

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

AMERICAN COUNCIL OF THE BLIND OF NEW YORK, INC., MICHAEL GOLFO, and CHRISTINA CURRY, *on behalf of themselves and all others similarly situated,*

Plaintiffs,

v.

CITY OF NEW YORK, NEW YORK CITY DEPARTMENT OF TRANSPORTATION, BILL DE BLASIO, *in his official capacity as Mayor of the City of New York,* and HENRY GUTMAN, *in his official capacity as Commissioner of the New York City Department of Transportation,*¹

Defendants.

18 Civ. 5792 (PAE)

OPINION &
ORDER

PAUL A. ENGELMAYER, District Judge:

On October 20, 2020, the Court entered summary judgment for plaintiffs—a class of blind and visually impaired persons—as to liability on their principal claims, which were brought against New York City, Mayor Bill de Blasio, the New York City Department of Transportation (“DOT”), and DOT Commissioner Polly Trottenberg (collectively, “the City” or “defendants”) under Title II of the Americans With Disabilities Act, 42 U.S.C. § 12131 *et seq.* (“ADA”); section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794 (“Rehabilitation Act”), and the New York City Human Rights Law, N.Y.C. Admin. Code § 8-101 *et seq.* (“NYCHRL”).

The Court held that defendants had failed to afford such persons meaningful access to the City’s overall pedestrian grid, by failing to install Accessible Pedestrian Signal devices (“APS”)

¹ Henry B. Gutman, who became Commissioner of the New York City Department of Transportation on February 3, 2021, is hereby substituted as the defendant in this action in place of Polly Trottenberg. *See* Fed. R. Civ. P. 25(d); Dkt. 141 at 2 n.1.

at fully 96.6% of the City's 13,200 signalized intersections, *i.e.*, those which provide visual crossing information to sighted pedestrians. APS communicate information about the "Walk" and "Don't Walk" intervals at signalized intersections, in non-visual formats, to blind and low-vision pedestrians. The Court further held that the City had violated the ADA and the Rehabilitation Act with respect to the 425 intersections which, after June 27, 2015, it had signalized without installing APS.

The Court has since received extensive expert reports and factual submissions as to the appropriate remedy for these violations, and written advocacy on this point from the parties and the United States as an interested party. The Court also held a three-day hearing receiving expert testimony and argument as to the remedy.

This decision sets out the Court's rulings as to the remedy necessary to bring the City into prompt compliance with the above statutes. This remedy has multiple dimensions. In fashioning these, the Court has given due recognition, as required, to the City's asserted administrative and financial constraints.

Most centrally, the Court directs the City to have installed, by the end of 2031, APS at at least 10,000 of its signalized intersections. That will entail APS installation at just over 9,000 intersections during the next 10 years. The Court further directs the City to have installed, by the end of 2036, APS at all of its signalized intersections; however, the City may move to adjourn this latter deadline upon a showing that the pedestrian grid has by then become meaningfully accessible to the blind and visually impaired. The Court further sets out annual APS installation targets that the City must meet en route to these goals, and identifies categories of signalized intersections at which the installation of APS must take priority, including based on the heightened safety risk that these crossings otherwise pose. Other components of the remedial

plan address the process by which the City’s compliance will be monitored and reported, and provide for judicial review, including to take account of changed circumstances.

This decision is in four parts. The first reviews in detail pertinent factual background—including the functionality of and purposes served by APS, the history and nature of New York City’s pedestrian grid, and DOT’s current APS policies and practices. The second reviews the history of this litigation, including the Court’s decision largely granting plaintiffs’ summary judgment motion as to liability, and the parties’ submissions and arguments on the issues presented at the remedy stage. The third reviews the legal standards governing remedies in cases under the ADA and the sister statutes at issue. The fourth sets out the Court’s rulings as to the parameters of the remedy necessary here.

I. Factual Background²

At the outset, the Court reviews the factual context of this litigation, including the parties to it; the nature of the City’s pedestrian grid; the hazards that blind pedestrians face in navigating

² The Court here considers all filings made on the record of this case, including the submissions made on summary judgment and the remedial stage.

From the summary judgment phase, those filings include: the parties’ joint statement of undisputed facts, Dkt. 91 (“JSF”); plaintiffs’ Local Rule 56.1 statement, Dkt. 93 (“Pl. 56.1”); defendants’ Local Rule 56.1 counter-statement, Dkt. 105 (“Def. 56.1”); the declaration of Lori Scharff, Dkt. 95 (“Scharff Decl.”); the declarations of Christina Curry, Dkt. 96 (“Curry Decl.”), and Michael Golfo, Dkt. 97 (“Golfo Decl.”); the declaration of Torie Atkinson, Esq., Dkt. 98 (“Atkinson MSJ Decl.”), and supporting exhibits, including the Amended Expert Report of Janet M. Barlow, Dkt. 98-4 (“Barlow MSJ Decl.”); the corrected declaration of Joshua Benson, Dkt. 107 (“Benson MSJ Decl.”); the corrected declaration of James Celentano, Dkt. 108 (“Celentano Decl.”), and supporting exhibits; and the declaration of Pamela A. Koplik, Esq., Dkt. 102 (“Koplik MSJ Decl.”), and supporting exhibits.

From the remedial phase, those filings include, from plaintiffs: a proposed remedial plan, Dkt. 143 (“Pl. Plan”); memorandum of law, Dkt. 144 (“Pl. Mem.”), and the declaration of Torie Atkinson, Esq., in support of that plan, Dkt. 145 (“Atkinson Decl.”); a memorandum of law in opposition to defendants’ amended proposed remedial plan, Dkt. 155 (“Pl. Opp.”); the declarations of Janet M. Barlow, Dkt. 156 (“Barlow Decl.”), and Torie Atkinson, Esq., in

that grid; how APS help such persons navigate the grid, including in the face of heightened risks presented by present-day traffic patterns and technologies; the incorporation of APS into that grid to date; the functional operation of APS and the process by which they are installed; and the approach that—before and during this litigation—DOT has taken to the APS installation process.

A. Background and Context of This Litigation

New York City has the highest population density of any major American city. JSF ¶ 9. Walking “is a major form of transportation in the city, and access to sidewalks is an important component of city life.” *Id.* To allow pedestrians to safely navigate its sidewalks and traffic intersections, the City has installed roughly 120,000 pedestrian control signals—*i.e.*, devices informing pedestrians when to cross the street and when to wait, with an image of a mid-stride white stick figure indicating “Walk,” and an upraised orange hand indicating “Don’t Walk,” *id.* ¶ 137—at, as of December 31, 2020, about 13,430 of its 45,000 intersections. *Id.* ¶¶ 11, 13; *see*

opposition to that plan and the exhibits attached thereto, Dkt. 157 (“Atkinson Opp. Decl.”); and the declaration of Eugene A. Bourquin in support of plaintiffs’ remedial plan, Dkt. 167 (“Bourquin Decl.”). From defendants, those filings include: defendants’ brief in support of their original proposed remedial plan, Dkt. 141 (“Def. Plan”); the declaration of Joshua Benson and supporting documents, Dkt. 142 (“Benson Decl.”), including the declaration of Elisabeth Franklin, Dkt. 142-7 (“Franklin Decl.”); defendants’ amended proposed remedial plan, Dkt. 153 (“Def. Am. Plan”), and the exhibits attached thereto, including the defendants’ timetable, Dkt. 153-1 (“Def. Timetable”) and the supplemental declaration of Elisabeth Franklin, Dkt. 153-3 (“Franklin Supp. Decl.”); defendants’ memorandum of law in opposition to plaintiffs’ proposed remedial plan, Dkt. 154 (“Def. Opp.”), and the attached supplemental declarations of Joshua Benson, Dkt. 154-1 (“Benson Supp. Decl.”) and Joseph Jarrin, Dkt. 154-2 (“Jarrin Decl.”). From the United States of America, which participated as an interested party, these filings include: a statement of interest, Dkt. 150 (“U.S. SOI”); a letter regarding federal funding, Dkt. 177 (“U.S. Ltr.”); and a brief outlining its remedial recommendations, Dkt. 178 (“U.S. Br.”).

The Court also cites from the transcript of the oral argument for summary judgment, Dkt. 128 (“MSJ Tr.”), held on October 2, 2020, and the transcript of the three-day remedial hearing, Dkts. 186, 188, 190 (“Tr.”), held in October and November 2021. The hearing included testimony from Dr. Eugene Bourquin, a certified orientation and mobility specialist called by plaintiffs, and DOT’s Deputy Commissioner Joshua Benson, who was called by defendants, and argument from plaintiffs, defendants, and the United States.

also Def. Am. Plan at 11 (updating number of APS-equipped intersections). By nature, however, those familiar, even iconic, signals are inaccessible to the blind.

APS are the acknowledged solution to this problem of inaccessibility. Primarily through auditory cues, including verbal and sound prompts, but also through tactile features, APS give blind pedestrians the information—which to sighted pedestrians is conveyed visually—as to when it is safe to cross the street, where it is safe to cross, and how to safely navigate to the other side of the intersection. *See* JSF ¶ 14; Pl. 56.1 ¶¶ 6, 34. APS thereby are essential safety features. They are vitally useful to blind pedestrians attempting to cross the City’s busiest and most treacherous intersections—those apt to have been signalized.

As reviewed further below, APS have become all the more essential to blind pedestrians in recent years, as a result of projects that the City has undertaken to install specialized forms of visual signals at intersections, which choreograph the timing by which pedestrians and vehicles may each enter particular intersections. Although these reforms have made crossing intersections safer for sighted pedestrians, they have made it more complex and hence more dangerous for blind pedestrians to cross, in the absence of APS. *See, e.g.*, JSF ¶¶ 146–50, 164–67; Tr. at 282–83; Atkinson Opp. Decl., Ex. 2 (“PASS Ltr.”) at 1–2, Ex. 3 (“Bourquin Ltr.”) at 3; Ex. 5 (“Jacobs Ltr.”) at 1–2; Ex. 14 at 2–3.

This litigation began in 2018, when plaintiffs brought suit against the City, DOT, Mayor de Blasio, and Commissioner Trottenberg for their failure to install APS at more than a fraction (a few hundred) of the City’s signalized intersections. Plaintiffs’ core claim was that the City’s failure to install APS made the pedestrian grid as a whole, and each signalized intersection that lacked APS, inaccessible to the blind. *See* Dkt. 1; JSF ¶¶ 11, 19, 138.

1. The Parties

Plaintiff ACBNY is a New York non-profit corporation. JSF ¶ 1. Its mission is to “support and promote the educational, vocational and social advancement of people with vision disabilities.” *Id.* Its members include individuals with vision disabilities within the meaning of the ADA, Rehabilitation Act, and the NYCHRL. These include approximately 45 members in its Greater New York Chapter, which includes New York City. *Id.* ¶¶ 2, 20. An estimated 2.4% of the City’s population is blind or visually disabled.³

Plaintiff Christina Curry is deaf, legally blind, and uses a forearm crutch as a mobility aid. *Id.* ¶ 3. As a result, she cannot see traffic in intersections unless it is “very close,” and cannot rely on visual street signals to cross the street. *Id.* ¶¶ 31, 35. Because of her visual and auditory disabilities, she requires tactile information to use pedestrian signals. *Id.* ¶ 31. She lives in the Bronx and regularly walks on New York City sidewalks to commute and as part of her job as Executive Director of the Harlem Independent Living Center. *Id.* ¶¶ 32–34, 36. She attests that during her frequent pedestrian travel throughout the City, she risks being hit by vehicles, fears for her life, is often grabbed by well-meaning pedestrians, and uses circuitous,

³ According to the U.S. Census Bureau’s 2017 American Community Survey 1-Year Estimates, among New York City’s non-institutionalized population, 205,212 persons are blind or have other vision difficulties. Atkinson MSJ Decl., Ex. 1 at 2. This number does not include visitors or commuters to the City. *See* Tr. at 381; Pl. 56.1 ¶ 2.

For the balance of this decision, the Court uses the term “blind” to refer broadly to individuals who are either fully blind or have vision disabilities. These include legally blind persons who may have some usable vision and/or who are low-vision or partially blind. There are approximately 19.1 million American adults between 18 and 64 with significant vision loss and an additional 7.8 million American adults 65 years and older with the same. Individuals who are deafblind “typically have some vision or some hearing, but the combination of hearing and visual losses causes communication and other developmental and educational needs.” There are approximately 35,000 to 40,000 deafblind American adults. *See* Barlow MSJ Decl. at 5–6.

sometimes costly, alternatives to walking to avoid such incidents—all because she cannot use the visual traffic signals available to sighted pedestrians. *Id.* ¶ 60; Curry Decl. ¶¶ 9–13.

Plaintiff Michael Golfo is a blind resident of Tarrytown, New York, who previously commuted to Manhattan daily for work and now walks on New York City sidewalks about once per week to visit his doctors and friends. JSF ¶¶ 63–64. As a result of his disability, he relies on his hearing and uses a guide dog to navigate City streets. *Id.* ¶ 65. Even with these aids, Mr. Golfo finds it difficult to traverse the City; on many occasions, he has nearly been hit by cars while crossing the street. *Id.* ¶ 74. Like Ms. Curry, Mr. Golfo often must rely on sighted persons to help him make such crossings. *Id.* ¶¶ 75–76. He also often uses expensive taxis or car services to navigate the City, or takes elongated routes to avoid difficult intersections. *Id.* ¶¶ 79–80.

Defendants the City of New York and DOT are responsible for and have broad authority over the City’s streets, and oversee the installation, repair, and maintenance of its traffic signals, sidewalks, crosswalks, and roadways. *Id.* ¶ 6. Each receives federal funds, including from the Federal Highway Administration (“FHWA”). *Id.* ¶ 5.

Defendant de Blasio, sued in his official capacity, is Mayor of the City of New York. *Id.* ¶ 7. Defendant Trottenberg, also sued in her official capacity, was then Commissioner of the DOT. *Id.* ¶ 8. She has since been succeeded by Henry Gutman, who has been automatically substituted as a party. *See supra* n.1.

2. The APS Landscape in New York City

In 1957, 61 years before this suit was commenced, the City installed its first APS device. JSF ¶ 87. But APS installation was slow and halting. In the early 2000s, DOT established its APS program, *id.* ¶ 90, but by 2003, there were only about a dozen APS installed in the City, *id.* ¶ 88. In the early years of DOT’s APS program, *i.e.*, between 2004 and 2011, APS were

installed only upon request, and only at locations near organizations or programs that tended to serve the blind. *Id.* ¶ 93. Nineteen APS devices were installed during that seven-year period. *Id.* ¶ 92.⁴

In 2010, the New York City Pedestrians for Accessible and Safe Streets Coalition (“PASS”) was founded, by 11 organizations which represent or serve blind, low vision, and deafblind New Yorkers. Pl. 56.1 ¶ 27. PASS began advocating for APS installation by sending a letter to then-Mayor Michael Bloomberg requesting that the City install APS whenever it installed or modified traffic signals or changed street geometry. *Id.* ¶¶ 29–30.

In 2012, the New York City Council passed a law requiring the City to install APS at 25 locations a year, JSF ¶ 95 (citing N.Y.C. Admin Code § 19-188), and requiring DOT to issue annual reports on the APS program, *id.*⁵ As of November 1, 2012, however, there were only 48 APS-equipped intersections citywide. *Id.* ¶ 97. The City Council’s 2012 legislation requiring DOT to install 25 APS per year therefore stood to double the number of APS in the City in just two years.

DOT thereafter increased its capacity to install APS, enabling it to slightly exceed the 25-APS annual target each year from 2013 to 2015.⁶ In 2014, the City Council again raised the goal

⁴ In 2011, DOT approved modern APS, replacing so-called “birdcall” APS from overhead speakers. JSF ¶¶ 88, 94; Tr. at 159. The modern devices, manufactured by Polara Enterprises, are what New York City pedestrians see—or hear—today. *See* Tr. at 47–48.

⁵ The law went into effect on April 17, 2012. JSF ¶ 95.

⁶ The parties stipulated that between November 1, 2012 and November 1, 2013, DOT installed APS at 26 intersections, bringing the total APS-equipped intersections to 71, JSF ¶ 98; in the year ending November 1, 2014, DOT installed APS at 28 intersections, for a total of 99 such intersections, *id.* ¶ 99; and in the year ending November 1, 2015, DOT installed APS at 33 intersections, bringing the total to 131 such intersections citywide, *id.* ¶ 100.

for APS installations, passing amended legislation that required that APS be installed at 75 intersections per year, effective January 1, 2016. *Id.* ¶ 101. As of November 1, 2015, there were 131 APS-equipped intersections citywide, *id.* ¶ 100; the 2014 law thus once more required DOT to approximately double the number of APS-equipped intersections in two years. Again, DOT met the new target each year between 2016 and 2018.⁷

Since 2019—the year after this lawsuit was filed—DOT has received substantially greater appropriations to install APS. Funding was put in place to install APS at 150 intersections per year in fiscal year 2019–2020, 235 per year in fiscal year 2020–2021, and 305 per fiscal year in the three-year period spanning 2021–2024. *Id.* ¶¶ 106–107.⁸ Further, in November 2019, after plaintiffs had moved for summary judgment in this lawsuit, the New York City Council passed, and Mayor de Blasio signed, a law—the “Safe Streets Legislation”—mandating “master plans” for city streets, sidewalks, and pedestrian spaces. *See* N.Y.C. Admin. Code § 19-199.1; Koplík MSJ Decl., Ex. B. That law requires DOT to issue a five-year master plan every five years, beginning December 1, 2021, and by December 1 of every fifth year thereafter. N.Y.C. Admin. Code § 19-199.1(b)(2), (c). It sets certain benchmarks that each master plan must include. *Id.* § 19-199.1(c)(2). For both the 2021 and 2026 master plans, the law requires DOT to

The Court’s arithmetic yields slightly different running totals. Assuming 48 were previously equipped with APS, adding 26 would have meant 74 APS-equipped intersections citywide as of November 1, 2013, *see id.* ¶¶ 97–98, 102 in total as of November 1, 2014 and 135 in total as of November 1, 2015, *see id.* ¶¶ 99–100. This discrepancy is immaterial to this decision.

⁷ In 2016, DOT installed APS at 78 intersections, bringing the total to 209 APS-equipped intersections citywide. JSF ¶ 102. In 2017, DOT installed APS at 79 intersections, bringing the total to 288 intersections citywide. *Id.* ¶ 103. In 2018, DOT installed APS at 83 intersections, bringing the total to 371 intersections citywide. *Id.* ¶ 104.

⁸ As discussed further *infra* § IV.A.1.b., the City has also recently allocated \$359 million in capital funding to APS installation for fiscal years 2021–2031. Franklin Supp. Decl. ¶ 19.

set, as a benchmark, the installation of APS at no fewer than 2,500 intersections within the next five years, with installation of such signals at no fewer than 500 intersections during each year of the plan. *Id.* § 19-199.1(c)(2)(vi), (3)(iii). Thus, the 2019 Safe Streets Legislation requires the City to install APS at at least 5,000 intersections between fiscal years 2022 and 2031.

After the enactment of this law, and with this litigation ongoing, DOT continued to install APS. As of September 10, 2019, 443 signalized intersections were equipped with APS, JSF ¶ 108, constituting 3.4% of the City’s 13,200 signalized intersections, *see id.* ¶ 11. Fifteen months later, as of December 31, 2020, 749 of the City’s 13,430 signalized intersections were equipped with APS—amounting to 5.6% of the City’s signalized intersections. Def. Am. Plan at 11.

In sum, DOT’s APS program, over its 20-year history, has installed APS at just over one-20th of the City’s signalized intersections. Approximately half of those APS were installed after this lawsuit commenced, after which the City ramped up its pace of APS installation.

At the remedial hearing, the parties’ experts offered thoughtful testimony accounting for the slow pace by which APS were installed in the years before this lawsuit was filed. Dr. Eugene Bourquin, called by plaintiffs, opined that, nationwide, it took time for orientation and mobility specialists in the field to fully appreciate the benefits of APS, and more time thereafter for their voices—and those of blind pedestrians—to be heard by policymakers, including in the traffic engineering field. Tr. at 158–59. DOT Deputy Commissioner Joshua Benson, called by defendants, opined that 20 years ago, the “ecosystem” by which APS were appreciated, funded, and installed was “just not ready,” and that technical standards and best practices for APS and traffic management were “not as concrete and fleshed out” as they are today. *Id.* at 276.⁹

⁹ Plaintiffs’ original expert Janet M. Barlow—who died shortly before the remedial hearing and was succeeded by Dr. Bourquin—similarly accounted for the slow installation of APS during the

Both experts, however, agreed that these impediments no longer exist. Today, there is widespread technical know-how as to the design and installation of APS and their integration into traffic design. Mature systems are in place to train blind persons to use APS effectively.¹⁰ APS have been widely installed in other American cities.¹¹

1990s. She wrote in the remedial plan she authored for plaintiffs that, earlier, “many traffic engineers were reluctant to install [APS] since there were no standards for, or mention of, APS in the Manual on Uniform Traffic Control Devices (MUTCD),” which gives traffic engineers standards and guidelines, *see* JSF ¶ 82; Tr. at 29, 179. *See* Pl. Plan at 1.

¹⁰ *See* Tr. at 28 (Bourquin describing his experience as a certified orientation and mobility specialist (“COMS”)); Atkinson Opp. Decl., Ex. 4 (“Franck Ltr.”) (letter from guide dog trainer and instructor and COMS); *id.*, Ex. 6 (letter from executive director and CEO of VISIONS/Services for the Blind and Visually Impaired describing free COMS instruction to blind people); Pl. Plan at 2 (describing training course about APS in New York City in 2011).

¹¹ Plaintiffs’ plan recounts the laws and policies regarding APS of various states and cities outside New York. *See* Pl. Plan at 14–15; *id.* App. at ii. The states of Massachusetts, Texas, Indiana, Maryland, Washington, Virginia, and the cities/counties of San Francisco (CA), Seattle (WA), Montgomery County (MD), Kirkland (WA), Medford (OR), Sedro-Woolley (WA), Chino (CA), Puyallup (WA), San Antonio (TX), Minneapolis (MN), and Phoenix (AZ) all require APS “as part of all new and altered intersections,” including during the upgrade or replacement of a signal controller or its software, which happens approximately every 10 years. *Id.* at 14–15.

As to the extent of APS installation, although the different sizes and geometries of cities make useful comparisons problematic, a number of cities have installed, proportionately, far more APS than New York City has. For example, San Francisco, whose population is about 10% of New York City’s, has installed APS at 404 of its signalized intersections—more than half as many as were in New York City as of the end of 2020. *See* “Accessible Pedestrian Signals (APS),” S.F. Metro. Transp. Auth., <https://www.sfmta.com/getting-around/walk/accessible-pedestrian-signals> (last visited Dec. 21, 2021); Def. Am. Plan at 11; “New York city, New York; San Francisco city, California,” U.S. Census Bureau, <https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork,sanfranciscocitycalifornia/PST045219> (last visited Dec. 21, 2021). Others committed to rapid APS installation earlier than New York did. In 2014, Chicago received funding from the Federal Transit Administration for an 80% reimbursement of APS installation costs. Pl. Plan at 20; *id.* Ex. N. And Montgomery County, Maryland “has been funded to . . . install [APS] at existing intersections that are not scheduled for renovation,” in addition to installing APS “at every new or renovated intersection project.” “ADA – Accessible Pedestrian Signals,” Montgomery Cnty. Dep’t of Transp., https://www.montgomerycountymd.gov/DOT/ADA/accessible_pedestrian_signals.html (last visited Dec. 21, 2021).

Thus, the key factors that in recent years have restrained the pace of installation of APS throughout New York City no longer are technological or cultural. As all appear to agree, these factors instead have been political (whether there is the will among City leaders to elevate APS installation among budgetary priorities) and, as urged by the City at the hearing and discussed below, administrative and practical (whether the infrastructure exists or can be built out to support a faster pace of APS installation).

B. APS Functionality and Purposes

1. The Operation and Benefits of APS

APS are devices that communicate pedestrian signal timing information, including “Walk” and “Don’t Walk” signals, to pedestrians in a non-visual format, through audible tones, speech messages, and/or vibrating surfaces. JSF ¶ 14.

APS are installed in New York City consistent with the Manual on Uniform Traffic Control Devices (“MUTCD”), which is published by the FHWA and adopted into the Federal Register. *See generally* 23 C.F.R. § 655.603. The MUTCD supplies standards and guidelines for traffic engineers to apply with respect to the installation of traffic signals—for sighted and

Throughout this litigation, plaintiffs’ experts and members of the blind community and their advocates have depicted New York City’s commitment to APS as sluggish compared to other cities, states, and countries. *See, e.g.*, Tr. at 159 (Bourquin: “New York City’s response has been slow compared to other major places.”); Jacobs Ltr. at 3 (“The City is woefully behind other United States and foreign cities with regard to the installation of [APS].”); Scharff Decl., Ex. 1 at 4 (although APS “are routinely installed in Japan, Australia, countries in Europe, and other cities in the United States,” New York City “lags far behind in the installation of [APS]”); PASS Ltr. at 3 (citing experience of a PASS member studying abroad in London, where “he found that virtually all signalized pedestrian crossings throughout the city, and indeed throughout the country, were fitted with standardized APS’s”); Pl. Plan at 8 (“Australia has had a requirement and standardized features for APS at signalized intersections since 1976.”); *see* Pl. Mem. at 18 (“other cities have achieved far more progress in APS despite far smaller budgets”).

blind persons.¹² In 2000, the MUTCD first set out APS standards. In 2003, it revised these standards based on the results of large research projects; in its 2009 edition, it refined those standards. JSF ¶¶ 84–85; Pl. Plan at 1.

An APS in the form currently in use in New York, as installed at a crosswalk, visually presents as depicted below:



*Figure 1: Example of Accessible Pedestrian Signal device
Public domain image by Raysonho @ Open Grid Scheduler / Grid Engine*

¹² See JSF ¶¶ 82–83; Tr. at 29, 179; U.S. Br. at 28–29 (where federal funds are used, MUTCD compliance is required (citing 23 C.F.R. § 655.603(d)(2))).

APS work as follows. A blind pedestrian approaching an intersection's crosswalk where the "Walk" sign is not on (because the "Don't Walk" sign is either flashing or steady) would hear a soft "locator tone" every second emitting from the APS. That tone lasts for 0.15 seconds or less. It is meant to be audible 6–12 feet from the pushbutton. MUTCD §§ 4E.12(04)–(06). The locator tone "responds to ambient sound," such that when traffic is louder, the locator tone is louder, and when traffic is quieter, the tone is too. Barlow MSJ Decl. at 11; *see also* MUTCD § 4E.11(10). The locator tone serves two main purposes. First, it alerts the blind pedestrian that there is a pushbutton that will provide her with information about how to safely cross the street. Second, it allows the blind pedestrian to locate the device and the crosswalk to which it relates as she approaches the intersection. JSF ¶ 16; Barlow MSJ Decl. at 11; MUTCD § 4E.12(03).

Once the blind pedestrian approaches the crosswalk, guided by the locator tone, she will find the device's pushbutton. The pushbutton has a raised, tactile arrow with high visual contrast (*e.g.*, a light arrow on a dark background, as in the image above, or vice versa) pointing at the crossing to which it relates. The tactile arrow shows the blind pedestrian the direction of travel. JSF ¶ 15; Barlow MSJ Decl. at 12; MUTCD § 4E.12(01). To ensure that the pedestrian is assuredly directed to the proper crosswalk, MUTCD guidance provides that the pushbutton be between one and one half and six feet from the edge of the curve of the sidewalk abutting the crosswalk, or no further than 10 feet if that range is impractical. MUTCD §§ 4E.08(04)(D), (06). The pushbutton should be "as close as possible to the crosswalk line furthest from the center of the intersection and as close as possible to the curb ramp." *Id.* § 4E.10(02). This placement allows the blind pedestrian to use the tactile arrow to align herself in the direction of the crosswalk, so that she may safely orient her travel across the street. It also minimizes the distance to be traveled between the pushbutton and the crosswalk. This in turn maximizes her

time to cross during the “Walk” interval, reduces the risk of disorientation or confusion, and allows the pedestrian to embark within the crosswalk, avoiding active traffic lanes. Tr. at 115–16.

When a pedestrian presses the pushbutton at a moment when the “Walk” sign is not on, a speech message issues that (sternly) says “Wait.” JSF ¶ 17; Tr. at 50. When the “Walk” sign comes on, the APS then—in two ways—communicates that fact to blind pedestrians. First, it emits a rapid ticking or “pip” sound at 8–10 ticks per second.¹³ Second, the pushbutton vibrates so that a pedestrian—such as a deafblind person—who cannot either hear the pip or receive visual crossing information is alerted that the “Walk” sign is on. MUTCD §§ 4E.11(03), (08); JSF ¶ 18. Critically, the APS device directs the blind pedestrian how to align herself to safely cross the street. Touching the arrow, which is parallel to the direction of travel, allows her to begin her crossing in the crosswalk by feeling the direction in which the arrow points. MUTCD § 4E.12(01). A blind pedestrian may guide herself across the street by maintaining alignment with the sound of the APS on the opposite side of the crosswalk. Barlow MSJ Decl. at 16.

Because each APS device points to a specific crosswalk from each side of the street, a standard four-cornered intersection equipped with APS typically requires two devices per curb, and eight per intersection. *See* JSF ¶ 15. If a corner has more than one APS, MUTCD protocols attempt to minimize the risk of confusion to the blind. Per the MUTCD, the devices should be at least 10 feet apart from each other, unless there are physical constraints, in which case the APS may be closer or on the same pole. MUTCD §§ 4E.08(07)–(08). If there are multiple APS within 10 feet or on the same pole—and hence pushbuttons for multiple intersections near each

¹³ If two APS are installed on a single pole with each relating to a distinct crosswalk—*e.g.*, ones perpendicular to each other—the APS emits a recorded speech message, as discussed below.

other—each must also emit a speech message. *Id.* §§ 4E.10(03)(D), 4E.11(07). That message, stating that the “Walk sign is on” for a street that the message identifies, clarifies to which of the two perpendicular crosswalks the “Walk” sign relates. For example: “Broadway. Walk sign is on to cross Broadway.” *Id.* §§ 4E.11(07), (18). Although this message is apt to be effective where the pedestrian knows which street she is facing and can perceive and process the audible message, it is an imperfect solution where she does not. Such a message also may be ineffective for a deafblind pedestrian or one who has intellectual deficits. Pl. Plan at 8–9; Tr. at 122. Where a nearby APS emits sounds, to be understood, the APS’s speech message also must typically be at a higher decibel level than the rapid ticking. Tr. at 122–23.

In sum, through audio and tactile cues and their placement, APS perform a crucial function—informing blind individuals where and when to cross the street safely. At APS-equipped intersections, blind pedestrians cross with the “Walk” sign 97–99% of the time.¹⁴ Pl. 56.1 ¶ 17. Ms. Curry attests that “[m]ore APS enable me to travel safely and independently and cross streets without fear.” Curry Decl. ¶ 15; *see also, e.g.*, Scharff Decl. ¶ 19 (“APS enables blind pedestrians to access signal crossing information so that we can confidently cross streets with the knowledge that we have the right of way” instead of putting themselves in fear of death or serious injury.).

2. The Challenges of Navigating as a Blind Pedestrian Without APS

Navigating New York City crosswalks in the absence of APS creates the potential for a range of harms to the blind pedestrian. These include bodily harm and the potential for fatal accidents, humiliation, inconvenience, expense, and the loss of independence.

¹⁴ Sighted pedestrians may also benefit from APS. One study showed that sighted pedestrians started crossing an intersection during the “Walk” phase 70% of the time with APS, up from 59% without, and finish their crossing during the “Don’t Walk” phase 17% of the time when APS are in use, as compared to 27% when they are not. Barlow MSJ Decl. at 15.

As the parties agree, any pedestrian attempting to cross a street must perform four tasks: (1) locate the edge of the street and crossing point; (2) align to cross the street; (3) decide when to begin crossing; and (4) maintain alignment (*i.e.*, the correct direction) while crossing the street. Pl. 56.1 ¶ 6. A person with a visual disability is apt to have difficulty accomplishing each of these tasks. Simultaneously, she must remember and follow directions and mind other pedestrians and street obstacles, which include vendors, grates, poles, and other infrastructure, while being attentive to street traffic and the geometry of the particular street. *See id.* ¶¶ 7–15; Pl. Plan at 8. As a result, within the orientation and mobility community, APS devices are viewed as “an essential safety feature, not a convenience.” Pl. Mem. at 8.

A sighted person approaching an intersection knows where the sidewalk ends and where the street begins; can see the lines of the crosswalk directing the pedestrian across the street; and can see the visual “Walk” or “Don’t Walk” information that the visual signals convey. *See JSF* ¶ 138. But, without assistance, a pedestrian with visual disabilities often encounters danger and humiliation while attempting to use the City’s crosswalks; blind pedestrians “have to either guess about their safety or rely on the kindness of third parties to assist them.” Pl. Mem. at 11.

At the threshold, the blind pedestrian must be alert for a curb or other detectable warning surface—a distinctive surface pattern detectable underfoot or by cane—and will assume that a crossing point is located there. Pl. 56.1 ¶ 8; Barlow MSJ Decl. at 7 n.2. But a blind pedestrian needs help locating the crossing point about 19% of the time. If she does locate the crossing point without aid, she will begin crossing outside the crosswalk (*i.e.*, in a traffic lane) nearly 30% of the time. Pl. 56.1 ¶ 9.

To attempt to safely cross a street that is not APS-equipped, a blind pedestrian generally must rely on cues like fellow pedestrians’ movements or the sound of traffic parallel to the

crosswalk, known as the “parallel surge.” *Id.* ¶¶ 13–14. But other pedestrians’ movements and traffic are unreliable indicators about a blind pedestrian’s right of way. Picking the correct audible cues out of many traffic lanes can be difficult. *See* JSF ¶ 70 (“Mr. Golfo finds it difficult, and sometimes impossible, to discern by ear” the traffic patterns and who has the right of way). A deafblind pedestrian may not receive any auditory information for a street crossing. Pl. 56.1 ¶ 15. And some low vision pedestrians, especially the elderly, may not have been trained in using traffic sounds to guide their crossings. Pl. Plan at 8. Moreover, the assumption that a pedestrian has the “Walk” sign when parallel traffic is moving is unreliable, leading blind pedestrians, up to half the time, to attempt to cross the street against moving traffic—essentially guessing as to when it is safe to cross. *See* JSF ¶ 74 (describing incident in which Golfo heard a parallel traffic surge, thought he had the light, and was nearly hit by a car on a stretch of First Avenue, which lacked APS for almost 90 blocks); Pl. 56.1 ¶ 14; Pl. Plan at 4, 8. Further, if a blind pedestrian must guess when it is safe to walk by listening for the traffic surge, valuable time is lost: the average latency is 6.4 seconds, cutting meaningfully into the time she has to make it across the street. Barlow MSJ Decl. at 9.

Nor does following a sighted pedestrian—a practice to which many blind pedestrians resort—assure a blind pedestrian safe passage. Some ACBONY members, like Mr. Golfo, wait until the light has changed multiple times until a sighted person arrives at the intersection. At that point, a blind pedestrian can follow the sighted pedestrian across the street. JSF ¶¶ 24, 75. Similarly, Ms. Curry tries to cross intersections only in a pack of people. She thus can wait up to 20 minutes at an intersection. *Id.* ¶ 55. That is inconvenient, time-consuming, and may also be dangerous; a blind person following sighted pedestrians might not realize that those pedestrians were jaywalking until they hear onrushing perpendicular traffic with the right of way. *See id.*

¶¶ 56, 76. Blind pedestrians may also be unwillingly grabbed by strangers hoping to assist them. *Id.* ¶¶ 26, 59, 77.

If a blind pedestrian cannot cross the street within the marked crosswalk and while she has the right of way, she is put in immediate danger. She risks being hit by cars that have the right of way or that may not be alert to her presence. *See id.* ¶¶ 25, 58 (“Ms. Curry has almost been hit by cars several times at . . . intersections without APS.”). The individual plaintiffs recount harrowing situations in which they feared for their lives. Mr. Golfo, for example, attests to crossing Seventh Avenue and West 32nd Street when he erroneously believed he was crossing with the “Walk” signal across four lanes of traffic and a taxi stand, in front of Penn Station, without an APS. As he crossed the street, he “felt and heard traffic going by him.” He and his guide dog ran across the street and “hoped that they were not killed” by the onrushing traffic. *Id.* ¶ 73. Mr. Golfo attests that his guide dog “has saved my life more times than I can count” where there was no APS. Golfo Decl. ¶ 5. When he does not have a guide dog, Mr. Golfo does not feel safe enough to travel independently in the City.¹⁵ *Id.* ¶ 6. Ms. Curry attests that every day, as she crosses City streets, “I am scared I will be killed,” and that, “[w]ithout fail, at least once a day, I almost get hit by a vehicle” because of the lack of APS. Curry Decl. ¶¶ 11–12.¹⁶

The absence of accessible intersections also affects the timeliness of blind pedestrians’ travel around the City. Without APS, they are often forced to take longer, less convenient routes

¹⁵ Fewer than 5% of blind pedestrians travel with a guide dog. The dogs do not make decisions about where to go or when to cross the street; rather, their handler “gives the dog commands to direct their travel and movement.” Pl. 56.1 ¶ 18 (citing Barlow MSJ Decl. at 6).

¹⁶ Ms. Scharff, ACBNY’s President, attests that “[t]he issues raised by Mr. Golfo and Ms. Curry are typical of the issues raised by the other ACBNY members who have contacted ACBNY for assistance over the years about the dangers of inaccessible intersections.” Scharff Decl. ¶ 29.

than they otherwise would to avoid troublesome intersections. JSF ¶¶ 27–28, 57. They may wait up to 20 minutes at a single intersection to make sure they are crossing with other pedestrians. *Id.* ¶¶ 24, 55, 75. To avoid a dangerous crossing, they may get off the bus or subway at a stop other than the one closest to their destination. *Id.* ¶¶ 61, 80. Ms. Curry crosses some streets by walking downstairs and underground through subway stations because she finds it safer than crossing above ground, even though such a route is more taxing and time-consuming. *Id.* ¶ 57.

Routes only partially equipped with APS are also problematic. Such require the blind pedestrian to memorize which intersections are accessible. This adds to the “heavy cognitive load” that a blind pedestrian must bear to navigate a complex urban grid without visual cues. Pl. Mem. at 8; Pl. Plan at 7.¹⁷ Navigating inaccessible intersections may cause disorientation and confusion, as the pedestrian is forced to reroute. Pl. Mem. at 8–9. Such confusion is heightened for deafblind pedestrians. *Id.* at 9.

Rather than putting herself in an unsafe or a demeaning position as she attempts to cross the street, a blind pedestrian may forgo walking altogether in favor of more expensive, but safer, transit methods, such as taxis or car services. JSF ¶¶ 60, 79. Alternatives like New York City paratransit are only available more than 24 hours before a planned trip. And because that service entails ride-sharing, it may take twice as long as a comparable bus trip, and may not be practical for short trips. *Id.* ¶ 78; Golfo Decl. ¶ 2. Some blind pedestrians, instead of undertaking such fraught excursions, forego activities or visits to portions of the City altogether. *See* Golfo Decl. ¶ 8.

¹⁷ As plaintiffs explain, even if every other signalized intersection were equipped with APS, the rerouting required to take advantage of APS would turn a sample 0.565-mile trip into one of 1.23 miles. Pl. Plan at 10, 12.

Without APS, blind pedestrians thus can find navigating the City “inconvenient, frustrating, [and] often humiliating”; it can be a “disorienting and frightening experience”; and it impedes their independence and their ability to safely, timely, and freely access the pedestrian grid. Curry Decl. ¶ 16; Golfo Decl. ¶¶ 3, 9. As ACBNY president Scharff attests: “I feel that I and every other blind and deafblind pedestrian are taking our lives into our hands every time we walk out into the community.” Scharff Decl. ¶ 18.

C. Hazards Particular to New York City Intersections

In addition to the risks that exist in general for persons crossing city streets without visual cues, initiatives to specially configure certain New York City intersections to make them safer for sighted pedestrians to cross have had the unintended effect of increasing confusion and danger for the blind. Problematic configurations include intersections with modified signal timing—such as Leading Pedestrian Intervals (“LPIs”) and Exclusive Pedestrian Phases (“EPPs”)—and those with more complex geometry, including as a result of medians and bike lanes that have been installed in recent years. Other facts of modern urban life, including an increase in ambient noise, have also made navigating crossings harder for blind pedestrians.

1. Modified Signal Timing

The City has implemented two main forms of modified signal timing at certain intersections—LPIs and EPPs.¹⁸ Both aim to give pedestrians more time to cross the street without any vehicular traffic, and to condition drivers to be more attentive to pedestrian traffic.

¹⁸ “No physical alterations” are performed when implementing an LPI or EPP at a signalized intersection. Celentano Decl. ¶¶ 9, 14. Each requires only that a new “phasing document” be uploaded to the intersection’s traffic controller via a flash drive containing the new timing information. *Id.* ¶¶ 8, 13.

a. Leading Pedestrian Intervals (LPIs)

An LPI gives pedestrians an advanced “Walk” sign for about 7–10 seconds before the parallel vehicular traffic signal turns green. JSF ¶ 145. This allows pedestrians to enter a crosswalk before turning vehicles have an opportunity to do so, making pedestrians more visible to drivers who may be turning. Benson MSJ Decl. ¶ 22; Tr. at 226–27 (Benson, describing how both pedestrians and motorists benefit from LPI signals). The City has installed LPIs at an increasing rate over the past several years.¹⁹ As of December 31, 2020, there were about 4,955 LPIs in the City, of which 323 are equipped with APS. Pl. Plan, Ex. B (“Third and Fourth ROGs”), No. 23.

LPIs, however, can endanger the blind pedestrian by separating in time the auditory signal on which she commonly relies to determine when to cross—the sound of onrushing parallel car traffic—from the pedestrian “Walk” sign. Tr. at 69. This has several effects. It delays the moment at which the blind pedestrian enters the crosswalk, leaving her less time to cross; it makes it more likely that the blind pedestrian will cross alone, as sighted pedestrians who have seen the “Walk” signal will have begun or even finished crossing, making the blind pedestrian more vulnerable to a driver turning into the intersection; and it is more likely to surprise a driver who saw the pedestrian standing still on the sidewalk after the signal changed, and did not expect the pedestrian belatedly to enter the crosswalk. One study of 40 intersections in midtown Manhattan found that 42% of the LPIs did not leave sufficient time for pedestrians to cross the street following the start of parallel traffic. In such instances, a pedestrian who embarked from the sidewalk when she heard the sound of parallel traffic would still be in the

¹⁹ As of 2014, DOT had LPIs at 307 intersections; in 2015, it added LPIs at 414 intersections; in 2016, it added LPIs at 812 intersections; in 2017, it added LPIs at 842 intersections; in 2018, it added LPIs at 871 intersections; and as of June 30, 2019, it added LPIs at 705 intersections. *See* JSF ¶¶ 151–57.

middle of the street after she no longer had the right of way. *See* Bourquin Ltr. at 3; Tr. at 70–71.²⁰

b. Exclusive Pedestrian Phases (EPPs)

An EPP, also known as a “Barnes Dance,” is a timing treatment in which pedestrians at all corners of an intersection have an exclusive interval during which to cross using any of the crosswalks within an intersection. JSF ¶ 163. In other words, all vehicular traffic has a red light, and all pedestrians at the intersection have a “Walk” sign. There are currently 665 EPPs citywide, of which 154 are equipped with APS. Third and Fourth ROGs, No. 22; Def. Timetable.

Like LPIs, EPPs can cause confusion and disorientation for a blind pedestrian who, without APS, generally relies on the sound of parallel vehicular traffic to assess when it is safe to cross. As Mr. Benson explained, “a lot of people with vision impairments have either learned on their own or received training to use the sound of traffic movements to help navigate. So in the absence of those sounds, it becomes disorienting.” JSF ¶ 164. Dr. Bourquin also noted that, in the absence of APS, a blind pedestrian would need to determine that there was an EPP at any given intersection by “stand[ing] and listen[ing] to many pedestrian cycles and traffic cycles until they could reasonably determine” that the intersection had an EPP. Tr. at 79–80. As with an LPI, a blind pedestrian, without realizing there is an EPP, may begin to cross when she does not have the right of way and when perpendicular vehicular traffic does. Bourquin Ltr. at 3.

²⁰ Mr. Benson resisted that LPIs are “dangerous,” terming them “challenging” instead. *See* Tr. at 226; *id.* at 229 (describing feedback from blind community that LPIs present a danger). But he acknowledged that, at an LPI, “the lack of sound of parallel traffic movement is, you know, mysterious and confusing to someone who is not able to see.” JSF ¶ 147.

2. Street Usage and Geometry

Variations in street geometry also complicate the blind pedestrian's ability to size up intersections. *See* Tr. at 34–35 (discussing geometric changes to intersections). The City installs about five miles of protected bike lanes a year, spanning about 20 intersections per mile. JSF ¶ 187. DOT has planned to install 80 additional miles of protected bike lanes to its network of 480 protected lane miles in 2021. *Id.* ¶¶ 189–90. At each intersection, protected bicycle lanes make a physical gap between the blind pedestrian and the crosswalk. *See* Tr. at 42. That gap makes it harder for the blind pedestrian to hear traffic and to know when to cross. It also creates the risk of collision between the blind pedestrian and bicycles in the lane, because bicycles may be hard to hear or may be subject to their own signal treatment. *See* Pl. Plan at 16; Barlow MSJ Decl. at 20. On-street parking on many New York City avenues also can have the effect of situating traffic sounds farther from the blind pedestrian. Barlow MSJ Decl. at 20; Franck Ltr. at 2.

Problems can also arise when streets are “skewed”—for example, where the crosswalk is slightly offset, angled, or on a rounded corner. Such configurations make it harder for the blind pedestrian to find the crosswalk, stay aligned, and safely navigate to the other side. *See* Tr. at 88, 98; Barlow MSJ Decl. at 11. Streets with medians, or “median islands,” also alter the normal street crossing landscape. They require the blind pedestrian to gain information, halfway through her passage across the street, about whether and when to continue crossing. *See* Barlow Decl. ¶ 15.

3. Noise

Street and traffic noise exists in the background of all New York City streets. But, as Dr. Bourquin testified, changes, some dramatic, in the dynamics of such noise have complicated a blind pedestrian's travel. Louder non-traffic noise interferes with such a pedestrian's main cues (the sound of vehicular and pedestrian traffic) as to where to cross, when to cross, and how to

angle herself to cross. Sources of that noise include construction, traffic density, and other pedestrians' use of cellphones or other devices that make noise. *See* Tr. at 39; Pl. 56.1 ¶ 3; Scharff Decl. ¶ 6 (citing, *inter alia*, food trucks and sidewalk vendors as sources of noise). Such noise can also come from passing above-ground trains or sonic configurations that may create noise confusion. *See* PASS Ltr. at 3 (describing noise created by above-ground trains running over bridge, and confusion induced by sound of multiple traffic lanes echoing off of bridge). And bicycles, using the proliferating number of bike lanes, can be difficult to hear at all. Some vehicles, including hybrid and electric cars, can be silent or almost silent, too. Pl. 56.1 ¶¶ 4–5; Tr. at 39–40.

D. The APS Installation Process in New York City

Each full retrofit of an intersection entails several steps, beginning with the design of an APS's placement and extending through the restoration of the surrounding pavement after APS installation is complete.²¹

For an intersection to be retrofitted for APS, the existing poles containing visual signals must be wired to communicate information to the APS, which are typically situated on new poles. As explained above, the poles holding the APS must be placed close to—and in proper alignment with—the crosswalk to which they correspond, as the blind pedestrian will touch the APS and seek out the arrow on it pointing to that crosswalk. *See* Barlow MSJ Decl. at 22.

²¹ The account that follows describes the large majority of cases, in which a new signal pole must be installed below ground and connected to the electrical grid. In a minority of cases, the APS can be installed on an existing signal pole. In such instances, far less work is entailed; it mainly requires running a wire from the APS to the pedestrian signal head, *i.e.*, the device that provides signals for controlling pedestrian traffic for sighted pedestrians, *see* MUTCD § 4E.01(01). *See* Tr. at 217. But many existing poles are ill-positioned relative to an intersection to be a viable host for an APS; the APS installation thus entails the more work-intensive process.

A typical APS retrofit—the process of which was helpfully illustrated by a video played by the City during Mr. Benson’s testimony—proceeds as follows.

First comes visual examination of an intersection to create the design for the placement and installation of the new pole on which the APS will sit. Jarrin Decl. at 7; Tr. at 187; Celentano Decl. ¶ 6(a)–(b). Most intersections do not have extant poles at all (or sometimes any) of the locations at which APS can be effectively installed; the poles housing the intersection’s visual signals are often too far from the crosswalks. As a result, “[t]he vast majority of locations require at least one or two new poles per corner.” Celentano Decl. ¶ 6(f). DOT’s Signal Design Unit conducts field work to identify street characteristics, including utilities and street furniture, that might affect pole placement. *Id.* ¶ 6(c); Jarrin Decl. at 7. Engineers also inspect the existing pole’s conduits, which hold wiring, to determine if there is sufficient room to hold the wiring needed for an APS device. Tr. at 88.

Once the design has been created and mapped out, engineers cut street pavement with a large rotating blade, which is hooked up to a fire hydrant spraying water to cool the blade down. That blade cuts the street pavement deep enough to safely bury power communication lines. *Id.* This is known as “trenching.” Def. Am. Plan at 7; *see* Celentano Decl. ¶ 6(e).

To build the new pole on which APS will be installed, engineers begin with a new foundation, creating underground space for the concrete that will serve as the new pole’s base. Engineers displace the existing sidewalk with a jackhammer or shovel.²² After making the hole, the engineers mix concrete and pour it into the hole. They also put in empty conduits to act as

²² This is a slower process than other sidewalk removal techniques. It is used because DOT’s records of what lies beneath the City’s sidewalks—including wires, subway stations, gas lines, and water mains—may be imperfect or incomplete. Rather than damage such subterranean infrastructure, engineers use a more painstaking, less risky method. Tr. at 190–91.

pipes to hold the wires that will eventually connect to the power source in the existing pole. Tr. at 191–92. More concrete is then poured around the conduits to secure them and the new pole base. *Id.* at 201–02. That concrete must be cured for at least two to three days before a pole can be attached to it. *Id.* at 203; Celentano Decl. ¶ 6(f).

Once the concrete is sufficiently cured, a new pole is installed atop the base. Electricians begin the process of wiring the pole for a new pedestrian head and, eventually, an APS. Tr. at 209. To create the wiring between the existing pole’s power source and the new pole, engineers run a drag line through the conduit from the existing pole, using it to pull the wiring and cable through. *Id.* at 213, 215. Wires run up the back of the new pole, connecting the APS unit attached to the outside of the pole to the new pedestrian signal head. *Id.* at 221.²³ Electricians may then program the device using a smartphone for volume and other settings. *Id.*

After the APS device is attached and functional, DOT must restore the street for pedestrian and vehicle use and to protect the conduit that was laid. This process includes both pavement and street marking restoration. Jarrin Decl. at 8; Tr. at 221–22. The restoration is a significant part of the installation process. Tr. at 201–02. As DOT’s Mr. Benson testified, an inadequate such restoration “would be a real disservice to the very people who we are building the APS for in the first place,” and could itself create inaccessible streets and tripping hazards. *Id.* at 222–23.

²³ There sometimes are issues with the existing pole’s conduits that make it impossible for the new pole to be connected to the existing pole’s power source. In such instances, the existing pole needs to be removed, and the process of uprooting pavement and recreating the foundation for installing a new pole needs to be repeated. Tr. at 203. If the existing pole is removed, there may not be any pedestrian signal information for a short period. Engineers create a temporary overhead connection to keep the crosswalk as safe as possible. *Id.* at 209–10.

This entire installation process, which aims to create long-lasting infrastructure that can withstand exposure to the elements, can take two months, assuming, as is common, intermittent and not continuous daily work. *Id.* at 210. DOT's work in this process is lauded as smooth and effective; Dr. Bourquin, plaintiffs' expert, testified that DOT's installations have generally been excellent. *Id.* at 159.

The City estimates the average cost to install APS at all crosswalks at a single intersection as \$64,500, although per-intersection costs span a wide range, depending on factors such as the number of APS and poles to be installed. *Id.* at 217–18; Benson Decl. ¶ 7; Jarrin Decl. at 4.²⁴ Installation cost has also generally increased over time as component costs have grown, including raw materials, such as metal, and labor and overhead. Benson Decl. ¶ 7; Jarrin Decl. at 4. The Court elaborates on cost considerations later, in addressing the City's claim of financial limits to its remedial capacity. *See infra* § IV.A.1.b.

E. Current DOT Policies and Procedures

1. Prioritization

In 2011, DOT developed a Prioritization Tool to guide the selection and sequencing of intersections to retrofit with APS. JSF ¶ 113. The tool is a worksheet completed by traffic engineers, which evaluates dozens of characteristics of an intersection and its crosswalks.²⁵ These include its geometry, crossing width, the presence of bike lanes or signal timing changes, traffic volume, proximity to highly trafficked areas, and proximity to facilities used by blind

²⁴ The more complex an intersection is, the higher priority it may be for APS installation, and the more expensive such installation may be. Jarrin Decl. at 4; Tr. at 218.

²⁵ The Prioritization Tool was adapted for New York City from a tool developed by the National Cooperative Highway Research Program, overseen by the National Academy of Sciences. It is based on research from the MUTCD. JSF ¶ 114; Benson Decl. ¶ 6; Benson Supp. Decl. ¶ 3. The tool itself is in the record as Exhibit 12 of the remedial hearing, Bates No. NYC_0030922.

people. Each factor is assigned a numeric value; the higher the aggregate value of these factors, the more challenging the intersection is judged for blind pedestrians to navigate. *Id.* ¶ 117; Benson Supp. Decl. ¶ 3.

Intersections are ranked and assigned priority for APS installation based on aggregate value. Because newly ranked intersections may outrank ones already on the list, an intersection may remain on the list for years.²⁶ Benson Supp. Decl. ¶ 3; JSF ¶¶ 117–18, 120, 127–28.

Currently, about 2,662 intersections have been ranked using the Prioritization Tool. That number includes intersections for which a public request for APS has been made and ones which the City has ranked on its own initiative. *See* Benson Supp. Decl. ¶ 4.

2. Contracting

APS installation contracts are governed by the City's procurement process regulations. Benson Decl. ¶ 10. An APS installation contract takes 9–12 months to advertise, bid, award, and register. Jarrin Decl. at 6. Historically, the City's contracts for APS work have covered work during a two-year period and cover a bulk number of intersections. Tr. at 260.

After the contract has been awarded, contractors acquire the necessary supplies. Installation typically begins about 15 months after the award. *Id.* at 261. Each component of the project, including feet of conduit and cable, foundations, and the APS units, is assigned a unit price for reimbursement. Labor makes up 60–90% of the overall cost of installation. Benson

²⁶ DOT does not appear to maintain a policy for deciding which intersections to rank at any given time. It currently will evaluate and rank at least all intersections (1) for which it receives a new APS request from the public, Pl. 56.1 ¶ 65; JSF ¶ 121, and (2) to which LPIs and EPPs are being added, Pl. 56.1 ¶ 66; JSF ¶ 161.

Between 2014 and mid-2019, DOT evaluated all newly signalized intersections using the Prioritization Tool. JSF ¶ 134. As of July 1, 2019, DOT's policy changed to require installation of APS any time a new signal is installed, *see id.* ¶ 132, mooted the need to evaluate these intersections using the Prioritization Tool. *Cf.* Barlow MSJ Decl. at 22.

Decl. ¶ 10; Jarrin Decl. at 6. DOT has historically not been allowed to enter into multiple contracts for the same construction service in the same geographic area covering the same time period. Tr. at 259. But, Mr. Benson testified, the City recognizes that, as the pace of APS installation increases, it will be necessary “to have multiple contracts and multiple contractors engaged simultaneously.” *Id.*

3. Maintenance

APS devices have proven resilient. Each borough has an electrical contractor responsible for maintaining its traffic signals. The contractor is required to fully inspect each intersection once a year and to respond urgently (within two hours) if signal conditions threatening public safety have arisen. Tr. at 223–24.

4. Requests for APS Installation

Individuals and organizations may request that APS be installed at particular sites. Requests may come via the 311 phone line, the DOT website, or outreach to the Mayor’s Office for People with Disabilities. Requests have also come from elected or appointed officials, including from within DOT. Groups that advocate for the blind, including PASS, have also made such requests. Benson Supp. Decl. ¶ 3; JSF ¶ 110.

DOT evaluates requests using the Prioritization Tool. JSF ¶ 121. In a sample of 150 requests, only one was installed within fewer than nine months; 28 requests took more than 1,000 days to be installed. Pl. Mem. at 2 (citing Third and Fourth ROGs, No. 38).

II. History of This Litigation

A. Events Through the October 2020 Summary Judgment Decision

On June 27, 2018, plaintiffs filed the Complaint. Dkt. 1. It brought claims under the ADA, Section 504 of the Rehabilitation Act, and the NYCHRL, all challenging the limited number of APS at signalized intersections. On September 12, 2018, the City answered. Dkt. 21.

On July 12, 2019, after fact discovery closed, plaintiffs moved for class certification. *See* Dkts. 65-1, 71. On July 22, 2019, on a stipulation, the Court certified a class comprising “all blind or low vision New York City pedestrians with disabilities as defined by [the above statutes], and who use signalized pedestrian street intersections in New York City.” Dkt. 81 at 2. The same day, the Court set a schedule for plaintiffs’ motion for partial summary judgment, limited to issues of liability. Briefing followed.

On October 2, 2020, the Court held argument. After argument, at the Court’s request, the parties submitted supplemental briefs on the extent to which plaintiffs’ claims based on the City’s failure to install APS in connection with new construction or alterations at certain intersections were barred by the statute of limitations. Dkts. 122–23, 125.

B. The Summary Judgment Decision

On October 20, 2020, the Court issued a decision predominantly granting plaintiffs’ motion for partial summary judgment as to liability. Dkt. 126 (“SJ Op.”). Plaintiffs had made three distinct arguments. First, they argued, the paucity of APS in the City denies blind pedestrians “meaningful access” to the City’s overall pedestrian grid, in violation of the ADA and Rehabilitation Act. Second, they argued, the City had violated these statutes each time it had done certain work at an intersection without also installing APS. The projects plaintiffs argued had triggered a statutory duty to add APS include the installation of pedestrian signals, changes to the displays on existing pedestrian signals, and the addition of timing mechanisms governing crossings. Third, plaintiffs argued, the City was liable under the NYCHRL. *See id.* at 18.

The Court held for plaintiffs, in whole or part, on each argument. First, holding the City’s overall pedestrian grid and signalized intersections to be a “service,” the Court held that the absence of non-visual crossing information at more than 95% of the intersections that the City had signalized for the benefit of sighted persons denies the blind meaningful access to

services, in violation of the ADA and Rehabilitation Act. *See id.* at 33. The Court did not reach the question of whether the failure to install APS at any particular signalized intersection deprived the blind of meaningful access. *Id.*

Second, the Court held, certain projects—specifically, the installation of traffic signals for sighted persons—had triggered a statutory duty to add APS. That duty had been breached at 425 intersections at which, after June 27, 2015, the City had installed such signals without installing APS. *See id.* at 42, 64–65; *see also* Pl. Mem. at 4 (citing Third and Fourth ROGs, No. 19).²⁷

Finally, the Court held the City liable under the NYCHRL. For the same reasons it had found a denial of meaningful access under the ADA, the Court held, the sparse implementation of APS citywide had excluded plaintiffs from places of public accommodation. SJ Op. at 19, 66.

In finding liability, the Court held that the City had foregone the ADA defense that compliance would present an undue burden. But, the Court held, the City retained the right to argue at the remedial phase that particular remedies posed such a burden. *Id.* at 33, 37.

C. The Remedial Phase

Simultaneous with the summary judgment decision, the Court ordered that the litigation move forward promptly both as to remedies for the City’s established violations and to resolve plaintiffs’ open claims as to liability. Dkt. 127. Plaintiffs voluntarily dismissed the claims left open at summary judgment,²⁸ and the case moved to an exclusively remedial phase. This section reviews that phase.

²⁷ The Court held that plaintiffs’ claims based on signal installations before June 27, 2015, *i.e.*, more than three years before the filing of the Complaint, were time-barred. *See* SJ Op. at 41.

²⁸ Plaintiffs suggested foregoing motion practice as to liability on their unresolved claims, *see* Dkt. 134 at 2, and on October 29, 2021, voluntarily dismissed such claims, Tr. at 373. The

1. Remedial Phase Procedural History

After the parties failed to agree on a remedial plan, *see* Dkts. 130, 132, 134, the Court ordered them each to submit a proposed plan, Dkt. 138. On March 19, 2021, the City submitted the declaration of DOT deputy commissioner Joshua Benson attaching its remedial plan and supporting documents, Dkt. 142 (“Benson Decl.”), and a brief in support, Dkt. 141 (“Def. Plan”). The same day, plaintiffs submitted their plan, Dkt. 143 (“Pl. Plan”), a memorandum of law in support, Dkt. 144 (“Pl. Mem.”), and the declaration of Torie Atkinson, Esq., and attached exhibits, Dkt. 145 (“Atkinson Decl.”). On April 23, 2021, the United States, which previously had not participated in this litigation, filed a statement of interest. Dkt. 150 (“U.S. SOI”). On April 27, 2021, three days before oppositions to the competing plans were due, the City sought leave to amend its plan to account for an additional allocation of funds for APS in the Mayor’s Executive Budget, which had grown as a result of funding from the American Rescue Plan of 2021, which became law in March 2021. *See* Dkt. 151. On May 7, 2021, after a limited extension, the City submitted its amended remedial plan, Dkt. 153 (“Def. Am. Plan”).

On May 14, 2021, the City filed a memorandum of law in opposition to plaintiffs’ plan, Dkt. 154 (“Def. Opp.”), Mr. Benson’s supplemental declaration, Dkt. 154-1 (“Benson Supp. Decl.”), and the declaration of Joseph Jarrin reporting the City’s determination that remedies on a certain scale would pose an undue financial and administrative burden, Dkt. 154-2 (“Jarrin Decl.”). The same day, plaintiffs filed a memorandum in opposition to defendants’ amended plan, Dkt. 155 (“Pl. Opp.”), the declaration of Ms. Barlow, Dkt. 156 (“Barlow Decl.”), and Ms.

unresolved claims included that each signalized intersection is a separate “service” requiring installation of APS, and that various types of work—including individual street improvement or capital street projects, and the implementation of signal timing changes such as LPIs and EPPs, *see* SJ Op. at 32, 41—triggered a statutory duty to upgrade.

Atkinson’s supplemental declaration, Dkt. 157 (“Atkinson Opp. Decl.”). Depositions of Ms. Barlow and Mr. Benson were thereafter taken.

On August 3, 2021, the Court announced that it would hold an evidentiary hearing to illuminate the remedial issues, and asked the parties to propose a suitable hearing design. Dkt. 162. On August 27, 2021, the Court held a telephonic conference to discuss the hearing, and authorized plaintiffs to retain Dr. Bourquin to succeed Ms. Barlow, who had just died, as their testifying expert, and set a schedule for his declaration and deposition. *See* Dkt. 165. On September 8, 2021, Dr. Bourquin filed his declaration. Dkt. 167 (“Bourquin Decl.”). On October 14, 2021, at the Court’s invitation, the United States filed a letter identifying federal funding potentially available to the City for APS installation, Dkt. 177 (“U.S. Ltr.”), and a brief outlining the United States’ remedial recommendations, Dkt. 178 (“U.S. Br.”).

On October 25 and 29, 2021, the Court heard argument from counsel and testimony from Dr. Bourquin and Mr. Benson. On November 9, 2021, the Court heard closing arguments from the parties and the United States.

2. Overview of the Competing Remedial Plans

a. Plaintiffs’ proposed plan

Plaintiffs’ remedial plan, developed by Ms. Barlow and adopted in large part by Dr. Bourquin, calls for the following:

Scale and pace: APS would be installed within 10 years at all intersections equipped with pedestrian signals—a rate of about 1,268 intersections per year. *See* Pl. Plan at 3–4.

New signal installations/alterations: APS would be required as part of any new signal installation. APS would also be added any time a signal underwent “major alterations or

reconstruction” and for any minor modification where an APS is “critical to safety.” *Id.* at 4, 13–15; Pl. Mem. at 5.²⁹

Prioritization: As among intersections to receive APS, plaintiffs would prioritize outstanding requests, EPPs, and LPIs in the first phase of the 10-year plan; these together would be installed within the first four years. DOT would use the Prioritization Tool to determine the order in which the remaining intersections would be equipped with APS during the plan’s final six years. Alternatively, DOT would determine this order using a “major factors approach,” which would consider key factors considered by the Prioritization Tool—including the presence of LPIs or EPPs, major arteries, nearby transit hubs, protected turns, medians, bicycle lanes, and proximity to facilities that serve the blind. DOT would be required to install APS at an intersection requested by a member of the community within six months of the request. *See* Pl. Plan at 16; Bourquin Decl. ¶¶ 25, 29, 36; Barlow Decl. ¶ 16.

Placement on existing poles: Plaintiffs initially proposed that, as an interim measure, APS be placed on existing poles at intersections with LPIs, EPPs, and separated bike lanes. Ms. Barlow explained that this was generally not a viable long-term solution, because most existing poles are not situated consistent with MUTCD standards. Pl. Plan at 5, 16–17. Plaintiffs’ successor expert, Dr. Bourquin, repudiated this proposal. “[S]uch an interim solution,” he opined, “could ultimately enshrine poor installations, without providing much in efficiency or cost savings.” Bourquin Decl. ¶ 32. Plaintiffs have since withdrawn this proposal. *See* Tr. at

²⁹ “Major” alterations as defined by New York State consist of “modifications involving span wires, signal heads, controller cabinets, or cabinets.” The minor modifications which plaintiffs urge should be accompanied by the addition of APS include “timing changes, adding a sign, [and] adding [Flashing Yellow Arrow] where [a] protected only arrow exists currently.” Pl. Plan at 15.

12. With Dr. Bourquin, they urge that remedying such intersections—by installing a properly situated pole containing the APS—be a priority. *Id.*; Bourquin Decl. ¶ 33.

Oversight: An expert monitor would be appointed, and would issue a quarterly report as to the City’s implementation of the remedial plan. Plaintiffs would have two weeks to respond to the report. The monitor would mediate any dispute between plaintiffs and the City about implementation and make recommendations to the Court. Pl. Mem. at 23–24.

b. Defendants’ proposed plan

Defendants’ plan entails the following:

Scale and pace: APS would be installed at every signalized intersection in the City. The installations necessary to reach that figure would occur over a period of 30 years, at a rate of about 500 intersections a year. Def. Am. Plan at 2.³⁰

New signal installations/alterations: As under DOT’s existing policy, APS would automatically be installed in connection with new, rebuilt, or significantly altered signals. Def. Opp. at 12 (citing Benson Supp. Decl. ¶ 9).

Prioritization: In the first phase of the remedial plan—within five years—the City would install APS at all EPP intersections; at the 425 intersections at which the Court found an ADA violation; at certain LPI intersections; and then at intersections that are the subject of outstanding community requests. The City thereafter would use a “zones of accessibility” approach to sequence its work, in which APS would be installed zone by zone within the City. Priority among zones would turn on factors including the residential population density of blind people in

³⁰ Although committing to do so, defendants do not concede that the City is legally required to install APS at all signalized intersections. Def. Am. Plan at 2; Def. Opp. at 3 (quoting SJ Op. at 38–39).

the zones, the presence in the zone of facilities that serve the blind, and historical requests for APS. Def. Am. Plan at 3–4.

In-house DOT crew: An in-house crew would be created to install APS on existing poles, where, based on the pole’s location relative to the crosswalk, APS can be added consistent with the MUTCD. APS installation requiring excavation would continue to be done by outside contractors. *Id.* at 7–8.

APS advisory committee: An APS advisory committee would be created to supply ongoing community input. *Id.* at 8.

Oversight: Defendants oppose appointment of a monitor. They suggest that the Court evaluate the City’s ongoing compliance after a five-year “look back” period. *Id.*; Def. Opp. at 22–23.

Modifications/new technology: The plan would account for the possibility that new technologies may emerge that are as effective in meeting the needs of blind pedestrians as APS (*e.g.*, potential new smartphone technology). Def. Am. Plan at 9.

c. United States’ submissions

The United States made three submissions at the remedial phase: a statement of interest (April 23, 2021); a letter identifying federal funding sources available to support APS installation (October 14, 2021); and a brief commenting on the proposed remedial plans (October 14, 2021).

Statement of interest: The United States urged that APS be installed on new and altered signalized intersections; that all existing signalized intersections be retrofitted with APS; and that the remedy aim to achieve equal access to the pedestrian grid and to important areas of public life, safety, timely access, and efficient travel. It did not propose a deadline for installation of APS at all intersections. Alternatives to APS, the United States urged, should be used only if as

effective as APS. The United States argued against the City’s “zoned approach” for sequencing APS installation as potentially inconsistent with “the ADA’s integration mandate.” U.S. SOI at 14 (citing 28 C.F.R. § 35.150(b)(1)). It argued that the City’s financial and administrative burdens should be considered only “in choosing between equally effective alternatives,” because the City had waived the undue burden defense at the liability stage. *See id.* at 1–2, 10–16, 18.

Federal funding sources: The United States identified two categories of federal funding sources available to the City: “formula funding,” pursuant to the Federal Aid Highway Program, and discretionary grant programs, for which the City could apply. It noted that the pending (since enacted) Infrastructure Investment and Jobs Act (“IIJA”) would significantly expand the City’s formula funding and the discretionary grants available to it for APS installation. The City, the United States concluded, “can take advantage of hundreds of millions of dollars in formula funding,” and “[m]illions more are potentially available through discretionary grant programs.” U.S. Ltr. at 1–2; 9; *see also* Tr. at 455.

Commentary on proposed remedial plans: The United States recommended that the Court “codif[y] the parties’ agreement” that every existing signalized intersection, and every newly signalized intersection, be equipped with APS. It declined to recommend a deadline for retrofitting all existing signalized intersections with APS. But, it stated, the City had not met its burden to establish that plaintiffs’ 10-year horizon would impose undue financial or administrative burdens or require a fundamental alteration of City services.³¹ It reiterated that the choice among intersections should turn on considerations of safety, timely travel, community input, and the ADA’s integration mandate. It recommended that the Court appoint an

³¹ At the evidentiary hearing’s close, the United States reiterated that position. Tr. at 455, 458.

independent monitor and that the plan include processes for dispute resolution and modification. U.S. Br. at 8–10.

3. Evidentiary Hearing

On October 25 and 29, 2021, the Court heard testimony,³² and on November 9, 2021, argument, as to the remedy. The testimony and argument covered the issues addressed in the competing remedial plans, including the number of APS to be installed, the pace and timetable of installation, the priorities among intersections, and monitoring and review of compliance.

III. Legal Standards Governing the Remedial Phase

The remedies available for the City’s adjudicated violations flow from the substantive liability standards of the ADA and the Rehabilitation Act. The Court here reviews the standards governing liability and remedies under these statutes and the NYCHRL.

A. ADA and Rehabilitation Act Standards

1. Liability Standards Governing Public Entity Defendants

Under Title II of the ADA, “no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.” 42 U.S.C. § 12132. Section 504 of the Rehabilitation Act similarly provides that “[n]o otherwise qualified individual with a disability . . . shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” 29 U.S.C. § 794(a). “As the ‘standards adopted by the two statutes are nearly identical, [courts] consider the merits of

³² The Court also viewed a video, prepared by the City, depicting each step in the process of APS installation at an intersection.

these claims together.” *Disabled in Action v. Bd. of Elections in N.Y.*, 752 F.3d 189, 196 (2d Cir. 2014) (quoting *McElwee v. Cnty. of Orange*, 700 F.3d 635, 640 (2d Cir. 2012)).

Regulations of the United States Department of Justice (“DOJ”) implementing the ADA prohibit public entities from operating public services in a manner “inaccessible to or unusable by individuals with disabilities.” 28 C.F.R. § 35.149. They provide that public entities “shall operate each service, program, or activity, so that the service, program, or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities.” *Id.* § 35.150(a); *see also id.* § 42.521(a) (similar for Rehabilitation Act). They further provide that “[a] public entity shall take appropriate steps to ensure that communications with . . . members of the public . . . with disabilities are as effective as communications with others,” and “shall furnish appropriate auxiliary aids and services where necessary to afford individuals with disabilities . . . an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity of a public entity.” *Id.* §§ 35.160(a)(1), (b)(1).

A public entity discriminates against a qualified individual in violation of these laws when—as found of the City here—it fails to provide “meaningful access” to the benefits of its services, programs, or activities, including by “fail[ing] to modify existing facilities and practices.”³³ *Disabled in Action*, 752 F.3d at 197. The elimination of existing barriers to access was a “central aim” of both the Rehabilitation Act, *Alexander v. Choate*, 469 U.S. 287, 297 (1985), and the ADA, *see Tennessee v. Lane*, 541 U.S. 509, 531 (2004). As the Supreme Court

³³ To establish a violation of these provisions, a plaintiff must show that: (1) she is a qualified individual with a disability; (2) the defendant is “subject to one of the Acts”; and (3) the plaintiff was “denied the opportunity to participate in or benefit from the defendant’s services, programs, or activities, or was otherwise discriminated against by the defendant because of” her disability. *Disabled in Action*, 752 F.3d at 196–97 (quoting *McElwee*, 700 F.3d at 640); *Henrietta D. v. Bloomberg*, 331 F.3d 261, 272 (2d Cir. 2003) (to establish that defendant is subject to Rehabilitation Act, plaintiffs must establish that defendant is recipient of federal funds).

has explained: “Recognizing that failure to accommodate persons with disabilities will often have the same practical effect as outright exclusion, Congress [in the ADA] required the States to take reasonable measures to remove architectural and other barriers to accessibility.” *Id.* The Second Circuit has put the point this way: “It is not enough to open the door for [those with disabilities]; a ramp must be built so the door can be reached.” *Dopico v. Goldschmidt*, 687 F.2d 644, 652 (2d Cir. 1982) (citation omitted).

DOJ’s regulations also address public entities’ duties when newly constructing and altering facilities. A newly constructed facility “shall be designed and constructed in such manner that [it] is readily accessible to and usable by individuals with disabilities,” 28 C.F.R. § 35.151(a)(1), unless doing so is “structurally impracticable,” *id.* § 35.151(a)(2)(i). And where a public entity alters a facility or part “in a manner that affects or could affect the usability of the facility or part of the facility,” it shall, “to the maximum extent feasible,” make the altered portion “readily accessible to and usable by individual with disabilities.” *Id.* § 35.151(b)(1). This “more stringent requirement[] for alterations” reflects that “it is ‘discriminatory to the disabled to enhance or improve an existing facility without making it fully accessible to those previously excluded.’” *Civic Ass’n of Deaf of New York City, Inc. v. Giuliani*, 970 F. Supp. 352, 359 (S.D.N.Y. 1997) (quoting *Kinney v. Yerusalim*, 9 F.3d 1067, 1074 (3d Cir. 1993), *cert. denied sub nom. Hoskins v. Kinney*, 511 U.S. 1033 (1994)). Such changes “present an immediate opportunity to provide full accessibility,” and must be “undertaken in a non-discriminatory manner.” *Id.* (quoting *Kinney*, 9 F.3d at 1073–74). But “[a] public entity is not required to make structural changes . . . where other methods are effective in achieving compliance” with its obligations. 28 C.F.R. § 35.150(b)(1). “In choosing among available methods for meeting the requirements of this section, a public entity shall give priority to those

methods that offer services, programs, and activities to qualified individuals with disabilities in the most integrated setting appropriate.” *Id.*

2. Remedial Standards Governing Public Entity Defendants

a. Standards governing injunctive relief

A federal court’s remedial authority to cure breaches by units of local government of the ADA, the Rehabilitation Act, and related anti-discrimination statutes, is broad and flexible. Where “local authorities ‘fail in their affirmative obligations’ under federal law,” and where Congress has not expressed an intent to limit the remedy available, “the scope of a district court’s equitable powers is broad, for breadth and flexibility are inherent in equitable remedies.” *Disabled in Action*, 752 F.3d at 198 (quoting *Swann v. Charlotte-Mecklenburg Bd. of Educ.*, 402 U.S. 1, 15 (1971)) (ellipsis omitted). In such cases, “a district court has ‘not merely the power but the duty to render a decree which will so far as possible eliminate the discriminatory effects of the past as well as bar like discrimination in the future.’” *Id.* (quoting *United States v. Yonkers Bd. of Educ.*, 837 F.2d 1181, 1236 (2d Cir. 1987)) (cleaned up). In all events, the remedy imposed must “fit the nature and the extent of the violation.” *Id.* (quoting *Yonkers Bd. of Educ.*, 837 F.2d at 1235).³⁴

³⁴ The Court’s remedial authority under the ADA for employment discrimination tracks that under Title VII. *See* 42 U.S.C. §§ 1981a, 12117 (“The powers, remedies, and procedures set forth in sections 2000e-4, 2000e-5, 2000e-6, 2000e-8, and 2000e-9 of this title shall be the powers, remedies, and procedures this subchapter provides to the Commission, to the Attorney General, or to any person alleging discrimination on the basis of disability in violation of any provision of this chapter, or regulations promulgated under section 12116 of this title, concerning employment.”); *E.E.O.C. v. Waffle House, Inc.*, 534 U.S. 279, 285 (2002) (“Congress has directed the EEOC to exercise the same enforcement powers, remedies, and procedures that are set forth in Title VII of the Civil Rights Act of 1964 when it is enforcing the ADA’s prohibitions against employment discrimination on the basis of disability.”). And “[o]nce a violation of Title VII has been established, the district court has broad, albeit not unlimited, power to fashion the relief it believes appropriate,” *Bridgeport Guardians Inc. v. City of Bridgeport*, 933 F.2d 1140, 1149 (2d Cir. 1991), with its discretion bounded “by the purposes of Title VII, which are to

At the same time, in fashioning a remedy, a court must show “proper respect for the integrity and function of local government institutions,” *Missouri v. Jenkins*, 495 U.S. 33, 51 (1990). A remedy should (1) enable the unit of local government to petition the court for relief if complying with the remedial order becomes unreasonable, *Disabled in Action*, 752 F.3d at 204; (2) presume that local government officials “have a high degree of competence in deciding how best to discharge their governmental responsibilities,” *id.* (quoting *Frew v. Hawkins*, 540 U.S. 431, 442 (2004)); and (3) embody restraint and initial deference to local government institutions “as a matter of realism,” *id.* (quoting *Dean v. Coughlin*, 804 F.2d 207, 213–14 (2d Cir. 1986)). A remedial order and its oversight should “recognize that there are many ways [a local government institution] may meet its statutory obligations and focus on building and strengthening [the institution]’s capacity to identify and address the accessibility issues its program confronts.” *See id.* at 206.

In bringing a public entity into compliance with the ADA and Rehabilitation Act, a court must also keep in mind that the entity need not “employ any and all means” of making the denied service available; instead, these statutes require that the entity make “reasonable modifications.” *Lane*, 541 U.S. at 531–32; *see Wright v. Giuliani*, 230 F.3d 543, 548 (2d Cir. 2000); *Disabled in Action*, 752 F.3d at 197 (quoting *Lane*, 541 U.S. at 531–32). Meaningful access does not mean

prevent discrimination and achieve equal employment opportunity in the future,” *E.E.O.C. v. KarenKim, Inc.*, 698 F.3d 92, 100 (2d Cir. 2012) (quoting *Berkman v. City of New York*, 705 F.2d 584, 594 (2d Cir. 1983)). Similar principles guide remedial authority under other anti-discrimination laws. *See Doe v. E. Lyme Bd. of Educ.*, 790 F.3d 440, 454 (2d Cir. 2015) (under Individuals with Disabilities Education Act, the “only restriction is that the relief is to be appropriate in light of the purpose of the Act”) (internal quotation marks omitted); *Abrahamson v. Bd. of Educ. of Wappingers Falls Cent. Sch. Dist.*, 374 F.3d 66, 76 (2d Cir. 2004) (under Age Discrimination in Employment Act, court may “grant such legal or equitable relief as may be appropriate to effectuate the purposes of the Act,” and “must fashion remedies to designed to ensure the victims of discrimination are made whole”) (cleaned up).

equal access or equal results. See *Henrietta D. v. Bloomberg*, 331 F.3d 261, 277 (2d Cir. 2003).

But an accommodation “is not plainly reasonable if it is so inadequate that it deters the plaintiff from attempting to access the services otherwise available to him.” *Wright v. N.Y. State Dep’t of Corr.*, 831 F.3d 64, 73 (2d Cir. 2016) (citing *Disabled in Action*, 752 F.3d at 200).

b. Framework for considering injunctive relief

To make a *prima facie* showing of the availability of a reasonable accommodation, a plaintiff must first “suggest the existence of a plausible accommodation, the costs of which, facially, do not clearly exceed its benefits.” *Henrietta D.*, 331 F.3d at 280 (quoting *Borkowski v. Valley Cent. Sch. Dist.*, 63 F.3d 131, 138 (2d Cir. 1995)).

Upon such a showing, “the risk of nonpersuasion falls on the defendant.” *Id.* (quoting *Borkowski*, 63 F.3d at 138); see also *Pascuiti v. New York Yankees*, 87 F. Supp. 2d 221, 223 (S.D.N.Y. 1999) (after plaintiffs (1) prove that the program or service, “when viewed in its entirety, is not readily accessible to and usable by individuals with disabilities; and (2) suggest a plausible method of making the [the program or service] readily accessible, the costs of which, facially, do not clearly exceed its benefits,” they have made a *prima facie* case, at which point the City must prove that “the proposed method of making the [program or service] readily accessible would result in undue financial and administrative burdens”); *Nat’l Fed’n of the Blind v. Lamone*, 813 F.3d 494, 507–08 (4th Cir. 2016) (“A modification is reasonable if it is ‘reasonable on its face’ or used ‘ordinarily or in the run of cases’ and will not cause ‘undue hardship.’”) (quoting *Halpern v. Wake Forest Univ. Health Scis.*, 669 F.3d 454, 464 (4th Cir. 2012)) (citing *U.S. Airways, Inc. v. Barnett*, 535 U.S. 391, 401–02 (2002); *Henrietta D.*, 331 F.3d at 280).

Two affirmative defenses are potentially available at the remedial phase. A public entity may not be ordered to undertake an accommodation where it would (1) “fundamentally alter the

service, program or activity” provided, or (2) “result in undue financial and administrative burdens.” 28 C.F.R. § 35.150(a)(3). But the public entity carries the burden to establish either circumstance. *See id.* (“[A] public entity has the burden of proving that compliance with § 35.150(a) would result in such alteration or burdens.”); *Civic Ass’n of Deaf of New York City, Inc. v. Giuliani*, 915 F. Supp. 622, 636 (S.D.N.Y. 1996) (“the burden required by Section 150 is high”). And an entity that successfully defends on these grounds may still be required to take lesser corrective measures:

The decision that compliance would result in such alteration or burdens must be made by the head of a public entity or his or her designee after considering all resources available for use in the funding and operation of the service, program, or activity, and must be accompanied by a written statement of the reasons for reaching that conclusion. If an action would result in such an alteration or such burdens, a public entity shall take any other action that would not result in such an alteration or such burdens but would nevertheless ensure that individuals with disabilities receive the benefits or services provided by the public entity.

28 C.F.R. § 35.150(a)(3). A district court abuses its discretion where it prolongs the denial of plaintiffs’ meaningful access based on asserted financial burdens that are unsubstantiated. *See Am. Council of the Blind v. Mnuchin*, 878 F.3d 360, 371 (D.C. Cir. 2017); *see also* 28 C.F.R. § 35.150(c) (when structural changes are required to attain compliance with the ADA, they must occur “as expeditiously as possible”).

In considering a remedy, the Court should allow the local government unit “to propose ways to remedy statutory deficiencies.” *Disabled in Action*, 752 F.3d at 205. The Court’s outcome must “address the concerns . . . voiced at hearings,” *id.*, and “reflect the awareness that courts often do not have the expertise or the institutional capacity ‘needed for formulation and day-to-day administration of detailed plans,’” *id.* (quoting *Dean*, 804 F.2d at 213–14). Where DOJ has opined as to remedies for violations of federal anti-discrimination law, the Court must consider these views, because DOJ is “the federal agency tasked with overseeing the

implementation of the acts.” *Id.* (citing *Olmstead v. L.C. ex rel. Zimring*, 527 U.S. 581, 598 (1999)).

c. Injunctive relief precedents

Applying these principles, courts that have found systemic violations by local governments and public entities of the ADA and/or the Rehabilitation Act have imposed injunctive remedies—and, where necessary, broad-ranging ones—to cure those violations.

In the context of adjudicated violations of the rights of the blind and visually disabled, injunctions have aimed to assure meaningful access to (1) elections and voting, *see, e.g., Nat’l Fed’n of the Blind*, 813 F.3d at 498 (upholding injunction requiring use of online ballot marking tool enabling blind to mark ballots electronically; injunction issued approximately two months before general election, *see Nat’l Fed’n of the Blind, Inc. v. Lamone*, No. 14 Civ. 1631, 2014 WL 4388342, at *14–15 (D. Md. Sept. 4, 2014)); *Disabled in Action*, 752 F.3d at 206 (upholding injunction enabling access to poll sites, including by appointing independent third-party to survey facilities and make suggestions to Board of Elections, and providing for reporting and accountability mechanisms);³⁵ (2) public services, *see, e.g., Am. Council of Blind v. Astrue*, No. 05 Civ. 4696, 2009 WL 3400686, at *27–29 (N.D. Cal. Oct. 20, 2009) (ordering Social Security Administration to develop and offer Braille alternative for all notices and other communications

³⁵ *See also, e.g., Taliaferro v. N. Carolina State Bd. of Elections*, 489 F. Supp. 3d 433, 435 (E.D.N.C. 2020) (granting preliminary injunction ordering state board of elections to facilitate blind accessibility to absentee ballot portal; order issued 40 days in advance of general election); *Hindel v. Husted*, No. 15 Civ. 3061, 2017 WL 432839, at *7 (S.D. Ohio Feb. 1, 2017) (granting permanent injunction requiring Ohio Secretary of State “to make his website . . . accessible to all individuals . . . including [by] conforming with the Web Content Accessibility Guidelines 2.0 Level A and AA Success Criteria and ensuring that all forms available on the website are capable of being electronically filled, saved, and submitted, and are offered in a format that is accessible across a wide spectrum of electronic devices, such as HTML,” and to institute dispute resolution process for any future violations; relief was required to be in place within about 8 months of forthcoming election, as court found public entity’s requested timeframe of an additional 18 months unjustified, *id.* at *6).

with blind, visually impaired, and authorized representatives; to notify all recipients and their designees of right to ask for alternative accommodation; to develop “systematic plan for receiving and ruling on requests for accommodation”; and not to reduce or terminate benefits to blind without proper notice); (3) public transit, *see, e.g., Martin v. Metro. Atlanta Rapid Transit Auth.*, No. 01 Civ. 3255, 2015 WL 7272206, at *1 (N.D. Ga. Nov. 16, 2015) (ordering transit authority to enable access of persons with visual and mobility disabilities, to take actions including to “achieve and maintain an on-time performance rate of 100 percent” for its paratransit services; provide enough paratransit to enable next-day services; and attempt to “answer all Paratransit customers’ telephone calls within three minutes”);³⁶ and (4) U.S. currency, *see Am. Council of Blind v. Paulson*, 463 F. Supp. 2d 51, 63 (D.D.C. 2006) (“declar[ing] that the Treasury Department’s failure to design, produce[,] and issue paper currency that is readily distinguishable to blind and visually impaired individuals violates § 504 of the Rehabilitation Act”), *aff’d and remanded sub nom. Am. Council of the Blind v. Paulson*, 525 F.3d 1256 (D.C. Cir. 2008); *id.* No. 02 Civ. 0864 (JR), Dkt. 96 at 1 (Oct. 3, 2008) (ordering Treasury Secretary to “take such steps as may be required to provide meaningful access to United States currency for blind and other visually impaired persons . . . not later than the date when a redesign of [each] denomination is next approved by the Secretary of the Treasury”).

³⁶ *See also, e.g., Cupolo v. Bay Area Rapid Transit*, 5 F. Supp. 2d 1078, 1080, 1086 (N.D. Cal. 1997) (granting injunctive relief requiring state transit agency to ensure that key stations follow the “original manufacturer’s specifications for elevator maintenance” and that “prompt repairs are made whenever an elevator feature that affects rider safety is malfunctioning or an elevator is out of service,” including, “at a minimum,” dispatch or a repair person or crew “within one hour after such elevator condition is discovered”).

In ADA and Rehabilitation Act cases involving other categories of disabled plaintiffs, courts have ordered similarly broad-ranging and structural relief to assure access to public facilities and services.³⁷

³⁷ See, e.g., *Henrietta D.*, 331 F.3d at 271 (upholding injunction requiring New York City to provide access, within mandatory time frames after requests for assistance, to public benefits and services to every person with clinical symptomatic HIV illness or with AIDS; to provide “intensive case management and to maintain specified ratios of caseworkers and supervisors to cases at each field office”; to “enact . . . procedural reforms designed to provide clearer recordkeeping, more efficient response to requests, and meaningful and efficient explanation and notice of actions on benefit applications”; to appoint “a representative to handle all problems that [agency] clients are experiencing”; to give plaintiffs’ representatives “right to conduct on-site inspections” of health-care facilities to monitor compliance with applicable law; and ordering state to supervise city defendants’ compliance) (internal quotation marks omitted); *Pierce v. Cnty. of Orange*, 761 F. Supp. 2d 915, 954 (C.D. Cal. 2011) (ordering “widespread injunctive relief” where “widespread violations of the ADA” existed for disabled pretrial detainees in county facility); *Huezo v. Los Angeles Cmty. Coll. Dist.*, 672 F. Supp. 2d 1045, 1063–64 (C.D. Cal. 2008) (ordering state college “to provide accessible desks, workstations and other equipment with priority signage,” “to hire an ADA access expert approved by plaintiff,” and “to provide regularly scheduled shuttle service for disabled students”); *Lonberg v. City of Riverside*, 2007 WL 2005177, at *9 (C.D. Cal. May 16, 2007) (ordering remediation, within 120 days, of 189 curb ramp and sidewalk segments); *Deck v. City of Toledo*, 29 F. Supp. 2d 431, 432 (N.D. Ohio 1998) (ordering city to modify curb ramps to comply with safety and ADA standards “as soon as practically possible”); *Tugg v. Towey*, 864 F. Supp. 1201, 1203–04, 1211 (S.D. Fla. 1994) (granting preliminary injunction requiring provision of mental health services for the deaf by Department of Health and Rehabilitative Services in Dade and Monroe counties, including mandating “mental health counselors, deaf or hearing, with sign language ability, who possess by training, education, or experience, an understanding of the mental health needs of the deaf community”); *Tyler v. City of Manhattan*, 857 F. Supp. 800, 822 (D. Kan. 1994) (ordering Kansas city to relocate any city-sponsored ball games to accessible fields within 30 days; to modify steel barricade that made park inaccessible to people using wheelchairs; and not to offer any recreational program or activity at inaccessible field until it had been modified to become accessible to persons with disabilities); *Concerned Parents to Save Dreher Park Ctr. v. City of W. Palm Beach*, 846 F. Supp. 986, 993 (S.D. Fla. 1994) (imposing injunction requiring West Palm Beach to immediately make its recreational program accessible to persons with disabilities); *Kinney v. Yerusolim*, 812 F. Supp. 547, 554 (E.D. Pa.) (ordering Philadelphia to “install curb ramps or slopes on every City street, at any intersection having curbs or other barriers to access, where bids for resurfacing were let after January 26, 1992”), *aff’d*, 9 F.3d 1067 (3d Cir. 1993).

B. Remedial Standards Under the NYCHRL

The NYCHRL makes it an “unlawful discriminatory practice” for a “provider of public accommodation, because of the actual or perceived . . . disability . . . of any person, directly or indirectly, to refuse, withhold from or deny to such person any of the accommodations, advantages, facilities or privileges thereof.” *Brooklyn Ctr. for Indep. of Disabled v. Bloomberg*, 980 F. Supp. 2d 588, 642 (S.D.N.Y. 2013) (alterations in original) (quoting N.Y.C. Admin. Code § 8-107(4)(a)). Such an entity “shall make reasonable accommodation to enable a person with a disability to . . . enjoy the right or rights in question provided that the disability is known or should have been known by the covered entity.” *Id.* (alterations in original) (quoting N.Y.C. Admin. Code § 8-107(15)(a)). These standards have been held to match—if not exceed—those of the ADA. *See Loeffler v. Staten Island Univ. Hosp.*, 582 F.3d 268, 278 (2d Cir. 2009).³⁸

Under the NYCHRL, a “reasonable accommodation” means an “accommodation that can be made that shall not cause undue hardship in the conduct of the covered entity’s business. The covered entity shall have the burden of proving undue hardship.” *Kreisler v. Second Ave. Diner Corp.*, No. 10 Civ. 7592 (RJS), 2012 WL 3961304, at *13 (S.D.N.Y. Sept. 11, 2012) (emphasis removed from original) (quoting N.Y.C. Admin. Code § 8-102), *aff’d*, 731 F.3d 184 (2d Cir. 2013). The NYCHRL thus embodies “a broader notion of which accommodations are

³⁸ Although the ADA and the NYCHRL overlap, they are not wholly coextensive. *Loeffler*, 582 F.3d at 278. Under the Local Civil Rights Act Restoration Act of 2005, N.Y.C. Local Law No. 85 (2005) (“Restoration Act”), the NYCHRL is to be “construed liberally for the accomplishment of the uniquely broad and remedial purposes thereof, regardless of whether federal or New York State civil and human rights laws, including those with provisions comparably-worded to provisions of this title, have been so construed.” Restoration Act § 7. The NYCHRL thus imposes a “one-way ratchet”: Federal civil rights laws provide “a floor below which the City’s Human Rights Law cannot fall.” *Loeffler*, 582 F.3d at 278 (quoting Restoration Act § 1) (emphasis removed from original); *see also Brooklyn Ctr. for Indep.*, 980 F. Supp. 2d at 643 (because City’s actions “violate the ADA and the Rehabilitation Act, it follows that Defendants are liable under the NYCHRL as well”).

reasonable” than the ADA. *Brooklyn Ctr. For Indep.*, 980 F. Supp. 2d at 642 (citing *Phillips v. New York*, 883 N.Y.S.2d 369, 378 (1st Dep’t 2009)). Under the ADA, a proposed accommodation may be unreasonable even if it does not cause undue hardship, *see Phillips*, 884 N.Y.S.2d at 378 n.13 (citing *U.S. Airways*, 535 U.S. 391), whereas under the NYCHRL, “there are no accommodations that may be ‘unreasonable’ if they do not cause undue hardship,” *id.* at 378. *See also Forgione v. City of New York*, No. 11 Civ. 5248, 2012 WL 4049832, at *9 (E.D.N.Y. Sept. 13, 2012) (NYCHRL “provides broader protections than its state and federal counterparts” as to what qualifies as a reasonable accommodation).³⁹

IV. Remedy

The parties’ positions as to the integration of APS into New York City’s pedestrian grid began far apart, but they have narrowed considerably during the remedial phase of this litigation.

Most central, it is now common ground that all signalized intersections in the City are to be equipped with APS. Respecting the interests of blind pedestrians in meaningful access, safety, and independence, the City has committed to retrofit the 93% or more of its signalized intersections that today lack APS.⁴⁰

³⁹ The Second Circuit, however, has recognized that an evaluation of reasonableness “merges, in effect” with the undue hardship defense, “[f]or in practice meeting the burden of nonpersuasion on the reasonableness of the accommodation and demonstrating that the accommodation imposes an undue hardship amount to the same thing.” *Borkowski*, 63 F.3d at 138.

⁴⁰ *See* Def. Am. Plan at 2; *see also* Pl. Mem. at 11; Pl. Plan at 5, 13; Bourquin Decl. ¶¶ 15–19; U.S. Br. at 11–13; *id.* at 12 & n.4 (noting United States’ view that retrofitting all signalized intersections is “appropriate to accomplish the [ADA’s] requirement of safe and timely access” to the pedestrian grid). No party has argued that there is a duty to equip with APS the more than 30,000 intersections that are not signalized for pedestrians. These tend to be smaller intersections in the outer boroughs that are uncontrolled, or controlled only by stop signs. *See* Pl. Plan at 4 n.2 (“Only where DOT has made a determination that an intersection is challenging enough and dangerous enough that it requires pedestrian control signals for sighted pedestrians, does it need to make that critical information accessible to blind and low vision pedestrians as well.”).

It is also common ground that, as intersections in the City are newly signalized, they are—from the outset—to be outfitted with APS.

The parties also broadly agree—although there is disagreement about the particulars—that certain categories of signalized intersections merit priority in the retrofitting process. These include intersections (1) with specialized timing mechanisms (*i.e.*, EPIs and LPPs), (2) as to which public requests for APS are pending; and (3) as to which, during the remedial period, such requests are made.

The parties also recognize that, in light of the Court’s finding that the City—apart from denying the blind meaningful access to the grid—violated the ADA the 425 times during the limitations period that it signalized an intersection for sighted persons without adding APS for the blind, a remedial plan must promptly cure those violations.

Finally, the parties agree on certain subsidiary components of a remedial plan.

The parties’ central disagreement as to remedy involves the timetable under which APS are to be added to the City’s existing signalized intersections. Plaintiffs ask that this process be completed within 10 years. The City proposes—and commits to doing so in—30 years. The Court addresses the remedial timetable first. It then resolves other remedial issues.

A. Timetable for Installing APS at All Signalized Intersections

As of December 31, 2020, 749 of the City’s 13,430 signalized intersections were APS-equipped. That left 12,681 requiring remediation. An additional 200 intersections or so were on track to be equipped with APS during 2021. The total number of APS-signalized intersections, as of today, is thus an estimated 950. *See* Def. Am. Plan. at 11; Jarrin Decl. at 3–4; JSF ¶ 107.

Plaintiffs' 10-year plan requires the City—after a brief ramp-up period—every year to retrofit 1,268 existing signalized intersections with APS.⁴¹ On that timetable, the remediation process would be complete by the end of 2031. Plaintiffs would also require installation of APS at each of the approximately 100 intersections that the City newly signalizes each year. *See* Pl. Plan at 4–13; Pl. Mem. at 5, 8, 12; Tr. at 67; *see also* JSF ¶ 135. Plaintiffs' plan thus effectively contemplates the addition of APS to approximately 1,368 intersections per year.

Defendants' 30-year plan requires the City to install 275 APS in fiscal year 2022, and 500 each fiscal year thereafter, through 2051. Each year, 100 of these APS would be installed at newly signalized intersections and the balance at existing such intersections. The City would thus retrofit 175 signalized intersections with APS in the first fiscal year, and 400 each year thereafter. By June 30, 2051, the City's then-approximately 15,490 intersections would all be APS-equipped. *See* Def. Am. Plan at 2–3, 11; Def. Timetable at 1, 3; Jarrin Decl. at 3.⁴²

In evaluating the parties' competing proposals as to the timetable, the Court has applied the legal standards governing remedies for ADA and Rehabilitation Act violations. These, the Court holds, dictate a timetable in between the two proposals, although closer to plaintiffs'.

Specifically, the Court orders that the installation of APS proceed in two phases, as explained below:

- ***Phase One: By the end of calendar year 2031, 10,000 signalized intersections in New York City are to be equipped with APS. These***

⁴¹ Dr. Bourquin had earlier tabulated this average annual figure as 1,245, based on the number of signalized intersections lacking APS as reported in the parties' joint stipulated facts, which were filed in September 2019, at the start of the summary judgment briefing process. *See* Bourquin Decl. ¶ 26; JSF ¶ 11. The 1,268 figure above is based on the updated numbers of signalized intersections lacking APS as of December 31, 2020.

⁴² Unlike plaintiffs' plan, the City's plan uses fiscal years, such that 275 APS would be installed in FY 2022 (which begins July 1, 2021) and 500 APS in every fiscal year thereafter through FY 2051 (which ends June 30, 2051). *See* Tr. at 400, 425.

are to include all intersections with specialized timing mechanisms (i.e., EPPs or LPIs); all intersections that are the subject of pending public requests for the installation of APS; subject to annual limits, all intersections that are the subject of future reasonable requests for such an accommodation; and all 425 intersections as to which the Court has found an ADA violation based on the failure to include APS at the time that signals for sighted pedestrians were installed.

- *Phase Two: By the end of calendar year 2036, all remaining signalized intersections in New York City are to be equipped with APS. This is subject to the City’s right, beginning in 2032, to move to extend this deadline, based on a showing that the overall pedestrian grid has by then become meaningfully accessible.*

This outcome is tailored to curing the violations of federal and local⁴³ law the Court has found. It achieves this goal on a timetable that is prompt, attainable, and respectful of the City’s realistic capacity and competing demands on its resources and budget.

The Court’s analysis is as follows.

1. Phase One: 10,000 Intersections in 10 Years

- a. *What level of APS installations is minimally required to attain meaningful accessibility to the pedestrian grid?*

The paramount objective at the remedial phase is to make the overall pedestrian grid in New York City meaningfully accessible to the blind—as federal and local law requires. A plan that accomplishes that goal will end the City’s ongoing violation of Title II of the ADA: the exclusion of the blind, by reason of a disability, from “the services . . . of a public entity” and the discrimination by that entity against such persons. It will end the City’s ongoing violation of Rehabilitation Act § 504: the exclusion of the blind, by reason of disability, from “participation in”—and the “deni[al]” to the blind “[of] benefits” from—a “program or activity” receiving

⁴³ The ensuing analysis equally applies to the remedy for the City’s violation of the NYCHRL. The ADA sets a floor for the NYCHRL remedy. Plaintiffs have not argued, and the Court does not find, that the NYCHRL requires a more stringent or different remedy here.

federal funding. Provided that the plan also requires adding APS to the 425 intersections as to which the City has separately been held liable for failing to add APS while installing signals for sighted pedestrians, it will cure these violations, too.

At the threshold, the Court must determine what steps are minimally necessary to achieve meaningful accessibility for the blind to the pedestrian grid.

In urging the Court to order that APS be added at every signalized intersection within 10 years, plaintiffs presuppose that meaningful access requires APS at every such intersection. *See* Pl. Mem. at 8. But, salutary as such may be as public policy, it does not follow that federal law so requires. The ADA's command of "meaningful access" does not require a public entity to deploy "any and all means" available to facilitate access to services by the disabled. *See Lane*, 541 U.S. at 531–32. In ruling at summary judgment that the tiny share (then 3.4%) of signalized intersections equipped with APS denied the blind meaningful access to the grid, the Court did not have occasion to determine whether 100% coverage was necessary to secure such access. *See* SJ Op. at 32, 38–39.⁴⁴ And although the Court will hold the City to its welcome pledge in this litigation eventually to add APS to every such intersection, the City has not conceded that the law so requires. *See* Def. Opp. at 3.

But although the record does not permit a sure judgment as to the number or dispersal of intersections whose installation with APS would assure the blind meaningful access to the pedestrian grid, the Court can find, at a minimum, that meaningful access requires two things.

⁴⁴ Nor has the United States weighed in on that point. Its submission as an interested party states that retrofitting all existing intersections with APS comports with the equal access commands of ADA and the Rehabilitation Act and their implementing regulations. *See* U.S. Br at 11–12 & 12 n.4; *see also* Tr. at 459–60. The United States has not opined whether some lesser incidence or dispersal of APS would also achieve compliance.

First, APS must be installed at each intersection which, by nature, presents heightened safety and/or accessibility issues for the blind. These include intersections with specialized timing mechanisms (EPPs and LPIs). Without APS, these are apt to confuse, mislead, and endanger the visually impaired. *See, e.g.,* Tr. at 69–71, 79–85; Bourquin Ltr. at 3; JSF ¶¶ 147, 164. These also include intersections that are the subject of pending requests by the public for the “reasonable accommodation” of installing APS. Tr. at 68–69. As the City agrees, such requests presumptively reflect a genuine expression of need by blind user(s) of the intersection. *See id.* at 235. These also include intersections that are the subject of future such reasonable requests. As to each such category, the evidence overwhelmingly established that APS is essential to enabling the blind to safely and ably navigate these intersections.

Second, APS must be pervasive enough to assure that a blind pedestrian can readily traverse the City via APS-equipped intersections. At a minimum, this requires that 70% of signalized intersections, fairly distributed, be APS-equipped. The evidence demonstrated that if APS are not widely in place, blind pedestrians will remain impeded in navigating the pedestrian grid. They may be required to take circuitous routes to avoid inaccessible intersections; they may experience “cognitive overload” trying to memorize or recall APS-equipped intersections; they may experience fright, danger, and delay in using non-APS intersections; and they may be deterred from traveling by the need to navigate non-APS intersections. *See* Pl. Plan at 7–13; *supra* § I.B.2.

The Court’s judgment is that, to achieve this standard, at a minimum, 70% of the City’s signalized intersections must be APS-equipped. The record establishes that a pedestrian grid only spottily dappled with APS is not one that a blind pedestrian can confidently, safely, or

efficiently navigate. At 70% coverage, however, it becomes at least plausible to assert that a blind pedestrian could navigate the City efficiently using APS-equipped intersections.

The Court accordingly uses the 70% benchmark as the objective for Phase One of the remedial process. In so holding, the Court recognizes that, upon this milestone, an assessment will be in order as to whether meaningful accessibility has been achieved, or whether more APS are required to get there.⁴⁵ Seventy percent of the pedestrian grid equates to approximately 10,000 intersections. (Indeed, nearly precisely so on the 10-year timetable ending on December 31, 2031 that the Court sets for completing Phase One.)⁴⁶

A remedial order obliging the City to have equipped 10,000 intersections with APS is no small order. But this remedy is equal to the vast scale of the violation: citywide, across the nation's largest city. It thus accords with the ADA and Rehabilitation Act, in that it is tailored to the nature and extent of the violation, *Disabled in Action*, 752 F.3d at 198 (citing *Yonkers Bd. of Educ.*, 837 F.2d at 1235), plausibly achieves ready accessibility, 28 C.F.R. § 35.151, and secures for the blind access to the grid approaching that of sighted pedestrians, *Henrietta D.*, 331 F.3d at 277. And adding APS on this scale will not fundamentally alter the nature of the service—the pedestrian grid and its signalized intersections—at issue. *See Olmstead*, 527 U.S. at 597; *Pascuiti*, 87 F. Supp. 2d at 224–25. Such devices, typically contained on the same pole that hosts the signals used by sighted pedestrians, are modest, unobtrusive, compatible with others'

⁴⁵ Plaintiffs so anticipate. *See* Pl. Plan at 12–13 (opining that equipping 75% of intersections with APS in theory “would provide sufficient coverage” but in practice would still require a blind pedestrian to reroute and backtrack to reach her destination, causing a trip that would be 0.565 miles long if all intersections were APS-equipped to be 0.97 miles long); *cf. id.* at 10–13 (illustrating with examples long detours necessitated if the grid were 50% equipped with APS).

⁴⁶ The City projects that, as of June 30, 2031, there will be 14,240 signalized intersections (of which 10,000 intersections represents 70.2%) and that on June 30, 2032, there will be 14,330 (of which 10,000 intersections equates to 69.8%). *See* Def. Timetable.

use of the intersection, and increasingly familiar to City residents. And the City itself endorses the wholesale integration of APS into the pedestrian landscape.

b. *On what timetable can the milestone of 10,000 APS-equipped intersections be reached without imposing undue burdens on the City or causing a fundamental alteration in its services?*

The timetable on which the milestone of 10,000 APS-equipped intersections is to be reached implicates the statutory defenses reviewed above. In opposing plaintiffs' proposal to add APS to all signalized intersections within 10 years, the City has argued that such would impose undue administrative and financial burdens and cause a fundamental alteration in its services. *See* 28 C.F.R. § 35.150(a)(3). It argues that its capacity is limited to outfitting 500 intersections with APS per year—an annual target it pledges to reach in fiscal year 2023 and to maintain every year thereafter until 2051—but that it cannot realistically do more.⁴⁷ Plaintiffs, supported by the United States, dispute the claim of burden. They emphasize that an ADA remedy must be implemented as expeditiously as possible. *See id.* § 35.150(c).

The City has identified three factors limiting its ability to install APS: (1) administrative constraints; (2) financial limitations; and (3) disruption to the City's operations, or a "fundamental alteration" in its services. The Court agrees that the remedial pace (1,268

⁴⁷ Although the City forewent a defense based on such burdens at the liability stage, it may, as plaintiffs acknowledge, invoke these at the remedy stage. *See* MSJ Arg. Tr. at 20 ("[I]t's obviously relevant, when crafting a remedy, what resources are actually available and what makes sense."); *see also Disabled in Action v. City of New York*, 437 F. Supp. 3d 298, 311–12 (S.D.N.Y. 2020) (burden on public entity to be considered at remedial stage); *Brooklyn Ctr. for Indep.*, 980 F. Supp. 2d at 658 (giving defendants opportunity at future remedial stage to demonstrate undue burden); *United Spinal Ass'n v. Bd. of Elections in City of New York*, 882 F. Supp. 2d 615, 627 (S.D.N.Y. 2012) (ruling as to liability and reserving for remedy stage questions over scope, cost, and details of relief), *aff'd sub nom. Disabled in Action v. Bd. of Elections in City of New York*, 752 F.3d at 203 (at remedial stage, approving balance injunction struck between BOE's "obligations to modify facilities, policies, and procedures [and] its practical resource constraints"); *Am. Council of the Blind*, 878 F.3d at 367 ("financial burden is a relevant factor" in considering modifications to remedial injunction).

installations of APS per year) that plaintiffs propose is unrealistic given these considerations. At that pace, the City would have just over seven years to equip more than 9,000 such intersections with APS so as to reach the 10,000 milestone on time. But the City's claim that its capacity perpetually is capped at 500 APS per year is unpersuasive, too. The Court's judgment is that—without any undue burden—the City, starting from today's approximately 950 APS-equipped intersections, can reach the 10,000 milestone within 10 years. That will mean achieving an average annual APS installation pace of just over 900 intersections.

The Court's analysis of these three factors follows.

Administrative constraints: The City notes a number of administrative constraints on its ability to meet plaintiffs' timetable. To step up the pace of APS installations, the City notes, it will need to assign more staff (*e.g.*, contract administrators) to oversee such work, and secure more office space, vehicles, and "field muster locations" from which its installation teams can operate. It also notes that it is presently subject to a hiring freeze and that it is experiencing a shortage of qualified electricians in the municipal area. Installing APS on a heightened scale will also require a change in contracting norms, the City notes, because present regulations limit the number of contractors who can work in a given geographic area at one time, and will likely require expanding the scale of the contracts that DOT historically has let for signalization work. DOT's deputy commissioner, Mr. Benson, testified that such administrative constraints are the most daunting factor counseling against APS installation at the pace plaintiffs propose (of about 1,268 retrofits and 100 new installations annually). *See* Tr. at 259, 261, 274; Jarrin Decl. at 6–10; Def. Opp. at 19–20.

Plaintiffs counter that these constraints can be overcome over time, and that with planning and preparation, DOT can attain the personnel, facilities, equipment, and contracting

modifications needed to clear these hurdles. Skeptical of DOT's claim of incapacity, the United States similarly notes that the City dramatically increased its estimates of its APS installation capacity between its initial and amended plans without any change in the City's underlying administrative constraints. Both note that, after this litigation took root, and after the City Council endorsed and eventually funded a significant increase in the pace of installation, the City quickly adapted. It accelerated within several years the annual pace of installation from 25 to approximately 275 in the current fiscal year (ending June 30, 2022), with 500 earmarked for the following fiscal year. Plaintiffs and the United States also question whether today's shortage of qualified electricians and contract administrators, and regulations that limit DOT's ability to simultaneously let out large numbers of APS contracts, are long-term impediments to large-scale APS installation. Tr. at 332–33, 398–99; U.S. Br. at 20–21.

The Court's assessment is that although the personnel limitations, contract regulations, and other administrative obstacles cited by the City are real and limit its range of motion in the immediate and short term, these impediments are not durable. On the contrary, as recent experience teaches, over time, and with financing, planning and commitment, and with a plan that entails a gradual ramping up of the pace of installation, these obstacles can be managed and overcome. As plaintiffs and the United States note, the City has impressively accelerated its APS-installation capabilities in the past five years, despite earlier suggesting capacity limitations. Most recently, prodded into action by this litigation, the City has funded, and DOT has ably and dramatically accelerated, its APS-installation capabilities. As a result, whereas 83 APS were installed in fiscal year 2018 and 150 APS were installed in fiscal year 2020, 500 are on track to be installed in fiscal year 2023.

The City is correct that further accelerating the pace of APS installation above the 500 per year to which it has committed beginning in the next fiscal year will require expansion of DOT's infrastructure. Office space, vehicles, field muster venues, and supervisory employees will have to be added, the latter consistent with civil service specifications. And the number and/or scale of the contracts for APS installation the City will be required to let, a process that historically has played out on a protracted timetable, will need to grow significantly. These operational considerations, the Court is persuaded, make unrealistic plaintiffs' remedial vision, under which DOT would be required imminently to install a combined 1,368 APS per year (1,268 retrofitted intersections plus 100 new ones).

But while plaintiffs' remedial pace overshoots, the City's undershoots. The City does not persuasively explain why these operational challenges limit it to a 500-APS annual pace for the next two decades. And testimony at the remedial hearing undermined the claim of such a ceiling. DOT acknowledged, for example, that space (within DOT and for rent) is available to support the agency's APS operations and that, if necessary, space can be rented from which field operations can be staged. Similarly, as to contracting regulations that limit the number of contractors per geographic area, DOT's Mr. Benson acknowledged that the contracts can be modified to be less geographically restrictive. He further acknowledged that the actual contracts the agency uses for APS work are unlikely to need major revisions; these can be "essentially recycle[d]" for successive APS projects. Tr. at 259, 268, 336. And although the Court credits that DOT is today experiencing difficulty attracting qualified electricians, it is unpersuaded that this problem is a long-term obstacle to accelerated APS installation. The City did not establish that such electricians do not exist or that they cannot be recruited, *e.g.*, with economic enticements, consistent with principles of supply and demand. Mr. Benson further

acknowledged that, when traffic control projects have been certain—as APS installation work will be pursuant to this remedial order—DOT has successfully worked with the electricians’ union to expand the agency’s capacity to handle projects requiring this expertise.⁴⁸ Finally, the current hiring freeze is an unconvincing reason to treat the City’s capacity as static. There is no assurance that this freeze will last. And, if necessary, such a freeze must give way to a court order directing the City to remedy the serious violations of law that have been found.

The Court thus views the City’s showing of administrative constraints as sufficient to make plaintiffs’ proposed pace of APS installation unrealistic, but insufficient to establish a durable cap of 500 installations per year. A plan envisioning gradual but substantial growth in the City’s capacity to install APS is well within the City’s grasp.

Financial limitations: The City argues that plaintiffs’ 10-year remedial plan would be prohibitively expensive. The City estimates the total cost of that plan as \$965 million. It arrives at that figure by multiplying 13,000 intersections by a \$64,500 average cost and adding a 10% surcharge for contract oversight, maintenance, and potential complexity, plus a surcharge for with “any additional costs” that may arise.⁴⁹ The City denies that there are meaningful economies of scale, largely because labor costs represent 60–90% of the overall cost of APS

⁴⁸ See Tr. at 332–33 (Benson, confirming that DOT is already informally discussing with the electricians’ union expanding its capacity to handle larger contracts and noting that it has “been [DOT’s] experience” that the union does not commit electricians until there is an actual contract), 397 (plaintiffs, citing DOT’s “track record of significantly building electrician capacity, but only when actual contracts are on the table”), 430 (City counsel, stating that it is “not unreasonable” to assume that, with a large public works program in place, the supply of contract workers will rise to meet the demand).

⁴⁹ Although not explicit on this point, the City appears to tabulate the surcharge to reflect such “additional costs” as 5%, in that its formula entails multiplying the average cost per intersection by the number of intersections that need to be equipped with APS and adding an aggregate 15% surcharge. See Jarrin Decl. at 5.

installation. It notes that cost increases could produce a higher price tag. Def. Opp. at 20; Benson Decl. ¶¶ 7–10; Jarrin Decl. at 4–5; Tr. at 260, 263. Plaintiffs and the United States counter that this price tag is manageable within DOT’s budget, and that the City has failed to consider a host of other funding sources available to it, including pursuant to recent federal infrastructure legislation. *See* Pl. Mem. at 18–23; Pl. Plan at 17–23; Barlow Decl. ¶¶ 38–45; U.S. Br. at 13–19.

At the outset, the pertinent cost estimate for APS installation over a 10-year period, even using the City’s assumptions, is materially lower than that used by the City. That is because the Court’s remedy envisions APS installation by the end of 2031 at 70%, not 100%, of signalized intersections. On the City’s assumptions, the 10-year cost of this remedy is a little under \$672 million, not \$965 million. The Court otherwise accepts the City’s cost assumptions as well founded, with this qualification. Given the scale of the APS installation work that the Court’s remedy entails, able management may enable the City to realize various cost efficiencies. These may derive from bulk purchasing, bulk contracting, the strategic scheduling of installation work at nearby intersections, or other managerial stratagems. The City’s cost estimate did not overtly consider such potential efficiencies.

For several reasons, the City has not carried its burden to establish that an outlay over 10 years of \$672 million would pose an undue financial burden. As perspective, the City’s own proposal to outfit 500 intersections per year with APS, on its assumptions, would cost more than \$371 million—making the Court’s remedial plan approximately \$30 million more costly per year than the City’s proposal.⁵⁰ As further perspective, DOT’s current 10-year capital budget is \$23

⁵⁰ The City has already allocated \$359 million in capital funding for APS during fiscal years 2021–2031. Franklin Supp. Decl. ¶ 10.

billion for FY 2022 through FY 2031. Franklin Supp. Decl. ¶ 6.⁵¹ Of that, \$672 million is less than 3%. And the difference between this remedial plan and the City’s—about \$300 million over 10 years—is 1.3% of that sum.

Notably, too, the City has long underfunded the installation of APS, and until this litigation did not have a long-term plan to broadly integrate APS. In 2019, the New York City Council “call[ed] on [the de Blasio] Administration to include \$457 million in the [fiscal year] 2020 Executive Budget for [APS] at every signal intersection,” and to propose a transition plan providing for the addition of at least 500 APS-equipped intersections each year. However, the de Blasio Administration chose not to request such funds in its budget, or, at the time, to agree to adding APS at this pace. JSF ¶ 193; *see also* Franklin Decl. ¶ 7 (summarizing steps of City’s annual budget process); Tr. at 139–40; Pl. Mem. at 20–21.⁵²

⁵¹ This budget, adopted in 2021 after Congress’s enactment of the American Rescue Plan, reflected an increase of more than \$4 billion from DOT’s preliminary 10-year capital plan, which had assumed a 10-year \$18.5 billion budget for the agency. Franklin Supp. Decl. ¶ 6. That plan had allocated aggregate funding of \$214 million for APS installation. *See* Franklin Decl. ¶ 13.

The most recent 10-year DOT budget also represents a significant increase over the FY 2020–2029 capital budget. Pl. Plan, Ex. L at 3 (DOT program detail from City of New York’s Ten-Year Capital Strategy for FY 2020–2029, allocating \$16.1 billion for DOT). *See also* Franklin Decl. ¶¶ 8–9 (noting that Ten Year Capital Strategy is released every other fiscal year and reflecting preliminary 10-year capital strategy budget of \$18.5 billion for FY 2022–2031).

⁵² Although a lesser source of potential funds, the City has also declined to pursue funding for APS installation through the participatory budgeting process, which affords local communities the opportunity to direct unallocated funds to local needs. Atkinson MSJ Decl., Ex. 21 (2015 email chain from within DOT) (DOT official Alan Borock: “[i]t is unclear when [or if] [sic] we would ever install APS at a location they are willing to fund . . . if they have not been requested before they go at the end of the list to be ranked”; DOT official Elisabeth Franklin: “it seemed pretty clear to me that we would be committing to do more installations if the Council chipped in more funds . . . I’m wondering how this could have been handled differently so it could have been successful!”). The City has not explained its declination to pursue such funding. *See* 28 C.F.R. § 35.150(a)(3) (party, in making an undue burden defense, is to “consider[] all resources available for use”).

Further, as the United States notes, the City has not demonstrated why DOT’s budget “is so tightly constrained” as to preclude additional funding for APS beyond the level which the City now offers, or why funds from other City agencies cannot be allocated to DOT in future budgets. U.S. Br. at 16. The United States also faults the City for not taking greater advantage of the funds allocated to it as a result of the American Rescue Plan signed by the President in March 2021. The City then learned that it would receive an additional approximately \$4.5 billion in federal funds. *Id.* at 14. However, despite the Court’s having entered summary judgment as to liability against the City months earlier, the City allocated only \$187 million of these funds towards APS, and only then committed to the minimum 500/year APS installation rate that the City Council had demanded and offered to fund two years earlier. *Id.* at 14–15 (citing Franklin Supp. Decl.).

Most significant, the City’s claim of an undue burden does not take account of numerous untapped potential sources of funding for APS installation. Plaintiffs identify federal grant programs that may be used to support APS installation.⁵³ And the United States has chronicled in detail federal funds within two broad categories that are available to the City to support installation of APS but which the City has not addressed or sought to utilize. These categories—

⁵³ These include funding from the FHWA, the Federal Transportation Administration (“FTA”), and programs such as the Highway Safety Improvement Program; the National Highway Performance Program; the Surface Transportation Program; the Congestion Mitigation/Air Quality Program; the Highway Safety Improvement Program; the National Highway Performance Program; the State and Community Highway Safety Grant Program; the Elderly Persons and Persons with Disabilities Program; and more. Third and Fourth ROGs, No. 33 (“Defendants have not applied for or used funding from the Federal Highway Administration, Federal Transportation Administration, or other federal-aid programs, including the listed programs for the installation of APS” and listing two grants the City procured for “emerging technologies of pedestrian communication systems and not for installation of APS”); *see also* U.S. Ltr. at 3; U.S. Br. at 18; Pl. Plan at 20 (citing FTA grant used in 2014 by Chicago to obtain 80% reimbursement of its APS installation); *id.* Ex. N at 17 (grant awarded to Chicago from FTA New Freedom Grant program and allocated to APS).

addressed below—are (1) allocated funds, or “formula funding,” and (2) apportioned funds, or discretionary grant programs. As the United States explains, under the IIJA—which was enacted in November 2021 but whose anticipated enactment was addressed in the United States’ remedial hearing briefs and in hearing testimony—formula funding is expected to increase by about 26% a year during the next five fiscal years, and discretionary grant funding available to the City between 2022 and 2026 “may more than triple” relative to 2021 levels. U.S. Ltr. at 1–2.

First, “formula funding”—also known as allocated funding—is distributed to the City by way of the New York State Department of Transportation (“NYS DOT”) and the New York Metropolitan Transportation Council (“NYMTC”). Ninety-two percent of the Federal Aid Highway Program (“FAHP”) funding—which, in turn, is most of the FHWA funding provided to the states—is distributed through seven “core programs.” Of those, at least four would allow for APS reimbursement. New York State received more than \$1.8 billion in FAHP funds in FY 2020 and FY 2021, of which \$550 million was obligated to the City. That represents approximately 45% of DOT’s yearly capital budget. As a result of the IIJA, New York State will receive in FAHP funding, on average per year, over \$500 million more than it stood to receive earlier. Of this, the City is positioned to receive an additional approximately \$100 million to \$200 million per year. *See id.* at 1–5; Tr. at 456–57 (estimating that 90% of formula funding is available for APS installation).

Second, apportioned funds—also known as discretionary grant programs—are distributed by the U.S. Department of Transportation (“U.S. DOT”). These—including the RAISE Discretionary Grant Program and the INFRA Discretionary Grant Program—are based on applications made to the U.S. DOT. In the past, the City has successfully applied for grants from

these programs.⁵⁴ But, the United States represents, even though the RAISE program’s top selection criterion is safety, “the City has never applied for a RAISE grant to fund the installation of APS.” Nor has the City applied for an INFRA grant for this purpose. U.S. Ltr. at 1–2, 5–7.

As the United States further explains, in addition to these longstanding sources of federal funds, the recently enacted IIJA provides for three new discretionary grant funding programs—all of which are viable funding sources for APS installation. The National Infrastructure Project Assistance Grant Program, designed to fund projects costing more than \$500 million, has selection criteria including “whether the project: generates safety benefits [or] benefits a historically disadvantaged community or population.” For each fiscal year between 2022 and 2026, \$1 billion has been allocated to this program. The Safe Streets Grant Program “authorizes competitive grants to projects that are likely to reduce transportation-related fatalities, engage with diverse stakeholders, adopt innovative technologies, and ensure equitable investment in underserved communities.” For each fiscal year between 2022 and 2026, \$1 billion has been allocated to this program, too. Finally, the new SMART Grant Program is nearly tailor-made for an APS grant application by the City. The eligible project types it lists include replacing and upgrading outdated traffic signals. It has been appropriated \$100 million per fiscal year between 2022 and 2026. *Id.* at 7–9.

In sum, between formula funding, discretionary grant programs, and funding streams uncorked by the IIJA, there is today—and for at least the next five years—an uncommonly promising array of funding sources available to augment the funds the City has committed to the installation of APS. But despite the highlighting of these proliferating sources in this litigation—

⁵⁴ From the RAISE program alone, the City, in 2015, received \$10 million for the Bronx River Greenway, and in 2018, received \$25 million for the Brooklyn Bridge’s approach arches and towers. U.S. Ltr. at 6.

particularly by the United States—the City has not explained why these resources are realistically unavailable to support remediation of its statutory violations.⁵⁵ Every indication is that substantial such resources are available for APS remediation work. These can be part of the remedial solution, provided the City is so motivated—and pursues them with dispatch, energy, and creativity.

The City’s failure to take account of these resources alone defeats its invocation of the undue financial burden defense. A defendant invoking that defense must show it has adequately considered all the resources available for its use. *See* 28 C.F.R. § 35.150(a)(3); *see also Culvahouse v. City of LaPorte*, 679 F. Supp. 2d 931, 945–46 (N.D. Ind. 2009) (municipal defendant failed to demonstrate undue financial burden where alternative financing options were available but where “the City ha[d]n’t discussed any of those options [and] ha[d]n’t addressed the options found in the regulations or those suggested by the plaintiffs”); *Pascuiti*, 87 F. Supp. 2d at 225 (“considering the overall Parks Department budget . . . [and] adopt[ing] a . . . broad perspective for the ‘undue burden’ analysis” to remedy ADA violation found at Yankee Stadium); *cf. Civic Ass’n of Deaf*, 915 F. Supp. at 636 (although defendants demonstrated “that the street alarm boxes are expensive to maintain and repair and that they force some diversion of emergency resources[,] . . . [they] have not demonstrated that this presents an *undue* financial or administrative burden”) (emphasis in original). The City has not done so here.⁵⁶

⁵⁵ *See* Jarrin Decl. at 15 (stating only that “any additional funding available from Federal and New York State grants is finite and extremely competitive,” and voicing skepticism about City’s prospects for additional funding, on conclusory grounds that DOT already “makes every effort to target its grant applications”).

⁵⁶ The City’s assumption that it will not receive additional funding from sources opened up by the IIJA is particularly striking because, as the United States notes, it was the American Rescue Plan of 2021—which became law earlier this year, in March—that prompted the City to expand its remedial plan in this case. *See* Dkt. 151; Franklin Supp. Decl.; U.S. Ltr. at 9.

The City's defense based on asserted financial constraints thus has not been established. On the record at hand, it is not an impediment to a remedial plan that provides, by the end of 2031, for APS at 10,000 New York City intersections. That objective is readily achievable.

Fundamental alteration in services: In a final challenge to plaintiffs' plan, the City argues that requiring installation at all signalized intersections within 10 years would force it to fundamentally alter its services. That is because, the City argues, the "major reallocation of funding" such a plan would force it to defer other roadway and sidewalk projects. Indeed, the City asserts, any remedial timetable under 30 years would shortchange other transportation or infrastructure priorities. Def. Opp. at 20–21; Jarrin Decl. at 11–15.

That argument is easily put aside. It is largely derivative of the City's argument based on asserted financial constraints—an argument that, as shown, the City has failed to reliably develop. Moreover, this defense requires a public entity to demonstrate that a fundamental alteration would occur to the *service* being modified—here, signalized intersections and the pedestrian grid. See 28 C.F.R. § 35.150(a)(3); *Nat'l Fed'n of the Blind*, 813 F.3d at 509–10; *Disabled in Action*, 752 F.3d at 202. The City has not shown that. It suggests that installing APS on the scale plaintiffs envision would cause "large-scale disruption[] to pedestrian and vehicular traffic on the City's streets." Jarrin Decl. at 10; see also Tr. at 273. Such a claim is not conceptually implausible. But the City has not mustered proof of this. It has not, for example, modeled the effects on foot or car traffic of simultaneous alteration projects on the scale required by plaintiffs' plan. Instead, the City simply declares that unacceptable tumult would ensue. Absent proof, such an *ipse dixit* will not do. See *Disabled in Action*, 752 F.3d at 204 ("Without more than conclusory claims that complying with the remedial order may be challenging, we are not persuaded that the accommodations will fundamentally alter BOE's voting program or

impose an undue burden on its operation.”); *Nat’l Fed’n of the Blind*, 813 F.3d at 509 (holding that while “[p]ublic confidence in elections is undoubtedly an important governmental concern . . . defendants simply have not established their premise . . . that use of the online ballot marking tool degrades the integrity of Maryland’s voting processes” and thus, it does not work a fundamental alteration).

In any event, even if it were true that installations of APS at the pace that plaintiffs propose would be unacceptably disruptive, the Court’s remedy entails work at far fewer intersections per year—an average of 900, as opposed to 1,368 (1,268 remedial and 100 new) under plaintiffs’ plan. The City has not shown that, at such a pace, DOT would be unable to stage or sequence its work without upending pedestrian or vehicular traffic.

Further, as discussed *infra*, § IV.C, the Court’s remedy deliberately vests broad discretion in DOT to schedule and sequence the APS remedial installations. That is in deference to DOT’s demonstrated expertise in managing such processes to avoid disruption. The Court was highly impressed by the seriousness of purpose, integrity, and ability of the DOT deputy commissioner, Mr. Benson, who testified at the remedial hearing. He repeatedly attested to the City’s dexterity at juggling multiple infrastructure projects to achieve efficiency and minimize disruption. *See, e.g.*, Tr. at 210, 297–98, 343; *see also id.* at 398 (plaintiffs’ counsel) (“DOT knows how to manage infrastructure projects. They routinely balance these concerns in all of their projects.”). Crediting this testimony, the Court is confident that, with managerial discretion vested in DOT, the agency can implement APS installation on the scale ordered herein with tolerable disruption. *See* U.S. Br. at 19 (opining that, even as to plaintiffs’ plan, the City has not shown that a fundamental alteration of its services would ensue).

The Court accordingly does not find that the City has established an undue burden based on this factor, either.

c. Conclusion

For the reasons above, the Court directs the City to have installed, by the end of 2031, APS at a minimum of 10,000 signalized intersections. For the blind, this schedule achieves, as expeditiously as realistically possible and without undue burden to the City’s legitimate interests, meaningful accessibility to the pedestrian grid.

2. Phase Two: Completion of APS Installation by December 31, 2036

In the second phase, the City is to complete installing APS at all signalized intersections within five years—by the end of 2036. Reaching this milestone will entail approximately the same average annual pace of installation as Phase One.⁵⁷ The above analysis as to why such a pace is achievable and does not present an undue burden therefore equally applies.

In Phase Two, the Court will, however, allow the City to seek to demonstrate that APS have by then been installed to an extent that they afford blind pedestrians meaningful access to the pedestrian grid. If the City can so establish—either at the start of or during Phase Two—the Court will then entertain a motion by the City to defer the deadline to complete APS installation, up to the deadline to which the City has committed during this litigation (2051).

This provision is necessary because of the limits on the Court’s remedial authority. Such authority exists only to the extent there is an uncured violation of law. *See City of New York v. Mickalis Pawn Shop, LLC*, 645 F.3d 114, 144 (2d Cir. 2001) (“injunctive relief should be ‘narrowly tailored to fit specific legal violations’”) (quoting *Peregrine Myanmar Ltd. v. Segal*,

⁵⁷ The City projects that, by the end of 2036, there will be between 14,740 and 14,790 signalized intersections. Def. Timetable. With APS having been installed at 10,000 intersections as of the end of 2031, it will take approximately 950 installations per year between 2032 and 2036 to complete the installation process.

89 F.3d 41, 50 (2d Cir. 1996)); *Forschner Grp., Inc. v. Arrow Trading Co.*, 124 F.3d 402, 406 (2d Cir. 1997) (“It is well-settled that the essence of equity jurisdiction has been the power to grant relief no broader than necessary to cure the effects of the harm caused by the violation[.]”) (citing *Swann*, 402 U.S. at 16).

From today’s vantage point, the Court cannot reliably gauge whether the existence of APS at 70% of signalized installations consistent with this order will have achieved meaningful access for the blind. By 2032, that issue will be ripe for assessment.

B. Annual Targets for APS Installation

To reach within 10 years a total of 10,000 APS-equipped intersections from today’s total of about 950, the City will be required to add APS at an average rate of just over 900 intersections per year. All agree that the City will require some time to ramp up its installation capacity, given the need to carefully plan and the lead time necessary for such vital parts of the installation process as the procurement and letting of municipal contracts. As a matter of math, of course, the longer the City takes to reach the pace of outfitting 900 intersections per year, the more intersections, above that pace, it will need to tackle in later years to make up for the earlier shortfall.

The Court’s judgment is that it is prudent, for the first two years, to accept the City’s projections of its installation capacity. That is because, as the remedial stage record, particularly the testimony of Mr. Benson, reflects, lead time and preparation are necessary for signalization of intersections. Leaving the City meaningful time for advance planning is also more likely to capture efficiencies and avoid unnecessary disruption.⁵⁸ The Court accordingly requires the

⁵⁸ *Cf.*, e.g., *Am. Council of Blind v. Mnuchin*, 396 F. Supp. 3d 147, 153–54, 199 (D.D.C. 2019) (maintaining original injunctive relief’s structure of “coup[ling] any ongoing security redesign

City—consistent with its own current projections—to install APS at 400 intersections in 2022 and APS at 500 intersections in 2023.⁵⁹

Plaintiffs had urged that the City be given only one year to ramp up its capacity, such that by the second year, the City would be ordered to hit the average annual installation target called for by plaintiffs' plan. *See* Tr. at 67, 400. The United States similarly urged that by year two, the City be required to reach the average installation pace necessary to complete installation by the deadline the Court set. U.S. Br. at 21. The Court views this guidance as unrealistic. It is not sensitive to the City's convincing showing that, given the scale of the managerial challenge that installation of so many APS will pose, a more gradual implementation schedule is advisable.

On the basis of the assembled record, however, the Court's judgment is that by the fourth year of the remedial plan, it is realistic to expect the City to install APS at 900 intersections per year. The Court thus orders that, in year 3 (2024), the City outfit at least 700 intersections with APS, and that, in each of year 4 (2025) and year 5 (2026), it outfit at least 900.

As for the remaining five years of Phase One (2027–2031), the Court orders the City, each year, to outfit a quantity of intersections that, if matched for the remaining years of Phase One, the 10,000-intersection goal will be met by the end of year 10 (2031).

Similarly, for each of the five years of Phase Two (2032–2036), the Court orders the City, each year, to outfit a quantity of intersections that, if matched for the remaining years of

with an accessibility redesign” and therefore including “no specific deadlines for any redesign”), *aff'd*, 977 F.3d 1 (D.C. Cir. 2020).

⁵⁹ Because the City uses a fiscal year approach with fiscal years ending June 30, its submissions do not pinpoint a target for calendar year 2022. The 400-intersection requirement the Court has chosen is the approximately midpoint of the City's targets for fiscal year 2022 (275) and fiscal year 2023 (500). As noted, for every fiscal year beginning in 2023, the City has committed to installing APS at 500 intersections. *See* Def. Timetable.

Phase Two, the goal of equipping all of the City’s signalized intersections with APS will be met by the end of 2036.

C. Prioritization of Intersections

1. Within Phase One

There is broad agreement as to the intersections that should take highest priority in the remedial process. Plaintiffs, the City, and the United States agree that three sets of intersections merit high priority with Phase One: those (1) with EPPs, (2) with LPIs; and (3) as to which there are pending public requests for the addition of APS. That is clearly correct.

As to EPPs and LPIs, there is compelling evidence that these specialized timing mechanisms—although enhancing the safety of sighted pedestrians—present heightened hazards to the blind. The Court credits plaintiffs’ expert reports and testimony to this effect.⁶⁰ Letters submitted by members of the blind community underscore the point. Karen Gourgey, a founding member of PASS, explained that, before an LPI was installed, she crossed Sixth Avenue at 14th Street by using near-lane parallel traffic as her guide, but because the “Walk” sign now turns on before parallel traffic on 14th Street traffic is permitted to start, she is deprived of that cue. As a result, sighted pedestrians begin crossing before she does and she loses “valuable seconds of crossing time.” PASS Ltr. at 2. Raymond Wayne, another founding member of PASS, frequently crosses Fourth Avenue in Bay Ridge, Brooklyn, using two intersections with LPIs. The late start he gets relative to sighted pedestrians means he begins crossing when drivers are not expecting to see him; he has to hurry to cross; and, because he crosses without sighted pedestrians beside him, he is more apt to veer outside of the crosswalk. *Id.*

⁶⁰ See, e.g., Pl. Plan at 16–17; Barlow Decl. ¶¶ 8, 10, 12; Bourquin Decl. ¶¶ 25, 27; Bourquin Ltr. at 3; Tr. at 87 (Bourquin).

Public officials have long reported these dangers to DOT. On March 23, 2017, then-Public Advocate Letitia James wrote to urge that APS be added to intersections with LPIs, as LPIs “can actually make intersections *more* dangerous for people who are blind or who have low vision.” Pl. 56.1 ¶ 81; Atkinson MSJ Decl., Ex. 13 (emphasis in original). DOT officials internally also recognized this problem. In 2016, DOT’s chief engineer for traffic operations, Jenny Baez, noted that, absent APS, EPP intersections “introduce a problem for pedestrians with visual restrictions, as the audible cues associated with parallel traffic streams will lead pedestrians to cross at inappropriate times.” Pl. 56.1 ¶ 84; Atkinson MSJ Decl., Ex. 15. The same year, DOT’s policy analyst for accessibility and ADA coordinator, Quemuel Arroyo, wrote to City Hall that EPPs were “horrible for low viz [sic] and or blind peds [sic].” Pl. 56.1 ¶ 86; Atkinson MSJ Decl., Ex. 17. Mr. Benson, the DOT official who oversees signalization projects, testified that for these reasons, as the City has stepped up its addition of APS, it has done so in collaboration with advocates for the blind—and thereby has prioritized intersections with LPIs and EPPs. Tr. at 229; *see* Benson Supp. Decl. ¶ 16.

As to public “reasonable accommodation” requests for APS, the evidence was uniform that these deserve respect. Plaintiffs and DOT agree that such requests historically have been reasonable and have reflected a sincere concern by blind person(s) that a non-APS intersection posed a hazard or inconvenience. For example, in 2013 and again in 2015, a blind New Yorker, on behalf of seven people with visual disabilities in his community, asked that APS be added to three Staten Island intersections, citing occasions when “two blind people were hit by cars while trying to cross the street.” Pl. 56.1 ¶ 69; *see also, e.g.,* JSF ¶¶ 40, 46 (detailing Curry’s requests in 2013 and 2014 to have APS installed at intersections in upper Manhattan which were used by a large blind population, including two intersections that had long gone without APS despite

requests). DOT does not view any of the 193 outstanding requests for APS with skepticism. *See* Tr. at 235 (Benson).

As of December 31, 2020, there were (1) 193 intersections at which outstanding public requests for APS were pending, (2) 4,632 LPI-signalized intersections lacking APS; and (3) 511 EPP-signalized intersections lacking APS. The Court orders that, within Phase One, DOT give priority to adding APS at these 5,336 intersections.⁶¹

As among these, the Court's judgment is that the 193 outstanding public requests for reasonable accommodation deserve the most urgent attention. That is because requests for such accommodation are tangible evidence of a demonstrated need for APS at a particular intersection. The Court expects DOT to remedy these intersections as quickly as possible, and at the latest, by the end of year 3 (2024).⁶²

As for the 4,632 LPI and 511 EPP intersections, the Court will not set mechanistic annual deadlines within Phase One.⁶³ That reflects the sheer volume of this work—the combined 5,143 LPI and EPP intersections represent close to 57% of the approximately 9,000 intersections to be equipped with APS during Phase One—and the importance the Court assigns to giving DOT operational flexibility in the remediation process, to promote efficiency and avoid disruption.

⁶¹ The record does not reflect to what extent the 193 outstanding requests for reasonable accommodation concern an LPI or EPP intersection. To the extent there is overlap, the aggregate figure is lower.

⁶² Plaintiffs asked that the City respond to these requests within the first year of the remedial plan. *See* Bourquin Decl. ¶ 35. The City proposed five years. Def. Am. Plan at 3.

⁶³ The parties' remedial plans proposed such deadlines. The City's 30-year plan contemplated remediating (1) all EPP intersections within five years, with 35 in the first fiscal year and more than 100 each year thereafter, and (2) the LPI intersections gradually over the life of the plan, reaching and thereafter maintaining a 125 per year pace in the sixth year. Def. Timetable; Def. Am. Plan at 3. Plaintiffs' 10-year plan asked that all EPPs and LPIs be remedied within four years. Bourquin Decl. ¶ 28.

However, the Court expects the City to make every effort within Phase One to frontload work at LPI and EPP intersections—and to be prepared to demonstrate that it has done so. *See infra* § IV.F.3 (addressing monitoring process).⁶⁴

A fourth set of intersections must also be remedied within Phase One—the 425 as to which the City violated the law by failing to add APS when signaling intersections on or after June 27, 2015. These intersections belong in Phase One solely to assure that, by the end of that Phase, these violations of law have been cured. However, as all agree, these intersections are not intrinsically more dangerous or challenging to the blind than any others signaled without APS. If anything, that these were signaled only recently may suggest their lesser pedestrian utilization. The Court accordingly agrees with plaintiffs and the United States that there is no cause to prioritize these intersections within Phase One; the City does not disagree. *See* Pl. Plan at 14 & Ex. F; U.S. Br. at 24; Tr. at 233. Accordingly, the Court requires only that, by the end of year 10 (2031), these intersections be equipped with APS. The City, in exercising its broad discretion to sequence remedial work, should accord these lower priority than the categories of intersections addressed above, and is at liberty to backload these intersections within Phase One.

A final issue regarding Phase One involves the process by which DOT is to sequence specific intersections for APS installation. At the remedial hearing, much attention was paid to this issue, including whether the labor- and data-intensive Prioritization Tool that heretofore has guided DOT's sequencing of installations should guide the remediation process, as opposed to a more supple and less cumbersome approach in which DOT—in consultation with affected constituencies—considered the major relevant factors.

⁶⁴ As between LPIs and EPPs, plaintiffs posited that EPPs may pose somewhat greater risks. Tr. at 157. But the record on this point is inconclusive, and plaintiffs ultimately did not oppose a plan, such as the Court is imposing, that puts the two on equal footing, *id.* at 388.

There is no need now for the Court to resolve that issue. Subject to the parameters above, the Court leaves the choice between these mechanisms to DOT, for two reasons.

First, although the City has been held liable for its failure to install APS on more than a minimal basis, there has not been any suggestion that DOT has erred in selecting specific intersections. On the contrary, plaintiffs have lauded DOT for engaging constructively with the blind and their advocates, for its professionalism, and for considering their views in prioritizing APS installation. The Court is confident that DOT, now apprised of this order, will develop a mechanism for sequencing the coming wave of APS installations that is efficient, while being rigorous, sensitive to public input, and alert to the important factors on which outcomes under the Prioritization Tool tend to turn.⁶⁵ Should this expectation prove wrong, the Court, in its supervision of the implementation of this remedy, will revisit these mechanics.

Second, the Court is mindful of the formidable challenge that Phase One sequencing will present for the DOT. Assuming that the City continues to newly signalize 100 intersections per year, close to 7,000 of the 9,000 intersections to which APS will be added during Phase One will have been spoken for. (To wit: the 4,632 LPI intersections, the 511 EPP intersections, the 425 intersections recently signalized without APS, the 193 outstanding public requests, and 1,000 newly signalized intersections. These total 6,761.) Under the ADA and the Rehabilitation Act, courts are to give local government units an opportunity to be heard and “to propose ways to

⁶⁵ DOT has rightly taken off the table a proposal it initially floated, in which it would concentrate its remedial installation work in particular geographic zones. *See* Def. Am. Plan at 3–6 (proposing 10 such zones, including “Manhattan (Chelsea),” “Manhattan (Midtown West),” “Bronx (Riverdale),” and “Bronx (Morris Park)”); Tr. at 184–85, 211, 242. As plaintiffs and the United States noted, that approach—in which, remedial work at an entire neighborhood would be completed before work began at another—disserved users of the latter areas and the ADA’s integration and equal-access principles. *See, e.g.*, Pl. Opp. at 6–14; Barlow Decl. ¶¶ 8, 13; U.S. SOI at 13–14; U.S. Br. at 26.

remedy statutory deficiencies.” *Disabled in Action*, 752 F.3d at 205. In the first instance, therefore, it is right that DOT have the latitude to design a sequencing and scheduling mechanism consistent with this order and the ADA’s integration mandate.⁶⁶

2. Within Phase Two

The City’s challenge in prioritizing APS installation work in Phase Two (2032–2036) will be different. By the start of Phase Two, all intersections that have been identified as specifically requiring APS installation—those with LPIs and EPPs, that are the subject of outstanding public requests, or that are among the 425 as to which the City has been held liable—will have been remediated.

For the same reasons as above, the Court again leaves it to DOT in the first instance the mechanism to use to choose and sequence the approximately 950 intersections to be outfitted in each of the five years of Phase Two. DOT today uses the Prioritization Tool, while a “major factors” approach would consider the most central factors guiding an intersection’s priority—including whether it is a subject of a pending public request, its proximity to healthcare and other facilities that serve the blind, its proximity to transportation hubs, whether the street geometry is atypical, whether bike lanes are present, and other heightened safety concerns. Tr. at 98, 418. It also would permit DOT to capture construction and other efficiencies, by, for example, tackling close in time intersections along a common avenue. *See id.* at 211. And as both parties’ remedy-stage witnesses agreed, a “major factors” approach to guide this approach may prove more

⁶⁶ This approach also gives DOT the flexibility to experiment with creative approaches that may expedite the process and save time and money. For example, during the remedial phase, DOT announced its intention to develop an in-house retrofitting team to handle easier forms of APS installation. This team would add APS to intersections where existing poles are situated compliant with MUTCD standards—such that the devices can be added to those poles without a need for street excavation. The City’s plan estimated that this team could add APS to 25 such intersections per year. *See* Def. Am. Plan at 6–8; Def. Timetable at 1.

economical insofar as it would spare DOT the need to do the day-long (approximately eight-hour) field study workup per intersection that the full Prioritization Tool demands. *See id.* at 98, 100–01 (Bourquin); *id.* at 186, 224, 240 (Benson).

In the end, however, it is for DOT in the first instance to decide whether the existing Prioritization Tool, a “major factors” approach, or a blend or a different approach is best. Giving DOT latitude to choose respects DOT’s expertise, while the Court’s ongoing supervision will provide a forum for reassessment in the event plaintiffs or other interested parties challenge DOT’s methodology as ignoring key variables or otherwise unreasonable. *See Disabled in Action*, 752 F.3d at 206 (“providing meaningful access to individuals with disabilities in a large, crowded city with inaccessible facilities is not an easy task that lends itself to simple or singular solutions”).⁶⁷

D. Future Public Requests for APS Installation

The parties anticipate that, during the remedial process, “reasonable accommodation” requests from the public for the installation of APS at existing signalized intersections will continue to be received. The Court has held that meeting the pending 193 public requests is high priority, because these reflect a concrete interest by or on behalf of blind pedestrian(s) in

⁶⁷ The Court here addresses a distinct issue governing the sequence of remediation on which the parties now appear in agreement. As noted, plaintiffs’ original expert, Ms. Barlow, recommended—as a temporary measure during the remediation process—that APS devices be installed on existing signal poles at intersections where the location of these poles does *not* accord with MUTCD guidance. She argued that doing so would give the blind a degree of assistance during the lengthy remedial process, while these intersections awaited installation of a new pole at a MUTCD compliant location. The City opposed this idea, as later did Dr. Bourquin, plaintiffs’ successor expert. *See* § II.C.2, *supra*. The Court agrees with the now-consensus view that—except where a pole is located consistent with MUTCD guidance—adding an APS device to it would disserve blind pedestrians. As Dr. Bourquin and Mr. Benson convincingly explained, devices ill positioned relative to a crosswalk may confuse or even affirmatively mislead blind pedestrians, and may present a special hazard to deafblind pedestrians who cannot hear clarifying auditory prompts.

improved access to a particular crossing. The Court expects that future public requests for APS installation are likely similarly to reflect a sincere and reasonable interest by affected blind person(s) for accommodation. The Court directs the City to promptly assess future such requests, and, unless a request is found unreasonable, to act upon it with dispatch.

Specifically, the Court directs that, within four months of receiving a public request for the installation of APS, the City evaluate the request. The City thereafter is to act upon any public request for such installation not found unreasonable within an additional 18 months. Within these parameters, however, DOT retains discretion as to the sequencing and scheduling of particular installations. It is not obliged to address future public requests in the order they are received. DOT may use its professional judgment how to best integrate requests into its remediation schedule.

There is a qualification. As the parties recognize, the fact of this litigation and remedial order may produce a sizable increase in the number of public requests for installation, with the risk that the volume of such requests could complicate the orderly and equitable distribution of APS remedial installations around the City and interfere with DOT's discharge of its duties. The parties thus invited the Court to cap the number of such requests that DOT is obliged each year to prioritize. *See* Tr. at 146 (Bourquin), 289 (Benson); U.S. Br. at 23–24.

Consistent with this guidance, the Court expects DOT to prioritize—*i.e.*, to install APS within 18 months of determining that a public request for such accommodation is reasonable—up to approximately 35 new such requests per year. This figure appears to approximate the historic annual pace of public requests for APS installation. *See* Def. Am. Plan at 3. Should DOT receive materially more reasonable requests, it is at liberty to prioritize all of them. But, should DOT determine that installing APS in response to an outsize number of such requests

within the 18-month timeframe set by the Court would produce inequity or disruption, the City is at liberty to ask the Court for relief from the obligation to prioritize every such request.

E. Newly Signalized Intersections

To the extent that the City henceforth signalizes intersections, it must install APS at the same time, to assure equal access for the blind. Regulations promulgated under the ADA and the Rehabilitation Act provide that, when a covered entity alters any facility or part of a facility “in a manner that affects or could affect the usability of the facility or part of the facility,” it shall, “to the maximum extent feasible,” do so “in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities.” 28 C.F.R. § 35.151(b)(1) (ADA); *see id.* § 42.522(a) (Rehabilitation Act). On this basis, the Court entered summary judgment for plaintiffs, and found the City liable, in connection with 425 installations that the City altered, by means of signaling them for the benefit of sighted pedestrians, without also adding APS. *See* SJ Op. at 42.⁶⁸ That holding necessarily applies to the future installation of signals at intersections. And the City does not dispute this—it has recently committed to adding APS at the time of any future signalization.⁶⁹

⁶⁸ *See also* Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way, 76 Fed. Reg. 44,664, 44,690 (July 26, 2011) (“Where pedestrian signals are provided at pedestrian street crossings, they shall include accessible pedestrian signals and pedestrian pushbuttons.”).

⁶⁹ *See* JSF ¶ 132; Koplik MSJ Decl., Ex. 1 at 1 (“Beginning July 1, 2019, all future [DOT] signal construction contracts will include sufficient APS capacity for all intersections included in each contract. Each newly approved signal will be designed and constructed with APS.”); Def. Opp. at 10 (“DOT anticipates no further new pedestrian signal installations to be without APS.”); Def. Am. Plan at 2 n.1.

The decision whether to add signals to a presently unsignalized intersection, however, remains for the City to make. It is outside the scope of the claims here or this decision.⁷⁰

F. Oversight, Community Input, Monitoring and Reporting

In light of the scale, duration, cost, and public importance of this remedial plan, it is necessary for the Court—while broadly leaving the plan’s implementation to DOT—to put in place a structure to monitor and guide the remedial process. It is to have, at a minimum, these components:

1. Point Person Within DOT

The City is to appoint a single official, within DOT, responsible for the implementation of the remedial plan. *See* Pl. Mem. at 23 (urging appointment of a single individual for this role). The City has proposed that the Associate Deputy Commissioner for Traffic Operations serve in this role. Dkt. 185 at 1.

2. Community Input

ADA implementing regulations provide that, where structural changes are undertaken, a public entity “shall provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the

⁷⁰ Plaintiffs ask the Court to order that other work the City may do in connection with signals should oblige the City to add APS. The Court declines that request. At summary judgment, the Court held that adding LPs and EPPs to a signalized intersection does *not* constitute an alteration because such work entails at mere software change, SJ Op. at 61, and denied plaintiffs’ motion for summary judgment on whether work conducted pursuant to a Street Improvement Plan (“SIP”) or constituting a Capital Project so qualified, *id.* at 58–60. Plaintiffs have since dropped all claims not yet resolved. Plaintiffs nonetheless ask that the City be ordered to add APS on those occasions, plus anytime it “relocate[s], rebuild[ds], or replace[s]” signals, makes “major modifications” to a signal, or adds “new pedestrian heads and pedestrian crossings” to a signal. Pl. Mem. at 13; Barlow Decl. ¶ 5. There is no basis for the Court to so order as part of the remedy here, those claims no longer being live in this litigation. Nor does doing so aid plaintiffs in this litigation, because, being signalized, all such intersections will necessarily be outfitted with APS pursuant to this order, with those having LPI or EPP signals given priority.

development of the transition plan by submitting comments.” 28 C.F.R. § 35.150(d)(1). The MUTCD similarly encourages municipalities to turn to “local organizations, providing support services to pedestrians who have visual and/or hearing disabilities” as “important advisors” when considering the addition of APS. MUTCD § 4E.09(05).

Consistent with this guidance, the City is to assure members of the community, including the blind and advocates for the blind, regular opportunities to be heard as to the implementation of this remedial plan. Plaintiffs, Dr. Bourquin, and the United States have commended DOT for collaborating with the blind and being accessible to community input, including, historically, as to the selection of intersections to be equipped with APS. *See* Tr. at 43, 57, 132, 391, 407–08, 461. Mr. Benson also attested to the history of collaboration. *Id.* at 229, 249, 286–87, 309.

The City is to put in place mechanisms for continued outreach and collaboration by which the community can be heard on issues implicated by the remedial plan. As one such mechanism, the City has suggested development of an APS Advisory Committee that would meet quarterly, provide feedback on issues relating to plan implementation, and be comprised of representatives of DOT, of the Mayor’s Office of People with Disabilities, and of the blind community. *See* Def. Am. Plan at 8. The Court agrees that such a committee is worthy.

3. Independent Monitor

The parties disagree whether an independent monitor should be appointed to assist the Court in overseeing the remedial plan.

Plaintiffs favor such an appointment. They recommend that each quarter, the City submit a status report to the monitor, copying plaintiffs; that plaintiffs have two weeks to respond, including to claim any non-compliance with the plan; and that the monitor address any open issues with plaintiffs and the City and then file a report and recommendation to the Court. Pl. Mem. at 24.

Defendants oppose such an appointment. They argue that, based on publicly available data identifying APS-equipped intersections, plaintiffs and the public can themselves monitor the City's compliance. They urge the Court instead to adopt a "five-year lookback period" and review the City's compliance at five-year intervals. Def. Opp. at 22–23; Def. Am. Plan at 8.

The United States favors such an appointment. It recommends that the monitor review the City's APS installation plans for compliance with this order, and have the power (as would plaintiffs) to challenge these, but only if the City, in setting installation priorities, had failed to "adequately consider appropriate factors." U.S. Br. at 27; *see also* Tr. at 391 (plaintiffs, stating that they would not challenge DOT's installation priorities so long as these are reasonable and informed by the variables used in the Prioritization Tool). The monitor would also review the pace of APS installation and compliance with the MUTCD. The monitor would provide the Court with a written notice of any deficiency, attempt with the City to resolve the problem, and if unable to do so, recommend corrective action that the Court could then order. The monitor and plaintiffs would have authority to move to enforce the order. U.S. Br. at 30, 37–38. The monitor would also file annual reports with the Court. These would (1) identify the number of APS installations during the past year; (2) state whether the installations were consistent with the MUTCD; (3) state whether the installations were consistent with the priorities set by the Court; and (4) recommend modifications to the remedial order or the manner of its implementation. *Id.* at 29–30. The monitor would have access to City records as appropriate. The monitor would serve a five-year term; within a year of the term's end, the City and plaintiffs could petition to end, or extend, the monitorship. The City would pay the monitor's reasonable fees and expenses, with the monitor's annual budget, and fee applications, approved by the Court. *Id.* at 30–35. The United States notes that monitor appointments along these lines are familiar means

of assisting judges in cases where remedial orders directed to units of local government have entailed “discretionary and technical decisions” that inherently require “dedicated time and resources” to evaluate. *See id.* at 30–31.⁷¹ As to the identity of the monitor, the United States recommends that, within 45 days of the entry of this order, the parties jointly propose such a person. If the parties cannot agree, “within 30 days thereafter, and upon notice to the other party,” each party should submit to the Court the names and qualifications of up to three proposed independent monitors; that each party have three weeks to submit comments to the Court concerning the candidates, and that the Court thereafter select an independent monitor from among those nominees.⁷²

Substantially for the reasons articulated by the United States, the Court finds that an independent monitor is properly appointed here.

“The power of the federal courts to appoint special masters to monitor compliance with their remedial orders is well established.” *Mickalis Pawn Shop, LLC*, 645 F.3d at 145 (quoting *Yonkers Bd. of Educ.*, 29 F.3d at 44). “This Court has broad discretion to appoint a compliance monitor as a form of equitable remedy, and may tailor the appointment order to ‘the special needs of the individual case.’” *U.S. Comm. Futures Trading Comm’n v. Deutsche Bank AG*, No. 16 Civ. 6544 (WHP), 2016 WL 6135664, at *2 (S.D.N.Y. Oct. 20, 2016) (quoting *United States*

⁷¹ *See also* U.S. Br. at 31–32 (monitor’s responsibilities limited to monitoring City compliance with “primary terms of the order”) (citing, *inter alia*, Vanita Gupta, Associate Attorney General, *Review of the Use of Monitors in Civil Settlement Agreements and Consent Decrees Involving State and Local Government Entities* at 4 (Aug. 13, 2021) (“Gupta Memo”); *United States v. City of New York, et al.*, No. 11 Civ. 5845 (LTS), Dkt. No. 249 § XX ¶ 4 (S.D.N.Y. Oct. 21, 2015) (“The Monitor will not, and is not intended to, replace or assume the duties of . . . any . . . City officials.”)).

⁷² U.S. Br. at 32–33 (citing, *inter alia*, Gupta Memo at 5; *United States v. Westchester Cnty.* No. 06 Civ. 2860 (DLC), Dkt. 320 ¶ 9 (S.D.N.Y. Aug. 10, 2009)).

v. Apple Inc., 992 F. Supp. 2d 264, 280 (S.D.N.Y. 2014), *aff'd*, 787 F.3d 131 (2d Cir. 2015)).

Federal Rule of Civil Procedure 53 “supplement[s] a court’s inherent power to craft its equitable remedies.” *Apple Inc.*, 992 F. Supp. 2d at 280; Fed. R. Civ. P. 53(a)(1)(C) (court may appoint a master to “address . . . posttrial matters that cannot be effectively and timely addressed by an available district judge . . .”). Under that Rule, “[r]eliance on a master is appropriate when a complex decree requires complex policing,” including but not limited to “when a party has proved resistant or intransigent.” Fed. R. Civ. P. 53 advisory committee’s note to 2007 amendment (citing *Local 28, Sheet Metal Workers Int’l Ass’n v. EEOC*, 478 U.S. 421, 481–82 (1986)); *see also Apple Inc.*, 992 F. Supp. 2d at 281.

An independent monitor stands to play an important role in assisting the Court in its supervision of the remedial plan here. The plan above is substantial in the scope of work that it compels and in its duration and cost. The plan calls upon the City, over the next 10 years, to install APS at more than 9,000 intersections, and to organize these installations in a manner consistent with the remedial priorities set out herein. These terms are aimed at vindicating the rights, which the Court has held to have been violated, of a large class of blind and visually impaired plaintiffs. The plan affords the City considerable discretion to organize these remedial efforts, in recognition of DOT’s technical and organizational expertise and the efficiencies that DOT can achieve if given a reasonable range of motion. But this discretion is not unbounded.

In the Court’s judgment, an independent monitor can serve two particularly important purposes in this case. First, such a monitor can gather information and report neutrally to the Court on the implementation of the plan. That will enable the Court to act promptly if there is reason to question whether the pace or prioritization of the City’s APS installation departs from that ordered, if there is other actual or apparent non-compliance, or if a modification of the plan

is warranted. Second, such a monitor can mediate between the City, plaintiffs, and the public, so as to anticipate, avert, and resolve conflicts without a need for recourse to the Court.

The Court accordingly will appoint an independent monitor, with the authority and subject to the terms proposed by the United States. The monitor is to issue a report to the Court annually on the City's implementation of the plan. Such reports may make recommendations as warranted. The monitor may report more frequently to the Court in the exercise of the monitor's judgment. The monitor shall be given access to any records and information necessary for such work. At the start of each year, the monitor is to submit a detailed budgetary estimate of their anticipated fees and expenses, for the Court's review and approval. The monitor is to submit periodic applications to the Court for the approval of fees and costs. Those approved shall be paid by the City.

As to the selection of a monitor, the Court directs that plaintiffs and defendants promptly confer, and, within 45 days of the entry of this order, jointly recommend an individual to serve as the independent monitor and the basis for the recommendation. The Court encourages counsel to seek the input of the United States in this process. For guidance, the Court's judgment is that it is not necessary for the monitor to have expertise in disability rights, as plaintiffs have urged,⁷³ or in municipal contracts or transportation projects, as the City has urged.⁷⁴ More important is that the monitor be wise, energetic, experienced in mediation, and adept in acquiring, assembling, analyzing and reporting on the complex information likely to be received in the

⁷³ See Pl. Mem. at 24–25 (recommending two individuals with expertise in ADA and disability law compliance); *but see* Tr. at 408 (acknowledging that “it’s more important that [the monitor] be a good student” than have subject matter expertise).

⁷⁴ See Tr. at 449 (“defendants request that the [monitor] have a background in construction[,], municipal contracting[, and] municipal budgeting”).

course of his or her work. The Court will then meet with the proposed monitor to assess that person's suitability. If the parties cannot agree on the identity of the independent monitor, plaintiffs and the City, by the same deadline, are each to submit the names of up to three individuals and their qualifications; opposing counsel will thereafter have two weeks to comment upon the adversary's suggestions. The United States may also submit proposed names and commentary on this schedule. The Court will thereafter select an independent monitor.

The independent monitor shall have a term of five years. Within a year of the end of the term, the City and plaintiffs may petition to end or extend the monitorship, respectively. The parties, including the United States, are invited to respond to any such petitions. Upon receipt of the briefing, the Court will determine whether to end the monitorship, renew the existing monitor's service, or conduct another round of independent monitor selection, in the same manner as described above.

G. Modification

The parties have identified two changed circumstances with potential to justify modifying this remedial order. *See Sierra Club v. U.S. Army Corps of Eng'rs*, 732 F.2d 253, 256 (2d Cir. 1984) (court may modify final or permanent injunction "where conditions have so changed as to make such relief equitable"); *cf. Rufo v. Inmates of the Suffolk Cnty. Jail*, 502 U.S. 367, 383 (1992) (party seeking to modify consent decree "bears the burden of establishing that a significant change in circumstances warrants revision of the decree"); *Still's Pharmacy, Inc. v. Cuomo*, 981 F.2d 632, 637 (2d Cir. 1992) (citing *Rufo*, 502 U.S. 367).

The first involves alternative technologies. At present, APS is the only technology approved by the MUTCD to make crossings accessible to blind pedestrians. And although the hearing explored potential advances, *e.g.*, in smartphone technology, all agree that at present, there is no technology on the horizon that promises to comparably enhance access for the blind

to signalized intersections.⁷⁵ Because the remedial plan is of long duration—between 10 and 15 years depending on whether the City can demonstrate achievement of meaningful access before the end of Phase Two—it is possible that technology will develop that would equally serve the blind. The Court accordingly authorizes any party to move to modify the remedial plan, based upon a showing that a non-APS method exists that is at least as effective as APS at achieving access by the blind to the pedestrian grid. *See* U.S. SOI at 1–2 (so advocating).

The second involves circumstances that render the City’s performance actually or effectively impossible. *See* Def. Am. Plan at 8; U.S. Br. at 36. The Court has designed this plan with sensitivity to the City’s present and anticipated administrative and financial capabilities. But history, including recent New York City history, is a reminder to expect the unexpected. In the event of changed circumstances that make the City’s compliance with this order “factually impossible,” the City may move to modify. *Badgley v. Santacroce*, 800 F.2d 33, 36 (2d Cir. 2000) (quoting *United States v. Rylander*, 460 U.S. 752, 757 (1983)).

CONCLUSION

The Court has set out above the principal features of the 10-to-15 year remedial plan the City is to follow to remedy the violations that the Court has found of the ADA, the Rehabilitation Act, and the NYCHRL. Within 45 days, the parties, with the guidance and assistance of the

⁷⁵ *See, e.g.*, Pl. Mem. at 11 (APS today is the “only way to convey visual crossing information into non-visual formats accessible to people with vision disabilities”); Pl. Opp. at 17 (although a APS-related smartphone app exists to supplement APS use, smartphones alone are not a viable means of reliable access for a blind pedestrian—who may not have a charged cellphone with connectivity and the right app installed, who may not have hands free or be situated correctly relative to the crosswalk, and who may not be able to absorb a phone’s cues while hearing traffic cues); Barlow Decl. ¶¶ 32–34 (comparing the proposal to developing “a wheelchair that can climb curbs and stairs . . . so that DOT no longer needs to build curb ramps,” *id.* ¶ 34); Tr. at 128 (Bourquin: “many people in the blind community have not had the training to use smartphones”); Def. Am. Plan at 9–10 (noting DOT’s interest in next 10 years in exploring “new technologies that assist blind pedestrians,” including fobs and smartphone apps).

United States, *see* Dkt. 192, are to submit a joint proposed remedial order for the Court's review. The proposed order is to be consistent with this decision, while adding the operational detail necessary to reliably guide its implementation.

For avoidance of doubt, however, this decision—including as to the number of signalized installations to which APS are to be added in year 1 of the plan (2022)—is effective immediately.

SO ORDERED.



PAUL A. ENGELMAYER
United States District Judge

Dated: December 27, 2021
New York, New York