

1. INTRODUCTION

The Downtown Brooklyn Traffic Calming Study Final Report is the end product of over three years of work undertaken by Arup, the New York City Department of Transportation, and the Downtown Brooklyn community. This report discusses the context in which the project has been undertaken, the approach adopted for calming traffic in Brooklyn, and the various results – in particular, a pilot program and an area-wide strategy recommendation.

2. BACKGROUND

2.1 Origins of the Downtown Brooklyn Traffic Calming Study

In the past twenty years, Downtown Brooklyn has enjoyed a revitalization that has brought economic growth to this collection of dense, diverse urban neighborhoods. Coupled with regional travel growth, this revitalization has also brought increasing traffic impacts to these neighborhoods. The Downtown Brooklyn Traffic Calming Study is an effort to mitigate those traffic impacts to ensure the area's ongoing vitality, safety, accessibility, and mobility.

2.1.1 Revitalization of Downtown Brooklyn

Downtown Brooklyn is similar to the downtown areas of many older American cities. New development lies adjacent to older land uses. Both are dependent on old, inflexible infrastructure, giving rise to economic and environmental strains. In particular, the Downtown Brooklyn civic and commercial center has undergone considerable renewal and growth over the last twenty years. The resulting traffic must be managed to reduce its impact on the community.

In its 1969 "Master Plan for the City of New York", the Department of City Planning recommended the creation of satellite commercial centers in the City's outer boroughs to complement the growth then concentrated in Manhattan, and to distribute the stimulus and benefits of this growth. Downtown Brooklyn, the civic and business center immediately across the East River from Manhattan and with some of the best subway connections in the City, was well positioned to take advantage of this recommendation. However, much of the area was run-down. Although not subject to widespread abandonment, it faced many of the challenges of urban renewal. In 1983, a Regional Plan Association study asserted that to reverse the deterioration of Downtown Brooklyn required its transformation into the city's third CBD. Today the area has achieved that rank and is still growing.

The opening of Pierrepont Plaza in 1987 marked the beginning of Downtown Brooklyn's revival. Bounded by Pierrepont and Clinton Streets and Cadman Plaza West, it was the first large development project to be completed in this area. Efforts to revitalize the commercial center resulted in the opening of Fulton Mall, between Adams Street and Flatbush Avenue, as a retail counterweight to the auto-dependent Kings Plaza shopping center at Marine Park/Mill Basin. The mall has 200 stores anchored by the Macy's department store. Mall traffic is generally restricted to pedestrians, buses and emergency vehicles. The State court building erected in the 1950s and the many Transit Authority offices that were eventually consolidated at a new building on Livingston Street at Boerum Place during the early 1990s have stabilized the civic center.

The largest contributor to Downtown Brooklyn's resurgence as a viable business nexus has been MetroTech Center. Conceived during the mid 1970s by the president of Polytechnic University as a way to improve the area and attract more students, MetroTech Center is a noteworthy example of the successful collaboration between academia, industry and government. With an investment of over \$1 billion, a five million square-foot development was created with new and renovated buildings around a 4-acre, landscaped and auto-free commons. It is reported that nearly all MetroTech properties are leased.

The revival of Downtown Brooklyn has brought 25,000 new workers to the area. Downtown Brooklyn attracts approximately 100,000 people every day, in addition to an estimated 50,000 office workers in public and private offices. Approximately 10,000 jurors serve each week in the City, State and Federal court system in this area. The five colleges in the area contain an estimated total daily student and faculty population of over 45,000. The Department of City Planning

reports that there are more than 22,000 parking spaces within this area, a number that will grow when Renaissance Plaza and other plans for Downtown are completed¹.

Even before the World Trade Center disaster companies were moving labor-intensive and other businesses out of Manhattan to avoid expensive office space. This process has accelerated since that time. The Downtown Brooklyn area and its traffic will continue to grow, with such projects as Atlantic Center at Flatbush Avenue and Atlantic Avenue, the expansion of the Federal Court, the pending redevelopment of the landmark Post Office building between Cadman Plaza East and Adams Street and the new Renaissance Plaza Hotel in the MetroTech Center, with its 1100-space parking garage. Recent plans to redevelop other sites in Downtown Brooklyn will add still more traffic pressure on the area.

Along with the emergence of the greater Downtown area as the city's third largest CBD, adjacent historic residential neighborhoods have continued to attract young urban professionals seeking easy walking access to Downtown Brooklyn and transit access to Manhattan. It has been estimated that the seven zip codes including and immediately surrounding this area have a total adult population of over 270,000 within easy walking distance of the civic/commercial center.

2.1.2 Transportation Impacts on Downtown Communities

Providing a point of access to Manhattan has always been an important function of the Downtown Brooklyn area. It is served by more bus and subway lines than any other point in New York City. Eleven bus and ten subway train lines converge in the vicinity of Brooklyn Borough Hall and the nearby LIRR Atlantic Terminal. The area serves as a conduit for vehicular traffic to Manhattan via the Brooklyn Battery Tunnel and the Brooklyn and Manhattan Bridges. Major roads such as Interstate 278 (Brooklyn/Queens Expressway – the BQE), which connects directly to the Prospect Expressway/Ocean Parkway and Gowanus Expressway, and major roads in the street grid system, such as Flatbush, Atlantic, Third and Fourth Avenues, bring traffic to this area from all parts of Brooklyn. Over 200,000 vehicles are estimated to use this area's major roads and surface streets each day.

Traffic conditions deteriorate as the amount of traffic on a road increases. At low traffic volumes, each driver can proceed more or less unconstrained by surrounding vehicles; at higher volumes, each driver is constrained in the choice of speed, travel lane and so on by surrounding vehicles. At high volumes, roads and intersections become congested and drivers find themselves completely constrained by other vehicles in the traffic jams that are a familiar part of street life in Downtown Brooklyn.

This progression from unconstrained travel to extremely constrained travel with increasing traffic volumes is matched by a progression from stable to unstable conditions. At low traffic volumes, a car stopped where it should not be or a traffic accident or construction has little effect on traffic flow: drivers are able to pass without undue problems. At high traffic volumes, even minor interruptions can cause substantial problems of delay. At extreme traffic levels gridlock can result from minor problems.

Nevertheless, except in the case of gridlock, traffic continues to move, even if traffic conditions become unpredictable and frustrating. It is this optimistic expectation that traffic will continue to flow and the resignation when it does not that keeps people getting into their cars each day.

Downtown Brooklyn's intense levels of development and redevelopment over the last twenty years have been a regional success story and a boon to the borough. They have resulted in increased traffic congestion on the major routes. These conditions have diverted traffic to local streets – for many drivers, this congestion is extremely frustrating and the opportunity to avoid the

¹ Source: New York City Department of City Planning

long queues and delays that accompany traffic congestion by taking a different route proves irresistible. This has happened in Downtown Brooklyn with the result that traffic has increasingly utilized local streets not designed to carry it. Many of these pass through residential neighborhoods in the Downtown Brooklyn area. The community has widely reported problems associated with speeding vehicles.

This traffic intrusion has been exacerbated by recent construction work on the Gowanus and Prospect Expressways, the Manhattan and Brooklyn Bridges, arterial roads like Flatbush Avenue, and public and private construction at and around the Atlantic Terminal. The persistent traffic congestion in Downtown Brooklyn has caused this area to become one of New York's severe carbon monoxide hot spots; this poses a potential health burden.

The results are the pervasive presence of both private and commercial vehicles on Downtown Brooklyn's streets, deteriorating air quality, and impacts on safety for all street users. All of these problems contribute to an overall adverse impact on quality of life for those who live in and use the Downtown Brooklyn area.

2.1.3 The role of traffic calming in strengthening Downtown Brooklyn's vitality

The communities of Downtown Brooklyn see their streets as overtaxed with traffic and in need of strong protective measures. The Downtown Brooklyn Traffic Calming Project was conceived through the cooperative efforts of local elected officials and community groups, with additional support from the New York City administration. Elected officials and community groups alike consider revitalization of Downtown Brooklyn and preservation of the historic character of the surrounding residential communities as vital for maintaining a high quality of life locally and citywide. Most importantly, both the Downtown Brooklyn community and New York City administration see this project as signaling a new direction for managing traffic in the city. Thus, the project's goal is to make all types of streets function better for all users of the public space.

2.2 Scope and objectives of this study

2.2.1 Study area

The project area is bounded by the East River to the north, Washington Avenue to the east, 15th Street and Prospect Park to the south and New York Harbor's Buttermilk Channel to the west. The area includes the communities of Clinton Hill, Fort Greene, Prospect Heights, Park Slope, Gowanus, Red Hook, Carroll Gardens, Cobble Hill, Boerum Hill, Columbia Terrace, Brooklyn Heights, Fulton Landing, Downtown Brooklyn and Vinegar Hill. The project area is divided into a primary and secondary study area. The primary area has been studied in depth. Consideration has been given to the impacts of the recommended strategy and the pilot program on the secondary area. *Figure 2.1* shows the boundaries of the primary and secondary study areas.

2.2.2 Goals and Objectives

The project's goals are to establish a more equitable balance in the use of area streets by pedestrians, bicyclists and motorists, to rationalize circulation and to maintain or improve mobility for all transportation modes without adversely impacting community access and adjacent area traffic.

The project's objectives are to:

- improve pedestrian safety and access, including safer crossings at problem locations, reduce vehicular speeds and enhance mobility between neighborhoods;

- reduce unwanted traffic impacts, including congestion, excessive vehicle volumes, speeding, noise, air pollution, and damage to infrastructure;
- preserve and improve civic, cultural & institutional, commercial and residential area access by providing a traffic-calmed street network for improved connectivity among these destinations; and
- improve air quality so as to help attain national ambient air quality standards; and
- protect the unique character of historic residential communities.

A complementary list of objectives flowed from the outreach process undertaken for the project:

- improve pedestrian circulation and safety;
- improve surface transit operations and safety;
- develop the local cycling network;
- manage truck access and routing appropriately while reducing trucks' impacts on the community;
- manage through traffic in appropriate locations while reducing its impact in all locations;
- maintain local traffic permeability; and
- maintain or enhance emergency vehicle access.

2.3 Project organization

For years, citizens from neighborhoods within the study area had expressed concern regarding the impacts of traffic (i.e. cut through and diverted traffic) on their neighborhoods. This concern was continuously raised as a serious quality of life issue that was negatively affecting their communities. Elected officials were urged to assist in addressing this issue.

To this end, the Mayor's Office negotiated an agreement with Brooklyn Borough President Howard Golden and Council Member Kenneth K. Fisher to fund a study including a pilot program that would lead to the development of a traffic management plan for the area. Total funding for the project was \$6 million. Council Member Kenneth Fisher provided \$500,000, and Borough President Howard Golden provided \$1.5 million, for a total of \$2 million. The study and pilot program utilized approximately \$1.2 million of these funds, with an additional \$250,000 provided by Assembly Member Joan Millman to supplement funding for the pilot program. The City has also agreed to provide \$4 million in the future to implement recommendations developed during the study.

In 1997, a task force was established by Borough President Howard Golden to develop a scope of work for the project. NYCDOT staff worked with civic leaders and elected officials to develop the Request for Proposals (RFP). Understanding the high level of community interest in the project, NYCDOT agreed to vary from usual practice and have three neighborhood representatives - as designated by Borough President Golden and Council Member Fisher - serve as voting members of the Selection Committee along with four NYCDOT members.

The community-based Task Force chaired by the Brooklyn Borough President monitored the study. NYCDOT chairs a Technical Advisory Committee, which consists of interested government agencies, elected officials, and Community Boards. The primary study area and the majority of the secondary study area falls with Brooklyn Community Boards 2 and 6; Community




Board 8 encompasses the balance of the secondary study area. Community Board boundaries are shown in *Figure 2.1*.

Downtown Brooklyn Traffic Calming Project



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LEGEND

-  Primary Study Area
-  Secondary Study Area
-  Community Board Boundaries

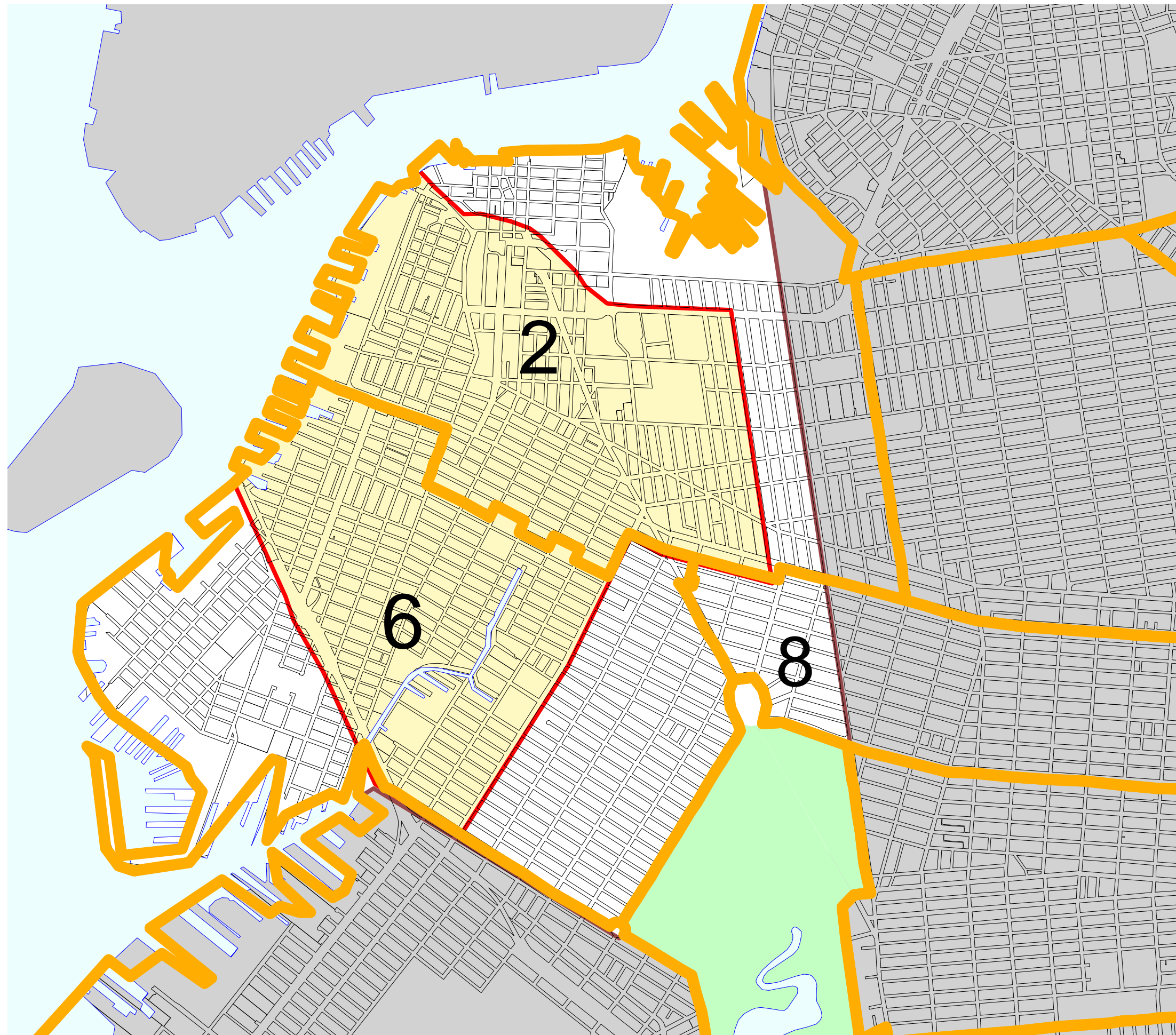
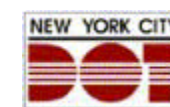
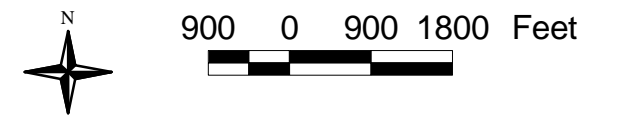


Figure 2.1

Study Area



ARUP