

1 Using the Manual

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Applicability

The *Street Design Manual* should be used by agency staff, design professionals, community groups, and other entities involved in the planning and design of streets in New York City. The policies and guidelines in the *Street Design Manual* should be the foundation of designs for all projects that significantly impact public and private streets in New York City. NYC DOT will review projects for consistency with the manual.

Examples of applicable projects include capital and non-capital projects, such as street reconstructions and resurfacings; operational and traffic control treatments; street work associated with new or renovated buildings; and other public or private construction projects that include roadways, sidewalks, and plazas.

The guidance presented in the *Street Design Manual* does not supersede any existing federal, state or city laws, rules, and regulations. All projects remain subject to relevant statutes, such as the Zoning Resolution of the City of New York, City Environmental Quality Review (CEQR), and appropriate reviews and approvals of oversight agencies such as the New York City Design Commission (DC), Landmarks Preservation Commission (LPC), and Office of Management and Budget (OMB).

The manual provides assistance in four major areas:



Canal Street, Manhattan

Organization

The *Street Design Manual* is structured with five chapters and four appendices. Chapters 2 through 5 contain the bulk of the manual’s design guidance.



Chapter 1: Using the Manual
Guidelines for incorporating the manual into the design process.



Chapter 2: Geometry
A “toolbox” of geometric street treatments to enhance safety, mobility, and sustainability.



Chapter 3: Materials
Specific materials with recommendations for use and references to appropriate specifications.



Chapter 4: Lighting
Street and pedestrian lights that meet energy–efficiency, technical, and visual quality criteria.

A Note on Sustainability Opportunities

Many of the design treatments in this manual include a section entitled “Sustainability Opportunities,” offering ways to reduce the street’s environmental impact. For more detailed design guidance on sustainable street infrastructure, including stormwater source controls (BMPs), readers are directed to DDC’s *High Performance Infrastructure Guidelines*, the *Sustainable Urban Sites Handbook*, and resources listed in Appendix C.



Chapter 5: Furniture
Freestanding elements that are part of NYC DOT’s coordinated street furniture franchise and site furnishings used by other agencies.

Glossary

Definitions of frequently used terms and abbreviations.

Appendix A: Design Cover Sheet

A project summary to accompany submission of project designs to NYC DOT and other agencies for review.

Appendix B: Guide to Jurisdictions

Agency responsibilities for particular street operations and infrastructure.

Appendix C: Citations

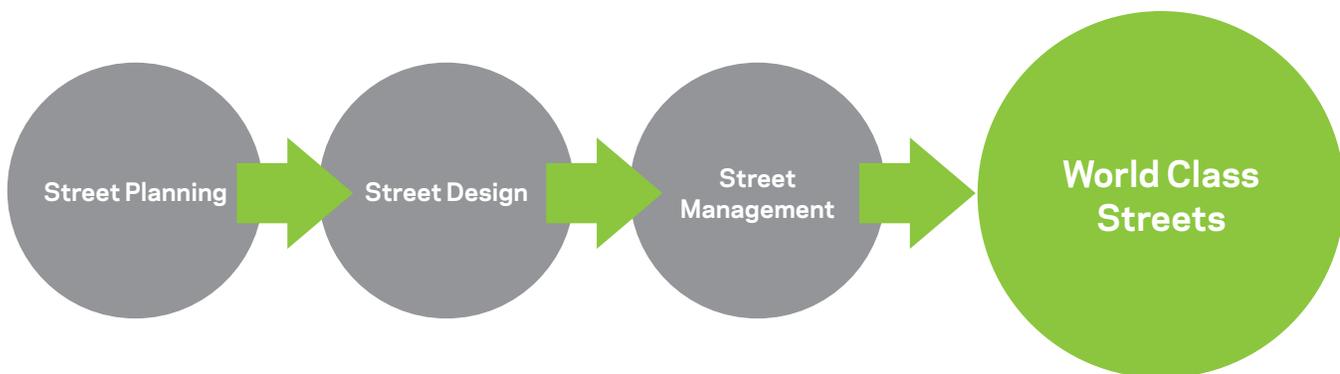
Reference to laws, regulations, and reference sources.

Appendix D: DOT Design Review Process

A summary of NYC DOT’s streamlined design review process.

The Planning Process

The *Street Design Manual* is primarily focused on providing guidance for the design of streets. However, the planning framework that establishes the context and priorities for each design, and the ongoing management and operation of streets once built, are also critical steps to create world-class streets (see below). This section provides a brief overview of the larger planning framework of which street design, and the *Street Design Manual*, should be a part. Appendix C includes a number of useful resources for more details on best planning practices for streets.



Street Planning

- Community priorities
- Land uses & types of users
- Demand & usage patterns, major trip generators
- Safety-related needs
- Local vs. through traffic
- Bus routes, bicycle routes, truck routes, critical connections
- Access management (driveways)
- Existing environmental & public space conditions

Street Design

- Target & design speeds
- Alignments & widths
- Horizontal & vertical geometric elements
- One-way or two-way operation
- Public spaces
- Roadway, sidewalk & lighting materials
- Grading & drainage
- Utilities
- Materials
- Lighting
- Furniture
- Trees, vegetation & stormwater controls
- Public art

Street Management

- Speed limit
- Traffic controls
- One-way or two-way operation
- Part-time or full-time access controls
- Curbside regulation
- Maintenance/cleaning
- Public space programming
- Short-term operational improvements utilizing temporary materials
- Enforcement

Planning

Every street is not only inseparable from its surrounding community and land uses, but it's also a part of the larger transportation network of the city and region. Streets should be designed with an understanding of their role in both the local and larger planning context. The planning of street projects should begin with the setting of clearly-defined goals. Projects should seek to address not only pre-existing issues that have been identified by the community or the city, but also policy objectives or other needs of the city and stakeholders that the project can meet as well. Appropriate stakeholders should be involved in projects from project conception to implementation.

Design

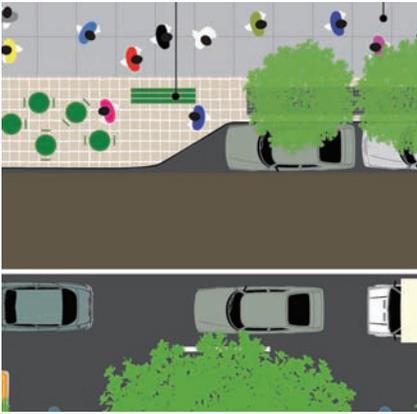
The design guidance of the *Street Design Manual* provides options for street designs in the form of "toolboxes" of geometric, material, lighting, and furnishing treatments (Chapters 2–5), but in most cases it does not prescribe which specific treatments must be used and in which combination. It also does not dictate which treatment should receive priority when there is a conflict between design alternatives. Rather, it gives users the flexibility to determine which overall design is most appropriate and practical in light of the goals and priorities established through the planning process and the overall policies of the manual (found in the Introduction). The Design Checklist in the next section can be a particularly helpful tool for this decision-making process.

Management

Well-functioning, high-quality streets are not just a product of their planning and design: the way a street is operated and managed once built is just as important as its design. For example, curbside regulations and traffic controls (signs, signals, and markings) are a central factor in determining how streets operate and the quality of the public realm. Likewise, access to a street can be limited to pedestrian traffic on certain days or for certain hours, and vehicular traffic can be limited to transit and/or commercial vehicles some or all of the time. Finally, maintenance of street materials, furnishings, and plantings is critical to the long-term success of street designs.

Land use, which varies widely in New York City, is one important planning criterion for street design





To assist designers, engineers, and other users in visualizing the “big picture”—how the manual’s individual design treatments can be combined to respond to varying planning contexts—five generalized “street typologies” are described below, followed by two illustrative examples of how various elements from the manual can be combined.

Street Typologies

Most jurisdictions in the United States categorize their streets into “functional classifications” based on vehicular access and mobility needs. Some states and cities go beyond such classifications to categorize streets into broader “typologies” that respond not only to the context of the vehicular network, but also to other networks (such as transit and bicycle), land uses, and environmental factors. Such categorizations are intended to provide a simplified planning framework to expedite the street design process.

Due to the complexity and limited right-of-way of its street network, New York City does not currently assign streets into such typologies. However, the five generalized street typologies that follow show that the design of a street can be considered in a comprehensive way. Some, like a Boulevard treatment, have been used widely in New York City and around the world; other innovative designs such as a slow street have been used successfully elsewhere, but have not yet been adopted in New York City.

Most streets are and will continue to be variations of the prevalent General Street design — one or more roadways open to mixed traffic with sidewalks and curbs. This type of street provides great flexibility, allowing for streets of varying designs and operating characteristics through such parameters as design speed; one-way versus two-way operation; number and width of moving and parking lanes; use of medians, curb extensions, and other geometric features; provision of exclusive or preferential facilities for buses and bicyclists; and street material and furniture selections.



Fordham Road, The Bronx

General Street

With a mixed roadway, curbs, and sidewalks, General Streets are the most prevalent street design and can be tailored to serve both local and through street contexts.

Although this design frequently emphasizes motor vehicle access and movement, the street may also include dedicated facilities for buses and/or bicyclists. Unlike a shared street, vehicles and pedestrians are typically separated rather than cooperatively sharing the street space.

Typical Treatments

- Mixed Roadway
- Sidewalks
- Individual Tree Pits
- Standard roadway, sidewalk and curb materials

Other Common Treatments

- Curb Extensions
- Median
- Bike Lane/Bike Path
- Greenstreet/Planted Area
- Tinted concrete and/or exposed aggregate sidewalk
- Granite Curb
- Unit paver furnishing zone



Grand Concourse, Bronx

Boulevard

A wide street with multiple roadways and medians and an emphasis on greening and design quality.

The term “boulevard” has often referred to wide streets that act as grand promenades between important destinations. They typically have two or more roadways separated by medians, with the inner roadway(s) intended for through traffic and the outer for local traffic, and an exceptional level of landscaping, public open space, and visual quality. The medians sometimes include pedestrian and bicycle paths.

In New York City, not all streets designed as boulevards are named “Boulevard” (for example Ocean Parkway in Brooklyn), and vice versa.

Typical Treatments

- Mixed Roadways
- Sidewalks
- Medians
- Individual Tree Pits/Connected Tree Pits
- Standard roadway, sidewalk and curb materials
- Unit paver sidewalk or furnishing zone

Other Common Treatments

- Curb Extension
- Bike Lane/Bike Path
- Bus Lane/Busway
- Greenstreet/Vegetated Area
- Shared Street (in service roadways)
- Distinctive crosswalk materials
- Tinted concrete and/or exposed aggregate sidewalk
- Granite curb



Tokyo, Japan (Credit: Rob Ketcherside)

Slow Street

A local street which makes extensive use of traffic-calming measures to discourage vehicular through-traffic, reduce vehicle speeds, and green and beautify the streetscape, creating a comfortable environment for bicycling and walking.

Sometimes called “bicycle boulevards” or “Home Zones”, Slow Streets are especially well-suited to local residential streets and streets adjacent to schools.

Typical Treatments

- Mixed Roadway
- Sidewalks
- Reduced Speed Limit
- Gateways and Curb Extensions
- Traffic Diverters
- Neighborhood Traffic Circles
- Individual Tree Pits/Connected Tree Pits
- Greenstreets/Planted Areas
- Unit Paver Roadway
- Standard Sidewalk and Curb Materials

Other Common Treatments

- Shared Street
- Raised Intersections
- Street Swales
- Distinctive Crosswalk Materials
- Unit Paver Sidewalk
- Granite Curb



Fulton Mall, Brooklyn

Transit Street

A street for exclusive or near-exclusive surface transit (bus) use or where transit operations are given priority.

Transit streets are streets where private vehicles have limited or no access, and bus use is prioritized. Delivery access may be allowed at all times or in off-hours, and bicyclists are sometimes allowed to share the bus lanes.

Transit streets often emphasize urban design and transit-supportiveness by including outdoor seating, landscaping, attractive street materials, and well-designed bus queuing areas and off-board fare collection. These measures help create an appealing street environment in the presence of high numbers of buses.

Typical Treatments

- Mixed Roadway (vehicle access completely or mostly limited to buses)
- Bus Lane/Busway
- Sidewalks
- Individual Tree Pits/Connected Tree Pits
- Concrete or Unit Paver Roadway
- Tinted Concrete and/or Exposed Aggregate Sidewalk
- Standard Curb Materials

Other Common Treatments

- Curb Extensions
- Gateways
- Medians
- Greenstreets/Planted Areas
- Unit Paver Sidewalk or Furnishing Zone



Stone Street, Manhattan

Pedestrian-Only Street

A street exclusively for pedestrian use.

Pedestrian streets usually involve the full-time restriction of vehicle access to a street, however delivery access may be allowed in off-hours. Bicyclists can either be allowed to ride through or be required to dismount and walk. The design can be as simple as a typical General Street without vehicle access or can be more intensively designed with attractive street materials, furniture, landscaping, and plaza treatments.

Typical Treatments

- Individual Tree Pits
- Unit paver roadway
- Imprinted asphalt roadway
- Standard sidewalk and curb materials

Other Common Treatments

- Sidewalks
- Gateways
- Raised Intersections
- Connected Tree Pits
- Greenstreets/Planted Areas
- Unit paver sidewalk
- Granite curb

Sample Streets

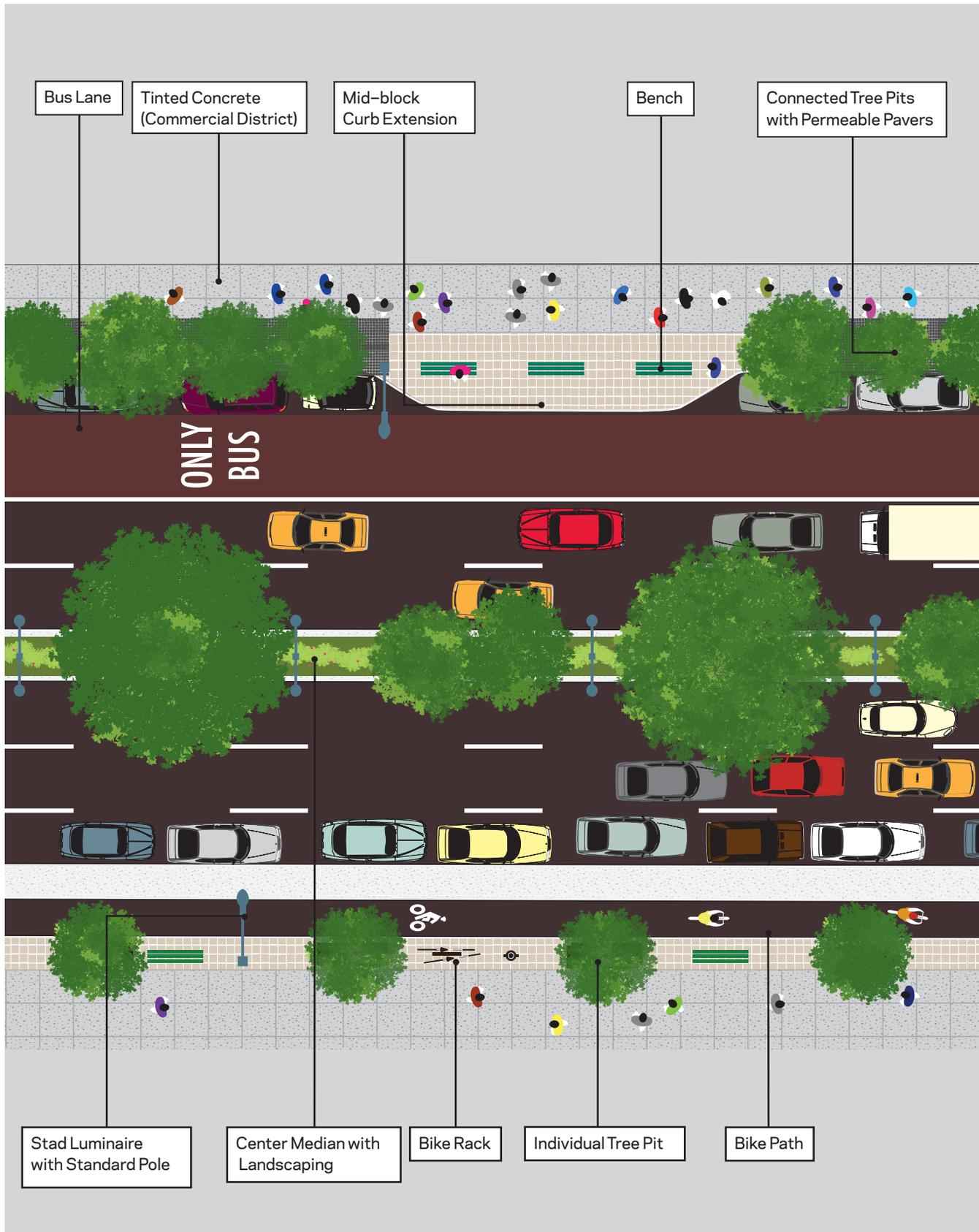
The two diagrams on pages 34–37 illustrate how different combinations of elements from the manual can be tailored to accommodate varied street uses and contexts. Like many New York City streets, these examples do not reflect any one of the previously described typologies, but rather contain elements of them all.

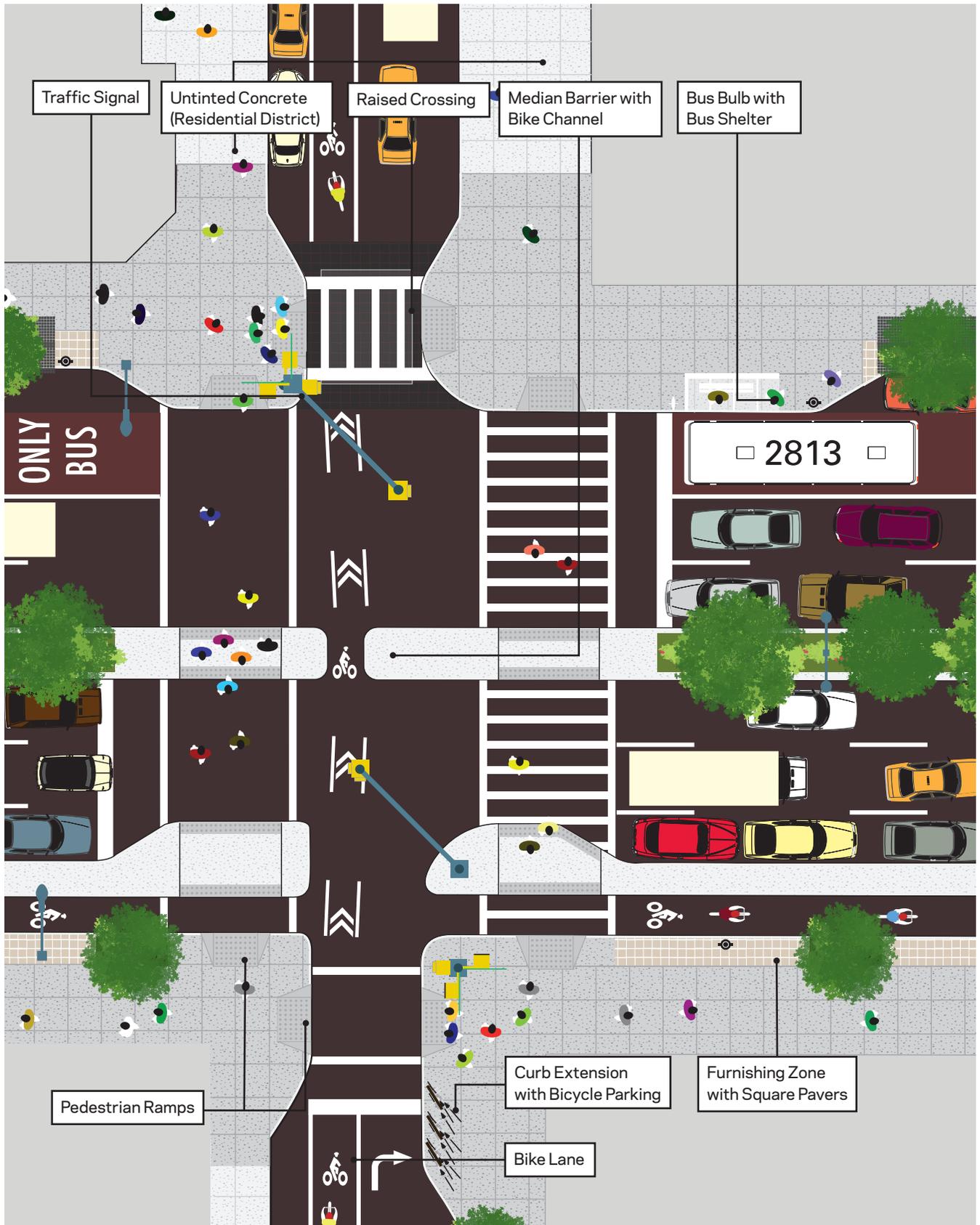
Figure 1 depicts treatments that are often appropriate on multi-lane through-streets and/or retail corridors. Figure 2 depicts treatments that are often appropriate on local streets and/or residential streets.

The images are illustrative rather than literal depictions of street designs and are not intended to be used as design guidance.

Sample Streets

Figure 1 Treatments Appropriate to Major Through-Streets

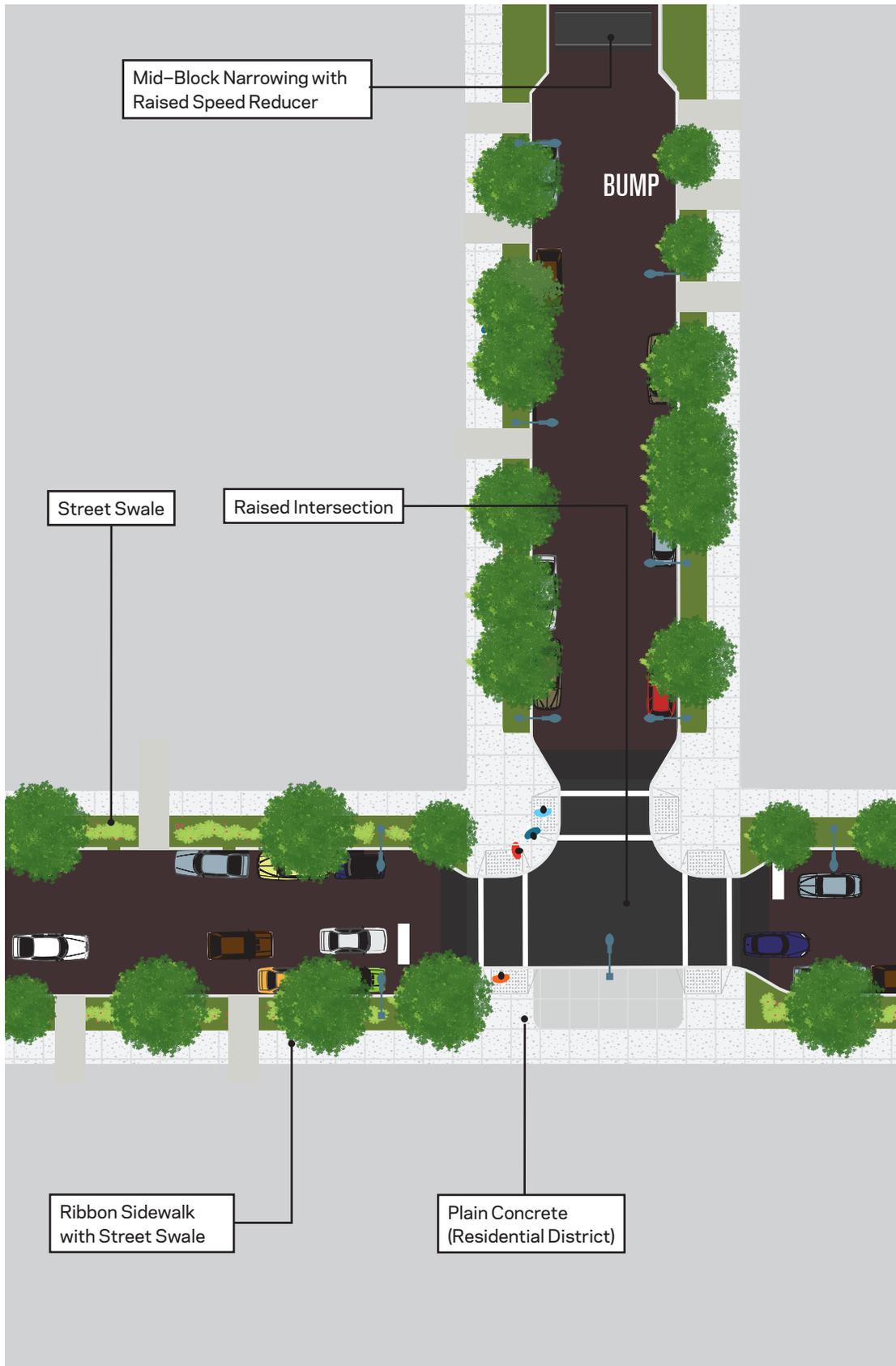




Sample Streets

Figure 2 Treatments Appropriate to Local Streets





Design Checklist

To define context, set project goals, and give appropriate consideration to the full range of factors that should inform the street's design, refer to this checklist of key design criteria. Note that the checklist follows the format of the Design Review Cover Sheet (Appendix A). Projects submitted to NYC DOT for approval will be reviewed with respect to these topic areas.

Use the checklist in conjunction with the questions in the next section, Integration into Project Development.



Fulton Street, Manhattan

Street Context

- History & Character**
Describe for the specific project area
- Land Use**
Predominant land uses and densities within the project area (e.g., light residential, dense commercial), any historic districts or special zoning districts, proximity to transit
- Network Role**
The role of the street in the neighborhood, city, and regional transportation system
- Major Sites**
Identify major sites, destinations, and trip generators within or proximate to the project area, including prominent landmarks, commercial, cultural and civic institutions, and public spaces
- Street Width**
Available space and how its allocation will be prioritized



Fulton Mall, Brooklyn

Street Operations

- Walking**
Pedestrian safety, volumes, comfort and convenience of movement, accident history, important walking connections, and quality of the walking environment
- Bicycling**
Bicycle volumes, comfort and convenience of movement, existing or proposed bike routes and other important bicyclist connections, accident history, and bicycle parking
- Motor Vehicles**
Motor vehicle volumes, access, accident history, important motor vehicle connections, appropriateness of motor vehicle traffic to street scale (e.g., local versus through traffic), and ways to reduce the negative impacts of motor vehicle traffic
- Transit**
Bus routes and operations, subway or other transit station access, and supportiveness of transit usage and users
- Trucks/Freight**
Truck routes, safety, volumes, access, mobility, and ways to reduce the negative impacts of truck traffic

□ Access

Access or mobility needs of the disabled, elderly, and children, ADA compliance, and any school or senior safety zones within the project area

□ Curbside Conditions

Curbside demand and usage patterns within the project area, allocation of space for through movement, meter parking, non-metered parking, loading, deliveries, and pedestrian space

□ Public Space

Public space, pedestrian seating, quality of public realm

□ Drainage

Stormwater flow patterns, catch basins, and sewer connections

□ Street Cuts

Frequency of utility “cuts” into the roadway within the project area, potential improvement or consolidation of utility infrastructure



Greening

□ Street Trees

Tree coverage within the project area

□ Greenstreets & Vegetation

Existing Greenstreets within the project area and opportunity sites for Greenstreets or other planted areas

□ Stormwater Control

Stormwater runoff conditions, permeability of underlying soil, stormwater source controls

□ Flooding

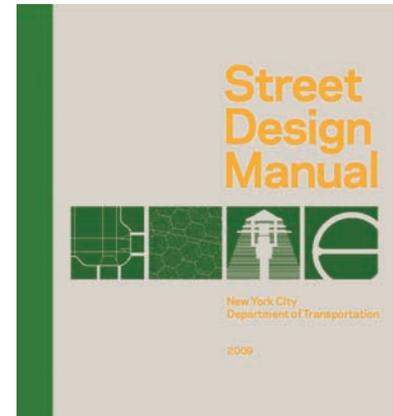
Flooding conditions within the project area

□ Maintenance Partner(s)

Potential and/or committed maintenance partners (e.g., BIDs, DPR) and level of commitment (e.g., watering, weeding, pruning, litter removal, replacements)

□ Permits

Wetlands or coastline areas within 100 feet of the project area; requirements for New York State Department of Environmental Conservation or the Army Corps of Engineers permits



Street Design Manual Usage

□ Materials, Lighting & Furniture

Paving materials, lighting poles, fixtures and levels, and street furniture

□ Application

Ways in which proposed design will follow the guidelines of the *Street Design Manual* in regards to overall policies and principles, street geometry, materials, lighting, and other street elements

□ Major Deviations

Extent and reasons why a potential design may deviate from the guidelines, policies, and principles of the manual

□ Pilot Treatments

Any pilot geometric, material or lighting treatments from the *Street Design Manual* that could be proposed in a potential design

Integration into Project Development

Use by Project Managers,
Designers, Engineers, Planners

To make the *Street Design Manual* an integral part of the full project planning and design process, key questions are identified below (Q) for different stages of the process, with references to sections of the *Street Design Manual* (A) that can help answer them.



Identify Project Goals

Q. What are the primary objectives of the project?

Are there other secondary objectives that could or should be addressed at the same time?

Has the community been involved in setting the project goals?

A. The Street Design Policy (Introduction) should inform the project goals.

Refer to the Design Checklist in the previous section for key considerations in setting primary and secondary project goals.

Q. Who are other stakeholder agencies and entities?

A. Refer to Appendix B, Jurisdictions on the City's Streets, for a partial list of relevant agencies and entities who may have a stake in the project and may need to be consulted.

Government and community stakeholders should be brought in before the development of a design and involved through to implementation.

Assess Project Extent and Limits

Q. What is the extent of construction: sidewalk and furnishing replacement only, roadway resurfacing, surface construction, or full-depth reconstruction?

A. Refer to the manual for guidelines on the types of treatments that are most likely to be feasible given the extent of construction work.

Q. Are there any current or potential maintenance partners? (Many enhanced geometric, material, and lighting treatments require a maintenance partner. Examples of treatments may include optional paving materials, landscaped areas, and non-standard lighting fixtures.)

A. Refer to Chapters 2–5 (Geometry, Materials, Lighting, and Furniture) for treatments that require a maintenance partner. When applicable, be sure that a suitable maintenance partner is identified and involved in the design process.

Refer to Appendix B, Jurisdictions on the City's Streets, for a partial list of relevant agencies and entities who may have a stake in the project or who could assist in securing maintenance.



Develop Proposed Design

Q. What is the desired role and characteristics of the affected street(s)?

Who uses the street(s) and how; how should it function?

A. Use Appendix A, the Street Design Cover Sheet, as a tool for defining the existing and desired future characteristics of the street(s) and for overall design considerations.

Q. Based on the project goals and scope identified, which design treatments best achieve the project goals and realize the desired uses of the street(s)?

Of those, which are most feasible given operational, budget, and maintenance constraints?

A. Use Chapters 2–5 (Geometry, Materials, Lighting, and Furniture) to identify appropriate treatments for the goals, scop, and budget of the project and for general design guidance on when and how to use those treatments. For detailed geometric design guidance, refer to established design guidance sources including those listed in Appendix C.

Refer to the Street Design Policy (Introduction) to set priorities and resolve competing priorities for budget and/or spatial concerns.

Refer to Appendix C, Legal and Design Guidance References, for a partial list of relevant legal rules and regulations.

Q. Which agencies and other stakeholders (e.g., maintenance) need to be involved in the design?

Will use of any pilot materials or geometry be proposed? If so, be sure to partner with the relevant agency or agencies in designing such pilot designs.

A. Refer to Appendix B, Jurisdictions on the City’s Streets, for a partial list of relevant agencies and entities who may need to be consulted on the design and maintenance of particular elements.

Submit Proposed Design for Applicable Reviews

Q. Which agency review is mandatory?

Which is advisory or optional?

A. Refer to Appendix B, Jurisdictions on the City’s Streets, for a partial list of relevant agencies who should or must review the proposed design.

NYC DOT has developed an expedited review process (see Appendix D for an overview). Review of projects that include NYC DOT funding will be coordinated through DOT’s Office of Capital Program Management (CPM). All other projects affecting streets will be coordinated through the appropriate Borough Commissioner’s office.

Attach the Street Design Cover Sheet (Appendix A), along with any submitted drawings of the proposed design for NYC DOT or other agency reviews.

Q. Does the design adhere to the policies, principles and design guidance of the manual?

Where it doesn’t, how has it been justified?

A. The proposed design will be reviewed by NYC DOT for consistency with the Street Design Policy (Introduction) and the design guidance of Chapters 2–5 (Geometry, Materials, Lighting, and Furniture). Justification will be expected for discrepancies, and discrepancies may not be approved.

Use by Community Boards, Elected Officials, Community Groups, and the Public

While the *Street Design Manual* gives planning and design guidance for government agencies and their consultants, it is also intended to be a resource for the general public. The manual can assist neighborhood groups and elected officials in planning more effectively for their communities.



145th Street, Queens

Identify Project Goals

Q. What are the overall goals and priorities of the city in designing its streets?

What are the goals of the community for the project? How can the manual help realize them?

A. Refer to the Street Design Policy (Introduction) for an overview of general policies and priorities for designing streets.

Refer to the Street Design Checklist (previous section) for key considerations in setting project goals.

Maintenance Partners

Q. What are the appropriate ranges of design treatments that may be considered for particular New York City streets or neighborhoods?

Which treatments require a maintenance partner from the community?

What is the maintenance capacity of the community?

What is required of maintenance partners?

A. Refer to Chapters 2–5 (Geometry, Materials, Lighting, and Furniture) to understand the different design treatments that can be used, for general guidance on when and how they should be used, and for any requirements for maintenance partners from the community.

Timeline

Q. How can the quality of projects and speed of delivery be improved?

How can time-consuming design changes late in the development process be avoided?

A. Use of the manual early on and throughout the project development process can help the public and government interact more efficiently and effectively, potentially speeding approvals and implementation.

Regulating Agencies and Laws

Q. What agencies have jurisdiction over a particular project and how will they be involved in the planning, discussion and evaluation of the project?

A. Refer to Appendix B for clarification on which agencies have responsibility or jurisdiction over different elements of the street design, such as approvals, permits and maintenance.

Q. What laws, regulations, and design guidance sources should the public be made aware to become familiar with the street design process?

A. Refer to Appendix C for a reference on laws, regulations, and design guidance sources that are frequently relevant in designing streets.