NEW JERSEY'S LINK TO THE 21ST CENTURY: MAXIMIZING THE IMPACT OF INFRASTRUCTURE INVESSTMENT

Working Paper No. 10

THE RESIDENTIAL RELOCATION IMPACTS OF MIDTOWN DIRECT A DESCRIPTIVE ANALYSIS

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June 2002

Partial support for this study has been provided by the United States Department of Transportation and the New Jersey Department of Transportation, through a grant to the City College of New York, Rutgers University and Dowling College through the University Transportation Research Center. The views and opinions stated herein are the opinions of the authors.

DESCRIPTIVE ANALYSIS OF RESIDENTIAL RELOCATION IMPACTS OF MIDTOWN DIRECT

Abstract

This paper presents an analysis of the residential relocations that followed the New Jersey Transit Midtown Direct rail improvement. The increased transit accessibility provided by the Midtown Direct connection reduced one-way commuting travel times by 15-20 minutes between New Jersey and New York. The analysis examines the residential decision-making process of travelers before and after the rail improvement. It is based on revealed preference surveys mailed by City College of New York (CCNY) to 1242 riders in 2001. The decision-making of those who actually moved because of the rail investment are compared with those who said they did not move. In a previous survey by New Jersey Transit (NJ Transit), 8% from 6,000 commuters stated they moved because of the initiation of Midtown Direct. Accessibility to work, school, and services, neighborhood security, real estate values and other attributes were assessed for their likelihood in determining the propensity of people to relocate their residences. The study shows that fifteen percent (15%) of the respondents stated they would relocate if they could have a travel time saving of 31-45minutes.

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THE ANALYSIS OF RESIDENTIAL RELOCATION IMPACTS OF MIDTOWN DIRECT

Background: The Midtown Direct Rail Service

This paper analyzes residential relocation impacts following the Midtown Direct improvement, implemented in June 1996 by New Jersey Transit (NJ Transit), in northern New Jersey. Before Midtown Direct, access to New York was via a rail ride to Hoboken, NJ followed by a transfer to either the Port Authority Trans Hudson (PATH) or ferry services to reach Lower or Midtown Manhattan. The new service introduced a no-transfer, 15-20 minute travel time saving for one-way travel between New Jersey and New York City. A train ride from Summit, NJ to New York Penn Station, for example, was reduced from 70 minutes to 50 minutes, a 29% reduction in time (Marchwinski, 1997).

The Midtown Direct service operates on the Morris and Essex branch of NJ Transit, an electrified commuter rail line linking 39 stations and extending 69 miles from Penn Station New York to Hackettstown, NJ with an 8.05-mile branch to Montclair and a 35.4-mile branch to Gladstone (Figure 1). The Morris and Essex rail line has operated since 1860. By late 1996, the total ridership had reached 16,000 riders/day, an increase of 2,400 riders/day since Midtown Direct service started five months earlier (Marchwinski, 1997). This increase reflects a travel time elasticity of 0.525 computed as the percent increase rate of change of ridership (15%) with respect to the percent rate of change of travel time saved by riders (28.6%).

This analysis examines the residential location decision of travelers before and after the rail improvement using descriptive statistics

Previous studies of Midtown Direct

In November 1996, five months after the Midtown Direct service was opened, NJ Transit conducted an extensive ridership and quality of service mail-out survey of 6000 eastbound (New Jersey to New York) a.m. peak period riders. The survey had a 40% response rate. 54% of the respondents were regular rail riders before and after Midtown Direct. 8% of the respondents indicated they relocated their residence because of the Midtown Direct rail service. Marchwinski used this survey to analyze the economic impacts of Midtown Direct rail in terms of retail and recreational spending of riders, within 800 meters (2600 feet) of the rail stations (800 meters is defined by NJ Transit as a rail stations' impact area).

The following were the key findings:

- 2400 induced (new) rail riders as at November 1996. By October 1997, ridership had increased another 20%
- 40.5% of riders stop at stores and services within an 800m radius of the boarding station. They spend approximately $16.74 per rider per week; this totals $20.7 Million per year. New riders spent an average of $1,559 at shops and services within 800m of the 38 rail stations of Midtown Direct, which is approximately 30% more than the previous riders.

- New riders made an average of 3.04 stops/month at shops and services within 800m of the 38 rail stations of Midtown Direct while previous riders stopped 2.54 times/month. The total number of stops increased by 7300 a month to 23,600 visits per month.
- In 1996, the new rail riders' mean household income averaged $102,700, approximately 8% higher than those of previous commuters
- Of the 8% of the respondents who indicated they relocated residence because of Midtown Direct, 89% relocated into the rail corridor increasing the housing demand there.

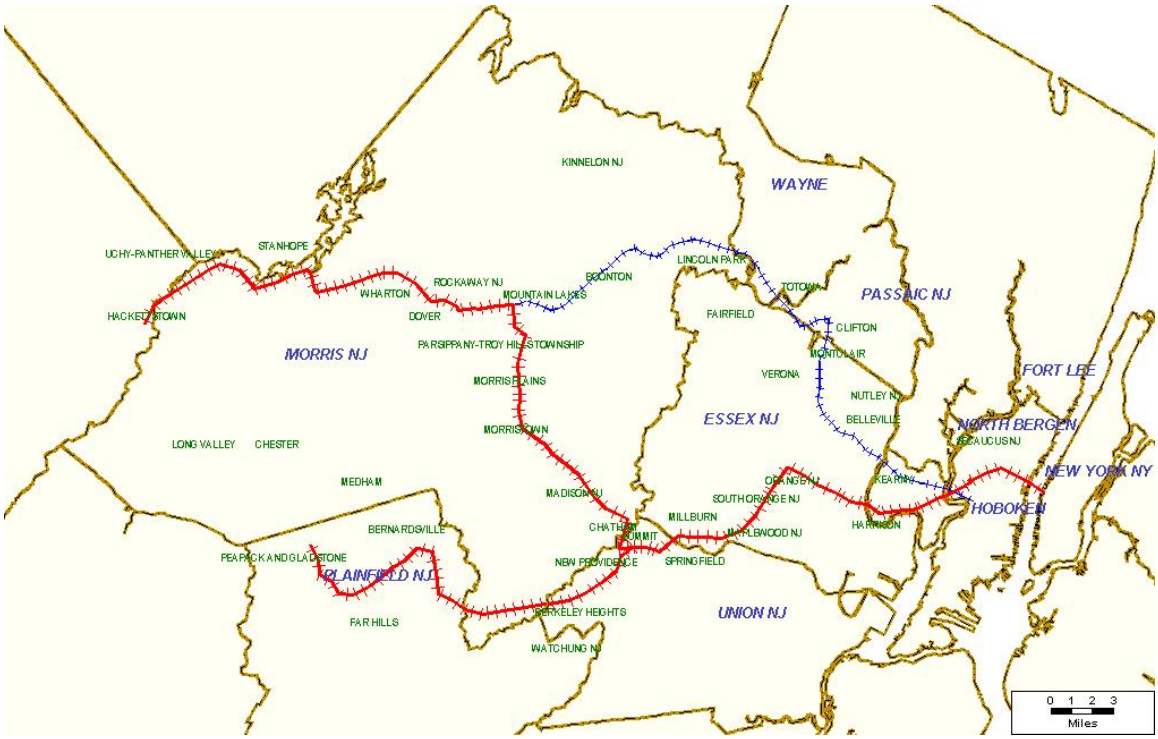


FIGURE 1 Midtown Direct Rail

Other impacts of Midtown Direct rail that have been quantified include:

(a) An analysis of stress levels experienced by commuters before and after Midtown Direct (Wener, 1996). The study found that there was a substantial reduction in stress to commuters following the start of this rail service. Reduction in stress levels amounts to psychological and physiological benefit to the travelers, which could translate to higher productivity, reduced health costs and others.

(b) An analysis of the impact of Midtown Direct on real estate values (McDowell and Schneider, 2000). The analysis estimates a 15-20% increase in real estate values, in the Midtown Direct rail corridor in the last 5 years, because of the better accessibility provided by the rail service.

Related research

The effects of commuter railroads on land values and real estate prices have been long recognized. Several research studies have quantified increased real estate prices resulting from commuter rail investments including Hays (1957), Armstrong (1996), and Hunt, McMillan and Abraham (1996).

Hays found that the Chicago, Burlington and Quincy (CB&Q) rides (?) a ridge of land of land values. Residential land values sloped away from the rail line. They dipped between stations and generally decreased with increasing distance from the Chicago central business district. (Figure 1.) (Hays, 1957)

Armstrong (1996) found that at a regional level, access to the CBD via the metropolitan Boston commuter rail service had an appreciative impact on property values. Single-family residential properties within the proximity of the commuter rail stations had 6.7% higher values than those properties without rail stations.

Hays (1957) reported that the railroad actually runs in a trough or valley extending about one quarter mile on each side of the tracks. Values then rose sharply to about one half mile and then decreased gradually.

Hunt, McMillan and Abraham (1996) in their analysis of a stated preference investigation on influences on attractiveness of residential locations in Calgary, Canada, found that residences close to the light rail transportation system there were more attractive. Alonso (1964), Porell (1982), Dubin R.A. (1985) Parsons (1991) and Higano (2000) have modeled residential relocation and transportation in urban areas and identify accessibility as being significant in the choice of residence.

Others found that within 120-130 meters (400 to 425 feet) of rail lines, neighborhood attractiveness reduces with closeness to the rail facilities (Strand and Vagnes, 2001, and Armstrong, 1996). This is apparent from the increase in rents and real estate value with distance from railway facilities. Strand and Vagnes estimate that a house located at 100m from a railway line would have a property value that is 23% more than the same house at 20m. Armstrong (1996) established that houses within 122 meters of the rail right-of-way had housing values that were lower than the houses further away by 20%. This reflects the externalities associated with rail transport, particularly noise pollution.

Several studies that have related residential pricing to environmental (noise) pollution and abatement suggest this same pattern. These studies include Grue B., Langeland J. L. and Laresen (1997); Maler (1977) and O'Bryrne, Nelson and Seneca (1985). Although the disutility associated with externalities to residents in the proximity of Midtown Direct is not explicitly modeled here, the homes are beyond the 120-130 meters range of the rail right of way. (Noise pollution concerns voiced by Midtown Direct respondents are enumerated in Tables 1 and 3.)

Scope and Organization

This paper presents a descriptive analysis of the respondents' decision-making criteria in choosing residence location and the role of transportation therein. The survey procedures

and data analyses are presented in the next section. The key findings, namely the significance of various factors in determining residential choice, are then discussed.

The Supplementary Survey

In 2001, a mail-back survey was designed to provide insight into residential location decisions. The two-page survey was divided into four main sections seeking information on the respondents' immediate previous and current neighborhood. The survey sections include:

1) A Comparison of Housing Characteristics - information sought included home ownership, value and/or lease, and the size of homes in both the previous and current residences.
2) Rating of Neighborhood Services divided into three subsections:
    a) Ease of access to institutions and services (opportunities)
    b) Quality rating of neighborhood conditions
    c) Importance of ease of access and quality of neighborhood to the respondent
3) Travel-time savings - to investigate the savings that would entice the respondents to relocate.
4) Demographics of respondents

The survey was designed to complement the 1996 NJ Transit survey. Examples of information obtained in the supplementary survey include: (1) The respondents' previous residences, (2) The characteristics of the previous and current neighborhoods and, (3) Accessibility to various institutions and amenities from the previous residences. The questionnaire is shown in Appendix A.

The sample population. The supplementary survey was administered to two groups all of whom were respondents to the NJT 1996 survey: (a) the 242 regular riders who said they moved because of the 1996 rail improvement (movers); and (b) the 1000 randomly selected regular riders who did not change residence as a consequence of the increased accessibility (non-movers). The mailing was done in three batches, one batch to movers, and two batches to non-movers. When responses were not forthcoming, reminders were sent. The mailing batches are referred to as 'Rounds.' Figures 2a and 2b show the structures of the sample population and responses received.

The Data. Some 501 surveys were returned. Of these, 208 were "complete responses" and 293 were "returned mail" (e.g., Addressee Unknown). Complete responses are those that had more than 90% of the questionnaire completed. Returned-mails were surveys received back from the post office marked 'Wrong Address'. The returned mail were interpreted as addresses from which the target respondent has since relocated.

The 208 complete responses constitute a 17% response rate from the 1242 sample population. The mean response rates for previous movers and non-movers were 21.1% and 16.8% respectively. Returned mail comprised 38.8% and 19.9% of surveys sent to previous movers to non-movers respectively.

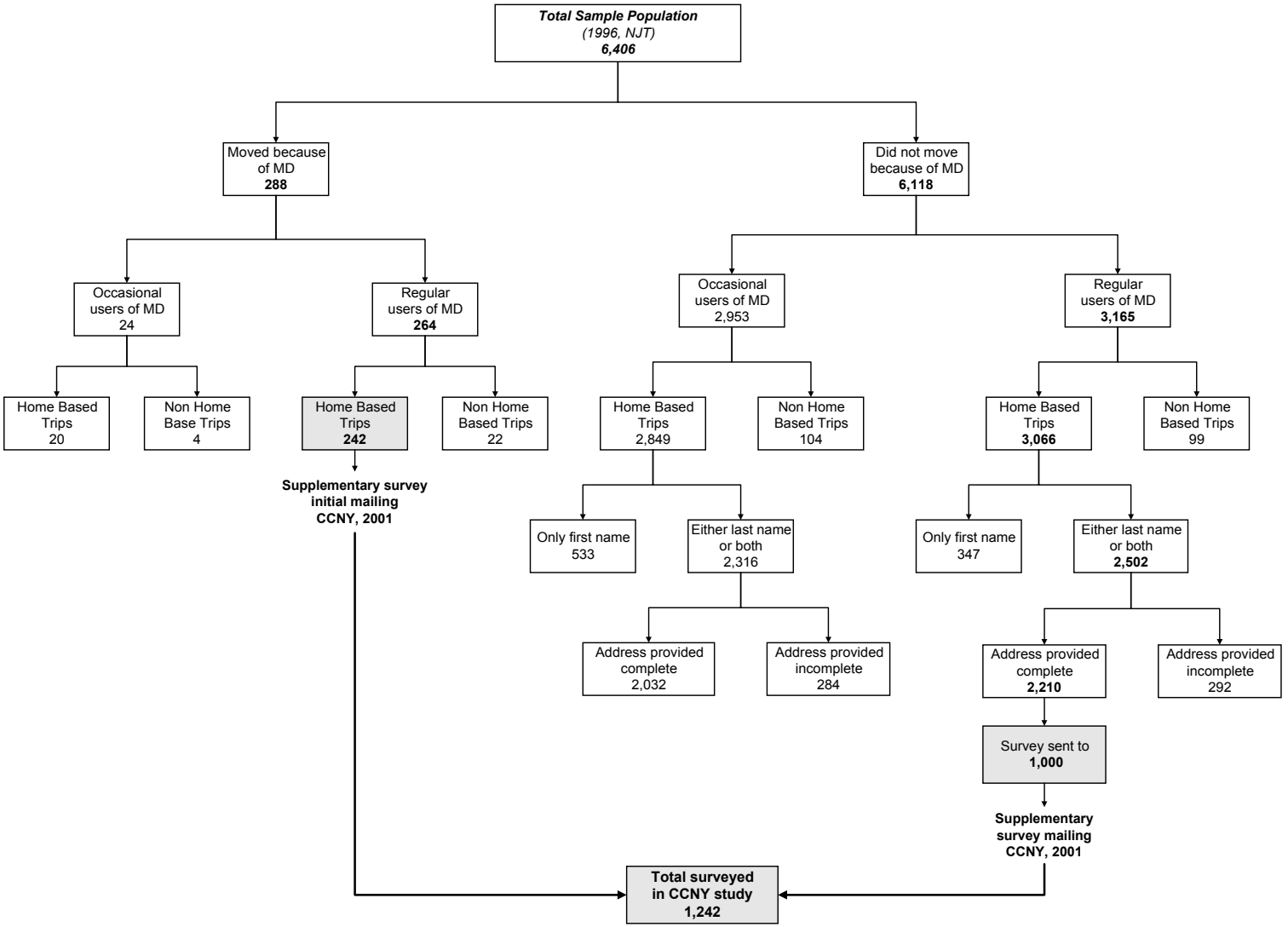


FIGURE 2A Supplementary survey sampling structure

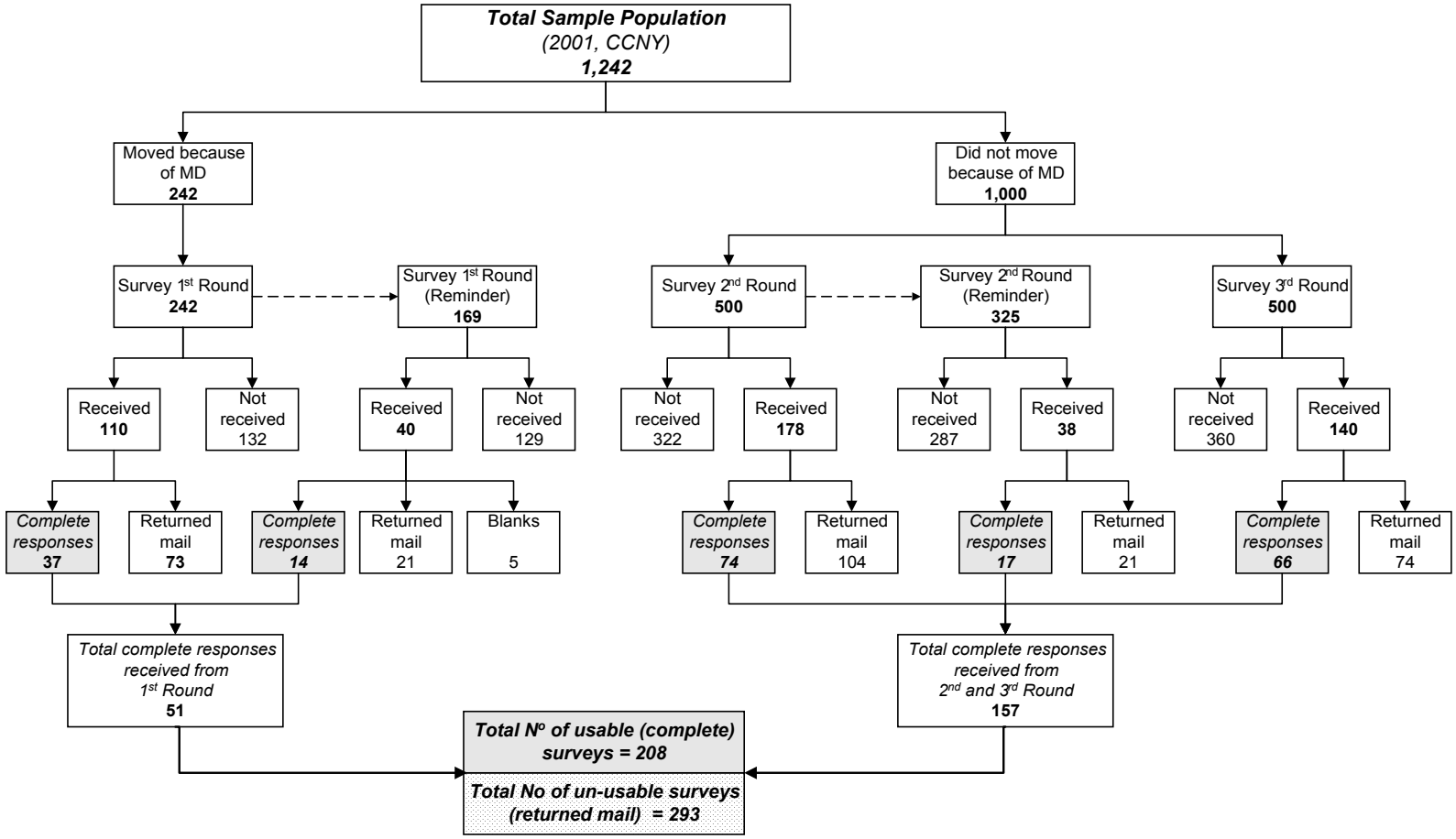


FIGURE 2B Sample population and responses to supplementary survey (CCNY, 2001)

Analysis of survey responses

Relocation in the study area in general: Residential relocation in the study area is estimated at 4-6% per year (NJ Transit, 2001). The 'returned mail' totaled 293, which is 4.7% of the 1242 surveys mailed out in 2001. Assuming that the 'returned mail' represents people who have relocated since the 1996 survey, 4.7% is consistent with the 4-6% range for relocation rate per year estimate by NJ Transit. By the same token, in aggregating the '51 respondent movers' and the 293 'returned mail', and the relocation rate from 1996 to 2001 works out to 5.5% per year, which again, is within the 4-6% range.

Respondent Demographics: Figures 3 through 6 compare the two samples (from the 1996 and 2001 surveys) to the population of northern New Jersey. Figure 3 shows that the respondents of the two surveys were predominantly male while the northern New Jersey population is more evenly balanced by gender. About 48% of the New Jersey population is male, while 62% of the 1996 survey respondents were male and 61% of the 2001 survey respondents were male.

Figure 3: Percentages of male and female

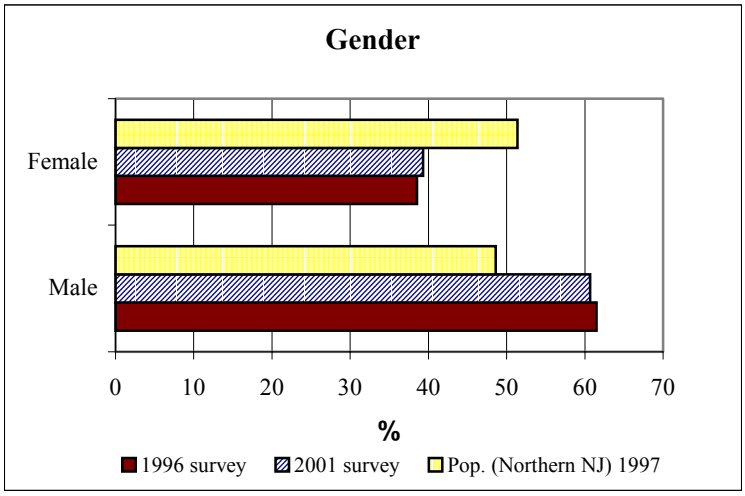


Figure 4 indicates that the survey respondents are in the upper income brackets. In both the 2001 and 1996 surveys, more than 50% of the respondents reported a household income equal to or greater than $150,000 while only 8% of the total population of Northern New Jersey had a household income equal or greater than $150,000. The predominant household income (35%) for the population of Northern New Jersey was $62,500 (2001 dollars).

The survey respondents tend to live in households of two or more people (see Figure 5). About 24% of New Jersey households are single persons, while eight percent and six percent respectively of the 1996 and 2001 respondents live alone. Of the responses received in 2001 survey, 32% correspond to four-occupant households. In 1996 survey two-occupant household was the predominant size (31%). In the total population of Northern New Jersey, two-occupant household was the predominant size in 1997 (30%)

Figure 4: Household income

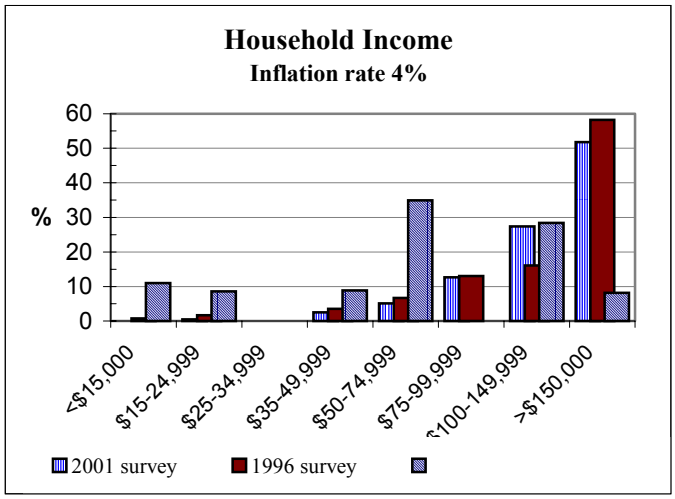
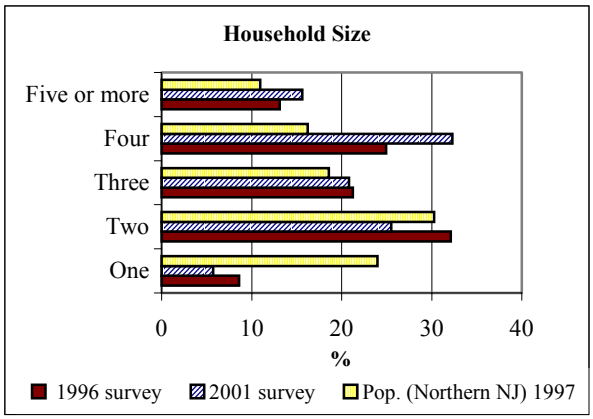


Figure 5: Household size



The age distribution of the surveys and the total population are shown in Figure 6. The respondents are predominantly middle-aged. As might be expected, the under 20 and over 65 year olds are underrepresented among the respondents.

Figure 6: Age distribution

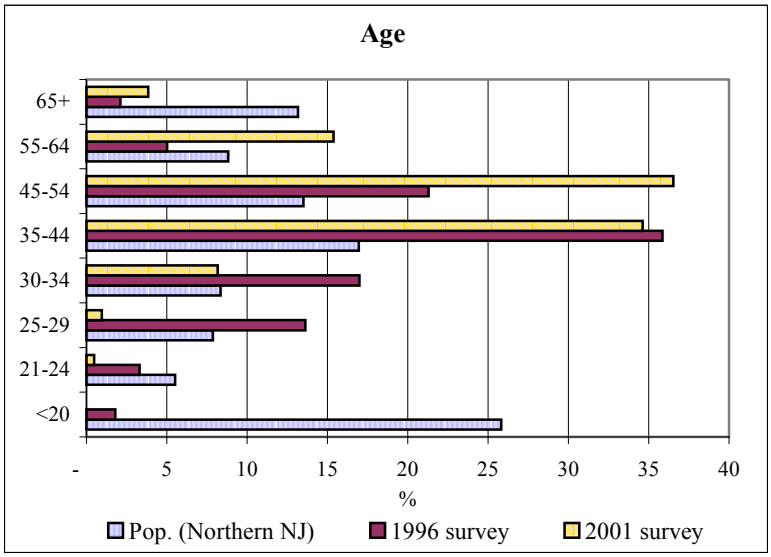


Table 1 compares the socio-economic characteristics of the movers and non-movers based on the samples. Approximately half (48%) of the families comprise 2-worker households; this is important because employment is one of the standard yardsticks for measuring economic development.

The movers are younger than the non-movers. The median age of the movers falls in the 37 to 45 year range, while the median age of the non-movers is in the 46 to 55 year category. A chi square test indicates that the difference is statistically significant at the 0.5 percent level.

The movers and non-movers live in houses of close to the same value; the median values of homes for both groups are in the $301,000 to $500,000 range. These appear to be high values, but housing values in northern New Jersey tend to be high.

The household incomes of the movers is lower than the non-movers, as might be expected given their younger ages. The movers' median household income falls in the $125,000 to $150,000 category, while the median for non-movers is over $150,000. A chi square test indicates that the difference is statistically significant at the one percent level.

The majority of both the movers and non-movers are married with children; although the movers are less likely than the non-movers to fall in this category and more likely to be married without children. However, the difference is not statistically significant. See Table 2.

Finally, while again the median number of workers in the household for both groups is two, the movers are slightly more likely to have fewer than two workers than the non-workers.

TABLE 1 Summary of demographics: Movers Vs. Non-movers

	Number of people			% of total per category		
Age group	**Non movers**	**Movers**	**Total Riders**	**Non movers**	**Movers**	**Total Riders**
<20 yr	0	0	0	0	0.0	0.0
20-25 yr	1	0	1	0.6	0.0	0.5
26-30 yr	2	0	2	1.3	0.0	1.0
31-36 yr	12	16	28	7.6	31.4	13.5
37-45 yr	51	18	69	32.5	35.3	33.2
46-55 yr	62	14	76	39.5	27.5	36.5
56-65 yr	24	3	27	15.3	5.9	13.0
66-75 yr	4	0	4	2.5	0.0	1.9
>75 yr	1	0	1	0.6	0.0	0.5
Total Number	157	51	208	100.0	100.0	100.0
Value of home	**Non movers**	**Movers**	**Total Riders**	**Non movers**	**Movers**	**Total Riders**
up to $50,000	0	0	0	0.0	0.0	0.0
$51-100,000	0	0	0	0.0	0.0	0.0
$100-150,000	4	0	4	2.8	0.0	2.1
$151-200,000	9	2	11	6.3	4.2	5.8
$201-300,000	24	9	33	16.8	18.8	17.3
$301-500,000	49	24	73	34.3	50.0	38.2
>$500,000	57	13	70	39.9	27.1	36.6
Total	143	48	191	100.0	100.0	100.0
HH Income	**Non movers**	**Movers**	**Total Riders**	**Non movers**	**Movers**	**Total Riders**
<$15,000	0	0	0	0.0	0.0	0.0
$15-24,999	1	0	1	0.7	0.0	0.5
$25-34,999	0	0	0	0.0	0.0	0.0
$35-49,999	5	0	5	3.4	0.0	2.5
$50-74,999	5	5	10	3.4	9.8	5.1
$75-99,999	15	10	25	10.3	19.6	12.7
$100-124,999	19	8	27	13.0	15.7	13.7
$125-149,999	21	6	27	14.4	11.8	13.7
>$150,000	80	22	102	54.8	43.1	51.8
Total	146	51	197	100.00	100.0	100.0
Marital status	**Non movers**	**Movers**	**Total Riders**	**Non movers**	**Movers**	**Total Riders**
Single	17	6	23	10.8	11.8	11.1
Single with ch	5	1	6	3.2	2.0	2.9
Married without ch	22	11	33	14.0	21.6	15.9
Married with ch	113	33	146	72.0	64.7	70.2
Total	157	51	208	100.0	100.0	100.0
Workers in HH	**Non movers**	**Movers**	**Total Riders**	**Non movers**	**Movers**	**Total Riders**
0	10	0	10	6.5	0.0	4.9
1	55	23	78	35.5	46.0	38.0
2	72	26	98	46.5	52.0	47.8
3	14	0	14	9.0	0.0	6.8
4	4	1	5	2.6	2.0	2.4
Total	155	50	205	100.0	100.0	100.0

Table 2. Family Status and Age of Movers and Non-movers

	Non movers		Movers	
Age	Not marr w/ ch	Marr w ch	Not marr w/ ch	Marr w ch
20-25 yrs	1			
26-30 yrs	1	1	1	3
31-36 yrs	5	10	5	7
37-45 yrs	12	45	1	6
46-55 yrs	22	49	3	3
56-65 yrs	9	20	1	1
66-75 yrs	1	3		
> 75 yrs		1		
Total	51	129	11	20

To summarize, the two groups are very similar, but the movers are a little younger and have a little less income.

Travel time incentives to relocate: Thirty one percent (31%) of all the respondents indicated that all other things remaining the same, they would relocate their residence if they could reduce their one-way commute by 31-45 minutes. However, 45% of the movers would move to save 30 to 45 minutes in contrast to only 30% of the non-movers. These statistics are consistent with the previous definition of movers and non-movers following the rail investment: Midtown Direct offered up to 20 minutes travel time savings and was motivation enough for the 1996 movers suggesting that the movers are more likely to have lesser rate because of lesser accessibility investment. 47% of the respondents did not indicate whether or not savings in travel time would be motivation enough for them to relocate residence.

TABLE 3 Travel time savings that would induce relocation

	Non-movers			Movers			Total respondents		
Time	No.	%	Cum. %	No.	%	Cum. %	No.	%	Cum. %
< 10 min.	1	0.6	0.6	1	3.2	3.2	2	0.9	0.9
10 to 20 min.	1	0.6	1.1	3	9.7	12.9	4	1.9	2.8
21 to 25 min.	6	3.3	4.4	4	12.9	25.8	10	4.7	7.6
26 to 30 min.	15	8.3	12.8	3	9.7	35.5	18	8.5	16.1
31 to 45 min.	29	16.1	28.9	3	9.7	45.2	32	15.2	31.3
46 to 60 min.	15	8.3	37.2	1	3.2	48.4	16	7.6	38.9
> 60 min.	17	9.4	46.7	1	3.2	51.6	18	8.5	47.4
Left blank	96	53.3	100.0	15	48.4	100.0	111	52.6	100.0
Total	180	100.0		31	100.0		211	100.0	

Destinations of Movers: Of the 31 respondents who said that NJ Transit rail service was important in choosing their current home location and who provided information about their destination location, all but two moved into towns with stations on the Morris and Essex lines. The two exceptions moved to towns that are within three and six miles of a station on the Midtown Direct line. Ten of the 31 movers relocated to Maplewood, and four to Summit. No other town received more than two relocating households. Generally people moved to locations that were farther out along the rail line. This is a common pattern when accessibility improves.

Eighteen of the 31 relocated from another place in New Jersey, nine moved from one of the five boroughs of New York, and four moved from another out-of-state location. Twenty four (77%) moved within the Northern New Jersey, New York City region and moved further away from New York City. Only one respondent moved closer to New York City. (Appendix B contains the Origin-Destination Matrix of the movers.)

Housing Characteristics: Of the 208 responses received, 191 respondents own their homes. Of these, 42% did not own residences in their previous neighborhood. 75% of the homes are valued at over $300,000, half of them over $500,000 in value. Previous homeowners' houses averaged $330,939 in value. Aside from estimates of a 15-20% increase in real estate value attributed to Midtown Direct over the last 5 years (McDowell and Schneider, 2000).

Comparison of Results of Modeling and Descriptive Statistics

In Working Paper 11, substantially the same data set was used to develop a model that would distinguish between the movers and non-movers. The final model, developed using discriminant analysis, was:

$$d = 3.985 - 0.095\ AGE + 1.550\ MARR\_CH + 0.333\ TWORK\_Q \qquad (1)$$

Where

d = discriminant score (d > 0.3925 indicates a mover; d < 0.3925 indicates a non-mover)

AGE = Age category of respondent (measured as midpoint in age range)

MARR_CH = Family status of respondent (binary variable: 1 indicates respondent is married with children, 0 indicates other)

TWORK_Q = Difference in respondent's rating of current residence less previous resident with respect to transportation to work (measured on a scale of 1 for poor to 5 for excellent)The discriminant function suggests that being younger and being married with children are characteristics that correspond with relocating. The descriptive analysis above agrees with the age conclusion; the state of being married with children appears somewhat contradictory, given that a smaller proportion of the movers are married with children than the non-movers, but the difference is not statistically significant. Table below suggests that movers do tend to be in the younger, married with children category.

The discriminant function suggests that being younger and being married with children are characteristics that correspond with relocating. The effects of age are consistent with the previous findings. An increase in average age of 25 years is more important than the marital status (e.g., 2.38 impact versus 1.55 impact). Table 2 suggests that movers tend to be younger and married with children as compared with the non-movers. However, while age is statistically significant, the differences in family are not statistically significant.

Rating of Neighborhood Services

The pilot survey further analyzed the importance of various neighborhood attributes. The survey instrument, patterned in part after the earlier studies, was an initial attempt at a complete

analysis. It identified the perceptions of movers and non-movers regarding their ratings of various neighborhood attributes. The results for movers and non-movers are summarized in Table 5.

Differences in rankings between movers and non-movers were statistically significant (at the 0.05 level) for seven out of nineteen attributes: Access to shopping malls, congestion concerns, religious institutions, access to medical services, access to schools, real estate value, and access to recreation facilities. The quality of the schools and the overall neighborhood environment were not explicitly queried.

TABLE 4 Summary of responses - most significant reasons in choice of neighborhood

Rated as most important:	% on current home	% on previous home	Relative Improtance
Neighborhood security	77%	70%	7%
Access transit stations	63%	62%	1%
Access to job/bussiness	59%	63%	-5%
Real estate value	58%	33%	24%
Access to schools	50%	45%	6%
Noise pollution	41%	35%	6%
Access to medical services	40%	21%	19%
Cleanliness of streets	37%	31%	6%
Congestion concerns	36%	38%	-2%
Air pollution	34%	29%	5%
Parking charges	32%	23%	9%
Parking availability	30%	33%	-3%
Religious institutions	29%	17%	13%
Same ethnicity as neighbors	29%	21%	9%
Access to recreation facilities	25%	29%	-4%
Sidewalk sufficiency	24%	23%	2%
Access to shoping malls	19%	13%	6%
Wheel chair ramps	6%	7%	-2%
Rental costs	0%	53%	-53%

Quality rating of:	Current	Previous	Relative rating
Real estate value	58%	24%	34%
Transit stations availability	52%	57%	-5%
Cleanliness of streets	44%	12%	33%
Transportation to work	39%	31%	8%
Racial concerns	37%	7%	30%
Traffic congestion	33%	0%	33%
Security	32%	19%	13%
Air pollution	31%	9%	22%
Noise pollution	30%	15%	15%
Parking availability	25%	5%	20%
Sidewalks sufficiency	24%	44%	-21%
Wheel chair ramps	21%	5%	17%
Parking charges	10%	21%	-11%
Easiest access to:			
School	63%	49%	14%
Religious Institutions	63%	44%	18%
Medical services	60%	44%	16%
Emergency services	55%	46%	10%
Recreational facilities	54%	34%	20%
Shopping malls	53%	33%	20%
Job or bussiness	19%	43%	-24%

Note: This analysis is based on a sample size of 208 respondents

Table 5. Survey Rating of Neighborhood Attributes

Attribute is the **Importance Rating of:**	Mean rating before (1996)				T-value for difference in means	Sig level
	Movers n=22		Non movers n=117			
	Mean	Std dev	Mean	Std dev		
Access to shopping malls	1.90	0.87	2.89	1.12	-4.64	0.1%
Congestion concerns	3.05	1.09	3.88	0.91	-3.37	0.1%
Religious Institutions	2.00	1.20	2.96	1.37	-3.36	0.1%
Access to medical services	3.00	1.02	3.75	0.90	-3.22	0.1%
Access to Schools	1.86	1.67	3.01	1.79	-2.93	0.4%
Real estate value	3.05	1.09	3.79	1.19	-2.91	0.4%
Access to recreation facilities	2.86	1.21	3.39	1.01	-1.96	5.0%
Air pollution	3.43	0.90	3.83	0.94	-1.90	5.7%
Rental costs	2.90	1.63	2.20	1.98	1.80	7.2%
Access transit stations	4.24	1.06	3.88	1.13	1.43	15.3%
Parking availability	2.76	1.31	3.20	1.35	-1.42	15.6%
Cleanliness of Streets	3.43	1.05	3.76	0.91	-1.39	16.5%
Parking charges	2.19	1.10	2.51	1.42	-1.20	23.0%
Neighborhood Security	4.24	0.87	4.44	0.72	-1.05	29.4%
Same ethnicity as neighbors	2.00	1.07	2.23	1.14	-0.92	35.8%
Wheel Chair ramps	1.52	1.05	1.74	1.49	-0.80	42.4%
Access to job/business	4.19	0.96	4.04	1.09	0.65	51.6%
Noise pollution	3.62	1.05	3.72	0.88	-0.42	67.4%
Sidewalk sufficiency	3.10	1.11	3.06	1.28	0.13	89.7%

Conclusion

Midtown Direct rail improvement increased accessibility between New Jersey and New York City. The improvement caused 8% of the riders to relocate their residence in 1996, within five months of the start of the service. In the decision to choose residence, the most important attributes for both movers and non-movers were neighborhood security and real estate value, whether in their current or previous neighborhoods. The attributes ranked as having the highest relative importance comparing the current to the previous neighborhood were (i) real estate value (ii) access to schools and (iii) parking. The main attributes based on the rating of relative goodness were (i) security, (ii) real estate values, (iii) cleanliness of streets and, (iv) traffic congestion concerns. The people who did not relocate residence ranked medical services, religious institutions, emergency services and schools as the order of ease of access starting with the easiest. Those who had relocated residence ranked access to shopping malls as easiest followed by access to medical services and then to emergency services. These attractiveness factors are generally consistent with the commonly cited reasons for moving to suburban locations – better schools and housing. Location of housing is strongly associated with race, income, and stage of family life. The willingness to relocate – based upon the Midtwon Direct service improvement appears to be also influenced by improved accessibility.

[14.4% of all the respondents would relocate if they could save between 31-45minutes on their one way commute although a travel time saving of 26 to 30 minutes is incentive enough for 25.5% of previous movers to relocate.]

These findings are similar to those reported for the I-15 “managed freeway lanes.” “Along I-15 corridor, researchers found that housing decisions for residents are partially influenced by the existence of the I-15 pricing project, but that it is a secondary factor in the location choice decision. The top three factors in residence choice were still the quality of the neighborhood, proximity to good schools, and the cost of the residence.” (Supernak et al., 2001)

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Appendix A

Questionnaire for 2001 Survey

Appendix B

Origins and Destinations of Movers

The Origins and Destinations of the 31 Movers

	Destination															
Origin	Berkeley Height	Bloomfield	Chatham	Long Valley	Madison	Maplewood	Millburn	Millington	Morris Plain	Morristown	New Providence	Short Hills	New South Orange	Summit	West Orange	Total
Bloomfield		1														1
Chatham									1							1
Edison								1								1
Hoboken	1															1
Maplewood					1	1							1			3
Morristown						1				1						2
New Providence														1		1
New South Orange						1										1
Roselle					1											1
Scotch Plains	1															1
Summit														1		1
Versey						1										1
NJS			1				1							1		3
NYC				1		3					1	2		1	1	9
Out of State						3							1			4
Total	2	1	1	1	2	10	1	1	1	1	1	2	2	4	1	31