01 INTRO

Introduction

This study was initiated to evaluate existing and long-term strategic plans for the transportation needs in the boroughs other than Manhattan. Collectively, the Department of City Planning forecast these boroughs to gain more than 550,000 residents between 2010 and 2030 with corresponding increases in employment of 435,000 forecast by the New York Metropolitan Transportation Council. These increases will impact travel in all boroughs.

New York City already achieves the highest transit share in the nation for journey-to-work trips with almost 55 percent of all commuters using transit for journey-to-work trips, more than 50 percent higher than the next most transit-depended city. Nevertheless, it continues to experience vehicular congestion and, in PlaNYC, it has set for itself ambitious goals for reducing both congestion and the at-least-partially-related greenhouse gas emissions. To achieve these goals will require, among other things, reductions in the auto share for travel trips.

The goal of this study is to evaluate journey to work commutes for the workers who live and/or work in the boroughs outside of Manhattan. Since subway and commuter rail systems focus primarily on delivering commuters to Manhattan Central Business Districts (CBD), this study is an opportunity to analyze work trips involving other destinations, around the periphery of the CBD. These peripheral work trips represent a larger percentage of total work trips than the Manhattan-bound commuters whereas, historically, much of the attention on mass transit has been focused on the CBD-bound commuter. These peripheral workers may benefit from alternate transit or alternative transportation options to alleviate travel time, increase travel mode choices, and manage congestion. It is hoped that this study, together with other mobility-related studies underway by the Department of City Planning, will provide guidance on better serving non-CBD bound trips and support efforts at the City Department of Transportation and the Metropolitan Transportation Authority to grow non-auto travel. Although not the subject of this study, it is anticipated that any improvements to better serve journey-to-work trips would better serve other trips as well.

Contained within this Section I is the methodology used in this study and a summary of the "major findings" of the journey to work travel trends in the peripheral boroughs. Section II details the specifics of the study by analyzing the data based on various levels of geographies, such as borough to borough, borough to/from Study Areas, Study Areas to/from Study Areas, community districts, and U.S. 2000 census tracts. Section III presents a conclusion of the entire study and recommendations for next steps. Section IV - Appendix contains additional data and tables.

Figure 1. Peripheral Journey to Work Travel in NYC

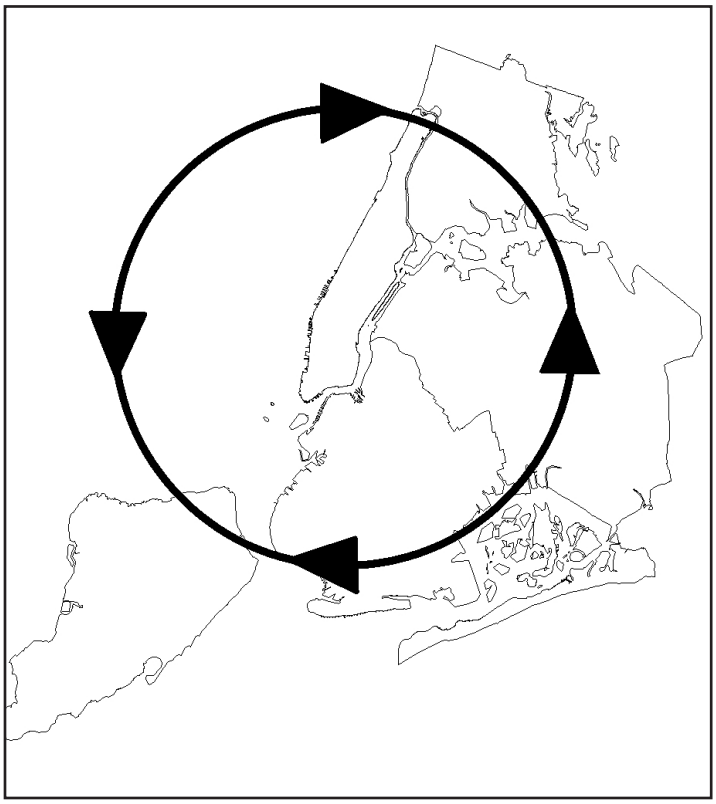
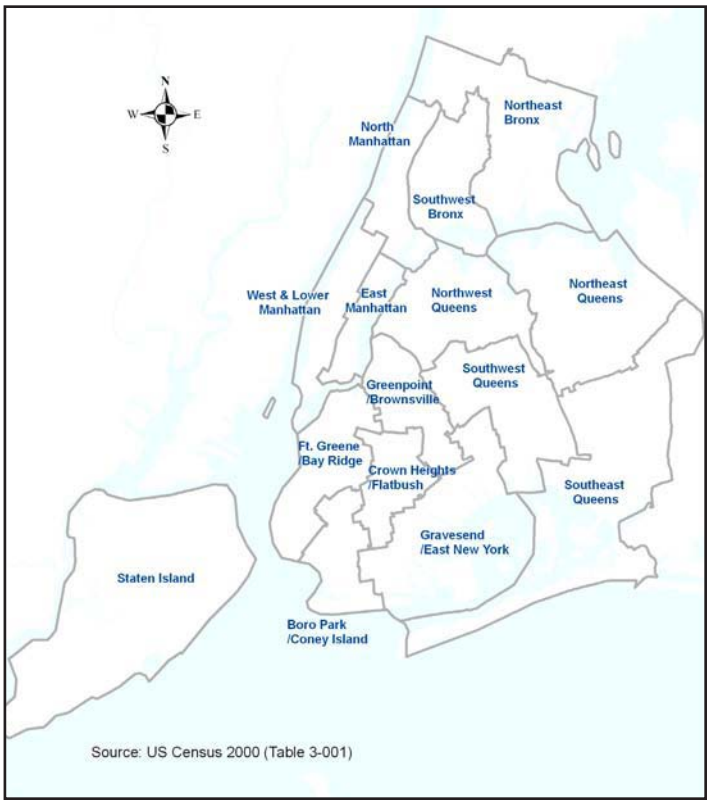


Figure 2. NYC Peripheral Travel Study Areas (Super-PUMAs)



Definitions

Borough
The five geographical and political regions of New York City that collectively form New York City as a whole. (The Bronx, Brooklyn, Manhattan, Queens and Staten Island)

Borough to Borough
A trip with an origin in one NYC borough and a destination (Inter-Borough) in a different NYC borough. (i.e. "inter-borough").

Census Tracts
Statistical geographical subdivisions of a county by the U.S. Census Bureau. Census tracts usually have between 2,500 and 8,000 persons and, when first delineated, are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. The size of census tracts varies widely depending on population density.

Community Districts (PUMA)
A PUMA (Public Use Microdata Area) is a geographic area, as defined by the U.S. Census Bureau as areas with a minimum population of 100,000. NYC contains 59 designated "community districts" as established by law in 1975. A reference map was previously created by the NYC Department of City Planning, Population Division, correlating the U.S. Census PUMA geographies with these 59 NYC Community Districts. In this report, the term "PUMA" refers to the corresponding NYC "Community Districts" for simplicity.

CTPP
"Census Transportation Planning Package" A special tabulation of U.S. Census 2000 data, tailored to meet the needs of transportation planners.

Journey to Work
The trip a worker traveled from place of residence to place of work, including characteristics of route, mode of transportation and travel time, as reported to the Census Bureau.

MTA
Metropolitan Transportation Authority, State of New York

LIRR
Long Island Railroad, Metropolitan Transportation Authority, State of New York

Travel Mode
The means of transportation for trips. In this study the mode categories used are: Drive alone, Carpool, Bus, Subway/Railroad/Ferry, and Other (Bicycle, Walk, Motorcycle, or Work at Home).

Travel Time
The travel time for trips, as recorded in the "Census Transportation Planning Package" U.S. Census 2000 data.

Peripheral Travel
The term "Peripheral Travel" in this study refers to trips made on the periphery of the Manhattan central business district, thus The Bronx, Brooklyn, Queens, and Staten Island boroughs.

Study Areas (Super-PUMA)
A "Super-PUMA" is a geographic area, as defined by the U.S. Census Bureau, with a population of 400,000 or more. In this report, the term "Super-PUMA" refers to 'Study Area' for simplicity.

Methodology

This study utilizes 2000 Census data for information about workers at place of residence (Part 1), place of work (Part 2), journey to work origins and destinations (Part 3), as well as the mean travel time and mode from origin and destination (Part 1 and Part 2).

The primary tool for tabulating the US Census data was the Census Transportation Planning Package (CTPP 2000). The following CTPP 2000 sets of tabulations were used for this study:

Part 1: At Place of Residence
- Table 1-002 – Sex by Means of Transportation
- Table 1-103 – Mean Travel Time by Means of Transportation to Work

Part 2: At Place of Work
- Table 2-002 – Sex by Means of Transportation
- Table 2-057 – Mean Travel Time by Means of Transportation

Part 3: Workers traveling from home to work
- Table 3-001 – Total Workers (no data suppression)
- Table 3-008- Mean Travel Time by Means of Transportation (no data suppression)
- Table 3-014- Aggregate Travel Time by Means of Transportation (no data suppression)

The data tabulations were generated at census tract level and exported to MS Access in order to analyze at the "Super-PUMA, PUMA, and county level. A Super-PUMA is a geographic area, as defined by the US Census Bureau, with a population of 400,000 or more. PUMAs are geographic areas with a population of 100,000 or more. In all instances of this report, the term "Study Area" refers directly to the technical term "Super-PUMA", for simplicity. Appendix A lists the "Super-PUMA" names/numbers with the corresponding "Study Area" names.

The final stage of data manipulation used GIS to graphically represent workers place of residence, place of work, the origin and destination of workers' flow, and their mode of travel at the borough and Super-PUMA level. However, CTPP Part 3 does not have detailed means of transportation without data suppression. In order to calculate for all workers by means of transportation, The "Aggregate Travel Time by Means of Transportation" (Table 3-014) was divided by "Mean Travel Time by Means of Transportation (Table 3-008) to generate commuter flows. By calculating for commuter flows in this way, the data loss is minimal and provides more accurate information for analysis. One problem with the Table 3-014 divided by Table 3-008 calculation is with the 'Others' category, which combines five sub-groups: bicycle, walk, motorcycle, taxicab, and other. Figure 1 graphically represents worker travel flow between the peripheral boroughs. These maps were then used to analyze workers' commute patterns from Borough to Borough, Borough to Study Area, Study Area to Borough, Study Area to Study Area, and Census Tract to Census Tract.