



**Accessible Pedestrian Signals**  
**Program Status Report**  
December 2016

## **Program Overview**

The New York City Department of Transportation (NYC DOT) installs Accessible Pedestrian Signals (APSs) to assist pedestrians who are blind or have low vision in crossing the street. These devices provide information in non-visual formats, such as audible tones, speech messages, and vibrating surfaces, to alert vision-impaired pedestrians when the “walk” phase is available at a given intersection.

As of December 31, 2016, there are APS units installed at 209 intersections citywide, 78 of which were installed over the past year. A list of these locations is included in this report and is available on NYC DOT’s website at [www.nyc.gov/dot](http://www.nyc.gov/dot).

As was required by NYC Administrative Code Section 19-188 of 2012, NYC DOT was installing APS units at each corner of 25 additional intersections each year. Starting January 1, 2016, the new Local Law is requiring NYCDOT to install APS units at each corner of 75 additional intersections each year. The agency works closely with the Mayor’s Office for People with Disabilities (MOPD) and the visually impaired community, such as the group Pedestrians for Accessible and Safe Streets (PASS), to identify intersections which present a crossing difficulty for persons with visual impairments, such as intersections with Leading Pedestrian Intervals (LPI), delayed turns (split LPI) and Exclusive Pedestrian Phases (EPP) such as Barnes Dance and mid-block locations. NYC DOT is also guided by the Americans with Disabilities Act Accessibility Guidelines (ADAAG) to consider APS units for new traffic signal installations and alterations, and considers locations that are recommended by constituents and elected officials.

NYC DOT establishes a ranked priority list of intersections for the installation of APSs based on established criteria, including but not limited to off-peak traffic presence, current traffic-signal patterns and the complexity of the intersection’s geometry, including crossing distance. These criteria are set forth by the National Cooperative Highway Research Program (NCHRP) and the most recent version of the federal Manual on Uniform Traffic Control Devices (MUTCD). Final scores are based on the individual crosswalk and intersection scores for each location, and ultimately determine priority for installation. This report includes the list of the one hundred (100) top-ranked intersections as of December 31, 2016.

## **Cost and Funding Sources**

The cost per intersection averages approximately **\$43,060**. For the 78 intersections where APS were installed over the past year, the total cost was \$3,358,690.

The baseline estimated cost to furnish and install an APS unit on an existing pole is \$985. A typical quadrant intersection would require eight units, meaning that the estimated cost per intersection is at least \$7,880. In many instances, an intersection may require additional work that increases the cost of the installation. For example, most intersections do not have pedestrian signal poles at the location required for APS installation (i.e., adjacent to a pedestrian ramp) requiring the construction of new poles at additional cost. Other factors, such as utilities located underneath the intersection, may add to the total cost of installation. Overall,

the costs for each intersection varies depending on the number of additional poles needed, geometry and complexity of the intersection.

Funding for the installation of APS devices comes from NYC DOT's contract to furnish and install Accessible Pedestrian Signals in the City of New York, which is City funded.

### **Recommendations for Improvements and Availability of New Technology**

NYC DOT is continuously researching new technologies and instituting updates to enhance the APS program. The agency in recent years replaced the last remaining older types of APSs, which provided "birdcalls" from overhead speakers mounted on the pedestrian signal to alert visually impaired pedestrians when it is safe to cross. These older devices were louder, emitted a noise with every walk display regardless of pedestrian demand, and used a different bird call for each crossing, which confused the user. In addition, the older devices did not provide crossing information as new types of APS units do.

The new type of APS unit used by NYC DOT was tested and approved for use in New York City in 2011, and features a distinct rapid ticking tone that can be adjusted based on the needs of a specific intersection. They also feature a raised vibrating tactile arrow at the pedestrian pushbutton location, which a user can find by a locator tone. These units are installed in close proximity to each pedestrian crossing ramp so that there is no confusion which APS unit is for which crossing. Upon pushing the button, the arrow will vibrate and there will be a rapid percussive tone or audible message when the "walk" signal is displayed.

NYC DOT is constantly evaluating new technologies for use in the APS program. We currently have a contract with the University Transportation Research Center (UTRC). This multi-year UTRC contract provides NYCDOT ongoing research and development programs pertaining to urban Intelligent Transportation Systems (ITS) deployment. One of the tasks under this contract is to research "**Pedestrians and Cyclists Safety Using ITS Technologies in NYC**". The purpose of this task is to gather knowledge about all new and innovative technologies and methodologies and determine the most useful countermeasures that could be used in NYC to reduce pedestrian/cyclist injuries, conflicts, crashes and fatalities to meet the goals of the Mayor's "Vision Zero" Action Plan.

Specific attention will be given to the smartphone technologies associated with APS units. Research will be conducted to determine the latest and most innovative technologies currently being implemented nationally and internationally and under what conditions these new technologies are most beneficial for New York City.

The final outcome of this task will be a report providing a method to objectively look at each potential measure and come up with a recommendation to decide under what conditions each countermeasure should be used. NYC DOT will continue to evaluate the potential uses of new technologies on the market to assist blind and low vision individuals in navigating the city's roadways.

Some recommendations for enhancing NYC DOT's APS program include, but are not limited to:

- Continued evaluation of the structure of the APS program for possible improvements to staffing and funding levels and sources.
- Further research of new technologies to enhance the APS program.
- Continued dialogue with blind and low vision advocacy groups.
- Participation in any future USDOT Vehicle-to-Infrastructure testing opportunities that will offer positioning and computing capabilities to a traveler and the ability to interact with infrastructure, utilizing systems that communicate with roadside equipment using many tools, including dedicated short range communications (DSRC), 3G, 4G, Wi-Fi and Bluetooth.

## Accessible Pedestrian Signals Locations in New York City

As of December 31, 2016

Location	Borough
14th Avenue and 36th Street (New York Industries for the Blind)	Brooklyn
3rd Avenue and 33rd Street	
4th Avenue and 36th Street	
4th Avenue and 39th Street	
4th Avenue and 44th Street	
4th Avenue and 45th Street	
4th Avenue and 55th Street	
4th Avenue and 59th Street	
4th Avenue and 9th Street	
4th Avenue and Union Street	
5th Avenue and 89th Street	
86th Street and Bay 22nd Street	
86th Street between 4th Avenue and 5th Avenue	
Adams Street between Fulton Street and Johnson Street (mid-block)	
Adams Street/Boerum Place and Fulton Street	
Adams Street/Boerum Place and Livingston Street	
Atlantic Avenue and Boerum Place	
Atlantic Avenue and Bond Street	
Atlantic Avenue and Hoyt Street	
Atlantic Avenue and Nevins Street	
Atlantic Avenue and Smith Street	
Avenue U and Ocean Avenue	
Avenue Z and East 6th Street	
Bedford Avenue and Lafayette Avenue	
Bedford Avenue between Avenue I and Campus Road (mid-block)	
Boerum Place and Schermerhorn Street	
Boerum Place and State Street	
Cadman Plaza West and Montague Street	
Church Avenue and Dahill Avenue (New York Industries for the Blind)	
Church Avenue and McDonald Avenue (NY Industries for the Blind)	
Court Street and Atlantic Avenue	
Court Street and Livingston Street	
Court Street and Schermerhorn Street	
Court Street and State Street	
Court Street with Remsen and Joralemon Street	
Cropsey Avenue and Bay 32nd Street	
Cropsey Avenue and Bay 35th / 24th Avenue	
Cropsey Avenue and Bay 49th Street	
DeKalb Avenue and Hudson Avenue	
Dekalb Avenue and S Portland Avenue	
Ditmas Avenue and East 5th Street	
East New York Avenue at Dean Street and Sackman Street	
Flatbush Avenue and Dekalb Avenue	
Flatbush Avenue and Glenwood Road (west leg)	
Flatbush Avenue and Willoughby Street	

Location	Borough
Flatbush Avenue at Fulton Street and Nevins Street	Brooklyn
Flatbush Avenue with Brooklyn Avenue and Avenue J	
Flatbush Avenue with Glenwood Road and East 29th Street (east leg)	
Flatbush Avenue with Nostrand Avenue and Hillel Place	
Flatlands Avenue and East 107th Street	
Flushing Avenue and Bogart Street	
Flushing Avenue and Skillman Street	
Flushing Avenue and Warsoff Place	
Franklin Avenue and Lafayette Avenue	
Fulton Street and Crescent Street	
Graham Avenue and Maujer Street (500' South)	
Hanson Place and St. Felix Street	
Hillel Place and Campus Road (North Side)	
Jay Street and Metrotech Roadway (North Leg)	
Jay Street and Metrotech Roadway (South Leg)	
Jay Street and Willoughby Street	
Jay Street/Smith Street and Fulton Street	
Livingston Street and Bond Street	
Livingston Street and Hoyt Street	
Livingston Street at Nevins Street	
McDonald Avenue and Ditmas Avenue	
New Utrecht Avenue and 62nd Street	
Nostrand Avenue and Erasmus Street	
Nostrand Avenue and Glenwood Road	
Pennsylvania Avenue and Freeport Loop (North Leg)	
Rochester Avenue and Dean Street	
Rockaway Pkwy at Brookdale Hospital entrance (w of Linden Blvd)	
Schermerhorn Street and Nevins Street	
Smith Street and Livingston Street	
1st Avenue and East 122nd Street	
1st Avenue between E 30th Street and E 33rd Street	
2nd Avenue and East 98th Street	
2nd Avenue and Pedestrian Crossing (East 107th Street)	
2nd Avenue and Pedestrian Crossing (East 114th Street)	
2nd Avenue and Stuyvesant Square (East 16th Street)	
3rd Avenue and East 59th Street (Lighthouse)	
3rd Avenue and East 72nd Street	
3rd Avenue and Pedestrian Crossing (East 113th Street)	
5th Avenue and 125th Street	
5th Avenue and 58th Street and Grand Army Plaza	
5th Avenue and East 23rd Street	
5th Avenue at Pedestrian Crossing (West/East 113th Street)	
5th Avenue with East 124th and West 124th Streets	
7th Avenue and West 23rd Street	
7th Avenue and West 32nd Street	
8th Avenue and West 130th Street	
8th Avenue and West 55th Street	

Location	Borough
8th Avenue between West 31st and West 32nd Streets	Manhattan
Amsterdam Avenue and West 113th Street	
Amsterdam Avenue and West 114th Street	
Amsterdam Avenue at Pedestrian Crossing (West 117th Street)	
Avenue D and East 11th Street	
Avenue D and East 3rd Street	
Avenue of Americas and 23rd Street (Selis Manor)	
Battery Place and Washington Street	
Beekman Street and Nassau Street	
Beekman Street and Williams Street	
Broadway and Bowling Green	
Broadway and West 175th Street	
Broadway and West 23rd Street	
Broadway and West 66th Street	
Broadway with Dyckman Street and Riverside Drive	
Central Park West and West 65th Street (North/East/West Legs-Phase II)	
Central Park West and West 65th Street (South Leg-Phase I)	
Cherry Street and Rutgers Street	
Columbus Avenue and West 65th Street	
Columbus Avenue and West 66th Street	
East Broadway between Catherine Street and Market Street	
East End Avenue and East 85th Street	
Edgecombe Avenue and West 164th Street	
Gold Street and Beekman Street	
Gold Street and Fulton Street	
Gold Street and Spruce Street	
Grand Street and Ridge Street	
Greenwich Street and Barclay Street	
Lexington Avenue and East 52nd Street	
Lexington Avenue and East 59th Street (Lighthouse)	
Madison Street and Jefferson Street	
Maiden Lane at Front Street	
Park Avenue and East 59th Street (Lighthouse)	
St James Place and James Street	
St Nicholas Avenue and West 125th Street	
Stone Street and Broad Street	
Stone Street and Whitehall Street	
Washington Square South and Thompson Street	
Water Street and Fulton Street	
West 125th Street at 400' east of Frederick Douglass Boulevard	
West 125th Street at 400' west of Lenox Avenue	
West 125th Street at 450' west of 5th Avenue	
West 155th Street with Edgecomb Avenue and HRD / St Nicholas Pl	
West 23rd Street between 5th Avenue and 6th Avenue (Mid-block)	
West 34th Street between 7th and 8th Avenues	
West 34th Street between 8th Avenue and 9th Avenue (mid-block)	
West 34th Street between Broadway, 6th and 7th Avenues	

Location	Borough
West 42nd Street between 5th Avenue and 6th Avenue	Manhattan
West 42nd Street between 7th Avenue and 8th Avenue	
West 42nd Street between 8th Avenue and 9th Avenue	
West 53rd Street between 5th and 6th Avenues	
West 57th Street between 5th Avenue and 6th Avenue	
West 57th Street between 6th Avenue and 7th Avenue (Mid-block)	
West 57th Street between 8th Avenue and 9th Avenue (Mid-block)	
York Avenue and East 62nd Street	Queens
110th Avenue and Sutphin Boulevard	
27th Avenue and 8th Street (Goodwill Industries)	
36th Avenue and 23rd Street	
Clintonville Street and Locke Avenue	
Corona Avenue and 94th Street	
Eliot Avenue and 72nd Street	
Francis Lewis Boulevard and 35th Avenue	
Hempstead Avenue and 221st Street	
Hillside Avenue and 256th Street	
Hillside Avenue with Merrick Boulevard and 166th Street	
Jamaica Avenue and 196th Street	
Jamaica Avenue and Springfield Boulevard	
Kissena Boulevard and Elder Avenue	
Kissena Boulevard and Sanford Avenue	
Little Neck Parkway and 86th Avenue	
Main Street and 41st Road	
Main Street and Northern Boulevard	
Marathon Parkway and 57th Avenue	
Merrick Boulevard and 231st Street	
Myrtle Avenue and 82nd Street	
Northern Boulevard at 211th Street	
Northern Boulevard with Roosevelt Avenue and 156th Street	
Queens Boulevard (eastbound) and Woodhaven Boulevard	
Queens Boulevard (westbound) and Woodhaven Boulevard	
Queens Boulevard and 58th Street	
Queens Boulevard and Queens Borough Hall	
Seneca Avenue and Cornelia Street	
Union Turnpike and Springfield Boulevard	
Vernon Boulevard and 40th Avenue	
Woodhaven Boulevard (NB) and Long Island Expressway entrance ramp	



Location	Borough
Brielle Avenue and Gansevoort Boulevard (Wagner High School)	Staten Island
Castleton Avenue and Bard Avenue	
Castleton Avenue and Brighton Avenue (S.I. Center for Independent Living)	
Clove Road and Clove Lake Place	
Forest Avenue and Bement Avenue	
Howard Avenue and Hillside Avenue	
Richmond Terrace and Sharpe Avenue	
Targee Street and Naples Street (235' North of Venice Street)	
Tompkins Avenue and Hill Street	
Victory Boulevard and Eddy Street	
Astor Avenue and Colden Avenue	the Bronx
Bailey Avenue and West 234th Street and Bailey Place	
Bartow Avenue and Co-Op City Boulevard and Bay Plaza Boulevard	
Boston Road and East 212th Street/Pearsall Avenue	
Bronxwood Avenue and East 219th Street	
Bronxwood Avenue and East 220th Street	
Co-Op City Boulevard and Carver Loop East	
Co-Op City Boulevard and Rombouts Avenue and Carver Loop West	
East 163rd Street and Rogers Place	
Edward L Grant Hwy and West 169 Street	
Goulden Avenue and Lehman College High School	
Grand Concourse and Fordham Road	
Kappock Street and Netherland Avenue	
Mace Avenue and Colden Avenue	
Morris Park Avenue and Albert Einstein College of Medicine (mid-block)	
Pelham Parkway N/S Service Roads and Williams Bridge Road	
Pelham Parkway North and Laconia Avenue	
Valentine Avenue and East 178th Street	
Valentine Avenue between East Tremont and East 178th Street	
Webster Avenue between East Tremont and East 178th Street	
Westchester Avenue with Crosby, Buhre and Edison Avenues	
White Plains Road and Lydig Avenue	

## One hundred top ranked intersections for new accessible pedestrian signals

As of December 31, 2016

Please note that the list of the one hundred (100) top ranked intersections for new APS units will fluctuate as new locations are added and evaluated based on the prioritization criteria described above.

Rank	Location	Borough
1	1st Avenue and East 14th Street	Manhattan
2	Centre Street and Brooklyn Bridge Entrance	Manhattan
3	1st Avenue and East 15th Street	Manhattan
4	1st Avenue and East 16th Street	Manhattan
5	Vesey Street and West Street	Manhattan
6	3rd Avenue and East 23rd Street	Manhattan
7	Story Avenue between Morrison and Boynton Avenues	Bronx
8	1st Avenue and East 17th Street	Manhattan
9	Riverside Drive BETWEEN W91 ST & W95 ST	Manhattan
10	East 23rd Street and Park Avenue S	Manhattan
11	Flatbush Avenue and Avenue U	Brooklyn
12	Broadway and West 120th Street	Manhattan
13	1st Avenue and East 19th Street	Manhattan
14	1st Avenue and East 21st Street	Manhattan
15	East 23rd Street and 2nd Avenue	Manhattan
16	3rd Avenue and East 14th Street	Manhattan
17	Castle Hill Avenue and Parker Street	Bronx
18	Canal Street and Chrystie Street	Manhattan
19	White Plains Rd and Rosewood Street	Bronx
20	Brookville Boulevard and Newhall Avenue	Queens
21	26th Avenue and Corporal Kennedy	Queens
22	East 22nd Street and 1st Avenue	Manhattan
23	Lily Pond Avenue and Mc Clean Avenue	Staten Island
24	13th Avenue and 73rd Street	Brooklyn
25	Inwood Street and Liberty Avenue / Lloyd Road	Queens
26	Cortelyou Road and Westminster Road	Brooklyn
27	Brookville Boulevard and 142nd Avenue	Queens
28	Gardner Avenue and Johnson Avenue	Brooklyn
29	Stockholm Street and St. Nicholas Avenue	Brooklyn
30	Broadway and Woodbine Street	Brooklyn
31	39th Street and Northern Boulevard/Steinway Street	Queens
32	24th Avenue and 24th Street	Queens
33	150th Street and 72nd Avenue	Queens
34	Faile Street and Spofford Avenue	Bronx
35	Queens Blvd and 33rd Street	Queens
36	12th Avenue and 36th Street	Brooklyn
37	Francis Lewis Boulevard and N Conduit Avenue	Queens

38	19th Street and Prospect Park W	Brooklyn
39	Beach 9th Street and Roosevelt Ct	Queens
40	Dekalb Avenue and Vanderbilt Avenue	Brooklyn
41	Colonial Road and Bay Ridge Avenue	Brooklyn
42	Hylan Blvd and Poillon Avenue	Staten Island
43	East 229th Street and Needham Avenue/ Grace Avenue	Bronx
44	East 183rd Street and Walton Avenue	Bronx
45	251st Street and Hillside Avenue	Queens
46	Dunkirk Street and Newburg Street	Queens
47	Franklin Street and Greenwich Street	Manhattan
48	Cozine Avenue and Fountain Avenue	Brooklyn
49	Avenue W and E 7th Street	Brooklyn
50	Caton Avenue and St. Pauls Place	Brooklyn
51	Ascan Avenue and Austin Street	Queens
52	224th Street and Hempstead Avenue	Queens
53	Clawson Street and New Dorp La	Staten Island
54	Beach 9th Street and Hicksville Road	Queens
55	Rockaway Avenue and Hull Street	Brooklyn
56	Forest Avenue and Harbor Road	Staten Island
57	Court Street and Garnet Street	Brooklyn
58	164th Street and 59th Avenue	Queens
59	Cabrini Blvd and West 187th Street	Manhattan
60	8th Avenue East and West 41st Street	Manhattan
61	Mayflower Avenue and Middletown Rd	Bronx
62	Cortelyou Road and E 21st Street	Brooklyn
63	Deppe Place and Willow Road West /Watchogue Road	Staten Island
64	Morris Avenue and East 149th Street	Bronx
65	East 35th Street and Linden Blvd	Brooklyn
66	77th Road and Parsons Boulevard	Queens
67	26th Avenue and Shore Pkwy S Road	Brooklyn
68	Church Avenue and E 17th Street	Brooklyn
69	Lafayette Avenue and Throop Avenue	Brooklyn
70	Grand Avenue and Page Pl	Queens
71	Merrick Boulevard and Sayres Avenue	Queens
72	Queens Blvd and 34th Street	Queens
73	Brook Avenue and East 140th Street	Bronx
74	Dekalb Avenue and Wyckoff Avenue	Brooklyn
75	Albany Avenue and Rutland Road	Brooklyn
76	East Tremont Avenue and Van Nest Avenue	Bronx
77	101st Avenue and 110th Street	Queens
78	Neill Avenue and Tomlinson Avenue	Bronx
79	Francis Lewis Boulevard and Linden Boulevard	Queens
80	East Tremont Avenue and Leland Avenue	Bronx
81	Bronxdale Avenue and Sackett Avenue	Bronx
82	Fowler Avenue and Morris Park Avenue	Bronx
83	121st Avenue and Francis Lewis Boulevard / 231st Street	Queens

84	Pugsley Avenue and Watson Avenue	Bronx
85	Classon Avenue and Lafayette Avenue	Brooklyn
86	Lafayette Avenue and Nostrand Avenue	Brooklyn
87	32nd Street and 35th Avenue	Queens
88	Morris Avenue and East 148 Street	Bronx
89	Lafayette Avenue and Malcolm X Boulevard / Reid Avenue	Brooklyn
90	13th Avenue and 67th Street	Brooklyn
91	Fields Avenue and Harold Street	Staten Island
92	Independence Avenue and West 235 Street	Bronx
93	260th Street and Hillside Avenue	Queens
94	39th Place and 47th Avenue	Queens
95	45th Street and 50th Avenue	Queens
96	Bleecker Street and Grove Street	Manhattan
97	Avenue I and E 2nd Street	Brooklyn
98	33rd Street and 38th Avenue	Queens
99	Horace Harding Expwy Sr S and Parsons Boulevard	Queens
100	24th Avenue and 27th Street	Queens