Flatbush Ave. at Ave. U, Eastbound

Flatbush Ave. at Ave. U, Nothbound

Flatbush Ave. at Ave. U, Southbound

Flatbush Ave. at Ave. U, Westbound

5.d. FLATLANDS

A traffic and pedestrian LOS analysis was conducted at one signalized intersection, Flatbush Avenue and Avenue U, in the Flatlands study area. The existing and future no-build balanced traffic volumes for the AM, midday, PM, and weekend peak periods are shown in Figures 9 and 10. Figure 11 shows project trip increments for the Kings Plaza Extension project that is described under the 2004 future no-build conditions discussion. Table 13 illustrates the severity of accidents for a three year period by time of day for each occurrence. Table 14 compares LOS and delay for existing, no-build, and build conditions. Recommended actions for this study area are shown in Drawing 5.

Peak Hour

Traffic

Based upon the peak period traffic counts, the morning peak hour is 8:00-9:00 AM, the midday period is 1:00-2:00 PM, the evening period is 5:00-6:00 PM, and the weekend period is 1:00-2:00 PM.

Pedestrian

Based upon the peak period traffic counts, the morning peak hour is 8:00-9:00 AM, the midday period is 1:00-2:00 PM, the evening period is 5:00-6:00 PM, and the weekend period is 1:00-2:00 PM.

2000 EXISTING CONDITIONS

Flatbush Avenue at Avenue U

Traffic

Overall, this intersection operates at LOS D for the three weekday peak periods and at LOS E for the weekend peak period. Delays range from 37.2 to 55.1 seconds per vehicle. All lane groups operate at acceptable LOS D or better, with delays ranging from 31.1 to 49.2 seconds per vehicle for all periods, except the eastbound and southbound left-turn movements, which operate at LOS F during the weekend peak period with delays of 121.4 and 141.4 seconds per vehicle, respectively.

Pedestrian

All sidewalks, crosswalks, and corners operate at acceptable levels for all peak periods.

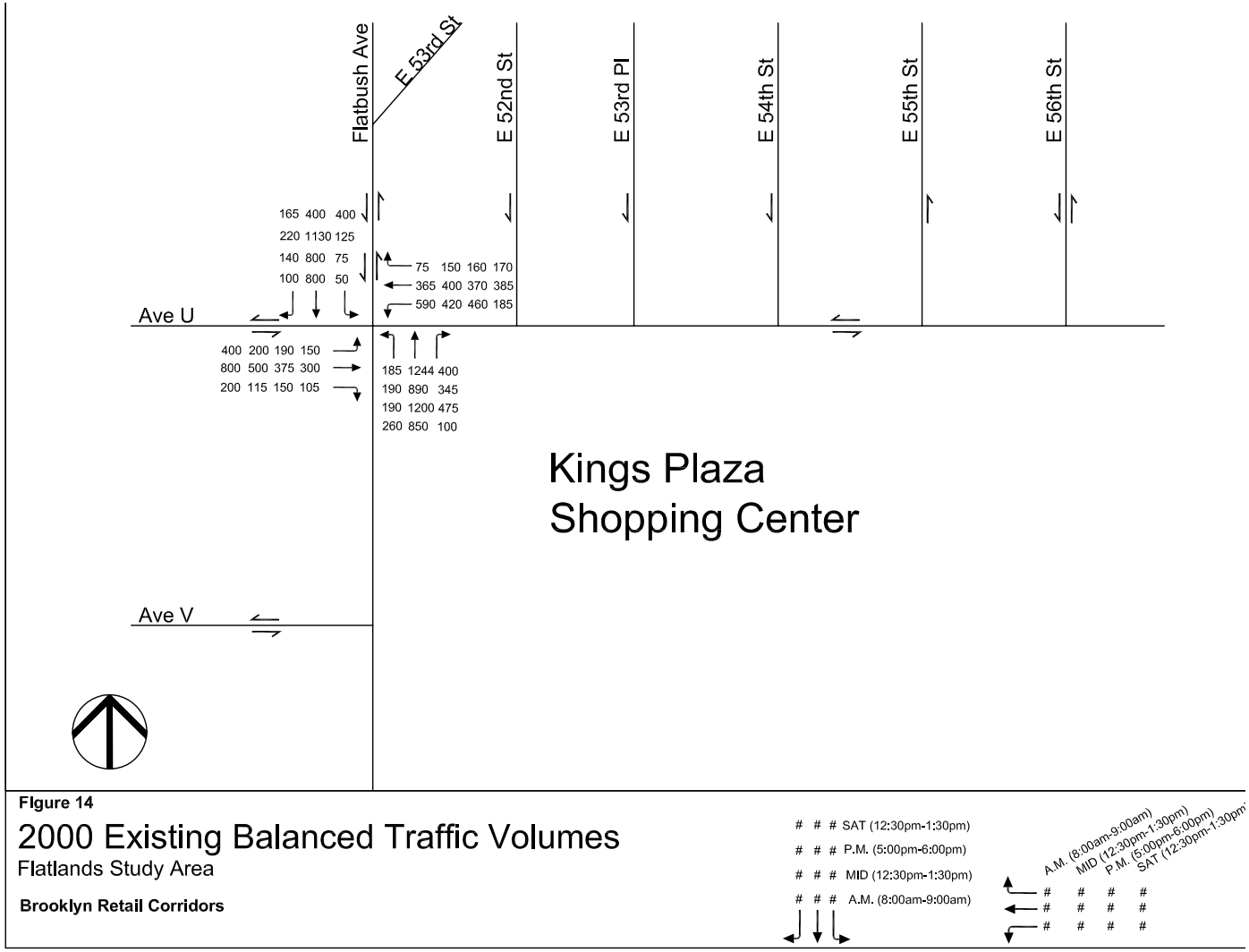


Figure 14

2000 Existing Balanced Traffic Volumes

Flatlands Study Area

Brooklyn Retail Corridors

2004 FUTURE NO-BUILD CONDITIONS

Flatbush Avenue at Avenue U

The future development scenario identified four development proposals for sites within the waterfront block surrounding Mill Basin and bounded by Flatbush Avenue, Avenue U, Mill Avenue, and Strickland Avenue.

Three development projects - an assisted living residential development with 98 units, 34 single-family detached houses, and a mini-storage facility - are not anticipated to have an impact on the study area's traffic network due to their distance from the site. Thus, they have not been analyzed under the future build scenario. The expansion of the Kings Plaza shopping center includes an additional 240,670 square feet of as-of-right retail space, and 770 accessory parking spaces in a structure on the south side of Avenue U at East 56th Street, adjacent to the existing mall. This project is expected to have an impact on the surrounding traffic network of the study area. The traffic it generates was estimated, assigned to the street network, and analyzed. During the AM peak period, the project will generate 30 additional trips; during the midday peak period, 210 vehicle trips will be added; during the PM peak period, 248 vehicle trips will be added; and during the weekend peak period, 347 trips will be added.

Flatbush Avenue at Avenue U

Traffic

Overall, the intersection would continue to operate at LOS D for AM, midday, and PM periods and at LOS E for the weekend peak period. Delays range from 38.2 to 59.3 seconds per vehicle. All lane groups for the AM, midday, and PM peak periods would operate at LOS D or better, with delays ranging from 30.5 to 52.6 seconds of delay per vehicle. The weekend period would operate at LOS D or better, with delays ranging from 32.6 to 49.7 seconds per vehicle, with the exception of the east- and southbound left-turn movements which would operate at LOS F. Delays would range from 113.3 to 186.7 seconds of delay per vehicle respectively.

Pedestrian

All sidewalks, crosswalks, and corners would continue to operate at acceptable levels of service (LOS B or better) for all peak periods.

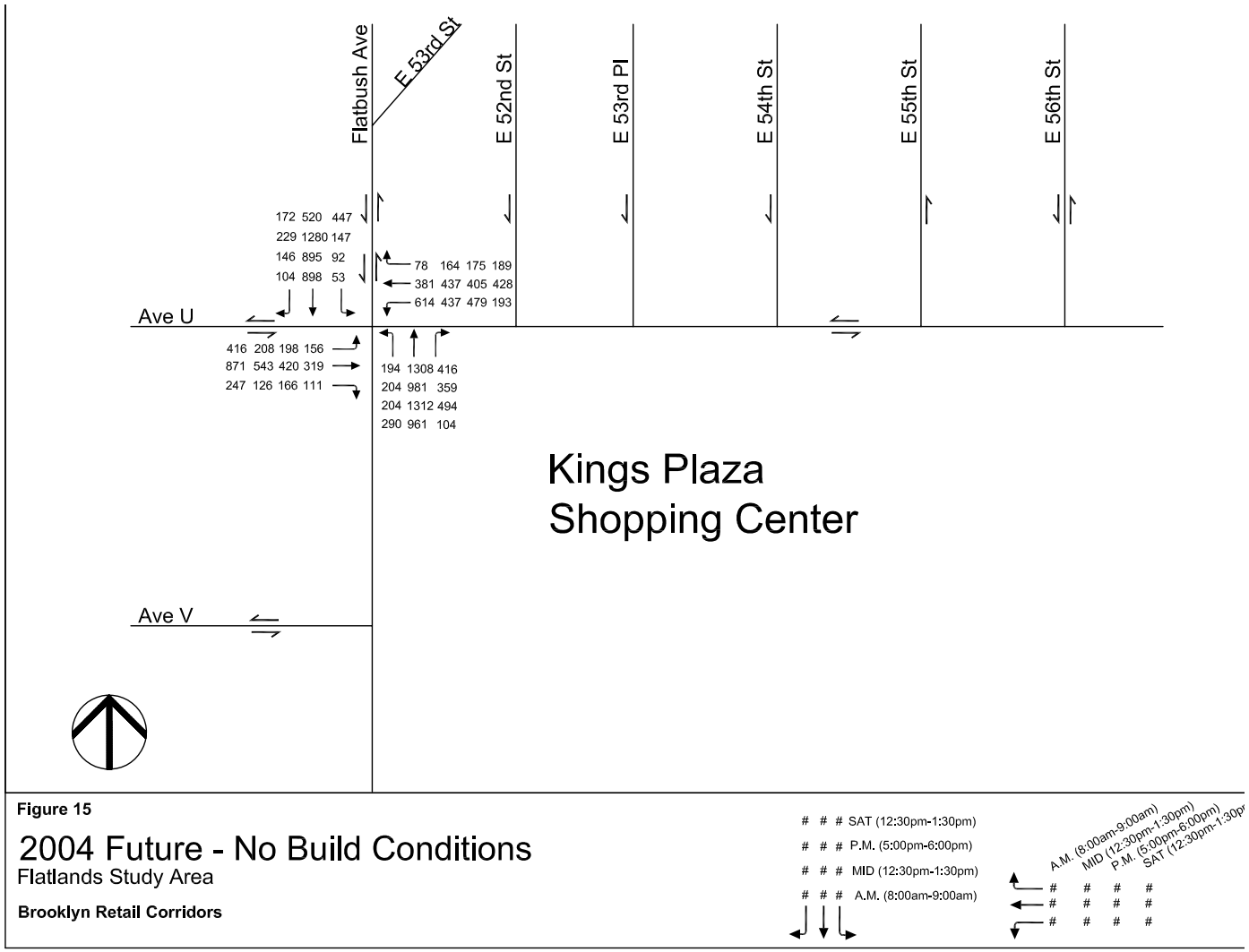


Figure 15

2004 Future - No Build Conditions

Flatlands Study Area

Brooklyn Retail Corridors

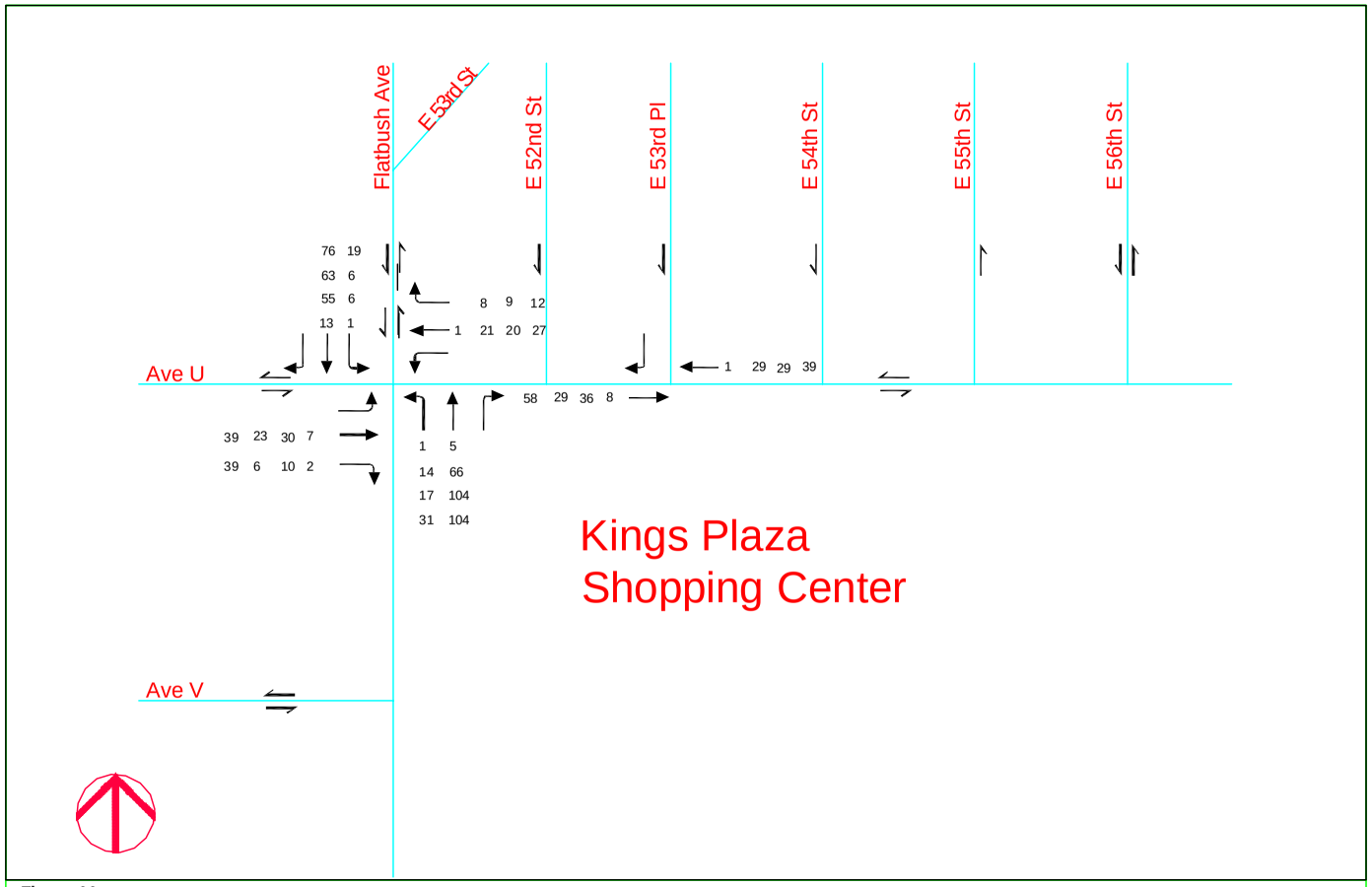


Figure 11

Project Trip Increment (Kings Plaza Extension)

Flatlands Study Area

Brooklyn Retail Corridors

SAT (12:30pm-1:30pm)
P.M. (5:00pm-6:00pm)
MID (12:30pm-1:30pm)
A.M. (8:00am-9:00am)

A.M. (8:00am-9:00am) MID(12:30pm-1:30pm) P.M. (5:00pm-6:00pm) SAT (12:30pm-1:30pm)

ACCIDENT SUMMARY

Accident data analyzed at this location suggest that large turning volumes, signal timing/phasing, and pedestrian traffic all may be contributing factors to the type of accidents that occur at this intersection.

Flatbush Avenue at Avenue U

Between 1996 and 1998, there were a total of 147 reportable and 171 non-reportable accidents, with no fatalities, at this intersection. Of the four most common types of accidents, 31 percent involved other-angle common- direction collisions, 31 percent were rear-end collisions, 16 percent involved left-turning vehicles, and 13 percent were pedestrian-related. Sixty-two percent of the reportable accidents occurred during the day. The number of accidents decreased from 1996 to 1998.

Table 13:Accident Analysis
Flatbush Avenue at Avenue U

1996	Flatbush Avenue at Avenue U		
	DAY	NIGHT	TOTAL
FATALITY	0	0	0
INJURY	12	4	16
DAMAGE ONLY	26	15	40
TOTAL	38	19	57

1997	Flatbush Avenue at Avenue U		
	DAY	NIGHT	TOTAL
FATALITY	0	0	0
INJURY	4	9	13
DAMAGE ONLY	23	10	33
TOTAL	27	19	46

1998	Flatbush Avenue at Avenue U		
	DAY	NIGHT	TOTAL
FATALITY	0	0	0
INJURY	23	13	36
DAMAGE ONLY	3	5	8
TOTAL	26	18	44

RECOMMENDATIONS AND 2004 FUTURE BUILD CONDITIONS

PEDESTRIAN CROSSINGS

Flatbush Avenue at Avenue U / Flatbush Avenue Crosswalks

At the east-west crosswalks, pedestrians ignore crossing signals and begin crossing whenever there is a break in traffic in order to get to the center median and cross this wide street in one signal cycle.

Avenue U Crosswalks

Pedestrians crossing north-south with the signals often conflict with right-turning vehicles from northbound Flatbush Avenue. The high volume of turning vehicles effectively strand pedestrians on the center median, which is not wide enough to serve as a pedestrian holding area.

RECOMMENDATION:

On Avenue U, augment existing high-visibility crosswalks with the installation of marked stop bars. This should discourage vehicles from encroaching upon the crosswalk and impeding pedestrian traffic.-

Re-stripe the north and southbound Flatbush Avenue approaches from the existing configuration of one exclusive left-turn lane to two exclusive left-turn lanes.

Since this intersection is also a high accident location, it is recommended that the following signal timing adjustment be implemented during the weekend peak period. This adjustment improves the level of service, while addressing safety concerns as well. The following is therefore recommended:

Adjust signal timing during the weekend peak period by decreasing the east- and westbound left turn green time by three (3) seconds (from 13 to 10 seconds) and decreasing the north- and southbound green time by three (3) seconds (from 37 to 34 seconds). The north- and southbound left turn green time increases by six (6) seconds (from 13.0 to 19.0 seconds).

With this adjustment, the intersection would improve from the no-build condition of LOS E (with 59.7 seconds of delay per vehicle) to LOS D with 45.9 seconds of delay per vehicle. All lane groups would operate at LOS D with the exception of the eastbound left-turn movement which would continue to operate at the no-build LOS F but with decreased lane group delay (from 113.3 to 81.9 seconds per vehicle).

Midblock Crossings

Pedestrians cross Flatbush Avenue midblock between Avenue U and Avenue V to directly enter Kings Plaza Shopping Center. Many of these pedestrians are either bus patrons whose bus stop is directly across the street, or patrons of two parking lots located in close proximity to the bus stop.

RECOMMENDATION:

Relocate the bus stop/shelter serving B41 passengers from its present midblock location on Flatbush Avenue, across the street from the Kings Plaza Shopping Center, to the corner of Flatbush Avenue at Avenue U. This is expected to encourage pedestrians to safely cross at the corner. Install a pedestrian separator on Flatbush Avenue between Avenue U and Avenue V to further prevent midblock crossings.

BUS STOP LOCATIONS

Avenue U at Hendrickson Street

Trucks unloading merchandise block access to the bus stop, forcing buses to stop and discharge passengers in the travel lane of Avenue U. This blocks the flow of westbound traffic on Avenue U, sometimes causing spillbacks onto Flatbush Avenue. The trucks obstruct the sight lines of pedestrians, forcing them to step into the street.

RECOMMENDATION:

Relocate the existing B3 bus stop from its current location on the northeast corner of Avenue U and Hendrickson Street, to across the street, in front of the Social Security Administration building at 4123 Avenue U. Enforce existing parking regulations to the extent possible.

PEDESTRIAN AMENITIES

Public Plaza between the Kings Plaza Entrance and Flatbush Avenue Bus Stop

This large area is almost completely barren of pedestrian amenities and lacks even a bus shelter, despite five bus route stops.

RECOMMENDATION:

The Early Implementation Plan redesigns the plaza as an off-street transit center, with bus shelters, signage, and other pedestrian amenities.

DIRECTIONAL SIGNS

Flatbush Avenue

There are no signs directing northbound vehicles on Flatbush Avenue to the mall parking garage.

RECOMMENDATION:

New directional signs for the existing garage and new accessory parking facility at Avenue U and East 56th Street should be installed under NYC DOT's trailblazer signage policy. Trailblazer signs direct motorist to major facilities that generate large numbers of passenger car traffic, are open to the general public, and provide adequate number of public parking spaces. The owners of Kings Plaza Shopping Center may request such signage by submitting all required information. All Trailblazer signs are designed, manufactured and installed by NYC DOT, upon a favorable determination.

PARKING ENFORCEMENT

Avenue U in front of Kings Plaza Shopping Center

Cars illegally park here to load purchases from the mall. This delays eastbound traffic on Avenue U and causes spillbacks that block Flatbush Avenue traffic.

RECOMMENDATION:

Institute a well-publicized ”zero tolerance“ campaign to enforce existing parking regulations. This recommendation is meant to work in tandem with the 770-space accessory parking lot that has been constructed on Avenue U at E. 55th Street. It is expected that this could relieve some of the congestion created by illegally parked vehicles loading purchases from the shopping center.

BUS OPERATIONS

Flatbush Avenue at Avenue V

Two exclusive turn lanes on southbound Flatbush Avenue permit either a left turn into the Kings Plaza Shopping Center parking garage, or a U-turn onto northbound Flatbush Avenue. Buses on five routes - the B2, B9, B44, B46, and B78 - all execute the U-turn to reach the bus layover along the east curb of northbound Flatbush Avenue, approximately 165 feet north of the intersection. This bus movement conflicts with right-turning vehicles exiting the parking garage.

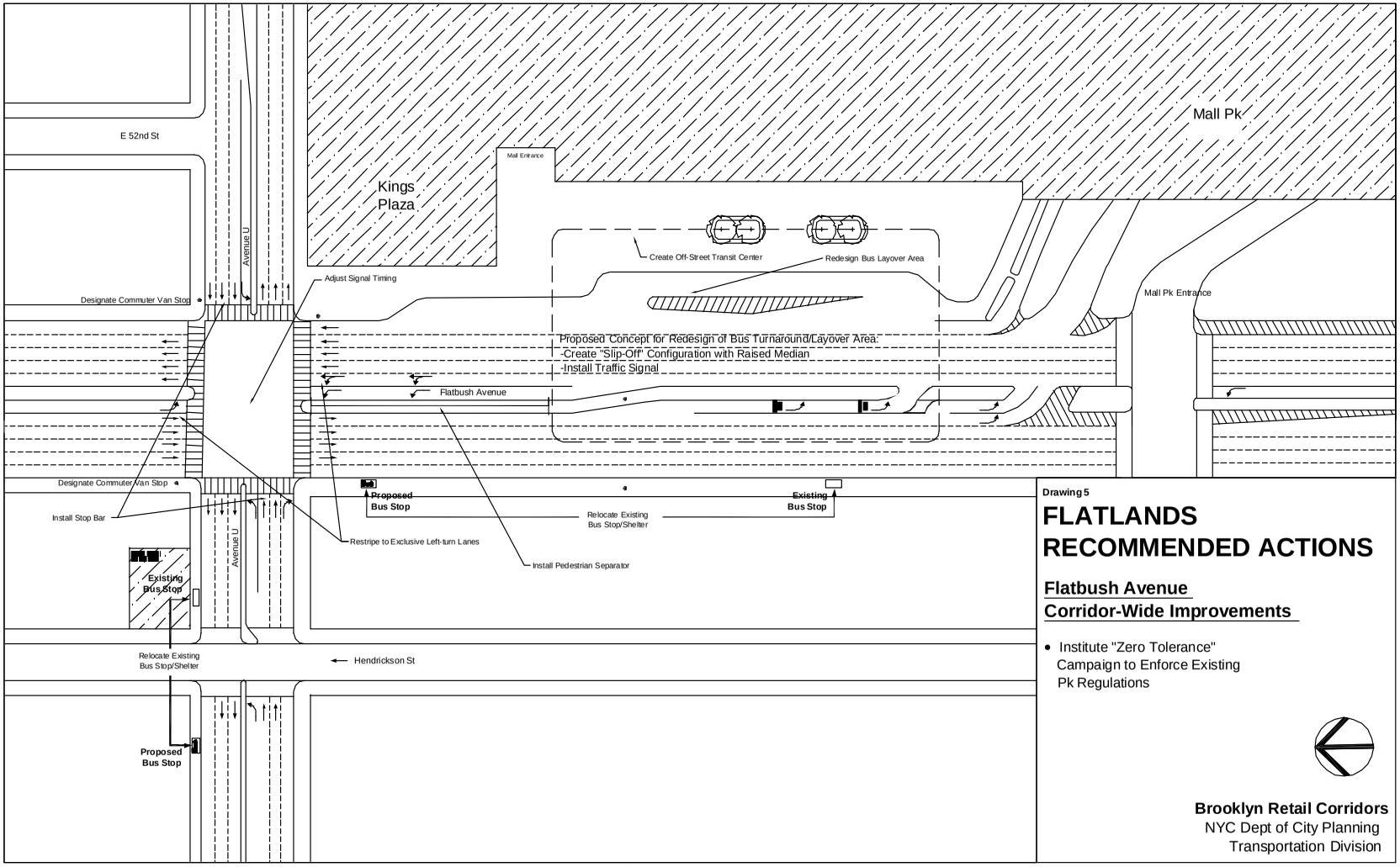
RECOMMENDATION:

As part of NYCDOT’s Early Implementation Plan, the bus turnaround on Flatbush Avenue is to be redesigned as a ”slip-off“ configuration with a raised median aligned with the existing bus layover. The new cut through the existing median would be signalized, thereby controlling bus movements and cars exiting the garage. This is expected to improve bus flow by allowing buses to execute earlier turns and minimize vehicular conflict. The existing painted channelization island separating Flatbush Avenue’s main road from the bus layover would be upgraded to a raised median.

The Office of the President of the Borough of Brooklyn, under a grant by the Governor’s Traffic Safety Committee, also studied this location under the Pedestrian / Traffic Safety Mitigation Project. Additional strategies involving intersection reconfiguration and modification of traffic control devices, enforcement, and education have been recommended to supplement the above.

TABLE 14
Flatlands: Comparison of LOS and Delay for Existing, No-Build, and Build Conditions

SATURDAY PEAK PERIOD													
INTERSECTION	**2000 Existing**				**2004 No-Build**				**2004 Build**				**Delay**
Appr.	Mvm't	v/c	Delay	LOS	Mvm't	v/c	Delay	LOS	Mvm't	v/c	Delay	LOS	**Change**
FLATBUSH AVE @ AVENUE U													
Eastbound	L	1.11	121.4	F	L	1.08	113.3	F	L	0.99	81.9	F	31.4
	T	0.80	45.1	D	T	0.87	49.7	D	T	0.87	49.7	D	0.0
	R	0.53	39.8	D	R	0.59	41.2	D	R	0.67	45.6	D	-4.4
Westbound	L	0.23	34.8	C	L	0.22	36.6	D	L	0.50	42.9	D	-6.3
	TR	0.64	39.7	D	TR	0.64	39.5	D	TR	0.71	42.0	D	-2.5
Northbound	L	0.59	35.1	D	L	0.67	40.9	D	L	0.49	38.0	D	2.9
	TR	0.44	34.4	C	TR	0.45	34.6	C	TR	0.63	40.0	D	-5.4
Southbound	L	1.16	141.4	F	L	1.27	186.7	F	L	0.69	45.5	D	141.2
	TR	0.27	32.3	C	TR	0.30	32.6	C	TR	0.43	36.5	D	-3.9
Intersection			**55.1**	**E**			**59.3**	**E**			**45.9**	**D**	**13.4**


Mall Pk
E 52nd St
Mall Entrance
Kings Plaza
Avenue U
Create Off-Street Transit Center
Redesign Bus Layover Area
Adjust Signal Timing
Designate Commuter Van Stop
Mall Pk Entrance
Proposed Concept for Redesign of Bus Turnaround/Layover Area:
-Create "Slip-Off" Configuration with Raised Median
-Install Traffic Signal
Flatbush Avenue
Designate Commuter Van Stop
Proposed Bus Stop
Existing Bus Stop
Install Stop Bar
Relocate Existing Bus Stop/Shelter
Restripe to Exclusive Left-turn Lanes
Install Pedestrian Separator
Avenue U
Existing Bus Stop
Relocate Existing Bus Stop/Shelter
Hendrickson St
Proposed Bus Stop
Drawing 5
FLATLANDS RECOMMENDED ACTIONS
Flatbush Avenue Corridor-Wide Improvements
• Institute "Zero Tolerance" Campaign to Enforce Existing Pk Regulations
Brooklyn Retail Corridors
NYC Dept of City Planning
Transportation Division

Appendix Drawings

Parking Regulations

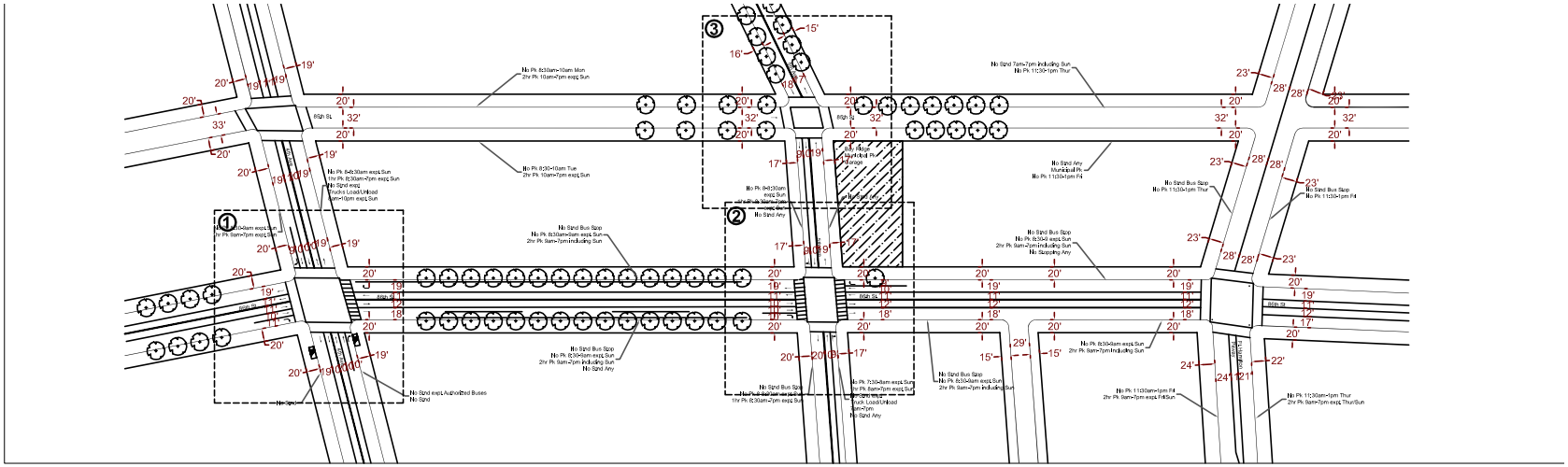
- Bay Ridge
- Brighton Beach
- Bushwick
- Flatlands

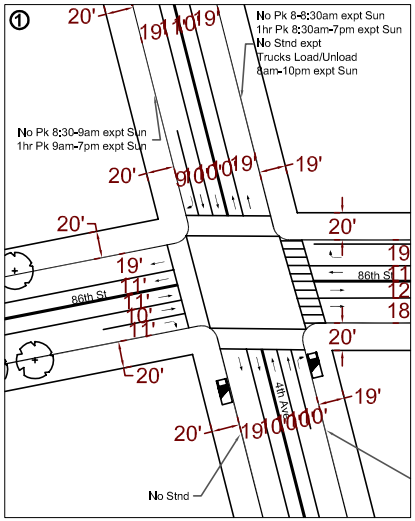
Existing Conditions

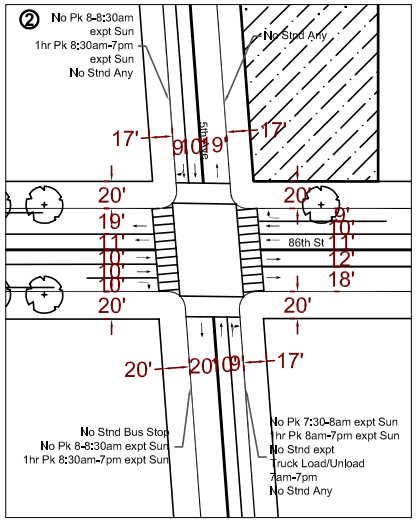
- 86th Street at 5th Avenue
- 86th Street at 4th Avenue
- Brighton Beach Avenue and Ocean Parkway
- Brighton Beach Avenue and Coney Island Avenue
- Knickerbocker Avenue at Myrtle Avenue
- Knickerbocker Avenue at Himrod Street
- Flatbush Avenue and Avenue U

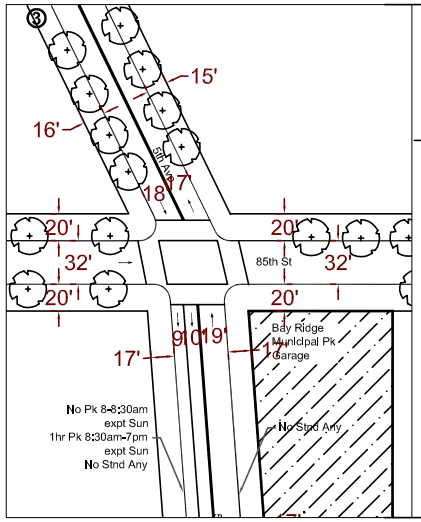
Existing Transit

- 86th Street at 5th Avenue
- 86th Street at 4th Avenue
- Brighton Beach Avenue and Ocean Parkway
- Brighton Beach Avenue and Coney Island Avenue
- Knickerbocker Avenue at Myrtle Avenue
- Flatbush Avenue and Avenue U







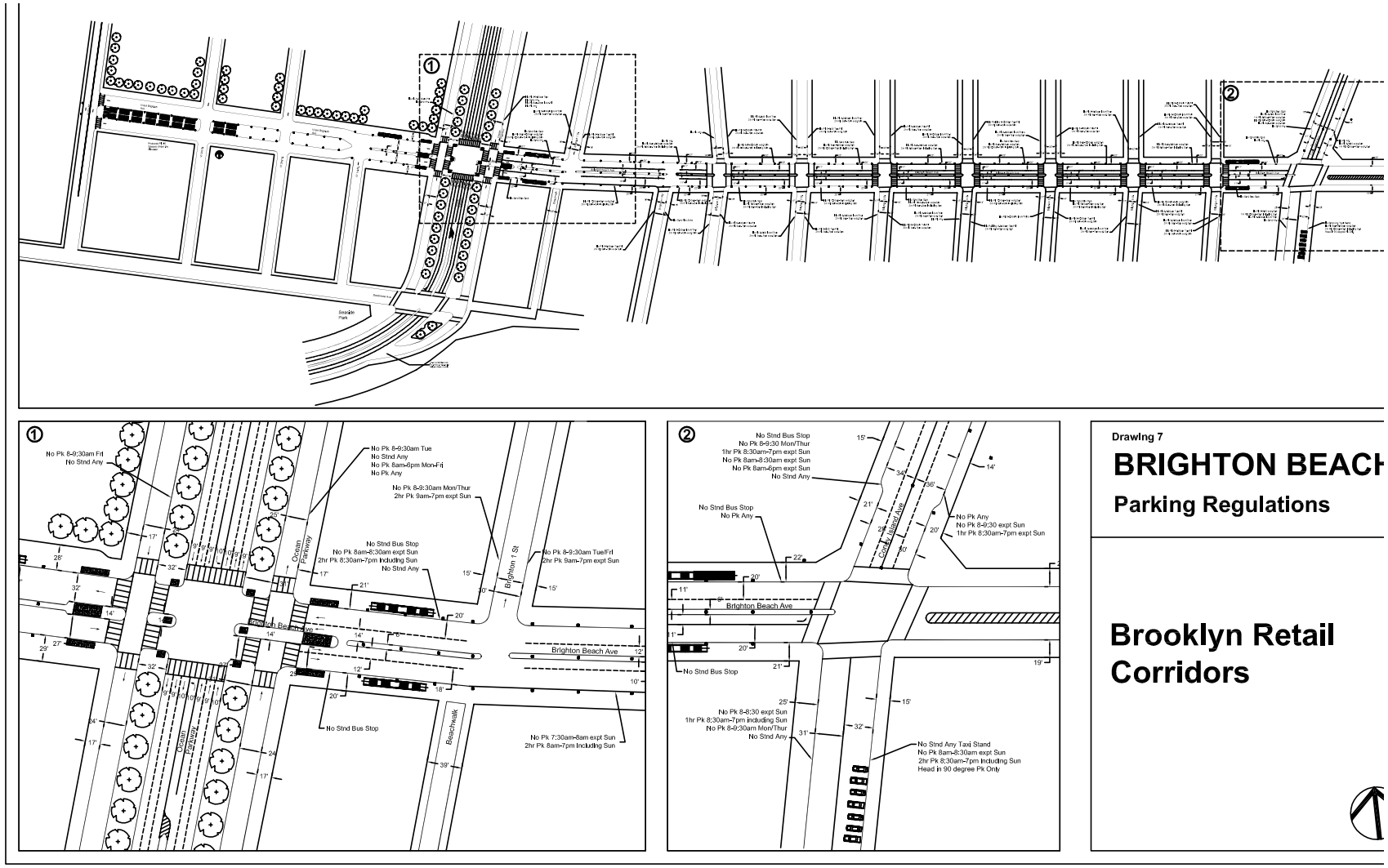


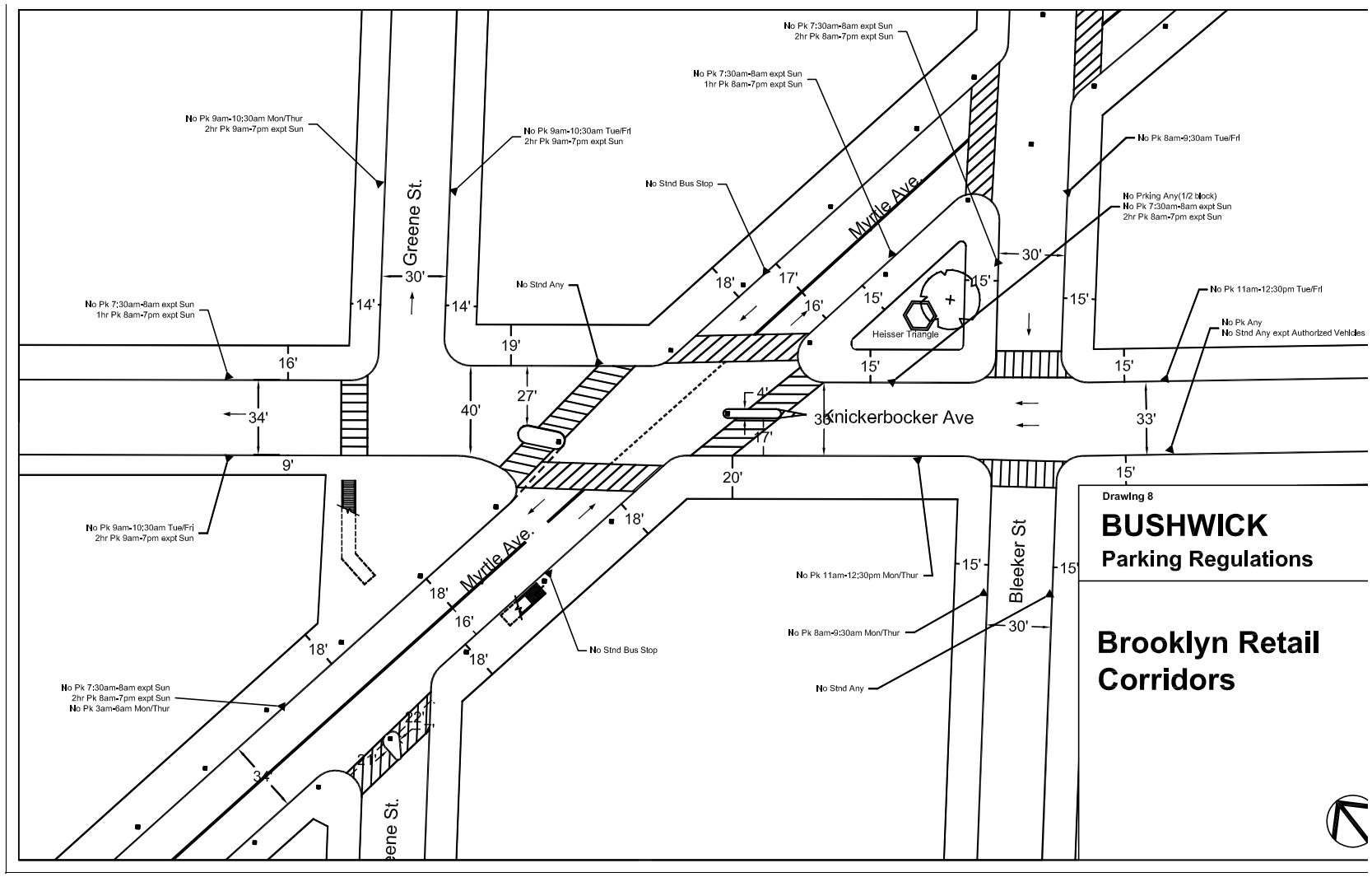
Drawing 6

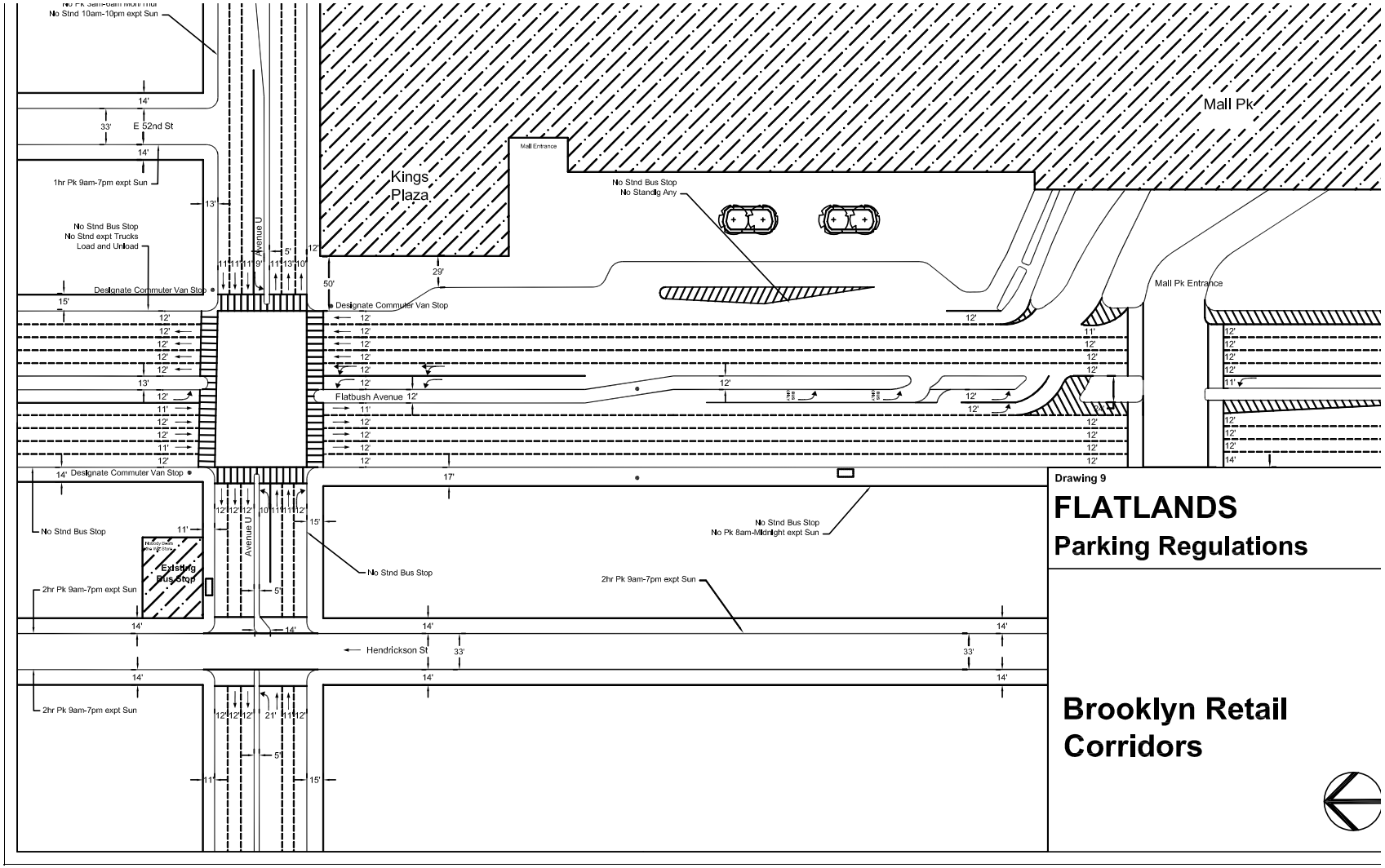
BAY RIDGE

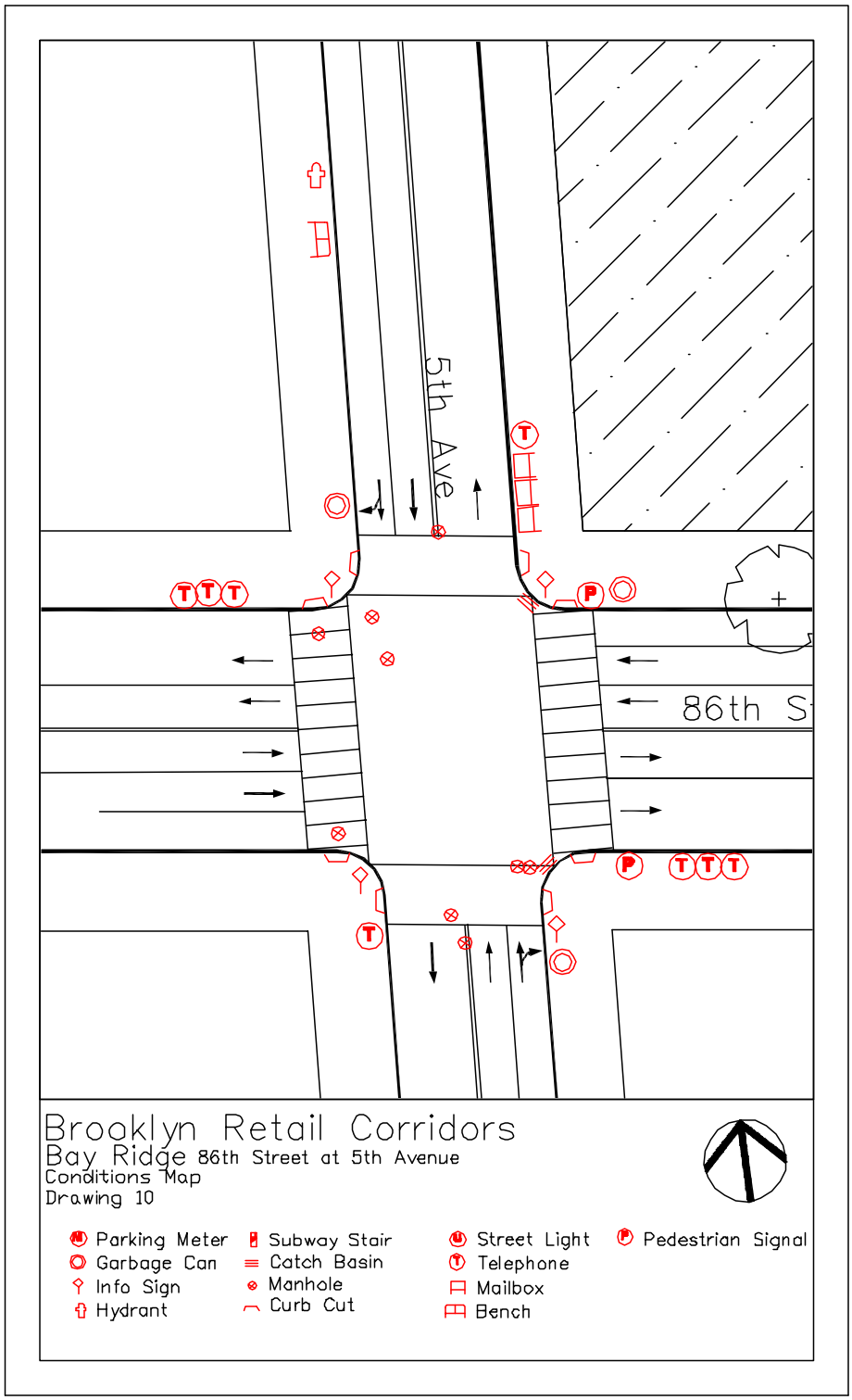
Parking Regulations

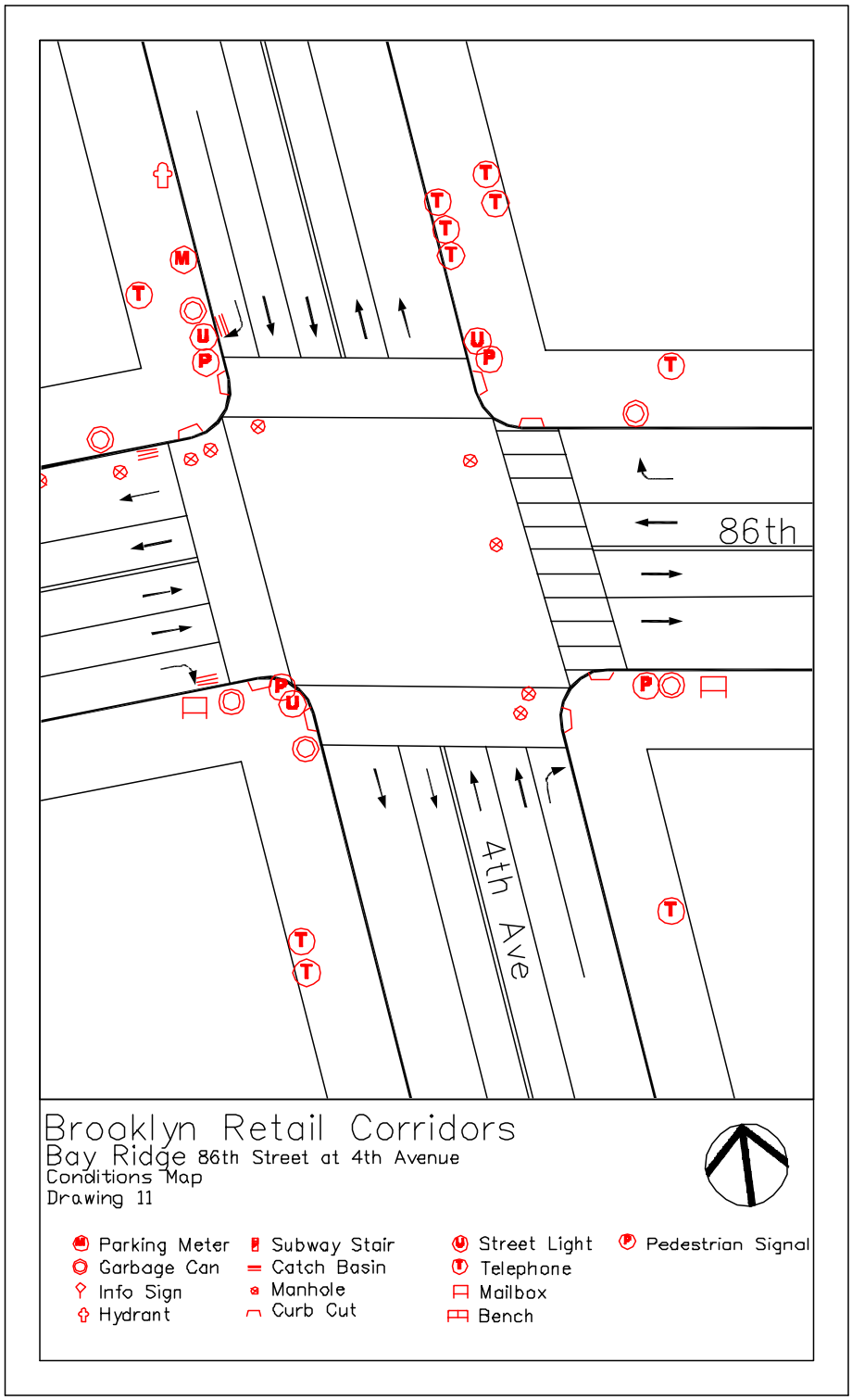
Brooklyn Retail Corridors

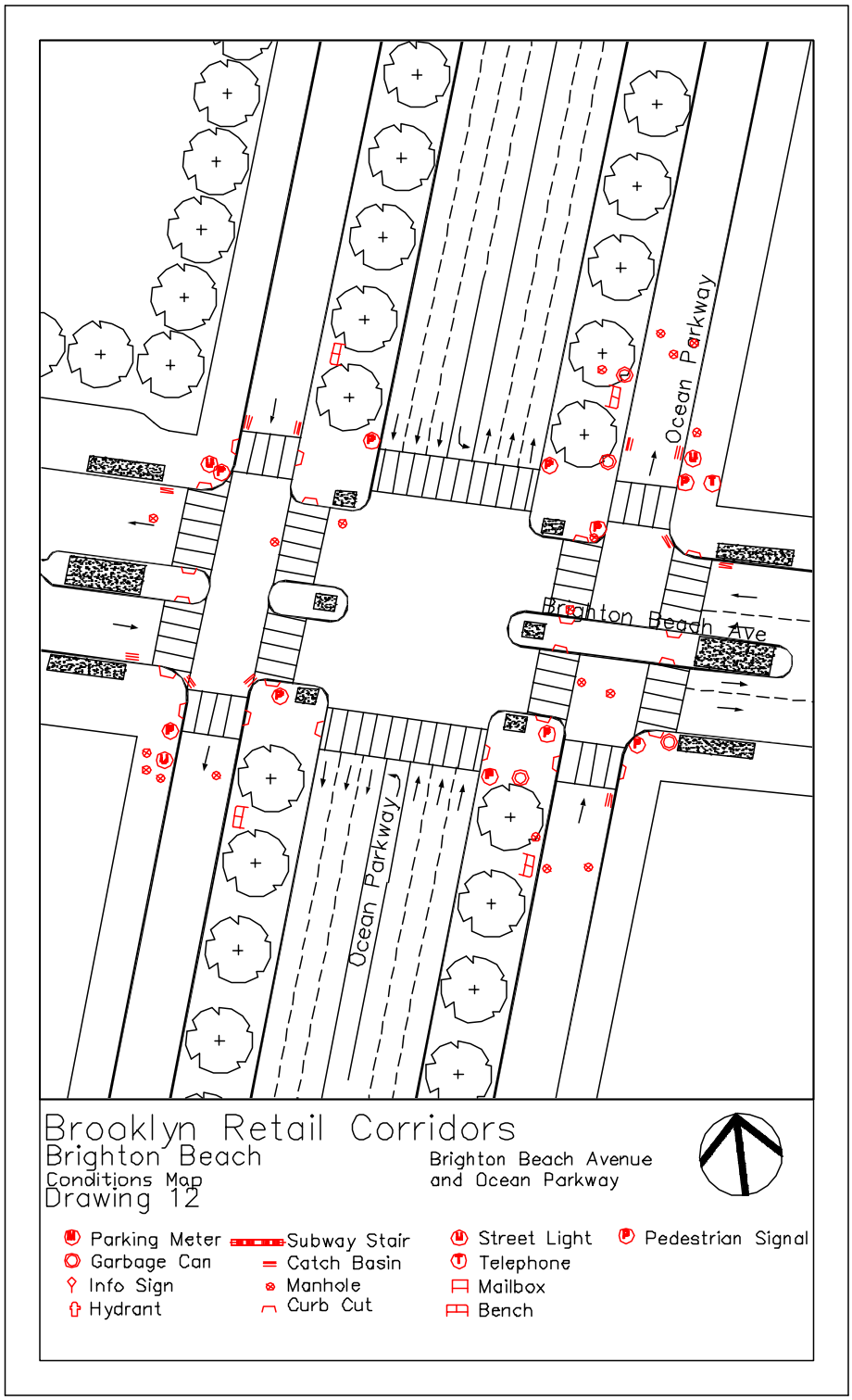

①
②
No Pk 8-9:30am Fri
No Stnd Any
No Pk 8-9:30am Tue
No Stnd Any
No Pk 8am-6pm Mon-Fri
No Pk Any
No Pk 8-9:30am Mon/Thur
2hr Pk 9am-7pm expt Sun
No Stnd Bus Stop
No Pk 8am-8:30am expt Sun
2hr Pk 8:30am-7pm Including Sun
No Stnd Any
No Pk 8-9:30am Tue/Fri
2hr Pk 9am-7pm expt Sun
Brighton 1 St
Ocean Parkway
Brighton Beach Ave
No Stnd Bus Stop
Beachwalk
No Pk 7:30am-8am expt Sun
2hr Pk 8am-7pm Including Sun
No Stnd Bus Stop
No Pk 8-9:30 Mon/Thur
1hr Pk 8:30am-7pm expt Sun
No Pk 8am-8:30am expt Sun
No Pk 8am-6pm expt Sun
No Stnd Any
No Stnd Bus Stop
No Pk Any
Coney Island Ave
No Pk Any
No Pk 8-9:30 expt Sun
1hr Pk 8:30am-7pm expt Sun
Brighton Beach Ave
No Stnd Bus Stop
No Pk 8-8:30 expt Sun
1hr Pk 8:30am-7pm including Sun
No Pk 8-9:30am Mon/Thur
No Stnd Any
No Stnd Any Taxi Stand
No Pk 8am-8:30am expt Sun
2hr Pk 8:30am-7pm Including Sun
Head in 90 degree Pk Only
Drawing 7
BRIGHTON BEACH
Parking Regulations
Brooklyn Retail Corridors

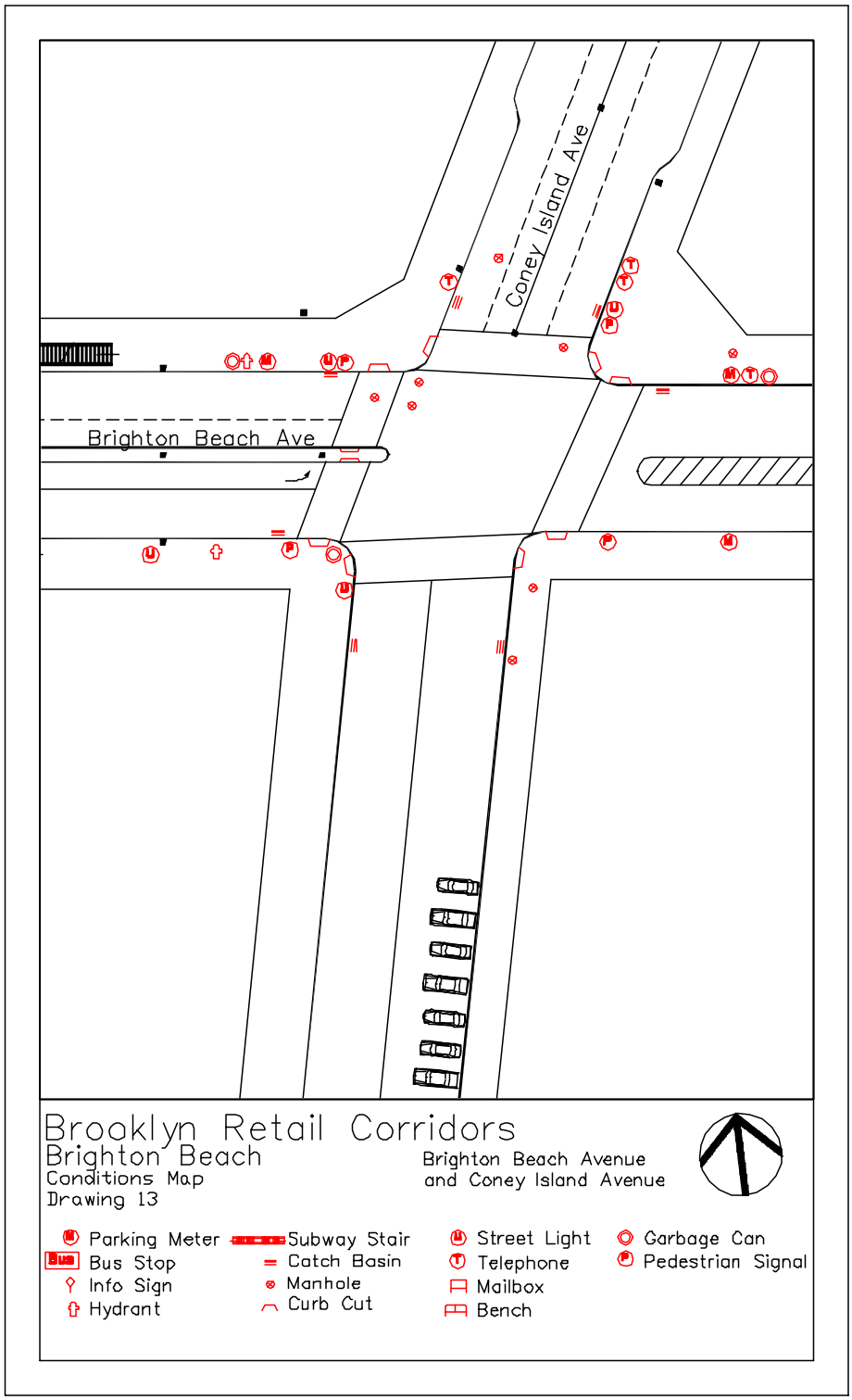

Drawing 8
BUSHWICK
Parking Regulations
Brooklyn Retail Corridors
Greene St.
Myrtle Ave.
Knickerbocker Ave
Bleeker St
Heisser Triangle
No Pk 9am-10:30am Mon/Thur
2hr Pk 9am-7pm expt Sun
No Pk 9am-10:30am Tue/Fri
2hr Pk 9am-7pm expt Sun
No Pk 7:30am-8am expt Sun
1hr Pk 8am-7pm expt Sun
No Pk 7:30am-8am expt Sun
2hr Pk 8am-7pm expt Sun
No Stnd Bus Stop
No Stnd Any
No Pk 8am-9:30am Tue/Fri
No Prking Any(1/2 block)
No Pk 7:30am-8am expt Sun
2hr Pk 8am-7pm expt Sun
No Pk 11am-12:30pm Tue/Fri
No Pk Any
No Stnd Any expt Authorized Vehicles
No Pk 11am-12:30pm Mon/Thur
No Pk 8am-9:30am Mon/Thur
No Pk 7:30am-8am expt Sun
2hr Pk 8am-7pm expt Sun
No Pk 3am-6am Mon/Thur


No Stnd 10am-10pm expt Sun
E 52nd St
1hr Pk 9am-7pm expt Sun
No Stnd Bus Stop
No Stnd expt Trucks
Load and Unload
Designate Commuter Van Stop
Avenue U
Kings
Plaza
Mall Entrance
No Stnd Bus Stop
No Standig Any
Mall Pk
Mall Pk Entrance
Flatbush Avenue
Designate Commuter Van Stop
No Stnd Bus Stop
Existing
Bus Stop
2hr Pk 9am-7pm expt Sun
No Stnd Bus Stop
No Pk 8am-Midnight expt Sun
No Stnd Bus Stop
2hr Pk 9am-7pm expt Sun
Hendrickson St
2hr Pk 9am-7pm expt Sun
Drawing 9
FLATLANDS
Parking Regulations
Brooklyn Retail
Corridors


5th Ave
86th S
Brooklyn Retail Corridors
Bay Ridge 86th Street at 5th Avenue
Conditions Map
Drawing 10
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal


86th
4th Ave
Brooklyn Retail Corridors
Bay Ridge 86th Street at 4th Avenue
Conditions Map
Drawing 11
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal


Ocean Parkway
Brighton Beach Ave
Ocean Parkway
Brooklyn Retail Corridors
Brighton Beach
Conditions Map
Drawing 12
Brighton Beach Avenue
and Ocean Parkway
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal


Coney Island Ave
Brighton Beach Ave
Brooklyn Retail Corridors
Brighton Beach
Conditions Map
Drawing 13
Brighton Beach Avenue
and Coney Island Avenue
Parking Meter
Bus Stop
Info Sign
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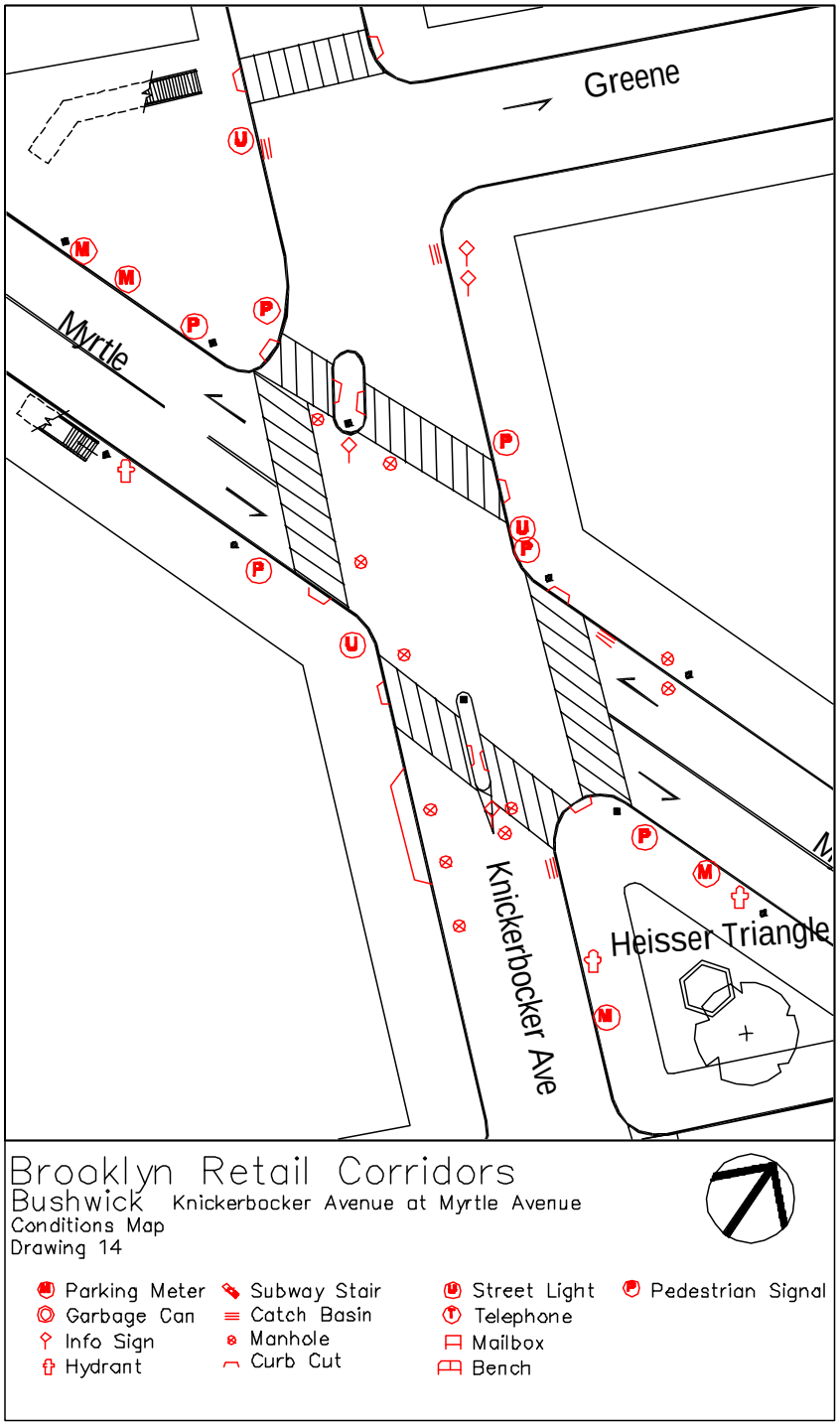
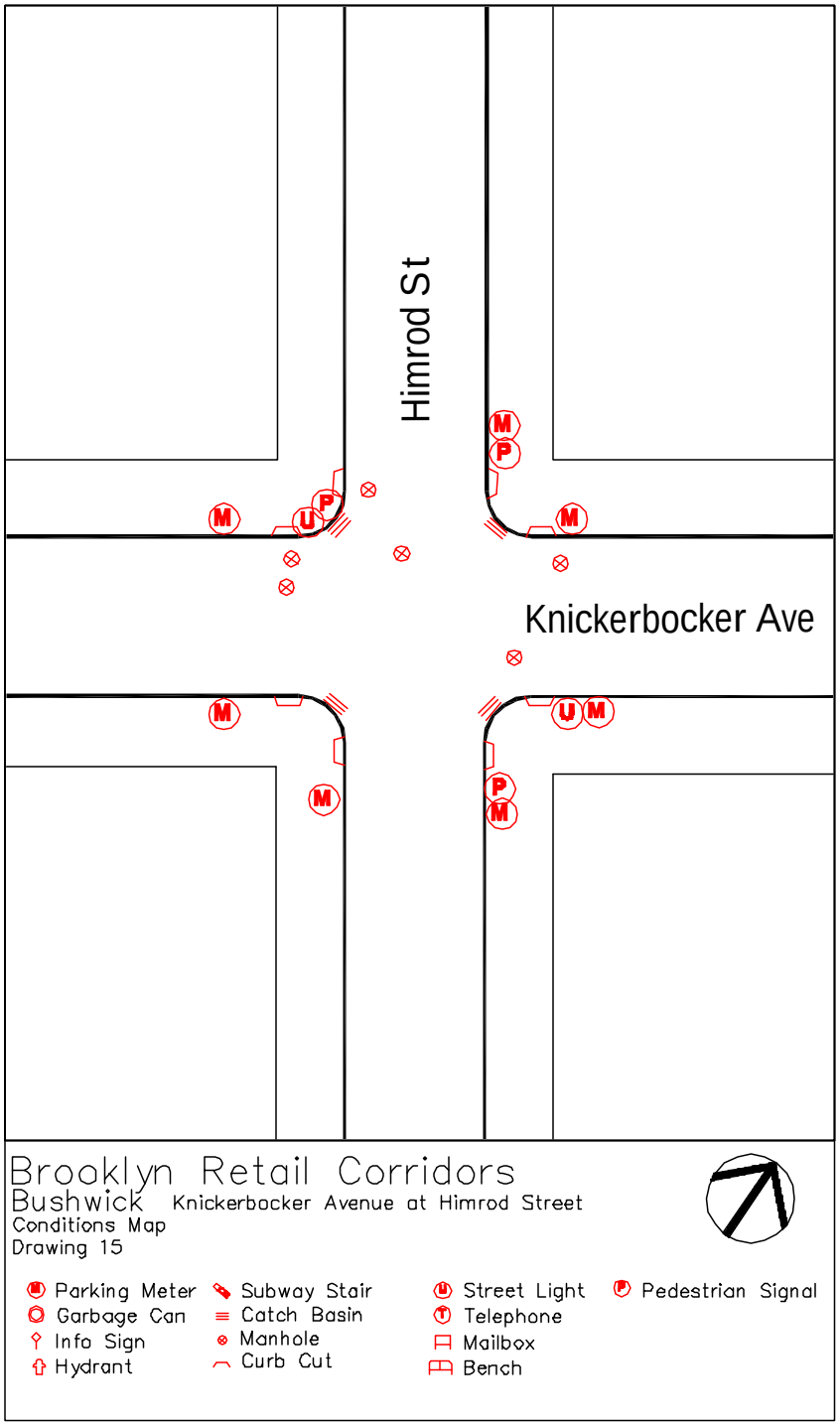
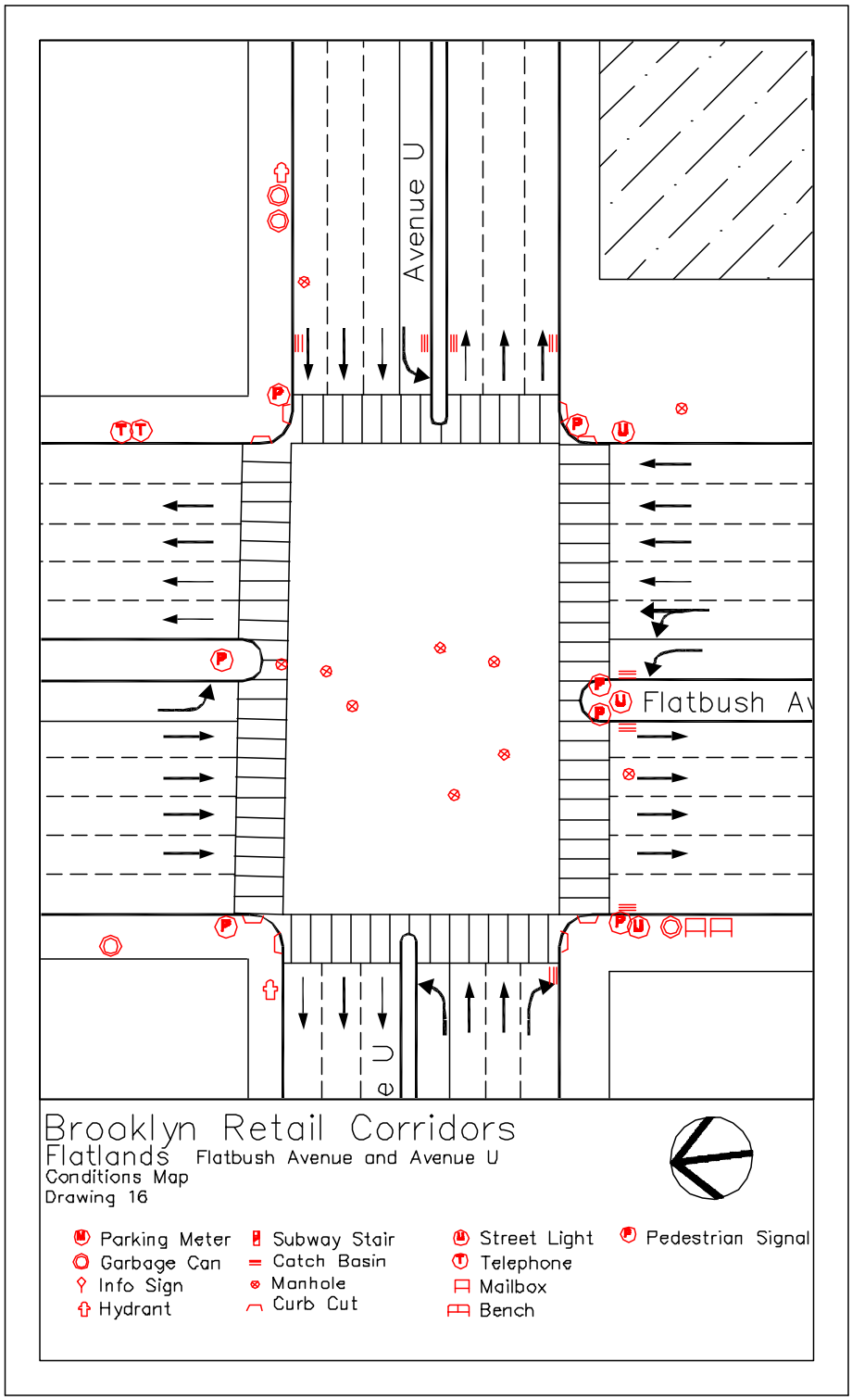
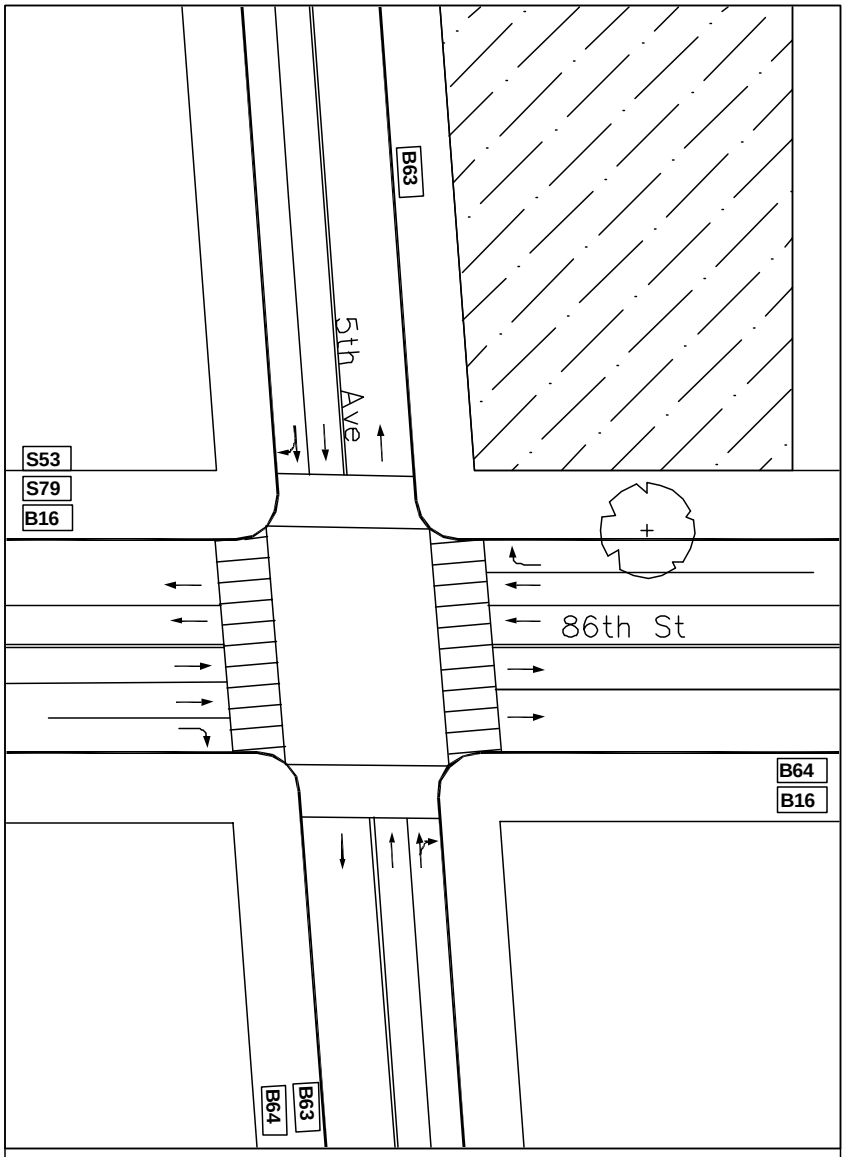
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Garbage Can
Pedestrian Signal


Greene
Myrtle
Knickerbocker Ave
Heisser Triangle
Brooklyn Retail Corridors
Bushwick Knickerbocker Avenue at Myrtle Avenue
Conditions Map
Drawing 14
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal


Himrod St
Knickerbocker Ave
Brooklyn Retail Corridors
Bushwick Knickerbocker Avenue at Himrod Street
Conditions Map
Drawing 15
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal


Avenue U
Flatbush Av
Brooklyn Retail Corridors
Flatlands Flatbush Avenue and Avenue U
Conditions Map
Drawing 16
Parking Meter
Garbage Can
Info Sign
Hydrant
Subway Stair
Catch Basin
Manhole
Curb Cut
Street Light
Telephone
Mailbox
Bench
Pedestrian Signal

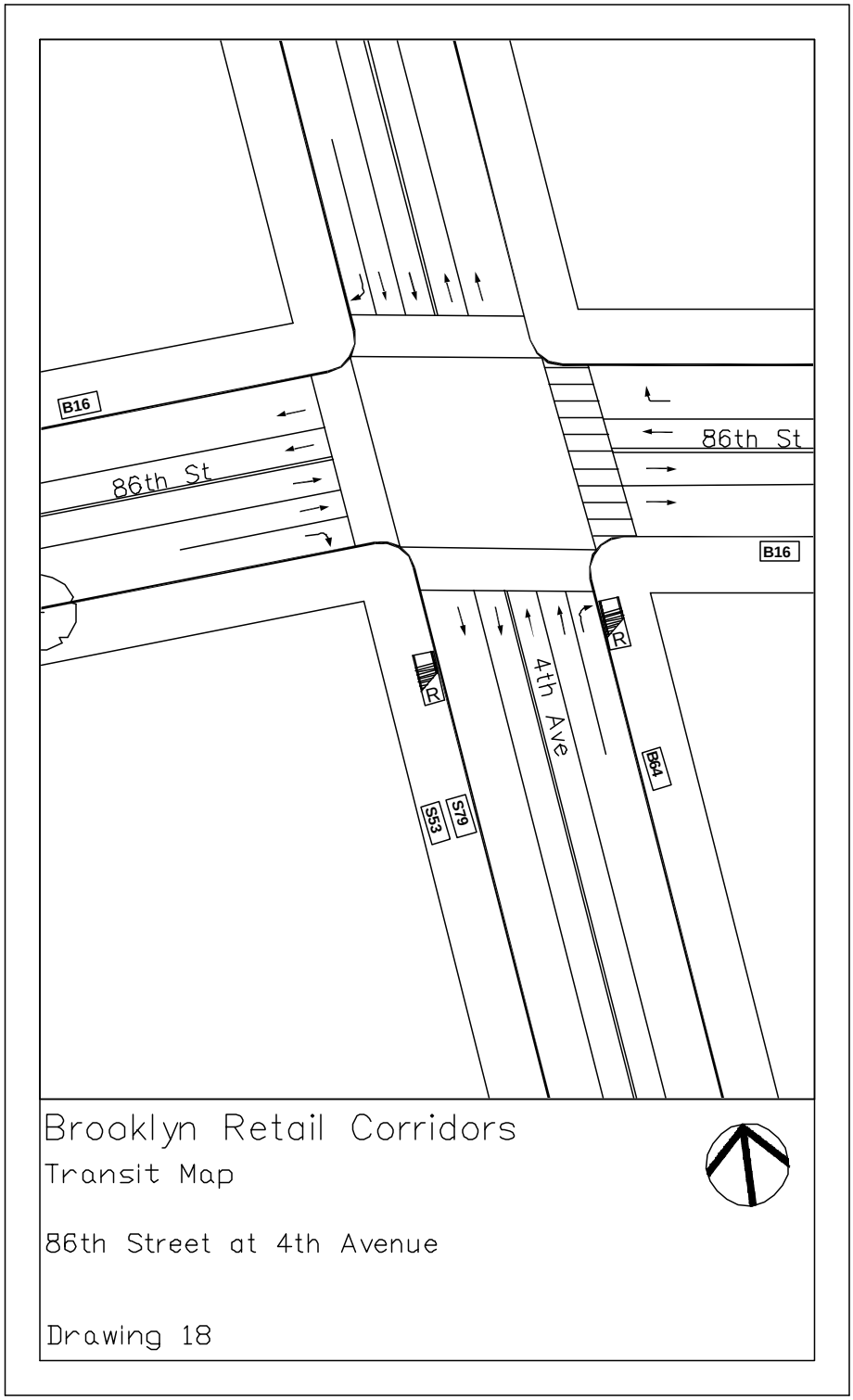


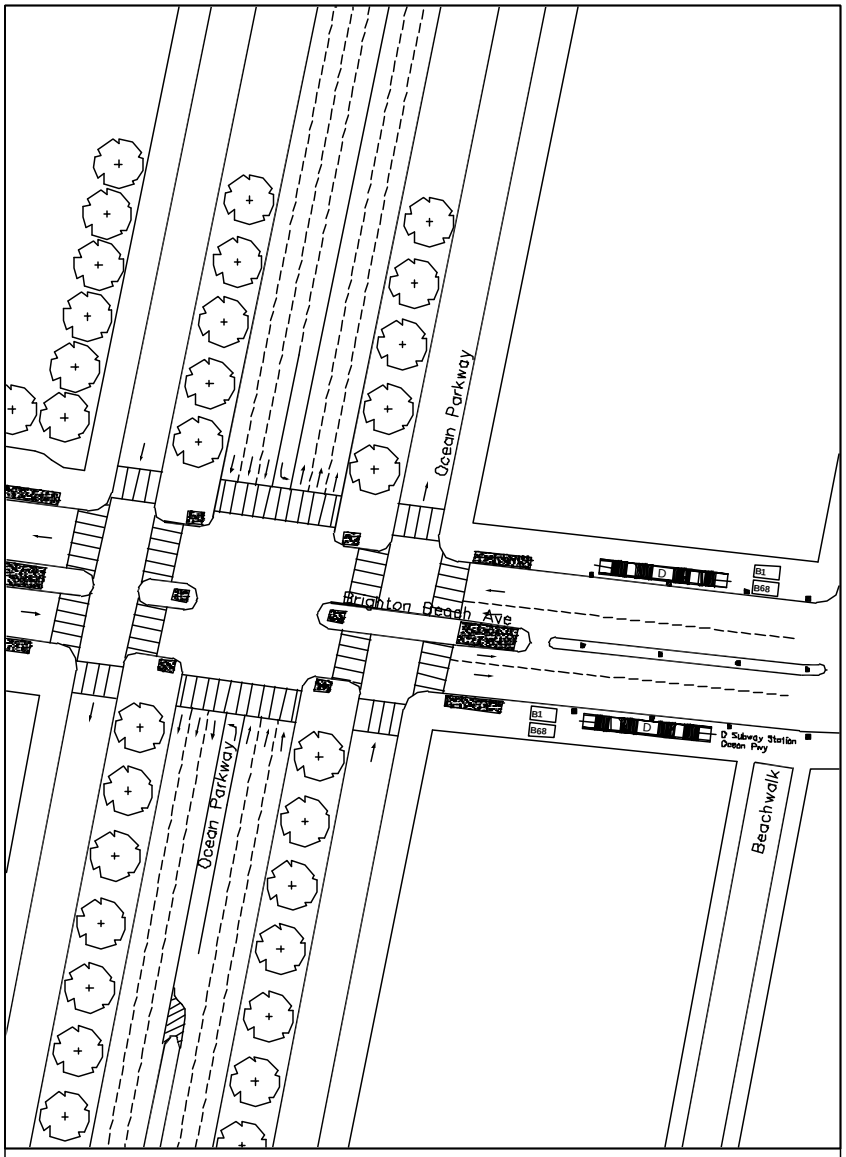
Brooklyn Retail Corridors

Transit Map

86th Street at 5th Avenue

Drawing 17


B16
86th St
86th St
B16
R
R
4th Ave
B64
S53
S79
Brooklyn Retail Corridors
Transit Map
86th Street at 4th Avenue
Drawing 18

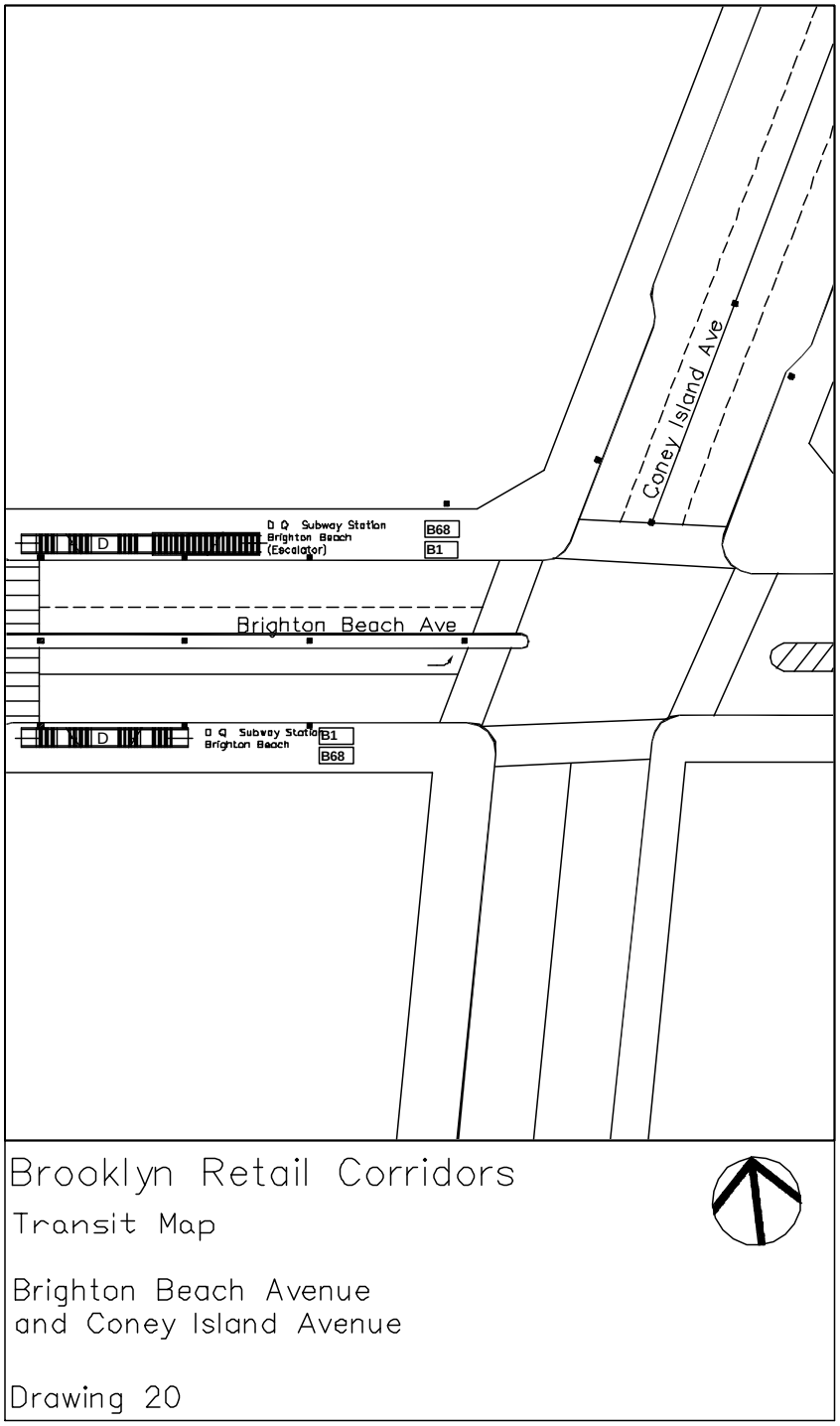


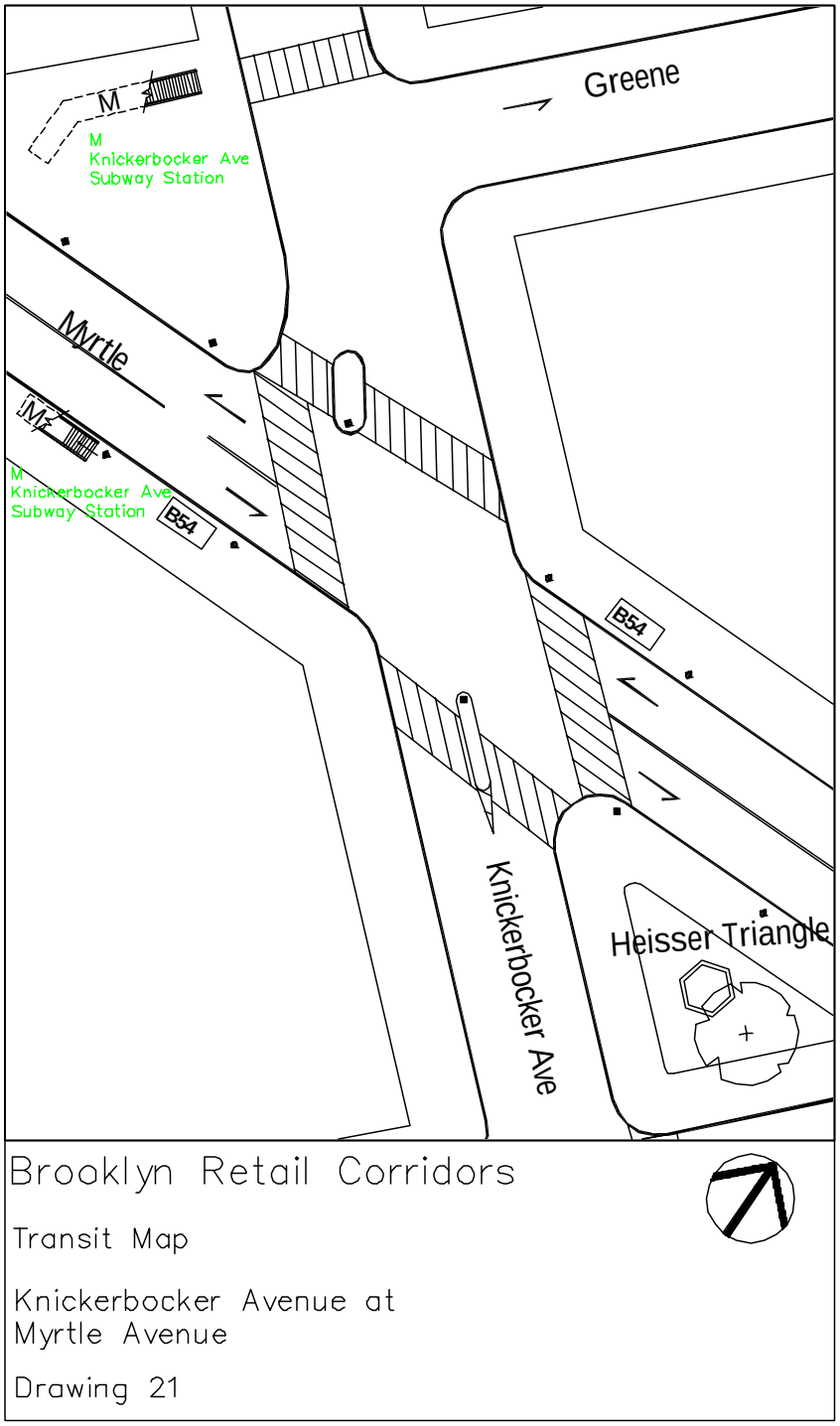
Brooklyn Retail Corridors

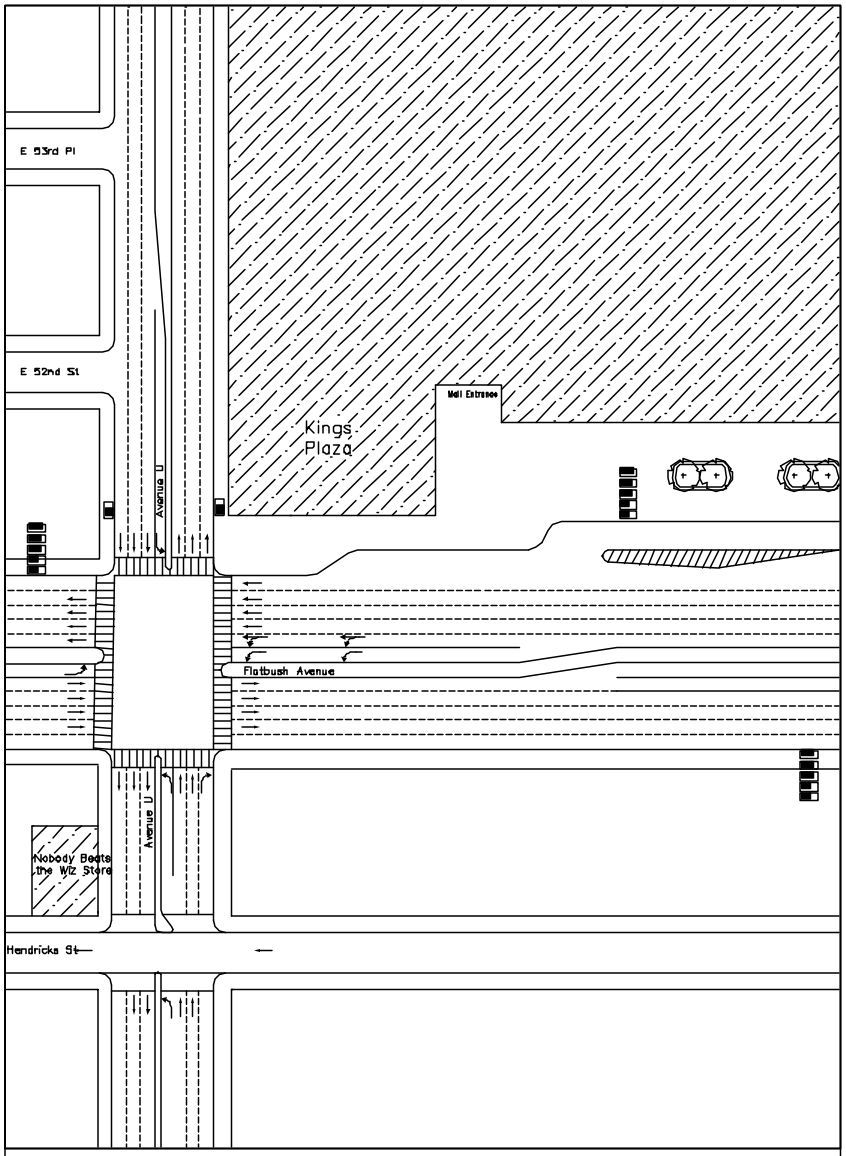
Transit Map

Brighton Beach Avenue
and Ocean Parkway

Drawing 19


Coney Island Ave
D Q Subway Station
Brighton Beach
(Escalator)
B68
B1
Brighton Beach Ave
D Q Subway Station
Brighton Beach
B1
B68
Brooklyn Retail Corridors
Transit Map
Brighton Beach Avenue
and Coney Island Avenue
Drawing 20


Greene
M
M
Knickerbocker Ave
Subway Station
Myrtle
M
M
Knickerbocker Ave
Subway Station
B54
B54
Knickerbocker Ave
Heisser Triangle
Brooklyn Retail Corridors
Transit Map
Knickerbocker Avenue at
Myrtle Avenue
Drawing 21



Brooklyn Retail Corridors

Transit Map

Flatbush Avenue and Avenue U

Drawing 22

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