

APPENDIX E.5
METHODOLOGIES

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METHODOLOGY FOR LAND USE ANALYSIS

The analysis was conducted using the *2001 Real Property Assessment Data*, published by the New York City Department of Finance; the *Sanborn Manhattan Land Book (2000-2001)*, published by TRW Redi Property Data; maps of Manhattan published by the Identity Map Company; and the Zoning Resolution of the City of New York. This information was supplemented by field surveys conducted in 2001, 2002, and 2003.

METHODOLOGY FOR LAND USE PROJECTIONS

As part of the study process for the Second Avenue Subway, NYMTC's projections for New York County (Manhattan) were used to develop an estimate of future changes that might be expected in particular neighborhoods in Manhattan. In developing its Regional Transportation Plan, NYMTC prepared forecasts of the expected population, employment, and labor force growth for each of the 31 counties in the region between 2000 and 2025 (the Regional Transportation Plan is discussed in more detail in Chapter 1, "Project Purpose and Need"). NYMTC's projections were prepared for the entire borough of Manhattan, but did not specify the particular neighborhoods in Manhattan where the growth might occur. Therefore, for the Second Avenue Subway study, NYMTC's countywide projections for Manhattan served as control totals to develop more detailed projections for the different study area neighborhoods.

Because changes in population and employment often correspond to changes in land use, an initial step in the forecasting effort was to project land use changes expected in the Second Avenue Subway study area by 2020 without the construction of the Second Avenue Subway. This assessment of development and changes in land use was made by reviewing future development cited for other recent environmental studies for projects within the study area, reports prepared by DCP, consultations with HPD, and review of various periodicals. The study assumed that while specific development proposals identified today might not actually be built in the future, they demonstrate the attractiveness of particular neighborhoods for future developments of that type and scale. The developments were described in terms of their size (i.e., dwelling units, floor area for retail, office, institutional and manufacturing uses, etc.) and then converted to population (residential or worker). The resulting inventory of future developments was then used to determine where NYMTC's projected growth would occur in Manhattan: the total growth projected by NYMTC was allocated proportionally throughout Manhattan following the proportions developed with the project inventory.

METHODOLOGY FOR ECONOMIC CONDITIONS ANALYSIS

NEIGHBORHOOD ZONES AND BOROUGH

To conduct the analysis of each neighborhood zone, private sector employment data for third quarter 1990 and 2000, provided by the New York State Department of Labor (NYSDOL), were reviewed, and major employers and industries that dominate or characterize the neighborhoods were identified. (NYSDOL only compiles data for companies with four or more employees, i.e., companies covered by unemployment insurance). The data are broken down into major industrial sectors, based on the two-digit Standard Industrial Classification (SIC) code established by U.S. Census Bureau. To describe long-term employment trends throughout the

entire borough, a different data set was used: NYSDOL's "ES-202" data set, which provides annual average employment data as opposed to quarterly data. Therefore, the borough-wide table cannot be directly compared to the neighborhood employment tables.

STATION AND STAGING/SHAFT SITE STUDY AREAS ANALYSIS

In addition, this chapter includes an analysis of local retail business conditions in the areas immediately surrounding the proposed stations, staging areas, shaft sites, and yards. The analysis is based on extensive field research conducted in March and April 2002, which included conducting surveys of ground-floor commercial retail establishments near each proposed station area, staging area, shaft site, or yard. The reason for the focus on retail establishments is that in Manhattan, most businesses at the street level are retail businesses, and it is these street level establishments that are most likely to be affected by construction and operation of the Second Avenue Subway. In contrast, commercial offices are typically located above the ground floor; consequently, such businesses are less likely to experience effects from the project. However, in study areas where there are tall commercial office buildings (i.e., East Midtown and Lower Manhattan) with entrances abutting the proposed construction areas, the analysis also considers potential construction-related effects on the commercial tenants. For each study area, the surveys recorded the number and percentage of retail stores organized by store type using the SIC system for retail trade, which divides stores into "shopping" and "convenience" goods and services establishments. Convenience goods and services stores are those that serve the neighborhoods in which they are located; for such businesses, such factors as location and access are typically more important than price in determining where consumers will make their purchases. On the other hand, consumers will travel longer distances to purchase shopping goods and services, i.e., products for which buyers will "comparison shop" based on price, quality, selection, and other factors.

METHODOLOGY FOR VISUAL ANALYSIS

Because the Federal Transit Administration (FTA) has not formulated guidance for assessing and mitigating visual impacts, the analysis follows guidance published by FTA's sister agency, the Federal Highway Administration (FHWA). It also uses guidance published by the New York State Department of Environmental Conservation (NYSDEC) and the City of New York through the New York City Environmental Quality Review (*CEQR*) *Technical Manual*.

According to FHWA's guidance ("Esthetics and Visual Quality Guidance Information," August 18, 1986), visual resources are "those physical features that make up the visible landscape, including land, water, vegetative and man-made elements. These elements are the stimuli upon which actual visual experience is based. Visual resources are not, however, limited to elements or features that are of outstanding visual quality. A location or element in the visual environment can have visual values attributed to it by its viewers regardless of its quality. Viewer sensitivity or local values can confer visual significance on landscape features and areas that would otherwise appear unexceptional."

NYSDEC's guidance ("Assessing and Mitigating Visual Impacts," July 31, 2000) defines aesthetic resources as being derived from, but not limited to, the following categories: properties on or eligible for inclusion in the State or National Register of Historic Places, such as Trinity Church; state parks; urban cultural parks; state forest preserves; National Wildlife Refuges; National Natural Landmarks, such as the Hudson River; national parks, recreation areas, seashores, or forests; national or state wild, scenic, or recreational rivers; sites, areas, lakes,

reservoirs or highways designated or eligible for designation as scenic; scenic areas of statewide significance; state or federally designated trails, or one proposed for designation; Adirondack Park scenic vistas; Palisades Park; state nature and historic preserve areas; and Bond Act properties purchased under the exceptional scenic beauty or open space category.

Finally, the City's *CEQR Technical Manual* defines visual resources as an area's unique or important public view corridors, vistas, or natural or built features, and defines an area's visual environment as its physical appearance (dominant building types and their sizes, shapes, and arrangement on blocks, the street pattern, and streetscape elements) as well as noteworthy views that give the area its distinctive character. Section 62-11 of the New York City Zoning Resolution, relating to special regulations applying in the waterfront area, defines a visual corridor as "a public street or tract of land within a block that provides a direct and unobstructed view to the water from a vantage point within a public street, public park or other public place." To determine whether a project might result in impacts to urban design or visual resources, the *CEQR Technical Manual* recommends examining "whether a project would have substantially different bulk or setbacks than exist in an area and whether substantial new, above-ground construction would occur in an area that has important views, natural resources, or landmark structures."

As these three excerpts indicate, there is no one standard for considering or defining the visual environment and visual resources. Nevertheless, it is also important to note that the standards described above do not conflict with each other; while NYSDEC emphasizes that resources are of exceptional value, FHWA's guidance explicitly states that visual resources are not limited to those of outstanding visual quality. The City's guidance concentrates on defining how the visual environment works within an urban context, and indicates what would have to alter to result in an impact to the visual environment.

Taking the guidance from these three cited sources into account, the analysis describes the visual environment and identifies the visual resources, focusing on how the Second Avenue Subway's project alternatives could visually affect each neighborhood zone during construction and operation. To aid in the analysis, project features or activities that would be visible or that could create visual effects within each neighborhood were identified and study areas were delineated around them. Study areas are defined as within 150 feet of the areas where proposed work would occur. The study areas are large enough to characterize the visual context of elements that would change with construction of the Second Avenue Subway, and include above-ground sites that may potentially be affected by construction or that may experience effects once construction is completed and the subway is operational. Visible project features and activities include cut-and-cover construction; other areas where machines and equipment would be located (ground improvement areas, barge sites, staging areas, spoils removal areas); and permanent structures, such as subway station entrances and vent structures. Where no impacts are anticipated—for example, where tunnel sections would be entirely constructed underground, and would not be visible during or after construction—no study areas were delineated. *