RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

NEW JERSEY PEDESTRIAN BEHAVIOR STUDY

Funded by the NJDOT through the Federal Highway Administration

SUBMITTED TO:

STATE OF NEW JERSEY
Department of Transportation (NJDOT)
Trenton, New Jersey
1035 Parkway Avenue
P.O. Box 600
Trenton, NJ 08635-0600

SUBMITTED BY:

ALAN M. VOORHEES TRANSPORTATION CENTER
Edward J. Bloustein School of Planning and Public Policy
Rutgers, The State University of New Jersey
33 Livingston Avenue
New Brunswick, NJ 08901

New Jersey Bicycle and Pedestrian Resource Center

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DRAFT
NEW JERSEY PEDESTRIAN BEHAVIOR STUDY

Alan M. Voorhees Transportation Center
Edward J. Bloustein School of Planning and Public Policy
Rutgers, the State University of New Jersey
New Brunswick

April 2011

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INTRODUCTION

This report has been prepared as a part of Task 2.1 of the PB-9 scope, namely, NJ Statewide Pedestrian Survey Data Analysis. It includes basic data analysis from a random-digit-dialing telephone survey of households from the state of New Jersey. To participate in the survey, a respondent had to be at least 18 years old. The survey included questions on the respondent as well as his/her household. The survey was conducted in November 2009. Data were collected from a total of 1200 respondents, of which 800 were selected randomly from throughout the state, whereas an additional 400 respondents were selected from Jersey City. Oversampling of Jersey City was conducted for two reasons, (a) to obtain more detailed information of walking behavior in an urban environment, and (b) to compare walking behavior in an urban environment with that of the state as a whole.

The primary purpose of this report is to document basic statistics from the survey. The survey provides useful information on walking behavior of individuals living in New Jersey and Jersey City, including propensity and frequency of walking, trip purpose, and demographic and socioeconomic variations in walking behavior. The data provided in this report are sufficient to draw general conclusions about the state as a whole, but because of small sample size, most results are not valid for smaller geographies such as cities and counties. However, the Jersey City sample is large enough to allow inferences about walking behavior of the city's residents. The following are some of the important parameters of the telephone survey.

SUMMARY OF SURVEY PARAMETERS

COMPLETED INTERVIEWS
Total = 1200
Statewide Cross-Section = 800
Jersey City Oversample = 400

RESPONSE RATES
Statewide Cross-Section = 20.9%
Jersey City Oversample = 19.9%

MARGINS OF SAMPLING ERROR (AT 95% CONFIDENCE INTERVAL)
Statewide Cross-Section = 3.4%
Jersey City Oversample = 4.9%

PRETEST:
Tuesday, October 20, 2009 (n =10 statewide)

FIELD PERIOD:
Statewide Cross-Section Wednesday, November 4 through Monday, November 23, 2009
Jersey City Oversample Wednesday, November 4 through Monday, November 23, 2009

The report is organized in several sections. In each section, data tables are presented from the state sample together with a brief discussion of the results. Each discussion on the data from the state sample is followed by data tables and discussions on the Jersey City sample. In a few cases, where data are inadequate because of small samples, no tables or discussion has been provided for Jersey City.

In addition to providing basic information on walking behavior, path/location of walking, and walking trip purpose, the report provides some understanding about the relationship between the built environment and walking. It provides basic information on pedestrians' concerns about walking and also their assessment of the quality of neighborhood pedestrian environment. The report provides basic understanding about the perceived constraints to walking in New Jersey.

The analysis in this report is basic. No statistical tests were undertaken for the purpose of this report. However, the report contains sufficient information to develop hypotheses in many areas of pedestrian planning for rigorous research involving statistical models. The report contains only data tables but no charts and graphs because of the anticipation that the readers would be interested in precise numerical estimates instead of visual patterns of the estimates.

WALKING FREQUENCY

Frequency of Walking

All respondents were asked how often they walked for more than 5 minutes at a time on an average day. The results in Table 1 show that 35% of the respondents in the state walked more than once a day and another 21% walk once a day, meaning that more than half the respondents walked at least once a day. These respondents can be considered regular walkers. In contrast, only 4% of the respondents can be considered infrequent walkers because they walked only a few times in a year.

TABLE 1:
FREQUENCY OF WALKING FOR MORE THAN 5 MINUTES, NEW JERSEY

Walking frequency	Respondents	Percentage
More than once a day	258	35%
Once a day	154	21%
Several times a week	224	31%
Several times a month	60	8%
A few times a year or less	32	4%
Total respondents	728	100%
No response	72	9%
Total (N)	800	100%

The frequency of walking for the Jersey City residents is shown in Table 1a. As expected, people in Jersey City walk far more often than New Jersey as a whole. Seventy five percent of the city's residents reported walking at least once a day. The reason for a high frequency of walking in Jersey City is that it is an urban environment with a large number of potential destinations within walking distance for its residents.

TABLE 1A:
FREQUENCY OF WALKING FOR MORE THAN 5 MINUTES, JERSEY CITY

Walk 5 min or more	Respondents	Percentage
More than once a day	196	54%
Once a Day	76	21%
Several Times a week	74	20%
Several Times a Month	6	2%
A few times a year or less	10	3%
Total (Respondents)	362	100%
No Response	38	10%
Total (N)	400	100%

Gender and Walking Frequency

As shown in Table 2, the difference in walking frequency between men and women is very small in New Jersey. Although a slightly larger proportion of men reported walking more than once a day, when one looks at the proportion of respondents making at least one walking trip a day, the difference between the sexes becomes smaller. It is evident from Table 2a that both men and women walk more in Jersey City than the state as a whole. The difference in walking multiple times a day between men and women is slightly larger for Jersey City than the state as a whole; potentially indicating that women in an urban environment may have greater concerns about walking than men.

TABLE 2:
WALKING FREQUENCY BY GENDER, NEW JERSEY

	Male	Female	Total
More than once a day	37%	34%	35%
Once a Day	20%	22%	21%
Several Times a week	31%	31%	31%
Several Times a Month	8%	9%	8%
A few times a year or less	4%	4%	4%
Total	100%	100%	100%
N	339	389	728

TABLE 2A:
WALKING FREQUENCY BY GENDER, JERSEY CITY

	Male	Female	Total
More than once a day	61%	47%	54%
Once a Day	18%	24%	21%
Several Times a week	18%	23%	20%
Several Times a Month	1%	3%	2%
A few times a year or less	3%	3%	3%
Total	100%	100%	100%

Age and Walking Frequency

As shown in Table 3, adults in the 25-34 age group walk the most in New Jersey. Seventy percent of this age group reported walking at least once a day. Although it is often perceived that younger individuals walk more frequently, those in the under 25 age group (i.e., age group 18-24) reported less frequent walking than those in the 25-34 age group. The most noticeable decrease in walking more than once a day occurs between ages 25-34 and 35-44. This may be a result of life cycle change, such as getting married, buying a house, etc. Overall walking frequency drops off at age 65. This may be due to deteriorating physical strength and health. A reason for a reasonably high frequency of walking in middle ages is that many respondents walked for exercise and recreational purposes (shown in another section). As people get older,

they walk more for the health benefits of walking whereas younger people walk for more diverse purposes.

The frequency of walking for the Jersey City residents is provided in Table 3a. The frequency of walking is higher in Jersey City for all age groups, including the elderly. It may indicate that even among the retired individuals, an urban environment generates more walk trips than a suburban environment.

TABLE 3:
WALKING FREQUENCY BY AGE, NEW JERSEY

Age	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Under 25	47%	11%	32%	5%	5%	100%	19
25-34	49%	21%	21%	9%	0%	100%	47
35-44	34%	24%	28%	10%	4%	100%	119
45-64	32%	21%	34%	8%	4%	100%	296
65 +	22%	25%	33%	11%	10%	100%	171
Total	31%	22%	32%	9%	6%	100%	652

TABLE 3A:
WALKING FREQUENCY BY AGE, JERSEY CITY

Age	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Under 25	60%	15%	25%	0%	0%	100%	20
25-34	61%	21%	18%	0%	0%	100%	95
35-44	45%	33%	16%	1%	4%	100%	73
45-64	58%	14%	23%	1%	4%	100%	118
65 +	41%	22%	22%	10%	6%	100%	51
Total	54%	21%	20%	2%	3%	100%	357

Vehicle Ownership and Walking Frequency

It is evident from the survey results in Table 4 that households without automobiles walk more frequently than those having one or more automobiles in the household. This result can be expected since individuals from zero-vehicle households have limited alternatives to walking. The results show that walking frequency does not vary significantly among those who belong to households with one or more automobiles. Thus it seems that walking frequency varies between those who have automobiles and those who do not have automobiles, but not between those who have one automobile and those who have multiple automobiles.

TABLE 4:
WALKING FREQUENCY BY REGISTERED VEHICLE OWNERSHIP, NEW JERSEY

No. of automobiles in household	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
0	51%	20%	22%	0%	7%	100%	41
1	33%	22%	32%	9%	5%	100%	174
2	35%	21%	29%	10%	5%	100%	315
3 or more	35%	19%	36%	6%	4%	100%	181
Total	35%	21%	31%	8%	5%	100%	711

It is evident form a comparison of Table 4 and Table 4a that walking frequency is higher for the Jersey City residents than the state as a whole even when the residents have an identical number of automobiles. For example, 35% of the respondents from households with three or more automobiles in the state sample reported walking multiple times a day, whereas 50% of respondents with an identical number of automobiles reported walking in Jersey City.

TABLE 4A:
WALKING FREQUENCY BY REGISTERED VEHICLE OWNERSHIP, JERSEY CITY

No. of automobiles in household	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
0	59%	23%	13%	3%	3%	100%	110
1	53%	22%	23%	1%	1%	100%	161
2	46%	17%	27%	2%	8%	100%	59
3 or more	50%	25%	20%	0%	5%	100%	20
Total	54%	21%	20%	2%	3%	100%	350

Income and Walking Frequency

Walking frequency for different household income groups is shown in Table 5. It is interesting that walking frequency is lower for middle-income groups compared to low- and high-income groups. The higher frequency of lower income groups may be partially explained by the fact that many are from households without automobiles. The higher walking frequency for high-income groups may be because of a greater awareness of the health benefits of walking among the affluent.

Walking frequency by household income of respondents for Jersey City is provided in Table 5a. A comparison between Table 5 and Table 5a reveals that for all income groups, the residents of Jersey City make significantly more frequent walk trips than the state residents.

TABLE 5:
WALKING FREQUENCY BY INCOME, NEW JERSEY

Income	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Less than $25,000	42%	26%	20%	6%	6%	100%	66
$25,000 to less than $50,000	43%	24%	22%	6%	4%	100%	113
$50,000 to less than $100,000	33%	20%	32%	11%	4%	100%	214
$100,000 to less than $150,000	29%	23%	38%	9%	1%	100%	112
$150,000 to less than $200,000	40%	19%	29%	5%	8%	100%	63
$200,000 or more	44%	13%	36%	0%	7%	100%	45
Total	37%	21%	30%	8%	4%	100%	613

TABLE 5A:
WALKING FREQUENCY BY INCOME, JERSEY CITY

Income	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Less than $25,000	47%	21%	25%	4%	3%	100%	75
$25,000 to less than $50,000	52%	21%	23%	0%	3%	100%	61
$50,000 to less than $100,000	48%	29%	17%	1%	6%	100%	90
$100,000 to less than $150,000	55%	21%	21%	3%	0%	100%	33
$150,000 to less than $200,000	62%	17%	21%	0%	0%	100%	29
$200,000 or more	70%	9%	22%	0%	0%	100%	23
Total	52%	22%	21%	2%	3%	100%	311

Education and Walking Frequency

As shown in Table 6, among the state respondents, those with a high school degree or GED walk the most (66% walk at least once a day). On the other hand, those with a two-year college degree walk the least. Although those with lower education generally have higher frequency of walking, the relationship between education and walking is not linear. For example, walking frequency is higher for those in the two highest education levels than those with two- and four-year college degrees. More walking among the least educated may be partially explained by a low vehicle ownership rate, whereas more walking among those with highest education may be explained by awareness of the health benefits of walking.

TABLE 6:
WALKING FREQUENCY BY EDUCATION, NEW JERSEY

Highest Degree Obtained	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Less than high school graduate	38%	25%	34%	0%	3%	100%	32
High school graduate or GED	43%	23%	19%	8%	8%	100%	145
Some college	44%	19%	21%	12%	5%	100%	117
Two-year college degree	26%	26%	41%	4%	3%	100%	76
Four-year college degree	34%	14%	43%	5%	3%	100%	194
Graduate work, but no advanced degree	26%	26%	19%	22%	7%	100%	27
Graduate degree	30%	23%	31%	13%	4%	100%	131
Total	36%	21%	31%	8%	5%	100%	722

It is evident from the analysis of the Jersey City residents in Table 6a that people walk more frequently in Jersey City than the state for all education levels. However, the difference in walking frequency is much larger between Jersey City and the state for the higher education levels than the lower education levels. That is, the highly educated residents of Jersey City walk significantly more often than similarly educated respondents in the state, whereas the respondents with low levels of education in Jersey City walk only modestly more than similarly educated respondents in the state. The smaller difference in walking frequency between Jersey City and the state for the less educated individuals most likely resulted from similarities between the two groups in vehicle ownership and socioeconomic characteristics.

TABLE 6A:
WALKING FREQUENCY BY EDUCATION, JERSEY CITY

Highest Degree Obtained	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Less than high school graduate	48%	11%	30%	7%	4%	100%	27
High school graduate or GED	46%	27%	20%	1%	6%	100%	70
Some college	52%	25%	21%	2%	0%	100%	48
Two-year college degree	48%	24%	14%	0%	14%	100%	21
Four-year college degree	54%	22%	21%	2%	1%	100%	82
Graduate work, but no advanced degree	50%	25%	20%	0%	5%	100%	20
Graduate degree	66%	16%	16%	1%	1%	100%	89
Total	54%	21%	20%	2%	3%	100%	357

Ethnicity and Walking Frequency

Black Hispanic and Black non-Hispanic respondents walked substantially more than other ethnic groups in the state (Table 7). Asian respondents also reported walking at higher frequency than the white respondents. Generally the data suggest that minority individuals walk more frequently than white individuals. A reason for the difference in walking frequency among the ethnic groups could be differences in automobile ownership rates. Another reason could be a difference in the characteristics of the neighborhoods where they live. However, a part of the difference could also be because of cultural diversity.

TABLE 7:
WALKING FREQUENCY BY ETHNICITY, NEW JERSEY

Ethnicity	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
White Hispanic	34%	22%	31%	6%	6%	100%	64
Black Hispanic	63%	21%	0%	0%	16%	100%	19
White not Hispanic	33%	21%	32%	10%	4%	100%	479
Black not Hispanic	48%	15%	30%	3%	4%	100%	71
Asian	31%	29%	31%	8%	2%	100%	59
Native American	71%	0%	14%	14%	0%	100%	7
Total	36%	21%	31%	8%	4%	100%	699

Results from the Jersey City respondents are presented in Table 7a, where it is evident that the sample size for some ethnic groups is too small to permit any inferences. For groups having a sufficiently large sample size, it is evident that walking frequency is higher in Jersey City than the state as a whole.

TABLE 7A:
WALKING FREQUENCY BY ETHNICITY, JERSEY CITY

Ethnicity	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
White Hispanic	47%	22%	27%	0%	5%	100%	60
Black Hispanic	50%	20%	20%	10%	0%	100%	10
White not Hispanic	65%	14%	17%	3%	2%	100%	102
Black not Hispanic	44%	29%	23%	2%	2%	100%	102
Asian	60%	21%	16%	2%	2%	100%	63
Native American	60%	20%	0%	0%	20%	100%	5
Total	54%	21%	20%	2%	3%	100%	342

Home Ownership, Dwelling Tenure, and Walking Frequency

It is generally perceived by researchers and planners that individuals living in single family homes walk less than individuals living in other types of dwellings because single family homes are usually located in suburban areas where destinations for walking trips are few, whereas multi-family, condo, townhouse, and apartment dwellings are located in more diverse and mixed-use areas. While the survey data for New Jersey (Table 8) show that walking frequency is relatively low for those living in single family dwellings, the data also show that those living in townhouses also have a low walking frequency. As expected, individuals living in apartments and condominiums have a high walking frequency. To a certain extent, the higher walking frequency for those living in apartments, condominium, etc., may also be explained a by automobile ownership and family structure.

TABLE 8:
WALKING FREQUENCY BY RESIDENCE TYPE, NEW JERSEY

Residence	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Single family home	33%	20%	33%	9%	5%	100%	517
Multi-family home	53%	21%	21%	3%	1%	100%	75
Townhouse	25%	30%	18%	20%	8%	100%	40
Apartment building	35%	23%	33%	5%	3%	100%	60
Condominium	50%	18%	27%	5%	0%	100%	22
Other	55%	36%	9%	0%	0%	100%	11
Total	35%	21%	31%	8%	4%	100%	725

TABLE 8A:
WALKING FREQUENCY BY RESIDENCE TYPE, JERSEY CITY

Residence	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Single family home	50%	16%	23%	5%	6%	100%	64
Multi-family home	54%	19%	21%	2%	4%	100%	125
Townhouse	64%	23%	14%	0%	0%	100%	22
Apartment building	57%	20%	21%	1%	1%	100%	101
Condominium	47%	36%	18%	0%	0%	100%	45
Other	40%	20%	40%	0%	0%	100%	5
Total	54%	21%	21%	2%	3%	100%	362

Table 9 shows the walking frequency of the state survey respondents by dwelling tenure. As expected, those who rent walk more often than those who live in owned homes. A reason for the lower frequency for those living in owned units is that a greater proportion of owned units are single family homes whereas a greater proportion of rented units are apartments. The difference in walking frequency between those who live in rented homes and those who live in owned homes may be of because of surrounding land uses and family structure.

TABLE 9:
WALKING FREQUENCY BY TENURE STATUS, NEW JERSEY

Own or Rent	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Rent	42%	22%	27%	7%	2%	100%	186
Own	33%	21%	32%	9%	5%	100%	535
Total	35%	21%	31%	8%	4%	100%	721

The walking frequency of residents by dwelling type and dwelling tenure for Jersey City residents is provided in Tables 8a and 9a, respectively. Comparison of Table 8a with Table 8 reveals that the Jersey City residents walk significantly more than residents living in the same type of dwelling in the state as a whole. A similar comparison between Table 9 and Table 9a shows that both home owners and renters in Jersey City walk significantly more than the respondents in the state sample.

TABLE 9A:
WALKING FREQUENCY BY TENURE STATUS, JERSEY CITY

Own or Rent	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Rent	56%	21%	19%	2%	2%	100%	229
Own	49%	21%	23%	2%	5%	100%	133
Total	54%	21%	20%	2%	3%	100%	362

Commute Mode and Walking Frequency

An analysis was carried to out examine how commute is associated with walking frequency in the state (Table 10). The data show that, as expected, those who walk to work and take public transit in general walk more frequently than those who drive to work. The higher walking frequency for the transit users could be partially explained by the absence of an automobile in some households. As shown in Table 10a, the Jersey City residents who commute to work by driving have a significantly higher walking frequency than those who commute to work by driving in the state as a whole. However, the difference is less clear for those using public transit.

TABLE 10:
WALKING FREQUENCY BY COMMUTE TYPE, NEW JERSEY

Commute mode	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Drive alone	29%	20%	37%	10%	4%	100%	371
Carpool	50%	0%	20%	10%	20%	100%	10
Transit	66%	16%	16%	2%	0%	100%	62
Walk	43%	43%	14%	0%	0%	100%	14
Bicycle	100%	0%	0%	0%	0%	100%	4
Other	32%	32%	23%	14%	0%	100%	22
Total	36%	20%	32%	9%	4%	100%	483

TABLE 10A:
WALKING FREQUENCY BY COMMUTE TYPE, JERSEY CITY

Commute mode	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Drive alone	44%	20%	33%	1%	2%	100%	91
Carpool	27%	27%	36%	0%	9%	100%	11
Transit	63%	25%	11%	0%	1%	100%	107
Walk	79%	0%	18%	3%	0%	100%	34
Bicycle	58%	16%	16%	0%	11%	100%	19
Other	56%	19%	21%	1%	2%	100%	262
Total	44%	20%	33%	1%	2%	100%	91

Work Status and Walking Frequency

The data in Table 11 show that walking frequency varies only modestly by work status in the state. For example, while 57% of the employed persons make at least one walking trip a day, 64% of the unemployed and 52% of the retired persons also walk as much. However, when one looks at only those who make more than one walking trip a day, the unemployed appear to walk significantly more than the other categories. It is likely that despite the similarities in overall walking frequency among the different respondent categories, the frequency of trips made by each group for specific purposes would vary significantly among the groups. For example, the retirees might make significantly more trips for exercise or recreation, whereas only the employed persons can be expected to make walking tips for work purposes. As shown in Table 11a, for all categories of respondents, whether they are employed, unemployed or retired, Jersey City residents have a higher walking frequency than the state as a whole.

TABLE 11:
WALKING FREQUENCY BY WORK STATUS, NEW JERSEY

Work Status	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Employed	36%	21%	32%	8%	4%	100%	463
Unemployed	56%	8%	24%	5%	7%	100%	59
Retired	25%	27%	31%	10%	8%	100%	113
Other	34%	23%	31%	10%	2%	100%	88
Total	38%	19%	31%	8%	4%	100%	522

Note: “Other” includes Going to School, Home Maker, Disabled / Unable to Work and Other

TABLE 11A:
WALKING FREQUENCY BY WORK STATUS, JERSEY CITY

Work Status	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Employed	56%	20%	21%	1%	2%	100%	245
Unemployed	71%	11%	11%	0%	7%	100%	28
Retired	40%	17%	29%	10%	5%	100%	42
Other	50%	38%	13%	0%	0%	100%	48
Total	54%	21%	20%	2%	3%	100%	363

Note: "Other" includes Going to School, Home Maker, Disabled / Unable to Work and Other

WALK TRIP CHARACTERISTICS

Trip Purpose by Gender

The survey respondents were asked for what purposes they walked. They were allowed to select multiple trip purposes if they walked for more than one purpose. It is clear from the data in Table 12 that people in New Jersey walk far more often for exercise, leisure, and recreational purposes than work or errands. The most popular trips were Physical Exercise (73%), Strolling (73%), and Recreation (70%). Walking for social purposes, such as visiting a friend, is also fairly common. Only 15% of the respondents reported walking for commuting purposes. However, some of those who reported walking to bus or train (13%) might have had a final destination at a workplace.

Only slight variations can be observed between men and women regarding their walk trip purposes. More female respondents reported walking than men for almost all trip purposes. However, it is not because women walk more frequently. As shown in Table 2, walking frequency for men and women is fairly similar when total walking trips are considered. However, it appears from Table 12 that women walk for more diverse purposes. Only for trips to bars/restaurants and workplaces, a higher proportion of men reported walking than women. A comparison of trip purposes between the state and Jersey City (Table 12a) shows that a greater proportion of Jersey City residents reported walking for all purposes except recreational walk. Thus it is not only that Jersey City residents walk more than the state residents overall, but they also walk for more diverse purposes.

TABLE 12:
WALK TRIP PURPOSE, NEW JERSEY

Trip Purpose	Male %	Female %	Total %
Do some physical exercise	73%	73%	73%
Go for a stroll	74%	71%	73%
Get some recreation	73%	68%	70%
Visit a friend or relative	45%	47%	46%
Personal errands	41%	38%	40%
Walk the dog	34%	26%	30%
Walk your child to a park	28%	30%	29%
Walk to bus or train	28%	30%	29%
Go on shopping trips	21%	30%	26%
Go to a restaurant/bar	31%	21%	26%
Go grocery shopping	22%	27%	25%
Walk a child to school	16%	18%	17%
Commute to work	17%	14%	15%
Go to a doctor or dentist	8%	15%	12%
Commute to school	7%	11%	9%

Note: Respondents were allowed multiple responses

TABLE 12A:
WALK TRIP PURPOSE, JERSEY CITY

Trip Purpose	Male %	Female %	Total %
Do some physical exercise	80%	71%	76%
Go for a stroll	71%	67%	69%
Get some recreation	71%	60%	66%
Visit a friend or relative	64%	64%	64%
Personal errands	66%	62%	64%
Walk the dog	69%	57%	63%
Walk your child to a park	67%	54%	60%
Walk to bus or train	57%	62%	59%
Go on shopping trips	68%	46%	57%
Go to a restaurant/bar	58%	45%	51%
Go grocery shopping	34%	41%	37%
Walk a child to school	30%	36%	33%
Commute to work	21%	25%	23%
Go to a doctor or dentist	17%	17%	17%
Commute to school	14%	12%	13%

Trip Origin

According to the state survey results shown in Table 15, the most common origin for the respondents' trips was home (89%). It is not surprising, considering that the most common trip purposes for the respondents were exercise, stroll, and recreation – trips that people usually begin at home. However, to a certain degree, the results may also be affected by reporting bias. For example, some people who walked to school or a transit station in the morning might have made a return walk trip later in the day, but reported only that trip that was made from home. Such reporting biases are common unless respondents are specifically asked about their return trips. The walk trip origins for Jersey City residents are not shown. Ninety three percent of the respondents reported beginning their walk trips from home compared to 89% in the state sample.

TABLE 13:
TRIP ORIGIN, NEW JERSEY

Origin	Respondents	Percentage
Home	610	89%
Work	19	3%
Transit Stop	6	1%
Parked Car / Parking Lot	13	2%
Fiend or Relatives Home	8	1%
School or Campus	3	0%
Park, Playground, or Trail	9	1%
Grocery store, drug store or convenience store	3	0%
Shopping Center, Mall or Strip mall	4	1%
Other	8	1%
Total	684	100%

Duration of Walk Trips

Table 14 shows that most walking trips in New Jersey are in the 10-14 minute range (21%). These trips typically are in the half mile range. Among the female respondents, however, most walking trips are in the 15-19 minute range. The percentage of female walkers is also higher than men for the ranges above 30 minutes. This may indicate that women's walking trips overall are slightly longer than men's. This may be due to variations in trip purposes or slower pace of waking for women. A comparison between the state residents and the Jersey City residents (Table 14a) shows that walking trips by the Jersey City residents in general are shorter than the respondents in the state sample. This is reasonable because activities are located more closely in Jersey City than most parts of the state.

TABLE 14:
TRIP DURATION, NEW JERSEY

Duration of walk (minutes)	Total respondents	Percent of total respondents	Percent of male respondents	Percent of female respondents
< 5	82	12%	11%	13%
5-9	121	18%	18%	17%
10-14	143	21%	25%	17%
15-19	107	16%	13%	18%
20-29	96	14%	16%	12%
30-44	83	12%	11%	13%
45-59	16	2%	1%	4%
> 60	39	6%	5%	7%
Total	686	100%	100%	100%

TABLE 14A:
TRIP DURATION, JERSEY CITY

Duration of walk (minutes)	Total respondents	Percent of total respondents	Percent of male respondents	Percent of female respondents
< 5	50	14%	15%	13%
5-9	83	24%	27%	20%
10-14	83	24%	23%	24%
15-19	45	13%	12%	14%
20-29	34	10%	8%	11%
30-44	29	8%	9%	7%
45-59	16	5%	4%	5%
> 60	12	3%	1%	6%
Total	353	100%	100%	100%

Road/Path Type

Pedestrian safety is associated with where people walk. Because of slower posted speed, less traffic volume, availability of sidewalks, and commercial land uses in abutting properties, local roads usually attract more pedestrians than other types of roads. That seems to be the case in New Jersey also. As shown in Table 15, a majority of the respondents in the state survey reported walking on a neighborhood road (59%), followed by a 2-lane road (26%). One can deduce from the data that most walk trips, regardless of purpose, were on local roads. It is interesting to note that despite a small number of respondents walking on major highways, most pedestrian fatalities in New Jersey occur on this type of roads.

Table 15a shows where the residents of Jersey City choose to walk. Compared to the state survey respondents, a greater proportion in Jersey City respondents reported walking on local roads, but a smaller proportion reported walking on neighborhood roads. The reason is that compared to other places in the state, there are fewer roads in Jersey City that have the characteristics of typical neighborhood roads.

TABLE 15:
TRIP ROAD/PATH TYPE, NEW JERSEY

Road/Path Descriptions	Respondents	Percentage
Neighborhood Road	394	59%
2-Lane Road	172	26%
4-Lane Road	28	4%
Major Highway	11	2%
Trail	26	4%
Other	34	5%
Total	665	100%

TABLE 15A:
TRIP ROAD/PATH TYPE, JERSEY CITY

Road/Path Descriptions	Respondents	Percentage
Neighborhood Road	168	48%
2-Lane Road	131	37%
4-Lane Road	28	8%
Major Highway	4	1%
Trail	7	2%
Other	14	4%
Total	352	100%

Origin by Trip Type

The specific trip purposes were aggregated in the survey to obtain more detailed information on four broad trip types: Non-discretionary (e.g., work trips, school trips), Health/recreation/pleasure trips, Shopping/dining trips and Errands/social trips. This aggregation was necessary to ensure that the sample sizes were large enough for each trip type. The cross tabulation of these trips by trip origin for the state is presented in Table 16. The data show that there is only a slight difference in trip origins for the four trip types, as an overwhelmingly large proportion of all trip types originate at home. However, it is noticeable that a larger proportion of trips for Shopping/dining originate at non-home locations, indicating that more trip chaining may be involved in this type of trips than the other types. In Jersey City, more than 90% of all four types of walking trips originate at home.

TABLE 16:
TRIP ORIGIN BY TRIP TYPE, NEW JERSEY

Trip Origin	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Home	88%	89%	88%	92%	89%
Work	4%	2%	1%	2%	3%
Somewhere Else	8%	8%	11%	6%	8%
Total	100%	100%	100%	100%	100%
N	194	166	160	163	683

Walk Duration by Trip Type

People are expected to walk for a longer duration for certain types of trips than others. For example, people may walk for a longer duration when the purpose is to exercise than for going to work. The duration of trips by trip purpose from the state survey is shown in Table 17. As expected, non-discretionary trips (i.e., work and school trips) are of the shortest duration as 44% of these trips are within 10 minutes. Health/recreation/pleasure trips are of the longest duration as 49% of these trips are between 20 and 25 minutes. Shopping/dining and Errands/social trips

are of modest duration as most of these trips are between 10-14 minutes. Trips longer than 45 minutes are made predominantly for health/recreation/pleasure, but somewhat surprisingly, 7% of the Shopping/dining trips are reported to be longer than one hour. The analysis was not replicated for Jersey City because the sample is too small for any meaningful interpretation.

TABLE 17:
TRIP DURATION BY TRIP TYPE , NEW JERSEY

Duration of walk (min)	Non-Discretionary	Health / Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
< 5	17%	4%	9%	17%	12%
5-9	27%	9%	15%	18%	18%
10-14	21%	11%	27%	24%	21%
15-19	15%	10%	22%	16%	16%
20-29	12%	22%	10%	12%	14%
30-44	5%	27%	10%	7%	12%
45-59	1%	8%	0%	1%	2%
> 60	3%	10%	7%	4%	6%
Total	100%	100%	100%	100%	100%
N	196	166	162	163	687

Trip Chaining

The survey respondents were asked if they took a break for more than 5 minutes during their walks. Breaks taken during a trip are reflective of trip-chaining behavior. It is generally believed that by making chained trips, people can reduce their overall travel time. The state survey results (Table 18) show that breaks are the least common for Health/recreation/pleasure walks and most common for Shopping/dining trips. A slightly larger proportion of respondents in Jersey City reported taking a break during their walk than the state survey respondents (20% against 14%). This is primarily due to more breaks in Health/recreation/pleasure walks in Jersey City.

TABLE18:
TRIP BREAKS BY TRIP CATEGORY, NEW JERSEY

Did you stop for more than 5 minutes?	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Yes	10%	5%	25%	18%	14%
No	90%	95%	75%	82%	86%
Total	100%	100%	100%	100%	100%
N	197	167	162	163	689

TABLE18A:
TRIP BREAKS BY TRIP CATEGORY, JERSEY CITY

Did you stop for more than 5 minutes?	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Yes	14%	30%	20%	18%	20%
No	86%	70%	80%	82%	80%
Total	100%	100%	100%	100%	100%
N	94	90	88	85	357

Time of Day by Trip Type

Certain types of trips usually occur at certain times of the day. The state survey results in Table 19 show that individuals make a substantial amount of non-discretionary (work, school, etc.) trips in the morning. Since individuals who make a non-discretionary walk trip in the morning presumably make a return trip in the afternoon or evening, the data collected from the survey may have underreported such return trips. However, the distribution of all other types of trips conforms to expectation. Health/recreation/pleasure trips are distributed evenly throughout the day. The highest proportion of Shopping/dining trips is made in midday, presumably because of lunchtime shopping and dining by workers. Most Errands/Social trips are made in the early afternoon (although this type of trips is also fairly evenly distributed throughout the day). Walk trips in Jersey City follow similar patterns as the state as a whole, with the exception that a significantly higher proportion of Shopping/dining and Errands/social trips occur in the early morning hours.

TABLE19:
TRIP TIME OF DAY BY TRIP CATEGORY, NEW JERSEY

Time of Day	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Early Morning	57%	20%	13%	18%	28%
Late Morning	8%	15%	11%	14%	12%
Midday	13%	18%	21%	17%	17%
Early Afternoon	9%	15%	17%	21%	15%
Late Afternoon	8%	17%	17%	16%	14%
Early Evening	4%	13%	14%	13%	11%
Late Evening	1%	3%	6%	1%	3%
Total	100%	100%	100%	100%	100%
N	193	163	161	159	676

Type of Path by Trip Type

Table 20 shows the distribution of trip types by path type for the state survey respondents. Although trips of all types are predominantly made on neighborhood roads, it is noticeable that

fewer Non-discretionary trips and Shopping/errands trips are made on this type of roads than Health/recreation/pleasure and Social/errands tips. The reason could be that the destinations of many Non-discretionary and Shopping/errand trips are located on higher-level roads. As expected, trails are used primarily for Health/recreation/pleasure walks.

TABLE 20:
PATH TYPE BY TRIP CATEGORY, NEW JERSEY

Type of Path	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Neighborhood Road	51%	65%	48%	62%	56%
2-Lane Road	33%	17%	37%	24%	28%
4-Lane Road	8%	1%	6%	6%	5%
Major Highway	3%	1%	2%	1%	2%
Trail	2%	11%	2%	1%	4%
Other	3%	5%	5%	6%	5%
Total	100%	100%	100%	100%	100%
N	195	166	163	162	686

Path types for the four types of trips for Jersey City are shown in Table 20a. It is evident that a smaller proportion of Health/recreation/pleasure trips in Jersey City take place on trails, which is understandable because trails are rare in an urban environment. Consistent with the results shown in Table 15 and 15a, more respondents in Jersey City reported walking on 2-lane roads than the state as a whole.

TABLE 20A:
PATH TYPE BY TRIP CATEGORY, JERSEY CITY

Type of Path	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Neighborhood Road	53%	51%	48%	38%	48%
2-Lane Road	37%	32%	28%	50%	37%
4-Lane Road	8%	6%	13%	7%	8%
Major Highway	0%	0%	5%	1%	1%
Trail	3%	3%	2%	0%	2%
Other	0%	8%	5%	3%	4%
Total	100%	100%	100%	100%	100%
N	93	88	88	86	355

Perception of Safety by Trip Type

The survey respondents who walked were asked if they felt unsafe because of the conditions where they walked. Table 21 shows the results from the statewide survey. For all trip types, the

respondents appeared to be most concerned about driving speed. A modest amount of the respondents also reported a concern about not having enough sidewalks and streetlights, and having too much traffic. Variations among the trip types were slight, but it is noticeable that a smaller proportion of those making Health/recreation/pleasure walks were concerned about traffic, presumably because they walk on local roads and trails in greater proportions than others. Although fear of crime is often attributed to less walking, neighborhood crime is of the least concern to the statewide survey respondents.

The perception of safety for the Jersey City residents is not shown. Although the walking environment in Jersey City is different from the rest of the state, the perception of safety of its residents for each trip type is somewhat similar to the state sample regarding all concerns listed in Table 21. However, as shown in another section (see Tables 25 and Table 25a), people in Jersey City are far more concerned about crime and traffic enforcement than the state as a whole.

TABLE 21:
PERCEIVED TRIP SAFETY BY TRIP CATEGORY, NEW JERSEY

Did the following make you feel unsafe during your walk?	Non-Discretionary	Health/ Recreation/ Pleasure	Shopping/ Dining	Errands/ Social	Total
Too much Traffic	17%	10%	16%	16%	15%
Drivers drive too fast	26%	27%	35%	31%	30%
Not enough sidewalks	15%	18%	10%	20%	16%
Not enough crosswalks	11%	14%	7%	7%	10%
Neighborhood Crime	6%	5%	6%	6%	6%
Inadequate street lighting	14%	16%	14%	11%	14%
Not enough time at signals to cross roads	12%	10%	12%	10%	11%
Total	100%	100%	100%	100%	100%
N	351	197	262	214	1,024

Note: Total N is greater than the total respondents (800) because of multiple responses.

BUILT ENVIRONMENT

Hundreds, if not thousands, of studies have been published within the past 20 years on the relationship between the built environment and walking. It has been hypothesized, and often demonstrated, in these studies that there is an association between the built environment and walking. The built environment in these studies has been usually defined in terms of land uses, street patterns, and density. An assumption in these studies is that when there are more destinations within walking distance, people walk more.

Intensity of Built Environment

In order to examine the proximity to activities that are usually perceived as generators of walking trips, the survey included a question that inquired whether such activities were present within walking distance of the respondents' homes. Specifically, it was asked in the survey whether the respondents had eight specific types of activities within a 10-minute walk from their home: (a) Train, subway and bus stations, (b) Downtown business district, (c) Office parks or business parks, (d) School or college campus, (e) Park, playground or trail, (f) Grocery store, drug store or convenience store, (g) Shopping mall, strip mall or shopping center, and (h) Restaurant or café. When a respondent reported not having an activity within a 10-mnute walk, he/she was asked whether the activity was present within a 20-minute walk.

Table 22 shows the distribution of the state survey respondents according to the number of activities within 10- and 20-minute walking distance from their homes. It shows that 10% of the respondents have all eight activities within a 10-minute walk and 26% have them within a 20-minute walk. Approximately 60% of respondents have at least five activities within a 10-minute walk and 80% have them within a 20-minute walk. Overall, it appears that most households have activities in close proximity that generate walking trips.

TABLE 22:
INTENSITY OF BUILT ENVIRONMENT, NEW JERSEY

Number of activities	Percent activities within 10 minutes	Cumulative percentage within 10 minutes	Percent activities within 20 minutes	Cumulative percentage within 20 minutes
8	10%	10%	26%	26%
7	17%	27%	24%	50%
6	17%	44%	19%	70%
5	15%	59%	10%	80%
4	10%	69%	6%	86%
3	10%	79%	4%	90%
2	9%	88%	4%	95%
1	7%	95%	4%	98%
0	5%	100%	2%	100%

The intensity of land uses for the Jersey City respondents is shown in Table 22a. As expected, the Jersey City residents have a significantly greater proximity to activities that generate walking. For example, 19% of the Jersey City respondents have all eight activities within a 10-minute walk, whereas only 10% of the respondents in the state survey had eight activities within that distance. There is no doubt that greater proximity to activities is a reason for greater walking frequency among the Jersey City residents compared to the state residents.

TABLE 22A:
INTENSITY OF BUILT ENVIRONMENT, JERSEY CITY

Number of activities	Percent activities within 10 minutes	Cumulative percentage within 10 minutes	Percent activities within 20 minutes	Cumulative percentage within 20 minutes
8	19%	19%	41%	41%
7	23%	42%	24%	65%
6	22%	64%	21%	86%
5	13%	77%	10%	96%
4	13%	90%	2%	98%
3	7%	96%	2%	100%
2	3%	99%	1%	100%
1	1%	100%	0%	100%
0	0%	100%	0%	100%

Intensity of Built Environment by Trip Purpose

Table 23 shows the distribution of trip types by the number of activities with a 10-minute walk. This analysis is meant to provide a basic understanding about the variations in trip types for different levels of proximity to activities. The smaller cumulative percentages at the highest levels of activity for exercise-related walk trips indicate that intensity or concentration of activities in neighborhood have the least effect on trips made for exercise. In contrast, walk trips for work and restaurant are more frequent among those who have a number of activities within a 10-minute walk. Obviously, Jersey City residents have greater proximity than the state sample for all trips types (not shown).

TABLE 23:
INTENSITY OF BUILT ENVIRONMENT (WITHIN 10 MINUTES) BY TRIP PURPOSE, NEW JERSEY

Number of activities	Cumulative percent for selected trip purposes				
	Work Commute	Train or Bus	Physical Exercise	Restaurant	Visit a Friend
8	13%	18%	10%	19%	16%
7	36%	36%	28%	44%	36%
6	68%	57%	46%	66%	53%
5	81%	72%	61%	79%	64%
4	86%	83%	70%	86%	74%
3	91%	91%	80%	94%	84%
2	95%	98%	89%	98%	92%
1	99%	100%	95%	99%	96%
0	100%	100%	100%	100%	100%

Proximity to Specific Activity Types

So far the analysis has been focused on aggregated activities. However, different types of activities are located at different levels of proximity from homes. Table 24 shows that parks and playgrounds are the most proximate among the eight activities for the state survey respondents. Almost 80% of the respondents live within 10-minute walking distance of a park or playground, whereas only 43% of the respondents had downtowns within a 10-minute walk.

Proximity to different types of activities for the Jersey City residents is shown in Table 24a. It is evident that these residents have greater proximity to all activities than the state survey respondents. The greatest difference in proximity is for transit stations/stops, as 84% of the Jersey City residents have at least one facility within a 10-minute walk whereas only 48% of the state survey respondents reported having a transit station/stop within that distance. The difference in proximity to Grocery/drug/convenience stores is also very large.

TABLE 24:
10-MINUTE PROXIMITY TO BUILT ENVIRONMENT ELEMENTS, NEW JERSEY

Live within 10 minutes of:	Percentage	Total Responses (N)
Train/Subway/Bus	48%	789
Downtown Business District	43%	794
Office Parks	46%	778
School/College	72%	797
Park/Playground/Trail	79%	796
Grocery/Drug/Convenience Store	73%	798
Shopping/Strip Mall or Shopping Center	49%	799
Restaurant/Café	73%	799

Note: Respondents were allowed multiple responses

TABLE 24A:
10-MINUTE PROXIMITY TO BUILT ENVIRONMENT ELEMENTS, JERSEY CITY

Live within 10 minutes of:	Percentage	Total Responses (N)
Train/Subway/Bus	84%	400
Downtown Business District	49%	390
Office Parks	60%	371
School/College	85%	393
Park/Playground/Trail	86%	398
Grocery/Drug/Convenience Store	91%	400
Shopping/Strip Mall or Shopping Center	57%	400
Restaurant/Café	87%	398

Note: Respondents were allowed multiple responses

Satisfaction with Walking Environment Elements

Satisfaction with certain elements of the neighborhood is usually perceived to be associated with walking frequency. When residents are satisfied, they are expected to be more inclined to walk. Table 25 shows the satisfaction of the state survey respondents with a number of neighborhood elements. The respondents appear to be highly satisfied with crime prevention. This is consistent with the results shown in Table 21, where only a small proportion of walkers were concerned about neighborhood crime. People are also satisfied with the proximity to parks and playgrounds and traffic enforcement. On the other hand, people's satisfaction with crosswalks, street lighting, and overall pedestrian safety is lower than the other elements. This is intriguing because the respondents were highly satisfied with the overall neighborhood pedestrian quality. A comparison between the New Jersey and Jersey City residents (Table 25 and Table 25a) reveals that the concerns about the walking environment elements are different in an urban environment like Jersey City from that of the state as a whole. As expected, satisfaction with crime prevention and traffic enforcement is significantly lower in Jersey City than the state as a whole.

TABLE 25:
SATISFACTION WITH ELEMENTS OF WALKING ENVIRONMENT, NEW JERSEY

Walking environment elements	Very satisfied	Somewhat satisfied	Not very satisfied	Not at all satisfied	Total	N
Crime Prevention	59%	33%	4%	4%	100%	779
Sidewalks	43%	30%	15%	12%	100%	738
Crosswalks	47%	35%	11%	7%	100%	737
Street Lighting	42%	35%	14%	9%	100%	781
Signal/Signs	54%	36%	6%	3%	100%	784
Traffic Enforcement	51%	35%	8%	7%	100%	769
Parks/Playgrounds	54%	30%	7%	8%	100%	763
Safety of Pedestrians	43%	38%	11%	8%	100%	787
Neighborhood Pedestrian Quality	57%	32%	8%	4%	100%	791

TABLE 25A:
SATISFACTION WITH ELEMENTS OF WALKING ENVIRONMENT, JERSEY CITY

Walking environment elements	Very satisfied	Somewhat satisfied	Not very satisfied	Not at all satisfied	Total	N
Crime Prevention	30%	41%	16%	14%	100%	383
Sidewalks	37%	40%	13%	10%	100%	396
Crosswalks	43%	42%	9%	6%	100%	390
Street Lighting	42%	37%	13%	8%	100%	397
Signal/Signs	51%	38%	7%	4%	100%	395
Traffic Enforcement	32%	43%	15%	10%	100%	388
Parks/Playgrounds	41%	36%	13%	10%	100%	389
Safety of Pedestrians	30%	42%	18%	10%	100%	398
Neighborhood Pedestrian Quality	37%	39%	16%	8%	100%	395

Quality of the Sidewalks by Walking Frequency

It appears from the results presented in Table 26 that there is a discernible relationship between the satisfaction with sidewalks and walking frequency in the state. For example, 40% of the respondents are highly satisfied with sidewalks walk more than once a day, whereas only 30% of those that are not at all satisfied do so. Similarly, among the very satisfied, 60% walk at least once a day, whereas among those who are not at all satisfied, only 53% walk at least once a day.

However, the results need to be interpreted with care because the relationship between satisfaction with sidewalk and walking frequency is not straightforward. For example, walking frequency is higher among those who are not very satisfied (42% walk more than once a day and 64% walk at least once a day) than those who are somewhat satisfied (27% walk more than once a day and 49% walk at least once a day). It is possible that walking frequency is related to the level of satisfaction with sidewalks only when people are highly satisfied or highly dissatisfied, whereas intermediate levels of satisfaction have no relationship with walking propensity or frequency.

Satisfaction with sidewalks in Jersey City has been shown in Table 26a. Not surprisingly, walk frequency is significantly higher in Jersey City than the state irrespective of the level of satisfaction. For example, even among those who are not at all satisfied with sidewalks, 51% reported walking more than once a day in Jersey City compared to only 30% in the state. It shows that the relationship between perceived sidewalk quality and actual walking is intricate.

TABLE 26:
WALKING FREQUENCY BY QUALITY OF SIDEWALKS, NEW JERSEY

Quality of Sidewalks	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	N	Total
Very satisfied	40%	20%	29%	5%	5%	292	43%
Somewhat satisfied	27%	22%	36%	10%	5%	195	29%
Not very satisfied	42%	22%	31%	4%	1%	106	16%
Not at all satisfied	30%	23%	29%	14%	5%	80	12%
Total	36%	21%	32%	7%	4%	673	100%

TABLE26A:
WALKING FREQUENCY BY QUALITY OF SIDEWALKS, JERSEY CITY

Quality of Sidewalks	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	N	Total
Very satisfied	53%	22%	21%	2%	2%	132	37%
Somewhat satisfied	55%	20%	17%	2%	6%	145	41%
Not very satisfied	53%	31%	13%	0%	2%	45	13%
Not at all satisfied	51%	11%	37%	0%	0%	35	10%
Total	54%	21%	20%	2%	3%	357	100%

Neighborhood Dwelling Characteristics and Walking Frequency

Existing literature suggests that walking propensity and frequency are usually associated with the characteristics of dwellings in neighborhood. For example, people living in areas with a concentration of apartments and multi-family homes are expected to walk more than those in neighborhoods with single family homes because of close proximity to destinations in the former and a high car ownership rate in the latter. To be able to examine if there is a relationship between neighborhood dwelling characteristics and walking frequency, the survey respondents were asked about the dwelling characteristics of their neighborhoods. The results from the state survey are presented in Table 27. As expected, the respondents living in areas with predominantly single-family homes reported walking less frequently than those in neighborhoods characterized by other types of dwellings. For example, only 32% of the respondents living areas in characterized by single family homes walked more than once a day and 54% walked at least once a day, whereas 44% of those living in areas characterized by apartments walked more than once a day and 65% walked at least once a day. Those living in condo and townhouse environments also reported walking more than those living in areas with single family homes.

The analysis for Jersey City is not shown because similar to the foregoing analysis, Jersey City residents make more frequent walk trips than the state residents irrespective of the characteristics of the area where they live. The difference between the state and Jersey City is the highest for those who characterized their neighborhoods as free-standing single family homes because 58% of the Jersey City respondents reported walking more than once a day compared to only 32% of the respondents in the state survey.

TABLE 27:
WALKING FREQUENCY BY NEIGHBORHOOD CHARACTERISTICS, NEW JERSEY

Neighborhood characteristics	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
Mostly free-standing single family homes	32%	22%	33%	8%	5%	100%	549
Mostly condos, townhouses, row-houses, or other attached homes	48%	18%	25%	9%	1%	100%	80
Mostly multi-story apartment buildings	44%	21%	23%	8%	4%	100%	48
Other	44%	22%	24%	7%	2%	100%	45
Total	35%	21%	31%	8%	4%	100%	722

Neighborhood Improvements

The survey respondents were asked what type of neighborhood improvements they would suggest for promoting walking. The results from the statewide survey are shown in Table 28. Street lighting was the most recommended neighborhood improvement (50%), whereas Pedestrian overpass/underpasses were recommended the least (16%). The high preference for street lighting is consistent with the results in Table 25, where it was shown that the level of satisfaction with street lighting was lower than most elements in the respondents' walking environment. Only a small proportion of respondents suggested pedestrian overpasses or underpasses because people who live farther from major roads do not usually feel the need for these expensive infrastructure improvements. Similarly, only a few recommended crossing guards because people are less likely to feel the need unless the respondents had children who walked to school.

Significant differences can be observed between the state survey respondents and the Jersey City respondents regarding people's perception of improvements needed for promoting walking. In contrast to the state survey respondents, the Jersey City respondents feel more strongly about crime prevention and traffic enforcement and less strongly about sidewalks. Overall, however, the Jersey City respondents felt more strongly than the state sample about all types of improvements. This is possibly because the Jersey City residents are more aware of their walking environment than the state population.

TABLE 28:
DESIRED NEIGHBORHOOD IMPROVEMENTS, NEW JERSEY

Neighborhood Improvements	Percentage	Total Responses (N)
Street lighting	50%	792
Traffic law enforcement	43%	782
Maintenance	43%	788
Recreational paths	39%	781
Increased pedestrian crossing timing	38%	782
Sidewalks	37%	795
Crosswalks	32%	785
Pedestrian signals	31%	784
More policing	28%	778
Crossing guards	20%	756
Pedestrian Overpass or Underpass	16%	790

Note: Respondents were allowed multiple responses

TABLE 28A:
DESIRED NEIGHBORHOOD IMPROVEMENTS, JERSEY CITY

Neighborhood improvements	Percentage	Total Responses (N)
More policing	70%	390
Traffic law enforcement	68%	395
Maintenance	60%	397
Recreational paths	57%	393
Street lighting	54%	399
Increased pedestrian crossing timing	52%	394
Pedestrian signals	48%	393
Crossing guards	40%	374
Crosswalks	38%	397
Pedestrian Overpass or Underpass	30%	390
Sidewalks	28%	399

Reasons for Not Walking

To obtain a comprehension of the impediments to walking, the survey respondents that walked less than several times a week were asked why they did not walk more often. The results from the statewide survey are presented in Table 29. The most frequent response was lack of time, followed by absence of sidewalks or paths. It may be noted that published studies have consistently noted lack of time as a major impediment to walking. The analysis for Jersey City is not shown because of small sample size of non-walkers.

TABLE 29:
REASONS FOR NOT WALKING, NEW JERSEY

Reason for Not Walking	Respondents	Percentage
Street Crime	13	7%
No Sidewalks or Paths	29	15%
Vehicular Traffic	13	7%
Lack Street Lighting	19	10%
Bad Drivers	21	11%
No Place to Walk	17	9%
Health-Related	21	11%
No Time	57	30%
Total	191	100.00%

Since existing literature often suggests that the value of time is perceived differently by people from different classes, an attempt was made to analyze the reason for not walking by income class in Table 30. Consistent with expectation, a greater proportion of the respondents from the highest-income households felt lack of time as an impediment to walking than respondents from lower-income households. Also consistent with expectation, a large proportion of respondents from the lowest-income households reported health reasons as an impediment to walking. The Jersey City sample is too small for this analysis.

TABLE 30:
WALKING FREQUENCY BY INCOME, NEW JERSEY

	Less than $25,000	$25,000 to less than $100,000	$100,000 or more	Total
Street Crime	7%	10%	0%	7%
No Sidewalks or Paths	14%	15%	13%	15%
Vehicular Traffic	0%	7%	8%	6%
Lack Street Lighting	0%	12%	3%	9%
Bad Drivers	7%	10%	13%	11%
No Place to Walk	14%	8%	13%	10%
Health-Related	21%	13%	5%	12%
No Time	36%	25%	45%	31%
Total	100%	100%	100%	100%
N	14	105	38	157

JOGGING

A jogger mostly uses the same infrastructure elements that are used by pedestrians. To supplement the questions on walking, the survey included a few questions pertaining to jogging. In Table 31, the state survey respondents' propensity to jog is shown. Among the survey respondents, 32% reported jogging. The propensity is slightly higher for men than women. Jogging propensity is almost identical in Jersey City (33%) as the state, but far more male respondents in Jersey City reported jogging than female respondents. This may be due a greater fear of crime in Jersey City among women.

TABLE 31:
PROPENSITY TO JOG, NEW JERSEY

Did you ever jog outside for exercise?	Male	Female	Total
Yes	35%	29%	32%
No	65%	71%	68%
Total	100%	100%	100%
N	345	393	738

Jogging Path Type

Table 32 shows where New Jersey joggers jog. Despite some commonalities, joggers' preferences seem to be different from pedestrians in terms of usage of infrastructure (see Table 15 for comparison). Forty four percent of the joggers reported jogging on the street, while an additional 26% reported jogging on the sidewalk, indicating that roads and sidewalks are the most common elements used by joggers. A much greater proportion of men jog on the street (51%) than women (37%). On the other hand, a much larger proportion of women jog in parks and trails compared to men. These results allude to the fact that male joggers feel safer and more comfortable than female joggers sharing streets with automobiles. These results are consistent with existing literature that shows that women more often prefer separated facilities for walking, jogging and bicycling than men. Although Jersey City is heavily urbanized, a much larger proportion of the joggers jog in parks compared to the state respondents (Table 32a). The reason is that Jersey City has two very large parks with jogging paths (Lincoln Park and Liberty State Park).

TABLE 32:
JOGGING PATH TYPE BY GENDER, NEW JERSEY

Jogging Path Type	Male	Female	Total
Street	51%	37%	44%
Sidewalk	27%	25%	26%
Park	13%	21%	17%
Trail	5%	10%	7%
Other	5%	7%	6%
Total	100%	100%	100%
N	120	114	234

TABLE 32A:
JOGGING PATH TYPE BY GENDER, JERSEY CITY

Jogging Path Type	Male	Female	Total
Street	9%	21%	13%
Sidewalk	20%	35%	25%
Park	47%	37%	44%
Trail	8%	0%	5%
Other	16%	7%	13%
Total	100%	100%	100%
N	76	43	119

Location of Jogging

On the basis of anecdotal evidence that some joggers jog close to their work instead of jogging close to home, a question was included in the survey to investigate where New Jersey joggers jog. The responses to the questions are shown in Table 33. It was found that an overwhelming majority of respondents jog near their homes (91%), whereas only 2% of the joggers reported exclusively jogging close to their work. On the basis of the results, one can conclude that the environment near one's home is much more important for joggers than the environment near work. The results are not surprising since most workers do not have access to showers, etc., at work places. In Jersey City also, 91% of the joggers reported jogging near their homes.

TABLE 33:
JOGGING LOCATION, NEW JERSEY

Jogging Path Type near Home/Work?	Respondents	Percentage
Home	211	91%
Work	4	2%
Home and work (works at home)	5	2%
Home and work (works outside home)	12	5%
Total	232	100%

CHILDREN AND WALKING

A few questions were included in the survey on walking behavior of children. These questions also allow an examination of the relationship between the presences of children in households with the walking frequency of the adults. The following sections describe some of the important findings.

Number of Children in Household and Walking

Adults, especially parents, may walk more or less depending on whether children are present in a household. For example, an adult may walk more because of dropping off and picking up children at school or visiting parks and playgrounds with children. On the other hand, some adults may also walk less because of the additional time they have to devote to children at home.

Table 34 shows the walking frequency of the statewide survey respondents classified by the number of children under age 18 in their household. It is evident that the respondents that have two or more children walk more often than the respondents with no children or one child. The proportions of respondents with no child or one child who walk at least once a day are 54% and 52% respectively, whereas 68% of the respondents with two children and 59% of the respondents with three or more children walk at least once a day. It can thus be inferred from the results that the presence of children is associated with more walking, presumably because of trips to schools and parks/playgrounds in company of children. Although walking frequency is significantly higher in Jersey City, the relationship with number of children is the same as the state. For example, in Jersey City also, adults from households with children walk more often than adults from households without children.

TABLE 34:
WALKING FREQUENCY BY CHILDREN, NEW JERSEY

# of Children under age 18 in household	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
0	32%	22%	31%	9%	6%	100%	383
1	34%	18%	36%	8%	3%	100%	144
2	43%	25%	23%	7%	2%	100%	108
3 +	44%	15%	28%	8%	5%	100%	88

Children's Travel Mode to School

A question was included in the survey about the travel mode of school children in the respondent's household. Since many households have multiple children, the households with more than one child were alternately asked about the travel mode of the youngest and the oldest child. The results from the statewide survey are presented in Table 35.

Among all modes, being driven by an adult or parent is the common mode of transportation for children's school trips, followed by the school bus. This is not surprising because many schools

are located in automobile-friendly suburban locations. Walking trips constituted between 16% and 25% of the school trips. The proportion of walking trips for the youngest child is significantly lower than the oldest child, presumably because younger children attend schools closer to homes than older children.

Children's travel mode to school for the Jersey City residents is shown in Table 35a. In contrast to the state, where automobile is the most dominant mode of transportation for children's school trips, walking constitutes the largest mode share for the Jersey City children. The share of school bus trips and automobile trips in Jersey City is significantly lower than the state.

TABLE 35:
CHILDREN'S TRAVEL MODE TO SCHOOL, NEW JERSEY

Travel Mode to School	Only Child	Youngest Child	Oldest Child	Total
Walk	16%	25%	18%	18%
Ride Bike	3%	0%	4%	2%
School Bus	28%	29%	27%	28%
Public Transportation	0%	3%	2%	1%
Parent/Adult Drives to School	43%	39%	31%	39%
Other	10%	4%	19%	10%
Total	100%	100%	100%	100%
N	160	76	74	310

TABLE 35A:
CHILDREN'S TRAVEL MODE TO SCHOOL, JERSEY CITY

Travel Mode to School	Only Child	Youngest Child	Oldest Child	Total
Walk	52%	53%	43%	49%
Ride Bike	0%	0%	3%	1%
School Bus	10%	10%	14%	12%
Public Transportation	7%	10%	7%	8%
Parent/Adult Drives to School	31%	26%	31%	30%
Other	0%	0%	2%	1%
Total	100%	100%	100%	100%
N	72	33	42	147

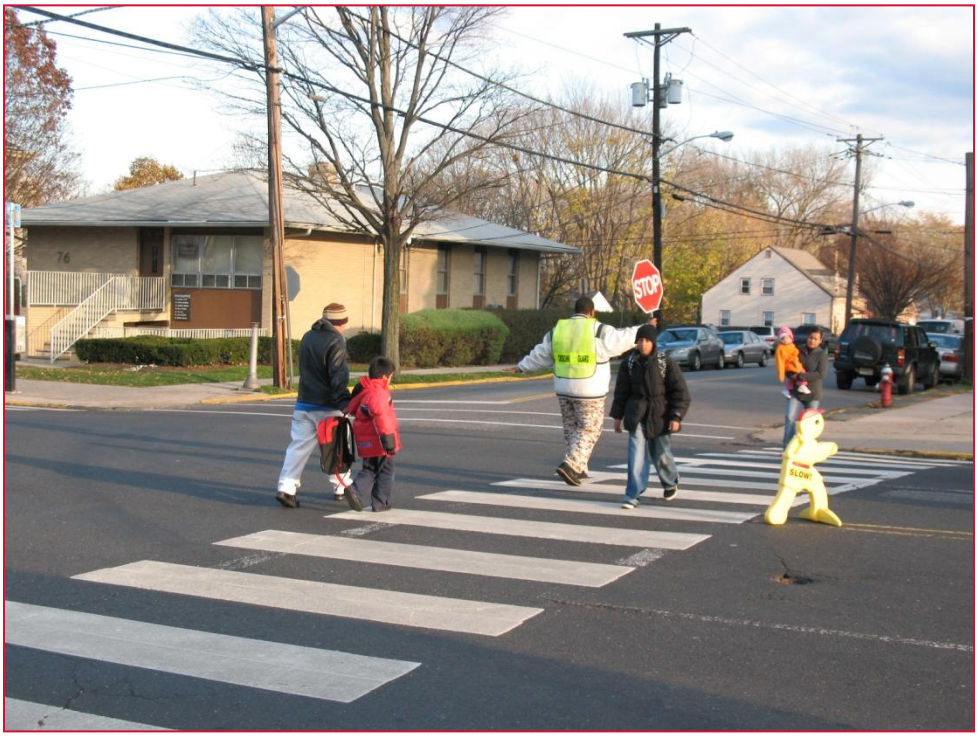
Reasons for Children Not Walking to School

The respondents who reported their children not walking to school were asked why the children did not walk. As expected, the most common reason was distance to school in the state survey (Table 36). Fifty nine percent of the respondents mentioned their children's schools being too far. None of the other options provided to the respondents received significant mention other than the category "other." It is conceivable that parental responsibilities and work locations also play a role in determining whether a child walks to school. For example, a parent who works far

away may not have the time to walk a child to school. Another parent who works near a child's school might drop off the child at school instead of allowing the child to walk. These may be the reasons for such a large proportion of respondents choosing the response category "other." An analysis similar to Table 36 could not be undertaken for Jersey City because of a small sample size.

TABLE 36:
WHY CHILDREN DO NOT WALK TO SCHOOL, NEW JERSEY

Why children do not walk to school	Only Child	Youngest Child	Oldest Child	Total
School is too far away	63%	49%	58%	59%
Too much traffic and no safe walking route	4%	6%	4%	4%
Fear of crime or criminals	0%	0%	0%	0%
School policy against children walking to school	2%	0%	0%	1%
School provides busing	3%	9%	4%	4%
S/he would rather bike	3%	0%	0%	1%
Other	25%	36%	34%	30%
Total	100%	100%	100%	100%
N	134	57	60	252



WALKING FREQUENCY BY COUNTY

Walking frequency can be expected to vary across the counties because they have diverse land use and infrastructure characteristics. For example, counties that are highly urban may generate a substantial number of walk trips for work and shopping purposes. Similarly, the counties that are known for recreational activities (e.g., beach activities) may also generate a large number of walk trips. On the other hand, counties that are mainly suburban with predominantly single family residential homes and no recreational activities may generate fewer walk trips.

The walking frequency of respondents by county is shown in Table 37. Although the sample size for several counties is too small to draw any inference, it seems that the respondents from highly urban counties such as Hudson and Essex walk more frequently than other counties. Counties with recreational activities, such as Atlantic and Cape May, also show a higher frequency of walking than other counties. However, these results need to be interpreted with care because of small sample sizes for most counties.

TABLE 37:
WALKING FREQUENCY BY COUNTY, NEW JERSEY

County	More than once a day	Once a day	Several times a week	Several times a month	A few times a year or less	Total	N
ATLANTIC	47%	24%	24%	0%	6%	100%	17
BERGEN	25%	22%	40%	8%	4%	100%	89
BURLINGTON	36%	22%	25%	6%	11%	100%	36
CAMDEN	44%	13%	34%	9%	0%	100%	32
CAPE MAY	50%	33%	17%	0%	0%	100%	12
CUMBERLAND	33%	33%	0%	33%	0%	100%	12
ESSEX	40%	25%	24%	6%	5%	100%	63
GLOUCESTER	32%	32%	32%	0%	5%	100%	22
HUDSON	46%	14%	29%	3%	9%	100%	35
HUNTERDON	22%	44%	11%	11%	11%	100%	9
MERCER	31%	14%	39%	8%	8%	100%	36
MIDDLESEX	27%	32%	27%	13%	2%	100%	63
MONMOUTH	36%	19%	19%	13%	13%	100%	47
MORRIS	22%	16%	53%	4%	4%	100%	49
OCEAN	25%	14%	36%	18%	7%	100%	44
PASSAIC	43%	9%	35%	9%	4%	100%	23
SALEM	22%	44%	33%	0%	0%	100%	9
SOMERSET	30%	33%	24%	9%	3%	100%	33
SUSSEX	32%	27%	32%	9%	0%	100%	22
UNION	14%	32%	41%	9%	5%	100%	44
WARREN	20%	20%	50%	10%	0%	100%	10
Total	31%	23%	32%	9%	5%	100%	707