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More Than A Century After Problem Emerged, Manhole Explosions Still Injuring Dozens In New York City

By Gaspard Le Dem and Gabriel Sandoval

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Osman Bah was driving his taxi through midtown Manhattan, near Lexington Avenue and 44th Street, when an underground explosion shot four heavy manhole covers into the air.

One of the steel disks crashed through Bah's windshield and he suffered debilitating, permanent injuries that crippled one side of his body.

"I'm not the person who I was anymore," he said, looking back on the events of Nov. 17, 2014.

What happened to Bah occurs all too often in the streets of New York.

New York Fire Department records obtained by THE CITY through a Freedom of Information Law request show there have been nearly 4,000 manholes explosions between 2009 and 2018. At least 57 people were injured during that time period, along with 9 more injuries in 2019, according to an analysis of local news reports and lawsuits.

In addition, the blasts caused significant property damage, building evacuations, power outages, and traffic disruptions.

The cause is straightforward: a combination of aging electrical infrastructure — especially old wiring — and rain or snow melt mixed with corrosive salt spread on roads in winter to reduce icing.

But who is responsible for the problem is in dispute. Consolidated Edison, the city's largest electric provider, has for decades blamed manhole issues on road salt that erodes underground cables.

Meanwhile, some experts and former utility workers say that lack of maintenance is at the root of the problem. Con Edison counters that it invests millions on maintenance each year. Despite the spending, the total number of manhole incidents -- including smoke, fires, and explosions -- has increased slightly over the last 15 years, according to the utility's records.

City legislators have considered several times tightening oversight of manhole incidents but failed to pass those laws. At the state level, the Public Service Commission — the board that oversees public utilities — has the authority to pressure Con Edison to reduce incidents, but has never fined utility companies for manhole explosions. Critics say the PSC has long leaned on a regulatory approach that does too little.

The manhole that crashed into Bah's taxi knocked him out. "I went unconscious and was taken to the hospital," he told THE CITY.

On that day, it was raining in New York City. A Con Edison engineer later found "visible electrical damage," and "some mechanical damage" in the manhole that exploded near his taxi, according to court records.

Bah is still recovering from injuries to his head, neck, back, left shoulder, and right ankle. "Basically all of my left side as we are speaking right now is numb," he said. "I've been treating for five years or more."

He is largely bedridden. Today, Bah struggles with memory loss and rarely leaves his house except to see his doctor and to get physical therapy. He was unable to return to work.

In March 2015, Bah sued Con Edison and the City of New York for "severe, serious, and permanent personal injuries." The complaint, filed in Manhattan Supreme Court, alleges that the utility was negligent "in allowing a dangerous and explosive condition to exist within a manhole." The case is ongoing.

CONSTANT LAWSUITS

Bah is not alone in suing Con Edison. The public utility, which employs a small army of lawyers, is regularly fighting off personal injury lawsuits related to manhole explosions. Records show the cases can take years to resolve.

Take the case of Jeffrey Lide.

Lide was parked on Nostrand Avenue on January 28, 2014, when he heard a strange noise coming from below. At first, he thought his car was having a mechanical issue.

Moments later, there was a sound like "a big bomb" and he was lifted into the air. The manhole under Lide's car exploded, according to a police report.

"I didn't know what the hell happened," he said. When his car dropped back to the ground, Lide stumbled out of the driver's seat, narrowly avoiding an oncoming bus. He sprinted across the street, and turned back to see what had happened.

That's when his 2009 Infiniti sedan exploded. "I saw a ball of fire go through the car," he said. "My gas tank was on top of the manhole cover."

Lide was later hospitalized with extensive injuries to his spine and shoulder, according to a lawsuit filed against Con Edison in Brooklyn. It took him six months to recover from surgery, and he may soon need another operation. In total, Lide racked up \$75,000 in medical bills from his injuries, according to his complaint.

Documents filed in Lide's lawsuit show that Con Edison may have been aware of a defective condition in the manhole before it exploded. Earlier that year, the utility had submitted two "trouble tickets" — an internal system to track technical issues — for a smoking manhole on the same block.

Con Edison alleges one of its subcontractors is responsible for the explosion that injured Lide, but the subcontractor has disputed the claim.

An attorney for the subcontractor said Con Edison frequently passes on blame to subcontractors.

"Usually with these Con Ed cases, they just look up what subcontractors worked in the area within a year of an accident and bring them in without any research," wrote Russell McBrearty, an attorney for Mecc Contracting, in an e-mail to Lide's lawyer.

Lide declined to comment on the status of the lawsuit, which he said was ongoing.

A LONGSTANDING PROBLEM

When manholes explode, they send cast iron covers that weigh between 70 and 300 pounds flying through the air. Plus there can be dangerous debris. The ear-splitting blasts sound off like homemade [bombs](#), shattering nearby windows and setting off car alarms as flames shoot up from the pavement.

"The rocks and pebbles are blown out like bullets," said Frank Montagna, a retired battalion chief who served in the FDNY for more than 40 years. "You can get burned," said Montagna.

It's a longstanding problem that dates back to the early days of electrification in New York City. Archival records from the New York Times show that the city was grappling with the issue as early as 1915, when two manhole blazes [stranded subway riders](#) at 53rd Street and Broadway.

Firefighters risk their lives to extinguish the underground blazes.

In April, several firefighters were injured in a manhole blast that forced three buildings to be evacuated in Midtown. One of the firefighters filed a lawsuit against Con Edison for personal injuries, according to court records.

In 2006, a manhole [blast](#) in the Bronx flipped a large SUV — a Cadillac Escalade — onto a firefighter who was extinguishing another blaze nearby. Marc Kroenung, who was wearing a helmet, miraculously survived the blast by crashing through the vehicle's window. He sued the Con Edison.

Manhole explosions also affect local businesses.

In March 2017, several manholes erupted in downtown Manhattan, starting fires and shattering nearby storefront windows. The Strand, a popular bookstore on E. 12th Street, was shut down for the day.

“Luckily for us, no one was injured,” said Andrea Klinker, a spokesperson for The Strand. “Any sales we would have made that day didn't happen, obviously.”

It took a year to replace the windows, which shattered on all sides of the building. “It was a lot of people and a lot of people's time organizing and working to make sure that the store got back into full 100 percent operating condition,” Klinker said.

The bookseller sued Con Edison, Verizon, and the City of New York for \$160,000 in property damages as well as loss of income.

LOCAL LAWS

The most recent effort to tighten city regulations for manhole incidents was in 2018.

Councilmember Donovan Richards (D-Brooklyn) first introduced a bill in 2015 requiring the Fire Department to submit annual reports to the Council on manhole incidents.

“If the utilities are inspecting and upgrading their infrastructure, then the streets of New York would be safer,” he said. “But obviously, we continue to see the numbers go up drastically. Once a month or twice a month, we have to turn on the news about an exploding manhole.”

He said that city officials should not rely exclusively on reports produced by the utilities. “We're not always confident that we are getting the most detailed data,” he said.

The bill did not make it past committee, and was reintroduced in 2018.

State law requires public utilities to inspect manholes for defects every five years. The [rule](#) was established by New York's Public Service Commission in 2005, following the death of Jodie Lane, a 30-year-old who was killed when she stepped on an electrified service box in the East Village.

But some city legislators were skeptical that the new laws were stringent enough.

In 2006, then-Councilmember John Liu introduced a [bill](#) to harden city regulations around manhole maintenance. “People and animals are still being injured and killed by exposure to stray voltage and endangered by exploding maintenance hole covers,” the bill said.

Liu’s “Street Utilities Safety Act” proposed fining utilities up to \$5,000 for every manhole deemed hazardous after an inspection by the city. The bill never passed despite support from several high-profile councilmembers such as Bill de Blasio, Gale Brewer and Letitia James.

Now a state senator, Liu still thinks that financial penalties against Con Edison are the best way to address manhole issues, and to ensure public safety.

“Private for-profit companies understand one language only and that’s the language for which there is only one character: the dollar sign,” said Liu, a longtime critic of Con Edison. “It’s almost incomprehensible that in a big, crowded city like New York, we could still have exploding manhole covers, which can be likened to deadly projectiles.”

But state regulators disagree that financial penalties will solve the problem. The Public Service Commission has the power to fine Con Edison for individual manhole incidents, but has never done so. Instead, the commission says it requires Con Edison to make “substantial investments” to improve the safety of its underground infrastructure.

“Rather than issue financial penalties for singular manhole events, the PSC has required Con Edison to make substantial investments to improve the overall safety and reliability of the underground system,” said James Denn, a spokesperson for the commission. “Penalties for singular manhole events can be adjudicated in civil court.”

The PSC claims its approach has helped. A five-year snapshot of Con Ed manhole events shows a decreased number of incidents, and fewer explosions.

However, a longer look at the data is less conclusive. There have been more incidents in recent years than in the mid 2000s, when new laws took effect after the death of Jodie Lane. The numbers fluctuate from year to year, but overall there has been a slight increase. The number of fires and explosions is also about the same, though fires account for a greater proportion of those cases.

LOOSE OVERSIGHT

For years, critics have accused the PSC’s regulatory approach of being too loose, allowing Con Edison to cut spending on maintenance. In 2007, after a major blackout in Queens, the New York State Assembly issued a [report](#) that rebuked the PSC for lax oversight. “The task force is

concerned that performance-based regulation as conducted by the PSC might be contributing to a reduction in the overall reliability of Con Edison's distribution system," the report said.

Since the 1990s, the commission has relied on regulations that it believes encourages safety. The PSC grades Con Edison on safety and reliability to decide whether the company can increase rates.

But manhole incidents are not part of the calculation.

Gerald Norlander, the former executive director of the Public Utility Law Project of New York, said that until the PSC starts counting manhole explosions towards Con Edison's performance rating, the utility will have no incentive to fix the issue.

"You're gonna get what you're measuring and maybe not much more," said Norlander. "So you better make sure you're measuring the right stuff. And I think that things blowing up is something to count."

Mark Williams, a former technician and planner who left Con Edison in 2001 said the utility could prevent manhole fires with more maintenance.

He believes Con Edison hasn't fixed the problem due to the cost of doing so. "They'd rather research it than actually go in and put corrective measures in, because they're going to pay for it," he said. "They can do all the research they want."

Following Jodie Lane's death in 2004, Williams criticized Con Edison at a City Council hearing. "Con Edison does not invest resources in its overhead and underground infrastructure," said Williams, who represented the Utility Workers Union of America in his testimony. "It tells union workers to cut corners and rush through jobs."

SALT ON ROADS

For at least four decades, Con Ed and city officials have blamed manhole incidents on weather and winter salting that corrodes underground wires, leading to a combustible buildup of smoke that can explode at the presence of a spark.

"Weather continues to have a direct impact on the electrical system since there continues to be a correlation between salt distribution and manhole events," said Robert McGee, a spokesperson for Con Edison.

To improve safety and reliability, the utility has installed 21,500 miles of corrosion-resistant cables since 2002, McGee said. Other technologies installed by Con Edison include latched manhole covers, combustible gas monitoring devices, and perlite-filled pillows.

“Con Edison is committed to innovating, leading the industry with first-of its kind sensors installed in manholes, the use of thermal imaging to identify defects that are otherwise invisible, and with continued research in arc fault detection,” McGee said.

Meanwhile, the city’s Department of Sanitation, which is in charge of de-icing roads during snowstorms, says it does not do any research on the link between manhole fires and salt.

“DSNY is responsible for clearing ice and snow from the City’s 19,000 lane miles of roadways,” said Dina Montes, press secretary for Department of Sanitation, in a statement. “Providing safe, passable streets and roadways for New Yorkers is a top priority for our Department.”

“We have tested many de-icing products over the years, however for many products, the long-term environmental effects are unknown,” Montes said. “Sanitation continues to regularly test new products that do not harm the environment and ensure the safety of the public so that cars and pedestrians do not slip on ice and snow.”

The agency does not take any steps to prevent salt from getting inside manholes, but it tries to salt the ground evenly, Montes said.

POSSIBLE SOLUTIONS

Some say that manhole incidents could be avoided if Con Edison upgraded its safety equipment underground.

“It’s absolutely preventable,” said Glen Bertini, the CEO of Novinium, a company that specializes in manhole incident mitigation. “Salt water is a contributing factor, but it’s not a root cause.”

Blaming the issue on winter salting allows Con Edison to throw the responsibility back to the city, Bertini said. “They’re always looking for a scapegoat,” he said. “If they acknowledged that this is a preventable problem, then, of course, it would be demanded that they immediately start implementing the solution.”

The real issue, according to Bertini, is the city’s fraying underground electrical infrastructure. “The fundamental cause of that fire is the aging cables somewhere,” he said. “There’s actually holes or cuts in the cables that persist for years. So in order to really solve the problem you’ve got to fix those holes.”

Some of Con Edison’s solutions, like vented manhole covers, have increased the number of fires by letting more water into the system, Bertini said. “The stuff that comes out of Con Edison’s R&D department isn’t typically very useful because they’re just not designed to be very clever,” he said.

To prevent explosions, his company sells fans that can be installed for each manhole. “Fans are cheap and they are very reliable. They’ll run for decades. Just a general breeze coming up continuously, and it can never explode.” Preventing fires would require installing smoke detectors connected to an online monitoring system, he said.

The solution would be costly, but the investment is a no-brainer, he said. “Imagine that ISIS was blowing off IEDs in New York City periodically, once a week or once every two weeks,” he said. “Can you imagine what people in Washington, D.C. would be doing, much less in New York City?”

Bertini hadn’t heard of manhole incidents before he saw a Con Edison presentation on the issue at an engineering conference several decades ago. “I knew the answer within 10 minutes after they started explaining the problem.”