

2020

## The Brooklyn-Queens Expressway: Time is Running Out

Ross Sandler

## *The Brooklyn-Queens Expressway: Time is Running Out*

by Ross Sandler\*

One year ago, in January 2020, the Expert Panel assigned by Mayor Bill de Blasio to study the Brooklyn-Queens Expressway issued its Final Report. Mayor de Blasio in April 2019 appointed the 17-person Expert Panel, of which I was a member, following the angry rejection of New York City DOT’s plan for reconstructing the section of the BQE adjacent to Brooklyn Heights, Dumbo and Downtown Brooklyn. City DOT had earlier presented its plan in September 2018. The plan caused immediate outrage.

The flashpoint for the opposition was the City’s plan to turn the Brooklyn Heights Promenade into a temporary highway for the BQE’s 150,000 vehicles a day during the six or more years of construction. The reconstruction is necessary because the BQE’s triple cantilevered bridge, which supported the Promenade, is at the end of its life and must be replaced. The City planned to replace the cantilevered bridge with an eight-lane, double-decked, elevated interstate highway supported by columns.

The BQE’s cantilevered bridge opened in 1954 and was built into the hillside that rises from Brooklyn’s waterfront to Brooklyn Heights above. The can-

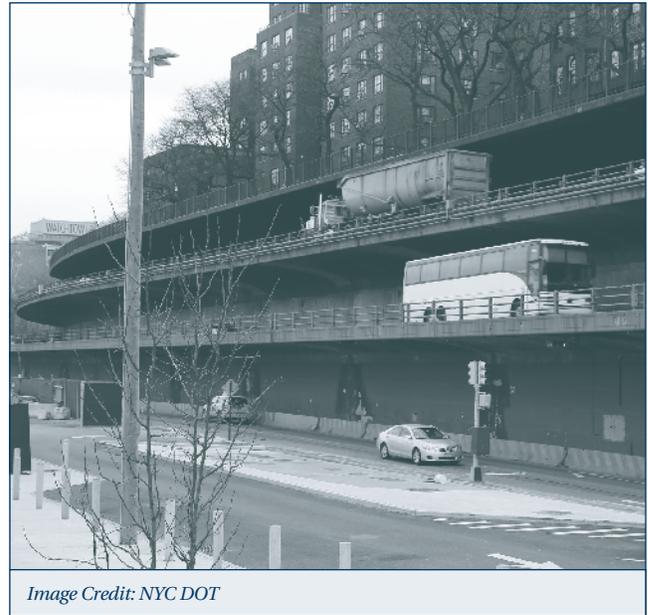


Image Credit: NYC DOT

tilevered bridge runs along Furman Street for .4 miles and is tightly bounded by Brooklyn Heights on the landside and by Brooklyn Bridge Park and new apartment buildings on the waterside.

Engineers in 2016 following an in-depth inspection rated the cantilevered bridge as in “poor” or “fair” condition. Water and salt infiltration had corroded and weakened the steel embedded in the cantilevered roadways. The engineers projected that the cantilevered bridge could become unsafe as early as 2026, a stunningly short time given the length of time it takes to design and construct a major highway.

The engineering report was a call for urgent action. Engineers know that failure to act can be deadly.

On August 14, 2018 the 54-year-old Morandi Bridge in Genoa, Italy collapsed; 43 people died. The cause: similar water and salt infiltration into the concrete that encased the steel stays that supported the roadway. The steel stays rusted, weakened and snapped. Engineers had warned officials. The officials failed to act, the repair work was never done, and the bridge collapsed.

On March 23, 2020 Seattle, Washington closed the West Seattle Bridge, Seattle’s busiest bridge

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## TORTS (CONT'D)

walk in a reasonably safe condition, but the owner's duty did not extend to maintenance to City-owned tree wells. Landowners may be liable for the injuries from the tree well only when the landowner has created the dangerous condition or failed to fix/repair the area when they knew it was damaged and could cause someone to get hurt. In this case there was no evidence that the owner created a dangerous condition in the tree well.

*Powroznik v. City of N.Y.*, 117 NYS3d 850 (2nd Dep't. 2020).

### SCHOOL INJURY

## School owed duty to child struck by car

*Child released from after-school program struck by vehicle near school grounds.* A 13-year-old child was struck and injured by a vehicle after being released from an after-school program run by the Simpson Street Development Association. The Association is a not-for-profit community-based organization operating under a contract with the City Department of Youth and Community Development. Upon leaving the school building at around 6:00 p.m., the child, his brother, and four friends, played a game called "Man Hunt"—a tag-like game, where participants chase each other around to give bear hugs. To avoid being hugged during the game, the child ran into a dimly lit road and was struck by a car. The accident occurred on Fox Street in the Bronx, where the Association required students to exit the building.

The child's father, Edwin Cruz, sued the Association and the City of New York. Cruz alleged that the Association and the City failed to adequately supervise his child and negligently required students to leave through an exit on Fox Street, as opposed to a much safer alternative exit on Tiffany Street. Tiffany Street has street signs, a lower speed limit, and speed bumps. In their defense, the Association and City argued that they were not negligent, that the accident occurred after the child was released from their custody, that the child was provided a safe exit from the school, and that the child's own actions were the sole cause of the accident.

The lower court rejected the Association and City's arguments, and the Appellate Division, First Department affirmed. The Appellate Division concluded that a school's liability extended to injuries which occur close to school and shortly after school hours, and that a school breaches its duty when it releases a child into a foreseeably hazardous setting. The Appellate Division denied summary judgment because triable facts existed as to the safety of the environment into which the child was released. Lastly,

the Appellate Division agreed that the defendants' motion was premature, as certain depositions and other discovery evidence remained outstanding.

*Cruz v. City of New York*, 124 N.Y.S.3d 22 (1st Dep't 2020).

## COVER ARTICLE

### BQE

(Cont'd from 69)

because of corrosion which could potentially cause a collapse. City engineers found severe deterioration in the steel girders supporting the structure. Cracks in the concrete roadways were expanding daily. The engineers declared the bridge unsafe forcing Seattle to suddenly close the bridge. Seattle anticipates that the bridge will be closed at least until 2022. The West Seattle Bridge is 46 years old and carried 100,000 vehicles daily.

New York City has been warned but has yet to decide how to reconstruct the BQE. New York City, with New York State, must decide on the reconstruction plan. Failure to decide and begin construction will lead to restrictions, closures, and the possibility of the collapse of the BQE's cantilevered bridge resulting in injuries and deaths.

### The BQE's Cantilevered Bridge

The alignment of the BQE as it passes around Brooklyn Heights was a miracle of engineering. The nearly half mile of triple stacked cantilevered roadways adjacent to Brooklyn Heights is a unique bridge structure not duplicated anywhere else in the United States.

Robert Moses in the 1950s hung the cantilevered bridge of the BQE in a narrow corridor along the steep slope rising from the Brooklyn waterfront to Brooklyn Heights above. Moses had initially proposed that the highway cut through the heart of Brooklyn Heights along Hicks Street, an appalling plan that produced opposition sufficient to cause Moses to move the highway to the edge of Brooklyn Heights along Furman Street, an industrial waterfront at the time with few residents.

Moses adopted a unique design: a cantilevered structure. The cantilevered bridge is supported on the land side with heavy concrete and steel walls sunk into the slope. Hanging from this single land-side wall are two three-lane roadways and the Brooklyn Promenade. The weight of the roadways and the Promenade are supported by steel buried in the concrete roadways. The steel is in tension as it transfers the downward force of its weight to the land-side wall. If the steel in the roadways corrodes and weakens there are no outside columns to support the roadways and the roadways will fail. The roadways will no longer

be able to support their own weight or the weight of passing vehicles.

The key safety question, therefore, involves the strength of the steel embedded in the roadways.

### **Current Corrosion**

Steel reinforcing rods embedded in the concrete roadways during the 1950s were not coated with a protective covering. Salt and water infiltrate the roadways of the cantilevered bridge through cracks in the pavement, and at the joints which occur every 50 feet and run perpendicular to the direction of traffic. Water and salt infiltration rust and weaken the uncoated steel. Engineering studies of the concrete pavement and the joints in 2016 found salt and water infiltration at levels that were two to three times higher than acceptable limits. At the level found, corrosion is inevitable.

The corrosion is obvious to even a casual observer. Visible from below the cantilevered bridge are wire mesh screens hanging beneath the joints of the deck. City DOT installed the protective screens to keep concrete from falling as the joints corrode.

There is no cure for water and salt infiltration that has already occurred. Patching the roadway will not restore the lost strength and stiffness of the cantilevered section of the BQE. If the structure falls below margins of safety set by the State and federal government, the City must close the BQE. It will have no choice.

Reconstruction is the only long-term solution.

### **Reconstruct the Cantilevered Bridge. But How?**

The narrowness of the right-of-way is the primary difficulty in designing a replacement for the cantilevered bridge. It was the right-of-way's narrowness that forced Robert Moses to build the cantilevered bridge in the first place. With a cantilevered structure, Moses was able stack the roadways one on top of the other, rather than place them side by side.

Today, in 2021, the right-of-way of the cantilevered bridge remains just as narrow, but conditions for reconstruction of the highway are worse.

On the landside, Brooklyn Heights and its landmarked historic houses have grown even more revered and untouchable. On the waterside, the piers and derelict structures have long ago been demolished and replaced by the hugely popular Brooklyn Bridge Park and several new upscale apartment houses, hotels and restaurants. Robert Moses's right-of-way, if anything, has narrowed.

The constraints of this narrow corridor present a dilemma. The BQE cannot be abandoned because it is an essential link in the City's interstate highway system. But, equally clear, the BQE's cantilevered bridge cannot be rebuilt and enlarged to meet today's inter-

state highway standards because of the exceedingly narrow right-of-way.

### **The City's Plan**

The City's answer to the dilemma was to build both a new eight-lane interstate highway within the narrow corridor *and* to keep the detour for the 150,000 daily vehicles within the same narrow corridor.

The City would achieve this dual project by stacking the detour on top of the highway construction. The City would first demolish the Promenade and build a six-lane highway for the detour where the Promenade had been. Once the 150,000 daily vehicles could be moved to the Promenade, the City would demolish in stages the two cantilevered roadways below and build an eight-lane, double-decked, elevated interstate highway on columns rising from Furman Street. The vehicles would be moved down from the Promenade detour once the interstate highway was complete. At that point the Promenade would be rebuilt above the interstate highway.

The finished elevated, double-decked, interstate highway would be supported by columns set on either side of Furman street. The new BQE would be closer to Brooklyn Bridge Park and leave Furman Street tunnel-like and dark.

City DOT's plan called for a major expansion of the BQE to comply with federal standards for new interstate highways. The plan included travel lanes eighteen inches wider than the lanes on the cantilevered bridge, longer exit and entrance approaches, and an additional breakdown lane. These changes would add about 15 feet to the width of a new elevated, double-decked highway.

Construction of the detour and the interstate highway would, the City projected, take six years, but could take much longer. The plan itself was highly innovative and risky. Unknowns included the stability of the Brooklyn Heights slope and the risks associated with the removal of the wall supporting the cantilevered roadways. City DOT's top engineer on the project conceded that demolishing the cantilevered bridge might uncover surprises and add years. Further complicating construction was the need to protect the four subway lines that run under the cantilevered bridge: the 2 & 3, 4 & 5, A & C, and R lines, and a subway tunnel fan house built directly into the cantilevered bridge.

### **The Expert Panel's Plan**

Traffic primarily justified the City's plan to build an enlarged interstate highway. The City assumed that the existing BQE traffic of 150,000 vehicles a-day would grow by another 40,000 vehicles.

The Expert Panel rejected the City's traffic justification for the enlarged highway. As the Panel observed, projections of increased traffic are almost al-

ways overstated or, worse, self-fulfilling. Bigger roads attract new vehicles. The opposite is also true. Reducing capacity lessens demand. This has been demonstrated in New York City with the 1973 closure of the West Side Highway, recent closures of major Avenues like parts of Broadway, the dedication of lanes to bicycles, the closure of the Central Park roadways, and bus lanes on 14th Street.

The Panel concluded that the existing and future traffic could be accommodated by a four-lane highway. The Panel wrote that the City

[S]hould redefine its program to a four-lane highway that will be capable of handling a traffic load adequate for the region, but with volumes slightly lower than current usage. A four-lane configuration will be possible as a result of traffic changes . . . [and] will be safer, reduce injuries, avoid capacity-reducing accidents and breakdowns, and will make the handling of traffic during construction more manageable.

The Panel's approach was novel. As urban interstate highways have aged, cities have mostly taken one of three approaches: they have widened the highway (The Long Island Expressway), abandoned the highway, or buried it (Boston's Big Dig). The Expert Panel rejected these options. Instead the Expert Panel opted for a smaller, but more efficient and safer highway that would be made possible by managing traffic on a regional basis.

If the BQE were reduced to four lanes and the traffic stayed the same at 150,000 vehicles a day there would be congestion during the peak morning and evening rush hours. But if the traffic could be reduced by between 400 and 500 cars during the peak hours, a four-lane highway could carry the current traffic load. The challenge was not the 150,000 vehicles scattered over 24 hours, but the marginal number of vehicles that put the roadway over capacity during the morning and evening rush hours.

### **Traffic Management**

This realization led the Panel to recommend that the City manage traffic as a system with the goal of a reduction of the marginal additional travel on the BQE. The Panel's recommendation was timely because the State legislature in April 2019 had passed congestion pricing for Manhattan traffic. Implementation of the congestion pricing plan has been delayed by Covid-19 and a lack of federal approvals, but congestion pricing when implemented will provide relief to the BQE.

The Panel proposed that the City adopt a series of incremental traffic management changes that would collectively reduce the traffic on the BQE to allow for efficient functioning of a four-lane highway. These changes include new pricing schedules and other traffic management measures to be applied at the Brooklyn Battery Tunnel, Manhattan Bridge, Brooklyn

Bridge, Williamsburg Bridge, Gowanus Expressway and the Belt Parkway. Some of these strategies would require legislation and cooperation with other entities like the MTA and the Port Authority.

Potential traffic management efforts also include changes to the exit and entrance ramps of the BQE to enhance safety and efficiency, regulation of local traffic and truck routes in downtown Brooklyn to avoid local street congestion, encouragement of mass transit use, and alternative freight options including the use of ferries.

A four-lane highway would still meet safety requirements. Accidents are frequent on the cantilevered bridge due to narrow lanes and cramped and tight entrances and exits. Minor accidents are a major cause of the congestion now experienced on the cantilevered bridge. A well-designed four-lane highway would have room for wider lanes, longer acceleration lanes, safer entrances and exits, and a breakdown lane. These changes would reduce the number of accidents and the resulting backups and congestion currently experienced on the cantilevered bridge.

### **Protect the Cantilevered Bridge**

The cantilevered bridge will have to serve motorists until the City can begin construction. The City's engineers have projected that the cantilevered bridge could become unsafe by 2026. The Expert Panel wrote that the cantilevered bridge could become unsafe even sooner, by 2025. Steps will have to be taken to preserve and protect the bridge. The Expert Panel recommended two strategies: enforce current weight restrictions and impose intensive monitoring on the structure.

**Overweight vehicles.** Overweight trucks damage structures. Older structures like the cantilevered section of the BQE require strict enforcement of weight limits.

The weight limit for trucks in New York City (without special permits) is 80,000 pounds. The Expert Panel advised the City to embed experimental technology in the roadways of the cantilevered structure that can weigh passing trucks. The City installed the sensors and the resulting data were alarming. Between October 16, 2019 and January 19, 2020 eleven percent of the trucks on the cantilevered section of the BQE exceeded 80,000 pounds. Some of the trucks weighed as much as 170,000 pounds!

The Expert Panel also employed another formula to measure the impact of overweight trucks. The Expert Panel evaluated truck weight data using the federal bridge formula which relates truck weight to the size of the truck and location of the wheels of the truck. This formula permits a more accurate analysis of the impact of the overweight trucks on the bridge structure. Fully 27 percent of the trucks on the cantilevered section of

the BQE exceeded the federal bridge standard.

The Expert Panel recommended that the City immediately begin aggressive enforcement of weight limits on the cantilevered section of the BQE. Mayor Bill de Blasio responded by issuing an executive order on January 31, 2020 establishing a truck enforcement unit to enforce the weight limits on the cantilevered section of the BQE. Violators could be fined as much \$7,000.

Mayor de Blasio's executive order was a good first step, but the execution required police officers to stop vehicles and is very labor intensive. The Expert Panel sought a more effective method of enforcement and turned to the latest technology for enforcing weight limitations.

The Expert Panel recommended that the new, experimental sensors be embedded permanently in the roadways of the cantilevered bridge. These experimental sensors accurately weigh passing trucks. The sensors can be coordinated with cameras hanging above the traffic. With accurate weight and identification information the City could enforce weight restrictions without stopping vehicles on the highway. Enforcement would be accomplished in the same manner as red-light cameras currently identify red-light violators on the City's streets.

The City followed the Expert Panel's recommendation and the experimental sensors were embedded in the roadways of the cantilevered bridge of the BQE. The sensors have proved sufficiently accurate to meet evidentiary standards for enforcement. The City is now seeking statutory authority from the State legislature to use the sensor and camera system to keep overweight trucks from further damaging the BQE. Hopefully the legislature will pass the legislation in the 2021 session.

**Intensive monitoring.** Engineers design highways and bridges with substantial safety margins, but over time the margin of safety shrinks. The City's 2016 in-depth inspection found the cantilevered bridge in a deteriorated condition and warned that there was very little remaining margin of safety. To assure the public that the cantilevered bridge remains safe, the Expert Panel proposed that the City intensively monitor the bridge with sophisticated instrumentation. These monitors included the following:

Strain Gauges: These gauges are installed at critical sectors and continuously track and report on the strains and stresses imposed on the cantilevered structure due to passing vehicles, temperature, and environmental conditions.

Deflection Gauges: These gauges are installed at various locations including the tip of the cantilever. They track and record the maximum up and down deflections of the deck as vehicles pass over

and cause the deck to deflect. Excessive deflection can indicate deterioration and loss of stiffness.

Accelerometers: These devices are placed along the cantilever as well as at the joints and piers. They record peak amplification due to dynamic impacts from trucks as well as the natural frequency of vibration of the structure.

City DOT has not followed the Panel's proposal for intensive monitoring. Instead the City relies on quarterly walkthroughs by City DOT engineers, the biennial in-depth inspection, and regular repairs and patching of the roadways and joints.

The Expert Panel concluded that these and similar efforts by the City were insufficient to assure the safety of the cantilevered bridge. The danger presented by salt and water is hidden by thick concrete. This was the condition that led to the collapse of the Mirandi Bridge in Genoa.

There is no excuse for not using the most modern monitoring systems. A failure to act on such monitoring is inexcusable. The public will be unforgiving in the event of a collapse. In Italy following the collapse of the Mirandi Bridge, the three top officials responsible for the Mirandi Bridge have been indicted.

City officials should promptly install the most modern monitoring equipment to protect the public.

### **The City and State Must Act Together**

The BQE is part of a highway system, and that system has confusing and conflicting ownerships and management responsibilities. The State of New York owns the sections of the BQE immediately north of Sands Street and south of the City-owned cantilevered section. The Metropolitan Transportation Authority controls the tolls and traffic at the Brooklyn Battery Tunnel. The MTA also controls the fares on the subways and buses, and the scheduling of transit service. The Port Authority controls the trans-Hudson crossings. The federal government, with the State government, sets standards for highways, approves designs, and funds new construction. And these are only the public stakeholders. There are also the nearby residents and businesses, the truckers and their associations, and Auto Clubs and other civic and professional advocates.

The Expert Panel called for an official and formal working coalition of the many stakeholders to advance a corridor-wide vision that would review the current and future traffic on the BQE, and the maintenance and reconstruction requirements of the BQE corridor from Staten Island to Queens.

The formality of a coalition is needed for planning. But it is needed even more to achieve the coordination and cooperation that will be required to manage traffic and to advance the demolition and reconstruction of the cantilevered bridge. Without such coordi-

nation, there is little hope that the BQE, an essential urban highway, can continue in the long term to serve the transportation needs of the New York region.

Time is running out. It is likely that the cantilevered bridge will become unsafe by 2025 or 2026. Time is not on the City's side. 

*See Also:*  
 Daily News, Sunday, January 24, 2021; *Op Ed: New York's BQE Emergency.*  
 Wall Street Journal, February 5, 2021; *Stalled Highway Project Could Get Lift From New NYC Transportation Chief.*  
 Daily News, February 10, 2021; *Editorial: Yes we can-tilver: Get to work fixing the BQE, and soon*

**\*The Brooklyn-Queens Expressway Expert Panel:** The findings and recommendations are the collaborative work of the Expert Panel assigned by Mayor Bill de Blasio to study the Brooklyn-Queens Expressway. The Chair and Members of the BQE Expert Panel were:

**Carlo Scissura** (Chair), *NY Building Congress*

**Rohit Aggarwala**, *Sidewalk Labs*

**Vincent Alvarez**, *New York City Central Labor Council*

**Kate Ascher**, *BuroHappold Engineering*

**Steven Cohen**, *MacAndrew & Forbes Inc.*

**Elizabeth Goldstein**, *Municipal Arts Society*

**Henry Gutman**, *Brooklyn Navy Yard Development Corp.*

**Kyle Kimball**, *ConEdison*

**Mitchell Moss**, *NYU Wagner Graduate School of Public Service*

**Kaan Ozbay**, *NYU Tandon School of Engineering*

**Hani Nassif**, *Rutgers School of Engineering*

**Benjamin Prosky**, *AIA New York*

**Denise Richardson**, *General Contractors Association*

**Ross Sandler**, *New York Law School*

**Jay Simon**, *American Council of Engineering Companies of New York*

**Tom Wright**, *Regional Plan Association*

**Kathryn Wylde**, *Partnership for NYC*

## CONFLICTS OF INTEREST ENFORCEMENT ACTIONS

Full Text Available on [CityAdmin.org](http://CityAdmin.org)

NAME, TITLE & AGENCY	DESCRIPTION	PENALTY*	COIB CASE NO.
<b>Settlements</b>			
James Sanders, Jr. Council Member <i>New York City Council</i>	Accepted valuable gifts including trips on 18 occasions from Margert Community Corp. while Margert had business dealings with the City.	\$15,000 fine	2017-110
Kubrat Hristoff Dir. of Security at Elmhurst Hospital <i>NYC Health + Hospitals</i>	Used a counterfeit parking placard with the Health + Hospitals Police shield on his personal vehicle to avoid parking tickets.	\$2,500 fine	2018-108e
Vincent Fraser Captain, Health + Hospital Police at Elmhurst Hospital <i>NYC Health + Hospitals</i>	Created counterfeit parking placards with the Health + Hospitals Police shield and distributed the fake placards to Elmhurst Hospital Police.	\$4,000 fine	2018-108c
Andrew Hall Special Officer, Health + Hospital Police at Elmhurst Hospital <i>NYC Health + Hospitals</i>	Used a counterfeit parking placard with the Health + Hospitals Police shield on his personal vehicle to avoid parking tickets.	\$1,300 fine	2018-108h
Melba Yoy Community Assistant <i>NYC Taxi &amp; Limousine Commission</i>	Accessed confidential information within TLC database and sent information to a friend who had a financial interest in that information.	60 calendar day suspension valued at \$4,838.	2019-322
Matthew Ogle Social Worker/Adjunct Professor <i>NYC Department of Education/CUNY</i>	Created three fraudulent documents on DOE letterhead to make a CUNY student believe they were qualified & selected for a high-ranked job.	\$1,500 fine	2020-299
<b>Letters</b>			
Monique Lipscomb Director of OTPS Budgets & Grants <i>NYC Dept of Health &amp; Mental Hygiene</i>	Performed notary public duties outside of her job description while on duty for DOHMH.	No fine	2020-088

\*Penalty does not necessarily include independent disciplinary action, if any, taken by employee's agency

*The Center for New York City Law*  
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## UPCOMING EVENTS

The Center's spring programming is under formation. Despite COVID-19 we hope to host several events whether in person or through virtual online platforms.

### UPCOMING EVENTS

- Spring CityLaw Breakfast series TBA

## RECENT EVENTS

### CITY LAW BREAKFAST SERIES

On December 3, 2020, James E. Johnson, Corporation Counsel, spoke at the 170th CityLaw Breakfast at New York Law School. The Breakfast was the fourth virtual CityLaw Breakfast, as in-person events are still not feasible due to the COVID-19 pandemic. Mr. Johnson spoke about "The Common Good and the Municipal Lawyer: Managing Risk and Building Trust." Mr. Johnson began his talk by reflecting on how the "common good" has changed over the course of the pandemic and the year since he took his position as Corporation Counsel. Mr. Johnson's approach to risk management highlights the importance of identifying problems as soon as possible to prevent them from growing into crises later; risk management techniques result in reduced litigation costs, reduced harm, and maintained trust in government systems. Mr. Johnson discusses how the COVID-19 pandemic had been a lesson in management and mismanagement. Collaborative efforts between the Law Department, City agencies and courts helped make operations remote as the Law Department defended COVID-19 restrictions in court and engaged in transactional work to help secure PPE for health care workers. Mr. Johnson emphasized the importance of serving the community as part of achieving the common good, and encouraged all New Yorkers to find ways to serve their communities.



*Full CityLaw Breakfast video can be watched at [www.citylaw.org](http://www.citylaw.org).*

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