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What Would It Take to Fix New York's Subway?

By **SERGIO PEÇANHA** and **ANJALI SINGHVI** DEC. 22, 2017

We asked experts what they thought it would take to fix the subway. Here are six suggestions.

1

Redesign stations to get more people on and off trains faster.

Sam Hodgson for The New York Times

This photo shows the L train platform at the 14th Street-Union Square station during the evening commute.

Many stations like this one are not prepared to accommodate a larger volume of passengers, even if a new traffic control system allowed trains to come more frequently.

Starting in April 2019, the L is scheduled to [stop going to Manhattan](#) for 15 months, so that the tunnel between Manhattan and Brooklyn, damaged because of Hurricane Sandy, can be repaired. But the Metropolitan Transportation Authority has not announced any plans to upgrade most stations along the line.

Two of the L stations are slated to be upgraded. But a November 2016 analysis of the Regional Plan Association, an urban research group that has studied how to improve the subway, said in its recommendations that the closure of the line could be [used to upgrade](#) all the L stations in Manhattan.

The L platforms at these stations provide many examples of the problems that are common throughout the system.

At the 14th Street-Union Square station, the [fourth-busiest](#) station in the city, the Regional Plan Association recommended that the platforms be widened or decluttered to increase capacity.

The center of the L-train platform at Union Square is about 24

feet wide. By comparison, the platform at the 34th Street-Hudson Yards station, one of the newest in the system, is more than 10 feet wider, even though it has less than one-tenth the ridership of Union Square.

The areas under the two staircases at the ends of the platform at Union Square are used for storage. In many other stations, the space under the stairs is open to riders, increasing platform capacity.

One of the main contributors to passenger traffic jams here are two staircases that empty into a small section at the center of the platform. Riders are forced to funnel through narrow passageways along the edge of the platform to get to less crowded areas.

At the Sixth Avenue station, there is no wheelchair access, even though it is a transfer hub for six subway lines and a connection to the PATH train.

At 8th Avenue, the L train's last stop, the tracks end at a wall, not far from where the train is supposed to stop. This forces drivers to slow down much earlier than they would have to at other stations, where the tracks are extended.

The Regional Plan Association suggested that if the terminal was extended, trains would be able to arrive into the station faster.

[Richard Barone](#), vice president for transportation at the association, also suggested that the Metropolitan Transportation Authority, the agency that runs the subway, should consider adding exits at the ends of the platform and tunnels connecting to

the A, C and E lines, as well as to the 14th Street station at 7th Avenue, on the 1, 2 and 3 lines.

2

Modernize the signal system.

Kevin Hagen for The New York Times

Much of the subway's signal system uses antiquated parts like the electromechanical relays shown above from the West Fourth Street-Washington Square station in Manhattan.

Train traffic for about two-thirds of the subway system is monitored in rooms like the one shown below at West Fourth Street. Little has changed in a century.

Kevin Hagen for The New York Times

The old signal system uses a network of switches and cables along the track to keep trains a safe distance apart. The technology is outdated and expensive to maintain.

The Metropolitan Transportation Authority has estimated that it will finish replacing half of the signal system by [2034](#). But the Regional Plan Association concluded that it would take until at least 2067 for the entire system to be upgraded at the current pace.

A new signal system would allow trains to run closer together, increasing the number of trains that could run on a line at once. But it could cost [\\$20 billion](#) to make the whole subway compatible with the new signals, and the phase-in would require both the old and new systems to operate simultaneously for years.

Some experts think that the investment would eventually pay off, because new signals would reduce maintenance costs and would allow cost reductions in other areas, like cutting the number of train operators.

Where New Control Systems Are Being Installed

Sources: Regional Plan Association; Metropolitan Transportation Authority

The Metropolitan Transportation Authority has [indicated](#) that it is exploring alternatives that may be deployed more quickly and

cost less.

The authority began experimenting this month with a new signal technology called ultra-wideband radio. The technology is in a proof-of-concept phase, The New York Daily News [reported](#), and is different from the modern signal systems that are currently in use on the L train and being installed on the 7 line.

3

Add, replace and upgrade subway cars.

Christian Hansen for The New York Times

With a new traffic control system, the Metropolitan Transportation Authority will also need to upgrade most of its trains. In its most recent 20-year capital needs assessment, the agency estimated that it would take until [2027](#) to make the entire fleet compatible with a new traffic-control technology.

The authority is also considering ways to increase the number of people that can fit in a train. One idea is to [remove seats](#), which the agency recently did on some trains on the E Line, below, and on the shuttle between Times Square and Grand Central stations.

Demetrius Freeman for The New York Times

Another idea is to use trains with open passageways between cars. This would allow passengers to move from crowded cars to less-crowded ones, reducing the number of clogged entryways. (Passage from car to car is currently subject to a [fine](#).)

The open design is similar to the one in the photo below, from Toronto.

J. Adam Huggins for the New York Times

The authority has ordered as many as [750](#) of these types of cars and plans to put them in service by 2020. But the transit authority has [struggled](#) to ensure that train vendors would keep

car upgrades on schedule and on budget.

In addition to buying new trains, the authority is looking to expand its fleet by modernizing older trains. Train renovation has always been a part of its regular maintenance, but the authority is examining ways of making construction faster.

4

Implement a new fare collection system.

Alex Wroblewski for The New York Times

The Metropolitan Transportation Authority is in the initial stages of phasing out the MetroCard. In October, the authority began testing a smartphone payment reader using the same cell phone application available to riders on the Long Island Railroad and Metro North.

The transit authority [said](#) that the new system, shown below at the Wall Street station, would allow passengers to pay by using their mobile phones or by tapping a bank card. The agency expects to have the system available to some passengers in 2019 and fully implemented in five years or more.

Drew Angerer/Getty Images

Experts agree that a new fare collection system is crucial to modernizing the subway.

[Jamison Dague](#), an infrastructure researcher at the Citizens Budget Commission, said that a new fare collection system could cost less. “You can do certain things like peak pricing, offering lower fares for when demand is not as high,” said Mr. Dague, whose organization is a nonpartisan group focused on improving finances and services in New York.

A new fare system could be used to reduce overcrowding by offering discounts or credits for riders willing to use less-crowded subway lines, the bus or commuter rail. For example: During an event at Madison Square Garden, a temporary discount at the subway lines at Herald Square could reduce pressure on the 1, 2, 3, A, C and E lines.

[Robert E. Paaswell](#), an engineering professor at the City College of New York who [ran the Chicago Transit Authority in the 1980s](#), said the M.T.A. should consider letting a financial institution take over ticket sales.

“I’m not a privatization guy. I think the system belongs to the people. But certain maintenance aspects and things like financing can be done by the private sector,” Mr. Paaswell said.

Librado Romero/The New York Times, 1973

Continuous investment during the 1980s lifted the subway from the brink of collapse. But a [New York Times investigation](#) found that since the mid-1990s, politicians have diverted \$1.5 billion in dedicated transit funds to other purposes and pressured the Metropolitan Transportation Authority to spend billions more in expensive station makeovers and other projects. Short on funds, the authority resorted to borrowing. Now, nearly 17 percent of its budget is used to pay debt.

The M.T.A. is run by New York State and the subway is owned by the City of New York. Both the city and the state are proposing ways to increase funding for the subway. New York's mayor, Bill de Blasio, has [proposed a tax](#) on wealthy people. Gov. Andrew M. Cuomo is [exploring a toll](#) for drivers trying to reach some of the most congested parts of Manhattan.

But both proposals will face significant hurdles. The governor said that the mayor's tax proposal is unlikely to pass in Albany. And a proposal similar to the governor's congestion pricing was [shut down in the state capital](#) a decade ago.

Another idea to increase funds, championed by members of the M.T.A. board, is to pay for expansion projects by using a [tax on the increased value of the real estate](#) served by new or extended lines.

In addition to acquiring more money, the M.T.A. also needs to

become more efficient in spending the money it has, said Mr. Dague of the Citizens Budget Commission. He cited billions of dollars in capital funding that are available but that have not been put to use.

“The board has already authorized, but they haven’t spent it or committed it yet,” Mr. Dague said.

Money Available vs. Money Used

The New York Times | Source: Citizens Budget Commission analysis of M.T.A.’s consolidated Interim Financial Statements, as of June 30, 2017

Of the total of \$88.7 billion authorized for use in the M.T.A.’s last three capital plans, about \$43.8 billion have been spent.

“We can’t make an expenditure until we’re billed by the contractor, and sometimes we don’t spend on a project when we have a dispute with a contractor,” said Shams Tarek, a spokesman for the M.T.A. explaining why some of the money has not been used.

6

Persuade workers to accept job changes as part of modernization.

if technological changes like driverless trains are implemented.

The subway is one of the few transit systems in the world still operating trains with a two-person crew. Most transit systems around the world have moved to one-person operation, and most newer subways are being built fully automated from the start.

London is upgrading its fleet to become automated in the mid-2020s. In Paris, driverless trains are in operation on two lines.

In New York, the L train is the only line where the new traffic control system has been fully implemented and where trains could, in theory, be automated. But after a brief experiment using only one train operator in 2005, the M.T.A. had to bring back two-person crews to the L after [losing a labor dispute](#).

The workers' union sees the moves toward automation as dangerous. "Automated train operation in the N.Y.C. subway will only end in tragedy," said [John Samuelson](#), the president of the Transport Workers Union International.

"Terrorist attacks, natural disasters, blackouts, derailments and criminals are all daily threats to riders' safety and require trained transit workers on trains at all times," Mr. Samuelson said.

"The M.T.A. has been put forth as the villain here," said Mr. Barone of the Regional Plan Association, "but the M.T.A. is only one side. The other side is labor."

Mr. Barone believes that changes in job descriptions and a progressive move of staff members off the trains to other types of work in the system are necessary steps to take full advantage of technology.

"Without changes here, we won't be able to find the resources to make system changes," Mr. Barone said.

Additional work by Mika Gröndahl.

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