

From Streetscape to Skyline, Green Construction Helps Clear the Air

in Lower Manhattan

As LMCCC coordinates the effort to rebuild Lower Manhattan, it also works to reduce exposures to noise, dust, vibration and other health hazards.

BY THOMAS KUNKEL

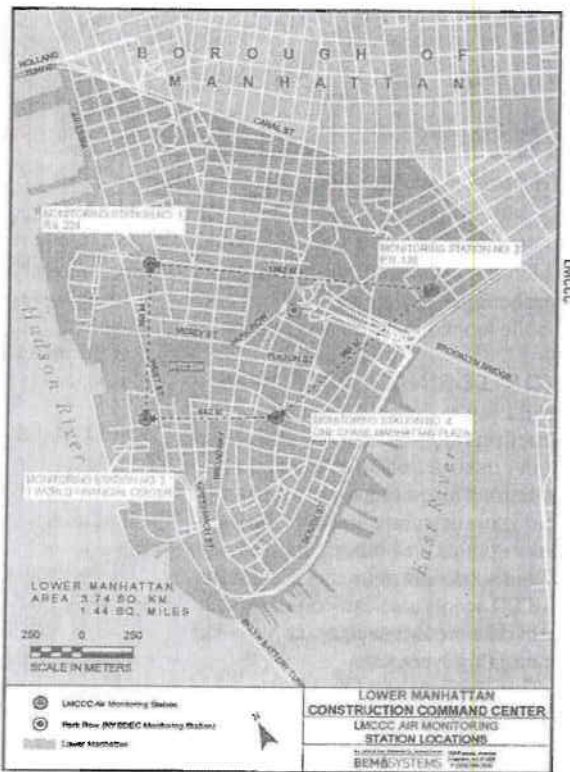
Lower Manhattan is an area of New York City smaller than 4 square kilometers, yet it is home to more than \$20 billion in construction. This unprecedented redevelopment is a direct result of remarkable public and private investments in Lower Manhattan, specifically south of Canal Street, in the wake of the Sept. 11 World Trade Center (WTC) attack.

The rebuilding is aimed at transforming largely commercial Lower Manhattan neighborhoods into mixed-use residential, business and tourist destinations. That goal already has succeeded, as residential developers have converted mid-century towers into state-of-the-art homes and hotels (many of them "green"), schools are built, companies renew leases, parks expand and infrastructure is modernized.

The Lower Manhattan Construction Command Center (LMCCC) is helping coordinate this extraordinary rebuilding effort. LMCCC was created in 2005, when the governor and mayor of New York signed executive orders to help manage and mitigate the massive construction plans and projects that now already are improving Lower Manhattan – from the streetscape to the skyline.

Multiple federal agencies influenced the LMCCC's inception and purpose. Based on experiences of the Central Artery/Tunnel Project ("The Big Dig") in Boston, EPA and the Federal Transportation Authority (FTA), among others, understood from the onset that the anticipated amount of construction within a small, densely populated urban area was going to result in exposures to noise, dust, vibration, traffic congestion and related inconveniences.

Today, LMCCC is the agency that the community relies on to alleviate daily disruptions caused by construction. It does this in part through the environmental performance commitments (EPCs) to which developers are asked to comply – primarily those concerning noise, dust, vibration and traffic, though the list is comprehensive.



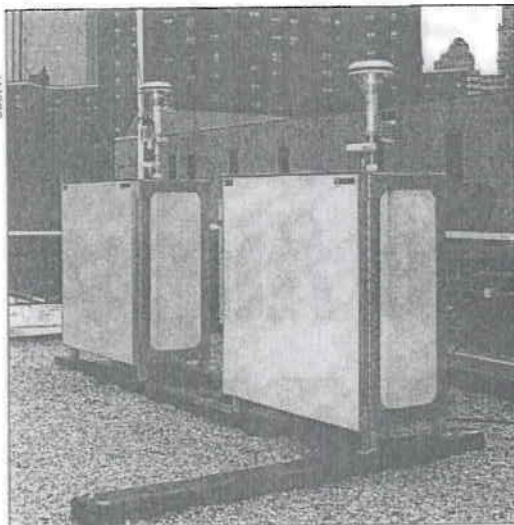
The locations of LMCCC fixed monitoring stations covering significant construction sites in Lower Manhattan.

AIR QUALITY

The EPCs partly were based on EPA experiences during the Big Dig, and partly based on findings in New York's particulate matter (PM) toxicology over recent years. Concern over dust and emissions from the Twin Towers' collapse also factored into the EPC development. EPCs ensure that PM levels are consistent with the National Ambient Air Quality Act. However, LMCCC has done better than that.

In early 2010, the agency announced the reduction of overall air quality concentrations of PM 2.5 (emissions from construction vehicles) and PM 10 (dust particles from construction sites). These concentrations are below National Air Quality Standards and mark a downward trend that began 3.5 years ago, despite an unprecedented amount of construction.

The measurements continually are taken through a neighborhood-scale air quality monitoring program (AQMP).



Fixed stations monitor air quality in real time.

which includes continuous real-time monitoring from four fixed stations and mobile monitoring from river to river.

MONITORING & RESPONSE

While the program focuses on construction-related dust and emissions from construction sites, other source emissions also are evaluated. Restaurant exhausts, bus stations, boilers, power plants and other potential permitted sources may impact conditions. LMCCC agents also can compare long-term data records such as daily, weekly or monthly averages.

These stations send data to a restricted-access Web site to assess if elevated PM concentrations are from construction activities versus other sources, such as rush-hour traffic. The Web site database generates automated e-mail notifications of alarm conditions. Personnel then perform fence-line monitoring at construction sites upwind of monitoring stations that logged the alarms.

Personnel typically receive elevated concentrations alarms within minutes of, or during, the incident. This leads to prompt review of potential sources and whether construction activities may have contributed to the elevated readings (such as idling trucks, lack of dust suppression, absence of tracking pads and lack of tire washing).

This swift awareness of neighborhood environmental conditions aids enforcement of regulations, such as anti-idling laws and visible dust emissions. EPC enforcement also has helped

define the LMCCC's role in guiding contractors through provisions for diesel-particulate filters and ultra low-sulfur fuel to reduce emissions coming from construction vehicles, from cranes and backhoes to ordinary generators and trucks.

The agency found that constant contact with contractors leads to a successful open-door policy of communication. LMCCC hosts daily, weekly and monthly meetings with contractors and other stakeholders to maintain a dialogue that makes its AQMP more effective and its response

time more rapid. Situations where personnel observed apparent violations of dust control requirements are discussed in scheduled meetings or as circumstances warrant.

PUBLIC OUTREACH

The field of ambient air monitoring has evolved for over 50 years. Early U.S. ambient air-monitoring efforts included the first equipment development in the 1940s, and by the mid-1950s, Los Angeles had created the first monitoring network capable of providing continuous air-quality data – along with an alert system to warn the public in the event of an air pollution emergency.¹

The goals of today's air-monitoring programs essentially are the same as 50 years ago: to gather accurate, timely data on air pollution, communicate it to the public in ways that can reduce exposures, document conditions and gain information to focus regulatory efforts.

LMCCC boosts communication through various media and has established two Web sites: <http://www.lowermanhattan.info> and <http://www.renewnyc.com>. The agency also instituted a 24/7 public telephone hotline that logs and tracks callers' input about noise, traffic congestion, air quality and emissions. This feedback has led to direct and systematic follow-up actions.

LMCCC also hosts a series of community meetings, open to the public, where local residents, workers, business owners and others are given an opportunity to voice issues that the agency

addresses or fields to the appropriate project sponsors.

LESSONS LEARNED

LMCCC's PM monitoring system and its overall environmental compliance program have been able to minimize construction-related air pollution in Lower Manhattan.

This is good news for other local or neighborhood-scale environmental monitoring programs, which now increasingly are likely to employ ambient air-monitoring equipment to achieve quality-of-life objectives during urban renewal projects.

The primary purpose of such localized programs, however, is to aid neighborhood residents and businesses. That means public outreach is integral to achieving objectives. Community meetings and hotlines provide forums for residents to voice concerns and become involved. Web sites allow for prompt dissemination of data and program information, as well as a public archive and tool for education.

LMCCC's work has led to an overall decrease in air pollution in Lower Manhattan for several years, even as extensive construction increased to record levels. To date, the agency's major accomplishments are based in the philosophy of informing residents of the ultimate benefits of the construction; advertising efforts to minimize disturbances and protect environmental quality; and providing easily accessible venues for continuous communication.

Overall, this open dialogue and informative approach has added a measure of patience and satisfaction among neighborhood residents and has served as a further asset to establishing trust among residents. **EHS**

Reference

¹"Planning and Implementing a Real-Time Air Pollution Monitoring and Outreach Program for Your Community." *The AirBeat Project of Roxbury, Massachusetts*; EPA; National Risk Management Research Laboratory; Cincinnati, OH, November 2002; EPA/625/R-02/012.

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