

New York City
Department of
Transportation

**Downtown Brooklyn
Traffic Calming Project**

Final report

FINAL REPORT

New York City Department of Transportation
Downtown Brooklyn Traffic Calming Project

Final report

May 2003

Arup Services New York Ltd
155 Avenue of the Americas, New York, New York 10013
Tel +1 212 229-2669 Fax +1 212 229-1057
www.arup.com

Job number 31292

Job title **Downtown Brooklyn Traffic Calming Project** Job number **31292**

Document title **Final report** File reference

Document ref **REP/001**

Revision	Date	Filename			
Draft 1	8/28/02	Description	First draft		
			Prepared by	Checked by	Approved by
		Name	Andrew Wisdom/Tom Maguire	David Palmer	Greg Hodkinson
		Signature			
Draft 2	12/30/02	Filename			
		Description	Final report		
			Prepared by	Checked by	Approved by
		Name	Andrew Wisdom/Tom Maguire	David Palmer	Greg Hodkinson
	Signature				
Final Draft	4/17/03	Filename			
		Description	Final Draft issued to NYCDOT		
			Prepared by	Checked by	Approved by
		Name	Andrew Wisdom/Tom Maguire	David Palmer	Greg Hodkinson
	Signature				
Final Draft	5/20/03	Filename			
		Description	Final Draft issued to Task Force, Technical Advisory Committee		
			Prepared by	Checked by	Approved by
		Name			
	Signature				

Issue Document Verification with Document



CONTENTS

	Page
1. INTRODUCTION	1
2. BACKGROUND	2
2.1 Origins of the Downtown Brooklyn Traffic Calming Study	2
2.1.1 Revitalization of Downtown Brooklyn	2
2.1.2 Transportation Impacts on Downtown Communities	3
2.1.3 The role of traffic calming in strengthening Downtown Brooklyn's vitality	4
2.2 Scope and objectives of this study	4
2.2.1 Study area	4
2.2.2 Goals and Objectives	4
2.3 Project organization	5
3. TRAVEL IN DOWNTOWN BROOKLYN	8
3.1 Traffic Issues	8
3.1.1 Morning peak period	10
3.1.2 Evening peak period	13
3.2 Parking	13
4. TRAFFIC CALMING	14
4.1 What Is Traffic Calming?	14
4.2 Integrated Traffic Management	17
5. DOWNTOWN BROOKLYN TRAFFIC CALMING APPROACH	23
5.1 Calming Brooklyn's Traffic	23
5.2 Downtown Brooklyn Street Management Framework	24
5.2.1 What is a street management framework?	24
5.2.2 Types of Street	24
5.3 Downtown Brooklyn Street Designations	26
5.3.1 Travel streets	28
5.3.2 Community streets	28
5.3.3 Living Streets	29
5.4 Public outreach	29
5.4.1 Information gathering	30
5.4.2 Idea development	35
5.4.3 Pilot program development and implementation	35
5.4.4 Strategy development	36
6. PILOT PROGRAM	37
6.1 Introduction – Why a Pilot Program?	37
6.2 Pilot program overview	37
6.2.1 Pilot program development process	37
6.2.2 Pilot program scope	39
6.2.3 Design of pilot program treatments	42
6.2.4 Signage	43
6.2.5 Monitoring program	43
6.2.6 Construction issues	44
6.3 Evaluation	45

6.3.1	Tillary St/Adams St: Pedestrian Refuge	46
6.3.2	Court Street/Remsen Street: All-Pedestrian Phase	47
6.3.3	Hicks Street/Pierrepont Street: Raised Intersection	49
6.3.4	Hicks Street/Atlantic Avenue: Neckdown	51
6.3.5	Henry Street/Atlantic Avenue: High-Visibility Bicycle Lane	54
6.3.6	Clinton Street/Atlantic Avenue: Leading Pedestrian Interval	55
6.3.7	Bond Street/Atlantic Avenue: Pedestrian Refuge	57
6.3.8	Fulton Street/South Oxford Street: Gateway Treatment	60
6.3.9	Lafayette Avenue/Adelphi Street and Carlton Ave: Neckdowns	61
6.3.10	DeKalb Avenue: 25 mph Signal Progression	63
6.3.11	User Surveys: Summary of common questions	64
6.4	Lessons learned	69
6.4.1	Design	69
6.4.2	Construction	71
6.4.3	Operations	72
7.	ACTION PROGRAM	74
7.1	Traffic Management Themes	74
7.1.1	Pedestrian circulation and connectivity	74
7.1.2	Improving transit operations	74
7.1.3	Developing the bicycle network	75
7.1.4	Truck access and routing	75
7.1.5	Managing through traffic	75
7.1.6	Local traffic permeability	75
7.1.7	Emergency vehicle access	75
7.2	Action Plans	76
7.2.1	Travel Streets	77
7.2.2	Community Streets	104
7.2.3	Living Streets	130
7.3	Areas Requiring Further Consideration	149
7.3.1	Flatbush Avenue/Atlantic Avenue/4 th Avenue	149
7.3.2	Flatbush Avenue/Schermerhorn Street	149
7.3.3	Tillary Street/Adams Street	150
7.3.4	Fulton Ferry/Two-way Furman Street	150
7.4	Cost Estimates	150
7.4.1	Neckdown	150
7.4.2	Bus Bulb	151
7.4.3	Raised Intersection	151
7.4.4	Full Gateway	151
7.4.5	Chicane or Mid-block Crossing	151
7.4.6	High-visibility bike lane	152
7.4.7	High-visibility crosswalk	152
7.4.8	Median	152
7.4.9	Implementation costs by street	152
7.5	Staging Implementation of the Action Plan	154
7.5.1	Phase 1	155
7.5.2	Phase 2	156
7.5.3	Phase 3	156
7.5.4	Phase 4	157
7.5.5	Costs by phase	158
7.6	Ideas Considered But Not Advanced	158
7.6.1	Flatbush Avenue/Atlantic Avenue/4 th Avenue	158

7.6.2	Flatbush Avenue/Schermerhorn Street/3 rd Avenue realignment	160
7.6.3	State Street reversal	161
7.6.4	Two-way Court Street	161
8.	IMPLEMENTATION ISSUES	162
8.1	Building Support	162
8.2	Expanding the Envelope	162
8.3	Maintaining Enthusiasm	163

APPENDICES