Long Island Rail Road: On-Time Performance by the Numbers (2023)

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OFFICE OF THE NEW YORK STATE COMPTROLLER

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Contents

Executive Summary	1
Why Trains Are Late or Canceled	3
Canceled Trains	5
Longest Train Delays	6
Trains with the Worst On-Time Performance	8
Penn Station and Grand Central Madison	9
Reverse Peak Trains1	1

Executive Summary

The Long Island Rail Road (LIRR) is the largest commuter railroad in the nation. In 2023, the LIRR carried 65.2 million riders, a reduction of 25.9 million from levels last reached before the COVID-19 pandemic in 2019, when ridership reached 91.1 million passengers. In 2023, the LIRR scheduled 303,519 trains, but some were canceled at the terminal before departing, terminated in the middle of the trip or were late arriving at their destination. This represents an increase of 77,453 trains (34 percent) scheduled over the number in 2022 mostly due to the addition of full service to Grand Central Madison (GCM) on February 27, 2023.

Prior to the pandemic, the LIRR's on-time performance (OTP) had peaked at 95.2 percent in 2009 but fell sharply in 2010 and struggled to reach this level again until serving depressed ridership during the pandemic (see Figure 1). OTP improved somewhat after 2010, but fell to 90.4 percent in 2018, the lowest level since 1998, well below the target set by the LIRR (94 percent).



In 2020, the year the pandemic began, on-time performance jumped to 96 percent through 2022 as ridership plummeted and telecommuting expanded. As more ridership returned in 2023, on-time performance (93.9 percent) returned closer to the 2019 level. Average daily weekday ridership in 2023 was still 23 percent below the 2019 level but average ridership on the weekends is only down 7 percent from 2019. The LIRR continues to make schedule adjustments in an effort to improve service. OTP through May 2024 was at 96 percent.

A commuter train is considered on-time by the LIRR if it arrives within 5 minutes and 59 seconds of its scheduled arrival time. Thus, a train is considered late only if it arrives at its final destination six minutes or more after its scheduled arrival time. A train late by, for example, four minutes that causes a rider to miss a connection that delays them even more would also not be counted as a delay. By this measure, only a relatively small percentage of the more than 300,000 trains operated by the LIRR in 2023 were late. However, many commuters had a different experience because of their route or time of travel. This report compares the operations of the LIRR in 2023 to those in 2019, the last pre-pandemic year.

Key findings in this report include:

• The LIRR scheduled almost 304,000 trains in 2023, compared to 249,000 in 2019, an increase in service of 22 percent. The bulk of this increase reflects the addition of service to GCM.

- In 2023, 40 percent of LIRR trains traveled to or from Penn Station while 27 percent traveled to or from GCM. By comparison, in 2019, 60 percent traveled to or from Penn Station and the rest used other terminals such as Atlantic Avenue.
- In 2023, 17,064 trains were late systemwide, including 2,465 that were more than 15 minutes late and 14,598 that were less than 15 minutes late. This compares favorably to 2019 when 17,682 trains were late systemwide and 2,868 trains were more than 15 minutes late and is even more impressive considering the increase in service in 2023.
- In 2023, a total of 742 trains were canceled at the terminal before departure, and another 559 trains were terminated, a marked improvement from 2018 when there were 1,442 canceled trains and another 848 terminations.
- If delays between four minutes and five minutes and 59 seconds were included, the OTP in 2023 would have been 79.9 percent. On average, 14 percent of scheduled trains that year were late by one minute and 59 minute period.
- The LIRR was responsible for nearly one-third of all late, canceled and terminated trains in 2023, down from 35 percent in 2019. More than 93 percent of the incidents that the LIRR was responsible for in 2023 (5,480) were caused by infrastructure maintenance or mechanical problems with the trains, 2 percent more than in 2019 as train problems increased by 31 percent even as infrastructure problems decreased by 13 percent.
- The Office of the State Comptroller (OSC) estimates that delayed trains were late by an average of 11.2 minutes in 2023. That estimate excludes canceled or terminated trains and those that were late less than six minutes, and therefore may not capture the experience of many riders.
- LIRR trains using GCM in 2023 had an on-time performance of 93.9 percent compared to 92.9 percent for those using Penn Station. One exception in the morning is that Babylon trains entering Penn Station had a 91.8 percent on-time performance; GCM was 86.4 percent.
- The a.m. peak train with the poorest record of being either late, terminated or cancelled was the 7:40 a.m. train from Huntington to GCM, with an OTP of 51.2 percent. The p.m. peak train with the poorest record was the 6:12 going to West Hempstead, with an OTP of 60.2 percent.

The LIRR reports monthly on the percentage of trains that are late between four and five minutes and 59 seconds after scheduled arrival, as required by state law. However, OSC recommends reporting this data at the same level of detail as it reports its delays under the six-minute standard, including origins, destination and schedule, to get a fuller picture of what the rider is experiencing. OSC also recommends developing an operating metric that measures timing of train connections.

The MTA recently announced it would have to reduce the size of its 2020-2024 capital program by \$15 billion, including an estimated \$1.5 billion at the LIRR, because of the pause of the start of congestion pricing. Given the MTA's new focus on funding state of good repair projects, the funding of new train cars may be delayed even further, leading to more delays from train car problems, which is one source of delays that have worsened over time. OSC recommends the MTA increase its preventive maintenance of older train cars to ensure that OTP does not decline significantly.

Why Trains Are Late Or Canceled

A commuter train is considered on-time by the LIRR if it arrives within 5 minutes and 59 seconds of its scheduled arrival time. Thus, a train is considered late only if it arrives at its final destination six minutes or more after its scheduled arrival time. By this measure, only a relatively small percentage of the more than 300,000 trains operated by the LIRR in 2023 did not reach their destination as scheduled, as the LIRR reported an OTP of 93.9 percent. However, many commuters may have a different experience because of their route or time of travel or due to missed connections associated with shorter delays. For example, if delays between four minutes and five minutes and 59 seconds were included, the OTP in 2023 would have been 79.9 percent. On average, 14 percent of scheduled trains that year were late during that one minute and 59-minute period.

In 2023, 17,064 trains were late systemwide, including 2,465 that were more than 15 minutes late and 14,599 that were less than 15 minutes late. This compares favorably to 2019 when 17,682 trains were late systemwide and 2,868 trains were more than 15 minutes late and is even more impressive considering the increase in service in 2023. However, delays in 2023 did increase by 96 percent compared to 2022, as service increased by 34 percent and ridership increased by 24 percent.



In 2023, a total of 742 trains were canceled at the terminal before departure, and another 559 trains were terminated, a marked improvement from 2018 when there were 1,442 canceled trains and another 848 terminations. Major infrastructure improvements at Penn Station done by Amtrak were a large factor in the number of cancelled trains in 2018.

OSC estimates that delayed trains were late by an average of 11.2 minutes in 2023, but that estimate excludes canceled or terminated trains and those that were late less than six minutes. For that reason, this measure may not capture the experience of many LIRR riders.

Trains may be late, canceled or terminated for several reasons, including external factors such as weather and issues arising from Amtrak, which owns Pennsylvania Station and the underwater rail tunnels that connect Manhattan to Long Island. Delays caused by train operations can include various things such as slow loading of customers onto trains and trains leaving the terminal late.

Delays are also caused by police investigations such as the presence of an unauthorized person on the tracks, track work (both planned and unplanned), customer assistance and train car problems.

LIRR takes responsibility for a portion of these reasons, including those attributable to fleet problems, infrastructure maintenance and capital projects. The LIRR was responsible for nearly one-third of all late, canceled and terminated trains in 2023, down from the 35 percent that the LIRR was responsible for in 2019.¹ The LIRR was responsible for 5,883 incidents in 2023, 11 percent less than in 2019 (a decrease of 753 incidents). More than 93 percent of the LIRR-operations related incidents in 2023 (5,480) were caused by infrastructure maintenance or mechanical problems with the trains, 2 percent more than in 2019 as train problems increased by 31 percent even as infrastructure problems decreased by 13 percent.

The number of incidents caused by unplanned factors (12,482), such as police actions, external factors and train operation delays increased by 1 percent from 2019 driven by a 11 percent increase in delays caused by train operation delays. The higher incidence of train problems causing delays on the LIRR may be alleviated by quicker procurement and delivery of new train cars. <u>A recent review by OSC</u> found that the average age of the LIRR's fleet has increased from 12 years old in 2013 to 18 years in 2022 as delivery has been delayed.

As shown in Figure 2, the LIRR attributed 36 percent of all late, canceled and terminated trains in 2023 to its customers (i.e., train operations and customer assistance). Only 18 percent of these incidents were caused by customers needing assistance.

Most of the delays from boarding and exiting the trains occurred when demand exceeded the level of service provided by the LIRR, mostly for special events, including holiday getaways. The LIRR could reduce these train operation delays by adjusting schedules and improving load management and communication to riders.

¹ The delays that the LIRR has control over are those that involve infrastructure maintenance, fleet problems and capital projects.

Canceled Trains

In 2019, the number of canceled trains totaled 757 and another 537 trains were terminated. (More than two-thirds of all train terminations occurred during weekends and other off-peak periods.) That was a marked decrease from 2018 when there were 1,442 canceled trains and another 848 terminations. In 2023, canceled trains and terminated trains increased by 63 percent from the year before but were comparable to 2019 levels even as service increased by 22 percent in 2023 compared to 2019 (see Figure 3).

Cancellations and terminations that resulted from things that are under the LIRR's control such as infrastructure maintenance, capital work and train problems increased from 365 in 2022 to 572 in 2023 (57 percent) and 13 percent higher than in 2019. Mechanical problems with the trains were the main driver of this increase, rising from 132 in 2022 to 376 in 2023 (70 percent more than in 2019). Expansion of service to GCM necessitated the usage of older trains serving Penn Station as the new rolling stock for the service is not yet available. Procurement of M9 railcars for service has also taken longer than anticipated for several reasons that OSC outlined in a prior audit.²

Cancellations and terminations resulting from things outside the LIRR's control increased from 434 in 2022 to 729 in 2023 (68 percent) but was less than 1 percent higher than in 2019. External factors such as weather were the main driver in the increase from 2022 to 2023 (77 percent higher).



² OSC, Rolling Stock Programs Department — Selected Aspects of the M9 Rail Car Project Management, March 25, 2022, <u>https://www.osc.ny.gov/state-agencies/audits/2022/03/25/rolling-stock-programs-department-selected-aspects-m9-rail-car-project-management.</u>

Longest Train Delays

While extreme delays are very rare, they do occur. In 2023, a total of 90 trains were late by more than one hour (seven fewer trains than in 2019), including eight trains that were late by more than two hours. Figure 4 shows the 10 longest delays in 2023 (a few examples are discussed in more detail below). Five occurred on weekend days or holidays and nine were the result of police action or other external factors.

- On Sunday, August 27, the 1:11 a.m. train from Jamaica to Port Jefferson was delayed by more than three hours due to police action.
- On Monday, May 29 (Memorial Day), the 8:00 p.m. train from GCM to Ronkonkoma struck a trespasser and was delayed 139 minutes. The 8:55 p.m. from Ronkonkoma to GCM was delayed 140 minutes for the same reason.
- On Friday, November 17, the LIRR major incident report noted that there was "low adhesion" on the rails caused by fallen leaves. As a result, the 11:27 p.m. Huntington to Port Jefferson train was 124 minutes late.
- On Thursday, March 30, the 6:42 a.m. train from Port Jefferson to Long Island City became disabled and was delayed 119 minutes.

Figure 4	
Longest Delays in	2023

Date	Origin	Destination	Scheduled Departure Time	Scheduled Arrival Time	Length of Delay (mins)
8/27	Jamaica	Port Jefferson	1:11 a.m.	2:36 a.m.	188
5/29	Ronkonkoma	Grand Central	8:55 p.m.	10:15 p.m.	140
5/29	Grand Central	Ronkonkoma	8:00 p.m.	9:22 p.m.	139
1/9	Jamaica	Montauk	8:52 p.m.	11:46 p.m.	137
8/26	Greenport	Ronkonkoma	4:53 p.m.	6:17 p.m.	133
10/16	Port Washington	Penn Station	10:37 p.m.	11:24 p.m.	133
7/8	Grand Central	Babylon	10:14 p.m.	11:28 p.m.	125
11/17	Huntington	Port Jefferson	11:27 p.m.	12:13 a.m.	124
12/15	Atlantic Terminal	Hempstead	5:00 p.m.	5:52 a.m.	120
3/30	Port Jefferson	Long Island City	6:42 a.m.	8:29 a.m.	119

Sources: Long Island Rail Road; OSC analysis

Morning peak and evening peak trains are the core of the LIRR's service as these trains primarily take riders to their job and back. Figure 5 shows the 10 trains with the worst on-time performance during the morning peak arriving at Penn Station or GCM in 2023. While on-time performance systemwide during the morning peak was 92.3 percent in 2023, the on-time performance for these trains ranged from 51.2 percent to 80.3 percent.

- The 7:40 a.m. train from Huntington to GCM was late or terminated 49 percent of the time, more than six times as often as the systemwide average. This train, which carries an estimated 1,040 passengers each day was late, on average, by nine minutes. Train operation delays were responsible for more than half of the delays.
- The 7:57 a.m. train from Wantagh to GCM had the second-worst on-time performance and was late, canceled or terminated 43 percent of the time. This train carries an estimated 660 passengers each day.
- The 7:10 a.m. train from Port Jefferson to Penn Station was late or terminated 40 percent of the time. It was late an average of 11 minutes and carried an estimated 830 passengers.

Figure 5

Worst On-Time Performance During the Morning Peak to Penn Station/GCM in 2023

Origin	Scheduled Departure Time	Destination	On-Time Performance	Number of Cancellations/ Delays
Huntington	7:40 a.m.	GCM	51.2%	105
Wantagh	7:57 a.m.	GCM	57.2%	92
Port Jefferson	7:10 a.m.	Penn Station	59.8%	102
Babylon	7:49 a.m.	GCM	60.9%	84
Long Beach	7:54 a.m.	Penn Station	64.6%	90
Ronkonkoma	7:10 a.m.	GCM	67.4%	70
West Hempstead	7:53 a.m.	Penn Station	70.5%	75
Speonk	6:18 a.m.	Penn Station	76.8%	59
Babylon	7:23 a.m.	Penn Station	79.1%	53
Babylon	7:31 a.m.	Penn Station	80.3%	50

Note: The figure is based on the departure time and not train numbers which may have changed after GCM service started.

Sources: Long Island Rail Road; OSC analysis

Trains with the Worst On-Time Performance

Figure 6 shows the 10 trains with the worst on-time percentage during the evening peak in 2023. While the on-time performance systemwide during the evening peak was 92.8 percent in 2023, the on-time performance for these trains ranged from 60.2 percent to 85.8 percent. Of the 10 trains with the worst on-time performance in 2023, seven operated on the West Hempstead or Huntington branches. With the advent of GCM, the LIRR was able to offer direct service from Manhattan on the West Hempstead branch for the first time, which may be a factor in its poor performance.

- The West Hempstead train departing Penn Station at 6:12 p.m. was late 40 percent of the time, or nearly six times more often than the systemwide average. This train, which carries an estimated 300 passengers each day, was late, on average, by nine minutes. Train operation delays were responsible for more than half of the delays.
- The Wantagh train departing Penn Station at 5:44 p.m. was late 26 percent of the time. This train, which carried an estimated 710 passengers each day, was late, on average, by nine minutes.

Figure 6

Worst On-Time Performance During the Evening Peak From Penn Station/GCM in 2023

Origin	Destination	Scheduled Departure Time	On-Time Performance	Number of Cancelations/ Delays	
Penn Station	West Hempstead	6:12 p.m.	60.2%	101	
Penn Station	Wantagh	5:44 p.m.	74.4%	65	
GCM	West Hempstead	5:37 p.m.	74.9%	54	
GCM	Huntington	6:01 p.m.	79.5%	44	
Penn Station	Long Beach	5:38 p.m.	81.5%	47	
Penn Station	Huntington	5:47 p.m.	82.7%	44	
GCM	Huntington	7:05 p.m.	82.8%	37	
Penn Station	Huntington	6:17 p.m.	83.9%	41	
Penn Station	West Hempstead	5:01 p.m.	84.6%	39	
Penn Station/GCM Farmingdale		4:22 p.m.	84.6%	39	

Note: The figure is based on the departure time and not train numbers which may have changed after GCM service started.

Source: Long Island Rail Road; OSC analysis

Penn Station and Grand Central Madison

In 2023, 40 percent of LIRR trains traveled to and from Penn Station in Manhattan's central business district while 27 percent traveled to and from GCM. By comparison, in 2019, 61 percent traveled to and from Penn Station and the rest used other terminals such as Atlantic Avenue. Last year, 8,259 Penn Station trains were late (including 957 that were more than 15 minutes late), 27 percent fewer than in 2019. More than 5,000 Penn Station delays were on trains arriving at Penn Station. Another 264 trains were canceled at the terminal (52 percent less than in 2019), and 238 were terminated (21 percent fewer than in 2019).

In 2023, 4,693 GCM trains were late (including 596 that were more than 15 minutes late). Of the GCM trains that were late, 2,870 were arriving at GCM. Another 168 trains were canceled and 192 were terminated.

Overall, the on-time average for trains traveling to or from Penn Station in 2023 was 92.9 percent, an improvement from 2019 when on-time performance was 91.9 percent. On-time performance in the morning peak to Penn Station improved from 90.2 percent in 2019 to 91.1 percent in 2023 while evening on-time performance from Penn Station increased even more, rising from 90.1 percent in 2019 to 91.6 percent in 2023.

Service to and from GCM began on a limited basis on January 25, 2023 and was expanded on February 27, 2023. As a result, fewer trains were scheduled to use Penn Station. Overall GCM on-time performance was 93.9 percent with the morning peak having a 90.3 percent on-time performance and the evening peak a 93.2 percent on-time performance.

On-time performance varies by branch. As shown in Figure 7, Penn Station trains on the West Hempstead branch in 2023 had the lowest OTP of 78.8 percent while those on the Port Washington branch had the highest OTP of 97.2 percent. (Port Washington trains run on their own dedicated track which reduces the potential for disruptions experienced on the main line.) As shown in Figure 8, of the eight branches that served both Penn Station and GCM in 2023, five had a better on-time performance using GCM than Penn Station. One exception in the morning is that Babylon trains entering Penn Station had a 91.8 percent on-time performance while those using GCM were on-time only 86.4 percent of the time.



Reverse Peak Trains

The MTA defines reverse peak trains commutes as those trains going eastbound between 4:50 a.m. to 9:30 a.m. and trains going westbound between 4:30 p.m. and 7:30 p.m. For the purposes of this analysis, OSC only examined the operation of those trains using either GCM or Penn Station. Reverse peak trains in the evening are affected by incidents that happen during the day as eastbound trains with more riders are prioritized.

Figure 9

Worst Reverse Peak On-Time Performance Penn Station and GCM

Origin	Scheduled Departure Time	Destination	On-Time Performance	Number of Cancellations/ Delays	Train #
Long Beach	5:30 p.m.	Penn Station	48.8%	130	865
Far Rockaway	5:20 p.m.	GCM	54.9%	97	2765
Ronkonkoma	4:57 p.m.	Penn Station	55.9%	112	1965
Huntington	5:47 p.m.	GCM	63.7%	78	1663
Hempstead	6:04 p.m.	GCM	69.8%	65	763
Huntington	5:23 p.m.	Penn Station	70.9%	74	1561
Penn Station	6:50 a.m.	Long Beach	72.0%	71	812
Long Beach	5:54 p.m.	Penn	75.6%	62	867
Ronkonkoma	7:20 p.m.	Penn	77.6%	57	1971
Huntington	7:27p.m.	Penn	78.0%	56	1565

Note: The figure is based on the train number but excludes delays that had different terminals before GCM service started. Source: Long Island Rail Road; OSC analysis

There were 552 trains carrying reverse commuters in the morning hours from GCM and Penn that were late, canceled or terminated in 2023, compared to 601 using Penn Station in 2019. For the evening reverse commute, there were 1,601 trains that were either late, canceled or terminated compared to 1,036 in 2019. The majority of the reverse peak disruptions in 2023 were caused by train operation delays (39 percent) and another 18 percent were caused by external factors.

Of the 10 worst on-time performances of reverse peak trains, nine were in the evening (see Figure 9). Seven of the 10 trains used Penn Station and three used GCM. The reverse peak train with the worst on-time performance record of 48.8 percent in 2023 was train number 865 originating out of Long Beach and going to Penn Station. This train was delayed, canceled or terminated 130 times in 2023 mostly as the result of train operation delays. For those trains defined as "Late," the average delay for reverse peak trains using Penn Station and GCM was 10 minutes.

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