

The New York City gas explosion and the neglect of infrastructure

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In the aftermath of the huge explosion in East Harlem that leveled two buildings, killed at least 8 and injured more than 60, with many more displaced from their homes in nearby buildings, renewed attention has been focused on broader social conditions, especially the increasing dangers posed by New York City's aging infrastructure.

As of Sunday, emergency crews had still to reach the source of the explosion, which is thought to be in the basement of 1644 Park Avenue, one of the two buildings destroyed. There remains a possibility that additional victims could be found.

The deadly explosion, which was caused by the ignition of escaping natural gas, was not an isolated incident. Rather, it points to a widespread failure to make the necessary investment to properly maintain and upgrade essential infrastructure systems in New York and across the country.

Just days before the explosion, a study entitled *Caution Ahead, Overdue Investments for New York's Aging Infrastructure* was released by the Center for an Urban Future (CUF). It reports that "much of the city's roads, bridges, subways, water mains, sewer systems, school buildings and other public buildings are more than 50 years old, and many critical components are past their useful life and highly susceptible to breaks and malfunctions."

Among the many deficiencies cited are the following:

- "Over 1,000 miles of New York City water mains are more than 100 years old, leading to frequent and disruptive breaks."
- "More than 160 bridges across the five boroughs were built over a century ago and, in 2012, 47 bridges were deemed both structurally deficient and fracture critical, a designation engineers use for bridges that have little structural redundancy, making them prone to failure and collapse."

- "The subway's aging signaling system—with 269 miles of mainline signals exceeding their 50-year useful life—slows the movement of trains and forces maintenance workers to build their own replacement parts because manufacturers no longer make them."

The CUF report includes an estimate that the city would have to spend approximately \$47.3 billion to maintain the safety and functionality of New York's infrastructure during the next five years, not including new construction or expansion of services.

This glaring neglect is equally evident in privately owned utilities, such as electricity and gas. The Consolidated Edison (Con Ed) distribution system, consisting of 2,234 miles of gas mains, which services most residents and businesses in the Bronx, Queens, Westchester and Manhattan, including the area affected by the East Harlem explosion, has so many leaks that 2 percent of the gas never reaches its final destination. Based on an average transport of about 225 billion cubic feet of natural gas a year, that amounts to the annual loss of a staggering 4.5 billion cubic feet.

As described in a recent National Geographic article, the problems caused by antiquated and deteriorating natural gas distribution systems exist nationwide. The federal government reports that, as of 2012, 46,000 miles of the nation's natural gas pipelines were still composed of old cast iron pipes that are subject to corrosion and fracture, resulting in a significant rate of loss due to leakage.

CNN quotes the assessment of Mark McDonald, president of Boston-based NatGas Consulting and the New England Gas Workers Association, that "Gas explosions are happening way too frequently. It's an epidemic."

The remaining cast iron systems tend to be concentrated in older large cities. In New York City, 30 percent of gas distribution lines are made of cast iron. The corresponding

figures are 33 percent in Boston, 35 percent in Washington, D.C., and 50 percent in Philadelphia.

A Duke University study found 5,893 leaks of methane, the main component of natural gas, during a two-month study in Washington, D.C. In 2012, a study in Boston found 3,356 leaks.

The CUF report states that “According to the federal Pipeline and Hazardous Materials Safety Administration, Con Edison experienced 83 leaks for every 100 miles of main in 2012.” It goes on to report, “Corrosion was responsible for a total of 427 of these leaks.”

On Friday, two days after the explosion, the National Transportation Safety Board reported finding significantly elevated levels of natural gas in the ground surrounding the explosion site, all but confirming the presence of a leak.

The replacement of cast iron with modern plastic pipes would be a major undertaking, especially given the difficulty of access in congested urban areas. Due to the frequent close proximity of structures and other utility lines, much of the replacement work must be done by hand and is, therefore, expensive.

Any man-made structure or facility, be it a building, a roadway, or the various forms of utility distribution networks, deteriorates over time and requires continuing maintenance and periodic replacement. While under capitalism new construction projects can be highly profitable, since the concentrated effort over a limited period of time yields a relatively rapid return on investment, long-term repair and maintenance yield a much slower return. Hence, the attractiveness of investment in system maintenance is low.

The primary aim of private utilities such as Con Ed, one of the largest privately owned utility companies in the US, is to maximize returns for their investors. Therefore, minimization of expenditures for system maintenance and deferral of major capital investments take priority. The consequences of disasters such as the East Harlem gas explosion are considered part of the cost of doing business, less expensive than the investment needed to properly upgrade the system.

There is currently a major boom in the construction of long-distance distribution pipelines prompted by the growth in natural gas supplies resulting from the expanded use of hydrofracking. Huge investments are being made in anticipation of equally large profits. However, the upgrade of end point systems for the delivery of gas to individual users continues to be neglected.

Utility regulators, such as New York’s Public Service Commission, see it as their mission to allow the private utility companies to achieve a “fair” rate of return on investment. An accelerated program to replace outdated infrastructure would reduce profits. Con Ed’s net income in 2013 was more than \$1.1 billion. The company has consistently increased its share dividends over the last four decades.

On the public side, government agencies are increasingly starved of resources due to the drive for austerity and concentration of wealth among the small number who have been the beneficiaries of tax cuts in recent decades. This again results in reduced or “deferred” maintenance, and difficulty in mounting major infrastructure repair or replacement projects. In New York City, the CUF study reports that a significant deterioration of infrastructure took place under the Bloomberg administration.

In either case, whether utilities are publicly or privately run, the tendency in recent decades, as the drive for private wealth accumulation has accelerated, has been to curtail the necessary upkeep of infrastructure systems.

When capitalism was in its ascendancy and cities were growing rapidly, at least the more enlightened sections of the ruling class saw it in their self-interest to support major public infrastructure projects in order to provide efficient transportation and accommodate an expanding workforce. These systems, dating from the late nineteenth to the mid-twentieth century, have either exceeded their life expectancy or are rapidly approaching that point. During the last few decades, however, the financialization of the economy has led to an increasing separation of wealth creation from actual production. Investment in infrastructure, especially in working class areas, is looked on as an unnecessary drain on profits.



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