

1. INTRODUCTION

1.1 PROJECT PURPOSE

Downtown Brooklyn is supported by some of the New York metropolitan region's best transit services.¹ Dozens of bus routes, subway lines, and commuter rail lines as well as ferry service provide excellent transit access to, from, and around Downtown Brooklyn. This immense availability of transit opportunities has led to significant transit usage. Journey to Work data from the 2000 U.S. Census indicates that more than 65% of workers who live within Downtown Brooklyn or its surrounding neighborhoods commute each day via public transit – among the highest levels in the country, though lower than the rate of public transit commuting in Manhattan. The majority of these trips are via subway (62%), primarily to destinations outside of Downtown Brooklyn.

While the Downtown Brooklyn area appears to be well served by public transit alternatives, barely six percent of its residents who work in Downtown Brooklyn use the bus to get to work - less than a half of the proportion who commute via bus within Manhattan or greater Brooklyn. Transportation within the Downtown Brooklyn core has traditionally been accomplished by walking. This culture of walking is exemplified through Census data, which shows 12% of residents walk to work, twice the number of people who take the bus to work. Such a mode split is surprising given that 17 bus routes serve Brooklyn's downtown core, and that during peak hours a bus is scheduled to arrive every 90-100 seconds on principal arterials such as Fulton and Livingston Streets.

Population and employment opportunities continue to increase throughout Downtown Brooklyn. During the past decade, population growth was nearly 10% in Downtown Brooklyn's core area, and employment rose at nearly the same rate – a trend that has made Downtown Brooklyn one of the fastest growing areas in the Borough. Vehicular congestion issues loom larger with this continuous growth, and the challenge to increase surface transit usage becomes ever more important. The challenge for transportation planners is to identify both short and long term solutions for improving surface transit services within Downtown Brooklyn.

The purpose of the Downtown Brooklyn Surface Transit Circulation Study (the DBSTCS) is to analyze intra-Downtown Brooklyn travel patterns and assess the surface transit circulation needs in Downtown Brooklyn. Based on the results of this analysis, a set of sustainable transit strategies and short and long term solutions will be recommended. In addition to meeting Downtown Brooklyn's transportation needs, these strategies are intended to foster economic activity and improve the quality of life for all individuals who use Downtown Brooklyn's transit system.

The first major step in this process, and the focus of this report, is to document the existing surface transit conditions within the study area. This report examines results of previous studies, documents current land use and surface transit travel patterns and ridership levels, assesses existing surface transit performance measures, and identifies through survey and focus group techniques the perceived issues and problems with bus service in the Downtown Brooklyn area.

¹ The Downtown Brooklyn study area is defined as bound by the waterfront to the north and west, Union Street to the south, and Vanderbilt Avenue to the east. More detailed description of the Study Area can be found in Section 1.5.

1.2 PROJECT GOALS AND OBJECTIVES

Goals, objectives, and a set of project “guiding principles” for the project were developed through a series of meetings and discussions with representatives of the New York City Department of Transportation (NYCDOT), the Downtown Brooklyn Partnership, and MTA New York City Transit (NYCT). These goals, objectives, and principles were then shared with the project’s Stakeholder Committee for review at a meeting on March 5, 2009. The following is the result of this process.

Overview

While goals outline the priorities of a project, objectives are measurable actions that are necessary to implement the goals. To be useful, objectives must be supported by performance measures that tell citizens, stakeholders, and policymakers how successful the project has been at meeting its goals, and where further refinements are necessary. As a starting point, a set of guiding principles was initially established for the DBSTCS through a series of internal scoping meetings with the project’s steering committee. These principles, which were based on the committee’s knowledge of the Study Area and issues related to surface transit within the Study Area, were used to refine the project’s scope of work and are linked to the project’s goals and objectives.

Project Guiding Principles from Scope of Work

- A.** Identify existing and potential (future) unmet surface transit needs in the Core Study Area using data collection, survey, and focus group techniques outlined in scope.
- B.** Develop short-term surface transit circulation improvements to existing system within the Study Area that do not involve intensive capital expenditures (Transportation System Management solutions) and that can be implemented upon completion of the study.
- C.** Explore the need for new circulator routes that complement and expand upon existing bus network.
- D.** Determine ways to improve circulation, attractiveness, and utility of key transit layover points, key heavily used bus corridors, interconnecting points with other modes, and new development nodes, and improve connectivity between surface transit (bus) and all other transportation modes within the Study Area.
- E.** Develop consensus with stakeholders on appropriate short-term and long-term solutions for surface transit in Downtown Brooklyn.

Project Goals

Based on the above principles, the following goals and objectives were proposed. Supporting performance measures will be developed following publication of the Existing and Future Conditions report with input from the Steering Committee and presented to stakeholders.

Goal #1: Maximize effectiveness of the Study Area’s surface transit network to provide improved access.
(Relates to Guiding Principles A, B, D and E above)

Objective:

Increase quality of transit service options by:

- Reducing travel times and improve schedule reliability for customers using buses;
- Improving inter modal connections between buses and other modes; and
- Making bus service more comfortable and user-friendly.

Goal #2: Provide transit connectivity throughout the Overall Study Area.

(Relates to Guiding Principle C above)

Objective:

Maximize transit connectivity to all significant trip generators throughout the Study Area.

Goal #3: Support the economic health of the Overall Study Area.

(Relates to Guiding Principle E above)

Objective:

Make transit improvements that increase economic attractiveness of commercial- and tourism-based land uses.

This study will accomplish the following goals for the Downtown Brooklyn area: First, this study will recommend short-, mid-, and long-term solutions to enhance the effectiveness of surface transit in Downtown Brooklyn in order to improve accessibility and mobility. Currently, transit mobility is limited by several factors, which will be documented by this study, and alternatives will be developed to solve these problems. Second, this study will provide transit connectivity throughout the Downtown Brooklyn Area. It is the overall goal of this study to identify and support areas which are currently missed or not sufficiently served by transit. Finally, alternatives and recommendations will support the economic health of the area. Downtown Brooklyn has seen exceptional growth in the past, and this is expected to continue. Without an efficient surface transit system, congestion and limited mobility will constrain the growth of the area.

1.3 ORGANIZATION OF THE EXISTING CONDITIONS REPORT

This report documents the results of several previous studies in the area, as well as new data collection efforts, field analysis of existing conditions, and the results of traveler and bus rider surveys. Using these sources, the existing conditions of the area are documented. The results are organized as follows:

- Review of previous studies
- Definition of Study Area
- Description of land uses
- Description of demographics
- Identification of existing transportation services
- Identification of travel patterns
- Identification of surface transit problems

1.4 REVIEW OF PREVIOUS STUDIES

Twenty-three previously completed studies focusing on Downtown Brooklyn and the surrounding area were reviewed, and key findings and recommendations from these studies will be used to inform the DBSTCS. As shown in Table 1, the studies included Environmental Impact Statements, Environmental Assessment Statements, and Land Use and Transportation Studies. Their key findings and recommendations inform the DBSTCS.

Table 1 - Reviewed Previous Studies

Environmental Impact Statements	Date	Sponsoring Agency
363-365 Bond Street DEIS	September 2008	New York City Planning Commission (CPC)
Atlantic Yards Arena and Redevelopment Project FEIS	November 2006	Empire State Development Corporation (ESDC)
Brooklyn Bridge Park Project FEIS	December 2005	ESDC
IKEA Red Hook FEIS	August 2004	CPC
Water Street Rezoning FEIS	August 2004	CPC
Downtown Brooklyn Development FEIS	April 2004	New York City Economic Development Corporation (NYCEDC)
Environmental Assessment Statements	Date	Sponsoring Agency
Dock Street Rezoning EAS		CPC
85 Jay Street Rezoning EAS	May 2004	CPC
Brooklyn Renaissance Plaza Expansion EAS	March 2003	NYCEDC
Light Bridges at 100 Jay Street Rezoning EAS	September 2001	CPC
Land Use and Transportation Studies	Date	Sponsoring Agency/Organization
Brooklyn Bridge Park Transportation and Access Study	February 2008	Downtown Brooklyn Waterfront Local Development Corporation
A Bumpy Ride	August 2007	Center for an Urban Future
Transportation Outlook 2006	May 2007	NYMTC
PlaNYC	April 2007	City of New York (Mayor's Office of Long Term Planning & Sustainability)
Interim Coordinated Human Services Public Transit Plan	November 2006	NYMTC
Downtown Brooklyn Residential Parking Permit Study	May 2006	Downtown Brooklyn Council (with NYCDOT and NYCEDC)
Downtown Brooklyn Transportation Blueprint Technical Memo	May 2005	NYCDOT
Subway-Sidewalk Interface	March 2005	NYCDCP and NYCDOT
Downtown Brooklyn Traffic Calming Study	May 2004	NYCDOT
Mobility for the Millennium	September 1999	NYMTC
Downtown Brooklyn Transit Loop Study	October 1994	NYCDCP
Transit Antic Study	February 1985	

Highlighted Studies

Two important studies are the Brooklyn Bridge Park Transportation and Access Study (February 2008) and the Downtown Brooklyn Development Final Environmental Impact Statement (FEIS) (April 2004). These studies are especially relevant to the DBSTCS because of their documentation of transit needs in Downtown Brooklyn. The Brooklyn Bridge Park area is currently underserved by public transit and therefore represents an opportunity to expand existing services. The Downtown Brooklyn Development FEIS paved the way for increased development in Downtown Brooklyn, thereby creating a need for additional and more efficient transit service.

Brooklyn Bridge Park Transportation and Access Study

Following the completion of the FEIS of the Brooklyn Bridge Park Project, measures to enhance public access to the Park without increasing private vehicular traffic were investigated. Some recommendations from this study include extending existing bus routes, improving pedestrian corridors, adding bicycle routes, adding shuttle bus service, expanding waterborne transport for commuting and recreational purposes, and creating a new subway station entrance at the Clark Street station. Figure 1 shows one of the proposed shuttle routes for the area.



Figure 1 - Proposed Shuttle Route between Downtown Brooklyn and Fulton Ferry

The study noted that the majority of its recommendations are short- to medium-term solutions with relatively low capital costs. Despite this, the study determined that such solutions still have the potential to have a substantial impact on increasing public access to the Park.

Downtown Brooklyn Development FEIS

This FEIS examined the effects of development resulting from a rezoning – approved in 2004 – that enables approximately 6.7 million square feet of new development in Downtown Brooklyn. Of this amount, it was estimated that approximately 68.8% would be office space, 14.6% residential space, 12.6% retail space, and 3.9% community facilities (Figure 2). While the land uses anticipated as a result of the rezoning do not stray significantly from existing land uses, the rezoning allows for denser development.

Of the 31 intersections that were analyzed as part of this study, all but two were identified as having the potential to be significantly impacted by new development during one or more peak travel periods. In order to mitigate these adverse impacts, the study recommended physical and operational changes to the street network, modifications to intersection signalization and channelization, and curbside parking regulations. Despite this mitigation, 11 intersections would remain significantly impacted during peak periods.

At the time of the 2004 study, this area was served by eight subway stations and 15 bus routes. The FEIS found that development resulting from the rezoning could result in significant impacts at two stairways at

the Jay Street Borough Hall station. The creation of a new transit plaza and stairway widening by five feet would address these impacts. It is expected that one of the bus routes (B25) would see significant adverse impacts during the PM peak period in one direction. New York City Transit would need to adjust bus service in order to alleviate this impact.

Other transit-oriented mitigation measures advanced in the 2004 FEIS included the widening of sidewalks at two intersections (Willoughby and Jay Streets, and Albee Square West at Willoughby Street) in order to accommodate the new pedestrian demand on sidewalks near this project. Development anticipated as a result of the rezoning was not expected to significantly impact existing bicycle facilities or routes, although there would likely be some increased congestion along streets used by bicyclists.

The rezoning was not expected to have any adverse impacts on the Long Island Rail Road and ferry services that serve the rezoning study area.

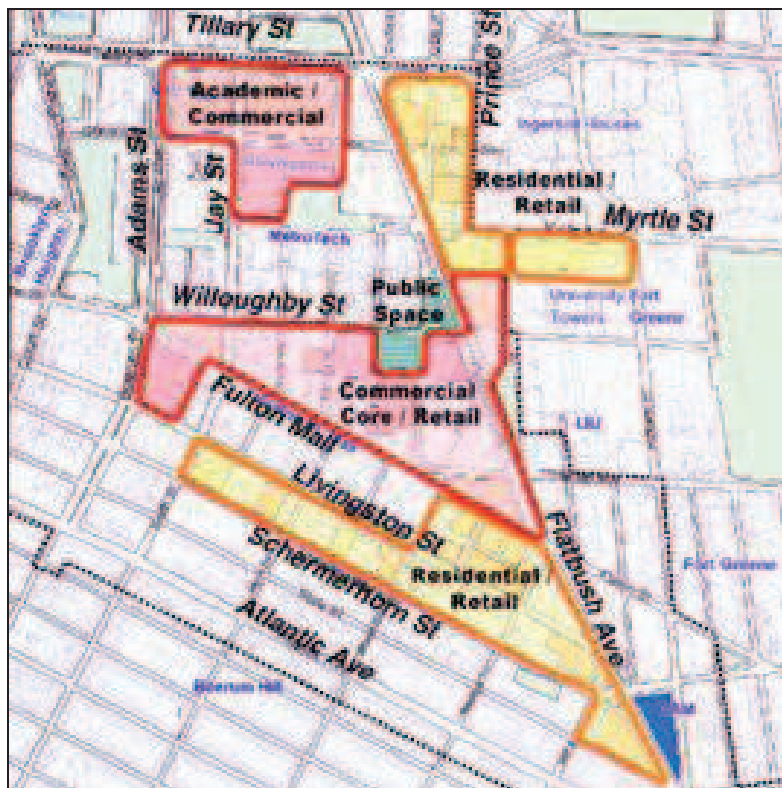


Figure 2 – Downtown Brooklyn Expanded Development Areas

Key Findings of Previous Studies

In addition to the findings of these two major studies, other studies demonstrated four main themes that need to be considered and addressed when developing transportation alternatives within the Downtown Brooklyn area:

- 1) There is continuous development occurring in Downtown Brooklyn
- 2) Existing transit services need to be enhanced
- 3) Congestion must be managed
- 4) The transit system should promote multi-modal travel

1) There is continuous development occurring in Downtown Brooklyn.

The reviewed Environmental Impact Statements (EIS) and Environmental Assessment Statements (EAS) discuss new developments proposed for Downtown Brooklyn between 2001 and 2008. Although not all of the following projects have been built, it is important that the DBSTCS be framed around this continuous pattern of development proposals in the area.

363-365 Bond Street DEIS, September 2008:

This 602,603 square-foot development (Figure 3) on three acres along the Gowanus Canal would change the existing land use from mostly vacant or underutilized manufacturing uses to a more vibrant mixed-use area. The project includes 447 dwelling units, two parking garages, 2,000 square feet of community facilities, 2,000 square feet of commercial space, and publicly-accessible waterfront open space.



Figure 3 - Rendering of 363-365 Bond Street

Atlantic Yards Arena and Redevelopment Project FEIS, November 2006:

This project as analyzed would redevelop 22 acres in the Atlantic Terminal area of Brooklyn where there are many underutilized industrial buildings. The project as analyzed would include an arena, commercial office and retail space, a hotel, open space, and residential uses. The project also includes nine acres for an improved railyard for the Long Island Rail Road.

Brooklyn Bridge Park Project FEIS, December 2005:

This approved project will create an 85-acre waterfront park along 1.3 miles of the East River between Jay Street and Atlantic Avenue. The park would have both passive and active recreational facilities. The project will also include retail, commercial, residential, restaurant, ancillary office space, parking, and potentially hotel uses.

IKEA Red Hook FEIS, August 2004:

This FEIS analyzed the development of a 346,000 square foot IKEA home furnishing store (Figure 4), a 6.3 acre waterfront esplanade, an additional 69,000 square feet of retail and restaurant uses, and a 1,400-space parking lot on 22 acres in the Red Hook neighborhood of Brooklyn. This project represents a significant change to land use in the predominantly industrial area.



Figure 4 - IKEA Brooklyn (opened in 2009)

Dock Street Rezoning EAS, April 2009:

This EAS studied the rezoning of a block in DUMBO. The rezoning facilitates development of a 323-unit residential building, a 300-seat public middle school and a 465-space public parking garage.

85 Jay Street Rezoning EAS, May 2004:

This EAS analyzed development of an 837,600-square-foot community facility, which was to include residential space, a cafeteria, an assembly hall, office space, and a below-ground parking garage. The project did not move forward and the property is now part of a new MX-2 Special District.

Brooklyn Renaissance Plaza Expansion EAS, March 2003:

This EAS analyzed development of a 194,000-square-foot hotel annex with 282 rooms and 8,000 square feet of retail space, as well as an additional 43,250 square feet of retail space apart from the annex. This project – located between Adams and Pearl Streets – would satisfy the demand for hotel space in response to anticipated development in Downtown Brooklyn.

Light Bridges at 100 Jay Street Rezoning EAS, April 2001:

This EAS assessed a mixed-use development project with 42,500 square feet of retail space, between 34,000 and 92,000 square feet of commercial space, and between 299 and 352 residential units. The building is completed and contains 267 units and ground-floor retail.

2) Existing transit services need to be enhanced.

Previous land use and transportation studies have identified deficiencies in the transit system serving Downtown Brooklyn. Below are some examples of enhancements that have been recommended by previous studies.

A Bumpy Ride, August 2007:

This study examined the Heart of Brooklyn (HOB) Trolley and other New York City trolleys. The study found that the HOB Trolley, which is a rubber-wheeled replica trolley, has had a minimal impact on museum attendance, retail sales, and resident mobility. Some recommendations for making the HOB Trolley more effective include increasing frequency and reliability of service, increasing awareness of service through a marketing campaign, and connecting the HOB Trolley route with other parts of Brooklyn.

Transportation Outlook 2006, May 2007:

This study was a summary of comments from 22 public listening sessions that were held throughout the New York Metropolitan Transportation Council's region. Participants in Brooklyn identified mobility, program development, and infrastructure as areas of the transit system with deficiencies.

Interim Coordinated Human Services Public Transit Plan, November 2006:

This plan provides a framework for developing a Coordinated Human Services-Public Transit Plan in order to be eligible for funding from SAFETEA-LU (Safe, Affordable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users). Recommendations from this study include increasing connections between paratransit systems and generally making transportation access easier for older adults, lower income residents, and people with disabilities.

Transit Antic Study, February 1985:

This study sought to create a transit link between the Long Island Rail Road Terminal, Fulton Landing, and Downtown Brooklyn in order to enhance mobility, accessibility, and development opportunities. The study recommended the addition of light rail transit (LRT) service to link these areas.

3) Congestion must be managed.

Previous land use and transportation studies have identified the immense presence and negative impacts of congestion in Downtown Brooklyn. Below are some examples of recommendations for mitigating congestion.

PlaNYC, April 2007:

PlaNYC represents a comprehensive approach to planning for the future of New York City, and it includes recommendations for land, water, transportation, energy, air quality, and climate change. The transportation section is further divided into several initiatives. One of these initiatives is to improve traffic flow by reducing congestion. Some recommendations for achieving this goal are instituting congestion pricing, managing roads more efficiently, strengthening enforcement of traffic violations, and facilitating freight movements.

Downtown Brooklyn Transportation Blueprint Technical Memo, May 2005:

This study examined land use trends and identified existing and anticipated transportation issues and opportunities in Downtown Brooklyn. The study outlined six goals for overcoming the identified challenges. Some recommendations based on these goals include accommodating travel demand growth that comes from development, developing effective responses that work within physical and fiscal constraints, improving pedestrian safety and infrastructure, and managing congestion in a way that preserves and enhances quality of life for residents and integrity of the system.

Downtown Brooklyn Residential Parking Permit Study, May 2006:

This study examined whether a Residential Parking Permit (RPP) Program would be an effective means of reducing congestion in Downtown Brooklyn. The study found that average weekday on-street parking occupancy is 97%, and more than two-thirds of surveyed parkers searched for at least ten minutes before finding an available spot. This means that drivers searching for parking contribute significantly to the amount of congestion in Downtown Brooklyn. The study outlined four policy options for addressing this parking issue: a traditional RPP Program, a waitlist and multi-space meters, market rate pricing for permits and meters, and no action.

Downtown Brooklyn Traffic Calming Study, May 2004:

This study developed a traffic calming strategy designed to maintain or improve mobility for pedestrians, vehicles, and bicycles without increasing traffic in surrounding areas. Traffic calming measures used in a Pilot Program included widened pedestrian islands, raised intersections, high-visibility on-street bicycling lanes, road closures, and slower signal progression (Figure 5). An Action Plan was then developed for each street based on several themes, including improving pedestrian connectivity, transit operations, and the bicycle network, maintaining a clear truck network, and encouraging through traffic on designated

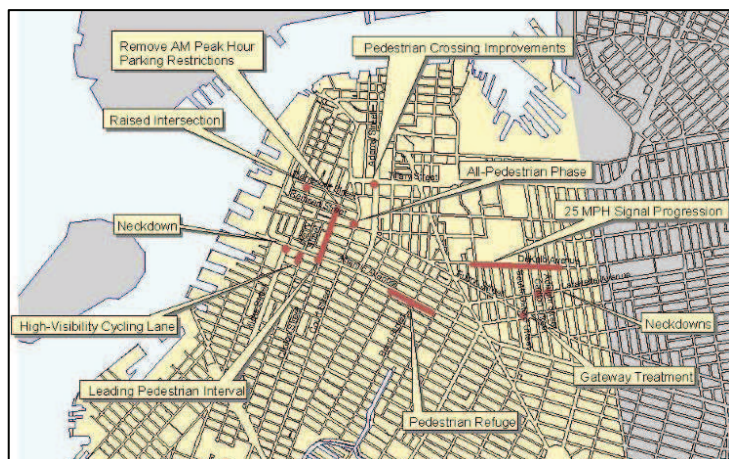


Figure 5 - Pilot Program Traffic Calming Measures

streets while maintaining more limited levels of traffic on other streets.

Downtown Brooklyn Transit Loop Study, October 1994:

This study evaluated the demand for a low-fare or free form of transit within Downtown Brooklyn. The study explained that the addition of a transit loop would provide an alternative option to personal vehicle and taxis, and this would likely reduce traffic in the Downtown area. The study identified possible routes and included a series of recommendations for proceeding with planning for this new service. Recommendations included analyzing existing bus routes for possible streamlining, relieving congestion to make the new loop more efficient, and making physical changes to the street network.

4) The transit system should promote multi-modal travel.

Previous Land Use and Transportation Studies have identified the importance of encouraging multi-modal travel in Downtown Brooklyn. Below are examples of recommendations for system improvements that would promote this type of transit use.

Subway-Sidewalk Interface, March 2005:

This study sought to improve pedestrian and vehicular circulation near subway station entrances in order to encourage mass transit use. The study recommended the use of signage, lighting, signal timing, pavement markings, corner clearances, and curb line changes to meet this goal. The study also addressed the issue of congestion and confusion at intermodal stations. Recognizing the importance of these multi-modal hubs, the study made several recommendations for improving service at such stations. These recommendations include installing bus signage within the stations to direct subway passengers to the correct exits and bus stops, displaying subway, bicycle, and neighborhood maps on bus shelters, implementing bus actuated signals where feasible, and assigning appropriate curb use for taxis and passenger loading.

Mobility for the Millennium, 1999:

This study examined the transportation problems and needs for corridor areas throughout the New York Metropolitan Transportation Council area. In the Northern Brooklyn corridor, congestion from commuters traveling to Manhattan was identified as a problem. In the Central Brooklyn corridor, there were numerous disconnected modes of transportation. In addition to recommending traffic calming measures in Northern Brooklyn, the study highlighted the fact that the Atlantic Terminal is going to be rebuilt so that overcrowding would be reduced and intermodal transfers would be easier for users.

1.5 STUDY AREA

The Downtown Brooklyn area is broken down into an Overall Study Area and a Downtown Core Study Area. The Core Study Area includes several study corridors. Figure 8 shows the Overall Study Area as well as the Downtown Core Study Area and the Study Corridors that were identified in consultation with NYCDOT, Downtown Brooklyn Partnership, and NYCT.

Overall Study Area

The Overall Study Area is bound by the waterfront to the north and west, Union Street to the south and Vanderbilt Avenue to the east. The neighborhoods that make up the Overall Study Area will be discussed in more detail later in this report (Figure 7).

Downtown Core Study Area

The Downtown Core Study Area is generally bounded by High and Tillary Streets to the north, Navy Street and Ashland Place to the east, Prospect, Clinton, and Court Streets to the west, and Atlantic Avenue to the south (Figure 6). It also includes the area surrounding Atlantic Terminal.

The Downtown Core is also broken down into four study corridors. These corridors, which have been identified as areas that this study should focus on, are Jay Street / Adams Street / Cadman Plaza, Atlantic Avenue, Flatbush Avenue, and Fulton Street / Livingston Street. Each corridor will be discussed in detail later in the report.

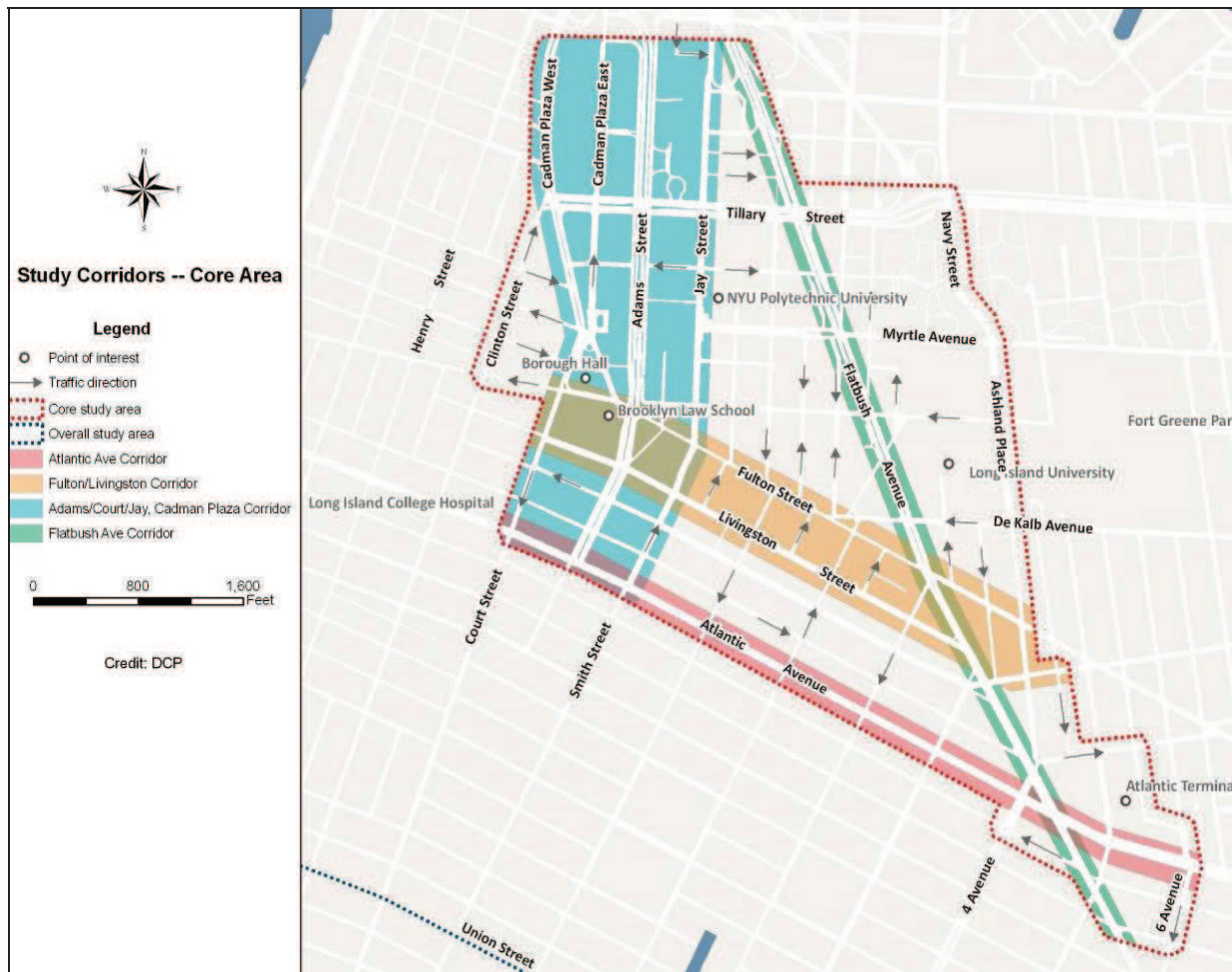


Figure 6- Core Study Area and Study Corridors