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Coastal Region

By Charles Heatwole  
and Niels West

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BEACH USE AND USER CONSTRAINTS  
IN THE NEW YORK CITY COASTAL REGION

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## ABSTRACT

Improvements in mass transportation systems, particularly bus service, could even out the current overuse and underuse of beaches in the New York City coastal region. This survey of users of Coney Island, Orchard Beach, Riis Park, Great Kills, and Jones Beach showed that easy access can encourage people to use a beach they had considered undesirable. The survey, administered in the summer of 1977, questioned beach users on their transportation mode, the cost of such transportation, their socioeconomic status, perception of the physical environment, and other concerns affecting beach use.

## INTRODUCTION

In recent years several studies have addressed the supply of and demand for outdoor recreation in the United States (Dainte 1966; Tatham and Dornhoff 1971). Yet many supply and demand considerations for even the most popular leisure activities remain largely unexamined. Surprisingly few efforts have explored the relationship between existing beach facilities and their users (Cummings 1975; Kalter and Cosee 1969; Spaulding 1973) despite the fact that bathing and beachcombing appear to be the recreational activities most enjoyed by the American public (Outdoor Recreation Resources Review Commission 1962).

This general shortcoming is no less true within the specific context of the New York City coastal region.<sup>1</sup> To be sure, the beaches of New York City and of the adjacent counties on Long Island have not totally escaped scrutiny. Two efforts assessed outdoor recreational preferences in Long Island (New York State Office of Planning Coordination 1971; Kornblum 1975), while another addressed public reaction to those beaches (Cummings 1975). An additional study examined factors influencing beach attendance in the New York-New Jersey metropolitan region (West 1973). Within the city per se, the combined energies of the National Park Service and the New York City Planning Commission have been brought to bear on public use of and access to the Gateway National Recreation Area complex, two major components of which are former municipal beaches (US Department of the Interior, 1978). Moreover, the managers of virtually all beaches within the New York City coastal region collect information about their respective facilities and tabulate or estimate (usually the latter) the number of users.

Still, no effort had been made to systematically collect and analyze data on beach use and user constraints within the New York City coastal region. As a result, the service areas of the various beaches (the geographic area from which the beaches draw their users) were largely unknown, as were the

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<sup>1</sup>"New York City Coastal Region," as used in this report, refers to the five counties comprising New York City--New York (Manhattan), Bronx, Queens, Kings (Brooklyn), and Richmond (Staten Island)--and adjacent sections of Nassau County (Long Island).

socioeconomic, transportation, cost, physical environmental, and attitudinal variables which collectively encouraged or discouraged the use of particular beaches and enhanced or reduced the qualitative aspects of the beach visit.

The prospect of a study designed to explore these matters was encouraged by federal, state, and city beach managing agencies. Projections which indicate increasing beach use into the next century--even if the urban population stabilizes or declines in the interim--served only to reinforce the sense of urgency surrounding the collection of user data (Outdoor Recreation Resources Review Commission 1962; Anderson and Harvey 1970). The assembled data can make a significant contribution to the planning of new beach facilities and to the improvement of existing ones both in terms of quality and use.

The present Sea Grant funded project was designed to help alleviate these data deficiencies. Based on a combination of manager supplied information, plus data gathered by a questionnaire administered to randomly selected beach users during the summer of 1977, the project aimed at providing beach administrators with information that could, if utilized, improve use and quality of beaches within the downstate portion of New York. The objectives of the project were to:

1. Classify all federal, state, and city beaches located within the New York City coastal region on the basis of jurisdiction, location, size, access, and intensity of use.
2. Identify local versus regional beaches.
3. Select a representative sample of area beaches for detailed study on the basis of the above information.
4. Define the service area of each sampled beach.
5. Identify and analyze distance, time, cost, and conveyance factors associated with travel from home to the sampled beaches.
6. Identify and analyze perceived qualities influencing user travel to (or non-use of) the sampled beaches.
7. Determine and analyze socioeconomic profiles of the users of the sampled beaches.
8. Present recommendations and suggestions for future research.

To a large extent the organization of the report follows the outline of these objectives. After these introductory remarks, a section labelled METHODOLOGY addresses the first three objectives explaining the beach and beach user sampling designs, and the development of the questionnaire. The next major section, FINDINGS, is subdivided into five parts, one for each of the sampled beaches. The discussion describes and analyzes the service areas, access, user attitudes, and socioeconomic profiles under separate headings for each beach. The final section, RECOMMENDATIONS, summarizes the most important findings, makes recommendations for the improved use and management of area beaches, and suggests area for further research.

## METHODOLOGY

This section will describe the process of beach classification, the choice of sample beaches, the determination of beach and beach user sampling designs, and the development of the questionnaire.

### Beach Classification

In order to choose a representative sample of regional beaches for detailed study, it was first necessary to locate the regional beaches in relation to the city and to compile selected information relating to both the beaches and their users. This information would form the basis of sample selection. Preliminary investigation suggested that problems of beach number and beach definition might be considerable.

There are more than 20 stretches of coastline within the study area which are referred to as "beaches" on maps or by the user population. These range from large public city, state, and federal beaches to relatively small "private" beaches of coastal municipalities, and from beaches accessible to millions of potential users to some in relatively remote locales, albeit within the New York City coastal region.

Problems of number and kind were augmented by problems of definition. For example, Brooklyn's Coney Island Beach and its contiguous neighbor to the east, Brighton Beach, appear as distinct entities on maps as well as in the minds of local residents and users. Yet the City of New York administers both under the heading of Coney Island. How many beaches, then, is Coney Island? One or two? A similar situation exists in Staten Island where both South and Midland Beaches are administered by the city as South Beach. On a different tack, Brooklyn's Canarsie Beach, located along the northwestern shores of Jamaica Bay, is not a beach at all--at least not in the sense of a facility which permits people to use waterfront for bathing.

Realities like these made it necessary to address the question of beach definition. Accordingly, we interpreted beach to mean a stretch of sand fronting the ocean or inlet and available for bathing. Moreover, we used administrative definitions of beaches (for example, the Coney Island-Brighton Beach situation just mentioned), sometimes at the expense of cartographic or popular definitions.

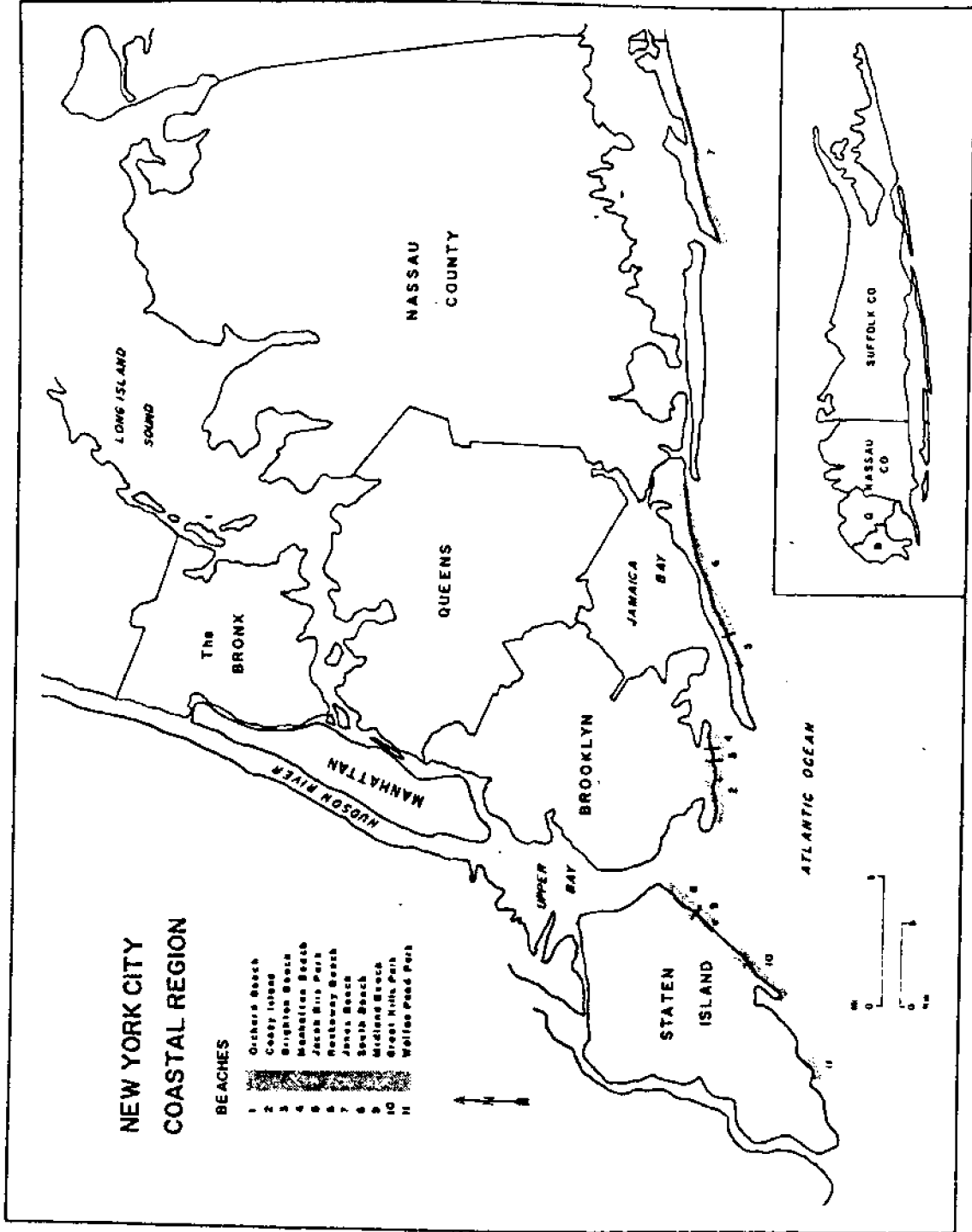


Figure 1.

In the end, pragmatism plus additional inquiry resulted in a total of nine beaches considered as potential sites for detailed study. These nine included Coney Island, Great Kills Park, Jones Beach State Park, Manhattan Beach, Orchard Beach, Riis Park, Rockaway Beach, South Beach, and Wolfes Pond Park. The distribution of these beaches is shown in Figure 1.

Some qualifications regarding the selection of this list deserve mention. The need for preliminary beach data was of prime importance since these would be used to determine sample sites. Thus, where administrators could provide preliminary, if sketchy, information the beaches were included on the list while others lacking such information were excluded. Also, the list did not include any of the "private" municipal beaches even though managers of some of these facilities were able to provide data. We reasoned that these beaches usually have predetermined clientele and service areas largely defined by the extent of the municipalities in which they are located and thus had little to offer this study. Finally, we disregarded beaches that are part of privately owned properties. The net result was the list of nine beaches, all public and all theoretically available to the residents of the New York City coastal region.

Constraints of time and money led us to select about half of these beaches for detailed study. Because of their significance in affecting use, we used the following variables to determine the final sample: length of beachfront, popularity, location, jurisdiction, access, and presumed size of the service area.

Data on length of beachfront are summarized in Table 1. Lengths varied from 7.5 miles in the case of Rockaway Beach to 0.3 miles for Manhattan Beach. Information on intensity of use revealed even more startling differences (Table 2). Daily weekday and weekend user estimates ranged from several hundred thousand for Coney Island and Rockaway Beach to a few thousand for the Staten Island beaches (Great Kills, South and Wolfes Pond). On peak summer holidays 1.5 million people use Coney Island and Rockaway Beach. Around 11,000 use Staten Island. A rough index of user densities (Table 3) reveals similar significant differences. Manhattan, Rockaway, and Coney Island Beaches were estimated to average well over 100,000 people per mile of beachfront, while 20,000 or fewer were obtained on others.



TABLE 1 BEACHFRONT LENGTH

Beach	Length
Coney Island <sup>1</sup>	3.2
Great Kills	1.0
Riis Park	1.0
Jones	6.5
Manhattan	0.3
Orchard	1.0
Rockaway	7.5
South <sup>2</sup>	2.5
Wolfes Pond	0.4
Total	23.4

<sup>1</sup>Includes Brighton Beach  
<sup>2</sup>Includes Midland Beach

TABLE 2 DAILY BEACH USER ESTIMATES<sup>1</sup>

Beach	Weekday	Weekend	Holiday
Coney Island <sup>2</sup>	400,000	650,000	1,500,000
Great Kills	3,000	12,000	20,000
Riis Park	40,000	45,000	90,000
Jones	125,000	150,000	150,000
Manhattan	20,000	45,000	60,000
Orchard	17,000	50,000	60,000
Rockaway	600,000	850,000	1,500,000
South <sup>3</sup>	1,800	2,500	4,000
Wolfes Pond	250	1,300	9,000
Total	1,207,050	1,805,800	3,393,000

<sup>1</sup>Estimates are averages and assume fair weather.  
<sup>2</sup>Includes Brighton Beach  
<sup>3</sup>Includes Midland Beach

Source: Beach manager estimates

Location characteristics may be gleaned from Figure 1. All counties within the New York City coastal region are accounted for with the exception of New York County (Manhattan), which contains no beaches. Coney Island, Manhattan, Orchard, South, Rockaway, and Wolfes Pond Beaches are all under the City of New York jurisdiction. The State of New York manages Jones Beach. The Federal Government manages Great Kills and Riis Park, both former city beaches, as units of Gateway National Recreation Area.

Most people get to the beach by mass transit or private automobiles. Coney Island, Manhattan, and Rockaway Beaches were the only beaches served directly by both bus and subway. Each also supplied parking, albeit limited. Great Kills, South, Wolfes Pond, Orchard, and Riis Park were all accessible (during beach season) by direct public bus routes. Subway service was limited, however, in that each facility was approximately a mile from the nearest station. All provided ample parking facilities. Finally, Jones Beach, which has 24,000 parking spaces, was accessible almost entirely by private transportation (auto) although some public bus routes do serve this beach during the summer.

Each beach manager was asked to classify his facility as "local" or "regional." We defined local beach as one drawing its clientele mainly from immediate residential areas and the county in which the beach was located. Regional beaches draw their users from a larger geographic area. Based on this information Riis Park and Jones were labeled regional beaches. Coney Island is equally local and regional. The other beaches were all classified local.

Apart from these data, notations were made on parking lot sizes and fees, sports and recreational facilities, food vending, and commercially available amusements. Although any of these might attract visitors, our primary consideration in choosing sample beaches rested with length of beachfront, intensity of use, location, jurisdiction, access and extent of service area. Lastly, we noted that each facility recognizes a uniform beach season (Memorial Day to Labor Day) and that rules about picnicking on the beach (allowed) and lighting fires on the beach (disallowed) were the same at each facility.

TABLE 3 USERS PER MILE OF BEACHFRONT<sup>1</sup>

Beach	Weekday	Weekend	Holiday
Coney Island <sup>2</sup>	125,000	203,125	468,750
Great Kills	3,000	12,000	20,000
Riis Park	40,000	45,000	90,000
Jones	19,321	23,077	23,077
Manhattan	66,600	148,500	198,000
Orchard	17,000	50,000	60,000
Rockaway	80,000	113,333	200,000
South <sup>3</sup>	720	1,000	1,600
Wolfes Pond	625	3,250	22,500

<sup>1</sup> Computed by dividing daily beach use estimates in Table 2 by length of beachfront figures in Table 1.

<sup>2</sup> Includes Brighton Beach

<sup>3</sup> Includes Midland Beach

TABLE 4 BEACH INTERVIEW DATA

Beach	Interview trips	Interviews collected
Coney Island	46	945
Orchard	22	383
Riis Park	20	345
Great Kills	12	322
Jones	<u>42</u>	<u>909</u>
Total	142	2,904

### Choice of Sample Beaches

After due consideration of the assembled data, five of the nine beaches were chosen for detailed study: Coney Island, Orchard Beach, Riis Park, Great Kills, and Jones Beach. Although we had valid reasons for including any of the other beaches, the ones chosen covered the spectrum of variables. These variables are shown in the following brief sketches of each beach.

Coney Island is located in Brooklyn and managed by the city. It is a relatively large beach and the most heavily used beach in the study area. An overwhelming percentage of users are thought to arrive by mass transit while its service area is mixed between local and regional. Coney Island has many sports, recreational, and vending facilities, and a famous amusement park.

Orchard Beach is located in the Bronx and managed by the city. It is a relatively small beach whose use is moderate by local standards. By a small majority, most of its users are said to arrive by private transportation. Its service area is local. There is a moderate number of sports and vending facilities.

Riis Park is located in Queens and managed by the federal government. It is a relatively small beach and moderately used. A very high percentage of the users arrive by automobile. It has a regional service area. In comparison with the other facilities, this beach's sports and vending facilities are considered moderate.

Great Kills is on Staten Island and managed by the federal government. It is a relatively small beach and lightly populated by local standards. A large majority of the users presumably arrive by private automobile from a local service area. Sports, recreational, and vending facilities are few.

Jones Beach is located in Nassau County and managed by the State of New York. It is a large and relatively heavily used beach. An overwhelming percentage of its users arrive by automobile from a regional service area. Jones is the only facility with a swimming pool. There are few additional sports facilities. Vending operations are moderate.

### Beach and Beach User Sampling Designs

Before we could administer the user survey on each of these five beaches, we prepared a questionnaire and allocated an appropriate number of interview days to each beach. A portion of the funds awarded for this project was used to hire five student research assistants. Their job was to conduct the interviews at the beach sites. These individuals made 142 trips to the selected beaches and interviewed approximately 2,900 users. A beach-by-beach breakdown of these figures is shown in Table 4.

Allocation of trips or "interview days" was based on the user data shown in Table 2, subject to adjustments intended to guarantee a usable number of interview schedules in the beaches least visited by the public. For example, since on an average weekend day about 600,000 people use Coney Island versus about 10,000 at Great Kills, a strictly stratified sampling procedure would have required 60 Coney Island trips and interviews for every Great Kills trip. Even if allocations had been based on the users-per-frontage-mile data (Table 3), about 19 interview days would have been required at Coney Island for every Great Kills trip.

Given the total number of interview days the authors had to divide among the five beaches, rations of this sort were out of the question since they would not have generated a significant surveyed population at Great Kills. The same may be said--albeit less forcefully--for Orchard Beach and Riis Park. Hence, the operational breakdown of interview days/trips (Table 4) deliberately "over allocated" Great Kills, Orchard Beach, and Riis Park in order to ensure a representative sample of the user population. This procedure did not unduly deprive Coney Island of a higher number of interview days as dictated by its large user population.

An adjustment also was made in the case of Jones Beach which was over allocated because of the size of the facility plus the fact that Jones is compartmentalized into several stretches of beach, each of which is reputed to have its own user characteristics. Thus, the allocations for Jones had to ensure that each constituent part was adequately surveyed, lest the overall socioeconomic profile of the user population be misrepresented.

An attempt was made to spread the interview days for each beach as evenly as possible over the full 1977 beach season. Likewise, efforts were made to

ensure a proper balance of weekend versus weekday interviewing at each site. Although inclement weather occasionally disrupted the interviewers' work schedules, they achieved a good sampling schedule.

The student interviewers were instructed as to the importance of random selection of beach respondents and provided with appropriate procedures. These procedures involved establishing a series of paths, either zig-zag, parallel, or perpendicular to the shoreline, and along which the interviewer attempted to question every fifth individual or a member of every fifth group of individuals. Only one exception to this sampling procedure was allowed: individuals younger than 14 should not be interviewed. The interview range extended from the water itself to the landward border of the beach as delimited by either the presence of vegetation, a boardwalk, or a similar barrier. Although data were not kept on the incidence of interview refusals, the response rate seems to have been remarkably high--apparently in the neighborhood of 75 to 90 percent. The student interviewers generally attributed this favorable response rate to appreciative users, pleased that someone was "doing something" about the beaches.

#### Questionnaire

A copy of the questionnaire is included in the Appendix. A brief item-by-item discussion of the questionnaire follows.

Items 1 and 2, site and interview number, referred to the beach where the questionnaire was administered and the sequential number of the interview.

Items 3 and 4, date and time, were noted to ensure proper beach interview allocations, to ensure that a full day's interviewing was conducted on each beach, and also to help determine any kind of periodicity to the other items being recorded.

Items 5 - 8 determined the interviewee's place of residence and thus, cumulatively, the various areas served by the beaches. Because practice interviews suggested many respondents would be reluctant to state their street and house number (presumably for security reasons), respondents were asked to name the street corner nearest their homes. In addition to serving as basic service area data, this point (street corner) was used to determine the straight line distance between residences and the beach. Although some degree of error was implicit in using a street corner instead of the actual

place of residence to determine service areas and distance to the beach, the error was assumed to be randomly distributed and, therefore, for purposes of analysis, inconsequential.

Items 9 - 11 noted the time, mode, and cost of travel between the respondent's home and the beach. Such pertinent matters as cost and relative ease of access could play a major role in a user's decision to visit one particular beach or another.

Item 12, "How many hours will you spend here today?" was asked partly to help determine the user's trade-off between the time and money expenses to get to the beach and the actual time spent at the beach.

Items 13 - 18 probed the frequency with which the interviewee visited the beach on which he or she was being interviewed, as well as visiting other beaches within the New York City coastal region. We anticipated insights into service area stability, beach loyalty, and user travel behavior. Question 13 asked how many times the interviewee has visited this beach during the past year's beach season. Although a similar question for the current year might have seemed more relevant, responses would have varied depending upon how early or late in the season the interview took place. Alternatively, there was no guarantee that an individual's beach visitation behavior in any one year would provide a true insight into what would happen the next year. However, we felt the wording used left the least room for error.

Items 19 - 23 sought to identify user perceptions of desirable versus undesirable beaches and the reasons for these attitudes. Such insights were deemed vital inasmuch as a potential user's perceptions of beaches may equal or surpass distance, travel time, and cost factors as key variables in the decision to use or not to use a given facility.

Item 24 sought to identify patterns between beach use and how the user knew about this beach.

Items 25 - 28 asked what users look for in a beach and what the subject thought was good or bad about this beach. These questions were designed to provide user attitudes regarding actual beach use and to provide insight into how much subjects use facilities that are less than ideal.

Items 28-30 investigated whether the interviewees previously knew others at this beach. Such relationships might influence one's decision to visit the beach.

Items 31 - 33, in seeking occupational, income, and age information, sought to identify the user's socioeconomic background. Since interviewees might be reluctant to report their age and income, interviewers showed each respondent a sheet of paper (separate from the interview questionnaire itself) on which ranges of age and income were identified by a single digit number. The interviewee was asked to state the numbers which signified the appropriate age and income categories.

Items 34 and 35 identified the interviewee's sex and ethnic background, respectively. Both were determined by interviewer observation (as were all other remaining items on the questionnaire) rather than by questioning the respondent. Four ethnic categories were recognized: white, black, hispanic, and oriental.

Items 36 - 38 looked at the number of people and type of group composing the interviewee's party, and location on the beach with respect to the water's edge and other beach users. Both matters could have bearings on a respondent's perception of the beach facility.

Items 39 - 44 registered the key environmental variables--temperature, surf condition, wind, beach cleanliness, and water quality--at the time of the interview. These notations were made for purposes of correlation with user perceptions of the beach environment and other recorded variables.

The recorded data were either assigned a numerical code and recorded in the response column to the right of the question or entered directly without transformation. Entries from this response column were keypunched for computer analysis and cross tabulation. The only exceptions were the residential (street corner) data, which were plotted on a series of maps.



TABLE 5 ORIGIN OF CONEY ISLAND BEACH USERS

	Number	Percent
Manhattan	128	13.6
Brooklyn	688	73.2
Queens	70	7.5
Bronx	19	2.0
Staten Island	4	0.4
Nassau County	1	0.1
Westchester County	2	0.2
Suffolk County	1	0.1
New Jersey	19	2.0
Other	<u>8</u>	<u>0.9</u>
Total	940	100.0

TABLE 6 CONEY ISLAND USER ACCESS, BY MODE OF TRAVEL

Mode	Number	Percent	Average Time (Minutes)	Average Cost (\$)	Average Distance (Miles)
Walk	133	14.1	11	0.00	1.1
Subway	462	49.0	45	0.96	8.3
Bicycle	8	0.9	11	0.00	2.2
Bus	69	7.3	23	0.98	2.7
Automobile	252	26.7	25	2.31	5.5
Other	<u>19</u>	<u>2.0</u>			
Total	943	100.0			

## FINDINGS

### Coney Island

#### SERVICE AREA

Of the 945 users interviewed on Coney Island, 940 provided information on their borough or county of residence (Table 5). Reporting residence in Brooklyn was 72.3 percent of the sample. Manhattan and Queens were distant second and third with 13.6 percent and 7.5 percent of the sample, respectively. We can probably link the paucity of beachgoers from Staten Island with the barrier imposed by the Verrazano Narrows.

Fortunately, a significant portion of the sample yielded specific usable data on interviewees' actual place of residence. This information is shown in Figure 2.

The data reinforce the dual local-regional split in the Coney Island sample. For although Coney Island's own borough provides the greater share of the users, the dispersal distribution of the users may question a local classification.

#### ACCESS

The average trip to Coney Island covered 6.1 miles, took 33 minutes, and cost \$1.22. Naturally, these summary averages mask important distance, time, and cost differences based on mode of transit and place of residence. Greater insight into mode of travel is given in Table 6 and again in Figure 2. Perhaps the most important Coney Island access characteristic was the high reliance on mass transit. Of the 943 respondents who provided usable data on mode of travel, 531 (56.3%) had travelled to Coney Island by either subway or bus, particularly subway. None of the other sampled beaches were accessed so heavily by mass transit. Orchard Beach was second with 32.6 percent. In a way, this was to be expected because of the aforementioned subway and bus networks which focus on Coney Island. It was also worth noting the cost benefit of mass transit over automobile (Table 6).

Average distance figures plus Figure 2 showed that users placed reliance on the various modes of transit within their spatial context. As one would expect, walkers usually lived closest to the beach, followed by bicycle users. Average distances were 1.1 and 2.2 miles, respectively. Bus riders followed (2.7 mi), then automobile users (5.5 mi), and finally subway riders

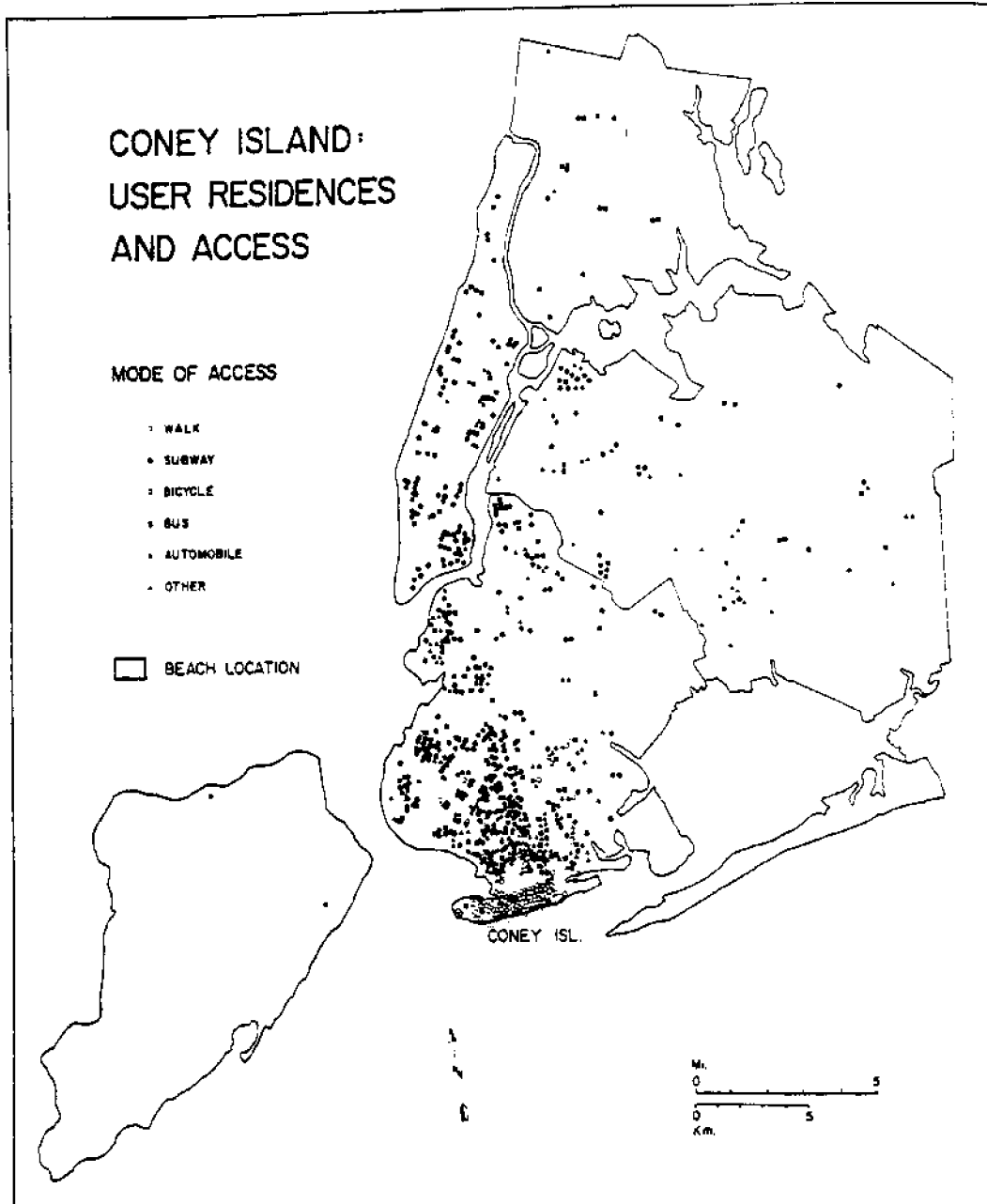


FIGURE 2

(8.3 mi). The subway and bus data were provocative for they suggested that while the subway network serviced a widely dispersed clientele, the bus network (eminently more flexible than the subway) only serviced a nearby population.

The average Coney Island respondent planned to spend about 4.6 hours at the beach and had visited Coney Island 17.9 times during the previous year. Whereas the former figure was not significantly different from data obtained on the other beaches, the number of visits was significantly higher. Two reasons may affect the high rate of repeat visitation. First, there was a very large "walk-on" population generated by the adjacent residential area. Indeed, none of the other sampled beaches had as large an adjacent population as did Coney Island. Second, there was some evidence that the relative low costs of getting to Coney Island via mass transit played a role in repeat visits, especially among the less well-to-do socioeconomic groups.

Half of the Coney Island sample had visited other area beaches during the previous year (Table 7). Riis Park topped the list with 110 visits and, like Manhattan and Rockaway Beaches, was relatively close to the core of Coney Island's service area. However, Jones Beach, which ranks second on Table 7, was several miles away and showed more Coney Island sample mobility. The Staten Island beaches were conspicuous by an absence of mention. If few Staten Islanders travelled to Coney Island, few of the people who often use Coney Island seemed to travel to Staten Island beaches. Only four interviewees had visited a Staten Island beach during the previous year. All four were residents of Staten Island.

#### ATTITUDES

Respondents were asked to identify the area beach they liked most, the area beach they liked least, and the reasons for their choices. This information is summarized in Tables 8 and 9. In general the preferred beaches were favored because of perceived environmental cleanliness, while the disliked beaches were perceived as being dirty. It was interesting that the same beaches tended to appear on both lists and that Coney Island was considered both the most liked and the least liked beach by the Coney Island sample--liked for its ease of access, disliked for its lack of cleanliness.

TABLE 7 OTHER BEACHES USED BY THE CONEY ISLAND SAMPLE

Beach	Number of Users	Percent
Riis Park	110	23.2
Jones	96	20.3
Manhattan	86	18.2
Rockaway	79	16.7
Orchard	26	5.5
Sunken Meadow	10	2.1
Fire Island	9	1.9
Others	<u>57</u>	<u>12.1</u>
Total	473	100.0

TABLE 8 BEACHES MOST LIKED BY THE CONEY ISLAND SAMPLE

Beach	Number	Percent	Predominant rationale
Coney Island	110	29.3	Easy access
Jones	91	24.3	Clean overall physical environment
Riis Park	54	14.4	Clean overall physical environment
Manhattan	38	10.1	Clean overall physical environment
Rockaway	26	6.9	Clean overall physical environment
Other	<u>56</u>	<u>15.0</u>	
Total	375	100.0	

TABLE 9 BEACHES LEAST LIKED BY THE CONEY ISLAND SAMPLE

Beach	Number	Percent	Predominant rationale
Coney Island	145	52.0	Dirty overall physical environment
Manhattan	31	11.1	Crowded
Rockaway	28	10.0	Dirty overall physical environment
Orchard	22	7.9	Dirty overall physical environment
Brighton	17	6.1	Dirty overall physical environment
Jones	13	4.7	Dirty overall physical environment
Riis Park	10	3.6	Dirty overall physical environment
Others	<u>13</u>	<u>4.6</u>	
Total	279	100.0	

Respondents were asked what they looked for in an ideal beach, what they liked most about Coney Island, and what they disliked most about Coney Island. (Tables 10, 11, and 12). Ideal beach characteristics were divided between a set of clean, pleasant physical characteristics, and a set of pleasant social characteristics (Table 10). Of these, the physical environmental factors were far more important. Of Coney Island characteristics liked most, ease of access accounted for nearly half (47.9%) of the sample while positive perceptions of the physical environment hardly registered (Table 11). On the other hand, Coney Island respondents were overwhelming in their condemnation of the beach's perceived negative physical factors (Table 12). These results suggested that the "average" Coney Island user valued a clean beach environment, thought Coney Island was dirty, but went there anyway because it was convenient.

#### SOCIOECONOMICS

Income characteristics of the Coney Island sample are shown in Table 13. The modal category, \$12,000 to \$14,999, was lower than the mode for Riis Park and Jones Beach, higher than that of Great Kills, and the same as Orchard Beach. On the whole, however, a relatively large percentage of the Coney Island sample was classified in the lower income levels. Although there were some lower income neighborhoods in the vicinity of Coney Island, easy access offered the best explanation for the low socioeconomic ranking. Cross tabulations suggested a strong relationship, both for Coney Island and in general, between income and certain modes of transportation. In particular there appeared to be significant relationships between low income and propensity to use mass transit and between high income and use of privately owned automobiles. Accordingly, beaches served by mass transit apparently can expect to attract a relatively large percentage of low income people, while those beaches not served by mass transit apparently are used by a more affluent clientele.

In terms of occupation, the Coney Island sample ranked lowest among the five beaches in the percentage of professional people (doctors, lawyers, and dentists) and second lowest in the white collar category (Table 14). This situation dovetailed nicely with the income rationale offered above. On the other hand, Coney Island's retired person and housewife percentages ranked the highest of any of the samples beaches. This probably reflected

TABLE 10 IDEAL BEACH CHARACTERISTICS IDENTIFIED  
BY THE CONEY ISLAND SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	442	47.6
Clean sand	108	11.6
Sun	89	9.6
Solitude	42	4.5
Clean water	40	4.3
Opportunity to meet opposite sex	37	4.0
Relaxed social environment	24	2.6
Friendly people	19	2.1
Other	<u>127</u>	<u>13.7</u>
Total	928	100.0

TABLE 11 CONEY ISLAND CHARACTERISTICS MOST LIKED  
BY THE CONEY ISLAND SAMPLE

Characteristic	Number	Percent
Easy access	394	47.9
Amusement rides	74	9.0
Friendly people	34	4.1
Clean overall physical environment	31	3.8
Solitude	30	3.6
Clean water	30	3.6
Presence of friends	22	2.7
Nothing	22	2.7
Large beach	21	2.6
Other	<u>165</u>	<u>20.0</u>
Total	823	100.00

TABLE 12 CONEY ISLAND CHARACTERISTICS LEAST LIKED  
BY THE CONEY ISLAND SAMPLE

Characteristics	Number	Percent
Dirty overall physical environment	499	60.9
Nothing	85	10.4
Dirty sand	52	6.3
Glass on beach	32	3.9
Crowded	25	3.0
Dirty water	21	2.6
Other	<u>106</u>	<u>12.9</u>
Totals	820	100.0

TABLE 13 INCOME OF THE CONEY ISLAND SAMPLE

Income	Number	Percent
Under \$3,000	78	11.8
\$3,000 to \$5,999	56	8.5
\$6,000 to \$8,999	73	11.1
\$9,000 to \$11,999	84	12.8
\$12,000 to \$14,999	131	19.9
\$15,000 to \$17,999	123	18.7
\$18,000 to \$20,999	59	8.9
\$21,000 to \$23,999	24	3.6
\$24,000 and more	<u>31</u>	<u>4.7</u>
Total	659	100.0

TABLE 14 OCCUPATIONS OF THE CONEY ISLAND SAMPLE

Occupation	Number	Percent
Student	252	27.1
Blue collar	185	19.9
White collar	246	26.4
Professional	24	2.6
Retired	66	7.1
Housewife	123	31.2
Unemployed	<u>35</u>	<u>3.7</u>
Total	931	100.0



TABLE 15 AGES OF THE CONEY ISLAND SAMPLE

Age	Number	Percent
Under 16	57	6.2
16 - 20	176	19.1
21 - 25	173	18.7
26 - 30	127	13.7
31 - 35	113	12.2
36 - 40	71	7.7
41 - 45	42	4.6
46 - 50	47	5.1
51 - 55	28	3.0
56 and above	<u>90</u>	<u>9.7</u>
Total	924	100.0

TABLE 16 ORIGIN OF ORCHARD BEACH USERS

	Number	Percent
Manhattan	27	7.2
Brooklyn	3	0.8
Queens	27	7.2
Bronx	287	75.3
Staten Island	0	0.0
Nassau County	0	0.0
Westchester County	25	6.6
Suffolk County	0	0.0
New Jersey	3	0.8
Other	<u>8</u>	<u>2.1</u>
Total	380	100.0

TABLE 17 ORCHARD BEACH USER ACCESS, BY MODE OF TRAVEL

Mode	Number	Percent	Average Time (Minutes)	Average Cost (\$)	Average Distance (Miles)
Walk	12	3.1	23	0.00	2.4
Subway	15	3.9	27	2.26	7.4
Bicycle	6	1.6	28	0.00	2.6
Bus	110	28.7	33	1.24	4.5
Automobile	206	53.8	22	3.04	5.0
Other	<u>34</u>	<u>8.9</u>			
Total	383	100.0			

the large "walk-on" population from surrounding housing complexes.

Ages of the Coney Island sample are shown in Table 15. The sample percentages reflecting both extreme age groups (under 16 years of age and 56 years and older) were the highest recorded on the five beaches. On the other hand the percentage for the 21 to 25 age range as compared to the other beaches was the lowest. Mass transit may have provided the youthful element, while the large fringing population offered the best rationale for the substantial number of older people. No reason was evident for the lower turn out of the 21 to 25 age group.

#### Orchard Beach

##### SERVICE AREA

Of the 383 users interviewed on Orchard Beach, 380 provided classifiable data on their borough or county of residence (Table 16). True to earlier characterization, Orchard Beach emerged as a "local" facility inasmuch as 75.3 percent of the sample came from the Bronx -- Manhattan (7.2%), Queens (7.2%), and Westchester County (6.6%) followed. Of the 380 interviewees, none came from Staten Island, Nassau County, or Suffolk County. Figures for users who provided more specific information on their place of residence are shown in Figure 3.

##### ACCESS

The average trip to Orchard Beach covered 4.8 miles, took 27 minutes, and cost \$2.31. The distance and time averages were lower than those for Coney Island and probably resulted from Orchard's less convenient mass transit linkages and Coney Island's greater fame (assumed to help create a larger service area). On the other hand, the average travel cost to Orchard Beach was nearly twice Coney Island's. This was best explained because 53.8 percent of the arrivals at Orchard Beach were by automobile (Table 17), as opposed to 26.7 percent at Coney Island. Fuel, toll, and parking fees for Orchard Beach users added up to much more than the average subway fare. However, average bus and subway fares to Orchard Beach also were significantly higher than the Coney Island figures. This was due to the limited direct mass transit service to Orchard Beach which necessitated many double (even triple) fares. Nevertheless, mass transit use to Orchard Beach was

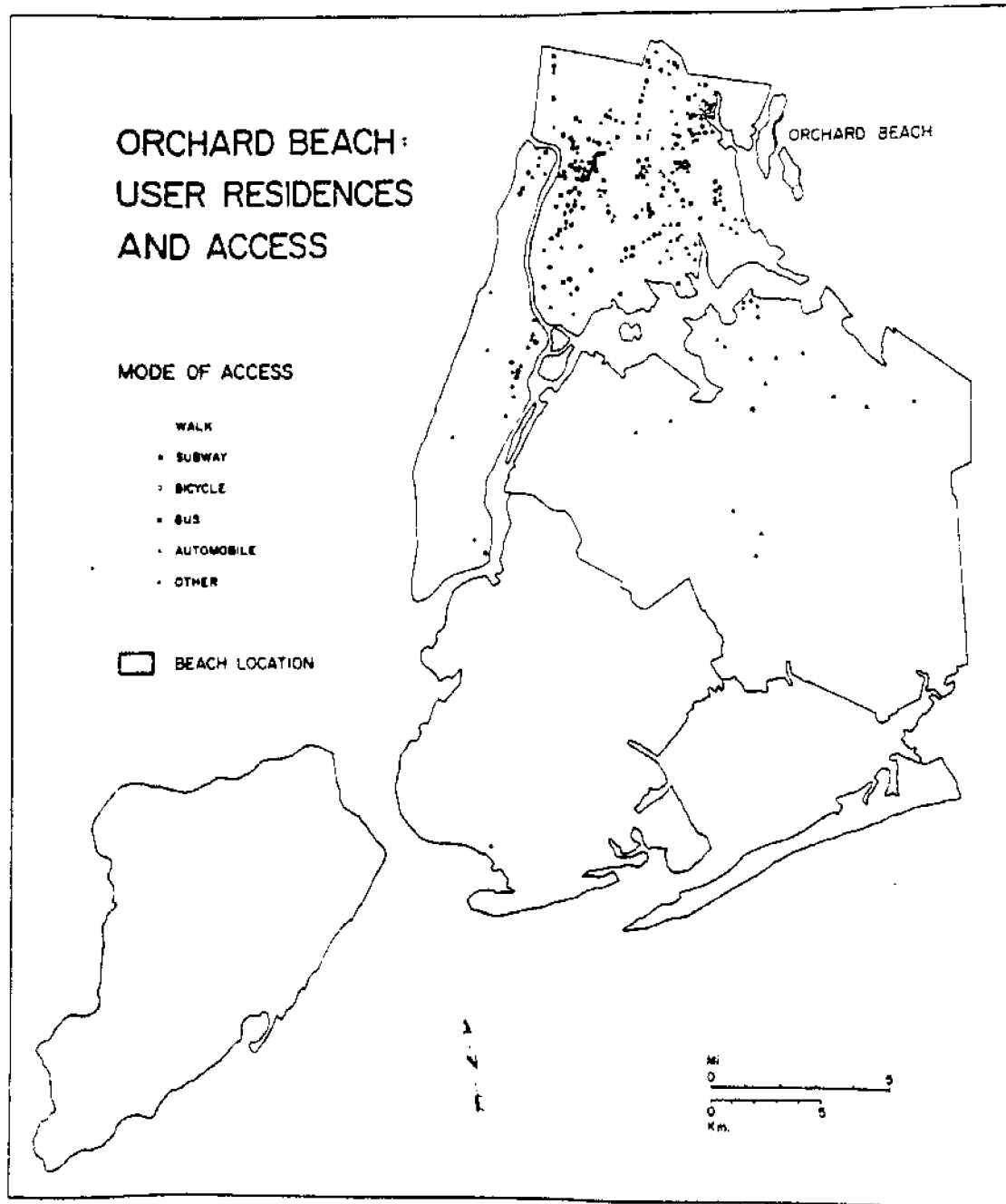


FIGURE 3

substantial. Indeed, the access characteristics of this beach showed a better balance between the auto and mass transit than any of the other sampled beaches.

As in the case of Coney Island, walkers tended to live closest to the beach (2.4 mi), followed by bicyclers (2.6 mi), bus riders (4.5 mi), automobile users (5.0 mi), and subway riders (7.4 mi). The major difference between these and the Coney Island figures was that the average travel distance for Orchard bus users was about two miles more. Apparently this was because the bus was the best (often the only) mass transit choice offered to Bronx users of Orchard Beach. Several cross-Bronx lines or connections radiated outward from the Orchard area while the subway network generally followed a northeast-southwest orientation to speed travelers to and from Manhattan. The relative utility of the bus network versus the subway network appears in Table 17. Some 28.7 percent of the sample arrived at Orchard Beach by bus as opposed to only 3.9 percent by subway.

The average Orchard Beach respondent planned to spend about 4.8 hours on the beach and had visited Orchard Beach 13.4 times during the previous year. Neither of these figures represented significant departures from the averages for the other sampled beaches.

Of the 383 Orchard Beach interviewees, 187 (48.8%) reported visits to other beaches during the previous year (Table 18). It was interesting that Jones Beach, farther from Orchard than any other beach reported on this list, received 41.7 percent of the visits. The actual number of visits to Jones, 78, was nearly three times the total of the second place beach, Rockaway. All of the other city beaches were mentioned as well (either named in the table or masked under the "Other" category) except those on Staten Island, none of which were mentioned.

#### ATTITUDES

Respondents who had visited other area beaches were asked to identify the beach they liked most, the one they liked least, and the reasons for their choices (Tables 19 and 20). The respondents preferred Jones Beach which mustered nearly half of the responses given for this questionnaire item. As in the case of the Coney Island sample, "clean overall physical environment" emerged as the major positive beach preference rationale.

TABLE 18 OTHER BEACHES MOST FREQUENTLY USED BY THE ORCHARD BEACH SAMPLE

Beach	Number of users	Percent
Jones	78	41.7
Rockaway	28	15.0
Coney Island	21	11.2
Riis Park	17	9.1
Brighton	9	4.8
Rye	9	4.8
Other	<u>25</u>	<u>13.4</u>
Total	187	100.0

TABLE 19 BEACHES MOST LIKED BY THE ORCHARD BEACH SAMPLE

Beach	Number	Percent	Predominant rationale
Jones	75	49.7	Clean overall physical environment
Orchard	33	21.9	Easy access
Rockaway	12	8.0	Surf
Riis Park	10	6.6	Solitude
Other	<u>21</u>	<u>13.8</u>	
Total	151	100.0	

TABLE 20 BEACHES LEAST LIKED BY THE ORCHARD BEACH SAMPLE

Beach	Number	Percent	Predominant rationale
Orchard	72	61.5	Dirty overall physical environment
Coney Island	16	13.7	Dirty overall physical environment
Rockaway	11	9.4	Dirty overall physical environment
Jones	8	6.8	Lack of access
Other	<u>10</u>	<u>8.6</u>	
Total	117	100.0	

Orchard itself ranked second in preference with 21.9 percent of the responses because of easy access. On the negative side, Orchard was chosen by 61.5 percent of the respondents as being the beach they liked least. The other top candidates for least liked beach, Coney Island, Rockaway, and Jones, lagged far behind. Orchard, Coney Island, and Rockaway were condemned on the basis of the perceived dirtiness of their physical environments. The major complaint about Jones was its perceived lack of access.

Respondents were also asked what they looked for in an ideal beach, what they liked about Orchard Beach, and what they disliked about Orchard Beach (Tables 21, 22, and 23). Once again perceived ideal characteristics were divided between a set of positive physical environmental characteristics and a set of positive social characteristics. Clearly, the former was more important as confirmed by Table 21. But when examining what the sample liked most about Orchard Beach, positive physical factors were seldom mentioned (Table 22). Like the Coney Island group, easy access was again the major reason with positive social characteristics generally following. As for the least liked perceived characteristics (Table 23), a dirty overall physical environment accounted for 51.4 percent of responses with dirty water a distant second. The result suggested the average Orchard Beach user values a clean and pleasant physical environment, thought Orchard Beach was somewhat dirty, but went there anyway because it was easy to get to.

#### SOCIOECONOMICS

Income characteristics of the Orchard Beach sample are shown in Table 24. The modal category, \$12,000 to \$14,999, was lower than the modes for Riis Park and Jones Beach, higher than Great Kills, and the same as Coney Island. This category proved to be a good measure of central tendency for the Orchard sample in that the three groups ranging from \$9,000 to \$18,999 accounted for 42.7 percent of the population, while relatively few visitors registered in either the high or low income extremes. These data reflected the general income status in northern and central Bronx, which coincided with the core of the beach's service area. Once again cross-tabulations revealed significant relationships between low income and propensity to use mass transit (mainly the bus in the case of Orchard Beach) and between high income and propensity to travel by automobile.

TABLE 21 IDEAL BEACH CHARACTERISTICS IDENTIFIED  
BY THE ORCHARD BEACH SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	145	39.1
Clean water	40	10.8
Sun	40	10.8
Clean sand	32	8.6
Opportunity to meet opposite sex	18	4.9
Solitude	15	4.0
Free activities	13	3.5
Other	<u>68</u>	<u>18.3</u>
Total	371	100.0

TABLE 22 ORCHARD BEACH CHARACTERISTICS MOST LIKED  
BY THE ORCHARD BEACH SAMPLE

Characteristic	Number	Percent
Easy access	204	59.1
Opportunity to meet opposite sex	15	4.3
Friendly people	13	3.8
Free activities	11	3.2
Clean water	11	3.2
Beach facilities	10	2.9
Other	<u>81</u>	<u>23.5</u>
Total	345	100.0

TABLE 23 ORCHARD BEACH CHARACTERISTICS LEAST LIKED  
BY THE ORCHARD BEACH SAMPLE

Characteristic	Number	Percent
Dirty overall physical environment	164	51.4
Dirty water	31	9.7
Nothing	30	9.5
Crowded	24	7.6
Unfriendly people	10	3.1
Glass on beach	10	3.1
Small beach	10	3.1
Other	<u>40</u>	<u>12.5</u>
Total	319	100.0

TABLE 24 INCOMES OF THE ORCHARD BEACH SAMPLE

Income	Number	Percent
Under \$3,000	25	8.7
\$3,000 to \$5,999	21	7.3
\$6,000 to \$8,999	28	9.8
\$9,000 to \$11,999	44	15.4
\$12,000 to \$14,999	62	21.7
\$15,000 to \$17,999	56	19.6
\$18,000 to \$20,999	28	9.8
\$21,000 to \$23,999	10	3.5
\$24,000 and more	<u>12</u>	<u>4.2</u>
Total	286	100.0

TABLE 25 OCCUPATIONS OF THE ORCHARD BEACH SAMPLE

Occupation	Number	Percent
Student	90	23.6
Blue Collar	80	21.0
White Collar	104	27.3
Professional	15	3.9
Retired	11	2.9
Housewife	66	17.3
Unemployed	<u>15</u>	<u>4.0</u>
Total	381	100.0



TABLE 26 AGES OF THE ORCHARD BEACH SAMPLE

Age	Number	Percent
Under 16	6	1.6
16 - 20	66	17.6
21 - 25	89	23.8
26 - 30	76	20.3
31 - 35	49	13.1
36 - 40	18	4.8
41 - 45	23	6.2
46 - 50	13	3.5
51 - 55	16	4.3
56 and above	<u>18</u>	<u>4.8</u>
Total	374	100.0

TABLE 27 ORIGIN OF RIIS PARK BEACH USERS

	Number	Percent
Manhattan	37	10.8
Brooklyn	197	57.1
Queens	88	25.5
Bronx	6	1.7
Staten Island	5	1.4
Nassau County	0	0.0
Westchester County	1	0.3
Suffolk County	1	0.3
New Jersey	6	1.7
Other	<u>4</u>	<u>1.2</u>
Total	345	100.0

TABLE 28 RIIS PARK BEACH USER ACCESS, BY MODE OF TRAVEL

Mode	Number	Percent	Average Time (Minutes)	Average Cost (\$)	Average Distance (Miles)
Walk	6	1.7	33	0.00	5.1
Subway	5	1.5	57	1.60	8.0
Bicycle	1	0.3	25	0.00	5.1
Bus	31	9.0	31	1.53	7.1
Automobile	276	80.2	30	2.93	9.1
Other	<u>25</u>	<u>7.3</u>			
Total	344	100.0			

The modal occupational category for the Orchard Beach sample was "white collar" (Table 25), a trait shared with Jones Beach and Riis Park. The blue collar percentage for Orchard Beach was 21.0, the highest of any sample population. What these figures most signified was the middle income nature of the service area.

Age characteristics are shown in Table 26. The modal category, 21 to 25 years, was older than the modal category for Coney Island and Jones Beach (16 to 20 yrs), younger than the mode for Riis Park (26 to 30 yrs) and the same as Great Kills. Perhaps the only peculiarity of the age structure was the low representation in the under 16 age category (1.6%). Only Riis Park had fewer responses falling in this category (0.3%).

### Riis Park

#### SERVICE AREA

All 345 users interviewed at Riis Park provided classifiable data on their borough or county of residence (Table 27). Riis Park was unique in that the modal borough, Brooklyn, was not the same one in which the beach was located. This situation, of course, was explained by the park's location near the tip of the Rockaway Peninsula (Queens), which put Riis much nearer highly populated sections of Brooklyn than those of Queens. This beach was also unique in that at least one percent of the sample came from each borough of the city. Riis lived up to its "regional" billing, as opposed to local (Figure 4). A "regional" characterization was interesting for a city beach poorly served by mass transit. One reason for its strong drawing power was its socially liberated nature. Riis was the only beach in the city where nude bathing was tolerated, and appeared to be the favorite beach among New York's homosexual population. The result was somewhat specialized clientele drawn from all parts of the city. Other and probably more important reasons for Riis Park's drawing power will be discussed below.

#### ACCESS

The average trip to Riis Park covered 9.0 miles, took 34 minutes, and cost \$2.70. All these averages were higher than the other sampled city beaches with the exception of Jones Beach. Perhaps these figures were affected disproportionately by the few individuals who traveled from

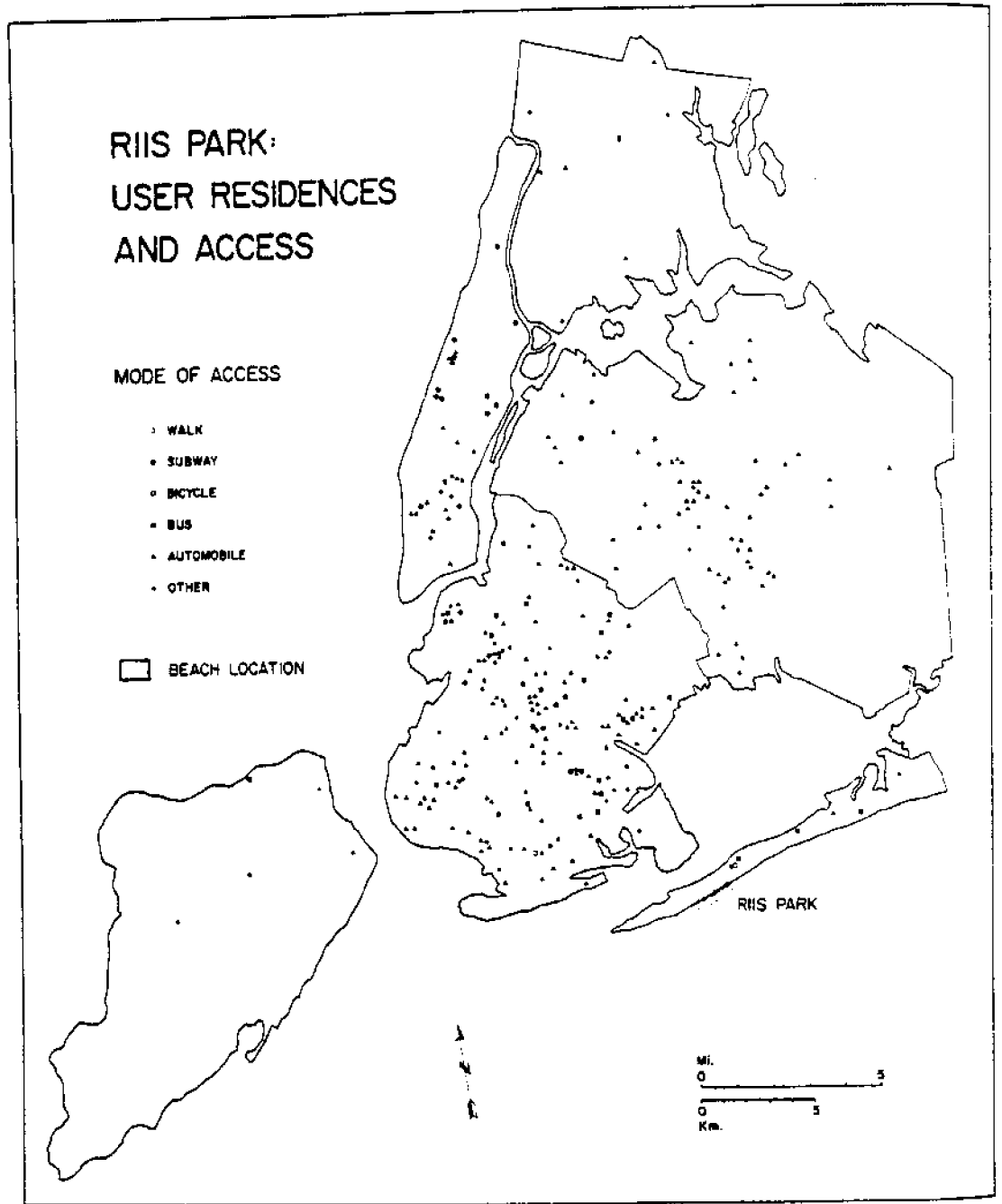


FIGURE 4

relatively distant areas like New Jersey, Westchester County, and Suffolk County. Nonetheless, comparison of Figure 4 with the maps for the other city beaches suggests higher averages probably would have resulted even if the "out of town" respondents were controlled. This was particularly true of the average travel cost. Bridge tolls and parking fees were mandatory for nearly all automobile users, while double (occasionally triple) fares were the norm for the average mass transit user. The tabulations suggested that Riis Park was the most expensive city beach to visit.

The rather paltry showing for mass transit was the most important Riis Park access characteristic (Table 28). Only 5 of the 345 interviewees had travelled by subway and 31 by bus. An additional 21 arrived by a bus-subway combination and were accounted for in the "other" category. These 57 individuals represented 16.6 percent of the people who provided usable access data. The nearest subway stop was a mile from the beach and bus service was also limited. Since both required at least double fares for most passengers, perhaps one should be surprised that so many people actually did use mass transit.

In stark contrast was access by automobile. Automobile transported 80.2 percent of the visitors, in spite of a high average travel cost with bridge and parking tolls. At the other extreme, the combined percentage for walkers and bicyclers was the lowest for any sampled city beach. This probably reflected the small population living within the immediate vicinity of Riis Park as dictated by its peninsular location.

The results of the mode-distance tabulation were different from what had been seen at other beaches. Walkers and bicyclers again covered the shortest average travel distance (5.1 mi), followed by bus riders (7.1 mi). However, the subway and automobile rankings were reversed with automobile users generally traveling farther (an average of 9.1 to 8.0 mi). Reasons for the turnabout already have been offered.

The average Riis Park respondent planned to spend about 4.7 hours at the beach and had visited the facility 11.7 times during the previous year. Neither of these figures represented significant departures from the averages for the other sampled beaches although the repeat visitation figure was notably high for a facility having such a dispersed service area and such a limited walk-on clientele.

TABLE 29 OTHER BEACHES MOST FREQUENTLY USED  
BY THE RIIS PARK BEACH SAMPLE

Beach	Number of users	Percent
Jones	49	27.8
Manhattan	27	15.3
Coney Island	25	14.2
Rockaway	21	11.9
Brighton	17	9.7
Fire Island	8	4.6
Orchard	6	3.4
Others	<u>23</u>	<u>13.1</u>
Total	176	100.0

TABLE 30 BEACHES MOST LIKED BY THE RIIS PARK SAMPLE

Beach	Number	Percent	Predominant rationale
Riis Park	69	48.3	Clean overall physical environment
Jones	45	31.5	Clean overall physical environment
Fire Island	12	8.4	Clean overall physical environment
Rockaway	6	4.2	Clean overall physical environment
Other	<u>11</u>	<u>7.6</u>	Clean overall physical environment
Total	143	100.0	

TABLE 31 BEACHES LEAST LIKED BY THE RIIS PARK SAMPLE

Beach	Number	Percent	Predominant rationale
Coney Island	40	39.6	Dirty overall physical environment
Rockaway	18	17.8	Dirty overall physical environment
Brighton	10	9.9	Dirty overall physical environment
Manhattan	8	7.9	Crowded
Orchard	8	7.9	Dirty overall physical environment
Riis	6	5.9	Dirty overall physical environment
Other	<u>11</u>	<u>11.0</u>	
Total	101	100.0	

Of the 345 Riis Park interviewees, 176 reported visits to other beaches during the previous year (Table 29). Most of these excursions were directed to other facilities along the south coasts of Queens and Brooklyn, even though Jones Beach topped the list with 28.7 percent of all visits. A few references to Staten Island beaches were contained in the "other" category although that borough again finished last in terms of this particular questionnaire item.

#### ATTITUDES

Riis Park respondents who had visited other area beaches were asked to identify the beach they liked most, the one they liked least, and the reasons for their choices (Tables 30 and 31). Riis Park, the most favored locale, commanded 48.3 percent of the responses. This was the highest score among the four city beaches, and it was noteworthy that few preferences were given to other city beaches by the Riis Park sample. Along with all the other beaches listed, Riis was favored because of the perceived overall cleanliness of its physical environment. Pleasant social characteristics, a factor cited in previous tables, were not seen as a major choice rationale.

The major disliked beaches generally were so judged because of the perceived overall dirtiness of their physical environments (Table 31). An exception to this was Manhattan Beach, judged to be too crowded. In near total contrast to the previous table, all of the beaches that received six or more "negative votes" by the Riis sample were city beaches. Riis itself was near the bottom of the list, making it both the most liked and one of the least disliked beaches in the minds of the sampled population.

Respondents were asked what they looked for in an ideal beach, what they liked about Riis Park, and what they disliked about Riis Park (Tables 32, 33, and 34). Ideal characteristics generally followed those offered by the previously described samples (Table 32). Most Riis interviewees placed highest value on clean and pleasant environmental characteristics and attached secondary importance to positive social characteristics.

As for Riis Park itself, easy access was at the top of the list as the most liked characteristic, followed by the perceived general cleanliness of the facility, and several social factors, such as nudity where seven respondents cited nude bathing as the thing they liked most about the beach, while two said it was what they liked the least. Regarding the presence of

TABLE 32 IDEAL BEACH CHARACTERISTICS IDENTIFIED  
BY THE RIIS PARK SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	141	41.2
Clean sand	41	12.0
Sun	31	9.1
Solitude	26	7.6
Clean water	14	4.1
Opportunity to meet opposite sex	13	3.8
Pleasant environment	12	3.5
Other	<u>64</u>	<u>18.7</u>
Total	342	100.0

TABLE 33 RIIS PARK CHARACTERISTICS MOST LIKED  
BY THE RIIS PARK SAMPLE

Characteristic	Number	Percent
Easy access	95	31.8
Clean overall physical environment	53	17.7
Friendly people	27	9.0
Solitude	19	6.4
Surf	11	3.7
Beach facilities	9	3.0
Free activities	8	2.7
Other	<u>77</u>	<u>25.7</u>
Total	299	100.0

TABLE 34 RIIS PARK CHARACTERISTICS LEAST LIKED  
BY THE RIIS PARK SAMPLE

Characteristic	Number	Percent
Dirty overall physical environment	86	36.1
Nothing	45	18.9
Dirty sand	19	8.0
Crowded	15	6.3
Dirty water	8	3.4
Unpleasant on-beach behavior	8	3.4
Lack of access	7	2.9
Other	<u>50</u>	<u>21.0</u>
Total	238	100.0

homosexuals, five said it was what they liked most about Riis Park while four said it was what they liked the least. If one assumed that respondents reported their true perceptions, then these two issues did not seem to be major perceptual factors in the decision to go or not to go to Riis Park. Because of the relative remoteness of Riis Park and its lack of good mass transit connections, it was perhaps surprising that ease of access was the most prominent perceived characteristic--as it was with every other city beach. The 31.8 percent mark was, however, much lower than access figures for the other city beaches, where easy access was generally cited by about 50 percent of the samples as the most liked characteristic. Alternatively, the sample percentage who liked Riis most because of perceived overall cleanliness (17.7%) was the highest for any city beach--only slightly more so than for Great Kills (17.2%), but significantly greater than for Coney Island (3.8%) and Orchard Beach (2.0%).

Nonetheless a dirty overall physical environment headed the list of disliked perceived characteristics (Table 34). It was interesting, however, that the sample percentage that perceived Riis as dirty was the lowest of any of the sampled city beaches, and that number of people who offered to report what was "wrong" with Riis Park was significantly smaller than the number of people who offered to tell us what they like most. Indeed 18.9 percent of the people who responded to the "negative perception" question said there was nothing about the beach that they disliked. This was the highest such score recorded on the four city beaches.

In summary, Riis Park users tended to value a clean beach environment. They seem divided as to what they disliked about the beach--or even if they disliked it at all. But of those who cited negative perceptions, dirty physical qualities accounted for nearly half of the responses. Positive perceptions of Riis Park likewise showed wide variance. Although the most cited rationale was ease of access, Riis received the highest marks on perceived cleanliness on the sampled city beaches.

#### SOCIOECONOMICS

Income characteristics of the Riis Park sample are shown in Table 35. The modal category, \$15,000 to \$18,999, was the highest for any sampled city beach. Likewise, Riis showed the highest sampled percentage in the \$24,000 plus category and the lowest in the under \$3,000 category among



TABLE 35 INCOMES OF THE RIIS PARK SAMPLE

Income	Number	Percent
Under \$3,000	13	4.7
\$3,000 to \$5,999	9	3.2
\$6,000 to \$8,999	10	3.6
\$9,000 to \$11,999	32	11.5
\$12,000 to \$14,999	59	21.1
\$15,000 to \$17,999	77	27.6
\$18,000 to \$20,999	40	14.3
\$21,000 to \$23,999	13	4.7
\$24,000 and more	<u>26</u>	<u>9.3</u>
Total	279	100.0

TABLE 36 OCCUPATIONS OF THE RIIS PARK SAMPLE

Occupation	Number	Percent
Student	66	19.3
Blue Collar	61	17.8
White Collar	139	40.5
Professional	22	6.4
Retired	8	2.3
Housewife	35	10.2
Unemployed	<u>12</u>	<u>3.5</u>
Total	343	100.0

TABLE 37 AGES OF THE RIIS PARK SAMPLE

Age	Number	Percent
Under 16	1	0.3
16 - 20	46	13.4
21 - 25	85	24.7
26 - 30	93	27.0
31 - 35	53	15.4
36 - 40	19	5.5
41 - 45	15	4.4
46 - 50	11	3.2
51 - 55	8	2.3
56 and above	<u>13</u>	<u>3.8</u>
Total	344	100.0

TABLE 38 ORIGIN OF GREAT KILLS BEACH USERS

	Number	Percent
Manhattan	1	0.3
Brooklyn	11	3.4
Queens	2	0.6
Bronx	1	0.3
Staten Island	294	91.3
Nassau County	0	0.0
Westchester County	0	0.0
Suffolk County	0	0.0
New Jersey	12	3.8
Other	<u>1</u>	<u>0.3</u>
Total	322	100.0

TABLE 39 GREAT KILLS BEACH USER ACCESS,  
BY MODE OF TRAVEL

Mode	Number	Percent	Average Time (Minutes)	Average Cost (\$)	Average Distance (Miles)
Walk	6	1.9	58	0.00	2.1
Subway	0	0.0	--	----	---
Bicycle	14	4.3	15	0.00	1.7
Bus	35	10.9	42	1.12	3.7
Automobile	266	82.6	18	0.36	4.1
Other	<u>1</u>	<u>0.3</u>			
Total	322	100.0			

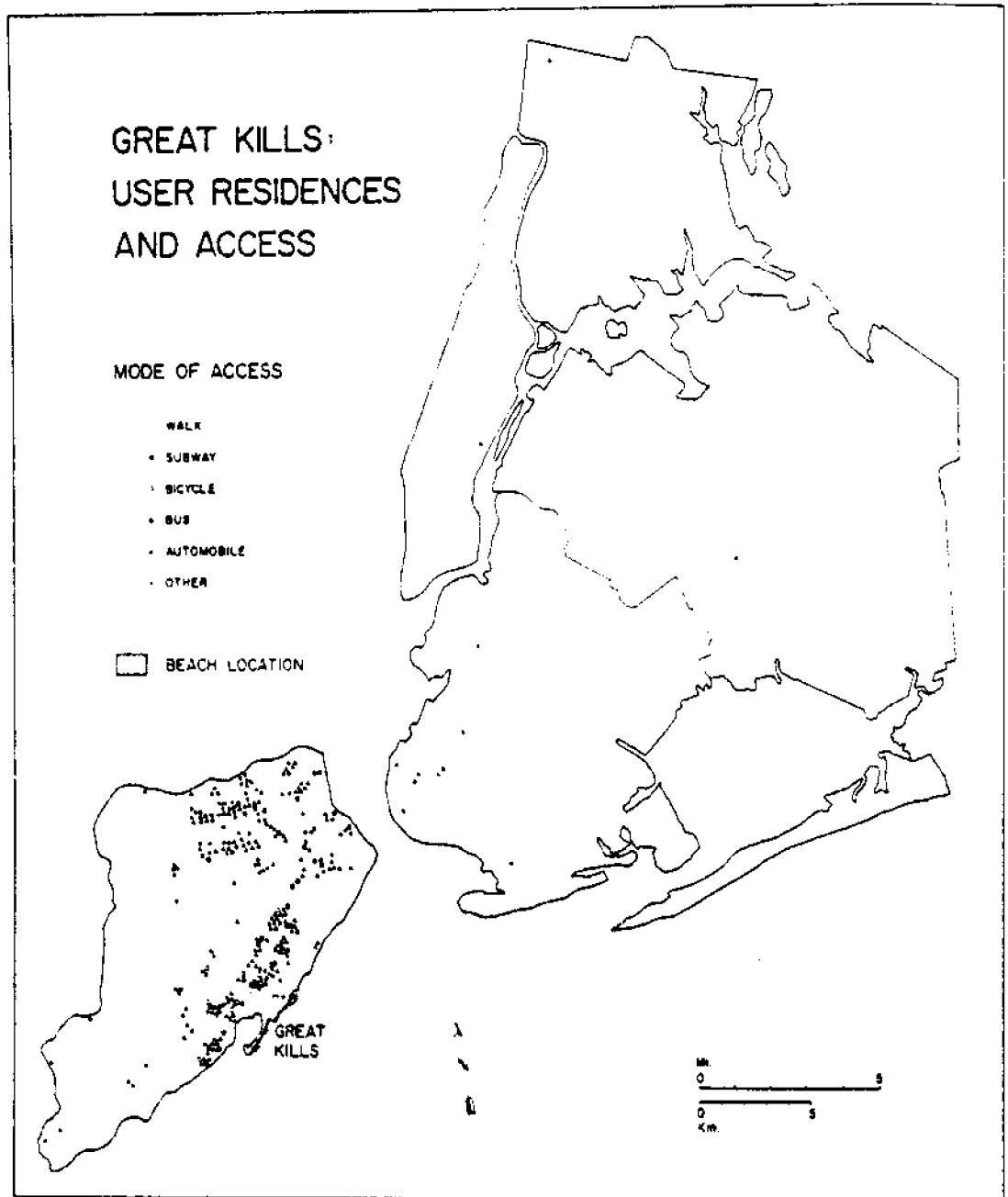


FIGURE 5

city beaches giving it a significantly more affluent clientele than its municipal counterparts. This quality may be explained best by the lack of efficient mass transit connections that seemed to be important in the recreational travel of the lower income urbanite.

Riis Park's relative affluence was again reflected in the occupational characteristics of its users (Table 36). Its white collar percentage (40.5) was much higher than the figures for the other city beaches as was the professional portion of the sample (6.4%). Conversely, Riis Park's blue collar, student, and retired percentages were the lowest among the city beaches.

The modal age category was 26 to 30 years (Table 37). This was the oldest mode recorded on the four city beaches. In further comparison with the city beaches, Riis also had the highest percentage in the 31 to 35 age bracket (15.4%) and the lowest in both the under 16 age group (0.3%) and the 16 to 20 age group (13.4%). Income and access characteristics probably best explained these figures since ownership or availability of an automobile affected who chose to visit Riis Park and who did not.

### Great Kills

#### SERVICE AREA

All of the 322 visitors interviewed at Great Kills provided classifiable information on their borough or county of residence (Table 38). The table clearly shows that 91.3 percent of the sample population resided in Staten Island. This made Great Kills the most parochial of the sampled beaches in terms of its service area and confirmed its designation as a "local" beach. Some users lived in each of the other boroughs of New York City, although cumulatively they accounted for only 4.6 percent of the sample.

Users who provided information on their place of residence are shown in Figure 5. The importance of Staten Island was reinforced thoroughly as was the apparent barrier effect of the Verrazano Narrows. The latter was shown by the small cluster of users in southwest Brooklyn and the general void elsewhere.

#### ACCESS

The average trip to Great Kills covered 3.9 miles, took 21 minutes, and cost 50 cents. Given the highly compact nature of the service area, it was

TABLE 40 OTHER BEACHES MOST FREQUENTLY USED  
BY THE GREAT KILLS SAMPLE

Beach	Number of users	Percent
Midland	38	18.9
South	36	17.9
Jones	34	16.9
Wolfes Pond	27	13.4
Riis Park	26	12.9
Coney Island	15	7.5
Rockaway	11	5.5
Other	<u>14</u>	<u>7.0</u>
Total	201	100.0

TABLE 41 BEACHES MOST LIKED BY THE  
GREAT KILLS SAMPLE

Beach	Number	Percent	Predominant rationale
Great Kills	71	39.9	Clean overall physical environment
Jones	56	31.5	Clean overall physical environment
Riis Park	22	12.4	Clean overall physical environment
Other	<u>29</u>	<u>16.2</u>	
Total	178	100.0	

TABLE 42 BEACHES LEAST LIKED BY THE  
GREAT KILLS SAMPLE

Beach	Number	Percent	Predominant rationale
South	64	37.0	Dirty overall physical environment
Midland	40	23.1	Dirty overall physical environment
Great Kills	35	20.2	Dirty overall physical environment
Wolfes Pond	17	9.8	Dirty overall physical environment
Coney Island	6	3.5	Dirty overall physical environment
Other	<u>11</u>	<u>6.4</u>	
Total	173	100.0	

not surprising that each of these averages was the lowest among the sampled beaches. An overwhelming majority of the sample traveled to Great Kills by automobile (Table 39). The 82.6 percent figure for automobile access was the highest among the sampled city beaches. The poor showing for mass transit probably reflected (1) a high degree of automobile ownership among the relatively suburban Staten Island population, (2) Great Kills' free parking lot, and (3) Staten Island's relatively poor mass transit system. In part because of the free parking lot, Great Kills was the only city beach where the average cost of automobile access was less than the average cost of mass transit. The effects of the relatively meager mass transit system on Staten Island was reflected in the table of access characteristics and likewise in the tabular and cartographic material in service area. Indeed lack of mass transit was a major factor in the beach's limited service area since bus links to other boroughs were few and subway connections were absent. As at the other beaches, walkers usually lived closest to the beach, followed by bicyclers, bus riders, and automobile users.

The average respondent planned to spend about 4.5 hours at the beach and had visited Great Kills 12.1 times during the previous year. Neither of these figures represented significant departures from averages obtained on the other beaches.

Some 200 of the Great Kills interviewees had visited other area beaches during the previous year (Table 40). Other Staten Island beaches (Midland, South, and Wolfes Pond) together accounted for 50.2 percent of the visits. Considering the parochial nature of Great Kills' service area, this proclivity was hardly surprising. What was rather surprising, however, were the relatively high visitation rates to Jones Beach and Riis Park, both of which dictated substantial distance and travel costs for residents of Staten Island. There are two likely reasons for the relatively high degree of travel to Jones and Riis. First, the extent of automobile ownership among the Great Kills sample was high and, therefore, presumably presented the potential beach goer with a variety of optional destinations. Second, next to Great Kills itself, Jones Beach and Riis Park were the beaches liked most by the Great Kills sample (Table 41). Finally, the Staten Island beaches were generally disfavored (Table 42), possibly influencing those able to go elsewhere.

TABLE 43 IDEAL BEACH CHARACTERISTICS IDENTIFIED  
BY THE GREAT KILLS SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	149	47.3
Clean sand	51	16.2
Clean water	26	8.3
Sun	25	7.9
Opportunity to meet opposite sex	13	4.1
Fishing	12	3.8
Other	<u>39</u>	<u>12.4</u>
Total	315	100.0

TABLE 44 GREAT KILLS CHARACTERISTICS MOST LIKED  
BY THE GREAT KILLS SAMPLE

Characteristic	Number	Percent
Easy access	170	54.1
Clean overall physical environment	54	17.2
Solitude	16	5.1
Fishing	13	4.2
Sun	11	3.5
Quiet	10	3.2
Other	<u>40</u>	<u>12.7</u>
Total	314	100.0

TABLE 45 GREAT KILLS CHARACTERISTICS LEAST LIKED  
BY THE GREAT KILLS SAMPLE

Characteristic	Number	Percent
Dirty sand	159	52.3
Dirty overall physical environment	62	20.4
Nothing	20	6.6
Dirty water	16	5.3
Calm water	11	3.6
Rocks and shells on beach	8	2.6
Other	<u>28</u>	<u>9.2</u>
Total	304	100.0

## ATTITUDES

The Great Kills sample favored beaches most because of the perceived overall cleanliness of the physical environment (Table 41). Conversely, they judged the least liked beaches because of their perceived overall low level of cleanliness (Table 42). Unlike the data for the previously described beaches, the Great Kills tables revealed little redundancy. Only Great Kills itself appears on each list. Otherwise the entries on Tables 41 and 42 were distinct.

Respondents were asked what they looked for in an ideal beach, what they liked about Great Kills, and what they disliked about Great Kills. The results are shown in Tables 43, 44, and 45. As in the previous cases, desirable physical qualities dominated the list of ideal characteristics (Table 43). Indeed the top four (physical) items on Table 43 accounted for 79.7 percent of the responses. Social activity characteristics were also mentioned, but, as in the cases of other beaches, these were definitely of secondary importance. As for Great Kills characteristics most liked, easy access accounted for over half (54.1%) of the responses. Easy access, of course, also topped similar lists compiled on the other city beaches. Given the general nearness of residence to beach of most Great Kills users, this response was not particularly surprising. A clean overall physical environment was the second most important positive characteristic, while a couple of activity, social, and physical qualities followed. Perceived dirtiness dominated the list of disliked qualities; dirty sand ranked first with 52.3 percent of the responses (Table 45). Four entries on Table 45 related to perceived dirtiness, and together they accounted for 80.6 percent of the responses. On the other hand, negative social characteristics (crowding and unfriendly people), on similar lists for the other city beaches, apparently were not major factors for disliking Great Kills. In summary, if a general pattern of perception versus practice emerged from these data, it was that the "average" Great Kills user valued a clean beach environment, thought that Great Kills had many dirty qualities, but would go there anyway because it was convenient and easy to get to.

## SOCIOECONOMICS

Income characteristics of the Great Kills sample are shown in Table 46. This list shows a high percentage of the sample in the low income categories.



TABLE 46 INCOMES OF THE GREAT KILLS SAMPLE

Income	Number	Percent
Under \$3,000	87	29.8
\$3,000 to \$5,999	35	12.0
\$6,000 to \$8,999	47	16.1
\$9,000 to \$11,999	41	14.0
\$12,000 to \$14,999	24	8.2
\$15,000 to \$17,999	14	4.8
\$18,000 to \$20,999	27	9.3
\$21,000 to \$23,999	8	2.7
\$24,000 and more	<u>9</u>	<u>3.1</u>
Total	292	100.0

TABLE 47 OCCUPATIONS OF THE GREAT KILLS SAMPLE

Occupation	Number	Percent
Student	112	34.9
Blue collar	66	20.6
White collar	82	25.6
Professional	13	4.1
Retired	20	6.2
Housewife	16	5.0
Unemployed	<u>12</u>	<u>3.7</u>
Total	321	100.0

TABLE 48 AGES OF THE GREAT KILLS SAMPLE

Age	Number	Percent
Under 16	18	5.6
16 - 20	83	25.8
21 - 25	98	30.4
26 - 30	39	12.1
31 - 35	11	3.4
36 - 40	17	5.3
41 - 45	11	3.4
46 - 50	17	5.3
51 - 55	7	2.2
56 and above	<u>21</u>	<u>6.5</u>
Total	322	100.0

The modal category (under \$3,000) was the lowest of any of the city beaches. Nearly 30 percent of all respondents were included under this heading. Moreover, the sample percentages in the \$3,000 to \$5,999 category and the \$6,000 to \$8,999 category also were the highest for any of the sampled beaches. Conversely, the two highest income categories resulted in the lowest percentages for any of the sampled beaches. These income characteristics were peculiar for two reasons. First, low income was not usually associated with high reliance on the automobile for travel to the beach. Second, Staten Island was not dominated by poor people. Assuming that the interviewers questioned a true random sample, the best explanation for the apparent income anomaly was a large student clientele who used the family car to go to the beach.

In fact, students did account for the modal occupational category (Table 47). The 34.3 percent figure was the highest recorded for this heading. Aside from the student category there were no "record highs." Conversely, there were no "record lows."

The age of the sample tended to be relatively young (Table 48). The sample percentage in the under 16 age group (5.6%) was second only to that recorded on Coney Island, while the percentages for the 16 to 20 and 21 to 25 age groups were the highest recorded (as was the 46 to 50 age group). Conversely, the percentages in other middle aged categories were among the lowest recorded in the sampled beaches.

#### Jones Beach

##### SERVICE AREA

Of the 909 users interviewed at Jones Beach, 893 provided classifiable information about their borough or county of residence (Table 49). As might be expected, the modal response was Nassau County where Jones Beach is located, with 41.2 percent of the sample. Queens placed second with 29.5 percent, reflecting the significant out-migration of city residents to Jones Beach. Table 49 was unique to this study in that no borough or county contributed more than half the sample. At the same time these tabular data, more than any other previous list, suggested a highly dispersed service area and proclaimed Jones Beach as being the most "regional" of the sampled beaches. All boroughs and counties were represented, matched

TABLE 49 ORIGIN OF JONES BEACH USERS

	Number	Percent
Manhattan	49	5.5
Brooklyn	21	2.3
Queens	263	29.5
Bronx	41	4.6
Staten Island	2	0.2
Nassau County	368	41.2
Westchester County	69	7.7
Suffolk County	24	2.7
New Jersey	8	0.9
Other	<u>48</u>	<u>5.4</u>
Total	893	100.0

TABLE 50 JONES BEACH USER ACCESS, BY MODE OF TRAVEL

Mode	Number	Percent	Average Time (Minutes)	Average Cost (\$)	Average Distance (Miles)
Walk	5	0.6	37	0.00	8.0
Subway	1	0.1	240	10.00	---
Bicycle	5	0.6	57	0.00	5.4
Bus	31	3.4	56	2.51	17.6
Automobile	840	92.7	38	3.74	17.2
Other	<u>24</u>	<u>2.6</u>			
Total	906	100.0			

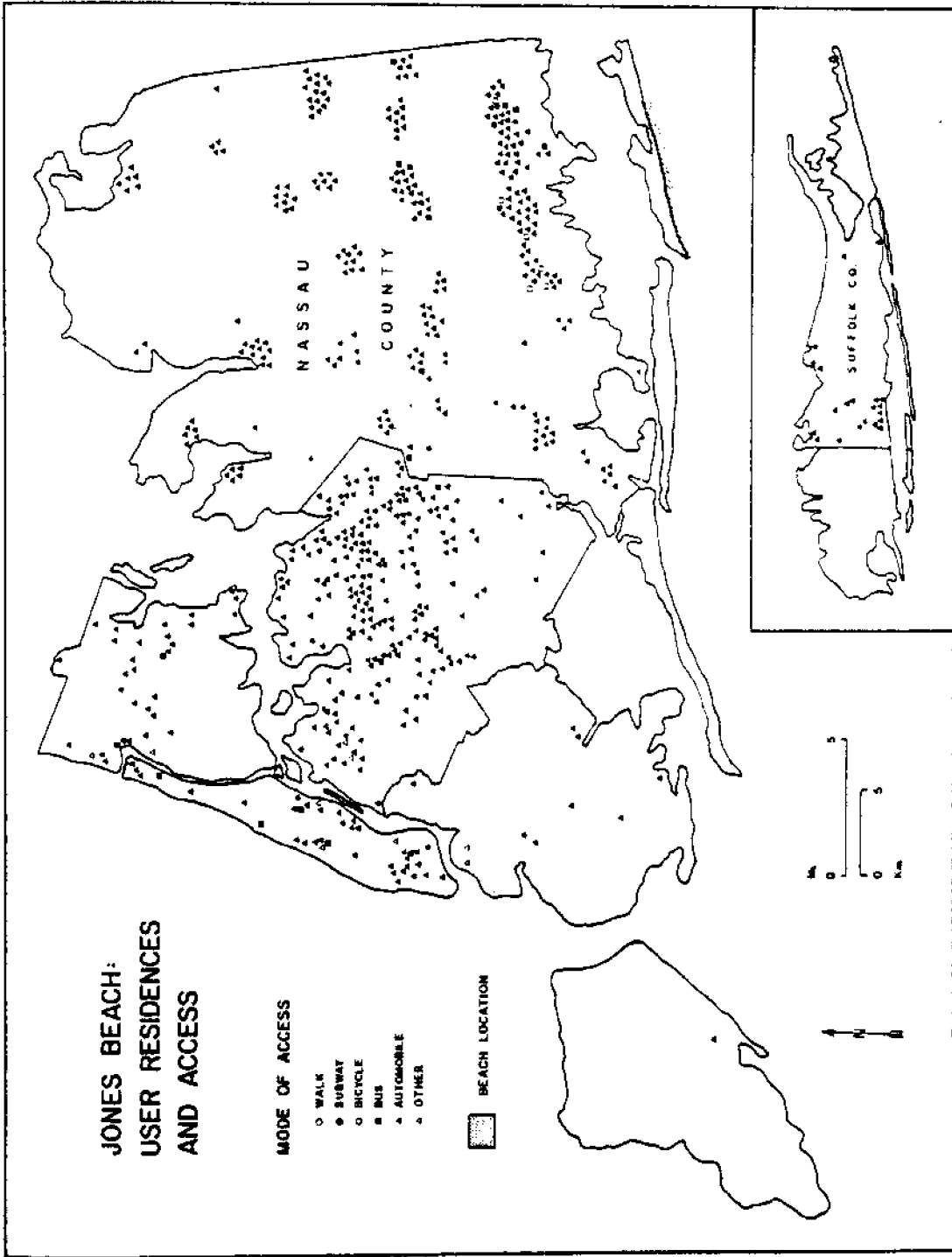


TABLE 51 OTHER BEACHES MOST FREQUENTLY USED  
BY THE JONES BEACH SAMPLE

Beach	Number of Users	Percent
Rockaway	72	27.6
Orchard	34	13.0
Riis Park	27	10.3
Long Beach	24	9.2
Coney Island	17	6.5
Fire Island	13	5.0
Hamptons	13	5.0
Brighton	7	2.7
Manhattan	7	2.7
Others	<u>47</u>	<u>18.0</u>
Total	261	100.0

only by Coney Island. Figure 6 also shows the regional nature of the service area and highlights the user concentrations in Nassau and Queens counties.

#### ACCESS

The average trip to Jones Beach covered 17.3 miles, took 41 minutes, and cost \$3.68. All of these averages were the highest recorded and could be explained by (1) the highly regional nature of the service area, and (2) the lack of significant population concentrations near the beach. Considering mode of travel, the outstanding Jones Beach access characteristic was the high user reliance on the automobile (Table 50). Nearly 93 percent of the surveyed population traveled to Jones by car. This was the highest such percentage for any of the sampled beaches. Conversely, the numbers of walkers, bicyclers, and subway riders were very low, while the percentage of the sample that arrived by bus was the lowest of any sampled beaches. The "other" category contained a few motorcyclists, though most of these 24 were from New York City and used some combination of public bus-subway transit plus the Long Island Railroad.

Reasons for the high rate of automobile access, no doubt, related to the excellent highways leading to the beach, Jones' 24,000-space parking lot, the generally suburban and middle or upper-middle class income nature of most of its users, and the rather poor mass transit linkages limited to meager public bus service. Average distances for the various travel modes differed from the previous beaches as bicyclers (not walkers) traveled the shortest average distance, followed by walkers, automobile users, and bus riders. However, since the averages for all mode categories except automobile users were based on a small number of observations, we may question the value of this information.

The average Jones Beach respondent planned to spend about 4.7 hours at the beach and had visited Jones 14.6 times during the previous year. Neither of these averages was significantly different from data collected on the other beaches.

Of the 909 Jones Beach interviewees, 261 reported visits to other beaches during the previous year (Table 51). The difference between these two figures was the largest recorded in both actual numbers and percents. This suggests, of course, that a large percentage of the Jones Beach sample used only this facility and did not travel elsewhere. As for the other

TABLE 52 BEACHES MOST LIKED BY THE JONES BEACH SAMPLE

Beach	Number	Percent	Predominant rationale
Jones	177	79.0	Clean overall physical environment
Fire Island	10	4.5	Solitude
Hamptons	9	4.0	Clean overall physical environment
Other	<u>28</u>	<u>12.5</u>	
Total	224	100.0	

TABLE 53 BEACHES LEAST LIKED BY THE JONES BEACH SAMPLE

Beach	Number	Percent	Predominant rationale
Rockaway	62	38.3	Dirty overall physical environment
Orchard	32	19.8	Dirty overall physical environment
Coney Island	17	10.5	Dirty overall physical environment
Jones	11	6.8	Dirty overall physical environment
Riis	9	5.6	Dirty overall physical environment
Long Beach	9	5.6	Dirty overall physical environment
Others	<u>22</u>	<u>13.4</u>	
Total	162	100.0	

TABLE 54 IDEAL BEACH CHARACTERISTICS IDENTIFIED BY THE JONES BEACH SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	316	35.2
Clean sand	139	15.5
Opportunity to meet opposite sex	75	8.4
Clean water	57	6.3
Solitude	53	5.9
Sun	51	5.7
Friendly people	30	3.3
Other	<u>177</u>	<u>19.7</u>
Total	898	100.0

beaches most frequently used, it was interesting that the top three were all city beaches, and that suburban Long Island beaches (Long Beach, Fire Island, and the Hamptons) were generally well down the list. The first place for Rockaway Beach can be explained by the large number of users in eastern Queens and western Nassau counties (Figure 6), all areas within what might be considered Rockaway's service area. The relatively strong showing for Orchard Beach was, however, rather puzzling (given its distance from Jones), although Jones did draw a good number of people from areas in Orchard's general vicinity (northern Queens, The Bronx, and Westchester County). It is worth recalling that Jones was most liked by the Orchard beach sample.

#### ATTITUDES

Respondents who had visited other area beaches were asked to identify the beach they liked most, the one they liked least, and the reasons for their choices (Tables 52 and 53). The most preferred beach was Jones. The 79.0 percent "self approval" figure represented by far the highest incidence of the actual interview site being the most liked beach. Riis Park, one may recall, was second in this regard with a 48.3 percent user approval. Overwhelmingly, the reason given for the choice of Jones Beach was the perceived overall cleanliness of its physical environment. The list of disliked beaches (Table 53) generally followed the list of other beaches most frequently visited by the Jones Beach sample though the order of entries was different. For each of the major disliked beaches, perceived lack of cleanliness of the physical environment was the major reason for disfavor. Jones itself was in fourth place on the list with 6.8 percent of the responses. Compared with the other interview sites, the degree of disfavor was low.

Respondents were asked what they looked for in an ideal beach, what they liked about Jones, and what they disliked about Jones (Table 54, 55, and 56). As in previous cases, the list of ideal characteristics generally was divided between a set of positive clean environmental characteristics and a set of positive social characteristics, with the former being much more important (Table 54). Together, the three "clean physical" responses accounted for 57.0 percent of the rationales. This figure was somewhat less than similar aggregate percentages compiled on the other beaches.



TABLE 55 JONES BEACH CHARACTERISTICS MOST LIKED  
BY THE JONES BEACH SAMPLE

Characteristic	Number	Percent
Clean overall physical environment	179	22.5
Easy access	151	19.0
Friendly people	73	9.2
Large beach	69	8.7
Surf	66	8.3
Opportunity to meet opposite sex	31	3.9
Solitude	28	3.5
Clean sand	27	3.4
Presence of friends	19	2.4
Clean water	16	2.0
Nothing	16	2.0
Other	<u>119</u>	<u>15.0</u>
Total	794	100.0

TABLE 56 JONES BEACH CHARACTERISTICS LEAST LIKED  
BY THE JONES BEACH SAMPLE

Characteristic	Number	Percent
Nothing	175	24.6
Long walk from parking lot to beach	115	16.2
Dirty overall physical environment	107	15.0
Crowded	80	11.3
Expensive to get to	65	9.1
Lack of access	28	3.9
Dirty water	26	3.7
Rocks and shells on beach	24	3.4
Other	<u>91</u>	<u>12.8</u>
Total	711	100.0

Perceived Jones Beach characteristics most liked by the sample were notable for their variety (Table 55). Unlike lists compiled for the other beaches, no one characteristic dominated the table. And only in the case of Jones Beach did a clean overall physical environment emerge as the perceived quality most liked. Easy access topped every other list. For the other beaches, the most disliked perceived site characteristic was a dirty overall physical environment. When the Jones Beach sample was asked what they disliked most about the beach, the most frequent response was "nothing" (Table 56). Indeed, perceived dirtiness finished only third on the Jones list, behind a characteristic peculiar to that facility--the long walk from the parking lot to the beach. Three negative environmental variables included overall dirtiness, shells on the beach, and dirty water. Together, they accounted for only 22.1 percent of the responses--less than the "nothing" category. On summing up, the "average" Jones Beach user tended to value a clean beach environment and liked the area for a variety of reasons generally related to its perceived cleanliness, ease of access, and friendly fellow visitors. Nothing in particular seemed to encourage people to go elsewhere, although the long walk from the parking lot to the beach was a major complaint.

#### SOCIOECONOMICS

Income characteristics of the Jones Beach sample are shown in Table 57. A greater percentage of the sample fell in the highest income category (over \$24,000) than any other classification. This was the only sample that could claim such an index of affluence. On the whole, the sample was unique because the income of most people ranged in the upper and middle income categories. These income generalizations were easy to explain. Nassau County is one of the most affluent counties in the state, while eastern Queens contains several middle and upper-middle class neighborhoods. Both areas, as we have seen, were considered core components of the beach's service area.

Occupationally (Table 58), the modal category for the Jones Beach sample was white collar (35.4%), followed closely by students (33.3%). The same order was true of the Riis Park and Orchard Beach samples, although the percentages differed. Interestingly, Jones Beach had the highest unemployed percentage of any sampled beach, although these people were only 4.7 percent

TABLE 57 INCOMES OF THE JONES BEACH SAMPLE

Income	Number	Percent
Under \$3,000	74	11.4
\$3,000 to \$5,999	24	3.7
\$6,000 to \$8,999	40	6.2
\$9,000 to \$11,999	62	9.5
\$12,000 to \$14,999	88	13.6
\$15,000 to \$17,999	102	15.7
\$18,000 to \$20,999	63	9.7
\$21,000 to \$23,999	51	7.9
\$24,000 and more	<u>145</u>	<u>22.3</u>
Total	649	100.0

TABLE 58 OCCUPATIONS OF THE JONES BEACH SAMPLE

Occupation	Number	Percent
Student	302	33.3
Blue collar	134	14.8
White collar	321	35.4
Professional	34	3.8
Retired	14	1.6
Housewife	58	6.4
Unemployed	<u>43</u>	<u>4.7</u>
Total	906	100.0

TABLE 59 AGES OF THE JONES BEACH SAMPLE

Age	Number	Percent
Under 16	27	3.0
16 - 20	300	33.6
21 - 25	223	24.9
26 - 30	103	11.5
31 - 35	72	8.2
36 - 40	40	4.5
41 - 45	42	4.7
46 - 50	40	4.5
51 - 55	20	2.2
56 and above	<u>26</u>	<u>2.9</u>
Total	894	100.0

of the sample. Conversely, the blue collar and retiree percentages, 14.8 percent and 1.6 percent, respectively, were the lowest recorded. Recalling the income and service area characteristics, the Jones Beach occupation profile was not surprising, except that the large number of students might have led one to expect more individuals in the lower income categories.

The modal age category (Table 59) was 16 to 20 (33.6%) followed by 21 to 25 (24.9%). Due to the large student clientele, the prominence of this age group was to be expected. By comparison, relatively small percentages were evidenced in the other groupings and, in fact, 73.0 percent of the Jones sample was 30 years or younger.

## RECOMMENDATIONS

Because of researching, and analyzing, and writing this report, we can make a number of recommendations. It has proved convenient to organize these under four headings: beach use data, overuse and underuse, cleanliness, and future research.

### Beach Use Data

Any effort to improve either beach access or the qualitative aspects of the beaches themselves must be based on reliable user data. Indeed, it is inconceivable that serious planning can take place without reliable estimates of the average number of people attending given beaches at given times during the beach season. Unfortunately, we found a paucity of such data for the New York City coastal region. As far as we can tell, the tabular estimates that appear in the first part of this report are the only summary data in print. Moreover, we are mindful that these crowd estimates are at best the educated guesses of beach managers.

Accordingly, we recommend that the appropriate city, state, and federal agencies that oversee the area's beaches make an effort to collect, collate, and share data on beach use. Beach managers or designees should be given instruction in crowd estimation techniques and be responsible for making official estimates at regular intervals. In turn, these estimates should be reported to a parent agency, such as the Parks Department or the Department of City Planning in New York City for collection and dissemination to planners and allied agencies. The collected data should be categorized by time as well as by place. It is apparent from our research efforts that wide discrepancies exist in the use of beaches between weekdays and weekends, mornings and afternoons, as well as between low and high seasons. More information regarding the temporal use of beaches would help beach administrators shift user patterns from peak periods to times when the beaches are underused.

### Overuse and Underuse

The beaches within the New York City coastal region present great variety in use (Table 1, 2, and 3). On a typical summer day, for example, over 100,000 people gather along each mile of Coney Island's beachfront versus

fewer than 5,000 at Great Kills. Clearly the beaches are not evenly used. Relative to one another, some of the facilities seem to be overused and others underused. Operational definitions of overuse and underuse are arbitrary and vary from one statistical universe to another and from one agency to another. Within the context of area beaches, however, Table 3 suggests that Coney Island, Rockaway Beach, Manhattan Beach, and, perhaps, Riis Park are "overused" and the rest are "underused."

We recommend taking steps to reduce the pressure on the overused beaches and encourage greater use of the underused beaches. Ideally, this would improve the crowding and cleanliness problems on the overused beaches while making better use of the other beaches, though not to the point of adverse effects. We offer specific strategies to help implement this recommendation.

1. Improve public transportation to underused beaches.
2. Create economic incentives to encourage use of the underused beaches and economic disincentives to discourage use of the overused beaches.
3. Establish simple advertising campaigns to inform the public which beaches are used.
4. Develop new beaches within the New York City coastal region.

Because automobile users already have great mobility, and because the subway system cannot be expanded or changed easily, means of improving access to the underused beaches should focus on the bus systems and bus-subway connections. Unlike subways, buses can go almost anywhere and provide express service or connections to any or all beaches. Unfortunately, buses are slow and a majority of sampled bus users tend to live within relatively confined perimeters around the beach destinations. The problem, then, is how to expand this perimeter and increase bus access to the underused beaches. Express or limited stop bus service is one option, free transfer between bus systems is another. Since the underused beaches generally are not served directly by the city's subway system, free subway-to-bus transfers (available at the subway stops nearest the beaches in question) might prove to be good incentives. Because weekend use of the beaches coincides with the slack time in the bus system, the public benefits by (a) reducing marginal cost on the bus inventory, as well as by (b) lowering

overall costs to the beach user. Finally, the city might investigate and implement free or reduced fare return trips at the less crowded beaches.

In addition to mass transit users, economic incentives and disincentives also might be developed for automobile users. Lowering or removing parking fees at the less used beaches and raising those at the more heavily used beaches might change recreational travel behavior of automobile users.

Apparently, an important contributing factor to the existence of underused beaches is the public's unawareness of less crowded facilities and how to get there. Accordingly, any effort to encourage use of underused beaches should include a public awareness campaign: public service advertisements on radio and television and posters on buses and subways can educate the public about less expensive beaches.

Perhaps the best way to reduce population pressure on existing beaches is to create new beaches and, in effect, spread the user burden over a greater number of facilities. Portions of the Jamaica Bay waterfront loom as prime contenders for new beaches as do areas in Queens and the Bronx that front the western end of Long Island Sound. Local planners continue to discuss such options. We hope that new beach proposals will continue to receive serious consideration and that local officials will explore all possible sources of funds including Land And Water Conservation Funds (LAWCON), Block Grants, and other funding.

#### Cleanliness

Perceived dirtiness was the major complaint directed at area beaches, especially those within New York City and under city administration. Clean beaches are in everybody's best interest. The city has much to gain financially by attracting users to its facilities. Accordingly, we recommend that cleanliness be given high priority, that current cleaning procedures be reviewed, and that all possible avenues be explored to increase and upgrade the personnel and equipment used to do the job.

The assorted garbage generated by careless beach users detracts greatly from the beach environment and often is downright dangerous. To a certain

extent, one may assume a direct quantitative relationship between users and garbage: The more people use a beach, the more garbage. Thus, efforts to reduce crowding (particularly on the most heavily used beaches) also should have a beneficial effect on cleanliness. At the same time, however, some of the most crowded beaches are viewed as less dirty than facilities which attract fewer users. Riis Park, for example, was thought to be much cleaner than Orchard Beach even though Riis attracts larger crowds. What makes Riis Park cleaner than Orchard Beach? Is it the result of different cleaning procedures, better and more cleaning equipment, more trash receptacles, a more conscientious clientele, or some other factor? Whatever the case, inter-agency discussions of such questions could provide useful insights and guidance.

Increasing and upgrading cleaning personnel and equipment is much easier said than done, especially during periods of fiscal constraint. Nonetheless, it is conceivable that raking machines and similar devices might be purchased under the terms of one or more federal grants. A similar situation exists with respect to personnel. Greater use of CETA workers, for example, may be a way by which the beach environment could be improved with little additional strain on the city's strapped financial resources. Additional benefits would accrue to teenagers who during the summer months often have difficulty finding jobs.

Water pollution within the New York City coastal region, and particularly within the harbor area, is well known to the public. Such conditions can and do affect the quality of the beach environment and often result in negative user perceptions of local beaches. Under the terms of the Federal Water Pollution Control Act, the New York harbor and estuary waters gradually are being cleaned up. While much work still has to be done (e.g. ending ocean dumping), improvements are likely to continue to the extent that "closed areas" or marginal swimming areas may again become sites for aquatic activity.



### Future Research

While New York has one of the better records in urban recreational research, much more research needs doing. The present study has emphasized the quantitative aspects of beach recreational activity on five of the area's beaches. Furthermore, the research has emphasized describing and classifying aspects of beach recreation. To begin to manage the beaches in an optimal manner, we recommend additional research aimed at recreational beach modeling.

Presently only that segment of the population using the city beaches has been researched. We know very little about the size of the potential recreational market. Since beaches are public resources, legitimate questions can be raised concerning their use to the non-consuming public. What factors are likely to influence the demand for beach use? We suspect that answers to these questions would fall within the realm of attitudinal environmental behavior research. Specific emphasis should be placed on measurements of intra-cultural attitudes and perceptions. Findings may provide some valuable qualitative indices regarding beach recreation per se and also provide some additional guidelines to urban and recreational planners regarding recreational funding priorities. This point seems particularly relevant in light of increased interest by the Office of Coastal Zone Management, the Heritage Conservation Recreational Services, and the Department of Housing and Urban Development to develop more marine recreational opportunities in urban areas.

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APPENDIX

QUESTIONNAIRE

INTERVIEW SCHEDULE

1. Site \_\_\_\_\_
2. Interview # (DO NOT FILL IN) \_\_\_\_\_
3. Date \_\_\_\_\_
4. Time \_\_\_\_\_
5. Do you live in New York City? \_\_\_\_\_  
(if "no" go to item 8)
6. Borough \_\_\_\_\_
7. What street corner (intersection) is nearest to your home?  
Ans. \_\_\_\_\_ & \_\_\_\_\_
8. If you do not live in New York City, where do you live? \_\_\_\_\_
9. How long did it take you to get here today?  
(Ans. in minutes) \_\_\_\_\_
10. How did you get here? \_\_\_\_\_
11. How much will it cost you to come here and return home? \_\_\_\_\_
12. How many hours will you spend here today? \_\_\_\_\_
13. How many times did you visit this beach last year? \_\_\_\_\_
14. Have you visited other beaches in the N.Y.C. area in the past year? \_\_\_\_\_  
(if "No" go to item 23)
15. How many? \_\_\_\_\_
16. Which ones? (A) \_\_\_\_\_  
(B) \_\_\_\_\_
17. How many times did you visit 16A? \_\_\_\_\_
18. How many times did you visit 16B? \_\_\_\_\_

19. Which beach do you like the most?  
\_\_\_\_\_
20. Why do you like it the most?  
\_\_\_\_\_
21. Which beach do you like the least?  
\_\_\_\_\_
22. Why do you like it the least?  
\_\_\_\_\_
23. Is there any reason why you haven't visited  
any New York area beaches?  
\_\_\_\_\_
24. How did you learn about this particular beach?  
\_\_\_\_\_
25. What do you look for in a beach?  
\_\_\_\_\_
26. What is there about this particular beach that  
you like? \_\_\_\_\_
27. Is there anything about this beach you don't like?  
\_\_\_\_\_
28. Do you know anyone on this beach? \_\_\_\_\_  
  
(if "No" go to item 31)
29. How many people do you know on this beach? \_\_\_\_\_
30. How do you know them? \_\_\_\_\_
31. What is your occupation? \_\_\_\_\_
32. Would you mind indicating which one of these income  
categories corresponds with your household's income?  
\_\_\_\_\_
33. Would you mind indicating to which age group you belong?  
\_\_\_\_\_
34. Sex \_\_\_\_\_
35. Ethnicity \_\_\_\_\_
36. Group type: single \_\_\_/ couple \_\_\_/ family \_\_\_/  
families \_\_\_/ friends \_\_\_/ organization \_\_\_/

37. Number of people in group \_\_\_\_\_
38. Interview location  
 Distance in feet from water \_\_\_\_\_  
 Distance in feet from nearest group \_\_\_\_\_
39. Temperature \_\_\_\_\_
40. Surf condition: calm \_\_\_\_\_ moderate \_\_\_\_\_  
 violent \_\_\_\_\_
41. Wind: calm \_\_\_\_\_ light \_\_\_\_\_ windy \_\_\_\_\_  
 stormy \_\_\_\_\_
42. Weather: sunny \_\_\_\_\_ overcast \_\_\_\_\_  
 rainy \_\_\_\_\_ hazy \_\_\_\_\_
43. Beach cleanliness: clean \_\_\_\_\_ fair \_\_\_\_\_  
 dirty \_\_\_\_\_
44. Water quality: clean \_\_\_\_\_ fair \_\_\_\_\_  
 dirty \_\_\_\_\_

THANK YOU VERY MUCH FOR YOUR COOPERATION.