

# Turnaround: Fixing New York City's Buses



# Every weekday, New Yorkers take 2.5 million rides on the city's buses.

Local bus service is a vital element of New York's public transportation network, particularly for the city's most vulnerable residents: bus riders are on average older and have lower incomes than New Yorkers as a whole. Buses reach affordable neighborhoods that are far from the subway, providing essential connections to jobs, school, family, friends, and the opportunities of our vibrant and growing city.

But today, buses in New York City are slow, unreliable, and unfortunately getting worse. In some ways, bus travel hasn't changed much in decades: bus routes often follow old streetcar lines that haven't been re-examined for years, riders still line up one by one at the front of the bus to board, and introduction of digital-age technology has not led to a revolution in bus efficiency or reliability. At the same time, buses are facing new challenges: increasing traffic congestion and construction-related disruptions are contributing to declining average travel speeds across the city. Buses, which could be a key way to meet transit needs not met by our subway network, are stuck in traffic instead.

As a result, New Yorkers are voting with their MetroCards: they are steadily abandoning the bus. In the 21st century, New York City has added jobs and population, but bus ridership has declined. Between 2002 and 2015, bus ridership dropped 16%. Ridership decline is a dangerous trend, not only because New Yorkers who give up on the bus may travel in single-occupancy cars instead, but also because low ridership can cause a destructive spiral in which bus service is slashed as riders choose to avoid it.

New York needs a fresh approach to the bus. In order to attract riders, buses must become faster, more reliable, and more attractive as a transit option. Poor-quality bus service is not inevitable. With dedicated efforts, other cities, including London, Seoul, and Houston, have revitalized their bus networks, resulting in improved service and increased ridership.

Using best practices from around the country and the world, this report lays out how New York can fix its ailing buses. Making buses faster and more reliable will require changes to many aspects of bus service: the routes, the boarding process, dispatch and control, and design of city streets. Ultimately, fixing the bus system will require leadership and collaboration from the state-run Metropolitan Transportation Authority (MTA), the city-run Department of Transportation (NYCDOT), and elected officials at both levels of government.

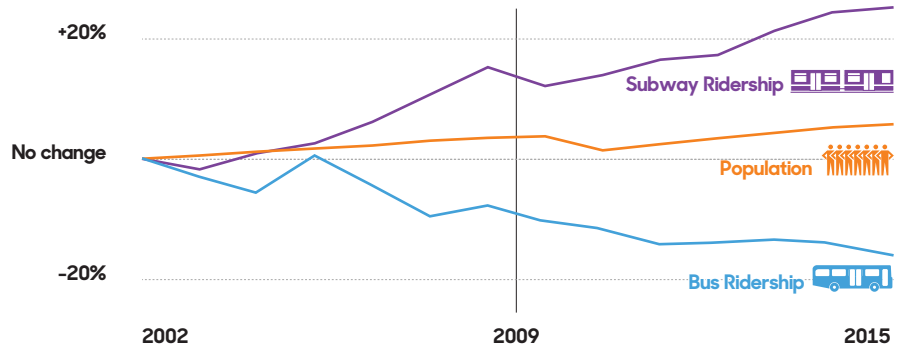
Fixing the bus system in New York has never been so urgent. If the MTA, the NYCDOT, and the elected officials who represent riders can find the courage to tackle the problem, New York can reverse the bus system's decline and reclaim its place as a center of transit innovation and leadership, locally and worldwide.

# Buses in New York are slow, unreliable, and increasingly unpopular

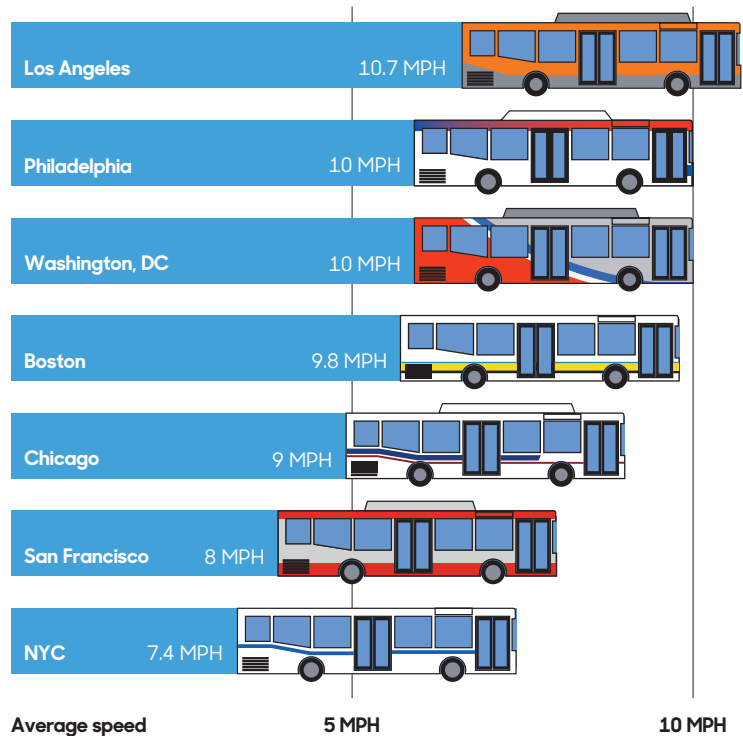
Riders are abandoning bus travel. Bus ridership has declined by 16% since 2002, while the city's population increased by 5.7% and subway ridership grew by 24.7%.

Source: National Transit Database and American Community Survey

Relative Change in NYC Transit Ridership and Population Since 2002



Average Typical Weekday Speeds, 2014



In the year 2000, NYC buses traveled on average at 7.8 miles per hour. Since then, speeds have steadily slowed; today, buses travel on average 7.4 miles per hour. In areas like Midtown Manhattan, Downtown Brooklyn, and Jamaica, Queens, buses are consistently slower than that, often averaging speeds of less than 4 miles per hour. These buses are approaching the speed of humans' prehistoric form of transportation: their feet.

Source: National Transit Database



## Buses are unreliable and getting worse

Bus riders can attest that even in an era of GPS bus tracking and widespread availability of real-time arrival information, buses often still arrive in “bunches”: that is, no bus for a long time and then two, or even three, that show up at once.

Bus reliability is a widespread problem and is getting worse. According to the MTA's own analysis<sup>1</sup>, the reliability of the 36 local bus routes on whose performance the agency regularly reports decreased on 32 routes, increased on two routes, and performance was mixed on two routes during comparable time periods from 2014 to 2015. This downward performance trend is consistent across all five boroughs, in spite of a stated MTA goal to improve reliability as measured by the Wait Assessment performance metric.<sup>2</sup>

Unreliable service exacts a heavy toll on New Yorkers. Riders show up late for work or school when buses don't arrive on time. Experienced riders build buffer time into their commutes because they anticipate that buses may arrive late. New Yorkers pay to take taxis when buses let them down.

Reliability is only part of the problem—we need quicker travel times too. Bus schedules in New York are revised regularly to reflect the increasingly long time it takes buses to travel their routes. This is another trend that needs to be reversed.

1 MTA New York City Transit's February 2016 Transit and Bus Committee Agenda, page 240: <http://web.mta.info/mta/news/books/>

2 The MTA's Wait Assessment performance metric measures the regularity of bus arrivals for a given route. It is defined as the percentage of observed service intervals that are no more than the scheduled interval plus 3 minutes during peak service hours (7 a.m. to 9 a.m., 4 p.m. to 7 p.m.) and plus 5 minutes during off-peak service hours (9 a.m. to 4 p.m., 7 pm to 12 p.m.).



## Buses can be fixed – other cities have done it

New York is not the first city to face poor bus performance and declining ridership. Other cities around the world have faced similar challenges, and those that took aggressive steps have successfully reversed these destructive trends, providing better service than before and attracting new riders to their buses.

In 2004, city leaders transformed **Seoul's** bus system, reversing declining ridership and revenue by making buses fast, convenient, and reliable enough to compete with cars and the city's newly expanded subway system. This was accomplished with redesigned routes, median bus-only lanes with camera enforcement, a smart card-based fare payment system, use of performance data to aggressively monitor service, and turning bus service from a private to a semipublic operation. Today, the bus system is a well-functioning, vital component of the city's transit network.

Following a period of declining ridership, **London's** mayor took action in the early 2000s to increase the frequency, reliability, and attractiveness of buses, while also enacting policies to decrease the appeal of private car use. Specific changes included increased service (particularly at night), introduction of a smart card, cashless fare payment and all-door boarding on many routes, dedicated curbside bus lanes, and the addition of buses with more doors and lower floors. These efforts resulted in a 75% bus ridership increase between 2001 and 2015.<sup>3</sup>

And here in **New York**, where the City and the MTA have established Select Bus Service (SBS) routes, we've seen travel time improvements of between 13–23% on routes in the Bronx, Brooklyn, Manhattan, and Staten Island and ridership increases of between 10–31%.<sup>4</sup>

In this report, we highlight tested methods to improve bus service that are most promising for New York's unique circumstances. Bus performance doesn't have a one-size-fits-all solution; New York has unique streets, unique travel patterns, and above all, unique people. But a careful analysis shows that fixing the bus system in New York doesn't require magic. With dedicated effort and implementation of policies that have proven successful locally and elsewhere, New York can dramatically improve the performances of its buses and begin to reverse years of poor bus service and steadily declining ridership.



A bus stop in London

3 <https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys>

4 NYC DOT (and NYC Transit) SBS Reports for Bx12, M15, M34, Bx41, S79, and B44 routes: <http://www.nyc.gov/html/brt/html/routes/routes.shtml>

# Fixing New York City's buses: Key tools







## **Redesign the bus network and routes for more frequent & efficient service**

- Determine how and where the network is failing and redesign as needed
- Redesign indirect routes
- Break up routes that are too long
- Rightsize the distance between bus stops

## **Transform how we get on & off the bus**

- Implement tap-and-go onboard fare collection and all-door boarding

## **Adopt better methods to keep buses on schedule**

- Ensure that buses begin their runs on time
- Intervene early when buses get off track
- Institute headway-based control for frequent buses

## **Design streets to prioritize buses**

- Create dedicated lanes
- Install bus bulbs and boarding islands
- Optimize traffic signals
- Introduce queue-jump lanes for buses

## **Make using the bus easy and intuitive**

- Provide real time information at bus stops and on buses

## **Increase transparency about bus performance**

- Report on performance in a way that riders can easily understand
- Institute a comprehensive open data policy

# Fixing New York City's buses

Cities around the world have created many planning, operational, and street design techniques to optimize bus performance. Testing and applying these tools is a pragmatic way to improve New York's buses.

## Redesign the bus network and routes for more frequent & efficient service

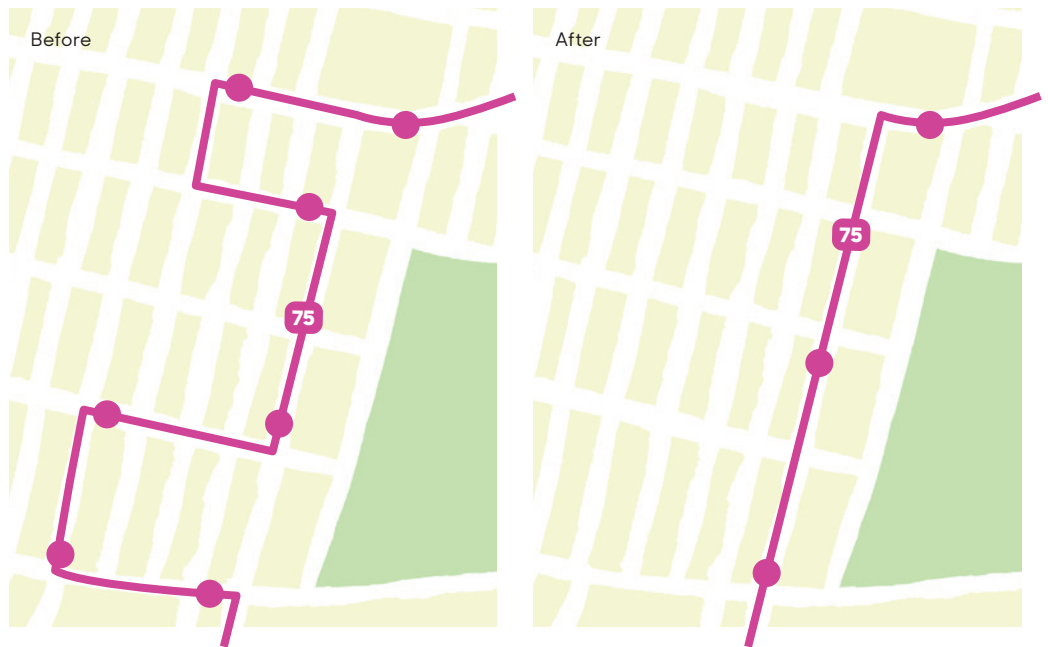
Many of the city's current bus routes are based on old streetcar lines and haven't been updated to meet the needs of New York today. The network contains territorial boundaries left over from private bus companies that dissolved long ago. Many buses remain within the boundaries of a single borough, despite growing demand for inter-borough travel. Changes that have been made to the network have often been piecemeal in nature, resulting in routes and an overall network that don't add up to provide the direct, fast, and frequent service New York needs.

**Determine how and where the current bus network is failing and redesign as needed.** Bold reconsideration and revision of our bus network is overdue. New routes may be needed. Some existing routes may be obsolete or need substantial adjustment.

**Redesign indirect routes.** Many of our routes have unnecessary turns and deviations. We should take a fresh look at routes, revising them to take the most direct path between major destinations.

**Rightsize the distance between bus stops.** New York is a global outlier in terms of how closely stops are spaced, and on many routes, stops are even closer together than our own standards dictate. Optimizing the number of stops will speed trips for riders.





Redesigning indirect or obsolete routes and rightsizing the distance between bus stops can significantly reduce travel time and improve reliability.

**Break up routes that are too long.** The longer a bus route, the less reliable its performance. Many New York buses currently take more than two hours to travel end to end, but few customers ride these routes end to end. Dividing these routes just past their highest turnover points can create more reliable service for all while minimizing the number of riders who will need to make an additional transfer as a result of the change.

**Replace local service with more rapid limited service on crowded routes.** Riders will be willing to walk slightly farther to a bus stop if it means a faster bus ride. New rapid bus service on the city's most popular routes would provide riders with an attractive option.

**Create new local access routes.** Many current bus routes feature frequent service along a core segment and lower frequency service to different branches at their ends. These routes should be split into separate frequent and local access routes to increase frequency of service in the areas of greatest demand, improve reliability, and increase clarity for riders.



The current process whereby riders enter the bus through one door and pay one by one with MetroCards or coins is slowing our buses down.



Tap-and-go onboard fare collection and entry through multiple doors would speed up trips, especially on the most popular routes.

## Transform how we get on & off the bus

Requiring riders to stand on line at the front door and pay one by one slows buses down.

**Implement tap-and-go onboard fare collection and all-door boarding** to dramatically reduce the time spent at bus stops. As the MTA considers new fare-payment technology, improving the boarding process should be a priority system wide so that we're sure to achieve the maximum gains from this significant investment.

**Continue to pursue better bus design** to improve movement onto and within our buses. For example, low-floor buses and bus doors that open quickly and easily for entering or exiting passengers can reduce time spent at bus stops.



#### **San Francisco tap-and-go**

In San Francisco, all-door boarding was implemented on buses system wide in 2012. Riders can pay as they board the bus by tapping a farecard on readers available at either door. This has sped boarding at the busiest stops by nearly 40%.



#### **London Oyster card**

London has had contactless payment on its buses since 2012 too. Riders can board through multiple doors of the most recent Routemaster bus models, paying their fares by tapping readers available at the front and back doors





## Adopt better methods to keep buses on schedule

Chronic issues often disrupt scheduled bus service, resulting in buses that are late, bunched together, or even missing entirely. Once a bus is off schedule, problems tend to snowball, causing service to deteriorate further. Real-time vehicle-location data can now be used to empower dispatchers and drivers alike to make service more reliable.

**Ensure that buses depart from the terminal on time.** Frequent late starts at the beginning of runs make it difficult for buses to provide service at the expected times and with even spacing.

**Once buses are on the road, intervene early when they get off track.** In cities with the most reliable buses, dispatchers are in constant communication with drivers to modify service and keep buses on schedule. Such intervention is standard practice in New York subways, but not on the city's buses. MTA bus control centers should not only respond to discrete incidents, but also be able to intervene when reliability and consistency of service are compromised.

**Implement headway-based control for frequent buses** to empower dispatchers and drivers to make real-time improvements for riders. For frequent routes, maintaining even spaces between buses is key. Allowing dispatchers to occasionally hold a bus at a stop or instruct another bus to skip a stop improves service for the greatest number of riders.



**Two Bx6 Buses arrive together at a stop in the Bronx.**

Frequent bus bunching is a sign of unreliable service, leading to long waits at bus stops for some passengers while several buses arrive at once at other stops.



**Riders wait for the Bx6 on East 161st Street in the Bronx.**



## Design streets to prioritize buses

Many strategies exist to make streets better for buses. The most promising ones for New York’s local buses have already been tested and proven on Select Bus Service routes.

**Utilize dedicated lanes** to move buses more quickly through crowded streets. The use of effective enforcement measures such as bus-lane cameras should be expanded to ensure that lanes remain clear and violators are fined.

**Install bus “bulbs” and boarding islands** to eliminate time spent weaving in and out of traffic. These treatments also create dedicated waiting areas for riders, reducing traffic on busy sidewalks and improving pedestrian safety.

**Optimize traffic signals** to improve reliability by allowing buses to maintain a constant speed and reducing time spent at red lights.

**Implement queue-jump lanes** to reduce delays by giving buses a short, bus-only lane and a three- or four-second exclusive signal at intersections, allowing them to “jump” ahead of car traffic.





#### **Boarding island at Gun Hill Road in the Bronx**

This boarding island was opened on Gun Hill Road in the Bronx in 2012, reducing the time buses spend pulling in and out of traffic and providing ample space for waiting riders.



#### **Livingston Street bus lane in Brooklyn**

A bus lane was introduced on Livingston Street in Brooklyn in 2010. While this initially improved bus performance, bus-lane violations have diminished the impact of the lane over time. An enforcement camera is needed to ensure that such lanes are effective.

## Make using the bus easy and intuitive

Many New Yorkers who use public transit every day have very little knowledge of the bus network. Even bus riders hesitate to travel on routes they are not familiar with. Solutions exist to make our system more welcoming and easier to use.

**Provide users with real-time information** at stops via countdown clocks and on buses (e.g., "The next stop is Broadway Junction").

**As part of rethinking our network, we should develop new route types** that better meet riders' needs. For example, some buses could provide connections to the subway from far-flung areas, other buses could serve as local neighborhood circulators, and others could serve as inter-borough connectors. These new route types could be rebranded with distinctive colors and numbering, creating a network that's easier to navigate. Our current network provides thorough coverage of the city, but too many routes are intended to serve all types of trips and end up not serving any of them as well as they could.

## Increase transparency about bus performance

Good data and performance measures allow the MTA, the City, technologists, and the public to better assess the current state of bus service.

**Report on performance in a way that riders can easily understand.**

Agencies should report metrics that allow the public to assess service quality. For example, instead of reporting "Wait Assessment," it would be better to report the average extra minutes riders are waiting for buses beyond the scheduled time. An even more illuminating metric would indicate the amount of the city accessible within a 45-minute period.

**Allow public access to information about bus performance through a comprehensive open data policy.** Data should be reported on a frequent, regular basis and should be in an accessible format that allows for use by independent watchdogs and app developers.

# The big picture

## Leaders from the MTA & New York City must make buses a priority.

Select Bus Service has succeeded through a strong working relationship between MTA New York City Transit and the New York City Department of Transportation. Extending this partnership is essential to improving service across New York's entire bus system. Coordination must be proactive, not piecemeal, with NYCDOT and NYCT making bus improvements a regular element of their work. The City and State should develop a comprehensive strategic plan for the bus system and devote the resources needed to enact it.

The governor, MTA chair and NYCT president must ensure that significant policy, planning and investment priority is accorded to the bus system, and not treat it as secondary to the subway. Additionally, the state legislature should enact measures that strengthen and accelerate, rather than hinder, development of an effective NYC bus lane network.

New York City's leaders, particularly the mayor, transportation commissioner and members of the city council need to vigorously promote new bus lanes and other street changes designed to more efficiently move buses. City policy must be to turn around the steady decline of bus ridership. Some degree of complaining is inevitable when changes to streets are proposed, but local organizations and officials cannot be granted veto or opt-out power over a policy to improve travel for hundreds of thousands of bus riders and ensure the city's future mobility.



# NYC Bus Coalition

Our coalition of advocacy and research organizations is committed to making sure that all New Yorkers have access to great transit.

Across the country and around the world, cities are making bus service faster and more reliable by redesigning their streets, reimagining their bus networks, and reforming their bus operations. We believe New Yorkers deserve bus service on par with these global cities.

Buses should move at the speed of New York. Making that a reality will be a multiyear effort. Some changes can and should occur right away. Other important advances, such as redesigned bus routes, will take years of thoughtful planning and sustained advocacy.

## TransitCenter



## Acknowledgments

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The recommended changes on pages 8-14 of the "Fixing New York City's Buses" section of this report are derived from analysis conducted by Nelson\Nygaard Consulting Associates, an effort led by Larry Gould and David Fields.

## Additional recommended resources on buses in NYC

Center for an Urban Future. 2011. *Behind the Curb*. Available at: [nycfuture.org/pdf/Behind\\_the\\_Curb.pdf](http://nycfuture.org/pdf/Behind_the_Curb.pdf)

New York City Department of Transportation. 2016. *New York City Mobility Report*. Available at: <http://www.nyc.gov/html/dot/html/about/mobilityreport.shtml>

The NYU Rudin Center for Transportation. 2015. *Mobility, Economic Opportunity and NYC Neighborhoods*. Available at: [wagner.nyu.edu/rudincenter/wp-content/uploads/2015/11/JobAccessNov2015.pdf](http://wagner.nyu.edu/rudincenter/wp-content/uploads/2015/11/JobAccessNov2015.pdf)

Pratt Center for Community Development. 2013. *Mobility and Equity for New York's Transit-Starved Neighborhoods: The Case for Full-Featured Bus Rapid Transit*. Available at: [prattcenter.net/sites/default/files/pratt\\_rockefeller\\_brt\\_nyc\\_whitepaper\\_for\\_web.pdf](http://prattcenter.net/sites/default/files/pratt_rockefeller_brt_nyc_whitepaper_for_web.pdf)

Regional Plan Association. 2015. *Overlooked Boroughs: Where New York City's Transit Falls Short and How to Fix it*. Available at: [library.rpa.org/pdf/RPA-Overlooked-Boroughs-Technical-Report.pdf](http://library.rpa.org/pdf/RPA-Overlooked-Boroughs-Technical-Report.pdf)

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