transfers to buses at OSNB will have certain impacts on the type of user coming to L.I. and also on the type of recreational facilities. It is most likely that families with small children would want to avoid the inconvenience of transfer to and travel by bus. If there are no special provisions made (luggage racks, etc.) on

buses for carrying beach and camping equipment, the same should be provided on L.I. for inexpensive rental, or proposed areas (camping, picnics) will not be utilized. Launch ramps for private boats would not have use during weekends too, due to the restriction placed by this weekend/weekday transportation policy.

The PTA alternative seems the most feasible transportation system for access to L.I. Park. Required transfer to buses might be an inconvenience for visitors at the beginning, until most of them become accustomed to it. Traffic volumes along access route and massive parking on L.I. are drastically lowered in comparison to the PA alternative. What is unfortunate is that large back-up parking is still necessary (at OSNB). This cannot be avoided at the present moment. Only if the public changed its attitude toward its mode of transportation in favor of public transportation would this parking become unnecessary. But this is most unlikely to happen, at least in the near future.

3.6 Implications of the Recreational Planning for CDH

If Long Island is developed to maximize its recreational potential as proposed earlier, this will have certain implications for CDH.

Boundaries between recreational uses on the West and East End and CDH will have to take a form of physical barrier, which will keep public out and not allow any uncontrolled physical access to hospital buildings. At the same time, unfortunately, it will keep patients within determined enclaves.

I feel that it is necessary for the hospital to function properly in rendering medical care to its patients, to avoid interference of those who are not directly involved in the process. On the other hand, patients do have a need to communicate with the outside world without the feeling of being restricted in some way.

In my discussion of the problem of boundaries with CDH's administrative staff, they felt very strongly, at first, that boundaries in form of physical barriers are not necessary and that they will have adverse effects on patients, who would feel like in prison. These feelings were directed primarily towards barriers in the form of fences, which are perceived as a drastic measure of separation when human beings are those separated by it.

Nevertheless, later in the discussion, it was agreed that certain controls should exist in circulation both ways: public in and patients out, but that careful consideration should be given to the visual form of the barriers.

It would be desirable that patients have visual access to the Park whenever it is possible, so that their feeling of confinement is somewhat alleviated.

The western boundary (App. A, No. 6) could be formed by a combination of landscape and fence. The already existing thick impenetrable brush on the north side of the main road in the vicinity of Curley Bldg. could be utilized and some additional planning done to fill in the places in between.

On the south side of the main road, a new hedge, eventually backed up by fence should be provided, because this portion of CDH is vulnerable to public intrusion (proximity of main road, picnic area). There is no need for any special provisions along the south boundary because the main road passes along it at a lower level and the difference in levels between hospital grounds and the road is a barrier in itself.

Along the eastern boundary, there is thick impenetrable growth of trees, which would be sufficient barrier to undesirable intrusion. Beach areas will have to be fenced off on the west and east side of CDH.

CDH would have to maintain two control gates, one at the main entrance and the other on the eastern boundary. East gate would serve purposes of Sewage Treatment Plant (STP) maintenance, and patients' access to East End recreational area. Maintenance of boundaries would have to be done by CDH, which could employ patients in hedge clipping, new planting or cleaning of undergrowth.

Access: Employees, visitors and supply service would use the same access route to L.I. as visitors to Park. Peak traffic flows to CDH occur between 7-9 am, and 3-4 pm, with peak volumes of 60 VPH¹⁰. Visitors to CDH and supply service do not produce any significant traffic flows. As the Park will be open between 9 am and 7 pm, there will be no serious difficulties for employees to gain access to the hospital in the morning. It is most likely, considering the proposed transportation alternative for the Park, that hospital access would not be impeded by it in any way.

There will be some advantages of recreational development for control and maintenance of access route to L.I. for CDH. Access to L.I., which is now controlled at two places along the access route, at Moon Island Causeway and the main hospital entrance, by the hospital security, will be controlled at Moon Island causeway by development agency. L.I. bridge and the main island road will also have to be

maintained by development agency all year round.

By development of East End for public recreation, present use patterns of this area by CDH patients will be disrupted. Patients use this area (App. A, No. 5) for free wandering around, when they want to get away from it all and for softball games. There is no problem of relocating the softball field closer to the hospital buildings which would also be more convenient for patients (App. A, No.), but there is hardly a substitute for solitary walks at Fort Strong and along the beaches. Although the hospital staff feels that there is no fence which would keep patients from using the Fort Strong area, and that they would continue to use it after it is developed for public use, there is certainly the other factor that will: the Unknown Public.

Patients would want to meet the public, if for no other reason than pure curiosity, but initially they would feel inhibited and insecure to do so, and therefore would stay largely within hospital confines.

If, at this point, there is no provision made by the institution to support their interests in this direction, they probably never will gather enough courage to walk out to the Park by themselves.

Therefore, CDH should use its volunteer program to help its patients at this first stage of interaction. Patients'

visitors should be allowed to take out patients from the hospital for a couple of hours or a day in the Park. It should not be difficult to organize this, because at the present moment patients are occasionally taken out for dinner or to watch ball games in Boston by volunteers.

This trip out in the Park should initially happen on weekdays, when there is less traffic in the road and there are no big crowds which might frighten patients. Once patients get the sense and feeling of what is happening outside, they will continue to visit and use the Park independently, without help. There is a problem with patients who are alcoholics because they might try to acquire drinks in the Park, if they are left to wander there unsupervised. There is no other solution for them, than to be relocated at Mattapan Chronic Disease Hospital, or escorted every time when they wish to go to the Park. This is not possible at the present time, because it would involve major supervisory staff outlay.

CDH has been giving consideration to relocation of the Alcoholic Rehabilitation Unit to Mattapan for some time now, and a group of alcoholics has already left CDH for Mattapan.

Various organized groups of Park visitors, who are expected to visit L.I. on weekdays, should be contacted by the hospital administration prior to their arrival or immediately on their arrival at L.I. about their wishes to

visit CDH, which would be one more opportunity for patients to have outside contacts.

All of these measures are dependent for implementation on the institution in terms of the medical staff's attitude toward patients' outside contacts with the public in the Park and CDH's financial ability to support and organize these additional activities.

In long range, it might be expected that medical staff attitude would change in a positive direction, and that also financial funds will be increasingly available for CDH in general, which means more programs for patient involvement with outside community in addition to their in-hospital activities. CDH's re-integration into the community has begun by its volunteer programs and it will continue if L.I. is developed for recreation.

In short range, it is most likely that if L.I. were developed for recreation shortly, CDH would not be able to organize the activities, because it is presently concentrating efforts on programs promoting within-hospital communication, and these programs are not progressing fast, because of lack of funding and staff. There is a wish to do it, but resources are lacking. Therefore, if L.I.'s East and West End were developed for recreation, patients would largely be confined within hospital boundaries for at least the next couple of years.

To avoid this and allow more space for use of CDH patients, when volunteer programs are expanded, and more groups come into CDH, and not to disturb already settled pattern of use of the island by patients, the best solution would be to leave the East End of the island free of recreational facilities for general public, and allow this part to be used extensively by CDH for their patient activities.

West End could be developed for public recreation in the same manner as proposed earlier, and maximum capacity of the Park would be 3,100 visitors (App. A, No. 18).

Patients would continue to use East End, as they have been using it now. In addition, various groups who would be attracted to L.I. Park could be offered use of East End for their own purposes and to meet patients.

Children in general are groups which would be welcomed by the staff and patients. "Children are the best thing that could happen to this place. Some of these people haven't seen a child's face for literally years."¹¹ Fort Strong and other remains such as gun emplacements, old buildings, and bunkers offer a lot of material for imaginative use.

School children groups from surrounding communities could spend there "work and learn" school days. Old concrete buildings could be renovated with patients' assistance and used as a workshop where patients would help teach stu-

dents in making pottery, or other objects (App. A, No. 18).

Preschool and kindergarten children could use the grounds for walks and picnics.

I struck upon the idea of additional use for the area, when I saw old pictures of beach cottages built by the hospital patients some time ago, from debris from the beaches and other old material.

Architecture students might have a good opportunity for learning elementary structure principles there, and have an exercise in creative use of on-site available construction materials.

The other group which would be desirable in CDH is a senior citizens group. They would not be of any threat to patients, and by being old and having similar problems, communication should be quickly established.

Advantages of all these arrangements are that they require minimum supervision from CDH, because groups are organized and supervised by their own group leaders. CDH would not need extra staffing and money for organization of these activities, and therefore they have more chance to get off the ground than the other proposed activities related to Park use, which organization requires sufficient time and money. Patients would benefit from development of Fort Strong for CDH purposes, because they would meet new people,

cooperate with them on the grounds development, and strengthen their feeling of belonging to a large community.

CONCLUSION

Hopefully, Long Island could be developed for recreation soon. It is too valuable a piece of open space to be wasted. It has a sizable recreational potential and it should be enjoyed by more people than it is now. Moreover, CDH patients would welcome more visitors to the island. It would not be so lonely, and they would have a chance to talk and meet somebody else besides their fellow patients and the hospital staff.

However, critical to the realization of any recreational plan for Long Island is the ability to provide adequate public transportation systems for L.I. access. Without the provision of efficient, inexpensive and comfortable public access, Long Island might remain a lonely place for years to come.

As for the hospital, recreational development would improve its accessibility. More people on the island means more potential visitors to CDH. Patients' relatives and friends who do not visit now because the hospital is remote and the journey to it lengthy, and there is nothing else to do on the island when the visit to patients is over, might find it more attractive and worthwhile coming when

Long Island is developed and there is an opportunity for them, besides seeing the patient, to swim, boat, or picnic.

The patients would also have an opportunity to use the Park and meet new people. However, the initiative in developing contacts between Park visitors and patients lies entirely with the Institution. The staff's attitude toward this kind of interaction is decisive for the promotion of any contact between Park and hospital.

FOOTNOTESIntroduction

¹MAPC, Boston Harbor Comprehensive Plan, p. 162.

²Ibid., p. 4.

³Evelyn Keene, Boston Globe, 22 August 1973.

⁴Ibid.

⁵MAPC, op.cit., pp. 53-55.

⁶Ibid., p. 124, 125.

⁷Ibid., p. 53, 55.

Part One

¹MAPC, Open Space and Recreation: Program for Metropolitan Boston, V. 4, Open Space Law, p. 14.

²MAPC, Boston Harbor Islands Comprehensive Plan, p. 16.

³Ibid., pp. 17-20.

⁴MIT, The Harbor Islands Study Group: The Harbor Islands, pp. 93-101.

⁵Paul Hagan, Long Island: A Site in Search of Use, p. 14.

⁶For information on various Water Pollution Programs, see MAPC, Open Space and Recreation, op.cit., p. 44.

⁷See MAPC, Boston Harbor Islands Comprehensive Plan, p. 26.

⁸MIT, The Harbor Islands, p. 88.

⁹See MAPC, Open Space and Recreation, op.cit., p. 49.

¹⁰Information from CDH administrative staff.

Part Two

¹Arnold H. Rose, "The Subculture of the Aging: A Topic for Sociological Research," in Neugarten, Middle Age and Aging, p. 29.

²Jones, McNitt and Gazmuri, "Application of a Patient Classification to Program Evaluation in a Long Term Care Institution," Table 1.

³Rose, op.cit.

⁴Robert Butler, "Clinical Psychiatry in Late Life," p. 440.

⁵Commission on Chronic Illness, Care of Long Term Patient, p. 14.

⁶E. Kahana, "The Humane Treatment of Old People in Institutions," Gerontologist, Autumn, 1973, p. 283.

⁷P. Hagan, Long Island: A Site in Search for Use, pp. 31-36.

⁸Ibid., pp. 37-42.

⁹Ibid., p. 41.

Part Three

¹MAPC, Boston Harbor Islands Comprehensive Plan, p. 27.

²MAPC, Open Space and Recreation, V. 2, p. 65.

³See bibliography.

⁴MAPC, Comprehensive Plan, p. 29.

⁵Bureau for Outdoor Recreation, Outdoor Recreation Space Standards, pp. 33-35.

⁶Shivers and Hjelte, Planning Recreational Places, p. 310.

⁷Rombold, Guidelines for Campground Development, p. 12.

⁸Ibid., p. 12.

⁹Hagan, Long Island: A Site in Search for Use, p. 17, 18.

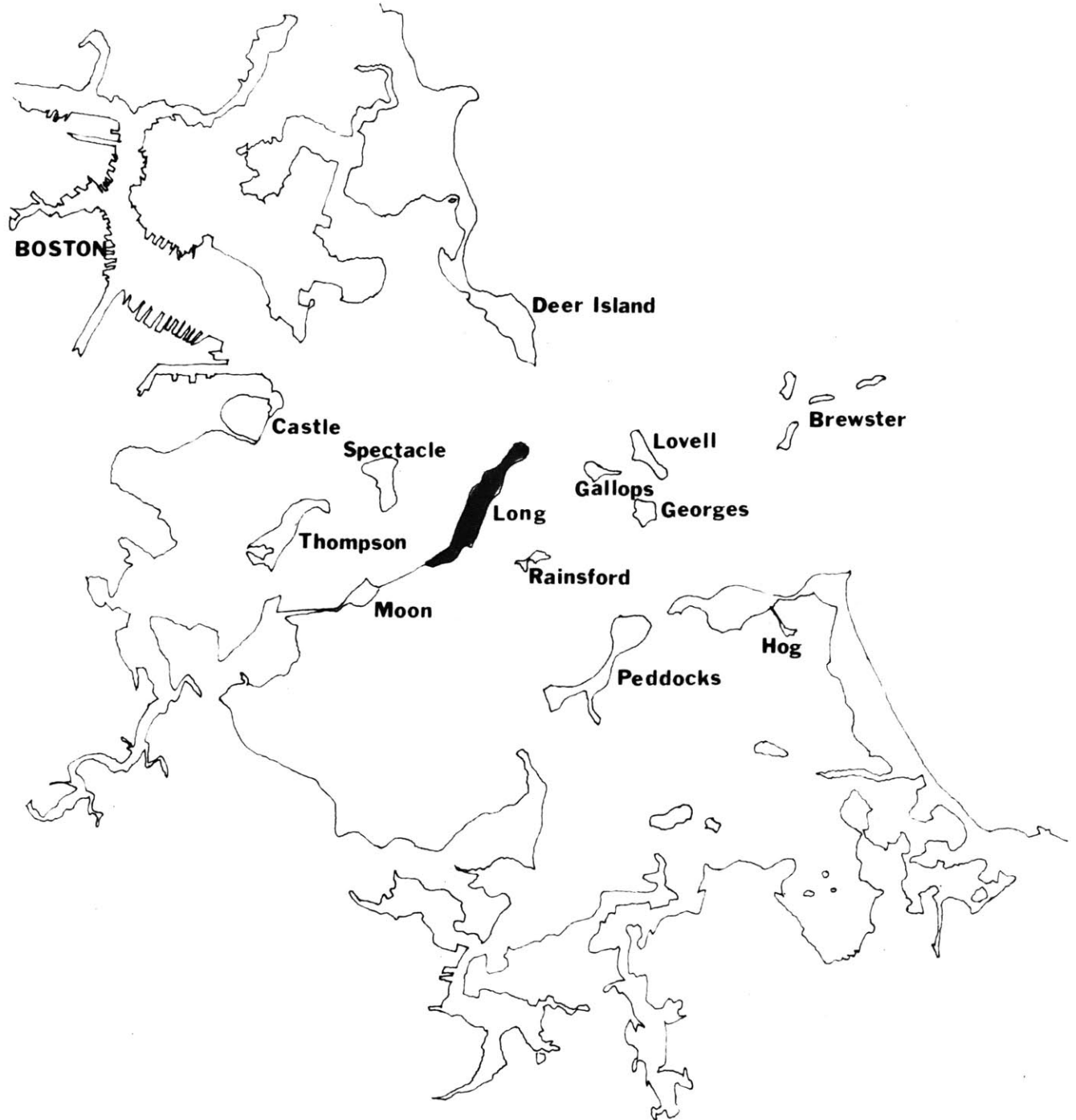
¹⁰Parking lot count by CDH.

¹¹Hagan, op.cit., p. 34 (Interview with CDH staff member).

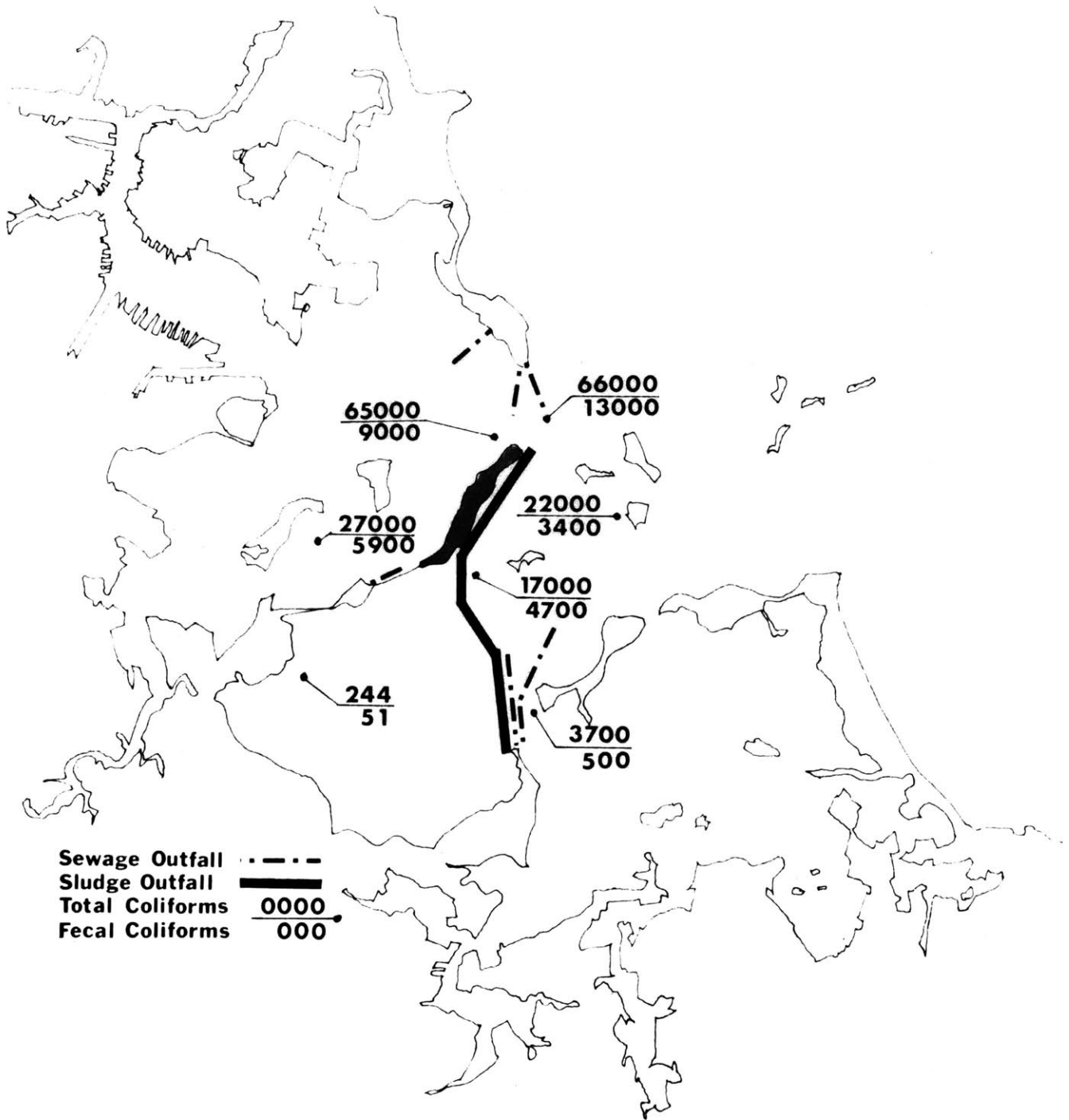
BIBLIOGRAPHY

- Beazley, Elisabeth, Designed for Recreation, Faber and Faber, London, 1969.
- Butler, Robert N., "Clinical Psychiatry in Late Life," in Clinical Geriatrics, Isadore Rossman (ed.), J.B. Lippincott, Co., Philadelphia, 1971.
- Brody, Standey J., "Comprehensive Health Care for the Elderly: An Analysis," Gerontologist, Winter, 1973.
- Commission on Chronic Illness, "Proceedings of the Conference on Preventive Aspects of Chronic Disease, Baltimore, 1951," in Care of Long Term Patient: Chronic Illness in the United States, Harvard Univ. Press, Cambridge, 1956.
- Department of the Interior, Bureau of Outdoor Recreation, Outdoor Recreation Space Standards, Washington, D.C., 1967.
- Goffman, Erving, Asylums, Anchor Books, Garden City, New York, 1961.
- Hagan, Paul, Long Island: A Site in Search for Use, M.C.P. Thesis, Department of Urban Studies and Planning, Massachusetts Institute of Technology, Cambridge, 1969.
- Jaeger, Dorothea and Leo W. Simmons, The Aged Ill, Coping with Problems in Geriatric Care, Appleton-Century Crofts, New York, 1970.
- Jones, Ellen W., Barbara J. McNitt, and Renato Gazmuri, "Application of a Patient Classification to Program Evaluation in a Long Term Care Institution," Prepared for presentation at seminar on Strategies of Functional Assessment in Medical Rehabilitation, Boston, 1972.
- Kahana, E., "The Humane Treatment of Old People in Institutions," Gerontologist, Autumn, 1973.
- Kahn, Robert L., "Psychological Aspects of Aging," in Clinical Geriatrics, Isadore Rossman (ed.), J.B. Lippincott, Co., Philadelphia, 1971.

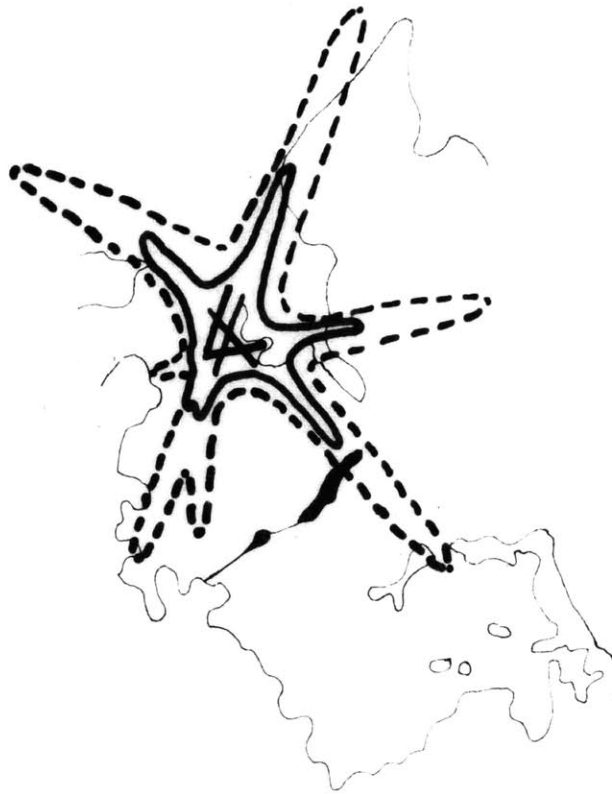
- Lynch, Kevin A., Site Planning, Second Edition, The MIT Press, Cambridge, 1971.
- Metropolitan Area Planning Council, Boston Harbor Islands Comprehensive Plan, Boston,
- Metropolitan Area Planning Council, Open Space and Recreation: Program for Metropolitan Boston, Volume 2 (Boston Harbor) and Volume 4 (Open Space Law), 1969.
- Neugarten, Bernice (ed.), Middle Age and Aging: A Reader in Social Psychology, Univ. of Chicago Press, 1968.
- Reader, George G., "Types of Geriatric Institutions," Gerontologist, Autumn, 1973.
- Rombold, Charles C., Guidelines for Campground Development, American Institute of Park Executives, Ogleby Park, Wheeling, W.Va., 1964.
- Rubinstein, M. Harvey, A Guide to Site and Environmental Planning, John Wiley and Sons, Inc., New York, 1969.
- Rutledge, Albert, Anatomy of a Park, McGraw-Hill Book Co., New York, 1971.
- Shivers, Jay S., and George Hjelte, Planning Recreational Places, Fairleigh Dickinson University Press, 1971.



THE BOSTON HARBOR ISLANDS



MAJOR MUNICIPAL DISCHARGES AND AVERAGE COLIFORM DENSITIES

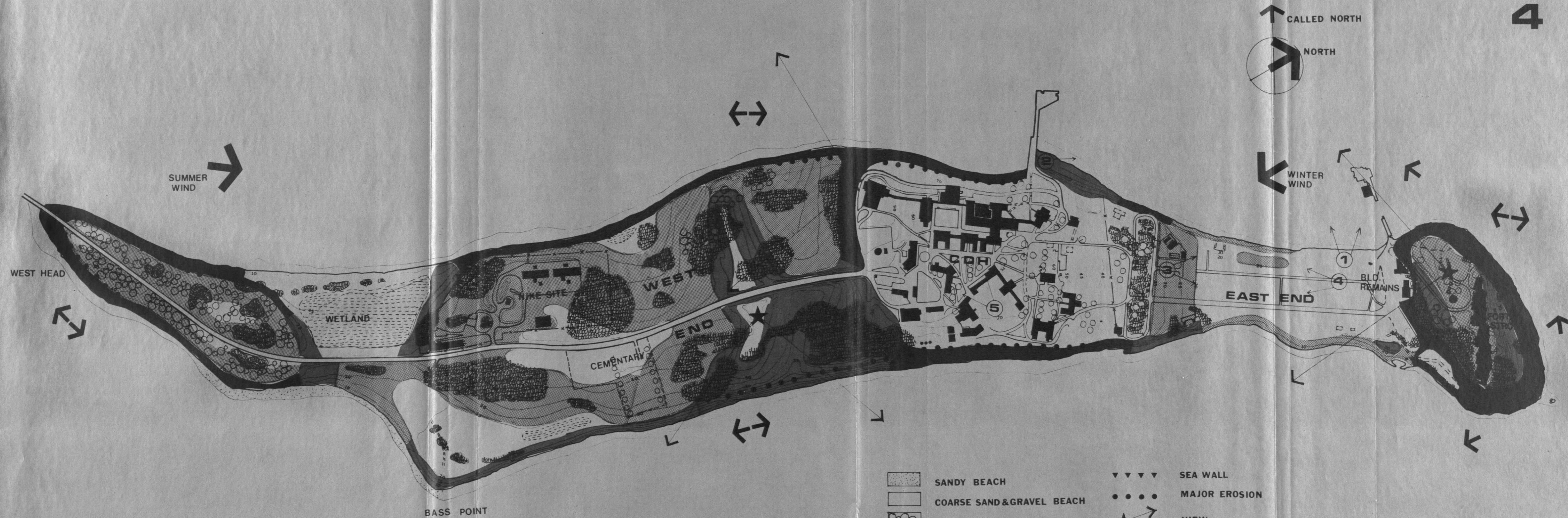


DAYTIME OPERATION



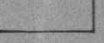



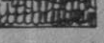

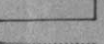



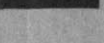


NIGHTTIME OPERATIONS

NOISE LEVEL



SITE ANALYSIS

- | | | | |
|---|----------------------------|---|---------------|
|  | SANDY BEACH |  | SEA WALL |
|  | COARSE SAND & GRAVEL BEACH |  | MAJOR EROSION |
|  | TREES PINES, MAPLES, ELMS |  | VIEW |
|  | BRUSH |  | TIDAL FLOW |
|  | 0-4% SLOPE |  | VANTAGE POINT |
|  | 4-10% SLOPE | | |
|  | 10-20% SLOPE | | |
|  | 20% and over | | |

2

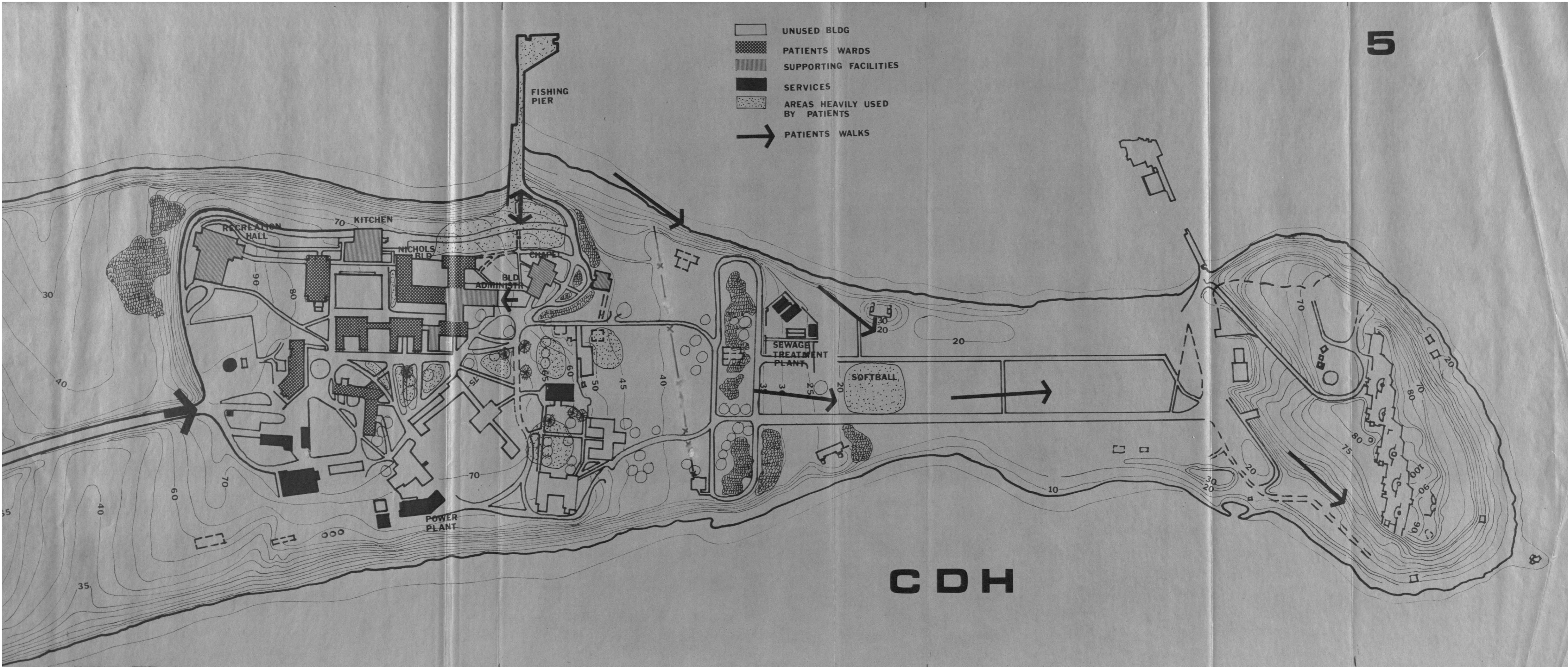


3

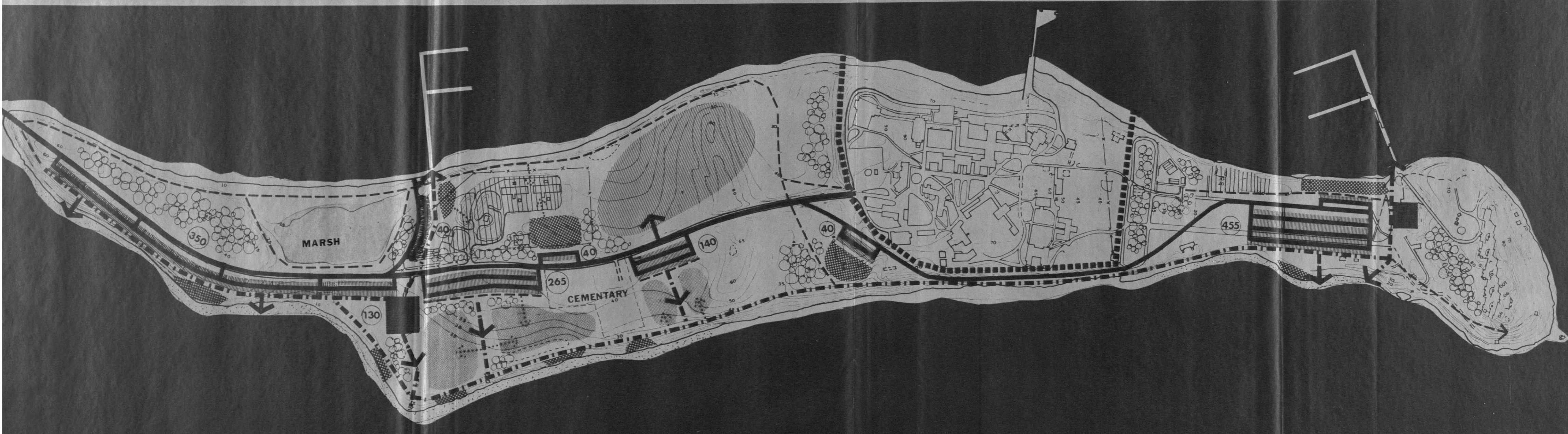




- UNUSED BLDG
- PATIENTS WARDS
- SUPPORTING FACILITIES
- SERVICES
- AREAS HEAVILY USED BY PATIENTS
- PATIENTS WALKS



CDH



LEGEND

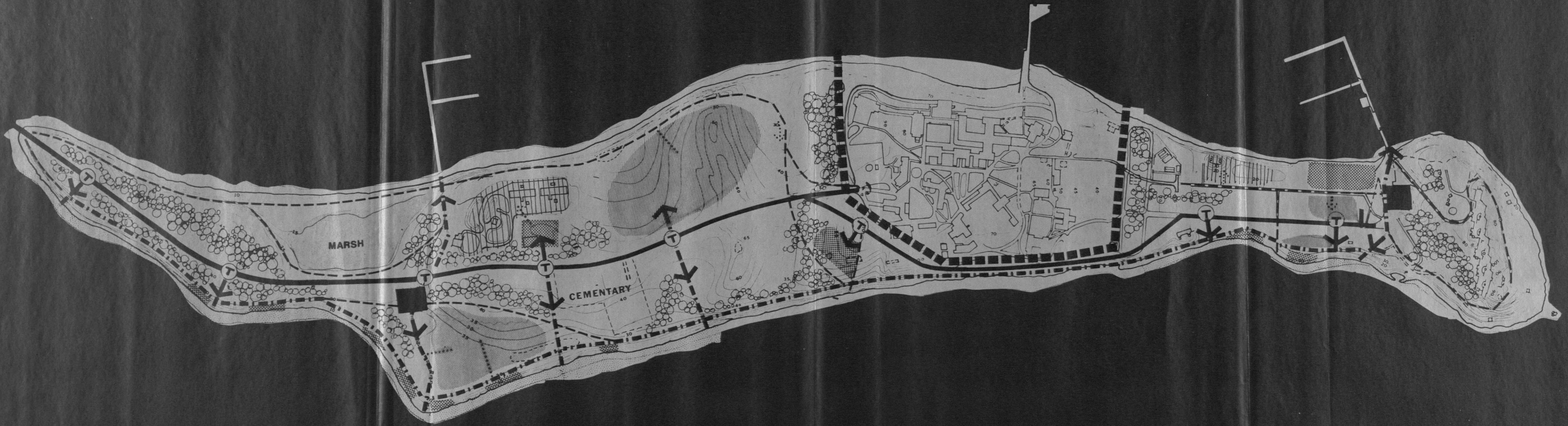
- | | | | |
|--|-----------------------------|--|---------------|
| | MAIN ROAD | | BEACH |
| | PEDESTRIAN CIRC;
primary | | PLAY FIELD |
| | secondary | | PICNIC CENTER |
| | tertiary | | CAMPING |
| | BUS STOP | | CHILDREN |
| | PARKING | | |



SCALE 1"=400'

LAND USES

PA ACCESS



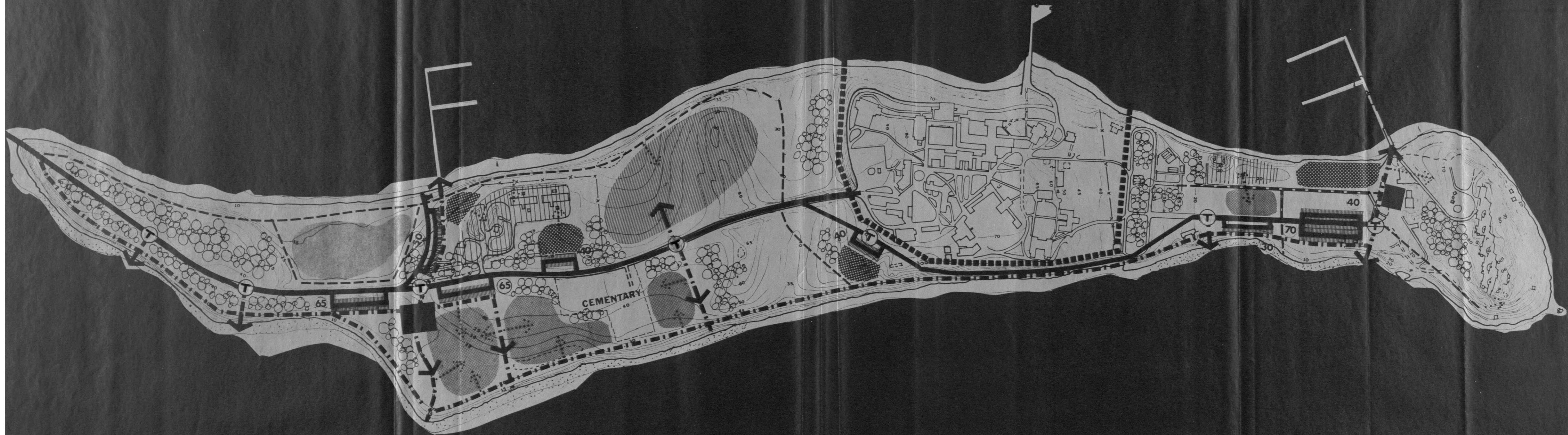
LEDGEND

- | | | | |
|--|-----------------------------|--|----------------|
| | MAIN ROAD | | BEACH |
| | PEDESTRIAN CIRC;
primary | | PLAY FIELDS |
| | secondary | | PICNIC |
| | tertiary | | CENTER |
| | BUS STOP | | CAMPING |
| | PARKING | | CHILDRENS PLAY |



SCALE 1"=400'

LAND USES PT ACCESS



LEGEND

- MAIN ROAD
- PEDESTRIAN CIRC; primary
- secondary
- tertiary
- BUS STOP
- PARKING

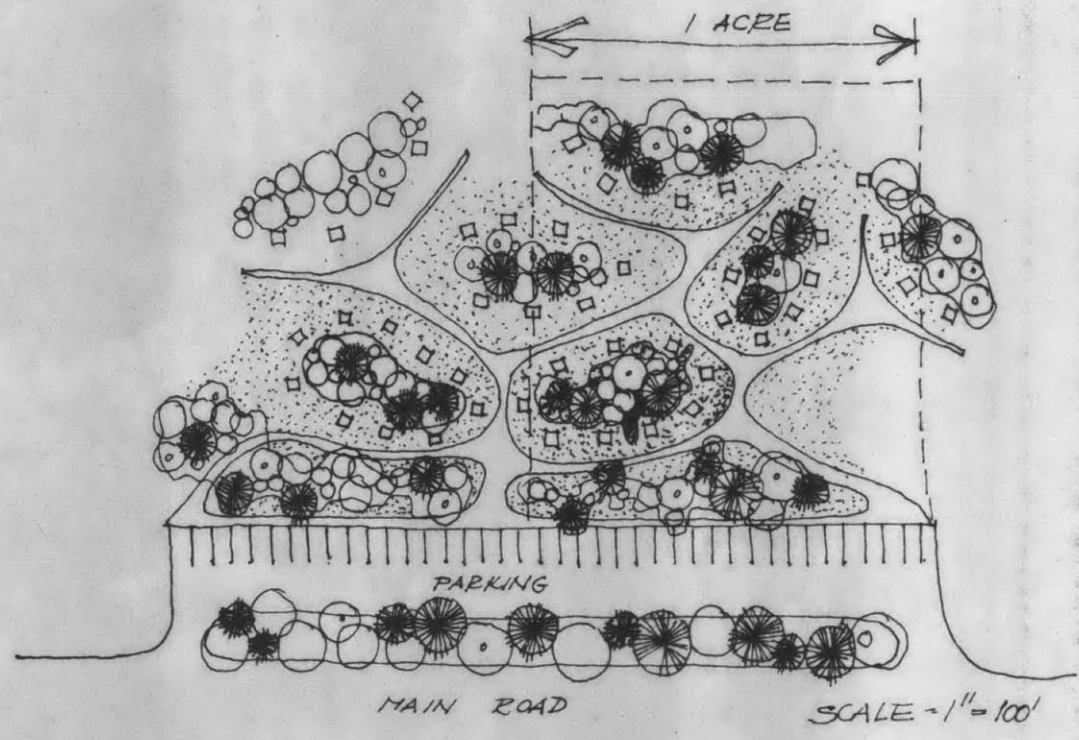
- BEACH
- PLAY FIELDS
- PICNIC
- CENTER
- CAMPING
- CHILDRENS PLAY



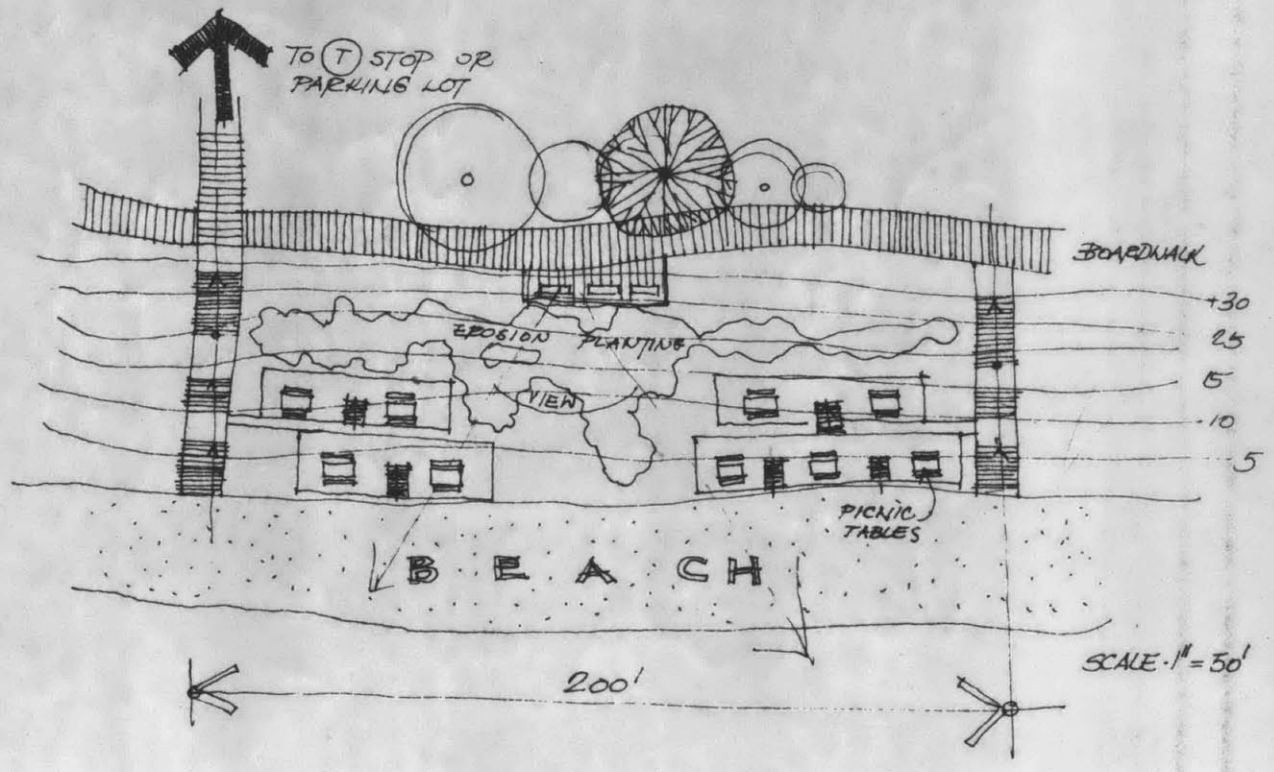
SCALE 1"=400'

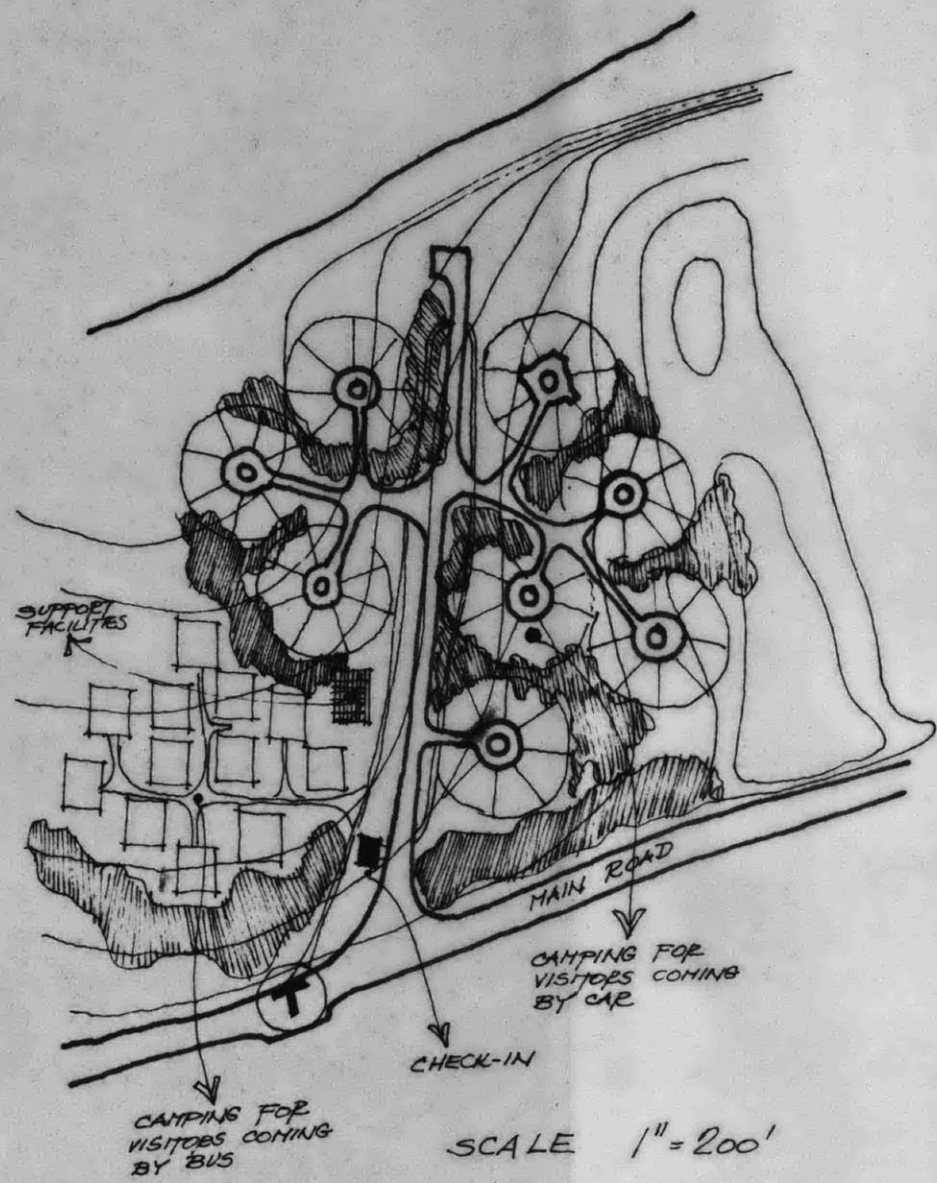
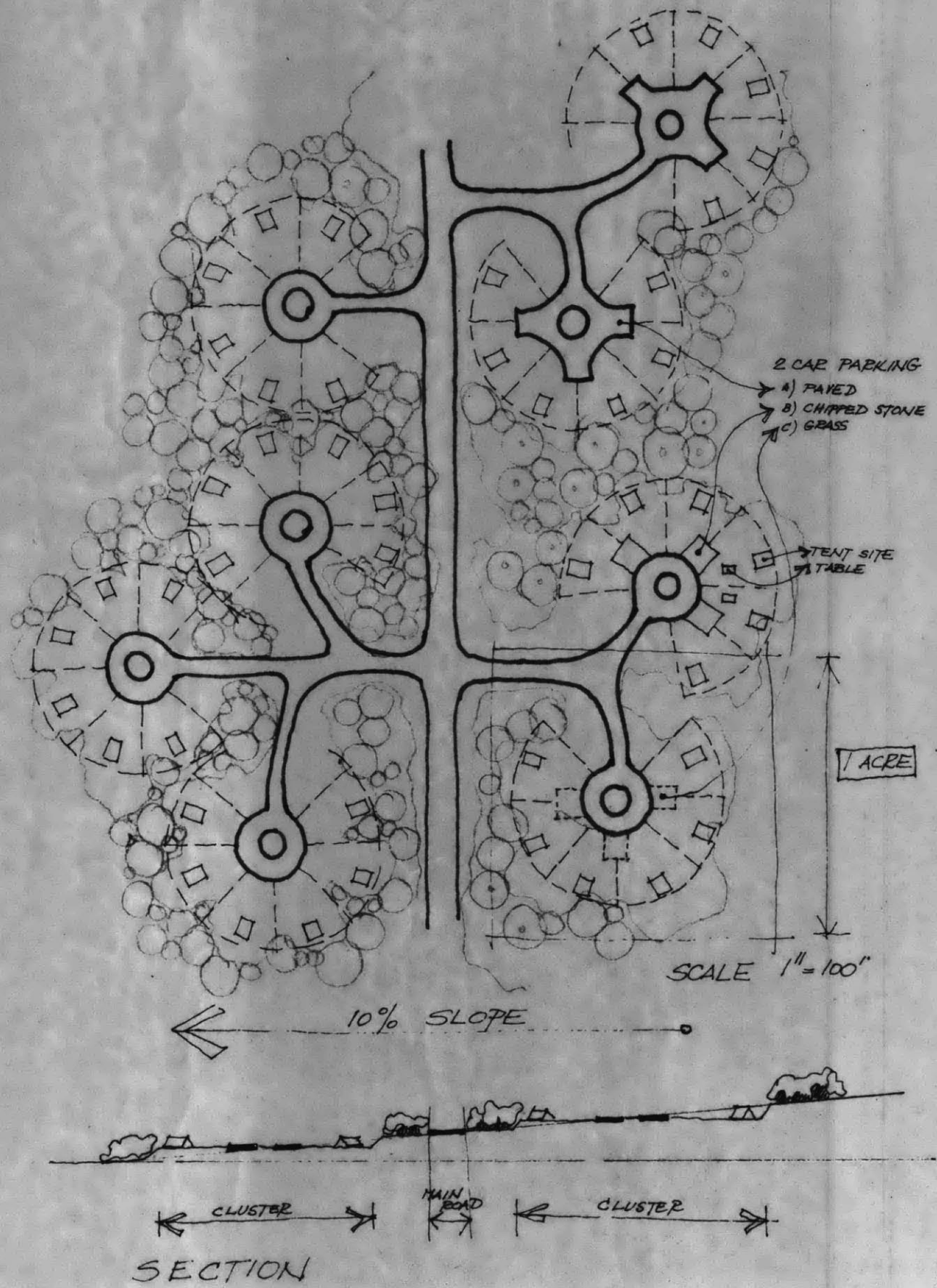
LAND USES PTA ACCESS

400 PARKINGS



TYPICAL PICNIC AREAS

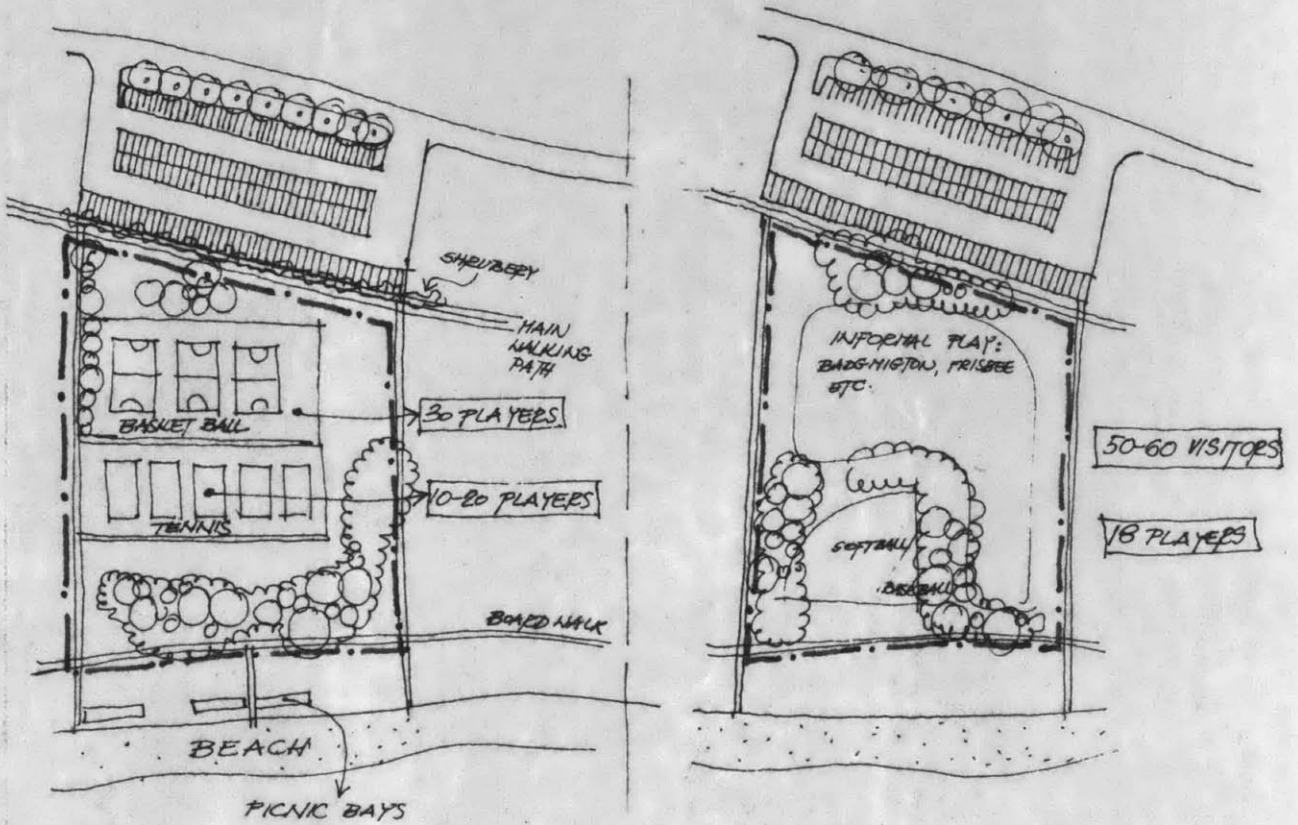
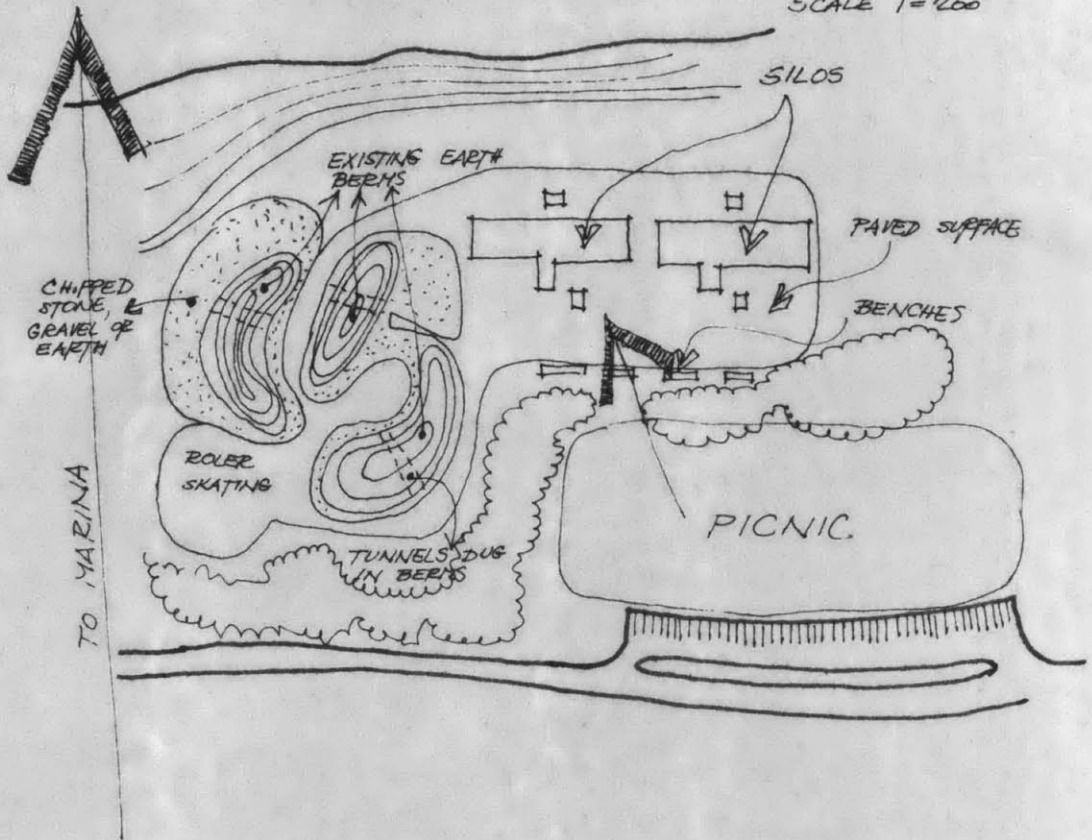




CAMPGROUND ARRANGEMENT

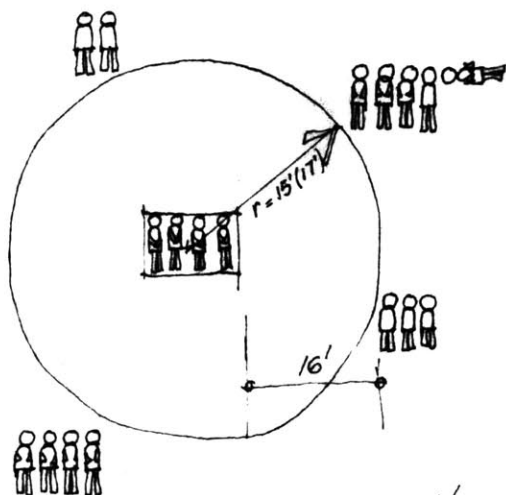
CHILDRENS' PLAYGROUND

SCALE 1"=200'



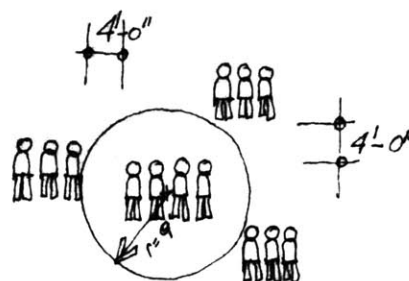
ALTERNATIVE PLAYFIELD DEVELOPMENTS

$$\pi r^2 = \text{AREA} = 706 (90?) \text{ sqft} \\ = 175 (201) / \text{person}$$



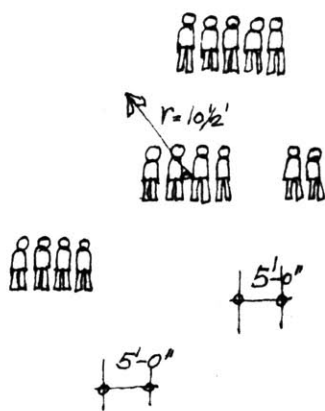
200 sqft/person

RURAL BEACH STANDARD
(BUREAU OF OUTDOOR RECREATION)



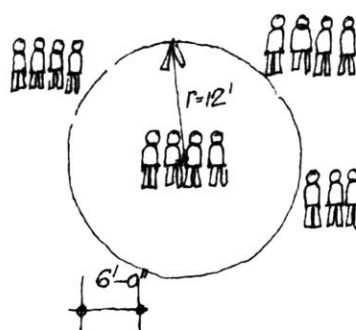
50 sqft/person

MAPC STANDARD



70 sqft/person

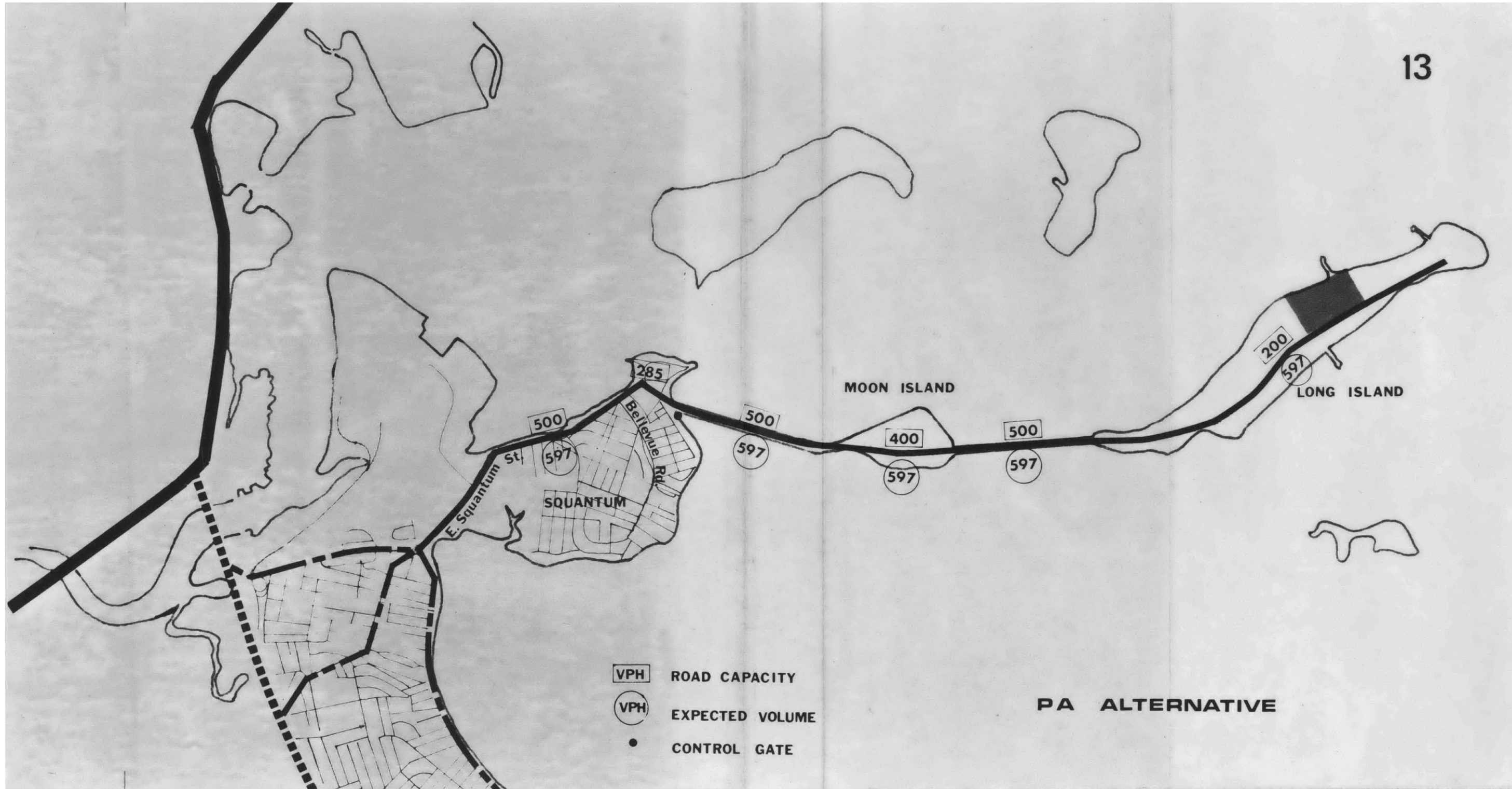
USED IN THIS STUDY
FOR LONG ISLAND



100 sqft/person
EUROPEAN STANDARD

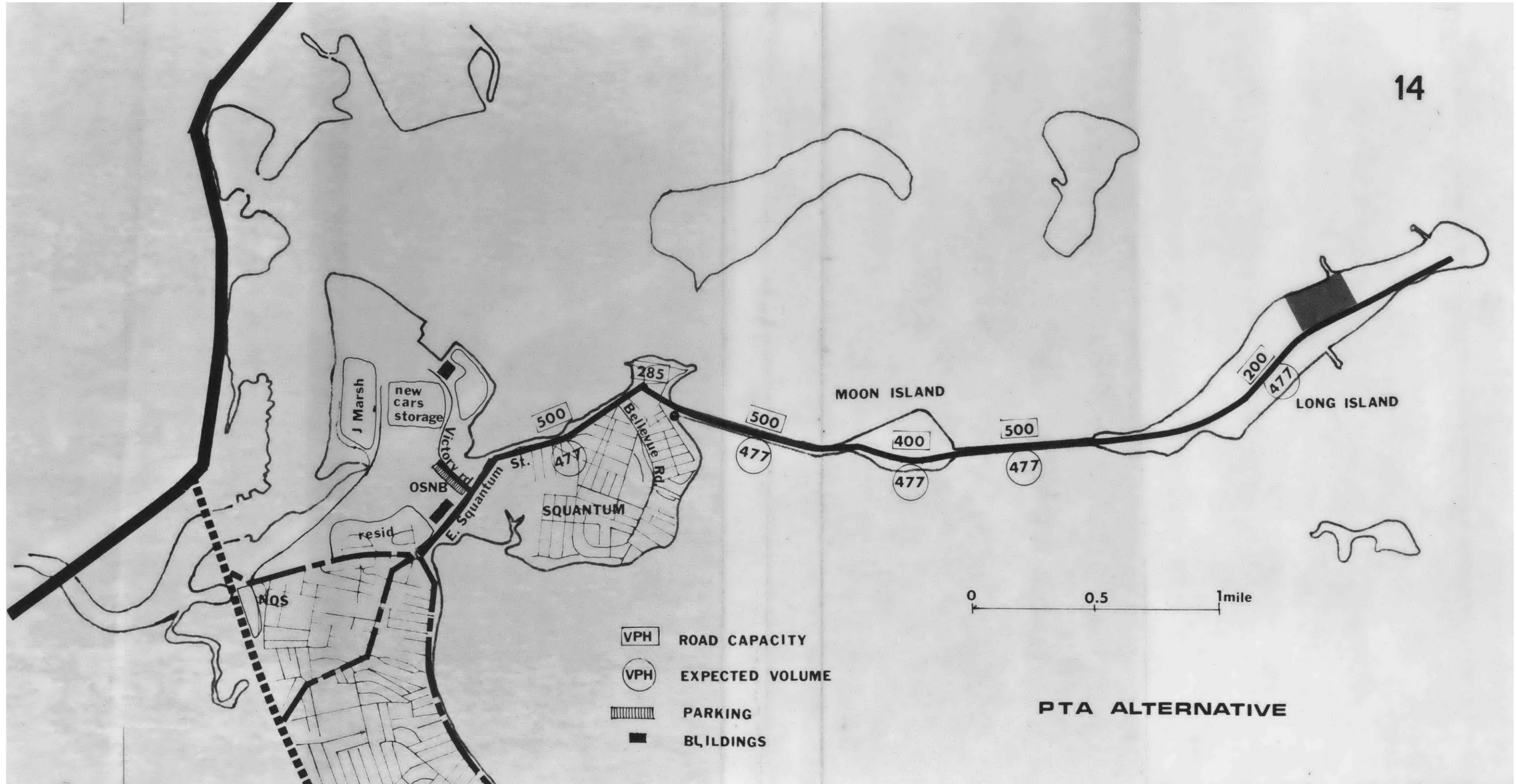
SCALE 1" = 5'-0"

BEACH DENSITY STANDARDS



VPH ROAD CAPACITY
VPH EXPECTED VOLUME
• CONTROL GATE

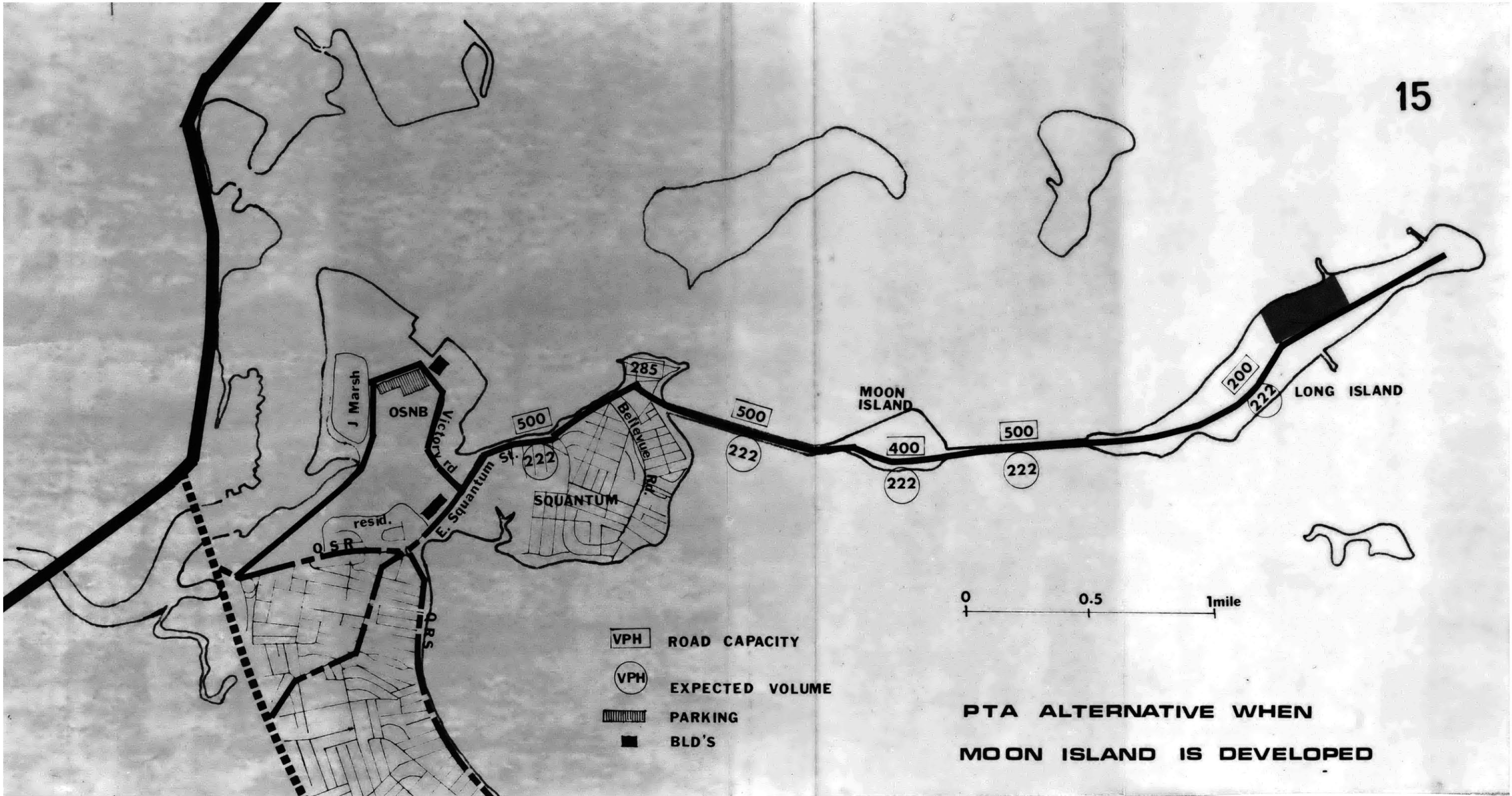
PA ALTERNATIVE

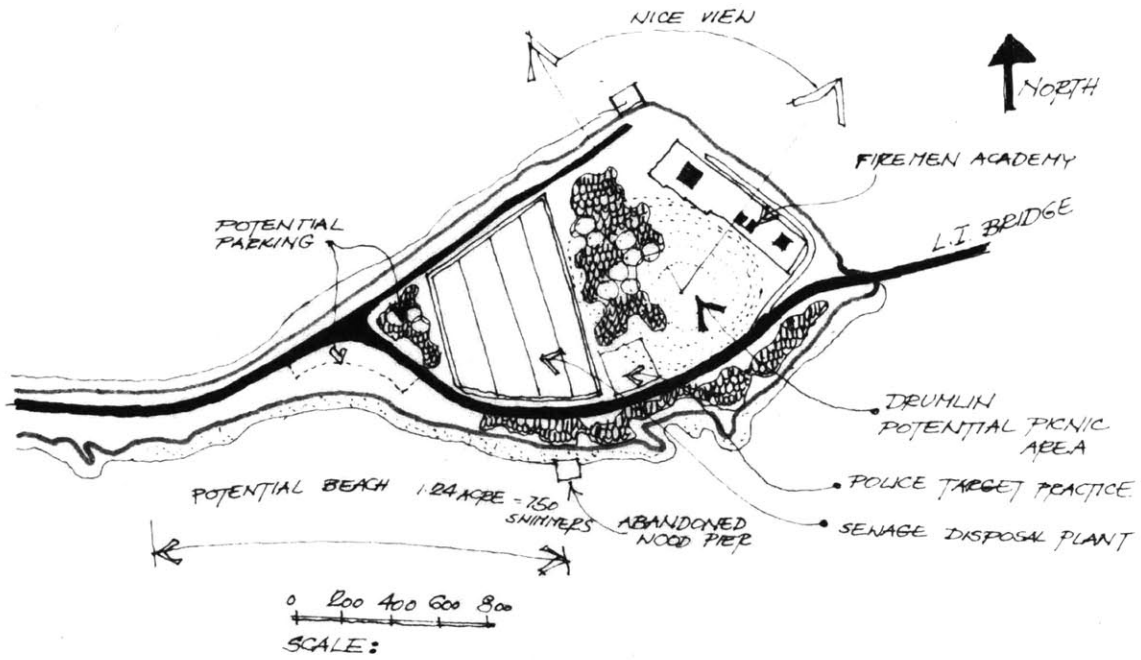


- VPH ROAD CAPACITY
- VPH EXPECTED VOLUME
- PARKING
- BUILDINGS

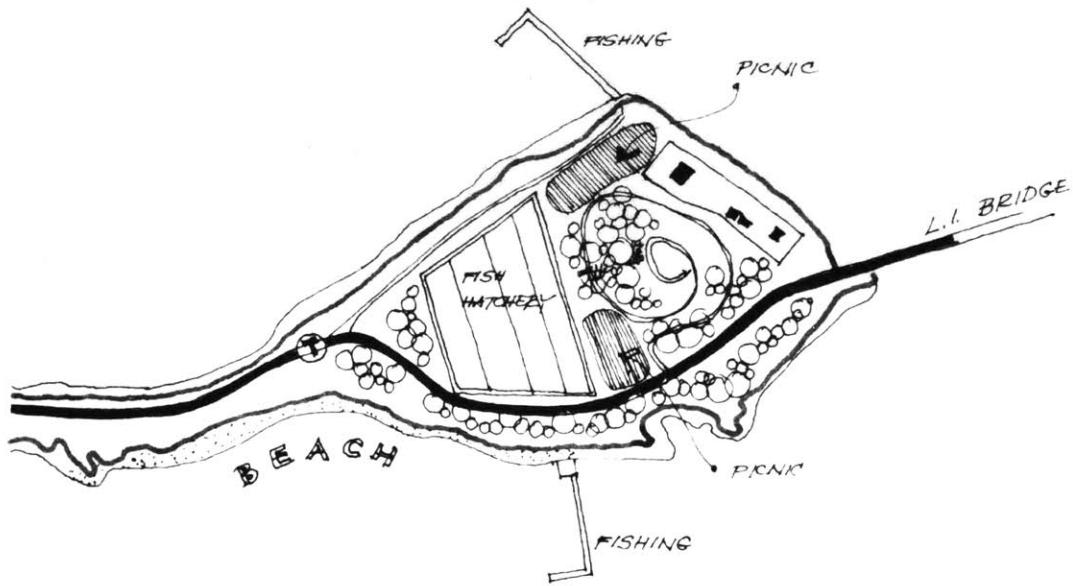
0 0.5 1mile

PTA ALTERNATIVE



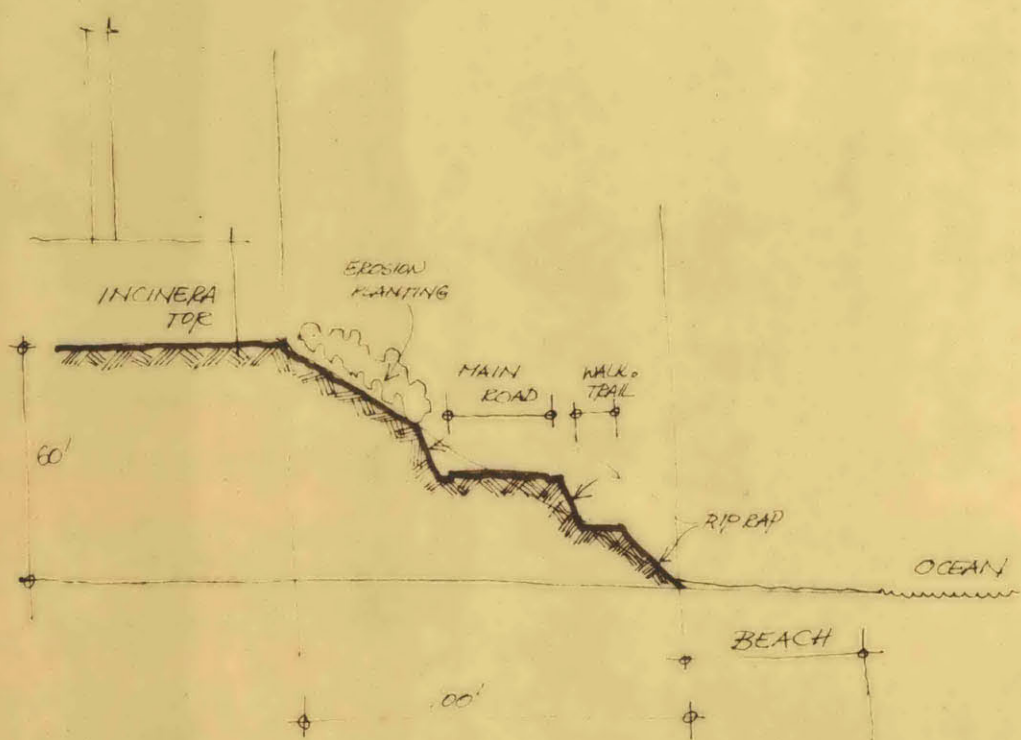


SITE ANALYSIS



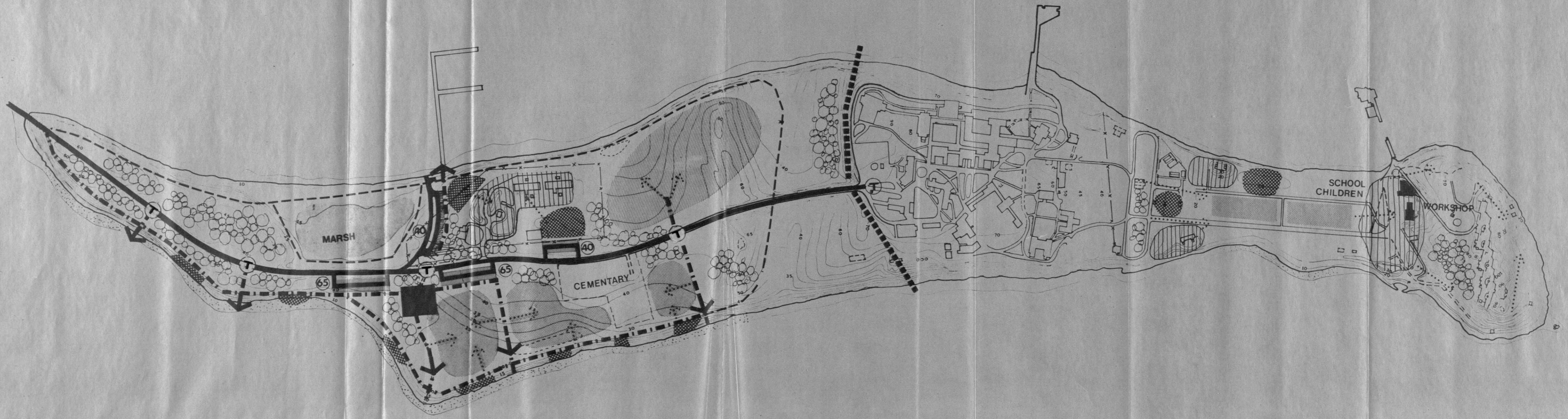
RECREATION DEVELOPMENT

MOON ISLAND



SECTION THROUGH SEA BANK AT INCINERATOR





LEGEND

- MAIN ROAD
- PEDESTRIAN CIRC:
primary
- secondary
- tertiary
- BUS STOP
- PARKING

- BEACH
- PLAYFIELDS
- PICNIC
- CENTER
- CAMPING
- CHILDRENS PLAY



SCALE 1"=400'

LAND USES FINAL PROPOSAL