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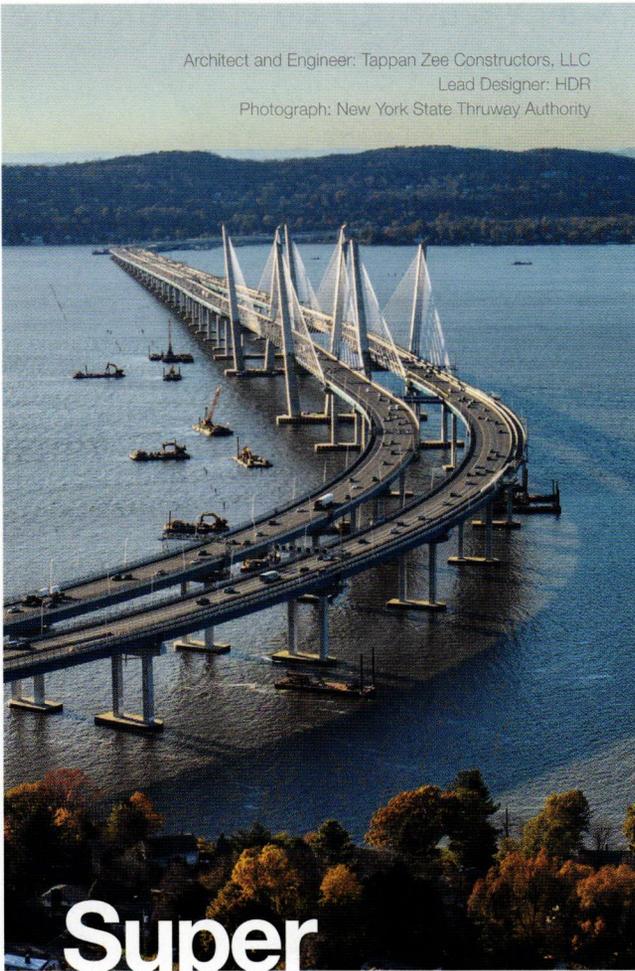
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# Super Mario

The Tappan Zee Bridge, revolutionary in its day, was well past the end of its operational life. Replacing it with the new **Governor Mario M. Cuomo Bridge**, a span of more than three miles across the Hudson River, required erecting a structurally complex cable-stayed design with careful attention to the river ecosystem. The resulting "smart bridge" takes an active role in monitoring its own performance while carrying traffic—a triumph that will benefit the Hudson Valley for generations to come. Read more about it in **Metals in Construction** online.

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# Oculus

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Summer 2020 Vol. 82, Number 3

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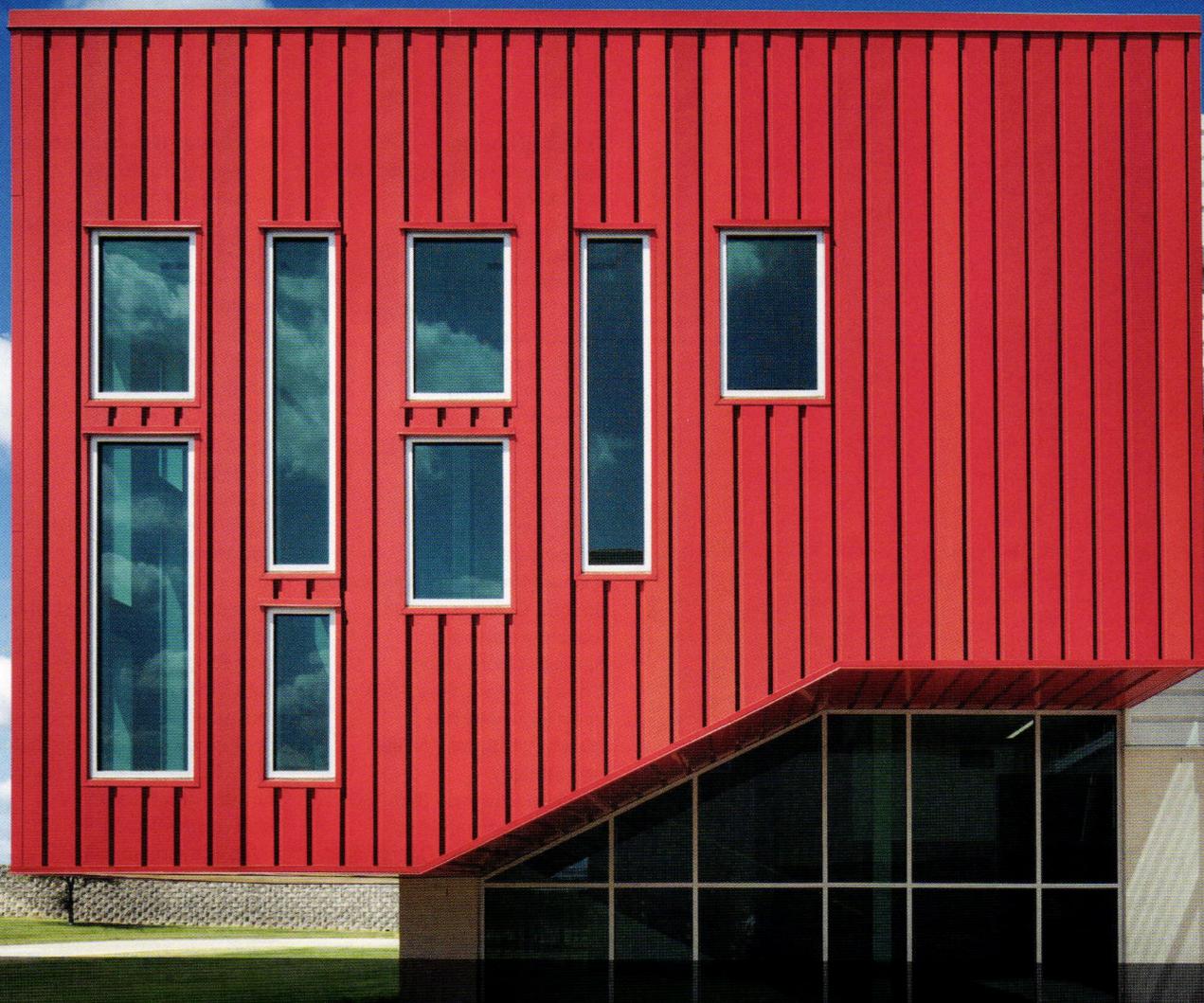
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# Vibrance



The upper two-thirds of this Technical Education Center is clad with Petersen's Highline S1 panel in three shades of red, gray and white, as specified by Pfluger Architects. The mix of finishes and profiles adds a high-tech appeal, with vibrant colors that pop and installation detailing that creates unique shadow effects.

**Career & Technical Education Center, TX** Installing contr.: Texas Roofing Co. Architect: Pfluger Architects  
GC: American Constructors Owner: Del Valle Independent School Dist. Photo: alanblakely.com

## Highline S1

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Bone White, Cityscape

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Architect: Morphosis Architects  
Curtain Wall Consultant: Arup, New York, NY  
Photograph: Matthew Carbone

# Picture Perforated

The first academic building to open on Cornell Tech's Roosevelt Island campus, the **Emma and Georgina Bloomberg Center** aims for net-zero energy performance, a mission that drives its advanced aesthetics. Designed by **Morphosis**, its facade of pixelated perforated aluminum and curved glass provides both thermal protection and inspiration for a new generation of research. Read more about it in **Metals in Construction** online.

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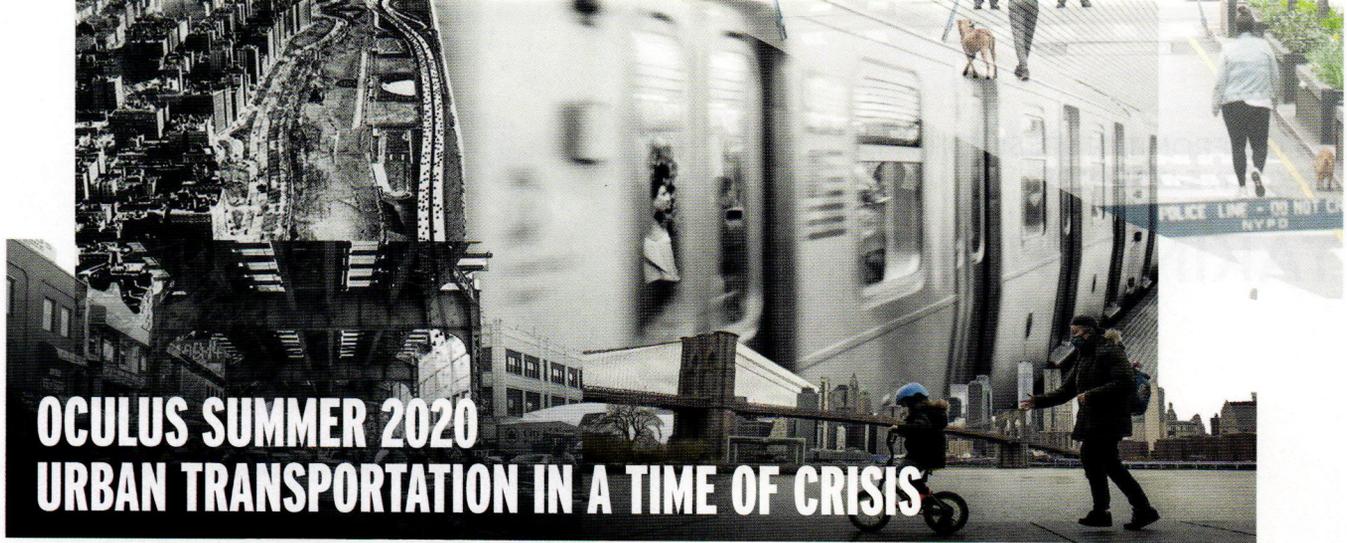
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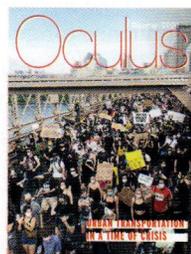
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**Cover:** Demonstrators march over the Brooklyn Bridge on June 4 after a memorial service for George Floyd, who died May 25 after being restrained by police in Minneapolis. Photo credit: Ted Shaffrey/AP/Shutterstock

**Above:** A multilayered depiction of mobility systems and public space. Image by Pauline Claramunt, Alique Berberian, Tyrene Calvesbert, and Laura Postarini

In the Spring 2020 AIANY Design Awards Issue of *Oculus*, several team credits were printed incorrectly. The credits for the Shed by Diller Scofidio + Renfro and Rockwell Group did not include a key collaborator, Sciam Construction. The credits for Coca-Cola Stage at the Alliance Theatre did not include some key collaborators and incorrectly segmented the Architectural Design Team along with collaborators. The correct credits for the Interiors Honors Award-winning project are as follows:  
**Architecture Design Team:** Victor F. "Trey" Trahan III, FAIA; Leigh Breslau, AIA; Brad McWhirter, AIA; Scott Melançon, AIA; Robbie Eleazer, AIA; James Babin, AIA; Ayesha Husain, AIA; Conway Pedron, AIA; Sarah Hussaini, Andrew Fu, Wenyun Qian  
**Collaborators:** Matthias Pliessnig, Uzun + Case, Theatre Projects Consultants, Talaske Group, DLB Associates Consulting Engineers, Cost+Plus, Fisher Marantz Stone, Thirst, Jensen Hughes, Lerch Bates

# TAKING STOCK

Photo credit: Sam Lahoz



Kim Yao, AIA, and Benjamin Prosky, Assoc. AIA, at the 2020 Board Inaugural in December 2019

Since the last issue of *Oculus* was sent to print, the world as we know it—at home, at work, in our neighborhoods, and beyond—has been radically disrupted.

COVID-19, with its unprecedented death toll and attendant economic collapse, has exposed the fragility of much of our way of life—our public health system, strained to the brink by the pandemic; our social circles; our employment and places of work; and our public space and public infrastructure systems.

The pandemic has also underscored long-standing structures of racial inequality in our society, brought violently to light by the brutal murders of George Floyd, Breonna Taylor, Ahmaud Arbery, and countless others. Loud, inspiring calls for a collective awakening to the realities of racial injustice have flooded our cities, as thousands have taken to the streets in support of Black Lives Matter.

As we move from pandemic to protest and reopening, there is much uncertainty. It is clear that we are experiencing a city in crisis, in terms of public health, the economy, the environment, and equity. These issues force us to question basic tenets of city life, as city dwellers, citizens, and architects. How do our spaces need to evolve?

Our public space has become contested ground: How do we gather, and

how do we move around our city at a time of pandemic and protest? How do we accommodate the expansion of vehicular traffic, parks, and outdoor dining, and also our citizens' constitutional right to demonstrate under these circumstances?

As architects, we are used to quickly jumping into our roles as problem solvers. However, as we prepare to address these issues, we invite our community to step back and take stock. Now is the time to ask hard questions of ourselves and of our profession. Too much has gone inadequately examined for too long.

How has our profession failed to meaningfully address racial inequality in its history, and why?

What are our levers of greatest influence for good?

What is an architect's unique responsibility at this time?

How will, and how should, our profession adapt to these changing times?

People pursue architecture to make the world a better place in which to learn, work, socialize, and live. We strongly believe in the power of designers to help reshape our world. But we know that the ways in which we engage communities and design must evolve.

At the time of publication, the staff, board of directors, and many

members and constituents of the organizations in the AIA New York Chapter are probing these questions and more. We will be collecting suggestions, ideas, and criticism from members and our broader community. We invite you to join us in this work—which will take much of our collective time and effort—and to see this as an opportunity to envision our city, together, as a place that is inclusive and just for all. ■

Kim Yao, AIA  
2020 AIANY President

Benjamin Prosky, Assoc. AIA,  
Executive Director  
AIA New York Chapter Center  
for Architecture

## LETTER FROM THE EDITOR

# TRANSFORMATION IN PROGRESS

Photo credit: Nir Arieli



Last September, when our team was planning *Oculus* themes for the upcoming year, we decided to focus on “Urban Transportation at All Scales” for our Summer 2020 issue. At the time, upgrades at LaGuardia Airport and proposals addressing the crumbling Brooklyn-Queens Expressway were in the works; new ferry routes were proliferating in NYC’s waterways; and bikers and pedestrians were continuing to gain ground in the city streets.

Six months later, when we had our (virtual) *Oculus* Committee meeting in mid-March, we voted to shift the issue theme to “Urban Transportation in a Time of Crisis.” In my editor’s letter for the Spring 2020 issue, I mourned the loss of architect, critic, and contributor Michael Sorkin to COVID-19. This terrifying new disease would go on to expose catastrophic design flaws in systems intended to ensure our health and well-being, revealing planning that was grossly inadequate and unequal.

And now, three months after that meeting, this issue already feels out-of-

date. But I hope it helps document the beginning of a transformational moment in history.

In late May, violent images of police brutality towards Black citizens riveted the world’s attention. These inhumane acts, amid the disparities of the pandemic, laid bare the ultimate design flaw of U.S. society: structural racism. It’s a daily, mortal threat to people of color living in our country, and it’s an existential threat to the country itself in its perpetuation of inequality.

The articles in this issue were largely completed before the watershed weeks of late May and June. We’ve edited down the pages to represent work that may remain relevant to the conversation happening now. We acknowledge that what remains, however, which focuses on urban transportation and mobility in the time of the pandemic, does not adequately engage in the critical discussion our nation is having about race and social justice, particularly how structural racism reveals itself in design and the built

environment. This conversation must be ongoing and inclusive, and *Oculus* commits to addressing this more thoughtfully and directly in our pages going forward.

A final note: Since our last issue, the architecture community has lost another leading voice, Bill Menking, co-founder and editor-in-chief of *The Architect’s Newspaper*. Bill was a mentor to many architecture and design journalists (myself included), and, like Michael Sorkin, was committed to promoting debates about the role of architecture in society that engaged those beyond the profession. I hope that by more actively participating in conversations that matter, we can honor the memory of both. ■

A handwritten signature in black ink that reads "Molly Heintz".

**Molly Heintz**  
Editor-in-Chief  
editor@aiany.org

## CONTRIBUTORS

**Polly Adams** (“Street Level”) is a design researcher and writer based in Brooklyn. A recent graduate of the rigorous one-year master’s program in the Design Research, Writing & Criticism program at the School of Visual Arts, she’s interested in designed experiences that shape individual identity and codify social behavior.

**Margaret Arbanas** (“Corona Chronicles”) attended the Harvard University Graduate School of Design and later joined Rem Koolhaas’s Office for Metropolitan Architecture and its think tank, AMO. Her work has received grants and honors from the Graham Foundation, Croatian Academy of Sciences and Arts, and American Institute of Architects.

**Linda G. Miller** (“Beyond the Center”) practices PR/Marketing and is also a freelance writer who has contributed to *Oculus* and writes the “In the News” section in the AIANY Center for Architecture Newsletter.

**James Russell, FAIA**, (“At the Center”) is an architecture critic, journalist, teacher, and consultant. He’s the author of the book, *The Agile City*, and

has written for *Architectural Record*, Bloomberg News, *The New York Times*, and other publications.

**Patrick Sisson** (“Movement Politics,” “Street Smarter”) is a journalist and Chicago expat living in Los Angeles. His writing, which also explores music, art, and technology, has been published by the Verge, Vox, Pitchfork, Curbed, and Wax Poetics. He is the author of *This is Chicago*, a book about the history of design and designers in Chicago, published in 2015.

**Stanley Stark, FAIA, NCARB, LEED AP**, (“Summer Reading”) has been associated with *Oculus* since 2003 as a writer and an illustrator. He currently serves as the *Oculus* book reviewer.

**Stephen Zacks** (“Public Transportation in Crisis”) is an architecture critic, urbanist, and curator based in New York City. He is founder and creative director of Flint Public Art Project, co-founder of Chance Ecologies and Nuit Blanche New York, and president of the non-profit Amplifier Inc., which develops art and design programs in underserved cities. ■



## STREET LEVEL

# ON THE GROUND: HOW A GRASSROOTS NETWORK OF ARCHITECTS PRODUCED CRITICAL PANDEMIC RESPONSES

BY POLLY ADAMS

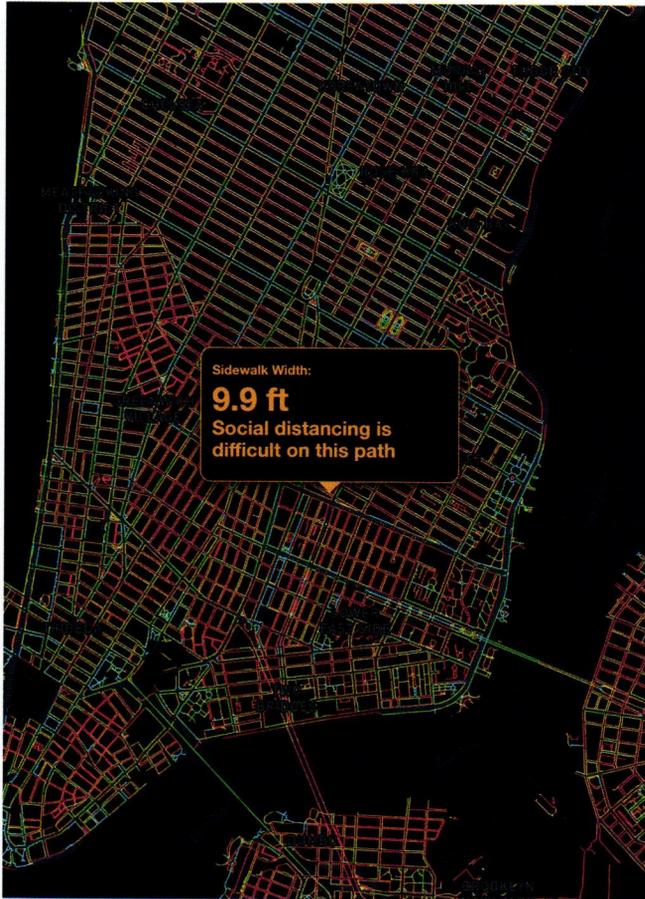
Our “Street Level” column usually covers new public-facing projects in New York City. At this moment defined by COVID-19, however, architects are connecting with New Yorkers in other, more immediate ways: Their work can be found in the six feet between pedestrians and on the faces of essential workers.

In cities like New York, the recommended social distance is difficult to achieve outside a select few streets closed to traffic and opened up for pedestrian use. As illustrated by a data visualization called Sidewalk Widths NYC, created by computational designer Meli Harvey of the urban innovation organization Sidewalk Labs, social distancing is challenging—if not impossible—to maintain in most of the city’s sidewalks. With the majority of her map ablaze in the yellow, orange, and red that suggest a narrower pathway, Harvey’s

work paints the average city sidewalk width of between five and 10 feet as an overlooked aspect of crucial infrastructure that also now presents the omnipresent threat of disease.

The New Yorkers at the highest risk are those working on the front lines. During an astounding shortage of personal protective equipment (PPE) like masks, gloves, and face shields, healthcare workers and medical centers are left exposed and in need. While Governor Andrew Cuomo has been fighting at a federal level to use the Defense Production Act to get private manufacturers to help build critical equipment, production has ramped up at a grassroots level to construct, assemble, and distribute PPE to local healthcare facilities.

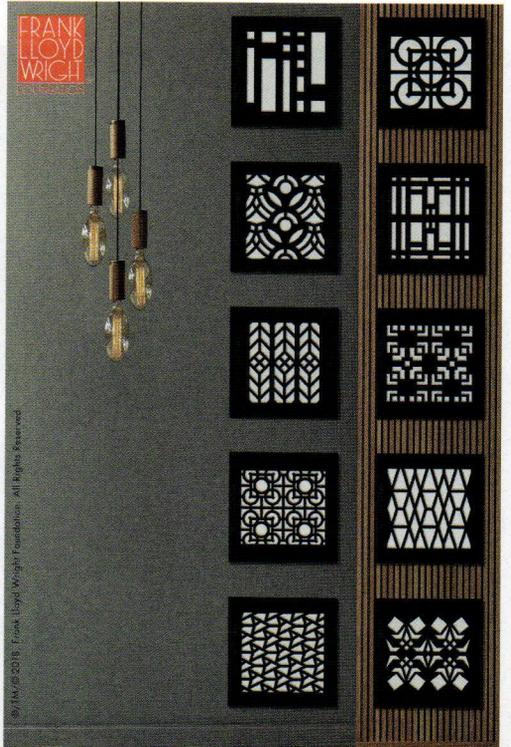
Jay Valgora, AIA, Cornell University alum and founder of STUDIO V Architecture, is an example of someone



Facing page: Mobile COVID-19 testing labs designed by Perkins and Will, Schmidt Hammer Lassen, and Arup. Left: Legend to Sidewalk Widths NYC, an interactive website, shows which colors represent varying widths and level of ease in social distancing, via data from New York City's Open Data initiative.

seeing this process through end to end. STUDIO V has been producing thousands of PPE visor units, and Valgora has personally biked them across the East River with his son Jesse, an architecture student at Syracuse University. Their work is part of Operation PPE, a rapidly expanding collaboration between Cornell's College of Architecture, Art, and Planning, led by Jenny Sabin, and her transdisciplinary design research lab, Sabin Lab, to 3D-print and laser-cut materials for protective face shields.

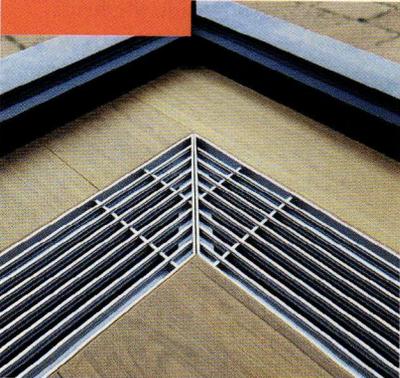
After an urgent request from Kirstin Peterson, assistant professor of electrical and computer engineering in Cornell's College of Engineering, to make PPE for Weill Cornell Medicine in New York City, Sabin reopened the university's Digital Fabrication Lab in Ithaca and assembled an elite league of faculty, staff, students, and alumni like Valgora practicing across the state to start printing equipment—all within the span of 24 hours. Fielding the late-night email from Sabin, Valgora woke up, walked over to the fabrication lab at his studio three blocks away from his Manhattan apartment, yanked out the 3D printers, hauled them back



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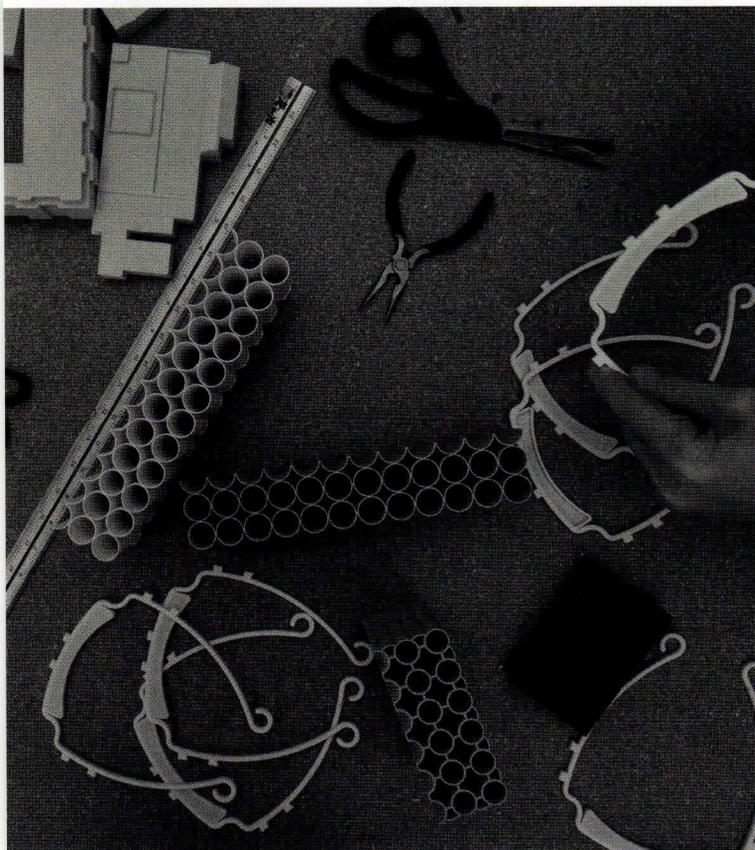
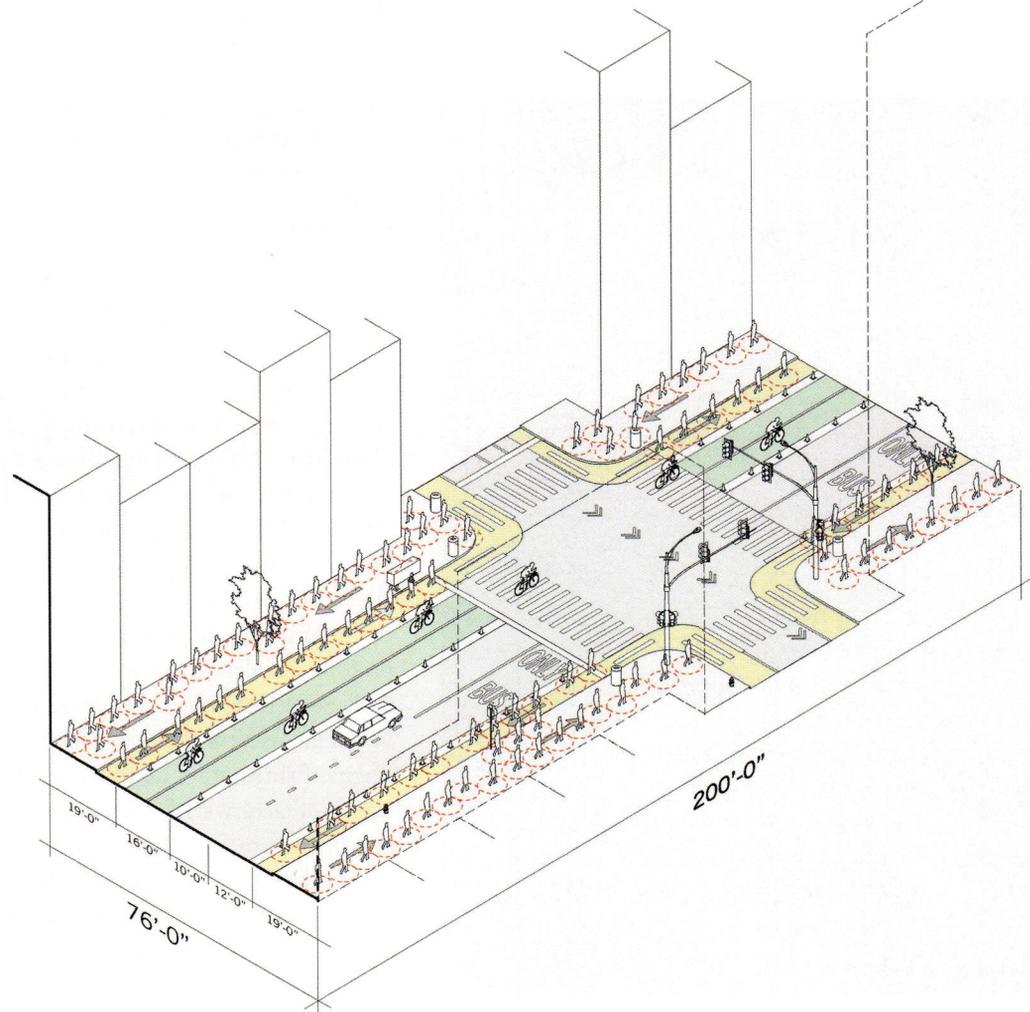
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home, and promptly turned his family's loft into a visor manufactory.

The efforts of grassroots production would be all for naught without the equipment actually making it to its final destination, which is why Valgora and his son have also created a website of resources for interested makers and a Slack channel to coordinate the crucial next steps of sterilization, assembly, and delivery. Volunteers have been working in maker spaces like NYC Resistor in Downtown Brooklyn to package and distribute PPE materials after they've been safely dropped off by the city's expanding network of urban makers.

Other strategies to combat the disease are oriented around the need for more widespread and rapid testing. Perkins and Will's New York studio, alongside the firm's Danish affiliate, Schmidt Hammer Lassen and Arup, has delivered a plan to retrofit out-of-use school buses into mobile testing labs. Meant to meet the needs of more densely packed and economically diverse urban areas like New York City, the retrofitted design is easily replicable to offer mobilized support to those that need it most. According to Mariana Giraldo, Perkins and Will architect and strategic planning specialist, "It is the underserved communities that need our urgent help at this time." Her team hopes the design of these mobile testing labs will

Opposite page, top: A sample street section diagram from the *Manual of Urban Distance*. Opposite, bottom: 3D-printed headbands for the 3DVerkstand Face Shield design. This page: PPE being delivered via bike from Manhattan to Brooklyn by Jesse Valgora, Jay Valgora's son and four-year architecture student at Syracuse University.

offer antibody testing and administer vaccines—once approved—to the city's most vulnerable populations.

In times like these, having a plan in the works can feel like a powerful weapon, even if it's just the sketch of a plan. The Princeton University School of Architecture awarded professors Paul Lewis, FAIA, and Guy Nordenson a research grant to develop their *Manual of Urban Distance: Strategies for Reconfiguring the City*. The guide proposes spatial strategies for limiting the spread of diseases in public spaces like sidewalks, parks, buses, and retail environments in densely populated cities as they move forward with social distancing. Lewis, principal at LTL Architects in New York, says that one of their big picture goals is to “develop a visual language that makes the important scientific findings more legible” with a level of precision that practicing architects like themselves are used to deploying on a regular basis.

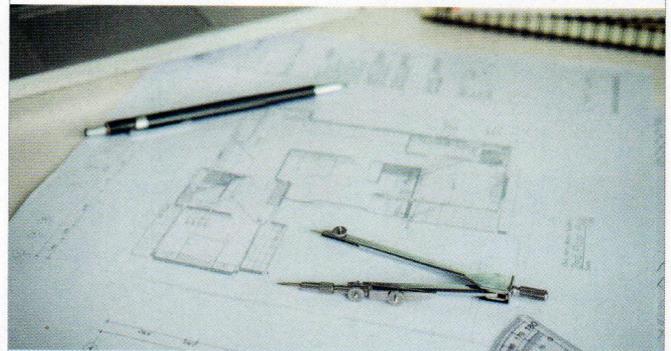
To track and help coordinate the groundswell of activity, the AIA New York Chapter formed the COVID-19 Unified Task Force in late March under the leadership of Illya Azaroff, president-elect of AIA New York State. While the task force first focused on immediate needs, such as producing PPE and advising on temporary health facilities, the team is now looking at long-term civic and design issues related to COVID-19. The group aims to partner with city agencies to create solutions and guidance for the complexities of a post-pandemic New York. Azaroff, keenly aware of how lessons learned in New York can be applied to other densely populated cities, believes the ways in which New York rises to the challenge of helping its population survive a global pandemic will “indicate some solutions that work for other places yet to feel the worst of it.”

In the interim, AIA members across the city and state are using the tools at their disposal to provide more grassroots-style responses that have grown to merit government attention. Practitioners like Valgora are teaming with the Unified Task Force to help synchronize the efforts of offshoot factions and enable widespread expansion. Despite the alarmingly high estimations of PPE needed at hospitals nationwide, Valgora's optimism is unflinching. “Efforts are only going to increase,” he says, “as these networks continue to grow and grow.” ■



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# ON VIEW

Public Art at LaGuardia Airport  
Terminal B

Opened June 13



Left: *Shorter than the Day*, a sculpture by artist Sarah Sze (b. 1969, Boston, MA), evokes the passage of time through an intricate constellation of photographs of the NYC sky, taken over the course of one day. Right: *La Guardia Vistas*, by Sabine Hornig (b. 1964, Pforzheim, West Germany), is a transparent photo collage that fills an expansive glass façade on the terminal's connector structure.

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Governor Andrew M. Cuomo opened the new world-class Arrivals and Departures Hall at Terminal B in June, marking the biggest milestone to date in the transformation of LaGuardia Airport. Designed by HOK and WSP USA, the four-story, 850,000-square-foot facility contains passenger services and amenities including airline check-in, baggage drop-off and pick-up, and security, plus extensive food, beverage, and retail options. The steel-framed terminal, with its linear, precisely articulated form, presents a modern face to both the terminal's landside and airside. Connected to two island concourses by a pair of transparent-walled, 450-foot-long steel truss pedestrian bridges, the Arrivals and Departures Hall serves as the heart of the new terminal. Elevated 65 feet above grade, arriving and departing passengers can view taxiing planes pass beneath them. The bridges also enabled the design team to move the terminal 600 feet closer to the Grand Central Parkway, which allowed for the construction of two miles of aircraft taxi lanes.

New Yorkers missing the city's art galleries and museums may want to get their fix by visiting the terminal's new collection of site-specific artwork, most of which is accessible without a boarding pass. In partnership with LaGuardia Gateway Partners, Public Art Fund commissioned the installations, which include permanent works by Jeppe Hein, Sabine Hornig, Laura Owens, and Sarah Sze, as well as temporary artwork, throughout the facility. **Linda G. Miller** ■

Photo credit: Nicholas Knight

# HELPING ARCHITECTS JOIN FRONTLINE EFFORTS TO COMBAT COVID-19

JAMES RUSSELL INTERVIEWS AIANY UNIFIED TASK FORCE CHAIRMAN ILLYA AZAROFF

Illya Azaroff, AIA, a leader in disaster mitigation, resilient planning strategies, and design is chairman of the AIA New York Unified Task Force City and State, which has brought together architects and related professionals to help government agencies and client groups respond to emergency needs around COVID-19. Azaroff is the founding principal of the firm +LAB, an associate professor at the New York City College of Technology in Brooklyn, and a founding co-chair of the AIANY Design for Risk and Reconstruction Committee, formed after Hurricane Sandy. He is also the AIANYS 2020 president-elect.

As the overwhelming impact of COVID-19 cases on hospitals became evident in mid-March, the New York State Department of State put out a call to architects to rapidly assess buildings as candidates for instant conversion to hospitals. One of the people contacted was Azaroff, New York State AIA's disaster coordinator. "Within half a day, members supplied the department with 1,000 candidate buildings from Buffalo to Taconic," says Azaroff. "That was the initiation of the task force." The New York State Department of Health then asked James Crispino, AIA, and Elizabeth Sullivan, Assoc. AIA, co-chairs of AIANY's Design for Health Committee, to supply contacts for architects, engineers, and facility managers in healthcare. At that point, state and city AIA chapters worked together to formalize the task force so it could offer pro bono services at both city and state levels. That formalization "allowed architects to be effective immediately," Azaroff explains.

Architects and related professionals mounted a heroic effort with hospital systems to upgrade conventional patient rooms and find space within existing facilities that could be turned into COVID-19 beds—and did it in a matter of days. Other architects began fabricating face shields and face masks. As the demand for personal protective equipment in New York has declined, notes Azaroff, these architects "are looking at how they can export them around the country."

With the need for hospital rooms abating, a parallel task group, led by Nick Radjovich, AIA, at SUNY Buffalo, quickly connected to the ASHRAE Epidemic Task Force for COVID, the University of Oregon, the



Illya Azaroff, AIA

CDC, "and some of the top researchers in the country to get the best current knowledge out there," says Azaroff. ASHRAE with volunteer architects is translating this knowledge into graphic advisories to inform the design of buildings. The task group's work will be folded into strategies being developed by AIA National.

New York's Department of City Planning and its Economic Development Corporation (EDC) are working with the AIANY Unified Task Force to participate in a series of charrettes to rethink the role of streets, now that the city is permitting restaurants to take over curb lanes to create socially distanced dining opportunities. The workshops are looking to reconcile the proposals of interest groups advocating bike-lane extensions, bus-only lanes, and greater use of streets for socializing and recreation. "Since EDC has stated that 20% to 30% of street-level retail businesses will fail," explains Azaroff, "we're asking whether that unoccupied space can be helpfully repurposed in the short term—for a summer pop-up or to ease the expansion of a restaurant into an adjacent space. These are short-term tactics but lead to needed, long-term thinking about the city."

There are other programs, too, including one to help out-of-work architects. Is working pro bono sacrificing



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Photo credit: Iliya Azaroff

Screenshot of a Zoom meeting of the Unified Task Force, a partnership of AIA New York City and AIA New York State (from left to right): Top row: Iliya Azaroff, Gretchen Bank, Alexander D'Amato; Middle row: Georgi Ann Bailey, Nicholas, Jay Valgora; Bottom row: Jonathan Marvell, Willy Zambrano, Stefan Knust.

necessary income? “We’ve been criticized for doing no-fee work,” replies Azaroff. “As an AIA member, you have the responsibility, written into the code of ethics, to help people. We volunteered after 9/11 and Sandy, and we will continue to help communities.”

Azaroff is disgusted at the squandering of federal resources that could have limited the impact of the coronavirus. He worked on the National Disaster Framework developed for FEMA and the Office of the Assistant Secretary for Preparedness and Response within the Department of Health and Human Services in the Obama Administration. “We looked at all hazards both natural and manmade,” he says, working with “all the hospital associations, critical care facilities, and emergency response teams around the country. Hundreds of people were involved.” As Azaroff puts it, “The incoming administration did not take kindly to some of our work.” It essentially disbanded the high-level Pandemic Task Force intended to bring such threats to early attention by the executive branch, dissolving in the process “a network that chained together hospital and research laboratories globally,” which was sorely missed when supply chains and testing methods failed. “You can’t play with people’s lives,” he adds. “To know that these resources were not deployed as powerfully as they could have been tears at me.”

Now city agencies are looking to the task force to consider “cascading effects”—a summer heat emergency or hurricane that could arrive atop the need to social distance or isolate vulnerable populations. Azaroff is cheered by the swirl of activity that puts architects at the center of recovery. He says, “I can’t tell you how amazing it is to work with all these people with great ideas, just giving and giving.” ■

A cyclist crosses the street in New York City. Cities worldwide are discussing how to turn more of their streets over to cyclists as public transportation ridership decreases during the pandemic.



# RETHINKING URBAN MOBILITY

The coronavirus pandemic fundamentally changed the way New Yorkers engaged with public space, and particularly with public transportation. Subways remained open, but with most offices closed, ridership dropped over 90% at the peak of the lockdown. As researchers began to take stock of the virus' spread, data showed that our transportation systems and public spaces were not the great equalizers we imagined, and in fact do not nearly meet the demands of low-income neighborhoods and communities of color, especially in the face of pandemic. Though much of this issue was conceptualized before conversations about race and social justice became an emergent part of the evolving mandate for urban planners, architects, and the public as a whole, relevant threads remain. In "Public Transportation in Crisis," Stephen Zacks speaks with transit analysts, planners, and architects grappling with the demands of growing and reimagining our systems to meet the needs of all New York's

boroughs. In a pair of features, Patrick Sisson writes about cities around the world that hope to become more resilient, in turn enabling better health and economic outcomes for residents, then directs attention to how New York may use its abundant curb space to create a more accessible and economically stable city for all.

Perhaps the most hopeful visions in this issue are those still on the boards. In a series of visual op-eds, architects responded to this magazine's question of how the city's public spaces, urban streetscapes, and transportation structures could adapt post-pandemic. New York has already seen many essential workers begin commuting by bike, and neighborhoods making the most of Open Streets, an initiative that turned paved roadways over to pedestrians. We hope these are just the first steps to creating more equitable transportation options and public spaces for the city's residents. *The Editors* ■



# PUBLIC TRANSPORTATION IN CRISIS

In emergencies, essential workers rely on safe mass transit. How can its design offer a cleaner, healthier commute for all?

BY STEPHEN ZACKS

Early in the shelter-in-place process to prevent spread of COVID-19, newspapers, researchers, and public agencies began publishing data showing heavily disproportionate numbers of positive coronavirus tests and deaths in predominantly Black, Latino, and low-income neighborhoods. The virus seemed to be charting a taxonomy of social and economic disparity: unequal access to healthcare, service workers laboring under unsafe conditions, and a public transportation system—otherwise considered a great social leveler—rendered a nexus for the spread of disease. By May 1, it was reported, more than 3,000 Metropolitan Transportation Authority (MTA) workers had tested positive, and 98 had perished.

Demographic studies have commonly indicated a correlation between poverty, spread of COVID-19, and serious complications from the infection in New York City. The New School's Urban Systems Lab used census and NY Department of Health data to map concentrations of cases alongside indicators of social vulnerability and projected climate impacts. Low-income neighborhoods and communities of color are consistently the most adversely affected, with the worst impacts correlating with lack of health insurance, high-density inhabitation of residential units, and higher numbers of elderly residents.

As information accumulates about the spread of coronavirus, transit agencies, researchers, engineers, and architects

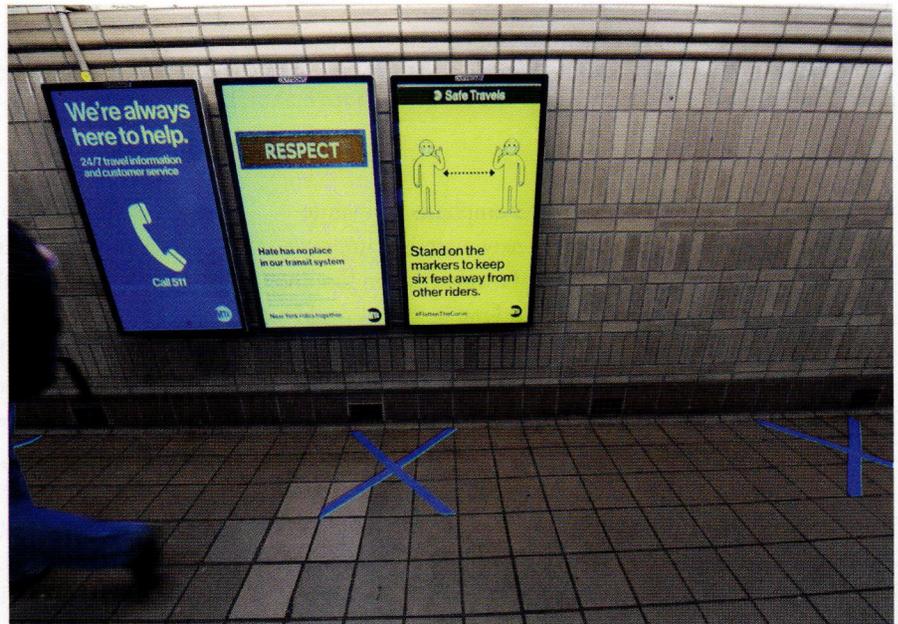
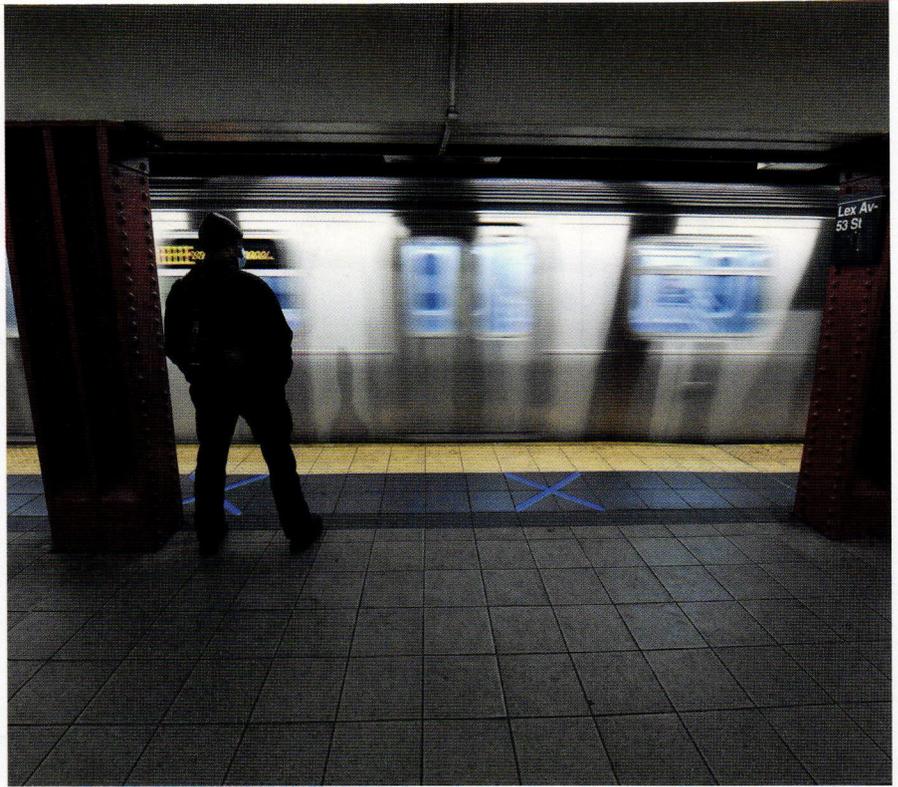


Photo credits: Marc A. Hermann/MTA New York City Transit

are wrestling with its implications for the design of public transit systems and the future of cities. How can networks be adapted to meet public safety guidelines of six feet of separation between people? What long-term changes in paradigms, infrastructures, technology, materials, maintenance, and behavioral habits will the crisis provoke and necessitate? What policy shifts can make whole the previously thankless labor of grocery clerks, stock boys, warehouse employees, food processors, nurses, doctors, EMTs, pharmacists, truckers, and sanitation and maintenance people christened “essential workers”?

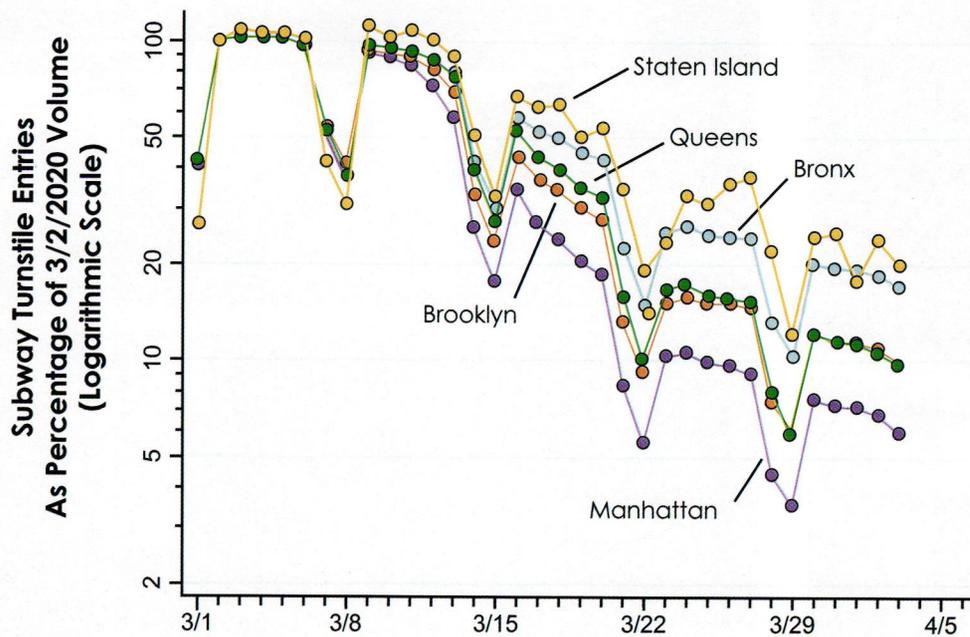
For firms working in the public transportation sector like Dattner, Gensler, and Nelson\Nygaard, and policy advocates

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**“Making walkable villages would be spectacular if it came out of this, but that has been in our minds for the last 100 years—making cities more compact.”**  
**—David Epstein**

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Left: The 34th Street station of the Number 7 Subway Line Extension, designed by Dattner. Top and above: Taped markers and signage in subway stations were an early intervention to encourage riders to stay six feet apart.



An MIT study charted daily numbers of turnstile entries for the five boroughs of New York City, computed on a logarithmic scale as a percentage of peak ridership on March 2, 2020. Source: "The Subways Seeded the Massive Coronavirus Epidemic in New York City," Jeffrey E. Harris/MIT

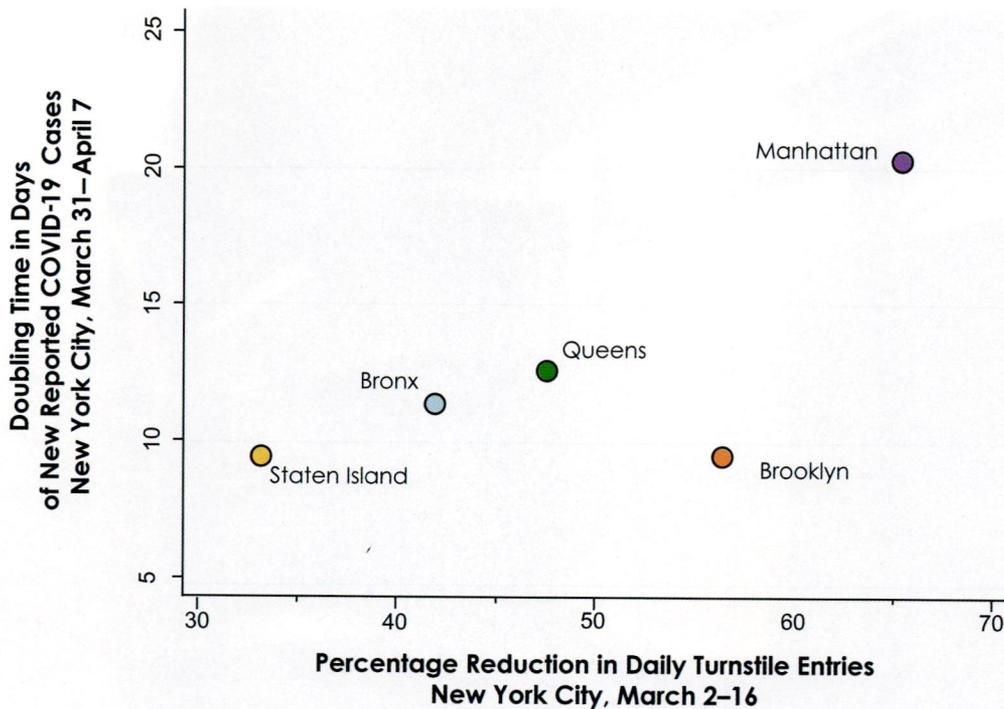
at Transportation Alternatives, greater emphasis on maintenance and cleanliness, incorporating new materials, improvements in service, better distribution of transportation funding, and reimagining the city's planning and public spaces could be critical outcomes. "Some things are definitely going to affect us a long time," says David Epstein, a Gensler design director and principal specializing in the future of cities. "Architecture's basic core premise is about security and shelter. In these times, you're looking for anything that makes society feel safer. The environments that we create will be at the front of the mind right now. How do we create environments that the public feels safe in? That's going to touch many aspects."

Epstein mentions emerging practices like taping sidewalks and public spaces at six-foot intervals to mark safe distances of separation, and the absorption of the street by café and restaurant seating as examples of how the public is quickly adapting, reshaping cities and transportation systems. A study released in April by MIT economist Jeffrey Harris, "The Subways Seeded the Massive Coronavirus Epidemic in New York City," has been widely criticized for its methodology, but still set off questions about the subway's role in the outbreak and pointed at vast disparities in usage between boroughs. Before the virus, open gangway subway cars were already ordered to allow for more space; now they might contribute to providing greater distance between passengers. In late March, the MTA asked riders to avoid public transit to allow essential workers safer passage. As parts of the economy reopen, it may encourage those living

closer to their jobs to walk or use an alternative form of transportation, which could reshape land use and planning decisions toward a more walkable city where people live closer to work. "I could see returning to almost a village mentality," Epstein says. "Making walkable villages would be spectacular if it came out of this, but that has been in our minds for the last 100 years—making cities more compact."

In office buildings, Epstein points out, Destination Dispatch elevator systems are being completely overhauled: instead of figuring out how to get the most people to floors efficiently, designers are reprogramming elevators to limit occupancy. In lieu of consolidating in one central location, will corporate headquarters move to a distributed model where people can live closer to work? "There are a lot of conversations happening right now about what the current situation of working from home means," says Urban Systems Lab fellow Pablo Herreros. "If they were reinterpreted in the new normality we're going to have to live, perhaps they could also add potentially positive things."

Larry Gould, a principal of the transportation planning firm Nelson\Nygaard and a former MTA employee, notes that normally the transit system should be flexible enough to change service in response to new conditions. In designing systems, he conducts studies to determine demand, then crafts the service, planning pathways, the number of cars on trains, hours of operation, and intermodal connections. Under normal circumstances, conductors can be redirected before their shifts to busier lines based on changing needs: the MTA is now increasing service



The percentage reduction in daily turnstile entries from March 2 to 16, versus the estimated doubling time of new reported COVID-19 cases during the subsequent week of March 31 to April 7, in the five boroughs. Source: "The Subways Seeded the Massive Coronavirus Epidemic in New York City," Jeffrey E. Harris/MIT

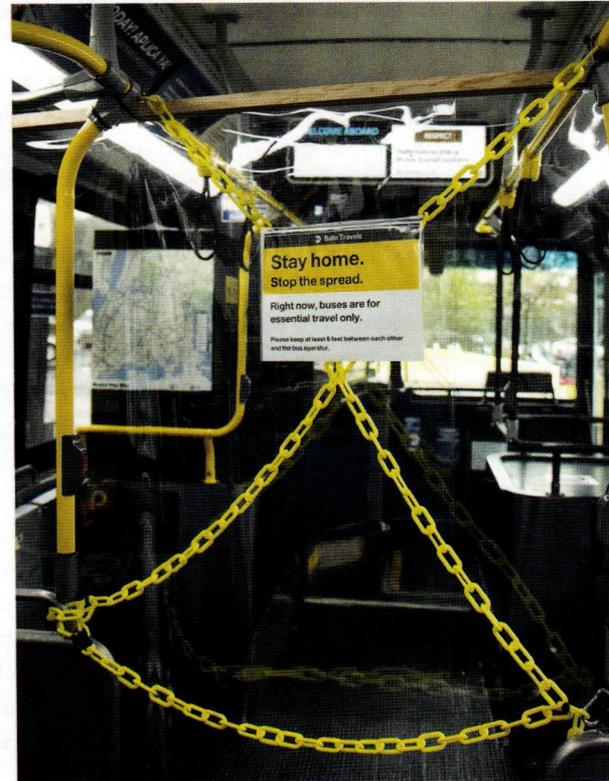
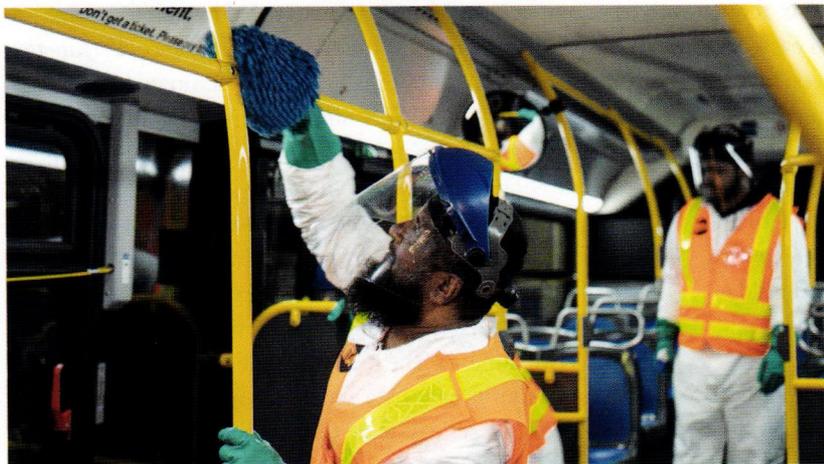
in the Bronx, for instance, where the highest demand is being experienced. Despite a massive 90% decrease in ridership, shorthanded staffing reduced their ability to respond to the crisis more quickly, resulting in the alarming instances of crowded cars.

Gould talks about the enormous shift in thinking a six-foot distance represents in a system that had assumed each passenger should have only a three-foot-square area to themselves. In the short term, service can be improved to ensure trains and buses are evenly spaced and loaded, and sneeze barriers and ventilation can be installed to prevent spread of airborne diseases, as the MTA is already doing in its back-of-house areas. Long-term, new materials are undoubtedly being contemplated to help with maintenance and prevent the spread. "The surfaces used inside vehicles and stations were designed generally for reasons other than preventing virus transmission," Gould says. "They were designed first to be easy and cheap to maintain, to look pretty good even when they're dirty, to be quick to clean, to be aesthetic for people riding the vehicles and in stations, and in some cases to respect history, particularly in the older parts of the subway. So everything about surfaces in the subways and buses answers to reasons primarily other than virus transmission. I've got to believe that in transit agencies all over the world, the people responsible for maintenance are meeting with the people responsible for safety and trying to see where they can change surfaces to maintain them better—surfaces that lend themselves to it."

The MTA, for its part, has responded to the pandemic with an array of measures. From March 2, when the first cases ap-

peared in New York City, through the end of April, the MTA says it distributed six million gloves and one million masks, cleaned 700 subway and rail stations twice a day, and cleaned the entire fleet of vehicles once every 72 hours. Messaging on screens and at entrances are accompanied by public service announcements giving health and safety guidance. Person-to-person transactions at booths have been eliminated. Plexiglass shields are installed in MTA offices to protect employees, and vinyl shields are being tested for buses. Temperature checks are conducted daily on more than 3,500 employees. Buses began boarding from the rear doors; the front seats are blocked off on express lines to protect drivers. Most recently, the MTA shut down overnight train service from 1am to 5am for cleaning and disinfection, and is testing antimicrobial and ultraviolet treatments. The new Essential Plan Night Service increases bus service by 76% and adds for-hire cars originally contracted for Access-A-Ride to meet riders' needs.

An article that has aged particularly well amid the pandemic, "Hail the Maintainers," by Andrew Russell and Lee Vinsel, was written four years ago for the digital magazine *Aeon*, arguing that maintenance matters more than innovation in most people's lives. With the desire for better upkeep of systems and appreciation for the role of caregivers and maintenance workers, Dattner Architects Principal Jeff Dugan hopes for a greater value placed on what happens after things are built. Dugan co-chairs AIA New York's Transportation and Infrastructure Committee, advocating for architectural design in the sector,



Top: The open-gangway mockup of the R211 subway car installed in the lower mezzanine of the 34th Street—Hudson Yards subway station. Above and right: On April 21, New York City Transit and MTA Bus implemented new measures to protect its 53,000-person workforce and vast ridership. These included disinfecting frequently used surfaces more often and installing vinyl barriers between drivers and riders. Opposite page: Gensler is designing a confidential Smart City project in Guangzhou, China. A “before” rendering (top) represents a typical street, while an “after” image (bottom) depicts the use of autonomous modes of public and private transportation and increased areas for pedestrians, cyclists, and people engaging in non-vehicular activities.

and is developing an Infrastructure and Crisis program responding to current events. “There’s not enough leadership behind maintenance,” says Dugan, who has designed several MTA stations, including the Hudson Yards 7 train extension. “It’s not just the effort to do it, it’s also the respect for what it means to do it. As architects, of course, we like to design buildings and public spaces. I like to equate it to a house: once it’s built, it starts to deteriorate, it starts to change, and you have to do things to it. Once you build them, you have to maintain them. Cleanliness is one of those things. It’s a two-way street. There are the people who maintain the stations and the cars, and there are the people who use them. If you don’t maintain them, people begin to disrespect the stations.”

For its part, the Urban System Lab is focused on the issue of equity in the pandemic response, aiming to provide open-source applied research to administrators free of cost, using computational resources similar to those developed by private companies like InfoWorks ICM as proprietary software. “Part of the work we’re doing in the lab is to democratize access to that data and say, ‘Here’s another way of doing it,’” says Urban Systems Lab Assistant Director Christopher Kennedy. “More generally, we’re advocating to use more data-driven strategies to target emergency responses to communities that need it the most. We’re not necessarily seeing that in real time. We often work with the Mayor’s Office of Resiliency in helping provide the data and tools they might need in addition to what they already have access to and say, ‘South Bronx and Queens actually need additional resources, and that should be a part of any emergency plan that’s put into place.’”

Yet transportation advocates point out that an underlying factor is the lack of funding. Before the crisis, the MTA already suffered a \$9.8 billion shortfall for its capital plan. With the loss of ridership, decreases in tax contributions, and mounting costs of the emergency response, the MTA now estimates \$125 million a day in lost revenues. Danny Harris, executive director of Transportation Alternatives, joined a group of organizations advocating for \$3.8 billion in Congress’s COVID-19 stimulus package to cover the MTA’s operating losses. They are asking for an additional \$3.9 billion to cover costs, without any structural improvements.

“I can imagine no shortage of scenarios,” says Harris of the hopes for a change in priorities. “The reality is that we have this administration and any administration that would come next. We should wish to have a high-speed rail network like Japan, Germany, Switzerland, or France, and a bike network like the Netherlands or Denmark. We should wish to have active and vibrant public space as they do throughout southern Europe. But



all that requires the political will and the vision that those things are not whimsy, they’re not partisan. When you build them, they create more vibrant and connected regional economies.”

Harris cites a Harvard study that shows the decrease in highway traffic during the COVID-19 crisis has improved health conditions in places like the Bronx, and traces a relationship between the higher rate of virus hospitalizations and deaths with the concentration of diesel-fueled trucks passing through the borough. Transportation Alternatives argues for congestion pricing, lower speed limits, Vision Zero as national policy, and a

shift in funding and regulations on the part of the National Highway Transportation Safety Administration away from supporting car travel and in favor of protecting pedestrians and cyclists and improving public transit. “We’re not trying to sell America new ideas,” he says

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**“We’re not trying to sell America new ideas. We’re trying to encourage them to adopt ones that have been successful in other places for decades.” —Danny Harris**

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of the organization’s public transportation, walking, and biking advocacy. “We’re trying to encourage them to adopt ones that have been successful in other places for decades.”

The takeaways from the COVID-19 debacle go to the heart of how we choose to live, with the potential to impact public policy and behavior for generations. “If you look at history, cities have survived pandemics, epidemics, flus, plagues—all kinds of things,” Dugan says. “You could probably come up with civilizations that have been eliminated by plagues. The time certainly presents itself as an opportunity for cultural change.” ■



# MOVEMENT POLITICS

The best planning responses to the pandemic see transit as a way to move people—and money—during the recovery.

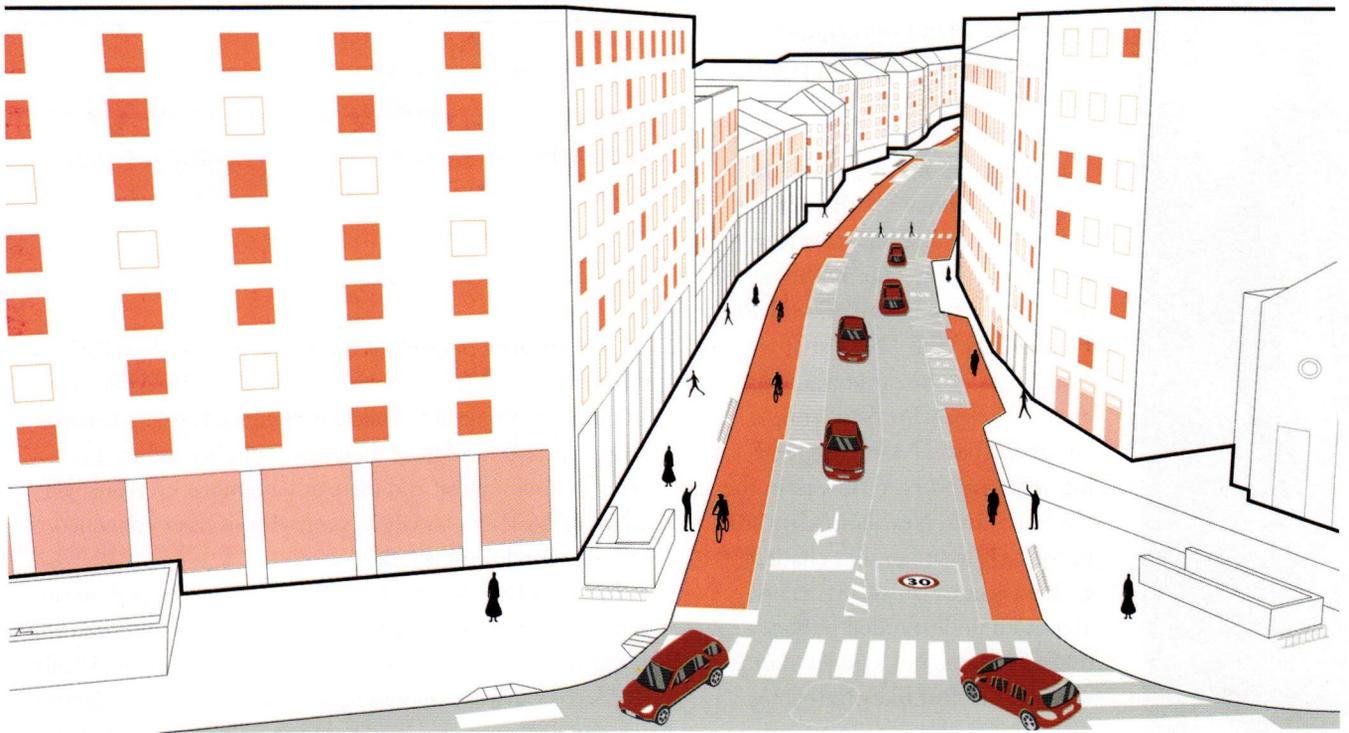
BY PATRICK SISSON

As our understanding of the machinations and mysteries of coronavirus evolve, one of the pathogen's striking features is how it targets the weakest among us. Indeed, it's hard to imagine a recovery that doesn't focus, in large part, on helping these vulnerable populations.

The toll of the virus on cities, and the corresponding response from local leaders, may follow a similar logic. As it becomes clear that COVID-19 is hitting low-income, marginalized populations more—highlighting weak spots in social safety nets and the transportation systems that support

essential workers—it becomes imperative that cities like New York plan to bounce back in ways that confront these issues head-on. “Leading cities are doing what’s needed now to create a safe and equitable environment,” says David Miller, director of international diplomacy for C40, a coalition of global cities fighting climate change. “Cities that are focused on using this opportunity to become more resilient and lower carbon will have far better health and economic outcomes.” The clarifying nature of a major crisis offers blueprints for cities to not just survive, but improve. Different places will come out of





Above: Comune di Milano's *Strade Aperte* or "Open Roads" plan will rethink mobility and public space in the coming months. The municipality's work began in April at Corso Venezia. Left: Diners enjoying outdoor seating in a public square as cafés started opening up for business in April around Lithuania's capital city, Vilnius. Opposite page: A cyclist making use of the capital city's first contra-flow cycle lane in Auckland, New Zealand.

cars away from the city center. A cornerstone of this strategy, the *Strade Aperte* plan, is bolstering business by expanding sidewalks for commercial activity. While New York doesn't lack walkable commercial corridors, cramped small businesses and restaurants need more room to be able to operate amid the need for social distancing. Milan Deputy Mayor Marco Granelli explicitly says the investment in making more room for shops on busy streets such as Corso Buenos Aires is about creating an economic advantage for his city. "Milan's thinking is focused on neighborhoods, and while the health and climate benefits of such a plan need to be emphasized, the economic arguments are very powerful," says Miller. "Repurposing streets to enable active transportation, on a neighborhood basis, is a powerful tool for small business."

Melbourne, Australia, is also expanding a similar program, creating what planners there have called a "20-minute city." The concept, which was introduced in 2017 but has gotten

renewed attention due to the pandemic, is to alter planning, land use, and transit to be super-localized so that every need of a resident can be met within a 20-minute walk or bike trip. For many New Yorkers, this lifestyle is already a reality and one of the main reasons they picked their particular neighborhood. However, equal access, particularly when it comes to jobs and greenspace, should be something all New Yorkers enjoy. (In 2015, New York University researchers found neighborhoods with limited access to transit have a 50% higher unemployment rate.)

Hand in hand with the neighborhood-first focus of plans like those unfolding in Melbourne and Milan is the comprehensive nature of the transit vision; ideally, every part of the city is accessible, both within itself and to other parts of the city. SPUR's Arieff says these kinds of large-scale car-free infrastructure pushes, similar to the bike booms in cities such as Copenhagen, Denmark, offer riders the safety, peace of mind, and ease that changes culture. "A lot of people underestimate the importance of safety," she says. "The network needs to be big enough to make it feel like you're not the one fighting for your place on the road."

Other cities are experimenting with pilot programs that provide even more space for local businesses. In Lithuania,




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**“The network needs to be big enough to make it feel like you’re not the one fighting for your place on the road.”**  
**—Allison Arieff**

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COVID-19 response. Cities can apply for grants to finish placemaking projects, such as widening curbs or painting new bike lanes, making tactical urbanism a de facto government policy. “There are plenty of examples—from the way Curitiba, Brazil, transformed its bus system, to New York City, where they turned Times Square from a traffic jam into a place for people—that show cities taking advantage of quick, affordable opportunities,” says C40’s Miller. “I’m very optimistic about the success of these measures to quickly and inexpensively change public spaces.”

By dedicating more street space to pedestrians, cyclists, and businesses, cities will eventually have to reckon with larger transit questions, notably public transit’s crisis of trust and ridership. According to Regina Clewlow, an analyst and founder of Populus, a transit data consultancy, numerous surveys have shown that since the spread of coronavirus, many riders aren’t comfortable using buses and trains. In New York City, where so many workers traditionally depend on transit, this will become a crisis: ridership on subways and buses has been down 90% since mid-March, according to the Metropolitan Transit Authority. Clewlow believes that micromobility—specifically bicycle sharing, electric scooters, and electric bikes—can offer car-free options to former transit riders, especially for the great proportion of trips that are less than three miles, which make up 45% of total trips taken in the U.S.

Leaders in Berlin, Germany, feel the same way and have responded by making the first 30 minutes of any ride on their bike-share system free to encourage more cycling. The German capital’s bike-share support shows another long-term benefit to these ad-hoc responses: new ways to improve equity and access to jobs. That’s ultimately what can make all these changes work politically and become permanent.

“The status quo left folks behind,” says Benito Perez, a transit official and member of Smart Growth America. “The temporary changes and solutions you’re now seeing in city streets highlight the need to rethink public space design to create a more equitable, multimodal, and complete system.”

These policy solutions may be improvisations, but the best can be viewed as investments towards a better transit network for all, one that improves transportation access and, in effect, boosts economic opportunities and mobility. After all, while most people just want to go back to normal, they probably wouldn’t mind if that return didn’t include traffic jams, congestion, and air pollution. ■

the capital city of Vilnius plans to turn over a wide swath of street space, including public squares, to restaurants to create massive, open-air cafés for the era of social distancing. This plan stands in sharp contrast to the approach currently being taken in U.S. cities, says Alissa Walker, urbanism editor at Curbed, which tends to focus on recreation as the reason to open streets. “The most critical thing right now is people want to go to work,” she says. “Vilnius’s example shows we can close streets and pump money back into the economy. That’s going to help a lot more than closing a residential street so someone can exercise. If you really want to make systemic changes in transportation, we need to find better ways to talk about the changes.”

Arieff sees Vilnius as a textbook example of tactical urbanism. The open-air bazaar approach isn’t perfect, especially when the weather doesn’t cooperate, and won’t single-handedly save the local restaurant industry. But it will immediately provide something nearly everyone craves—a sense of community—and help pay for itself by helping restaurateurs. It also reinforces public space as a public good. In similar fashion, Goodwin and his Perkins and Will colleagues have designed a system to turn school buses into coronavirus testing and tracing centers, utilizing clever modular design and a surfeit of street space to provide much-needed healthcare infrastructure. “It’s a way to reintroduce public life that so many other places can copy, and I think it could really be transformational and stick around,” Arieff says.

In similar fashion, New Zealand launched Innovating Streets for People, a \$7 million fund, to create safer streets and more livable places as part of the nation’s overall



FEATURE

# STREET SMARTER

Streets and sidewalks emptied due to coronavirus. Can addressing the pandemic help urban designers reimagine urban mobility?

BY PATRICK SISSON

Of all the places that went quiet during the sudden coronavirus quarantine of New York City, the silent streets and sidewalks may be the most unnerving. More than 6,000 miles of roads, from small side streets to broad boulevards, course through the city's five boroughs, serving as urban arteries of people, vehicles, and commerce. The curbs, lanes, sidewalks, and public spaces that serve as main stages of civic life have rarely been as hushed and desolate.

They've also rarely been as full as potential, promise, and possibility.

"The curb is incredibly contested space," says Emiko Atherton, director of the National Complete Streets Coalition for Smart Growth America. "It's always been one of the most valued pieces of city real estate. But today, in the midst of this crisis, there's a higher tolerance for experimentation. There's a huge interest in repurposing these spaces to make them flexible and more useful for economic development and small business."

Today's unprecedented public health crisis has placed new demands on cities to expand public space and transit access, creating a moment of reflection that transit and urban planning professionals see as potentially transformative. This pause, which has led many cities to quickly open up streets to pedestrians—including New York City's plan to open 100 miles of street this summer across all five boroughs—shows the speed at which change is possible. "The curb is this incredibly flexible space, yet we typically think everything that happens there is permanent," says Anne Goodchild, who runs the Urban Freight Lab at the University of Washington in Seattle, a program that seeks to understand urban delivery, logistics, and transportation. "This moment gives us an opportunity."

The contemporary understanding of the curb, typically a place for parking and long-term car storage, was already undergoing a titanic shift before the pandemic, in large part because it was getting so crowded. Various interest groups wanted the same stretches of asphalt and concrete to serve



Facing page: Installation of the Sunset Park El-Space Pilot at the intersection of 36th Street and Third Avenue. The initiative is a collaboration between the Design Trust for Public Space, the NYC DOT, and various community groups and organizations. Left: Students in the RISE Shore Corps program plant a dunescape at the Rockaways El-Space Pilot.

tion to create ad-hoc public space. “Public space has never been more important than it is today, but it has never been more threatened,” says Matthew Clarke, director of the New York-based non-profit Design Trust for Public Space, pointing out that new challenges with municipal and state budgets will mean there are significant funding gaps to fill if projects are to move forward. Still, there is broad recognition among civic leaders and the public that improvements to public space are now necessary to support public health and small businesses alike.

Any alterations to curbs, streets, and sidewalks will first need to recognize the increasing demand for this contested space to serve the immediate community and multiple constituencies. One source of pressure is the delivery infrastructure, which has become a more dominant source of traffic as consumers try to stay at home, and the need for pick-up and drop-off space for businesses attempting to operate amid changing social distancing requirements. Professor José Holguín-Veras, director of the Center of Excellence for Sustainable Urban Freight Systems at New York’s Rensselaer Polytechnic Institute, studies the e-commerce delivery ecosystem and says it’s easy to blame the increase in delivery traffic on the retailers. But this is really a classic example of a collective action problem that encompasses consumer behavior, municipal policy, and corporate profit-seeking (as is any reallocation of public space, curb or otherwise).

The e-commerce delivery ecosystem saw rapid growth before the pandemic (holiday delivery traffic alone increases about 5% each year, and truck traffic creates 28% of the nation’s congestion). Since shelter-in-place and quarantine practices became widely adopted in the U.S., Holguín-Veras

has seen exceptional growth; many high-income homes have increased e-commerce purchases between 75% and 100% between the first and second quarters of 2020.

“When I talk with drivers for UPS, FedEx, and Amazon, they tell me this period

is busier than the holiday season,” he says. “What’s obvious today is that supply chains are important, and now people have awareness of what they took for granted. Hopefully, that translates to more enlightened policies.”

Holistic solutions fly in the face of how curbs and parking typically get viewed—as a block-by-block, zero-sum game.

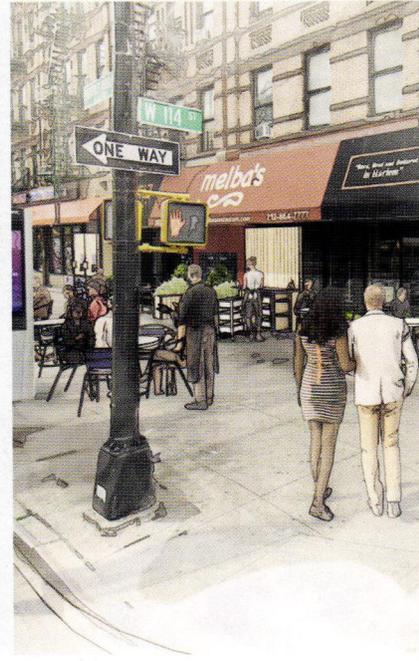
multiple goals: Amazon delivery vans; couriers for restaurant delivery services like Grubhub; vehicles for transit network companies, including Uber and Lyft; electric scooters, Bike Share, and other micromobility services; and pedestrian and cycling activists demanding a safer travel option.

While the demands of social distancing in the COVID-19 era may have emptied out streets and sidewalks, they’ve paradoxically accelerated these transitions. Older cities such as New York already had narrow sidewalks; the demand for enough space to stay six feet apart has pushed planners to quickly repurpose travel lanes meant for cars, setting off a race to see which planning department can convert space the quickest, and opening up an unprecedented period of experimenta-

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**“The curb is incredibly contested space. But today, in the midst of this crisis, there’s a higher tolerance for experimentation.”**  
**—Emiko Atherton**

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Will changes or new regulations slow down traffic or lead to more congestion and parking problems? But curbside policy that increases travel options that don't involve cars and makes delivery, pick-up, and drop-off more efficient, thereby improving both e-commerce and local business operations, can strengthen the neighborhood fabric.

"How does the public realm support small businesses?" says Clarke. "Part of the issue is realizing that our collective American understanding of public space is pretty limited. We can point to a park or a plaza, but public space is everything from the property line out—the sidewalks, streets, and roughly 40% to 50% of the city. Our design and management of these spaces need to be more assertive."

Figuring out how to manage the cost of using the curb is essential, says Regina Clewlow, an analyst and founder of Populus, a transit data consultancy. Traditional cost control, via meters or free parking, should shift to become dynamic—varying prices during different times of the day to steer delivery traffic into certain windows, or pushing up the price of parking to encourage mass transit. Congestion pricing charges, which apply additional road fees to particularly busy times of the day, could also space out traffic in cars and on transit, which would benefit from less crowding. Efficiency isn't just about saving money; decreasing congestion saves lives and cuts emissions.

There's also the question of city revenue. Expected budget shortfalls due to the virus' economic fallout make it more

imperative that cities use curbs to raise money and generate taxable economic activity. Smart Growth America found cities have lost roughly 80% to 95% of their typical parking revenue since early March. The short-term reality of limited income, and the long-term trend towards more delivery activity by players like Amazon, suggests a fee for e-commerce delivery is in the public interest, says Benito Perez, a transit official and member of Smart Growth America. Such a plan could be modeled off trials in Chicago that charge fees for Lyft and Uber rides to fund public transit.

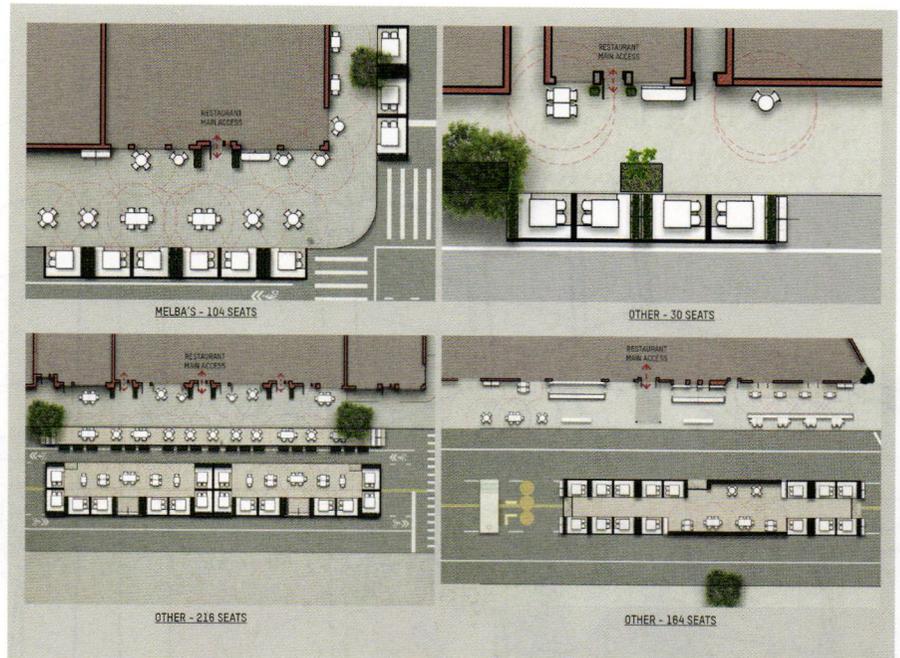
As more traffic—delivery, pedestrian, and otherwise—returns to city streets, advocates want to make sure the disruption caused by coronavirus offers a chance to reorient streets and city policy towards health, safety, and mobility. The moves to rapidly turn over traffic lanes to pedestrians suggests more

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**"This situation has put into stark contrast who relies on public transit, who's more exposed to poor transit infrastructure, and where people are more likely to die riding a bike." —Regina Clewlow**

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thoroughfares should be given over to Complete Streets projects, which take away lanes of traffic and reorient the streetscape towards pedestrians and cyclists with more space for walking, parks, and bike lanes. These projects offer needed transportation alternatives today, especially for essential workers who typically rely on public transit, which faces a crisis of dwindling ridership due to safety concerns. "This situation has put into stark contrast who relies on public transit, who's more exposed to poor transit infrastructure, and where people are more likely to



die riding a bike,” says Clewlow. “Good plans will address these issues.”

By focusing on adding car-free transit options now, says Atherton, cities can build long-term transit networks that benefit equity issues in general. Comprehensive bike networks and additional park space add greenspace to areas that lack it, which in turn can help eliminate health disparities between neighborhoods. According to the Trust for Public Land, adding park space to the streetscape, especially trees, provides needed shade, assists with stormwater drainage, and is proven to boost physical and mental health. It also helps lower barriers to public park access; nearly a third of city residents aren’t within a 10-minute walk of a park. Oakland, California, which unveiled a citywide Slow Streets project in April that covers 10% of city roadways, prioritized neighborhoods that lack park access. “We need to make sure these changes aren’t just adding resources to neighborhoods that already have a large share of them,” Atherton says. “If these projects are done right, people will want them to stay, and you can build political will to make them last.”

Clarke, of the Design Trust for Public Space, has been testing and trialing different ways to activate unused streets and sidewalks in New York City, giving locals the power to improve their neighborhoods, one block at a time. His Under the L project has outlined ways to turn some of the unused space below highway underpasses into parks, and a pilot program with the New York City Housing Authority will test ways to create new park projects outside the entrances to larger housing projects. Clarke is currently working with the city’s small business services on a new initiative to make it easier for small businesses to turn the curb to their advantage, focused on loosening regulations and speed-

From left: A rendering of Opening the Edge, a design concept by the Design Trust’s Community Design Team, envisions a vibrant public space at the base of the Lillian Wald Houses on Manhattan’s Lower East Side. Rockwell Group worked with Melba’s in Harlem to envision outdoor seating options. The firm has developed five scales of cost-effective interventions, from minimal to more complex, that would allow restaurants to easily customize their own outdoor environments.

ing up permitting so it’s easier to set up street-side seating or new signage, or create delivery and drop-off zones. “We see it not just as having access to the asset—it’s about empowering people to be shapers of their community,” he says of these projects. “The management of these spaces is one of the hardest parts.”

Following discussions with restaurant operators and staff, New York-based Rockwell Group has already reimagined what outdoor dining could look like by designing a system of parts, including modular seating, wash stations, and street fencing to help local restaurants safely and economically expand outward onto the street. If done right, these changes can also help people get back to work and be promoted as ways to build up neighborhoods at a time when we fear the grocery store around the corner going out of business. Increasing sidewalk pickup may be a good start now, but wouldn’t it be better to make it easier for someone to simply walk or bike to the restaurant? More public space—trading traffic lanes for outdoor table spaces—literally provides the space for business in a post-COVID world.

This crisis—of public health, public policy, and the economy—is an inflection point for street design. Architects, designers, and policymakers need to seize the chance to act quickly and shape how the circulatory system of the city operates in the future. ■



A sample sketch by WXY encourages Brooklyn LAB Charter School students to imagine how social distancing might operate at the arrival and queuing area for their school.

## VISUALIZATIONS

# THE FUTURE OF SHARED SPACE IN NYC

As we all try to imagine the changes that will help our city move forward after this unprecedented time, how should our public spaces, urban streetscapes, and transportation structures adapt? Is this a time to build more isolation into our cities, or to discover new ways of being together? The *Oculus* editorial staff posed these questions to architects and students, inviting them to submit their early and evolving ideas in the form of visual op-eds. Showing a careful eye toward new standards for shared spaces, the following images and words are some of their responses to the city's current and future needs. *Jennifer Krichels* ■

# A NEW AND IMPROVED URBAN STREETScape

By DXA Studio

In response to recent times, the traditional New York avenue is transformed. The streetscape we are so familiar with has a new order, welcoming developing and future technologies. Dedicated lanes are assigned for deliveries, first responders, construction and city maintenance, electric bus services and trams, shared mobility vehicles, cyclists, and joggers, providing a safe, efficient, and enjoyable experience for all. The pedestrian public way is elevated, with the main entrance to existing and new buildings occurring at the second level. With the reduction of brick-and-mortar retail, the first floor of existing buildings is reused to provide spacious depots for the delivery of goods and services. Belowground levels become spaces for long-term storage of nonperishables, medical equipment, and emergency supplies. Server hubs occupy the lowest floors, ensuring each building and its tenants have the most up-to-date technology and Internet speeds.

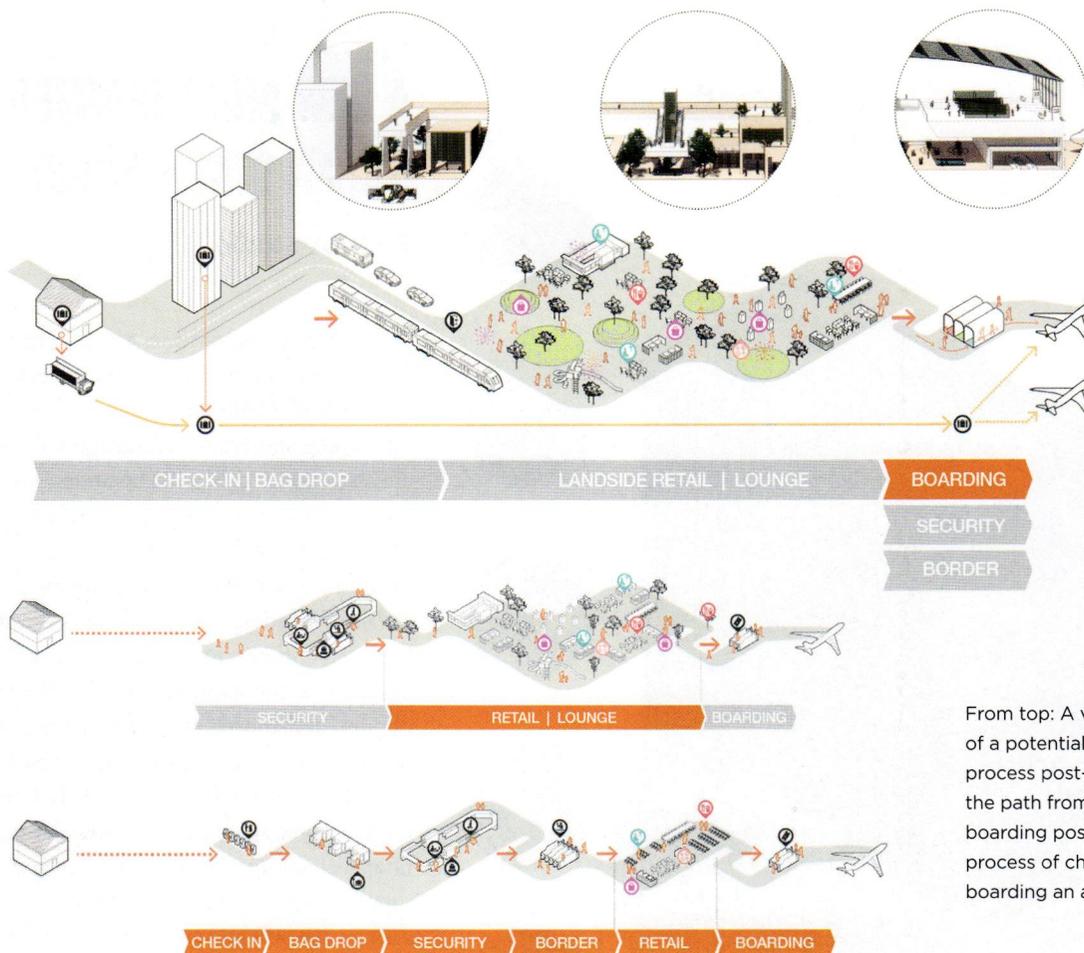
The focus is on health and well-being for the city dweller. Zoning laws are revised to make way for building forms that are driven by light and access to fresh air and nature. All urban dwellers have their own or shared outdoor space. Existing buildings' roof decks become urban farms, providing fresh produce for the city. The typical office building follows a similar form, with extensions to the outside provided at each level. Office floors are more flexible, with spaces stretching to the outdoors when social distancing is required.

The subway is dedicated to essential workers and medical requirements in times of emergency. Subway trains are transformed to safe havens for the transport of essential medical supplies and hospital staff. At the height of health scares, several train cars on each line are converted to treatment and testing facilities for the very ill and vulnerable.

Lastly, a new layer of circulation occurs where extensions from the main pedestrian thoroughfare become meandering organic paths through elevated garden pads. Here, small gatherings can safely take place. A network of these pads traverses the cityscape, providing rich visual connections to all activity while maintaining the ability to keep a distance. ■



The transformation of a typical New York avenue would involve top-down changes, including zoning laws that allow for more access to light and outdoors, new lane allocations for certain types of traffic, and the use of subways for medical transport during times of emergency.



From top: A visualization of a potential checking-in process post-COVID-19; the path from security to boarding post-COVID-19; the process of checking in and boarding an airplane today.

## SAFE TO FLY: THE TOUCH-FREE FIRST LINE OF DEFENSE

By Woods Bagot

*James Berry, global transportation leader, and Matthew Abbott, regional aviation sector leader, share their insights on designing people-centric airports post-coronavirus.*

Post-corona, air travel will adapt to reflect a global refocusing on safety and wellness. Airports will be cleaner, safer, and more sustainable, while also taking on the responsibility of being the first line of defense against the next global pandemic.

**The touch-free terminal:** Biometric contactless technology will become more commonplace and allow passengers to be processed without physical documentation such as passports and paper boarding passes. Coupling this with virtual queuing technology and door-to-door baggage delivery, we'll see shorter wait times

**The outdoor terminal:** Airports may encourage dwell time in the open air, limiting time spent indoors, where contagion is more likely. These open-air spaces will create meaningful associations with their setting, moving airports firmly away from the homogenized "white box" design towards site-specific

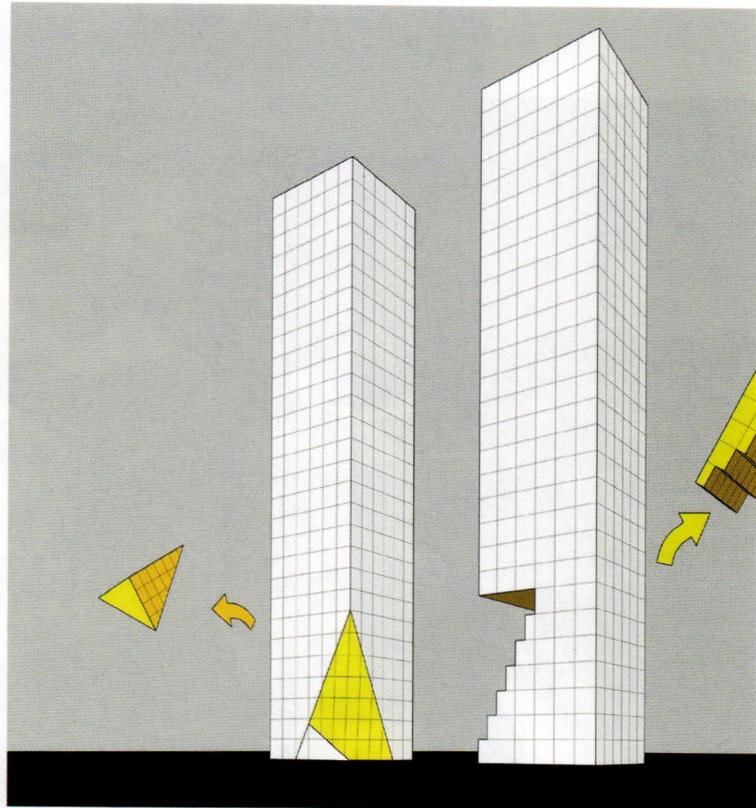
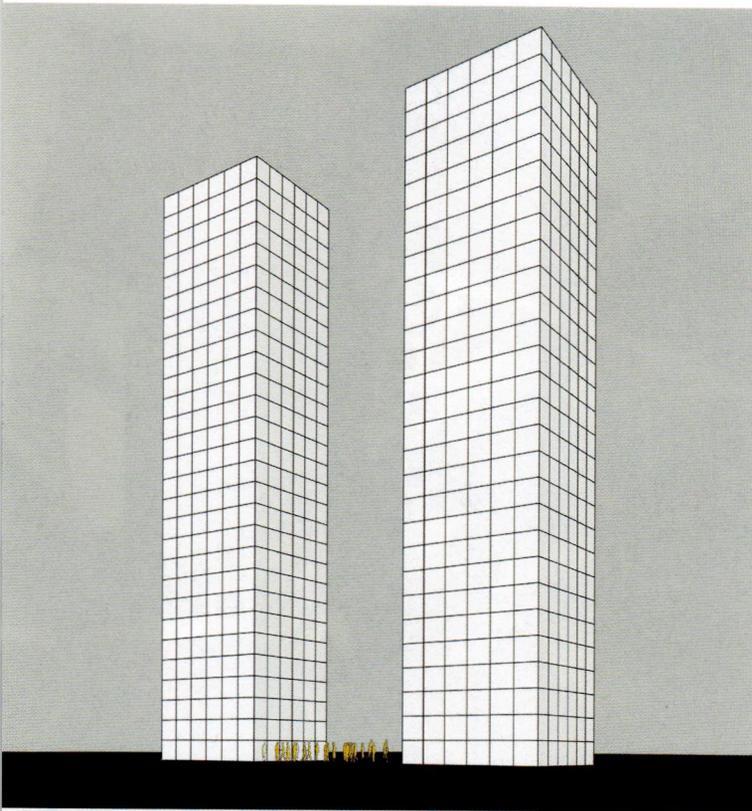
spaces. Airports that cultivate a connection between people and nature would also have health benefits. Plants, high air quality, and natural materials reduce stress and enhance well-being.

The need to meet in person for business has been revealed as less critical than our need to care for the planet, with many embracing the efficient and carbon-neutral benefits of video-conferencing software. The projected rise in people practicing low-impact living may see air travel mindfully returning to being treated as an activity done out of necessity or for a special occasion.

Air travel may decline, since the virus has taught us we don't always need to meet in person, but it will by no means die out. And, when people do travel, airports may actually have a very important role to play in avoiding the next pandemic. Contactless biometric screening will allow borders to respond dynamically to control the risk of outbreak, potentially stopping the spread entirely.

Because biometric technology already detects the emotional state of passengers by monitoring heart rate, temperature, and facial cues, it's feasible to imagine its reach expanding to the detection of symptomatic characteristics such as fever in a post-corona world, identifying those who are positive or exposed in order to best support them.

Additionally, airport car parks and hotels could double as field hospitals. ■

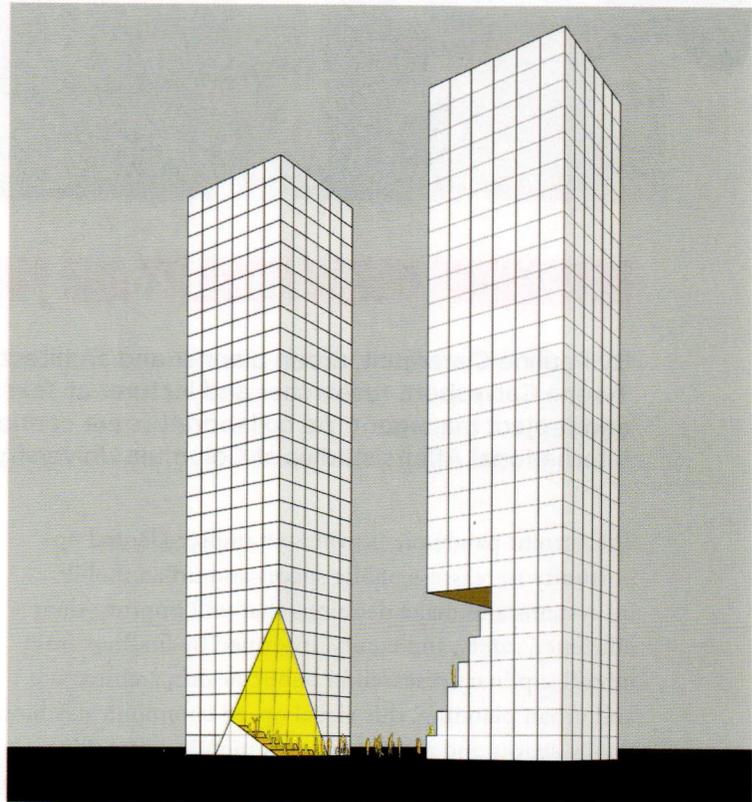


## BRINGING PRIVATE AND PUBLIC SPACES TOGETHER

By HWKN

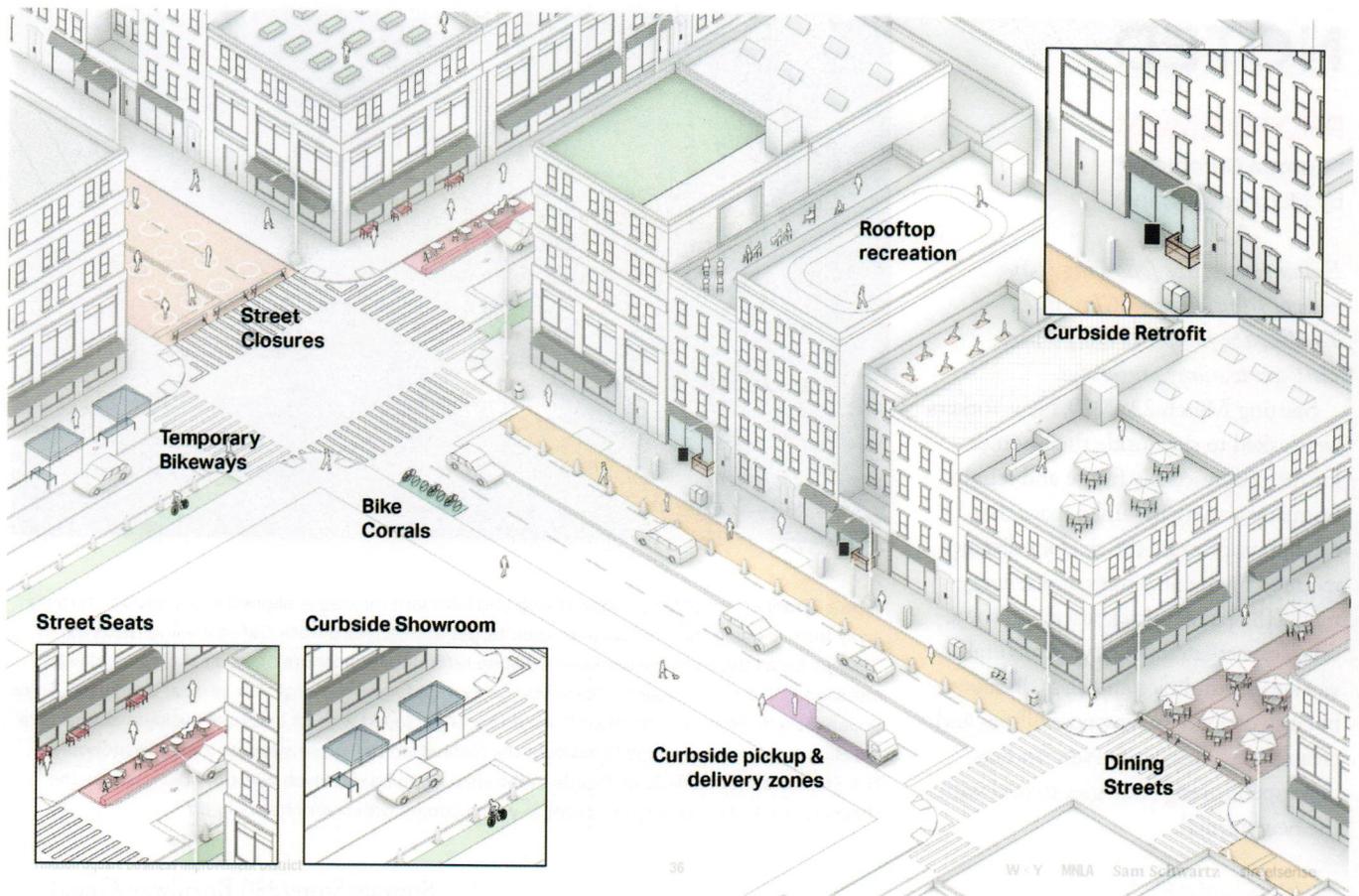
Over the past few weeks, we've all personally and professionally experienced an abundance of change. Within our daily lives, in our personal relationships and careers, we realize how important the idea of togetherness is—an idea we've all been instructed to avoid for the time being. In the past, we built a world where programs, activities, and the notion of public and private were all segregated. COVID-19 has shown us that this needs to change.

Taking guidance from this new reality, we pledge to bring the public and the private into a new relationship, and let each space find the right balance between community and individuality. We need to enable buildings to participate in the public arena, while public spaces integrate into private development. To do so, we carve and cut public space from buildings, inviting people to participate in a togetherness that should have been the standard a long time ago. Let's have our buildings sacrifice a piece of themselves for the greater good of the community. ■



Top left: Typical buildings stand on their own as solids surrounded by public space. Top right: Carves and cuts create a public relationship between buildings and public space. Above: The public space extends into the building, while the building extends into the public.





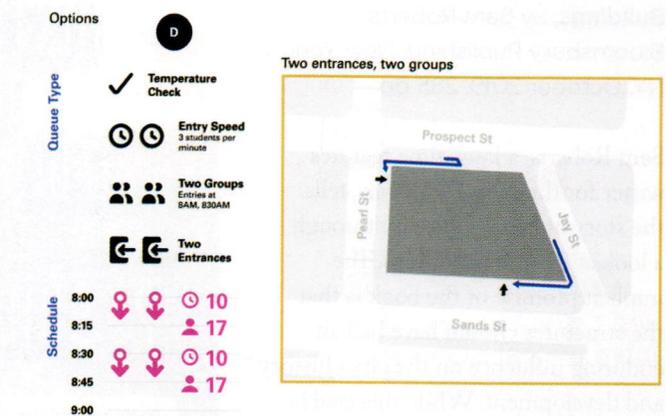
## SCHOOL AND PUBLIC-REALM TOOL KITS

By WXY Architecture + Urban Design

Developed jointly with teachers and school communities, WXY has created a number of design and planning strategies for school reopenings to meet the needs of all students, including those with disabilities, and allow for proper physical distancing and a safe journey from home to school.

Among WXY's current projects is the collaborative development of the new "Back-to-School Facilities Tool Kit," for which the firm worked with Brooklyn Laboratory Charter Schools (LAB) and other consulting firms. With a strong reputation for community engagement, WXY explains that the tool kit and any school reopening plans must be collaboratively designed and planned with full input from workers, teachers, unions, families, students, and communities.

According to LAB, the new tool kit shows school and community leaders "how to map a journey from home to school that integrates new requirements for health and safety." WXY leaders Claire Weisz, FAIA, and Adam Lubinsky, PhD, AICP, designed a model arrival-and-entry process to facilitate the transition of students and staff into the build-



Top: Tactics from the public-realm tool kit. Above: This plan drawing shows a potential schedule and queuing for student entry that includes temperature checks before entry into the Brooklyn LAB Charter School.

ing, taking into account specific egress challenges that LAB and many other schools will face when they reopen.

WXY has also created a set of public-realm tactics for adapting to the current health crisis, including repurposing curbsides for restaurants and retail, widening sidewalks and bikeways to allow for social distancing, and opening streets for recreation and open space. ■

# NOTED

## PHOTO ESSAY

### "Corona Chronicles"

by Margaret Arbanas

*Editor's Note: The following is an excerpt from "Corona Chronicles." To view the full photo essay online, visit [www.aiany.org/oculus](http://www.aiany.org/oculus).*

Starting March 22, 2020, New Yorkers were asked to stay inside their homes for the unforeseeable future and refrain from any activity in public space that might compromise the six-foot distance required by the new rules of disengagement. The pandemic exposed and sometimes exacerbated the city's structural weaknesses and race and class divisions, but also opened up new possibilities and created new liberties as New Yorkers developed coping strategies to deal with the new normal.

## SUMMER READING

### A History of New York in 27

**Buildings**, by Sam Roberts.

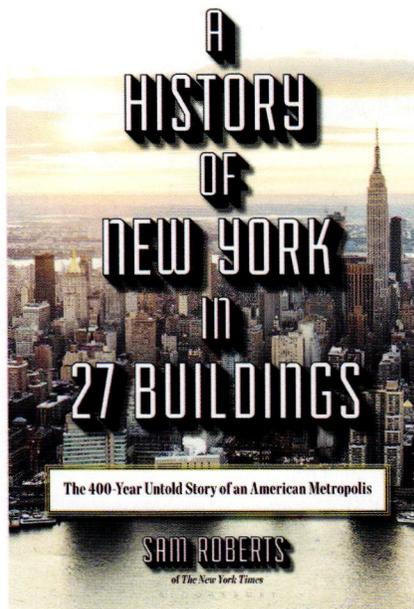
Bloomsbury Publishing, New York, NY, October 2019. 285 pp.

Sam Roberts, a long-time features writer for the *New York Times*, tells the story of New York City through a look at 27 of its buildings. The implicit promise of the book is that the structures chosen have had an enduring influence on the city's history and development. While this goal is unevenly met, what unites this volume is that each building has a story to tell.

Only a handful of the selections that Mr. Roberts highlights are the buildings we usually associate with New York. Rockefeller Center, the Chrysler Building, and the Metropolitan Museum of Art didn't make the cut. A large number of his choices are unheralded. But this is a book about the stories architecture tells with an emphasis on their influence, their ability to survive and adapt to change, and



Who's Afraid of Art of Noise: Advertising and billboard messages aligned in the sudden turning away from aligning their message to their target market. Hard Rock Cafe's awning featured: "Thanks for all the frontline workers." Danone listed face snapshots of medical personnel with messages: "Thank you Juan," "Thank you Sandra," "Thank you Sergio." A vertical banner on Times Square asked: "How are you really?" An ad for UPS played with its essential business status: "We are all essential." An airplane flying over the Manhattan sky wrote support to first responders. The Standard, High Line lit its façade in the shape of a heart, which was possible because the chain closed all its locations, a "decision which comes with a very heavy heart."



their role in the city's history. The theme that weaves throughout the pages is that buildings long outlive the purposes for which they were originally built.

The clustering of examples tends to fall into the following groups:  
*Reused, Revitalized, and Still Vital:* 69 Street Armory, 60 Hudson Street, A.T.

Stewart Store/280 Broadway, Grand Central Terminal

*Historic and Symbolic of NYC:*

Pier A, Empire State Building, Flatiron Building

*Influential (as to design and regulation):*

Apollo Theater, First Houses, IRT Powerhouse, Ascher Building (site of Triangle Shirtwaist fire, now an NYU building)

*Part of NYC's Historical Hub:* City Hall, St. Paul's Chapel, Tweed Courthouse (now Board of Education headquarters), Domino Sugar Complex (now multiuse), Federal Hall

*Anomalies:* 123 Lexington Avenue, 21 Stuyvesant Place (a rare diagonal street), Coney Island Boardwalk

*Survivors:* Bowne House (in Queens), Bank of the United States (on the Lower East Side)

Aside from being an enjoyable historical read, this book offers a lesson to architects: form and function matter, but stories sell.

Read more capsule reviews by Stanley Stark online at [aiany.org/oculus](http://aiany.org/oculus) ■

# ADAPT TO SURVIVE: WHAT EVOLUTIONARY BIOLOGY CAN TEACH US ABOUT OUR TRANSPORTATION FUTURE

By Jack Robbins, AIA, Partner, Director of Urban Design, FXCollaborative

Evolutionary biology teaches us that in times of great environmental stress, species that cannot adapt go extinct. The dinosaur's millennia of dominance were snuffed out in the relative blink of an eye by its inability to adapt to suddenly colder temperatures after an asteroid struck the Earth and kicked up enough dust to partially blot out the sun. The same Darwinian principles tell us that variation, diversity, and mutability within a species are the keys to survival, whether facing gradual environmental changes or sudden stressors. Any one individual's adaptability matters less than the species-wide variation that, through natural selection, enables species survival. "Survival of the fittest," a phrase Darwin himself never used, is better expressed as "species survival through diversity."

What if we applied these lessons of evolutionary biology to our ecosystem of urban transportation? What would that teach us about the future of such systems, especially under the extreme stresses of COVID-19?

If we look broadly at transportation history, we see thousands of years of movement based on people walking, riding horses, and using simple carts and wagons to move themselves and their goods. Then, around the mid-1800s, railroads became the first new transformative transportation technology almost since the wheel itself. In evolutionary biology terms, railroads were a new species, with clear ancestors, but fundamentally different. Then, starting in about the 1870s, over a period of less than 50 years, we saw an explosion of new transportation forms: the electrified streetcar, the elevated urban railway, the subway, the bicycle, the zeppelin, the airplane, and, of course, the automobile. In evolutionary biology,

the pattern of such explosions of species diversity have happened periodically throughout time.

Starting in the 1920s, one transportation species began to dominate: the automobile. By the 1950s, cars and trucks had beat out their competition (with the possible exception of the airplane for long-distance passenger travel). Some of this was due to "natural" competitive advantages—cars are fundamentally more adaptable. But some of it was the result of the anticompetitive practices of car manufacturers and oil companies, who bought up streetcar companies and shut them down, or passed federal legislation that funnels gas

taxes into highway infrastructure. The urban streetcar, a species that briefly dominated nearly every major American city, went virtually extinct. In places like New York, where the subway had gained a strong foothold before the car came to dominate, the species (subway) survived, but its

growth stagnated, and government subsidy was required to protect its endangered state.

Between 1920 and 2000, virtually no new mode, nothing that could be called a "new species" in this analogy, was introduced. By the new millennium, America's transportation ecosystem had become a largely stagnant car monoculture. This created problems—environmental impact, dependence on fossil fuels, growth of sprawl, social disconnection, millions of acres devoted to parking, time wasted in lengthy commutes—that were acknowledged as unwanted consequences of an automobile monoculture. Then, beginning in the early 2000s, some new species of transportation, as well as some reborn or mutated old ones, started to appear. Bike-sharing, ride-sharing, and ride-hailing services gave us new takes

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**The COVID-19 pandemic may indeed be a death knell for some forms of transportation, but the clear lesson of evolutionary biology is that in times of great stress, diversity and adaptability are the real salvation.**

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on old technologies. Electric bikes, electric scooters, and a host of other variations on micro-mobility (the term for short-distance individual vehicles) gained a foothold in the ecosystem. Cities like London reinvested in their subway systems, and even New York built its first new line and new stations in nearly half a century. People began to seriously consider, and invest in, the promise of developing technologies: aerial drones and autonomous vehicles.

Then, just as this new boom in transportation diversity was starting, the world was hit with a global pandemic, straining economic and social infrastructure worldwide, and throwing transportation systems into a crisis of uncertainty. How will public transportation survive if people must continue social distancing? Could the bubble of personal cars provide salvation? Or will city streets remain emptied of traffic like some post-apocalyptic remnant of a fallen civilization?

The COVID-19 pandemic may indeed be a death knell for some forms of transportation, but the clear lesson of evolutionary biology is that in times of

great stress, diversity and adaptability are the real salvation. To ensure the survival of transportation networks, the public and private sectors alike should double down on efforts to support new technologies and diversify our modal options. Micro-transport, drone delivery, and autonomous vehicles could all provide needed socially distant solutions in a future pandemic-adapted world. Mass transit will need significant government support and creative innovation, if it is to survive. Cities like New York, which have begun to temporarily repurpose streets to provide more pedestrian space for socially distant activity, should delve deeper into how street space can be rethought and repurposed to support transportation diversity. Roadways, perhaps the most flexible part of our transportation ecosystem, should be rebalanced to support even more diverse modes.

If our transportation ecosystem is to survive COVID-19 and be positioned to withstand future unknown stressors, it must support a broad range of modes to be adaptable and robust. Whatever happens, we must avoid the perils of a transportation monoculture, or we risk a transportation die-off. ■

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OP-ED

# REIMAGINING MASS TRANSPORTATION FOR A POST-COVID FUTURE

By Jeff Dugan, AIA, Principal, Dattner Architects

Through the collapse of financial markets, natural disasters, and pandemics, it's clear that public mass transportation (subway, bus, commuter rail) is an essential element in the daily life of the modern metropolis. It is the arterial system of NYC, connecting the lifeblood of the city—its inhabitants and visitors alike—to the robust built environment where we live, work, and play. Currently, with NYC as the epicenter of the global COVID-19 pandemic, safe and reliable transportation is the key to establishing normalcy in a post-COVID environment. The steps we take in our recovery efforts to improve the transportation network have far-reaching implications beyond the regional system, but will also serve as a model for global municipalities.

The start of 2020 was to be a milestone in considering the major structural challenges of our current transporta-

tion models. We've seen federal, regional, and city agencies tackle policy and funding challenges to improve transit-oriented developments, particularly in the New York tri-state area. A program that was supposed to be a cataclysmic investment in the future of transit, the Metropolitan Transportation Authority's (MTA) 2020-2024 Capital Plan, totaling \$54.8 billion, helped to clarify some regional priorities and commitments to the current network, increase transportation accessibility, and stimulate the local economy.

COVID-19 has put these massive transportation challenges under a microscope. The roadmap for immediate improvements to the current system are up in the air as government and agency budgets are strained by pandemic relief policies. Decrease in ridership and

shrinking tax revenues further complicate the funding woes of an already cash-strapped transportation network. We are at an inflection point where recovery to the status quo is not an option; without a clear precedent, we as architects must envision a new normal.

In the absence of a COVID-19 vaccine, it's hard to understand how mass transit can continue to be a safe mode of transportation. At the time I'm writing this, I'm preparing for my inevitable return to the commute. As a business owner, I'm concerned about factors that affect employee commutes, their health, and the protocols that need to be implemented for our firm to resume work. I'm not alone in worrying. Many of us are wondering: How often will subway cars be sanitized? How will social distancing be enforced in a subway car?

As an architect, I am an optimist and see this moment as an unprecedented opportunity to change our staid cultural habits regarding mass transportation. Addressing the commute post-pandemic will help preserve the urban ethos and its sustainable practices. The work of AIA New York Chapter's Transportation + Infrastructure (T+I) Committee documented in its Policy Framework is a solid basis for guiding design thinking and dialogue as seen through the lenses of mobility, placemaking, sustainability, and planning/financing. Our colleagues at the Regional Plan Association have provided principles of responsible transit policy and development that will continue to hold true in the long term. Their principles for fixing institutions, creating a customer-oriented transportation network, addressing climate change and social equity, and establishing access to mass transit suddenly seem more prescient.

As a principal leading the transportation design practice at Dattner Architects, and a co-chair of AIANY's T+I Committee, I've dedicated my career to improving transportation in our city. My lifetime of work within this typological niche has provided me with key insights to the complexities of policy and design of our transportation and infrastructure networks. I believe we should take strategic steps towards prioritizing long-term improvement beyond the immediate horizon through the following opportunities in planning, building, and maintaining the city:

1. Increase mobility options to relieve congestion on the subway, providing resilience in the transit ecosystem. Expand the existing shared-streets infrastructure and encourage public/private partnerships such as bike share to implement expansion.

2. Convert streets to dedicated mass transportation infrastructure by inserting light rail or streetcar. As a precursor, create true Bus Rapid Transit from the existing Select Bus Service with segregated bus lanes and station

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## **COVID-19 has put these massive transportation challenges under a microscope. The roadmap for immediate improvements to the current system are up in the air as government and agency budgets are strained by pandemic relief policies.**

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stops. Provide elegantly designed vehicles and rolling stock to entice riders and complement the streetscape.

3. Plan and build new infrastructure now to provide resiliency in the city and region before the next pandemic or natural disaster. Reinforce and expand digital infrastructure to support a remote workforce, traffic management, and autonomous vehicular roadways.

4. Generate funds for mass transportation improvement through an expansion of the planned congestion pricing, enforce HOV-only use, and encourage smaller personal transportation.

5. Consolidate systems operated by the MTA, New Jersey Transit, and the Port Authority of New York and New Jersey for a more fluid, resilient, and sustainable transit system.

6. Reduce touch points in stations by eliminating touch screens, revenue collection machines, and turnstiles. Make transit free of point-of-purchase fare collection. Use tax options to fund mass transit by consolidating revenue collection with other funding sources, such as the MTA commuter tax.

7. Eliminate rush hour by staggering hours of operation. Set up alternative office hours with two overlapping shifts. Consider staggered work over geographical areas, such as FiDi, The Villages, Midtown, etc.

8. Encourage maintenance through top-down leadership and bottom-up recognition. Recognize the importance of essential maintenance and sanitation workers. Pride in maintaining the lifeblood of the city is critical to a healthy, safe, and secure subway.

As we plan for an eventual return to the workplace and, consequently, the commute, it may seem as though we are stepping into a cold ocean (with personal protective equipment). The steps will be tenuous and will try our patience. We'll need to be assured that the commute will be safe, clean, and efficient. After we adapt in the short term, will we be back to normal? Will there be a new paradigm for life in the city? In this moment of great uncertainty, architects have a unique opportunity to provide a global model for mass transportation in a post-pandemic New York City. ■

# CONTRIBUTE TO OCULUS FALL 2020

Oculus commits to more actively stand up against systemic racism and inequality through our coverage and invites our readers to join us in this effort.

Our Fall 2020 issue will address the intersection of climate change and social justice. "People of color disproportionately bear climate impacts, from storms to heat waves to pollution. Fossil-fueled power plants and refineries are disproportionately located in black neighborhoods, leading to poor air quality and putting people at higher risk for coronavirus," wrote climate expert Ayana Elizabeth Johnson in a June *Washington Post* op-ed. "Our racial inequality crisis is intertwined with our climate crisis. If we don't work on both, we will succeed at neither."

This magazine in turn is posing questions that may be relevant to architects in this regard: How can the built environment support the most at-risk communities? How do buildings people live in and around affect their health? We invite contributions from members and readers in the form of op-eds or information about initiatives and projects relevant to this theme. Please email [editor@aiany.org](mailto:editor@aiany.org) with proposals with the subject line "Submission: Fall 2020." Final op-eds and visualizations should be 800 words/one page and are due by August 1, 2020.

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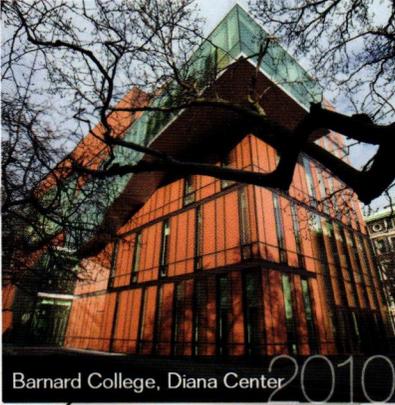
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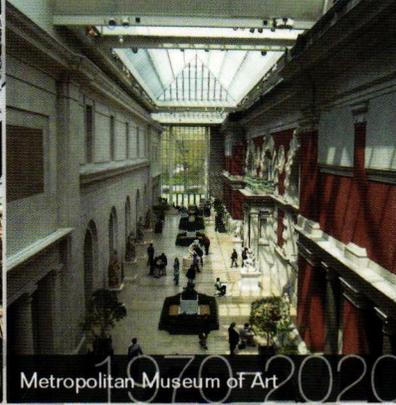
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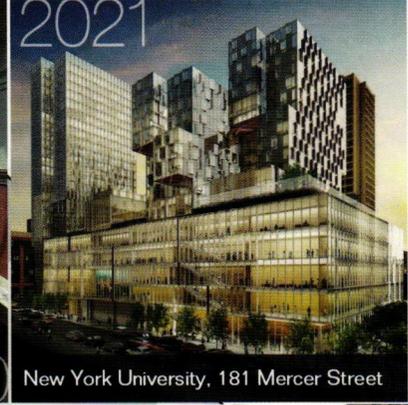
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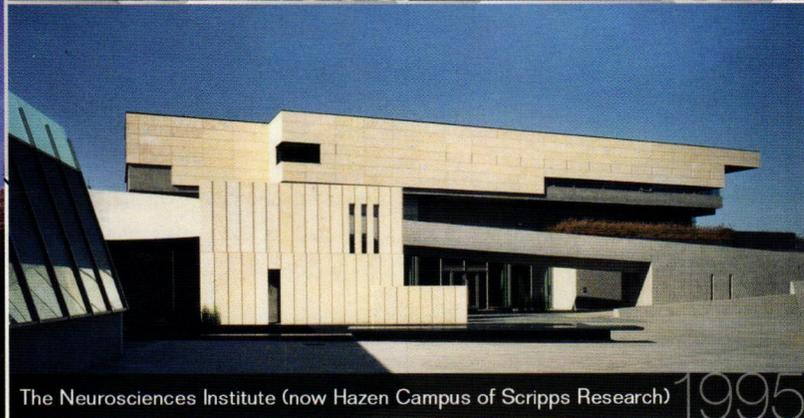
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