

New York City Bicycle Lane and Trail Inventory



New York City Department of City Planning
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New York City Bicycle Lane and Trail Inventory



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INTRODUCTION

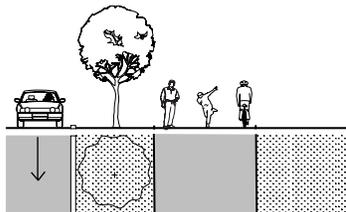


Hudson Street bicycle lane, Manhattan

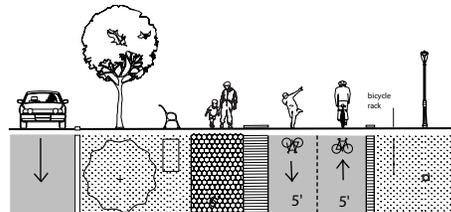


Shore Parkway bicycle trail, Brooklyn

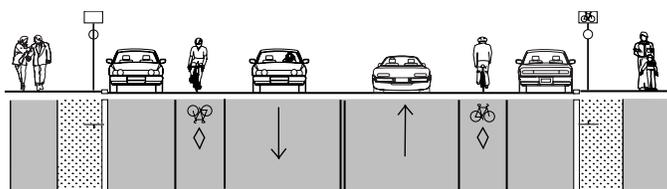
Bicycle Facility Classification



Class I: Shared-Use Path



Class I: Dual Carriageway



Class II On-Street Bicycle Lane

The following document is a comprehensive inventory of New York City’s Class II on-street bike lanes and Class I off-street bike trails (see photographs and illustrations on this page). It is meant to be used to assist with the planning and implementation of a networked system of on-street and off-street bicycle facilities. It will also be a valuable tool to achieve and maintain a state of good repair for the existing regional transportation system and to help prevent deficiencies from increasing for both existing and future infrastructure.

The report includes existing conditions data for all New York City bike lanes and trails collected from May 1999 to November 1999, Manhattan bike lane counts, 1998 bicycle lane accident data, and a photographic inventory of all lanes and trails. The scope of the inventory was limited to Class II on-street bike lanes and Class I off-street bike trails. Bridges are a focus of another Department of City Planning study and are therefore not included. Signed bicycle routes were also not included in this inventory, but will be considered for the next phase of this project.

METHODOLOGY

Bicycle Lanes

All Class II on-street bike lanes in New York City were surveyed cataloging conditions that could effect the functioning and the safety of the bicycle facility. These conditions were evaluated for five components; pavement, lane striping, signs, diamond symbols, and cyclist symbols. Unless otherwise noted the inventory of bicycle lanes was based on the standards of the *Manual on Uniform Traffic Control Devices* (MUTCD) and the New York City Department of Transportation.



Pavement in **good** condition.
Father Capodanno Boulevard, Staten Island



Pavement in **poor** condition.
Lily Pond Avenue, Staten Island



Pavement in **poor** condition due to previous construction.
Midland Avenue, Staten Island

Pavement

Pavement was considered to be in poor condition if the road surface was rough or uncomfortable to ride on, or had potholes or bumps that were potentially hazardous to cyclists.

The pavement inventory was based on the American Association of State Highway and Transportation Officials (AASHTO) *Guide for Development of Bicycle Facilities*, stating that pavement surfaces should be smooth and clean and free of irregularities, holes, bumps, and cracks. Utility inlets, drainage grates and subway ventilation grates must also be flush with the pavement and be suitable for safe cycling.



Pavement in **poor** condition due to drainage grate.
Father Capodanno Boulevard, Staten Island

Lane Striping

Lane striping was considered to be in poor condition if it was worn and not easily visible by cyclists and motorists, or interrupted in any way.

In accordance with the MUTCD standards, a solid white line should be used to delineate the edge of a travel path where travel in the same direction is permitted on both sides of the line, but crossing the line is discouraged. Typically this line is four to six inches on either side of the lane. A common striping material is thermoplastic paint with glass beads. The AASHTO requirement for bicycle lane width is a minimum of four feet. Wherever possible, a lane between five and six feet should be provided along with a buffer between the bicycle and motor vehicle lanes. This buffer should be six feet.



Lane striping in **good** condition.
73rd Avenue, Queens



Lane striping in **fair** condition.
73rd Avenue, Queens



Lane striping in **poor** condition because it is extremely worn.
Father Capodanno Boulevard, Staten Island



Lane striping in **poor** condition because of previous construction.
Midland Avenue, Staten Island



Lane striping in **poor** condition because of interrupted striping.
Rockaway Point Boulevard, Queens

Signs

Signs were considered in poor condition if not easily visible by cyclists and motorists, if vandalized, if the message were worn and difficult to read, or if it were bent.

The three signs typically used to call attention to a bicycle lane (see illustrations on this page) should be used as follows:

-*Bike Lane Ahead* (SR-444) must be placed in advance of a marked designated lane to call attention to it and to the possible presence of bicyclists.

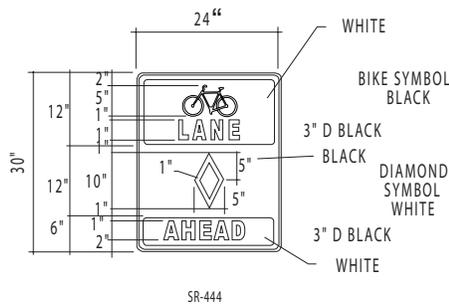
-*Bike Lane Only* (SR-370) should be erected at periodic intervals along the designated lane. In the case of New York City and for the purposes of this inventory, there should be a sign at the beginning of every block.

-*Bike Lane Ends* (SR-445) should be used in advance of the end of the designated lane.

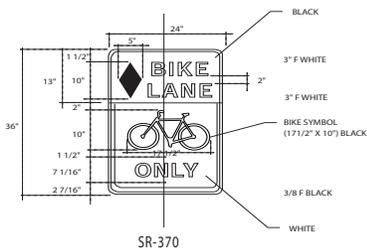
Signs may be no lower than 7 feet high, but over 15 feet high they are often difficult to read and not easily visible by cyclists and motorists.



*Bike lane sign in good condition.
Midland Avenue, Staten Island*



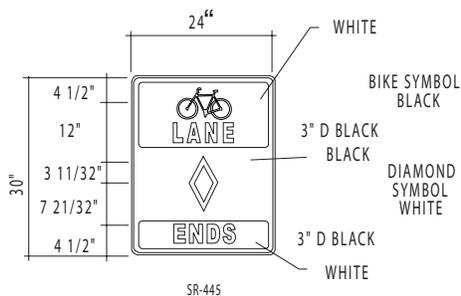
SR-444



SR-370



*Bike lane sign in poor condition because of height.
34th Avenue, Queens*



SR-445



*Bike lane sign in poor condition because it is obscured by a tree.
School Road, Staten Island*

Pavement Symbols

Pavement symbols were considered to be in poor condition if worn, partly missing, or distorted, making it difficult for cyclists and motorists to distinguish them.



Diamond symbol and cyclist symbol (directly behind the diamond) used in conjunction with a bike lane sign to call attention to the bike lane. St. Nicholas Avenue, Manhattan

The inventory of pavement symbols included two types; diamond and cyclist. Pavement symbols work together with signs to indicate the separation of bicycle and motor vehicle lanes. The symbols must be visible to both cyclists and motorists. The MUTCD diamond indicates a lane reserved for the exclusive use of a particular class of vehicle, such as Class II on-street bike lanes. Bike lanes must have a white diamond symbol immediately after an intersection to inform vehicle operators turning onto a street of the restrictive nature of the lane. Either a symbol of a cyclist or wording that indicates a bike lane should precede the diamond at each intersection. New York City typically places two diamonds and two cyclists per block.



*Diamond symbol in **good** condition. School Road, Staten Island*



*Diamond symbol in **poor** condition. 73rd Avenue, Queens*



*Cyclist symbol in **good** condition. 73rd Avenue, Queens*



*Cyclist symbol in **poor** condition. 73rd Avenue, Queens*

Bicycle Trails



Asphalt pavement in **good** condition.
Ft. Washington Park, Manhattan

All New York City bike trails were surveyed cataloging conditions that could effect the functioning and the safety of the bicycle facility. These conditions were evaluated for four components; pavement, lane striping, signs, and pavement symbols. Because the trails are separate from the street network, they are not bound to MUTCD requirements. The standards are more subjective and vary greatly from trail to trail. Unless otherwise noted, this inventory used the following standards to rate the existing conditions of the trails: The AASHTO *Guide to the Development of Bicycle Facilities* and the City of New York Department of Parks and Recreation guidelines.

Pavement

Pavement was considered to be in poor condition if the surface was rough or uncomfortable to ride upon or had potholes or bumps that were potentially hazardous to cyclists.

Pavement should have a smooth riding surface, be clean, and be free of irregularities, holes, bumps, and cracks. Utility inlets and drainage grates must also be flush with the pavement and be suitable for safe cycling. Hard, all-weather pavement surfaces, such as asphalt or Portland cement concrete, are recommended. The minimum recommended width for a shared-use path is 10 feet. It is noted where paths are more narrow than this minimum.



Hexagonal pavers in **good** condition.
East River Park, Manhattan



Pavement in **poor** condition because of standing water.
Flushing Meadows/Corona Park, Queens



Hexagonal pavers in **poor** condition. East River, Manhattan



Pavement in **poor** condition. Ft. Washington Park, Manhattan

Striping

The lane striping was considered in **poor condition** if it were worn and not easily visible by cyclists or if it were interrupted in any way.

A four inch wide yellow centerline stripe is recommended to separate two way trail traffic. Solid white edge lines are also recommended where bicycle traffic is expected during early evening hours. However, it is not always necessary to have striping on trails. Some New York City bike trails, such as Ocean Parkway in Brooklyn and Mosholu Parkway in the Bronx, have a three feet high metal fence to separate users. Other trails, Shore Parkway in Brooklyn for example, have planters, grass, or trees separating trail users. There are also many trails in New York City that have nothing separating bicyclists from pedestrians. This case is only acceptable in cases of low volume and adequate width.



Green striping in **good** condition.



Striping in **good** condition.
Shore Parkway, Brooklyn



Trail with a fence instead of striping.
Shore Parkway, Brooklyn



Striping in **fair** condition.
Shore Parkway, Brooklyn

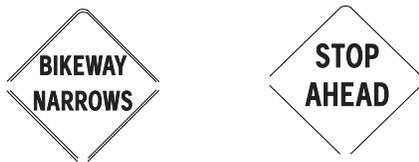


Striping in **poor** condition.
Shore Parkway, Brooklyn

Signs



Regulatory Signs



Warning Signs



Greenway Signs

A sign was considered in poor condition if it was not easily visible by cyclists, vandalized in any way, if the message was worn and difficult to read, or if it was bent.

For the bike trail inventory signs were separated into four categories (see illustrations on this page); regulatory, warning, stop/yield, and greenway. All trail and roadway signs should be placed in such a way that motorists and cyclists, respectively, are not confused by them.

Regulatory signs inform cyclists and pedestrians of the traffic laws and indicate requirements that would not otherwise be apparent. According to the MUTCD, regulatory signs should be placed at the point where the regulations apply, indicate the requirements, and be easily visible to cyclists and pedestrians.

Warning signs inform cyclists and pedestrians of potentially hazardous conditions on or near the trail or of an intersection ahead where sight distance is limited.

Bicycle stop/yield signs are smaller than those designed for motorists and are intended for use on bicycle trails. Yield signs are acceptable in locations with low volume and speed. Stop/yield signs should be placed as close to the intended stopping point as possible.

Greenway signs were developed by the New York City Department of City Planning to provide a system that relates better to slower non motorized users. Greenway signage regulates, warns, and guides users, educates them about historical, cultural, or environmental sites, directs them to rest areas and amenities, and creates a unique identity for the network. The predominant color on the signs is, appropriately, green. The signs are smaller because pedestrians and bikers move more slowly than motorists and small signs are more user-friendly. These signs can also be placed lower (between 3 and 6 feet high) than signs for motorists and are more in scale with the human body.

A greenway sign indicating that the bike trail is ahead must be placed in advance of a designated bike trail. There should also be a sign at each trail access point or path-roadway intersection. A greenway sign should also be placed to indicate the end of the designated bike trail.



Greenway information sign in **good** condition.
Joe Michael's Mile, Queens



Regulatory sign in **good** condition.
Ocean Parkway, Brooklyn



Greenway information sign in **good** condition.
Shore Parkway, Brooklyn



Bicycle stop sign in **fair** condition along with a regulatory sign in **poor** condition.
Pelham Parkway, the Bronx



Warning sign in **poor** condition because it had been vandalized.
Shore Parkway, Brooklyn



Regulatory sign in **poor** condition because it had been vandalized.
Ocean Parkway, Brooklyn

Pavement Markings

Pavement markings were considered to be in poor condition if the symbols were worn, partly missing, or distorted, making it difficult for cyclists to read them.

Pavement markings have been separated into five categories; diamond, cyclist, arrow, roller-blader, and other symbols. Markings should be located at every crossing and path entrance to channel users to clearly defined crossings and to notify motorists of their presence. For mid path, pavement markings should be used when needed or about every 400 feet. On a shared-use path, cyclist symbols should be placed to indicate where cyclists should ride. Although symbols are recommended, there are many bicycle trails in New York City without any.



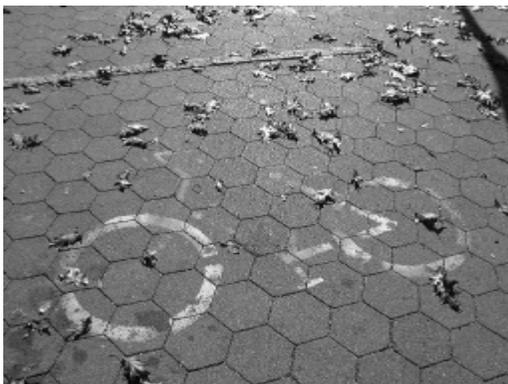
Trail symbols (arrows, cyclists, and pedestrians) in **good** condition.
Shore Parkway, Brooklyn



Trail symbols (arrows, cyclists, and "ped only") in **good** condition.
Joe Michael's Mile, Queens



Trail symbols in **poor** condition.
Shore Parkway, Brooklyn



Bicycle symbol in **poor** condition.
Eastern Parkway, Brooklyn



Bicycle and pedestrian symbols in **fair** condition.
Eastern Parkway, Brooklyn

DATA

The data is separated by borough and presented by individual bike lane or bike trail. It is meant to be used in a GIS format, but for publication purposes, the static map, in combination with the corresponding database entries, will take its place. The data in MapInfo format will be available via Zip disk and, eventually, on the Department of City Planning web site.

Bicycle Lanes

Inventory data was collected for each block using a “good,” “fair,” “poor,” and “missing” rating system. Information was collected in the following five categories:

General data included name of the bike lane, cross streets framing the block, lane width, and any buffer width. A mid block address was noted for mapping purposes and potential street tree locations were collected for the Department of Parks and Recreation.

Sign data included condition, message, the type of mount or structure that is supporting the sign, and its height.

Pavement data included condition and description. There were several keywords chosen to represent common pavement conditions; rough surface, bumps in pavement, previous construction, pot hole, utility inlet, and uneven pavement.

Striping data included condition and description. There were several keywords chosen to represent common striping conditions; interrupted striping, previous construction, and worn.

Symbol data included condition and number of diamonds and cyclists and whether the cyclist symbol included a helmet.

Manhattan Bicycle Count

The survey was completed on October 27, 1999. All corridors in Manhattan with Class II on-street bicycle lanes were monitored for a 12 hour period, from 7AM to 7PM. Throughout the 12 hour survey period, temperature and weather conditions ranged from approximately 40 to 65 degrees and from breezy and cloudy to sunny and warm.

Bicycle Accidents

The source of the accident data used in this report was the New York State Department of Motor Vehicles *1998 State Highway Accident Data*. It includes all bicycle accidents reported to the Department of Motor Vehicles.

Bicycle Trails

Inventory data for the New York City bike trails was collected in half mile segments using a “good,” “fair,” “poor,” and “missing” rating system. For each half mile segment the following information was collected:

General data included name of bike trail, distance from start, list of access points, total width, and, if applicable, wheeled width and buffer width between bicyclists and pedestrians.

Pavement data included type of surface (asphalt, hexagonal pavers, etc.), condition, description, and edge treatment. Similar to the bike lane data, there were several keywords chosen to represent common trail pavement conditions; rough surface, bumps in pavement, previous construction, pot hole, utility inlet, root, and overgrowth.

Striping data included condition, description, color of striping, and existence of a centerline and whether it is dashed. There were several keywords chosen to represent common striping conditions; interrupted striping, previous construction, and worn.

Symbol data included condition and number of diamonds, cyclists, roller-bladers, arrows, pedestrians, and other symbols.

Amenities data included number of bike racks, water fountains, and police call boxes.

Sign data included overall rating and condition, message, and description of regulatory, warning, stop/yield, greenway, and other signs.

