

Street Design Manual

**New York City
Department of Transportation**

**2013
Second Edition**



www.nyc.gov/dot

Copyright

Copyright © 2013 New York City Department of Transportation

First Edition © 2009

ISBN-13: 978-0-615-89775-2

ISBN-10: 0615897754

1. REFERENCE/General.
2. TRANSPORTATION/General.

Printed in the United States by Vanguard Direct.

Printed on Roland Recycled stock: Forest Stewardship Council (FSC) certified, 30% post-consumer and FSC mixed paper, manufactured using biogas energy and certified EcoLogo. Tabs printed on Wausau Paper Royal Complements: 30% post-consumer recycled fiber, Green Seal® certified.

Set with Galaxie Polaris.

All photos are courtesy of New York City Department of Transportation unless otherwise noted.

The most current version of the Manual is available for download at www.nyc.gov/streetdesignmanual <<http://www.nyc.gov/streetdesignmanual>>.

Print copies may be purchased through New York City CityStore (www.nyc.gov/citystore <<http://www.nyc.gov/citystore>>).

Updates and addenda to the Street Design Manual will be posted on the Street Design Manual website at www.nyc.gov/streetdesignmanual <<http://www.nyc.gov/streetdesignmanual>>.

Readers may register on the website to receive updates by email.



COMMODORE CRITERION

6736
MIDTOWN BUS

6736
FedEx

2792
MIDTOWN BUS

FIRE LANE

4th

5th

6th

7th

8th

9th

10th

11th

12th

13th

14th

15th

16th

17th

18th

19th

20th

21st

22nd

23rd

24th

Foreword from the Commissioner	7		
Preface	8	2	Geometry
Acknowledgments	9		47
Agency Acronyms	10		
<hr/>			
Introduction	11		
Purpose	15	2.0	Introduction
Background	16	2.0.1	General Guidelines
Street Design Policy	18		51
			52
<hr/>			
1	Process	27	
1.0	Introduction	30	
	Table 1a	31	
	Table 1b	33	
<hr/>			
1.1	Operational Projects	34	
1.1.1	Origination	34	
1.1.2	Planning & Design	35	
1.1.3	Implementation	35	
<hr/>			
1.2	Capital Projects	36	
1.2.1	Origination	36	
1.2.2	Planning & Design	36	
1.2.3	Construction	38	
<hr/>			
1.3	Case Studies	39	
1.3.1	Hoyt Avenue at RFK Bridge	40	
1.3.2	West Houston Street	42	
1.3.3	Willoughby Plaza	44	
<hr/>			
		2.1	Roadways & Lanes
		2.1.1	Bike Lane & Path
		a	Bike Lane
		b	Bike Path
		2.1.2	Bus Lane & Busway
		a	Bus Lane
		b	Busway
		2.1.3	Shared Street
		2.1.4	Plaza
		a	Permanent Plaza
		b	Temporary Plaza
<hr/>			
		2.2	Sidewalks & Raised Medians
		2.2.1	Sidewalk
		a	Full Sidewalk
		b	Ribbon Sidewalk
		2.2.2	Curb Extension
		a	Curb Extension: Community Facilities
		b	Curb Extension: Bus Bulb
		c	Curb Extension: Mid-Block Narrowing
		2.2.3	Raised Median
		2.2.4	Pedestrian Safety Island
		2.2.5	Median Barrier
<hr/>			
		2.3	Traffic Calming
		2.3.1	Lane Narrowing & Lane Removal
		2.3.2	Raised Speed Reducer
		a	Raised Speed Reducer: Speed Cushion
		2.3.3	Gateway
		2.3.4	Raised Crosswalk
		2.3.5	Chicane
		2.3.6	Neighborhood Traffic Circle
		2.3.7	Roundabout
		2.3.8	Raised Intersection

3	Materials	95	4	Lighting	131
3.0	Introduction	98	4.0	Introduction	134
3.1	Sidewalks	100	4.1	Poles	138
3.1.1	Unpigmented Concrete	101	4.1.1	Davit, Round, & Octagonal Poles	139
3.1.2	Pigmented Concrete		4.1.2	Flatbush Avenue Pole	141
a	Pigmented Concrete: Dark	102	4.1.3	TBTA Pole	142
b	Pigmented Concrete: Bluestone	103			
c	Pigmented Concrete: Granite	104	4.2	Fixtures	144
d	Pigmented Concrete with Exposed Light-Colored Aggregate	105	4.2.1	Cobra Head Fixture	145
e	Pigmented Concrete with Silicon Carbide Treatment	106	4.2.2	Standard LED Fixture	146
3.1.3	Sand-Colored Concrete with Exposed Aggregate	107	4.2.3	Helm Fixture	147
3.1.4	Concrete with Exposed Glass Aggregate	108	4.2.4	Stad Fixture	149
3.1.6	Concrete with London Paver Scoring	109	4.2.5	Teardrop & Shielded Teardrop Fixtures	151
3.1.7	Hexagonal Asphalt Paver	110	4.3	Integrated Streetlights	152
3.1.8	Bluestone Flag	111	4.3.1	Alliance Fixture & Pole	153
3.1.9	Granite Slab	112	4.3.2	Bishops Crook Fixture & Pole	154
3.1.10	Granite Block	113	4.3.3	City Light Fixture & Pole	155
3.1.11	Precast Square Paver	114	4.3.4	Flushing Meadows Fixture & Pole	156
3.1.12	Permeable Interlocking Concrete Paver (PICP)	115	4.3.5	Type B Fixture & Pole	157
3.1.13	Porous Concrete	116	4.3.6	Type F Fixture & Pole	158
3.1.14	Rubber Paver	117	4.3.7	Type M Fixture & Pole	159
			4.3.8	World's Fair Fixture & Pole	160
3.2	Curbs	118	4.4	Signal Poles	161
3.2.1	Unpigmented Concrete	119	4.4.1	Type M-2A Signal Pole	162
3.2.2	Pigmented Concrete	120	4.4.2	Type S-1A Signal Pole	164
3.2.3	Integral Concrete Curb and Gutter	121	4.4.3	Alliance Signal Pole	165
3.2.4	Granite	122			
3.3	Crosswalks	123			
3.3.1	Granite Paver	124			
3.4	Roadways	125			
3.4.1	Asphaltic Concrete	126			
3.4.2	Porous Asphalt	127			
3.4.3	Concrete	128			
3.4.4	Granite Block	129			

5	Furniture	167	6.5	Limited-Access Arterial Plantings	222
5.0	Introduction	170	6.5.1	Limited-Access Arterial Plantings Table 6e	223 225
5.0.1	General Guidelines	171	6.6	Stormwater-Capturing Installations	226
5.1	Art Display Case	172	6.6.1	Stormwater-Capturing Installations	228
5.2	Automatic Public Toilet (APT)	173	a	DEP ROW Bioswale	230
5.3	Bike Parking Shelter	174	b	DPR Treatment Table 6f	232 234
5.4	Bike Share Station	175	<hr/>		
5.5	Bus Stop Shelter	176	Glossary 235		
5.6	CityBench	177	<hr/>		
5.7	CityRack	178	Appendices 249		
5.8	Mini CityRack	179	<hr/>		
5.9	Multirack	180	A	Agency Roles on the City's Streets	250
5.10	Newsstand	181	B	Legal & Design Guidance References	254
5.11	WalkNYC Wayfinding System	182	<hr/>		
5.12	Waste Receptacle	183	Index 258		
<hr/>					
6	Landscape	185			
6.0	Introduction	188			
6.0.1	General Guidelines	190			
6.1	Tree Beds	198			
6.1.1	Tree Bed	199			
a	Individual Tree Bed	201			
b	Connected Tree Bed	202			
	Table 6a	203			
6.2	Roadway Plantings	204			
6.2.1	Raised Median	205			
a	Raised Median (Curb Height)	207			
b	Raised Median (12 - 24 Inches)	208			
c	Pedestrian Mall	209			
6.2.2	Triangle	210			
6.2.3	Street End	211			
	Table 6b	212			
6.3	Sidewalk Plantings	213			
6.3.1	Full Sidewalk	214			
6.3.2	Ribbon Sidewalk	215			
6.3.3	Curb Extension	216			
	Table 6c	217			
6.4	Plaza Plantings	218			
6.4.1	In-Ground Planting Area	219			
6.4.2	Raised Planting Area	220			
	Table 6d	221			

Foreword from the Commissioner

I am very pleased to present the second edition of the New York City *Street Design Manual*, the city's comprehensive resource for street design standards, guidelines, and policies. It draws from a wide range of resources and experience to present a coherent set of choices for street design. These range from ubiquitous features, such as standard sidewalk concrete and street lights, to newer design elements like pedestrian safety islands, bus bulbs, and protected bicycle lanes.

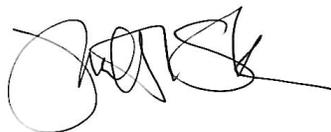
The design and context of our streets inform our behavior: wide roadways with little economic and social activity encourage speeding, while wide sidewalks with active retail and other points of interest attract pedestrians. Even small changes to a street's design can have large impacts for the people using them.

DOT's primary goal is safer streets. In recent years, the agency has re-engineered hundreds of intersections and corridors to better mediate the interactions of pedestrians, motor vehicles, and cyclists, and worked throughout the city to improve safety performance with street designs that emphasize visibility and predictability. As a result, the past five years have been the safest in city traffic history.

DOT believes that safer streets are also more attractive and has found that good public-realm design leads to beneficial economic impacts. In Brooklyn's DUMBO district, where DOT and the local business community installed a plaza in 2007, tax receipts show that retail sales in stores adjacent to the space increased 172% over the following three years, more than the growth seen in other parts of the same area. We see similar findings across the city.

The Manual's first edition has been a tremendous success, with rapid integration into the city's DNA. City agencies and private developers now work from a common, comprehensive playbook. A standard reference text for DOT staff, the Manual has been incorporated into the agency's internal design-review processes and is required reading for all design and engineering consultants. The Manual is also cited in the Mayor's recent Executive Order encouraging active design strategies for streets and buildings.

The Manual is a living document. We updated the first edition a year after its publication, and this second edition reflects further evolving practices and aspirations. Future editions will continue to document the changes that come as the city keeps turning its goals into best practices. They will also promote still more innovations to make our streets safer, smarter, and stronger as local economic and social assets.



Janette Sadik-Khan
Commissioner

Preface

This second edition of the *Street Design Manual* includes updates and new content, based on feedback from users and comprehensive inter- and intra-agency review. Highlights include:

- New Process chapter describes how street projects are planned, designed, and implemented
- New Landscape chapter includes expanded content on stormwater-capturing infrastructure, plantings in the public right-of-way, and information on the planning, design, and implementation of landscape projects
- Reorganized Lighting chapter provides updated pole and fixture options
- Expanded Furniture chapter
- Expanded and updated introductions to all the previously existing chapters, mostly to clarify process issues

Since the publication of the first edition of the Manual in 2009, New York City has eliminated some treatments, tested new ones, and incorporated still more into its toolbox. Key additions and changes include the construction of RAISED CROSSWALKS (2.3.4); the development of a standard detail for PERMEABLE INTERLOCKING CONCRETE PAVERS (3.1.12) for use adjacent to public schools; the selection of a STANDARD LED FIXTURE (4.2.2) and of TEARDROP and SHIELDED TEARDROP LED FIXTURES (4.2.5); the design and deployment of BIKE SHARE STATIONS (5.4) and the WALKNYC WAYFINDING SYSTEM (5.11); and the completion of the Department of Environmental Protection (DEP) RIGHT-OF-WAY BIOSWALE (6.6.1a) detail.

The following agencies participated in the creation of the *Manual's* second edition: the Departments of Design and Construction (DDC), City Planning (DCP), Parks and Recreation (DPR), and Buildings (DOB), as well as DEP, the Economic Development Corporation (EDC), the Landmarks Preservation Commission (LPC), the Public Design Commission (PDC), and the Mayor's Office.

Acknowledgments

Janette Sadik-Khan, **COMMISSIONER, DOT**

Lori Ardito, **FIRST DEPUTY COMMISSIONER, DOT**

Street Design Manual Team, 2nd Edition

Wendy Feuer
Margaret Newman
Nicholaas Peterson
Nicholas Pettinati

The completion of the second edition would not have been possible without the participation of the following individuals:

Special Contributors

Jeremy Barrick, **DPR**
Patricia Browne, **DOT**
Nette Compton, **DPR**
Michael Flynn, **DOT**
Neil Gagliardi, **DOT**
Steve Gomez, **DOT**
Terra Ishee, **DOT**
Adriana Jacykewycz, **DPR**
Jeff Malamy, **DOT**
Lynden Miller, **PUBLIC GARDEN DESIGNER**
Kim Mulcahy, **DOT**
Sean Quinn, **DOT**
Matthew Roe, **DOT**
Bruce Schaller, **DOT**
David Vega-Barachowitz, **NACTO**
Matthew Wells, **DPR**
Andy Wiley-Schwartz, **DOT**

Streetscape Task Force and Other Contributors

Magary Aime, **DPR**
Barbara Barnes, **DPR***
Eric Beaton, **DOT**
Mike Bellew, **DSNY***
Matthew Best, **OCPD**
Maurice Bruet, **DOT***
Kerry Carnahan, **DDC**
Tom Cocola, **DOT**
Michelle Craven, **DOT**
Philip Damashek, **DOT**
Louann Dunbar, **DOT**
Skye Duncan, **DCP**
Alex Engel, **DOT**
Magdi Farag, **DEP**
Margaret Forgione, **DOT**
Elisabeth Franklin, **DOT**
Steve Galgano, **DOT**
Jim Garin, **DEP**
Hilary Gietz, **DOT**
Shari Glickman, **DOT**
Jennifer Greenfeld, **DPR**
Bram Gunther, **DPR**
Nina Haiman, **DOT**
Dalila Hall, **DOT**
Leon Heyward, **DOT**
Christopher Hrones, **DOT**
Christopher James, **DCAS**
Ed Janoff, **DOT***
Joseph Jarrin, **DOT**
David Jehn, **DOT***
Laurie Kerr, **OLTPS***
Jared Knowles, **LPC**

Aaron Koch, **OLTPS**
Joshua Kraus, **DOT***
George Kroenert, **DPR**
Jennifer Leung, **DOT**
Timothy Lynch, **DDC**
Patricia Lyons, **DOT***
Tom Maguire, **DOT**
Vincent Maniscalco, **DOT**
Michael Marsico, **DOT**
John Martin, **DOT**
Maura McCarthy, **DOT***
Charles McKinney, **DPR**
John McLaughlin, **DEP**
Yelena Minevich, **DOT**
Connie Moran, **DOT**
Michael Murphy, **DSNY**
Kass Negash, **DDC**
Dino Y.P. Ng, **DDC**
Signe Nielsen, **PDC**
Jon Orcutt, **DOT**
Galileo Orlando, **DOT**
Joseph Palmieri, **DOT**
Ghanshyam Patel, **DOT**
Susan Pondish, **DOT**
Vadeannand Prashad, **DOT**
Nancy Prince, **DPR**
David Ramia, **DEP***
Marguerite Riskalla, **DOT**
Gale Rothstein, **EDC**
Scott Roveto, **DOT**
Ryan Russo, **DOT**
Ashley Ryan, **DEP**
Luis Sanchez, **DOT**
Vaidila Satvika, **DOT***
Brandon Schmitt, **DPR**
Lacy Shelby, **DOT**
Jeff Shumaker, **DCP**
Jackie Snyder, **PDC**
Joseph Sopiak, **DDC**
Julie Stein, **DEP**
Carter Strickland, **DEP**
Maria Termini, **DSNY**
Sandy Tomas, **EDC***
Keri Tyler, **DOT**
Amie Uhrynowski, **DPR**
Randy Wade, **DOT**
Margot Walker, **DEP**
Brett Wallace, **DOT***
Alex Washburn, **DCP**
Andrew Weeks, **DOT**
Emily Weidenhof, **DOT**
Keith Wen, **DOB**
Alicia West, **PDC**

Copy Editor and Indexer

Thomas F. Reynolds

Graphic Design

Pure+Applied

* No longer works at the agency indicated

Agency Acronyms

DCA

New York City Department of Consumer Affairs

DCAS

New York City Department of Citywide Administrative Services

DCP

New York City Department of City Planning

DDC

New York City Department of Design and Construction

DEC

New York State Department of Environmental Conservation

DEP

New York City Department of Environmental Protection

DOB

New York City Department of Buildings

DOHMH

New York City Department of Health and Mental Hygiene

DoITT

New York City Department of Information Technology and Telecommunications

DOT / NYC DOT

New York City Department of Transportation

DPR

New York City Department of Parks and Recreation

DSNY

New York City Department of Sanitation

EDC

New York City Economic Development Corporation

FDNY

New York City Fire Department

FHWA

Federal Highway Administration

LPC

New York City Landmarks Preservation Commission

MOPD

Mayor's Office for People with Disabilities

MTA

Metropolitan Transportation Authority

NYCT

New York City Transit, an MTA agency

NYPD

New York City Police Department

NYS DOT

New York State Department of Transportation

OCPD

Mayor's Office of Capital Project Development

OLTPS

Mayor's Office of Long-Term Planning and Sustainability

OMB

Mayor's Office of Management and Budget

PDC

New York City Public Design Commission

SAPO

The Street Activity Permit Office within the New York City Office of Citywide Event Coordination and Management

SBS

New York City Department of Small Business Services

US DOT

US Department of Transportation