

Accessible Pedestrian Signals Program

NYC DOT

March, 2022



Agenda

1. Overview of Accessible Pedestrian Signals (APS)
 - a. What is an APS?
 - b. Statistics.

2. Court Mandate
 - a. Installation Targets.

3. Future APS Contract
 - a. Contract structure.
 - b. Requirements:
 - I. Field Survey.
 - II. Shop Drawing.
 - III. Construction.
 - c. Schedule.

Overview

- What is an APS?
 - Signal device used to assist blind or low-vision pedestrians in crossing the street.
 - Wired to a pedestrian signal.
 - Sends audible and vibro-tactile indications when pedestrians push a button.
- Statistics (as of March, 2022):
 - ~13,600 signalized intersections.
 - ~1,000 signalized intersections equipped with APS.
 - **~12,600 signalized intersections without APS.**



Court Mandate

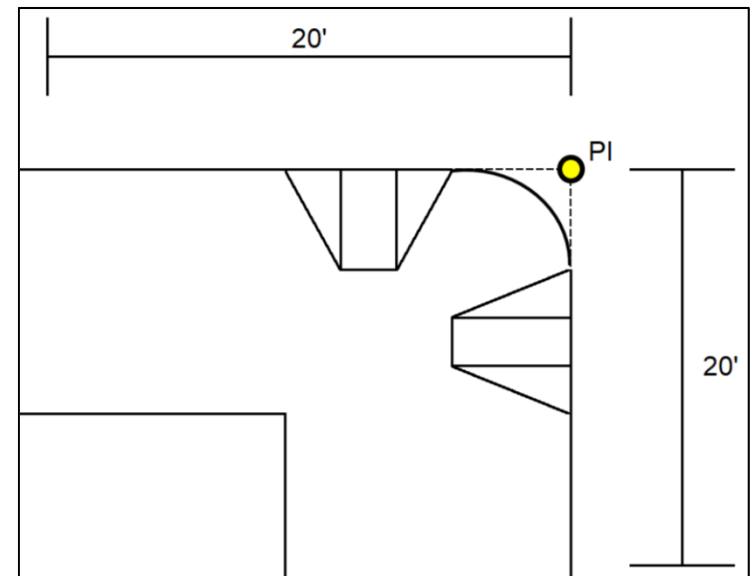
- October 2020: Court found NYC in violation of the ADA for not providing meaningful access to the City's pedestrian grid by failing to install APS at the majority of signalized intersections.
- December 2021: Court ordered City to install APS at signalized intersections in two Phases.
- Phase 1: By the end of calendar year 2031, NYC must equip at least 10,000 signalized intersections with APS (total includes ~1,000 intersections currently equipped with APS) according to the below annual targets:
 - 2022: Install APS at 400 intersections.
 - 2023: 500 intersections.
 - 2024: 700 intersections.
 - 2025 – 2026: 900 intersections/year.
 - 2027 – 2031: between 1,000 to 1,200 intersections/year.
- Phase 2: Between 2032 through the end of calendar year 2036, City must install APS at all remaining signalized intersections (i.e. over 900 intersections /year).

Future APS Contract

- Contract Scope of Work
 1. Field survey.
 2. Development of shop drawings.
 3. Construction.
- 5 separate contracts (1 contract per borough).
- Term: 3 years.
- Installation targets/contract year:
 - Year 1 (2023) = 500 intersections (100 per borough).
 - Year 2 (2024) = 700 intersections (140 per borough).
 - Year 3 (2025) = 900 intersections (180 per borough).
 - Total APS installs = 2,100 intersections.

Field Survey Requirements

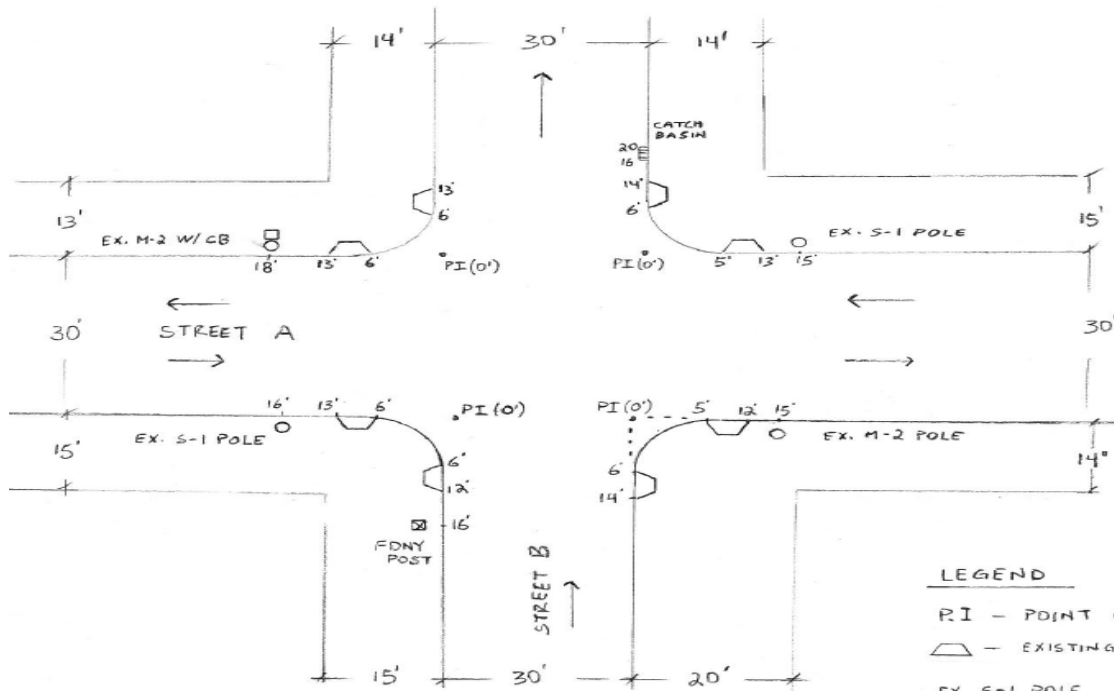
- NYCDOT shall provide “baseline” CAD traffic signal drawings (1:30 scale).
- Contractor shall confirm/update baseline drawing to reflect existing conditions.
- Contractor shall produce a photo log and field-sketch of existing conditions.
- Field photos shall be taken of:
 - All intersection vehicular approaches.
 - All corner quadrants.
- Field measurements shall include:
 - Street, crosswalk, and sidewalk widths.
 - Distance from point of intersection (PI) at each corner to existing poles, pedestrian ramps, and other street furniture along the curb up to 20' from Point of Intersection (PI).
 - PI – Imaginary intersecting point of two tangent curb lines.



Field Survey Requirements, cont'd

- Contractor shall create field sketch of existing conditions based on visually identifying the following:
 - Intersection geometry,
 - Existing pavement markings,
 - Lane configuration and traffic direction,
 - Pedestrian ramps,
 - Street furniture,
 - Roadway material,
 - Sidewalk material,
 - Subsurface/utility hardware (e.g. manholes, catch basins, valves, sidewalk vaults, utility and subway grates/vents),
 - Scaffolding and ongoing nearby construction work,
 - Traffic signal poles (and type),
 - Street light poles (and type),
 - Other utility poles (and type),
 - Fire hydrants and FDNY alarm boxes,
 - Bollards,
 - Subway entrances, elevated columns and other infrastructure,
 - Visually identifying signs of corrosion/rust/damage of existing traffic signal/street light pole bases and shafts at each intersection.

Sample Field Survey: Sketch w/ Measurements



FIELD NOTES
APS DESIGN STUDY

LEGEND

PI - POINT OF INTERSECTION

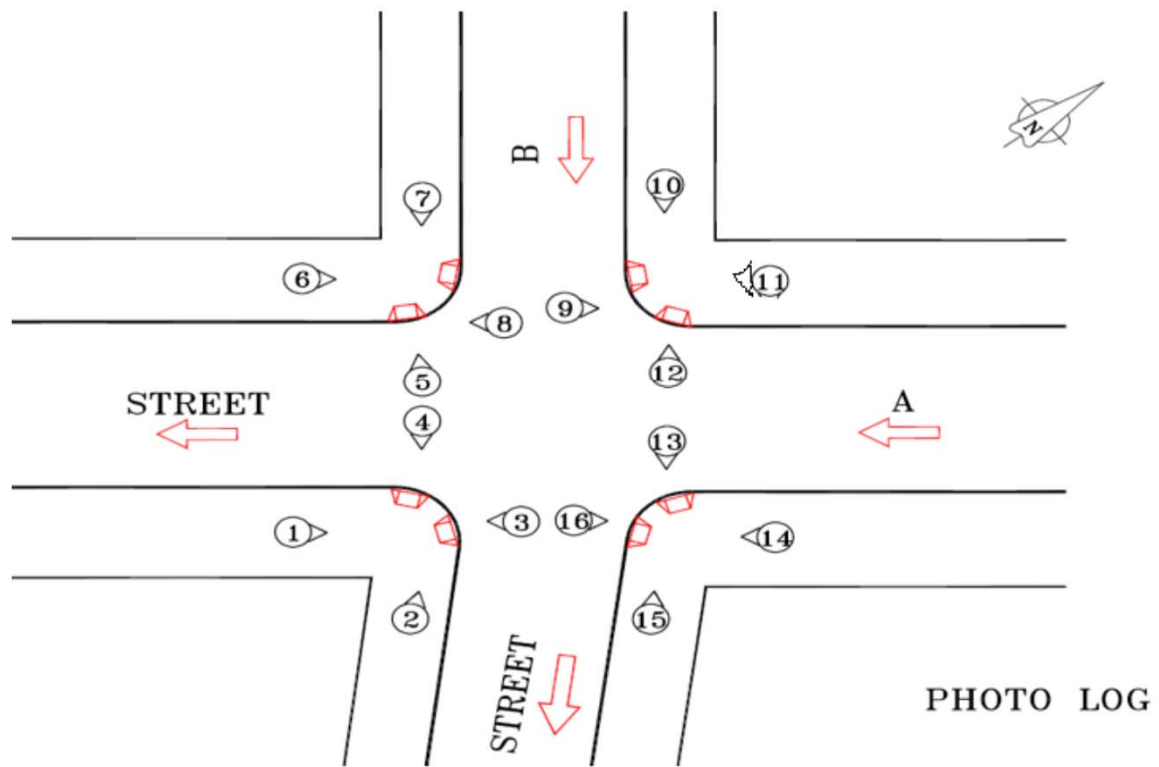
▭ - EXISTING PEDESTRIAN RAMP

EX. S-1 POLE - TRAFFIC SIGNAL POLE 10' HIGH

EX. M-2 POLE - TRAFFIC SIGNAL POLE WITH MAST ARM

EX. M-2 POLE W/ CB - TRAFFIC SIGNAL POLE WITH MAST ARM & CONTROLLER BOX

Sample Field Survey: Photo Log

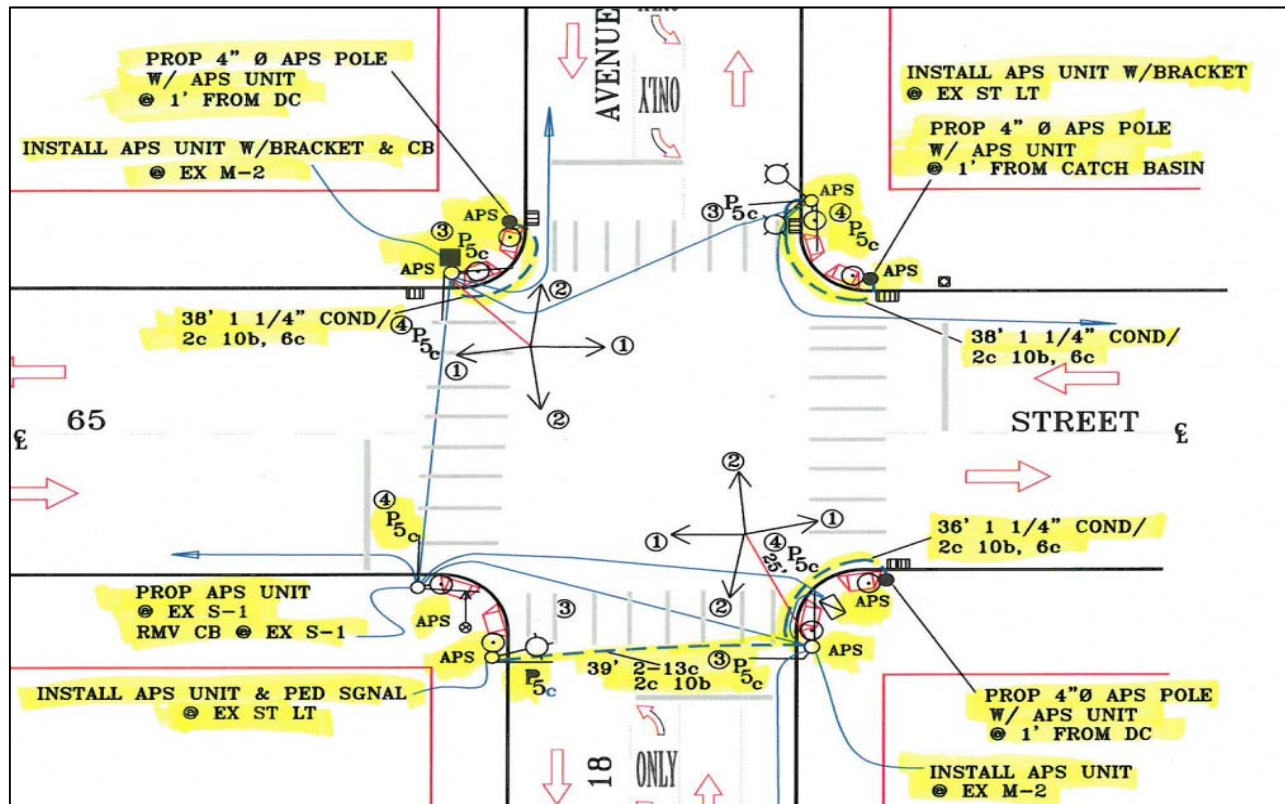


Development of Shop Drawing Requirements

- After conducting field survey, contractor shall modify baseline CAD shop drawings to reflect existing conditions.
- From the updated existing shop drawing, contractor shall modify drawing to include proposed APS.
- Contractor shall submit to NYCDOT Traffic Signal Design the proposed APS shop drawing and field survey sketch for review/comment/approval.
- Once approved, NYCDOT will issue its approval of shop drawing to contractor for installation.
- Minimum rate of shop drawing deliverables*:
 - Year 1 (2023) = 500 intersections (100 per borough) = 50 approved shop drawings per month for first 10 months.
 - Year 2 (2024) = 700 intersections (140 per borough) = 70 approved shop drawings per month for first 10 months.
 - Year 3 (2025) = 900 intersections (180 per borough) = 90 approved shop drawings per month for first 10 months.

* Preparation of all shop drawings shall be completed within the first 10 months of each contract year to allow adequate time for all approved shop drawings to be installed by the end of each contract year.

Shop Drawing Sample w/ Proposed APS



Construction

- NYCDOT will provide Contractor with up to 20 approved shop drawings per borough (up to 100 contract locations total) to enable contractor to schedule installations immediately.
- Contractor shall complete the APS installation of each approved shop drawing within 45 calendar days from the receipt of the Code 53 mark-outs.
- Status of Code 53 for each location shall be closely tracked and monitored by the Contractor, notifying NYCDOT immediately of any delays associated with this process. NYCDOT shall be notified and provided with ticket number once Code 53 is applied for.
- All stages of work shall be supervised and certified by NYCDOT Electrical Inspections Unit (EIU).
- Minimum Required Rate of APS installations:
 - Year 1 (2023) = 500 intersections (100 per borough) = ~9 intersections per month/borough.
 - Year 2 (2024) = 700 intersections (140 per borough) = ~12 intersections per month/borough.
 - Year 3 (2025) = 900 intersections (180 per borough) = ~15 intersections per month/borough.

Construction (Stage 1) – Layout and Sawcutting

- Contractor to request for OCMC permits and Code 53 utility mark-outs from 811.
- Conduct layout markings to identify utility conflicts and mark conduit runs using spray paint.
- Check existing wiring, conduits and foundations to confirm no obstructions and enough spare conduit to accommodate APS wiring.
- Crews use saw cutting machines to cut into the asphalt where the trenches will be excavated for conduit.



Construction (Stage 2) – Installing Foundations

- Contractor digging crew establishes a work zone, uses various excavation tools in the sidewalk to excavate for foundation installs.
- Prepares the foundation by installing anchor rods to the concrete mat that sits atop the foundation, including the conduit.
- Pours the concrete for the foundation up to sidewalk grade.
- Troweling concrete and apply sealant in the sidewalk flag joint.



Construction (Stage 3) – Trenching/Installing Conduits and Poles

- Contractor excavates saw cut roadway, clearing a 2' trench to locate existing conduits to connect to another signal, or install new conduit for a new signal pole.
- Drag lines are installed through new conduit, allowing traffic cable to be installed.
- New pole bases are prepped for cable installation, followed by pole and pedestrian signal installations.
- Temporary restoration is performed in trenched areas after conduit/cables are installed.



Construction (Stage 4) – APS Unit Wiring/Install/Programming

- Contractor electrician wires the APS units via the pole base and pedestrian signal head.
- APS units are installed 42" – 48" above the ground, per MUTCD installation standards.
- Program each APS unit via Bluetooth APS-based app (individual settings, noise levels, etc.).
- Functionality of each APS unit tested.



Construction (Stage 5) – Final Roadway/Markings Restoration

Final Roadway Restoration

- Contractor shovels milled asphalt from the top layer of the trench across the roadway. Additional crews prep milled area further using manual tools (brooms, rakes and rolling compactors).
- Hot asphalt is poured, followed by spreading hot asphaltic cement (hot AC) along the edges of the newly milled area and tamped.
- Water is then sprayed to help bond and seal asphalt.



Final Markings Restoration

- Contractor uses thermoplastic machine to heat painting application.
- Layout and spray paint of temporary markings indicate location of final markings.
- Crosswalk debris is cleared prior to thermoplastic application.
- Thermoplastic markings are applied, while continuously being cleared, followed by the application of additional reflective glass beading spread across the hot surface.



Look-Ahead Schedule

- Industry Day: March, 2022
- Advertisement: TBD
- Pre-Bid Meeting: TBD
- Bid Opening: TBD
- Award: TBD
- Registration: Q4 CY 2022
- NTP (Target): January 1, 2023

Questions?



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