# Annual Performance Metrics Report

## Calendar Year 2023

## Metropolitan Transportation Authority

### Contents

# Context

The Metropolitan Transportation Authority (MTA) relies on performance measurement and benchmarking to ensure it provides safe, reliable, and efficient public transportation. By analyzing key operating metrics and comparing them to peer agencies, the MTA can identify best practices to further enhance operational efficiency and control costs. These benchmarking efforts help the agency strengthen service delivery, improve customer experience, and allocate resources more effectively. This particular exercise also helps to identify specific areas to explore that may increase reliability or productivity.

This annual report, required under Public Authorities Law (PAL), Section 1276, benchmarks the performance of New York City Transit's Subways (NYCT Subways) and the MTA's Railroads (Long Island Railroad and Metro-North Railroad). While some factors, such as economic and demographic trends, are beyond the agency's control, the MTA actively manages key performance drivers to enhance service reliability, optimize spending, and drive continuous improvement.

Beyond this report, the MTA is committed to transparency. The MTA regularly publishes performance data on its website, the New York State Open Data portal, social media channels, and presents updates at regular public meetings. As of December 2024, 158 datasets could be found on the Open Data portal, demonstrating our commitment to sharing data across all areas of our operations, and to keeping that data current and well-documented. Many of these metrics are also reported to oversight agencies, such as the Federal Transit Administration (FTA), for inclusion in the National Transit Database (NTD).

Crucially, by using data-driven decision-making and industry comparisons, the MTA strengthens its ability to adapt to changing transit needs, maintain fiscal responsibility, and deliver high-quality service to billions of riders.

# Summary findings on 2023 performance

## NYCT Subways summary

- NYCT Subways is more efficient than domestic peers on the headline efficiency metric: *operating cost per passenger trip*. NYCT Subways' *operating cost per vehicle mile* remains slightly below the domestic peer average.
- Comparisons to international peers are materially affected by the unique circumstances of the US labor market, where employers are fully responsible for healthcare and pension contributions. When controlling for these differences, NYCT Subways operating expenses are 16% less than the average of global peers in *average cost per vehicle mile*, and 26% more expensive than the average of global peers on *cost per passenger trip*. Note that some variation may also be explained by differing obligations regarding inspection frequency and scope, driven by varied safety standards across borders.
- Maintenance costs are higher than both domestic and international peers. This is primarily attributable to our facility and infrastructure maintenance costs, which are higher partly due to the age and complexity of our system. We remain focused on improving the efficacy and productivity of our maintenance activities, including reducing the amount of wayside signaling equipment needed and performing more work during dedicated outages.

- Nonetheless, NYCT Subways is the least subsidized of its domestic peers. It has the lowest *subsidy per rider* (operating expenses compared to revenue per rider), and the highest *farebox operating ratio* (the portion of operating expenses covered by farebox revenue).
- Areas of opportunity receiving focus in 2024 and beyond include initiatives to improve our operating efficiency by further modernizing our maintenance processes, limiting energy consumption, and optimizing our approach to scheduling. These initiatives are expected to improve our *on-time performance* (OTP) and *mean distance between failure* (MDBF). We are also continuing to improve our safety procedures to reduce the staff days lost to workplace accidents.

## MTA Railroads summary:

- Both Railroads are less expensive than domestic peers on the headline efficiency metric: *operating cost per passenger trip*. Respectively, Long Island Railroad (LIRR) was 14% cheaper and Metro-North Railroad (MNR) is 19% cheaper than the domestic peer average.
- When looking at *operating cost per vehicle mile*, MNR is 17% more expensive than its domestic peers, while LIRR is about 23% more expensive. This is driven partly by labor rates linked to existing labor agreements. For example, LIRR pays 19% more per hour in hourly wages than domestic peers – a gap that explains roughly half of per-vehicle mile cost difference to the average domestic peer.
- International comparisons for the Railroads are imperfect, as MNR and LIRR—like Subways—operate within the U.S. labor context, where higher wages and costly employer healthcare contributions (which make up 20–30% of the Railroads' operating expenses) drive up costs relative to international peers.
    - However, when normalizing labor costs, both Railroads' operating costs still exceed international benchmarks. Per vehicle mile, MNR is 17% higher than its peer average and LIRR is 6% higher. Per passenger trip, MNR is 45% higher and LIRR is 39% higher. These elevated unit costs are partially attributable to lower ridership density, a function of network configuration and regional land use patterns. Differing national safety standards and inspection obligations also cloud international cost structure comparisons.
    - Against the four international peers, MNR has the lowest *number of passengers per track mile* (73K), and LIRR ranks third lowest (89K). Similarly, in terms of *passenger trips per vehicle mile*, MNR ranks second lowest at 6.4, while LIRR is third lowest at 7.2.
- Maintenance costs, including both Maintenance of Way (infrastructure / assets) and Maintenance of Equipment (rolling stock), are a large portion of operating costs, and the predominant driver of the Railroads' gap to both domestic and international peers for *cost per vehicle mile*. This is true even after accounting for labor wage/benefit differences noted above. Improving the efficiency of maintenance activity must be and is a focus of ongoing savings plans.
- The Railroads lead domestic and international peers on operational performance metrics:
    - In OTP, MNR outperforms all domestic peers with 96%, and LIRR follows with 94%, just behind Chicago's 95%. Internationally, both Railroads also lead on this metric.

    - Domestically, MNR has the highest MDBF at 1.18M miles, while LIRR ranks third at 243K miles, just behind Chicago's 356K. Internationally, both Railroads lead on this metric.
- Importantly, both Railroads have the highest *farebox operating ratio* of their domestic peers, and lower than average *subsidy per rider* compared to all of them.
    - MNR and LIRR lead on *farebox operating ratio* at 36.7% and 29.4%, respectively.
    - *Subsidy per rider* is also lower than the domestic peer average, at $16.04 for MNR and $20.89 for LIRR.

# New York City Transit: Subways

## Background

**National peers**

To compare NYCT Subways to domestic, comparable heavy rail systems, this report uses operating and financial data collected by the Federal Transit Administration (FTA) for its annually updated National Transit Database (NTD). In this report, NYCT data is compared to the following peer systems:

- MARTA (Atlanta, GA)
- CTA (Chicago, IL)
- MBTA (Boston, MA)
- LA Metro (Los Angeles, CA)
- SEPTA (Philadelphia, PA)
- BART (San Francisco Bay Area, CA)
- WMATA (Washington, DC)

BART and WMATA are also COMET members with data from 2022 but are excluded from the international comparisons as they are included in the domestic comparisons. As a result, all comparisons to international peers exclude any national peer, so all international index values are composed entirely of data from transit systems outside the U.S. (along with NYCT Subways).

**International peers**

To compare NYCT Subways performance to its international peers, this report uses data collected by the Community of Metros (COMET), an international benchmarking group owned and steered by its members and led by the Transport Strategy Centre at Imperial College London. COMET, of which NYCT Subways is a member, is composed of large and medium-sized metros and provides NYCT Subways with a network to share experiences, identify best practices and learn from other agencies in a confidential environment. COMET collects annual performance indicators and publishes case studies on key challenges facing the members to support decision making and establish best practices.

All COMET activities are carried out within a framework of confidentiality to ensure open and honest information exchange among the member metros. Any information that is released externally is anonymized. The international metros included in the comparison are:

- Barcelona TMB
- Bangalore Namma Metro
- Bangkok MRT
  Beijing MRT
- Berlin U-Bahn
  Brussels STIB
- Buenos Aires Emova
- Delhi DMRC
- Dubai RTA
- Guangzhou Metro
- Hong Kong MTR
- Istanbul Metro
- Jakarta MRT
- Kuala Lumpur SPNB
- Lisbon Metro
- London Underground
- Madrid Metro
- Mexico City STC
- Montreal STM
- Nanjing Metro
- Newcastle Tyne and Wear Metro
- New York City Transit
- Oslo Sporveien

- Ottawa OC Transpo
- Paris Metro
- Paris RER
- Metro Rio
- Santiago Metro
- Sao Paulo Metro
- Seoul Metro
- Shanghai Metro
- Shenzhen Metro
- Singapore SMRT
- Sydney Metro
- Sydney Trains
- Taipei TRTC
- Tokyo Metro
- Toronto TTC
- Vancouver SkyTrain

To align with the confidentiality framework, the charts developed for this report have been anonymized and absolute values for these metrics are not reported. Each chart is indexed to an average value for the relevant period (i.e., 2022, 2023) and each metro is represented by a letter. To maintain the anonymization, the lettering is unique to each chart. The most recent year for which comparable data is available is 2022, so only metros with data for 2022 in each respective metric are shown. (Years preceding 2022 are excluded as performance was severely impacted by COVID-related operating changes and passenger declines, which varied tremendously across the peer set). While this report uses similar benchmarks to those used for domestic metrics with labeled values, NYCT's international and domestic metric values are not identical due to differences in reporting standards and methodologies. COMET and NTD define and aggregate metrics differently—for example, NTD includes all major failures in mean distance calculations, while COMET counts only incidents causing delays over five minutes. Cost categories like fuels and lubricants may also be classified differently, impacting total operating cost figures. All international values have been adjusted for purchasing power parity (PPP) to ensure fair cost comparisons across countries. In other words, each country's costs are converted to a common currency and adjusted for differences in price levels, allowing for standardization.

## Costs

To accurately assess NYCT Subways' true productivity gap, it is essential to adjust for differences in global labor markets, especially wage levels and employer-provided benefits.

While NYCT Subways' wages align with other U.S. transit agencies (see Chart 1), they are about 62% higher than those of international peers. This disparity stems from broader U.S. labor market conditions, not decisions made by NYCT management.

Both wage and non-wage labor costs contribute to NYCT's elevated expenses. NYCT wages are 51% higher than the international average. If NYCT matched international wage levels, its total operating costs in 2023 would be about 19% lower. Non-wage labor costs—such as healthcare, pensions, and social security—are 91% higher than international benchmarks. These are also shaped by U.S. labor norms, where employers shoulder the bulk of these expenses. Nearly one-third of NYCT's labor costs fall into this non-wage category, with healthcare being the largest driver. Aligning NYCT's non-wage costs with international levels would reduce 2023 operating costs by roughly 13% (see Chart 2).

Taken together, adjusting for both wage and benefit differences would lower NYCT's operating costs by about 32%, placing the agency 16% below the international average. This suggests that much of NYCT's perceived inefficiency is due to structural labor cost differences outside of its control.

All charts reflect unadjusted data. However, in some charts, additional text is provided indicating how adjusting for different labor cost structures would impact the benchmarking comparisons, offering a clearer view of where NYCT's true productivity challenges may lie.

**Chart 1: Average hourly wage (domestic peers)**

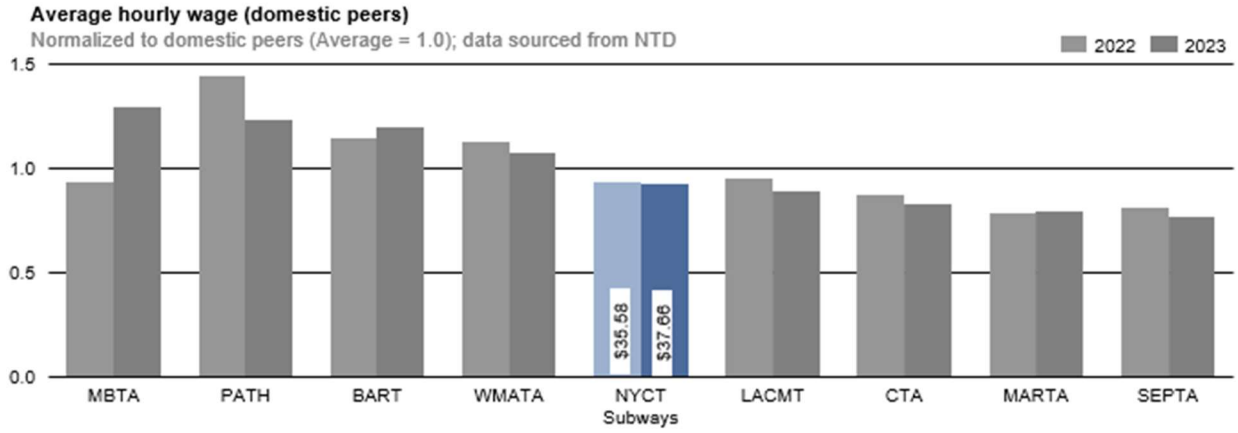
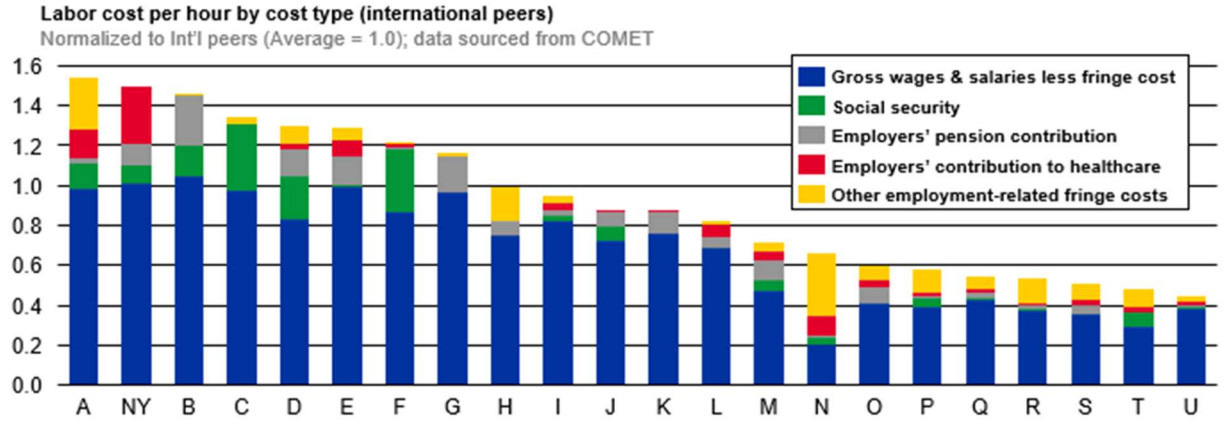


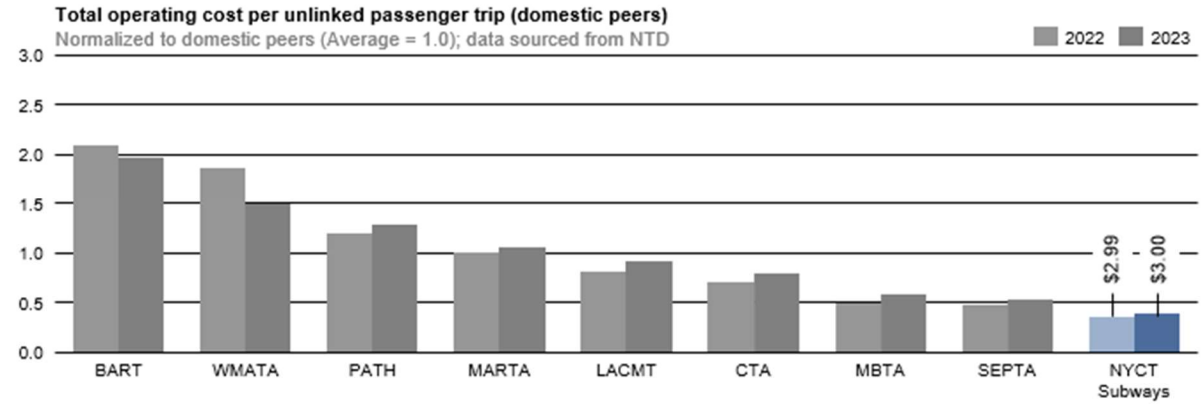

**Chart 2: Labor cost per hour by cost type**




With that context in mind, the first metric NYCT uses to measure efficiency is *operating cost per passenger trip*. Operating cost includes all core transit functions: service operations, maintenance, and administrative costs. Operating costs comprise wages and benefits for vehicle operators, vehicle and rail maintainers, and administrative personnel; fuel, tires, and other materials and supplies; utilities; casualty and liability; taxes; and purchased transportation.

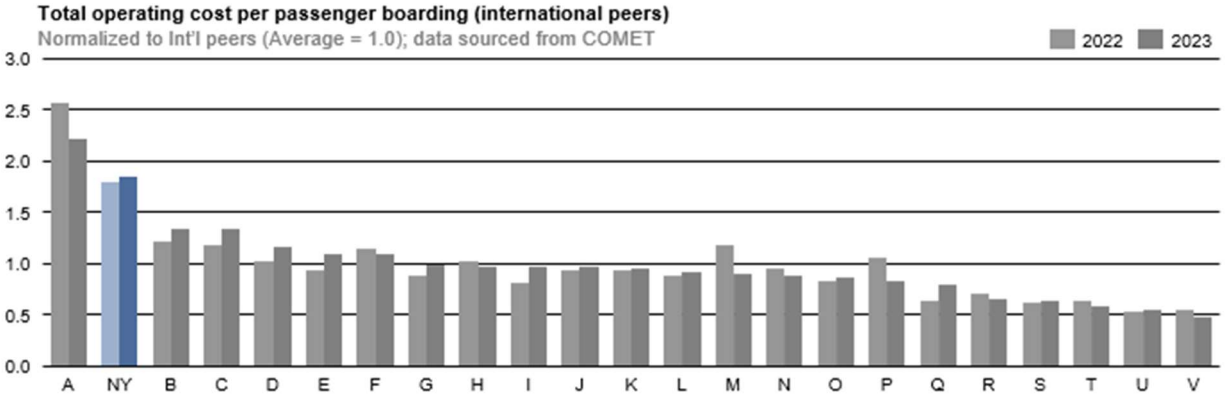
Among national peers, NYCT Subways remained the most cost-effective performer per unlinked trip in 2023 and is 62% less than the average (Chart 3). NYCT Subways' performance reflects in part stronger ridership recovery, recovering 74% of passenger trips compared to the 2019 baseline, while domestic peers averaged 54% recovery in the same time period. Between 2022 and 2023, NYCT Subways ridership increased 9%, while *cost per passenger trip* increased less than 1%.

**Chart 3: Total operating cost per unlinked passenger trip (domestic peers)**



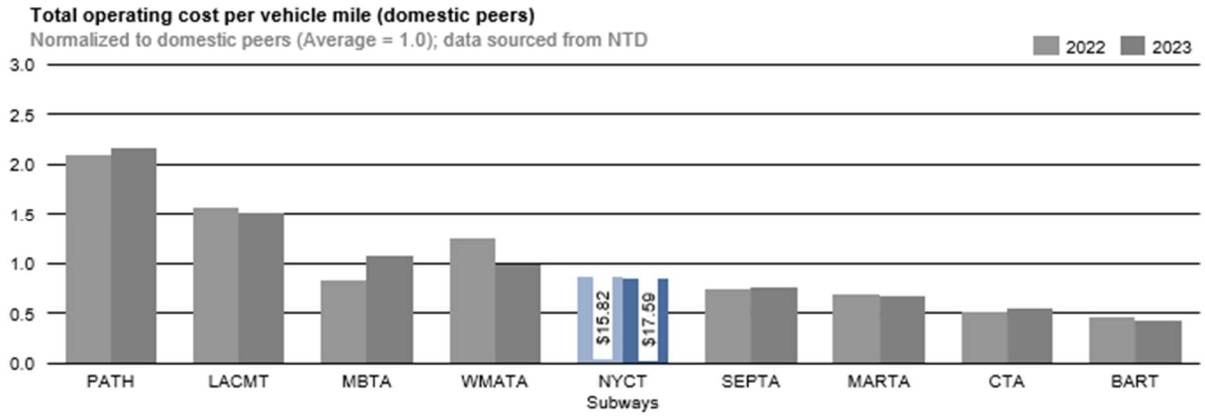

COMET's international benchmarking uses *cost per passenger boarded* rather than NTD's unlinked passenger trips metrics. Using this metric, NYCT Subways was the second most expensive system compared to international peers (Chart 4). In 2023, performance worsened slightly relative to peers, edging up to 85% above the international average. Normalizing NYCT Subways' costs to account for labor cost differences outside agency control would put it 26% above the global average. Labor productivity explains some of the apparent NYCT cost premium; for example, NYCT primarily runs two-person train crews compared to one-person train crew or driverless trains used overseas. Another source of the productivity gap comes from higher maintenance costs incurred due to NYCT's age, complexity, and service patterns (to be discussed more in later sections).

**Chart 4: Total operating cost per passenger boarding (international peers)**



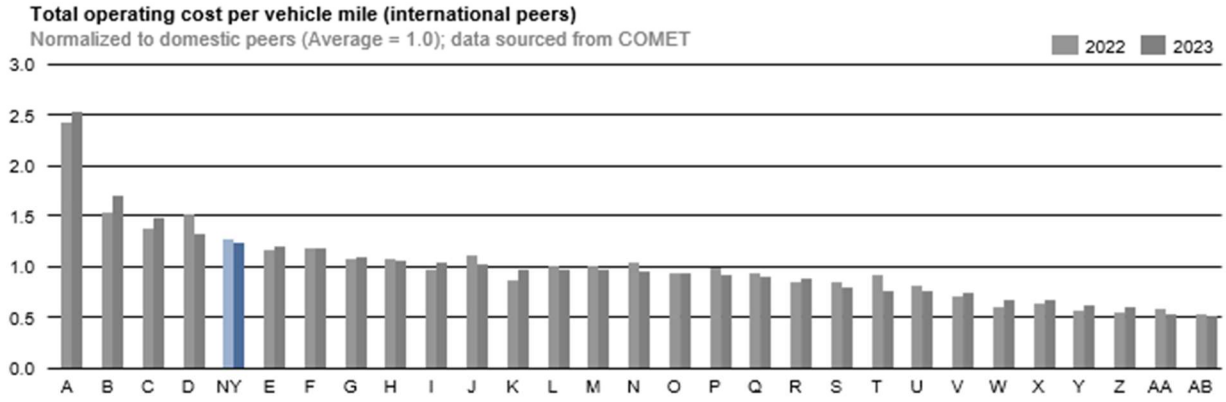

To add context to cost per passenger, NYCT also benchmarks *operating cost per vehicle mile*. This normalizes costs to reflect the length of the track network and the frequency of service run. In 2023, NYCT Subways' *operating cost per vehicle mile* remained slightly below the domestic peer average (14% lower) (Chart 5). While *operating costs per vehicle mile* grew since 2022 for both the MTA and most peers, the MTA's costs grew slower than peers, increasing 11% for MTA versus 14% for the peer average. The specific drivers of operating costs are discussed later in the report, including increases in facility maintenance costs.

**Chart 5: Total operating cost per vehicle mile (domestic peers)**




Compared to international peers, NYCT Subways was 23% more expensive than average (Chart 6). This was largely driven by the US' atypical operating conditions of high prevailing wage rates, pension contributions, and employer-provided healthcare. When adjusting for differences in hourly wages and fringe, NYCT Subways' operating cost would actually be 16% cheaper than the average international peer on a per-mile basis.

**Chart 6: Total operating cost per vehicle mile (international peers)**




In addition to reporting on overall costs, NY legislation requests annual benchmarking reports on maintenance expenses. Maintenance is 43% of overall operating costs and directly impacts our ability to provide reliable service to customers.

In 2023, NYCT Subways' total *maintenance cost per vehicle mile* was 11% higher than national peers, compared to 25% in 2022, showing a substantial improvement (Chart 7). In addition, average peers' costs grew faster (+21% average for peers, vs +7% for NYCT Subways). Internationally, Subways' total *maintenance cost per vehicle mile* was the second most expensive compared to peers (Chart 8). While differing safety standards across boarders influence the frequency and scope of maintenance inspections, reducing maintenance costs remains a focus area for Subways management.

Opportunities being explored include performing more work with dedicated outages rather than under traffic, improving running times through various initiatives, and reducing the amount of

mechanical signaling equipment in the right-of-way as a result of higher levels of Communications-Based Train Control (CBTC) line coverage.

**Chart 7: Total maintenance cost per vehicle mile (domestic peers)**

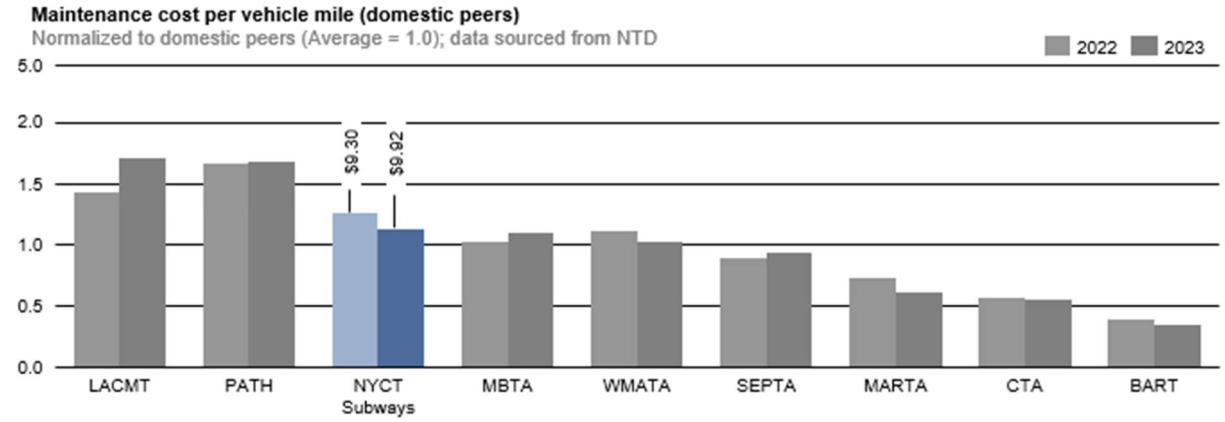
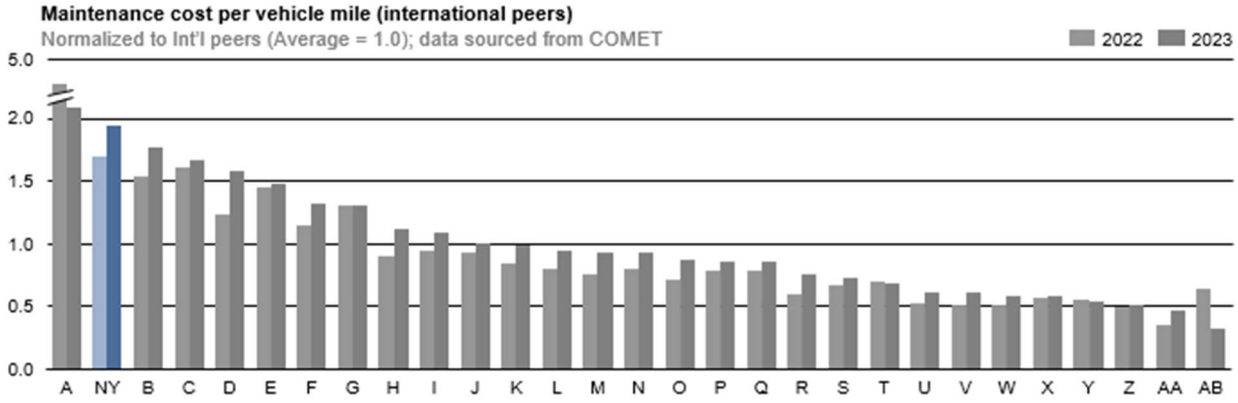



**Chart 8: Total maintenance cost per vehicle mile (international peers)**




Maintenance costs can be separated into two areas: (1) costs for 'facilities' – track, signals stations, and structures, and (2) costs for rolling stock.[1] This segmentation suggests the MTA's higher costs in the domestic context are primarily due to facility maintenance (25% above average), not vehicle maintenance (11% below average). In the international context, the MTA performs similarly compared to peers in both; this is likely due to the persistence of discussed labor gaps in both.

NYCT Subways' *facility maintenance costs per vehicle mile* were 25% higher than the national peer average, but have only increased by 8% since 2022, compared to 22% across peers (Chart 9). Internationally, NYCT Subways was the fourth most expensive per vehicle mile (Chart 10).

[1] Note that in this benchmarking exercise this definition differs from typical MTA internal definitions, which typically use facility just to refer to building structure (maintenance depots, stations, and rolling stock shops).

NYCT faces multiple unique challenges in facilities maintenance that explain the relative cost of the system. The age of facilities, the complexity of track and signal systems, and the large number of stations all contribute to higher expense levels than that of many peers. Additionally, the system's 24-hour service commitment means maintenance must be performed either while trains are running – increasing staffing needs for flaggers to keep workers safe near or on the tracks – or through a General Order (GO). While a GO is in place, portions of the system are closed strategically to perform maintenance, testing, and inspection work.

To improve facility maintenance efficiency, NYCT Subways is prioritizing facility modernization, such as converting all subway lighting to LED by mid-2026 to reduce costs while improving safety and customer experience. In addition, Subways is increasing predictive maintenance for tracks and signals by leveraging data-driven solutions and continuing to optimize maintenance schedules. Examples of such include a maintenance-by-location initiative that prioritizes work based on equipment duty cycle, as well as targeting engineering solutions for signals that are often-overrun by operators.

**Chart 9: Facility maintenance cost per vehicle mile (domestic peers)**

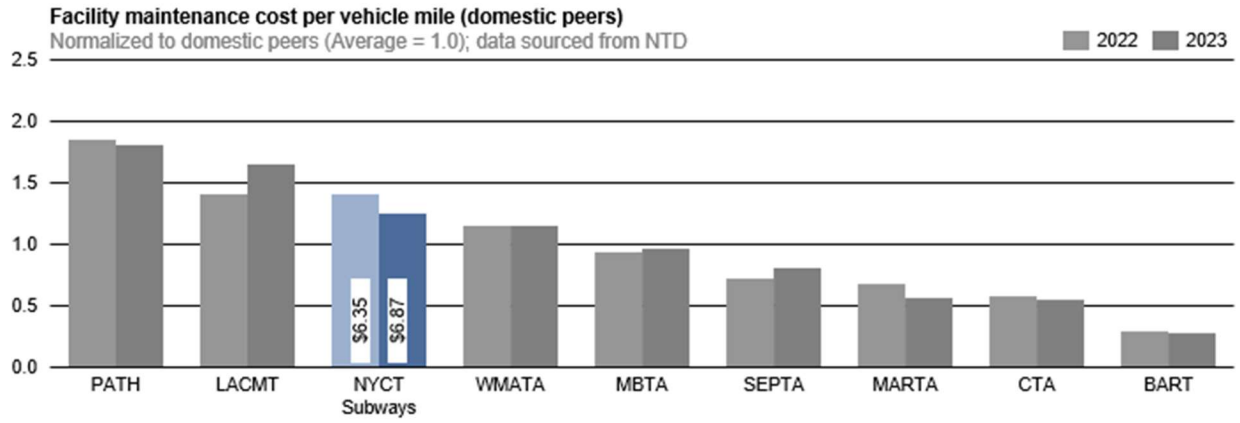
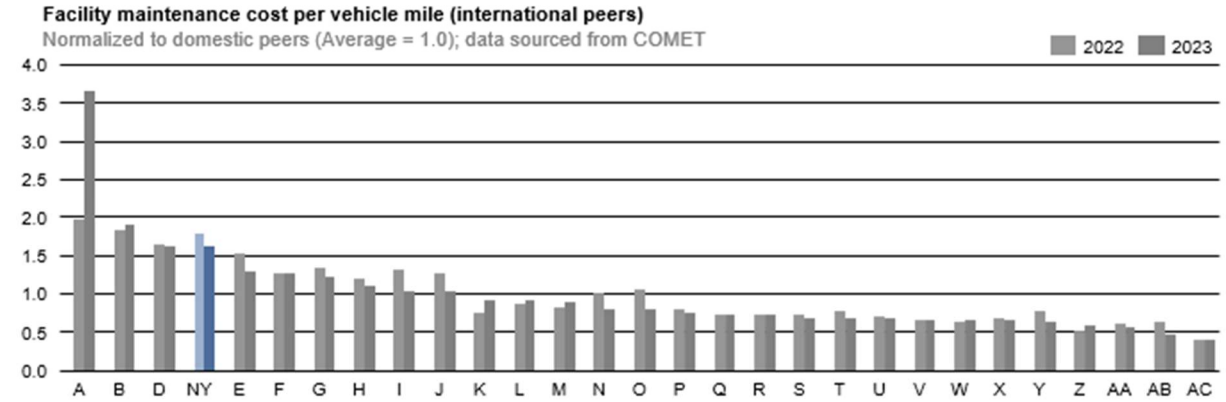



**Chart 10: Facility maintenance cost per vehicle mile (international peers)**




Subways' *vehicle maintenance cost per vehicle mile* in 2023 was 11% lower than national peers – an improvement relative to 2022 (Chart 11). Vehicle maintenance costs per mile went up just 3% for MTA between 2022 and 2023 (in line with labor GWI increases), compared to an average increase of 18% for peer agencies.

This improvement can be partially attributed to fleet modernization efforts and modified overhaul cycles, requiring less frequent maintenance. Ongoing modernization efforts, including a total of 1,610 new R211 cars ordered in 2024, will continue to reduce vehicle maintenance costs, as old train cars break down six times as frequently as new train cars. Unlike many peer systems, much of NYCT's older rolling stock uses cam-actuated rheostatic propulsion control systems, for which replacement parts are often more expensive to obtain, as they are no longer supplied by OEMs.

Compared to international peers, Subways spent the second most on *vehicle maintenance per vehicle mile*, at roughly 93% more than average (Chart 12). In addition to the flow-through of higher labor costs, increased costs are caused by Subways' older average fleet age compared to international peers, as previously mentioned. As of 2023, NYCT Subways' average fleet age was 27 years, ~4 years above the peer average.

**Chart 11: Vehicle maintenance cost per vehicle mile (domestic peers)**

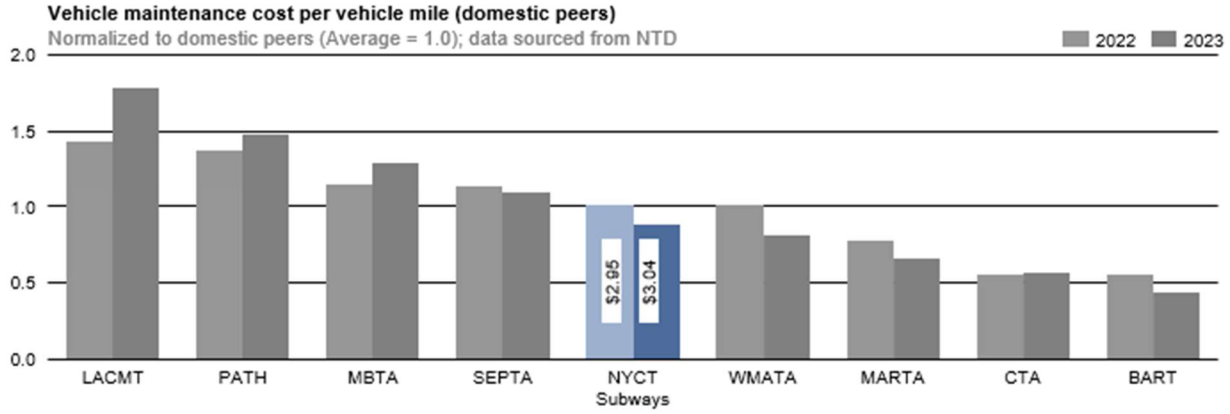
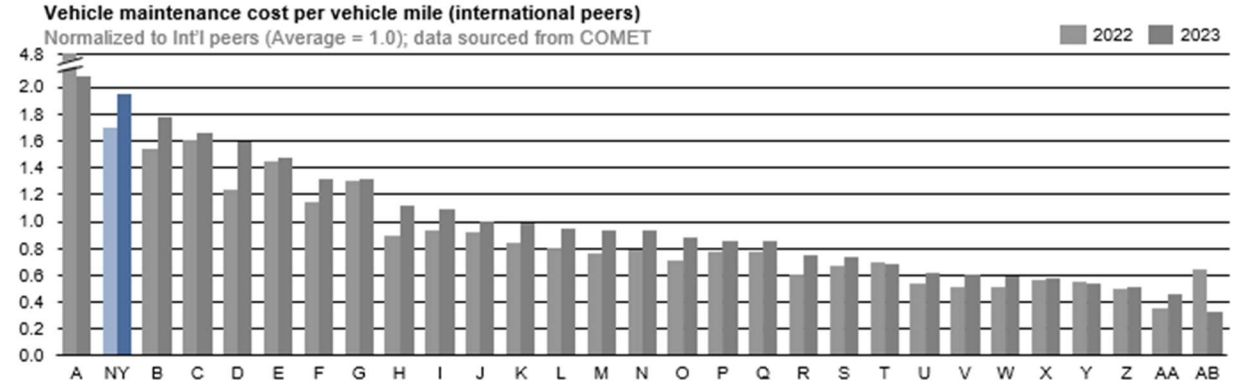



**Chart 12: Vehicle maintenance cost per vehicle mile (international peers)**




## Operations

MDBF measures fleet reliability and the effectiveness of maintenance practices. Domestic and international approaches to benchmarks differ slightly. NTD compares all major mechanical failures that prevent a vehicle from completing or beginning its route, while COMET compares all rolling stock failures causing greater than a 5-minute delay.

Domestically, NYCT Subways remained about level with the national peer average. However, Subways' MDBF has decreased by 10% since 2022, contrasting with improvements seen at most other peer agencies except for SEPTA (Chart 13). Internationally, Subways' performance remained similar to that of 2022, at 86% below average (Chart 14).

MTA's previously mentioned efforts to introduce new fleet cars will also increase the MDBF, as newer cars do not break down as often. NYCT obtained several small fleets of cars for much of the 20th century, which reached the end of their useful lives at different times. The replacement of these individual fleets with large, homogenous replacement orders will result in a major improvement in this metric.

**Chart 13: Mean distance between failure (domestic peers)**

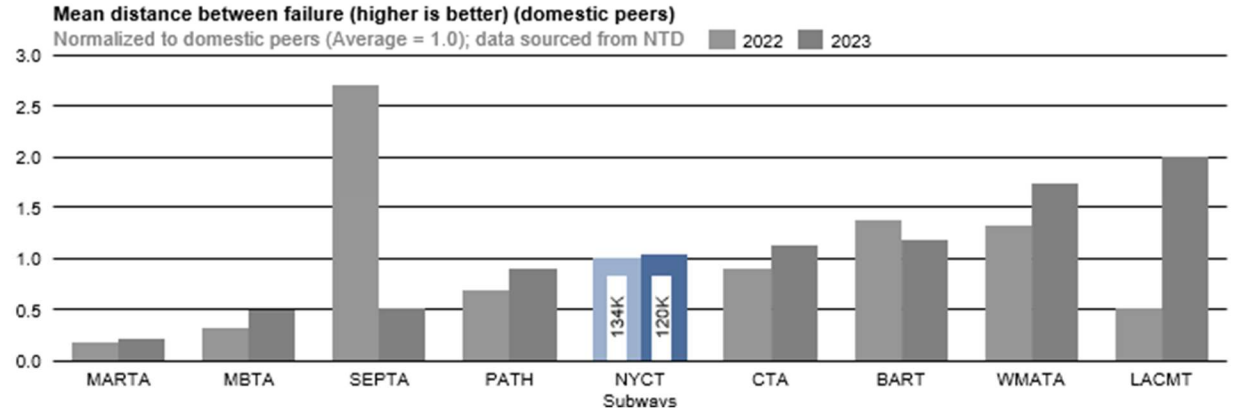
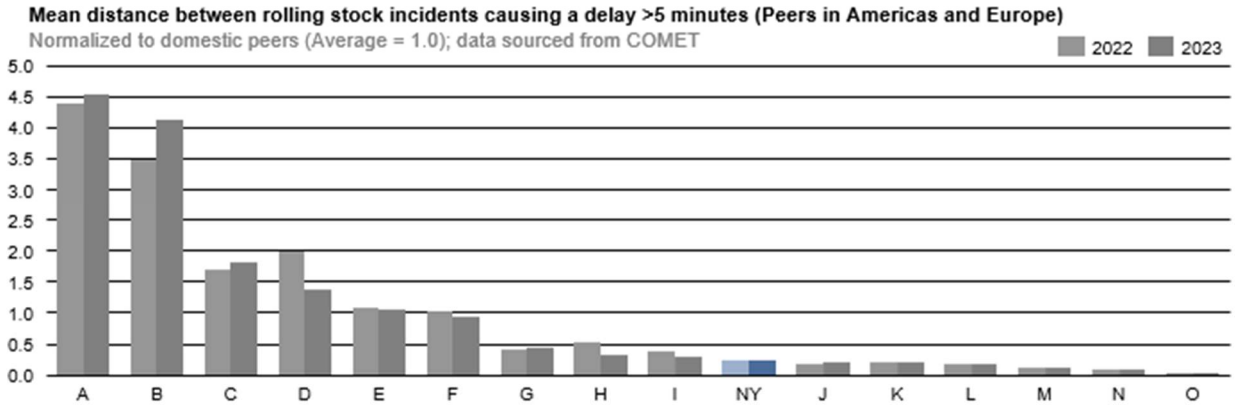



**Chart 14: Mean distance between rolling stock incidents causing a delay >5 minutes (Peers in Americas and Europe)**

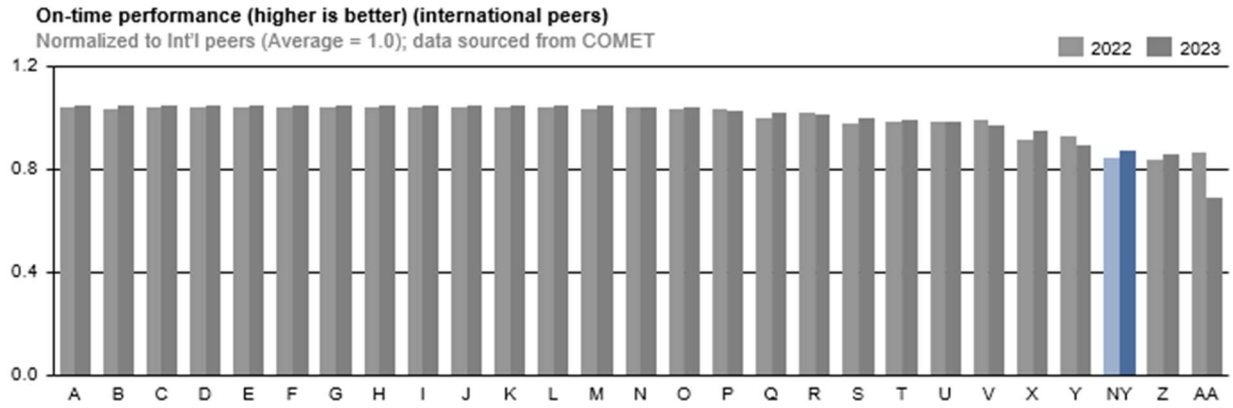



OTP indicates the proportion of scheduled trips that arrived at their destination terminals within 5 minutes of scheduled time. While NTD does not track data for domestic peers, COMET tracks for international set.

Absolute and relative OTP ticked up 2pp in 2023, while the peer average decreased 1pp in this period. NYCT Subways' position remained similar in relationship to peers, with the third-lowest OTP (Chart 15). NYCT is challenged by a 24-hour operation with significant interlining, more akin to an S-Bahn than a traditional metro system. Efforts are ongoing to rationalize schedules,

review dispatching strategies, address operating culture challenges, modernize speed limits, and tweak policies to ensure improved enroute and terminal OTP performance.

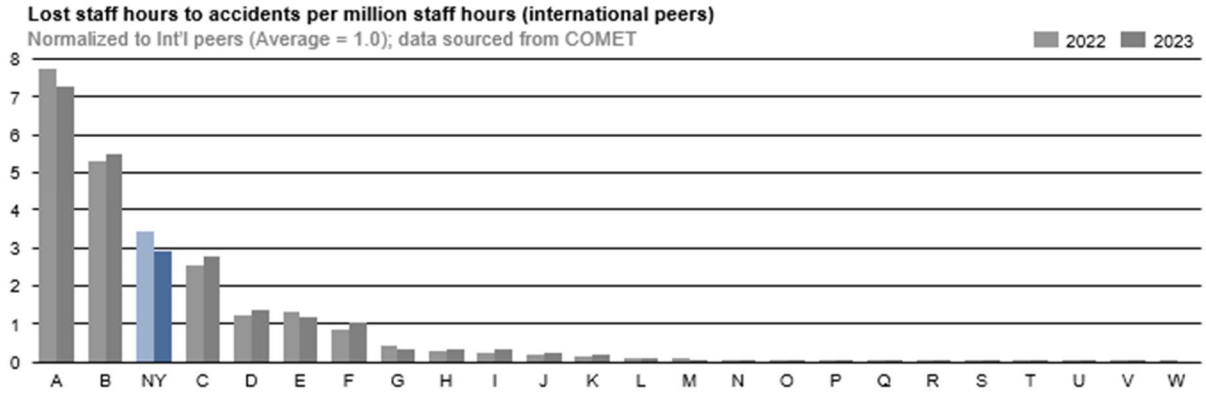
**Chart 15: On-time performance (international peers)**




## Safety

In 2023, NYCT Subways reduced lost staff hours by 7% since 2022—a notable improvement—especially in contrast to an average 9% increase among international peers. Despite this progress, NYCT still had the third-highest proportion of staff hours lost per million hours worked, down from second highest in 2022.- There is a wide range in this data, as shown in Chart 16, which may be influenced by cultural factors, industrial relations, and work practices often governed by unique collective bargaining agreements, such as the extent to which staff who have had an accident can be reassigned to other tasks (i.e. “light duty”) and still be productive.

**Chart 16: Lost staff hours to accidents per million staff hours (international peers)**




Improving employee availability is a top priority across the MTA. All potential levers are considered in initiatives to reduce unavailable time, including sick usage, workers’ compensation, and injury on duty. As noted in prior years, unavailable days more than doubled between 2010 and 2019, and grew again after 2020. This trend was mitigated in 2024 through NYCT’s efforts to ensure faster and more effective workers’ compensation claims management (e.g., better enforcement of return-to-work dates for employees). This has led to increased employee availability and $30 million in savings.

## Subsidies and Farebox Recovery

Compared to national peers, NYCT Subways has the highest *farebox operating ratio* (49%), or the portion of operating expenses covered by farebox revenue (Chart 17).

In the international context, NYCT Subways has a lower *farebox operating ratio* than the peer average, but as previously discussed, some peers have much newer systems with much lower costs (Chart 18).

**Chart 17: 2023 Farebox operating ratio (domestic peers)**

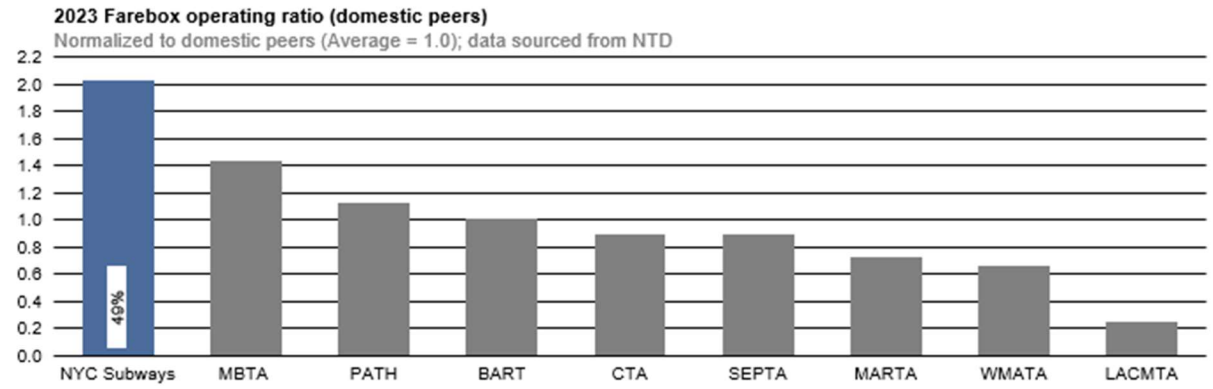
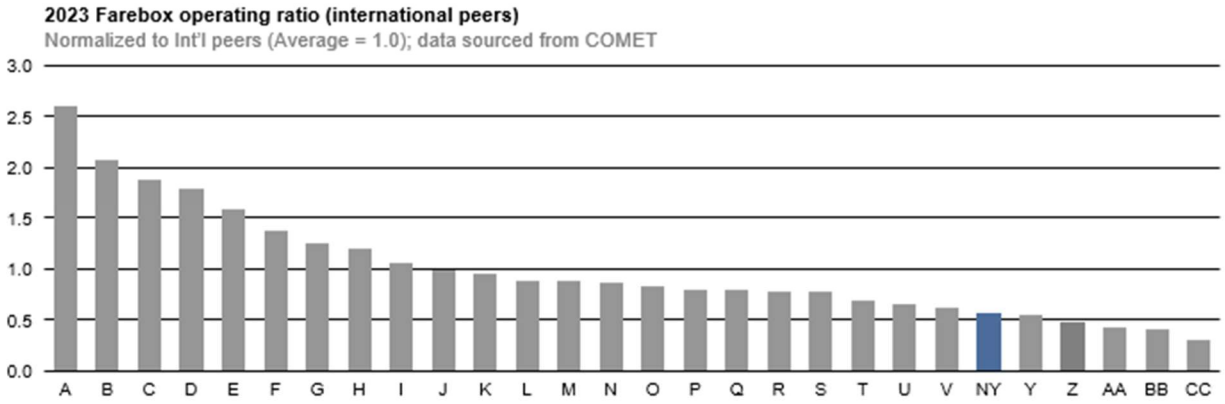


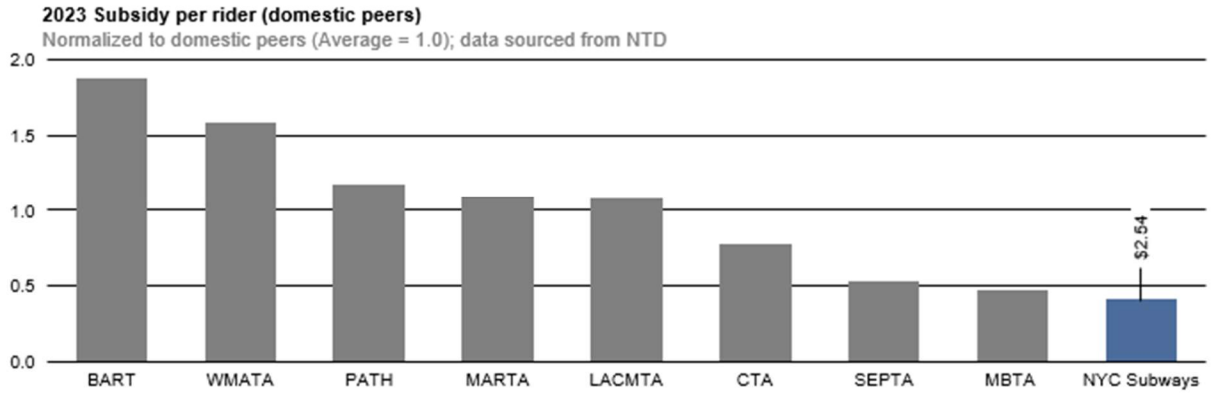

**Chart 18: 2023 Farebox operating ratio (international peers)**



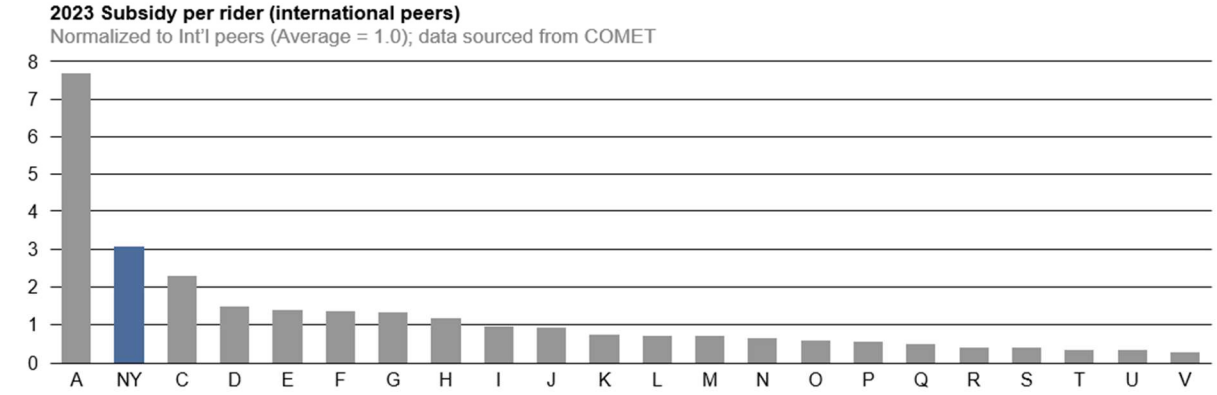

Compared to national peers, NYCT Subways has the lowest *subsidy per rider* ($2.54), measuring the difference between operating expenses and revenue per rider (Chart 19).

In the international context, NYCT Subways has the second-highest *subsidy per rider* among peers; again, radically lower labor costs in other international systems reduces subsidy levels severely. (Chart 20).

## Chart 19: 2023 Subsidy per rider (domestic peers)




## Chart 20: 2023 Subsidy per rider (domestic peers)



# MTA Railroads

## Background

The MTA's two Railroads are founding members of the International Suburban Rail Benchmarking Group (ISBeRG), which is managed by the Transport Strategy Centre at Imperial College London. ISBeRG membership allows the Railroads to regularly access and utilize benchmarking information. Drawing on Key Performance Indicator (KPI) data and in-depth study findings, members contextualize their own performance, identify, develop and maintain best practices, and inform better decision-making and improved commercial and customer outcomes.

Differences exist among railroads across the world, particularly when comparing U.S. railroads to international peers; they include local economy characteristics, prevailing wages, and collective bargaining agreement provisions, which have dramatic impacts on labor costs. Government requirements, including rail safety regulations, vary widely, and each railroad operates within a unique service territory with differing physical characteristics and infrastructure, often with distinct service schedules, geography, topography, operating rules and protocols. This complicates the benchmarking effort – both in choosing peers, as well as interpreting the data comparisons.

To compare MNR and LIRR operations and costs to domestic commuter rail systems, this report leverages operating and financial data from the Federal Transit Administration's National Transit Database (FTA, NTD). In this report, MNR and LIRR data is compared to the following domestic peer commuter systems in NTD:

- New Jersey Transit (Northern New Jersey)
- Metra (Chicago metropolitan area)
- SEPTA (Philadelphia metropolitan area)
- MBTA - operated by Keolis commuter services, which operates MBTA's 14 commuter rail lines (Boston metropolitan area)
- Metrolink (Southern California)

For some metrics, MBTA and Metrolink's submitted data is not representative or complete; this is likely due to their use of 3rd party service operators (Keolis for MBTA; Amtrak for Metrolink). Where potentially impactful, this is footnoted to avoid confusion. Additionally, MTA Railroads operate on a much larger scale than other domestic railroads. LIRR reported 83.8 million unlinked trips and MNR reported 66.5 million unlinked trips in 2023[2]. The domestic peer average was 29.0 unlinked million trips, and none meet MNR or LIRR's passenger load levels.

As described above, the Railroads benchmark themselves against international peers by leveraging ISBeRG data. All international financial values have been converted from local

[2] The unlinked passenger trips figure reported to NTD counts each boarding as a separate trip — meaning passengers are counted every time they board a vehicle, even if it's part of a single journey from origin to destination. For example, LIRR riders who transfer at Jamaica are counted twice. This differs from MTA's internal ridership methodology, which counts only distinct journeys and does not count transfers as separate trips.

currency to USD. In this report, LIRR and MNR data is compared to the following international ISBeRG members:

- FGC - Ferrocarrils de la Generalitat de Catalunya (Barcelona, Spain)
- Queensland Rail (Brisbane, Australia)
- Metro Trains Melbourne (Melbourne, Australia)
- Sydney Trains (Sydney, Australia)

This is a limited set compared to the broader ISBeRG database. With just four relevant benchmarks in the international set for our commuter railroad benchmarking, caution is advised in inferring substantial insights from these comparisons. Other members of ISBeRG are excluded because they are not directly comparable; some reasons for excluding members include:

- Some are not responsible for infrastructure maintenance (MTA Railroads are)
- Some have different modes and are thus less comparable (e.g., rapid transit providers)
- Other US railroads are not included as focus is on comparisons to international peers

While NTD and ISBeRG both report on railroad performance using similar metrics, methodological differences between the two systems—and between how LIRR and MNR submit to each—lead to slight variations in the values shown in the following charts. These differences stem from how key cost elements are calculated, including treatment of overtime vs. straight time, pension cost allocation, and overhead reimbursements.

Notably, LIRR and MNR switch positions in international comparisons compared to domestic comparisons. This reversal is primarily due to how pension costs are allocated in ISBeRG, especially for LIRR. As a result, NTD-based graphs offer a more accurate view of actual performance. For the 2024 report, MTA will work to further standardize reporting between NTD and ISBeRG to improve consistency across the Railroads.

## Costs

Labor costs are a major driver of railroad operating expenses and must be viewed in the context of local wage patterns, collective bargaining agreements (CBA), and regulatory environments. In 2023, average MNR hourly wages were 2% above the domestic peer average, up from 4% below in 2022. For context, Metro-North Agreement “Skilled Craft” employees represent 86% of 6,452 employees, meaning that CBAs drive labor costs for a large portion of the workforce.

The LIRR hourly wages remained significantly higher, at 19% above peers (Chart 21). These differences between Railroads reflect variations in collective bargaining and structural cost drivers. Year on year, average MNR wages paid increased by 13% and LIRR by 8%, both outpacing the average peer increase of 6% and the national average of 4.5%.[3]

International hourly comparisons should also consider systemic U.S. cost factors, especially healthcare and fringe benefits, which are significantly higher than in other countries. Labor-related expenses make up 50–60% of total costs at MNR and LIRR.

[3] FRED, Nominal Earnings ($), Q4 2022-Q4 2023 (as of Jan 2025).

When reviewing trends across specific metrics below, several structural factors should be noted that materially influence MTA commuter railroad labor costs:

- **Force Account vs. Third Party**: MNR and LIRR frequently perform maintenance and capital work in-house, rather than outsourcing to third-party contractors or consultants, which concentrates labor costs within the agency.
- **Unfunded Pension Liability**: LIRR labor costs include payments toward an unfunded liability associated with a closed pension plan, increasing total personnel expenses.
- **On-Board Fare Validation and Collection**: Because MNR and LIRR operate ungated systems, train crews are responsible for fare collection and fare validation in addition to their primary safety and operational duties, which adds to headcount and labor needs.

To help manage labor costs generally, both MNR and LIRR are advancing efforts to reduce overtime. Strategies include targeted hiring in key craft titles to reduce the need for backfill (overtime) coverage, and revisiting railcar and infrastructure maintenance schedules to minimize planned overtime.

**Chart 21: Average hourly wage, including paid absence (domestic peers)**

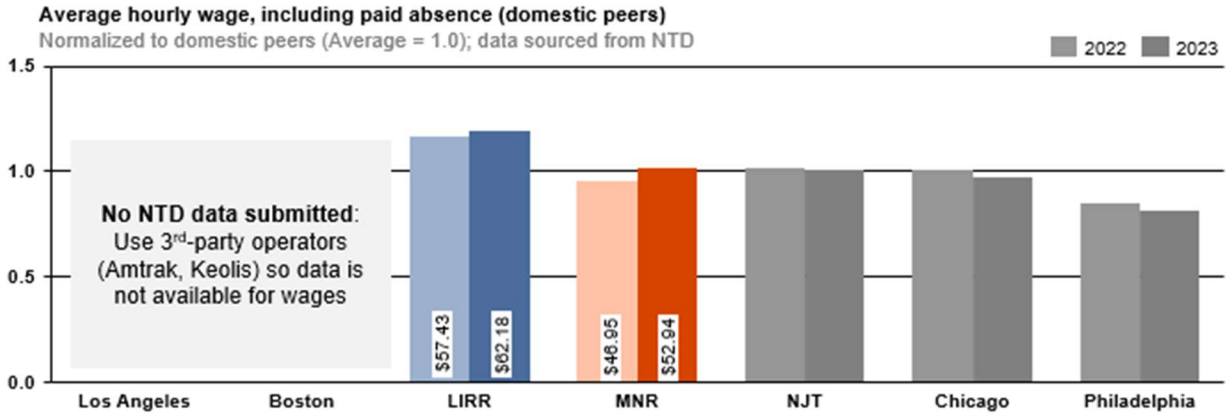
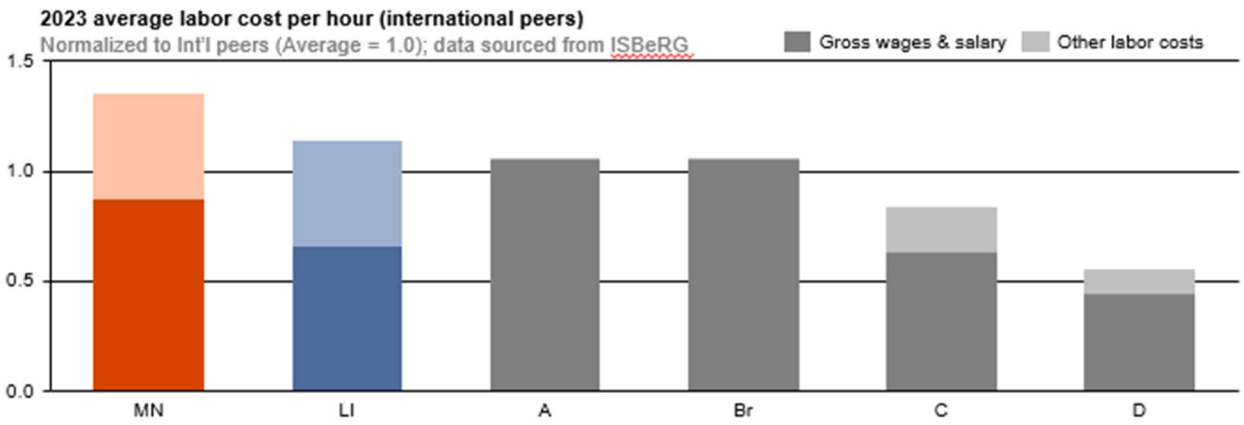


**Chart 22: Average labor cost per hour (international peers)[4]**




For *operating cost per passenger trip*, MTA Railroads remained cheaper than average domestic peers, and MNR is now 19% cheaper than the domestic peer average (Chart 23). While LIRR is also below average, its costs grew faster than the rest. This absolute increase can be linked to the opening of Grand Central Madison (GCM) — a new terminal that enabled a 40% increase in train service. This expansion resulted in higher operating and maintenance costs compared to 2022, along with labor and overhead costs associated with the launch of the new Grand Central Madison Operating Company (GCMOC). These changes contributed to increases in several cost metrics, including *operating cost per unlinked passenger trip*, *per vehicle mile*, and *facility maintenance cost per vehicle mile*.

Globally, MTA Railroads both moved closer to the average *operating cost per passenger trip* in 2023 (Chart 24). ISBeRG uses passenger journey data, which counts transfers as one trip (compared to NTD, which counts transfers separately). If hourly labor costs were in line with international peers, overall operating costs would be 24% lower at MNR and 20% lower at LIRR—substantially reducing the overall cost gap between these agencies and their international peers. Normalizing the Railroads' costs to account for labor cost differences outside agency control would put them 39-45% above the global average due to long service hours, onboard fare validation, and increased maintenance costs due to operating and maintaining both electric and diesel fleets.

Some of this gap is caused by relevant operating differences: LIRR operates rail service approximately 24 hours a day, 7 days a week and MNR operates rail service 20 hours a day, 7 days a week; thus, they do not have significant "white" periods, where no rail service is operating ("track outage"), and rail gangs can complete State of Good Repair (SOGR) maintenance tasks for 4-5 hours before service resumes – common with international peers. Other international systems appear to have more stations within dense city limits with higher service frequency, likely increasing off-peak passenger journeys outside general commuting options. Finally, both MTA systems run over electrified and non-electrified territory, requiring operating and maintaining both electric and diesel fleets, and broadening work types performed

[4] Note that LIRR and MNR have different cost submissions between the two data sources, reflective of distinct accounting rules and policies followed for the ISBeRG submission. In this case, it leads to overstating gap in labor costs per hour on same definitions. In future, expect results to be aligned more closely.

across the right-of-way. From a station operations fare collection perspective, MNR and LIRR operate in an ungated environment, which entails additional onboard train crew staffing in the form of conductors to validate and/or collect fare payments, among their tasks. This contrasts with most of the ISBeRG peer agencies, which have gated or proof-of-payment systems that do not require this level of onboard train crew staffing.

Another consideration is many international rail operators feature through-running from one branch to another through their Central Business District (CBD), offering an efficient operating environment. In contrast, MNR and LIRR run terminal service operations into New York's CBD (Grand Central Terminal for MNR, and Grand Central Madison, Penn Station, Atlantic Terminal, Hunterspoint Avenue, and Long Island City for LIRR), which requires making additional non-revenue train moves and drives up costs.

In 2024, the MTA set cost savings targets for both Railroads that will help to drive savings over 2023 performance. Areas for operating cost improvement include improving rail car inspection productivity, workforce productivity, standardizing work, optimizing materials management, and reducing the frequency of planned overtime.

**Chart 23: Total operating cost per unlinked trip (domestic peers)**

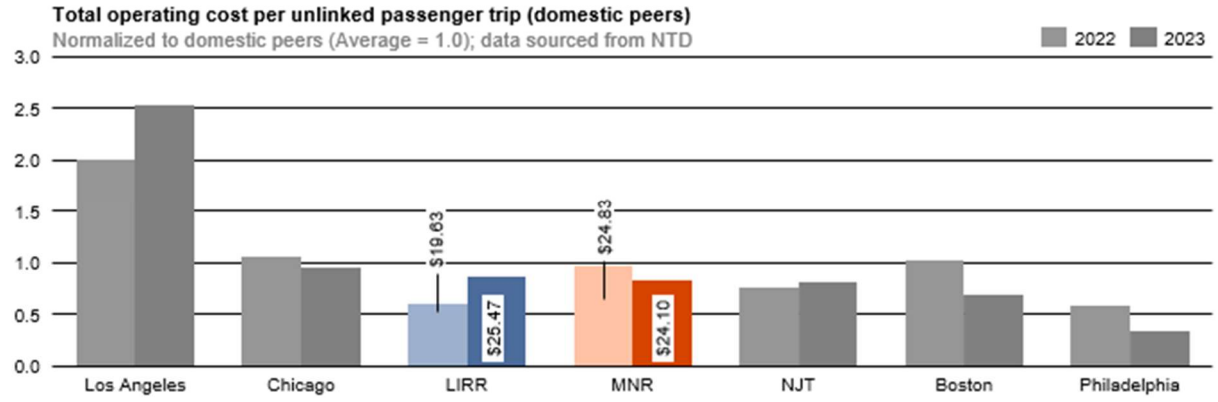
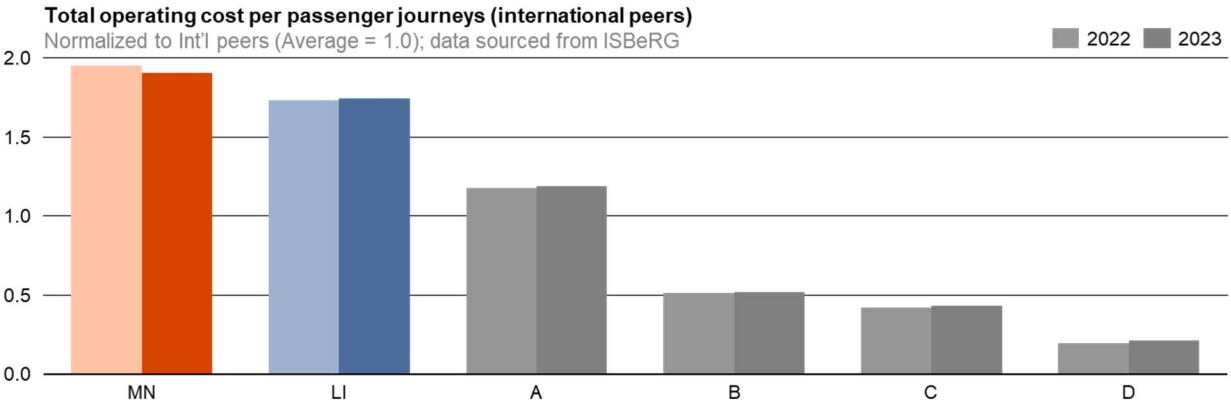



**Chart 24: Total operating cost per passenger journey (international peers)**




Costs can also be compared on the basis of vehicle miles. For *operating cost per vehicle mile*, MNR was 17% more expensive than domestic peers (Chart 25). This increased 20% from 2022

to 2023 compared to the average peer increase of 5%. LIRR was 23% more expensive than domestic peers. LIRR *operating cost per vehicle mile* increased 10% between 2022 and 2023 compared to the average peer increase of 5% (Chart 26).

When compared internationally per mile, both Railroads are more expensive than global peers. After normalizing for labor and benefits, gaps remain – approximately 17% for MNR and 6% for LIRR. The primary drivers include distinctive operating conditions as discussed above, as well as opportunities for higher productivity and asset utilization through reducing spare ratios.

**Chart 25: Total operating cost per vehicle mile (domestic peers)**

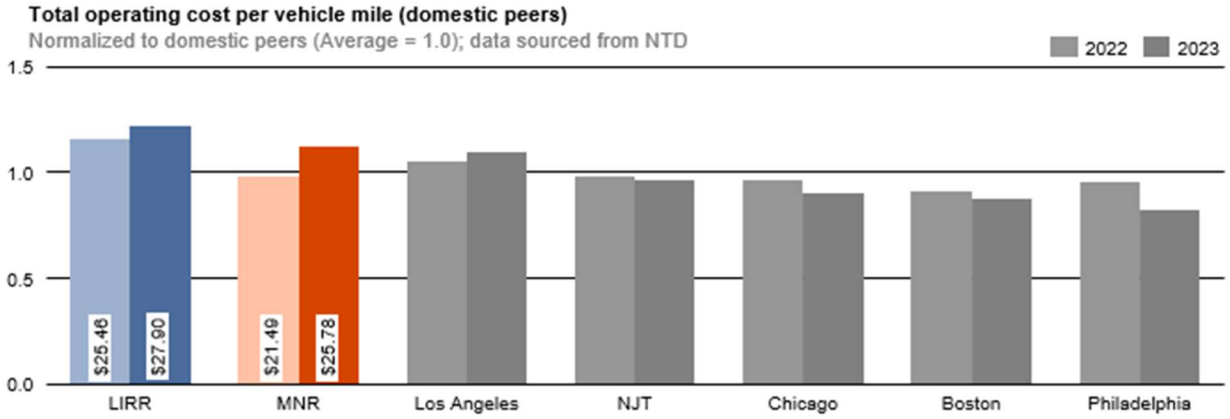
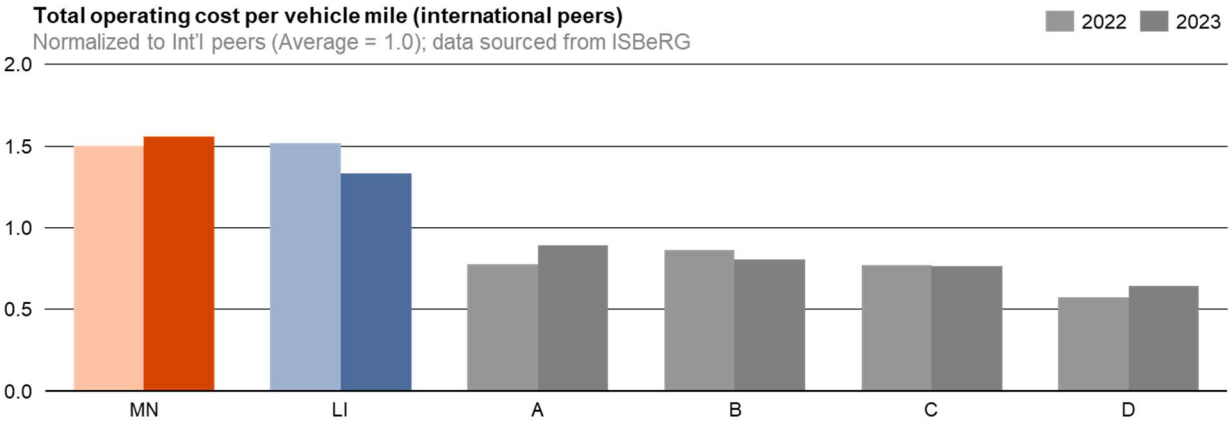



**Chart 26: Total operating cost per vehicle mile (international peers)**




Maintenance costs drive a large share of operating costs. In the same way as Subways, Maintenance costs for MNR and LIRR can be separated into two parts: (1) costs for 'facilities' – track, signals boxes and bridges, high tension/transmission towers, over grade / at grade bridges, culverts, viaduct spans retaining walls and catenary tower structures; and (2) costs for rolling stock. In general, MTA Railroads' *maintenance costs per mile* exceeded domestic peers, with LIRR 47% higher and MNR 21% higher than the peer average (Chart 27). Some of this is likely caused by two peers with the lowest expense (Los Angeles, Boston) paying 3rd-party operators to run their commuter rail services. Metra (Chicago) also has several lines operated by freight companies — BNSF Railway and Union Pacific.[5] NJT also utilizes Amtrak's Northeast

[5] About Metra | Metra, 2025

Corridor rail infrastructure, potentially reducing maintenance costs. Federal Railroad Administration (FRA) regulations require more frequent inspections of commuter rail and passenger railroads train equipment and infrastructure, which drives up maintenance and total operating costs.

Internationally, both Railroads exceed the peer average, in both cases by substantial amounts. Even after adjusting for the global labor differences, that leaves MNR 50% and LIRR 14% more expensive than average (Chart 28).

A key driver of rolling stock maintenance costs at both MTA commuter Railroads is the complexity of operating multiple fleet types, each with distinct components, facilities, and maintenance needs. On the Hudson and Harlem Lines, MNR operates M3 and M7 Electric Multiple Unit (EMU) railcars, which entered service in 1984 and 2004, respectively, and are similar in age to LIRR's fleet. On the New Haven Line, MNR uses M8 cars, delivered beginning in 2011, which feature dual-mode capability—drawing power from both third rail and overhead catenary systems. Additionally, MNR operates dual-mode diesel locomotives to serve non-electrified segments at the outer ends of its service area.

Each fleet type requires maintenance at specific shop and yard locations, with daily inspections and brake tests supplemented by scheduled maintenance at 92-day, 184-day, and 368-day intervals. Reliability Centered Maintenance (RCM) activities are also conducted as part of overhauls to air brake systems, with inspection cycles set at 3, 4, 5, 8, or 10 years depending on the system. These intervals are determined by the type of air brake system on the vehicle, as required by FRA regulations.

To address maintenance costs, both Railroads are working to improve equipment maintenance workflows and contracts and optimize maintenance staffing accounting differences.[6] LIRR plans to further reduce expenses by streamlining the M7 truck overhaul Reliability Centered Maintenance program, reducing support equipment duty cycles, expanding training for specific work tasks, and utilizing tech support to reduce preparation times.

[6] Note that operate has distinct meanings in each context. Amtrak operates Metrolink including both engineers and conductors; from public filings, unclear how much maintenance is performed by them. MBTA appears to pay Keolis for management, operations, and maintenance of commuter rail. See peer websites for more information.

**Chart 27: Total maintenance cost per vehicle mile (domestic peers)**

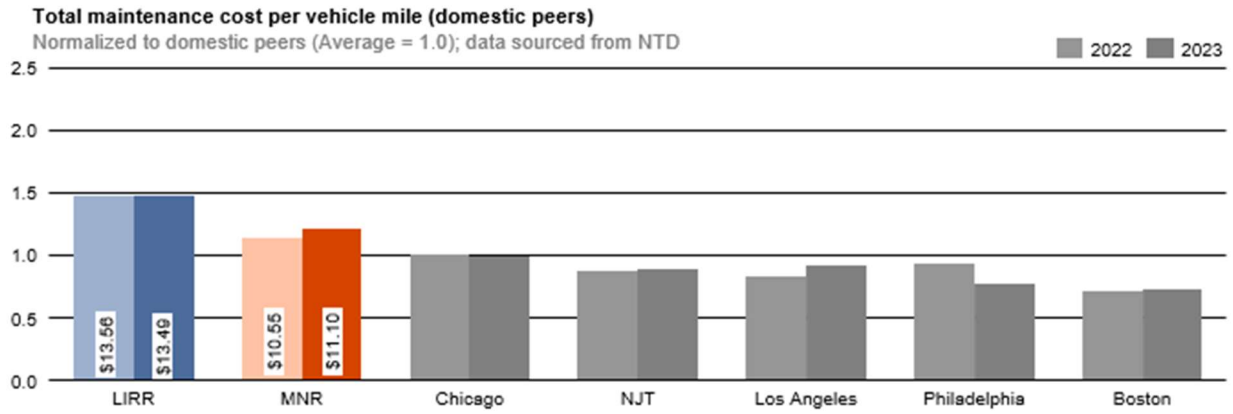
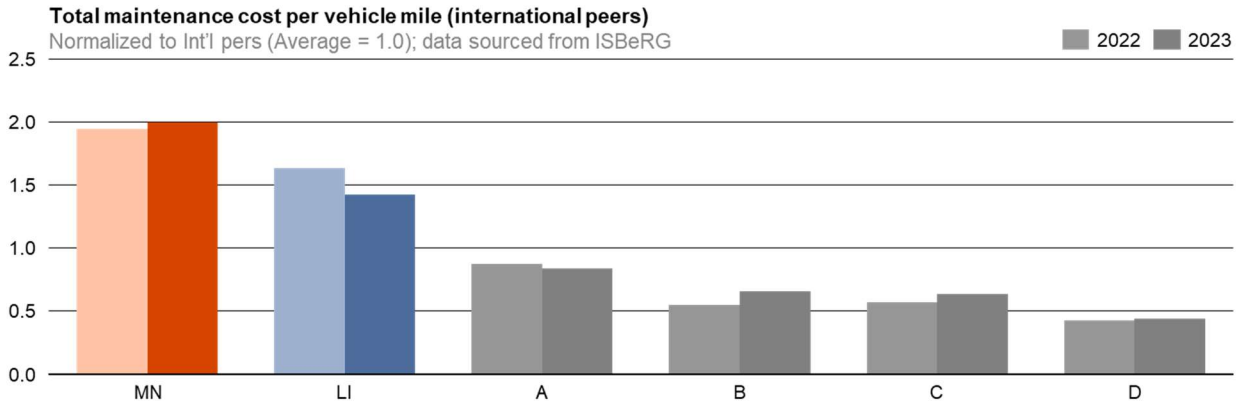



**Chart 28: Total maintenance cost per vehicle mile (international peers)**[7]




Facility maintenance primarily consists of right-of-way maintenance along with station costs. *Facility maintenance costs* were 30% and 42% above domestic peers for MNR and LIRR, respectively (Chart 29). Track age explains some of this difference; additional work is ongoing to understand other factors. Additionally, gross vehicle miles obscure the costs of managing track miles in both electric and diesel territory. In addition, maintaining Grand Central Terminal — a 112-year-old, 35,000-square-foot, 48-acre facility, older and larger than most peer stations — costs over $55 million annually, increasing facility maintenance costs for MNR.

Reducing *facility maintenance costs* while still providing reliable service is a high priority for the MTA. Both Railroads are attempting to reduce costs here in part through more efficient management of planned overtime for Maintenance of Way (MofW) staff and LED lighting improvements. Right of way maintenance costs at MNR and LIRR are largely driven by the Railroads' strong commitment to maintaining their infrastructure assets in a state of good repair. This requires the dedication of substantial in-house staff resources including trackworkers, signal, and power workers. A significant volume of SOGR work is completed during planned

[7] Relative performance flips between LIRR and MNR in international metrics. This is primarily due to different accounting approaches for international submission, especially around allocation of pension costs to specific subgroups for LIRR. Actual performance is better reflected in NTD graph, not the ISBeRG graph.

weekend outages and thus not on straight time pay, but rather on overtime. To accommodate the increased wear and tear on the right of way and reduce maintenance costs, the Railroads will launch a series of initiatives to improve track outage scheduling and layer on multiple right of way maintenance activities at a time where possible.

**Chart 29: Facility maintenance cost per vehicle mile (domestic peers)**

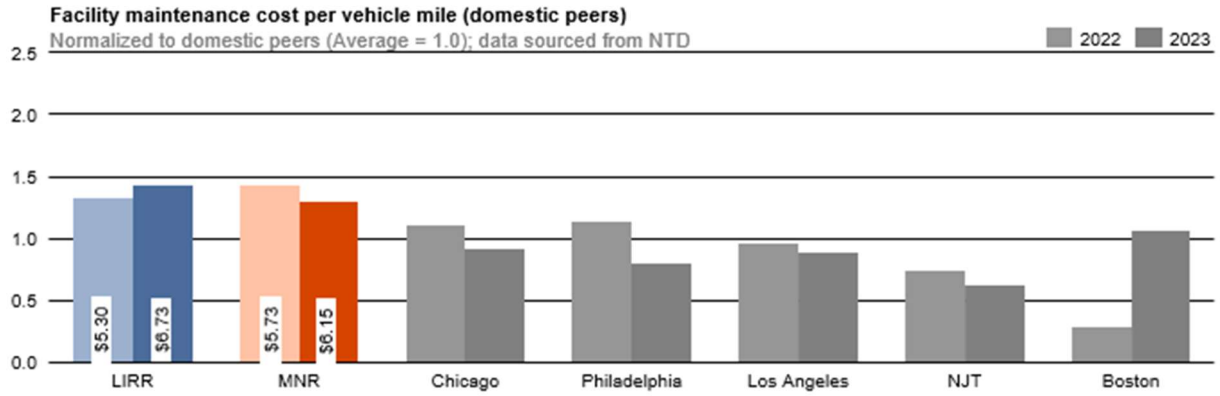
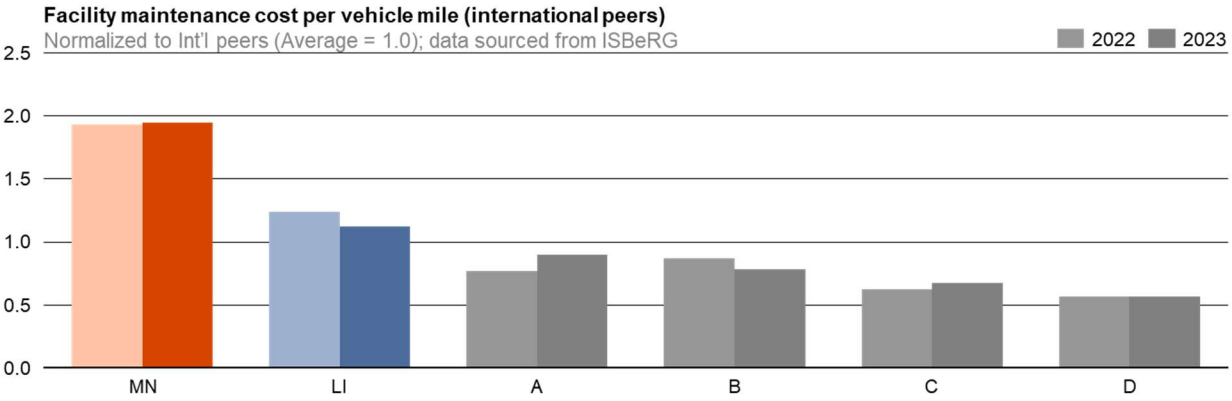



**Chart 30: Facility maintenance cost per vehicle mile (international peers)**




Vehicle maintenance costs have distinct patterns between railroads. In 2023, MNR was 8% more expensive than the average domestic peer and LIRR was 41% more expensive than the average domestic peer (Chart 31). Compared to international peers, LIRR is 85% more expensive, and MNR is 106% more expensive than the average (Chart 32). Some of this is caused by fleet diversity, as explained previously. Additionally, the oldest vehicles in each fleet are quite old, leading to higher spending to maintain service. After adjusting for labor costs, LIRR remains 47% more expensive, and MNR is 55% more expensive than international peers.

To reduce vehicle maintenance costs, both Railroads are focusing on aligning material spending more closely with scheduled work. In addition, LIRR is implementing rolling stock inspection cycle optimization, including extending the M7 air brake replacement cycle to 10 years. This approach streamlines the management of both the M7 air brake replacement and the M7 truck overhaul under the RCM program.

Similarly, MNR is working to standardize inspection processes across its M7 and diesel fleets to improve efficiency and consistency. One key initiative is the Standard Work project at Croton-Harmon, which focuses on improving 92-day M7 inspection procedures. The project aims to establish consistent work standards that reduce inspection time, minimize variability, and ensure appropriate staffing. The goal is to reduce inspection and defect dwell time (in-shop time) to an average of two shifts per railcar pair. Once fully implemented, this approach will expand to the Siemens Charger Dual Mode Locomotive fleet, and eventually to other diesel locomotive, coach, and M8 fleets.

**Chart 31: Vehicle maintenance cost per vehicle mile (domestic peers)**

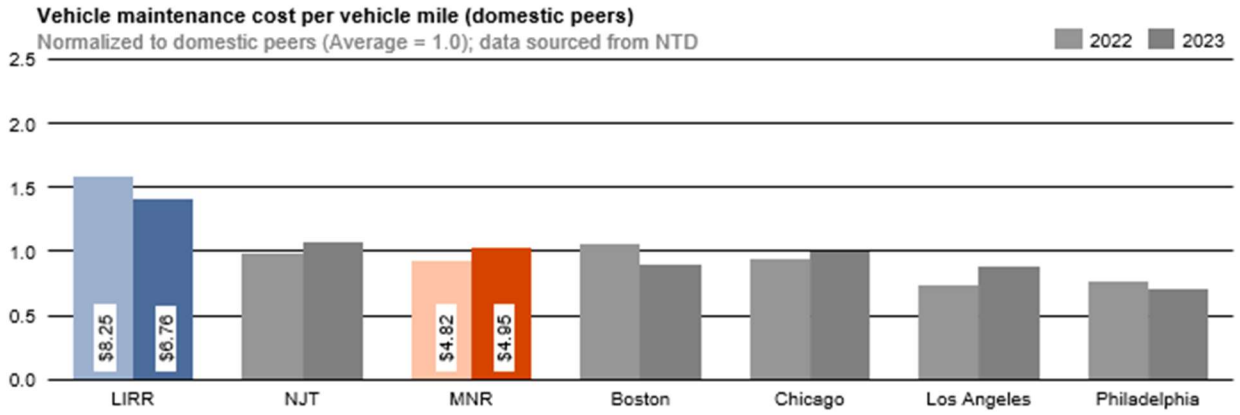
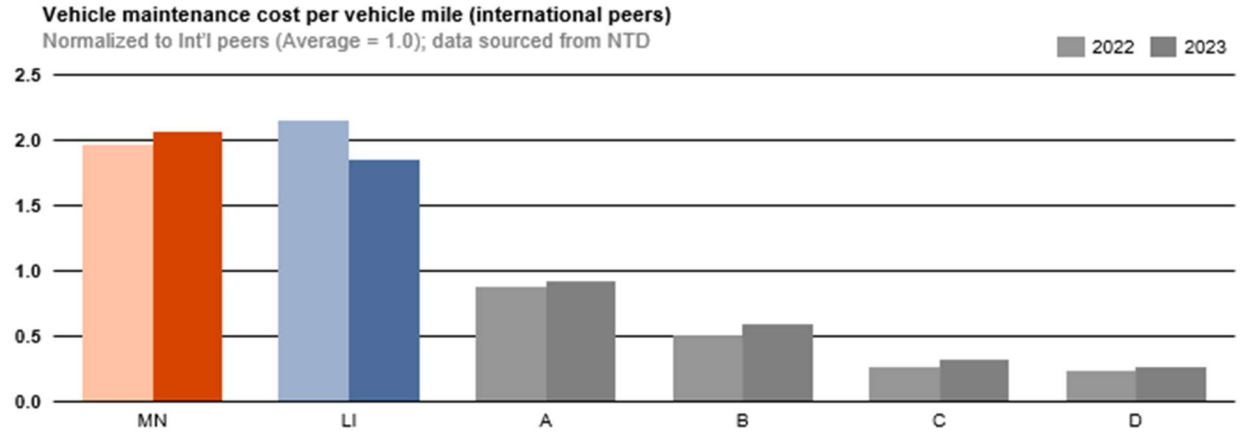



**Chart 32: Vehicle maintenance cost per vehicle mile (international peers)**




## Operations

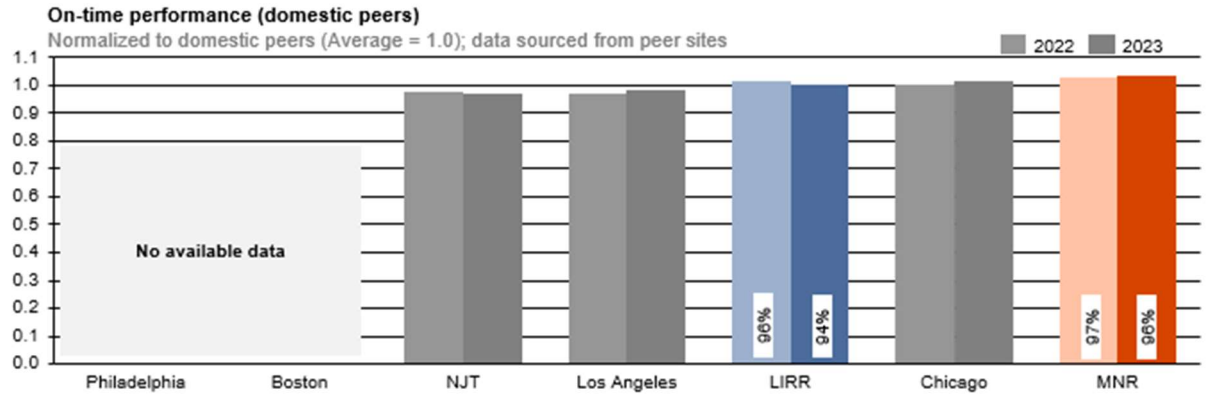
The MTA Railroads monitor multiple operational metrics. This report uses OTP and MDBF as the most comparable metrics across railroads. On both, MTA Railroads outperform many peers.

MNR slightly outperformed all national peers in OTP (3 pp above average). Metro-North's total 2023 OTP of 97.4% marks the 4th year straight (or consecutive) year of surpassing stated the stated goal. This is the 2nd time in Metro-North history OTP achieved this level of performance. LIRR was in line with national peers (Chart 33). LIRR and MNR slightly outperform all international peers in OTP where data is available. This is especially impressive

given the context of increased service and ridership in 2023, which should have challenged 2022's OTP gains (Chart 34).

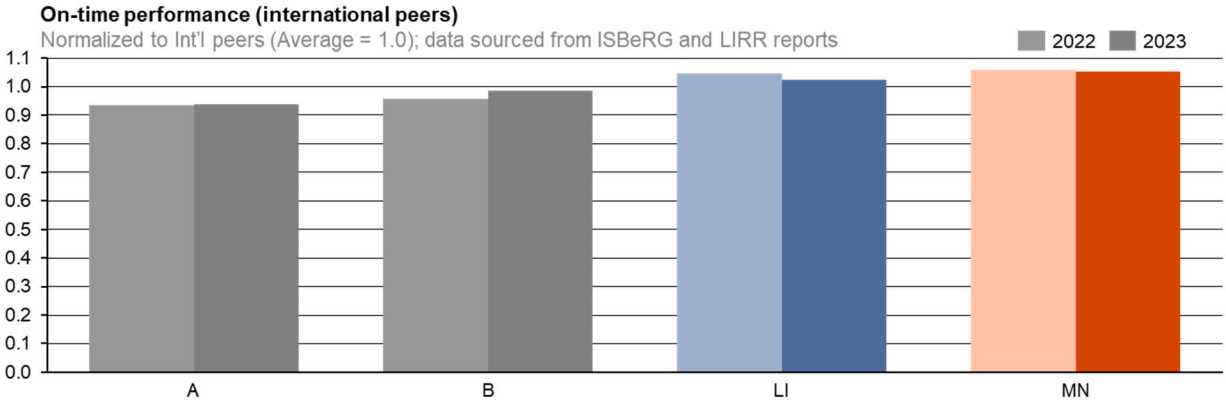
To continue to monitor this metric, LIRR will develop an OTP dashboard that will help identify train trends and ridership patterns. In addition, LIRR will continue to improve train routing and create Jamaica OTP metrics.

**Chart 33: On-time performance (domestic peers)**




***Note:*** *Since OTP data is not available through the NTD process, the information has been sourced from each agency's public website where available. Definitions and measurement methods for OTP may vary slightly across peer agencies.*

**Chart 34: On-time performance (international peers)**




MDBF measures the relative reliability of rolling stock. NTD and ISBeRG use different measurements: NTD compares "major mechanical failures", while ISBeRG includes all rolling stock incidents causing a delay in >5 minutes. When comparing the two metrics, note that there are significantly fewer of the former each year (less than 100 per railroad per year against more than 60 million vehicle miles); this reflects both the quality of MTA maintenance and the severity of these incidents. Given the low prevailing rate of NTD failures as compared to rolling stock-related delays, it may not be useful to compare results between the two benchmarks themselves.

MNR leads the domestic benchmarks for MDBF, with LIRR only slightly behind Chicago. LIRR saw a decrease in MDBF in 2023 due to the opening of the new Grand Central Madison terminal (Chart 35), which required a 20% increase in service miles. To meet this demand, LIRR brought much of its older M3 fleet out of semi-retirement. The increased use of both the aging M3 cars and 27-year-old diesel locomotives, which experienced frequent breakdowns, significantly contributed to the decline in MDBF.

On international benchmarks, the Railroads also lead, though LIRR experienced a relative decline in performance from last year compared to peers due to the Grand Central Madison opening/M3 activation, while MNR experienced an improvement (Chart 36).

**Chart 35: Mean distance between failure (domestic peers)**

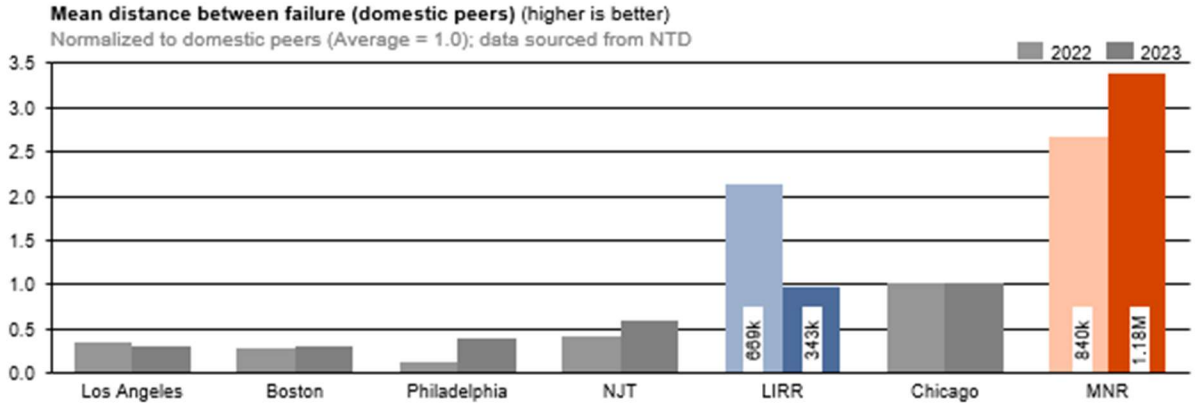
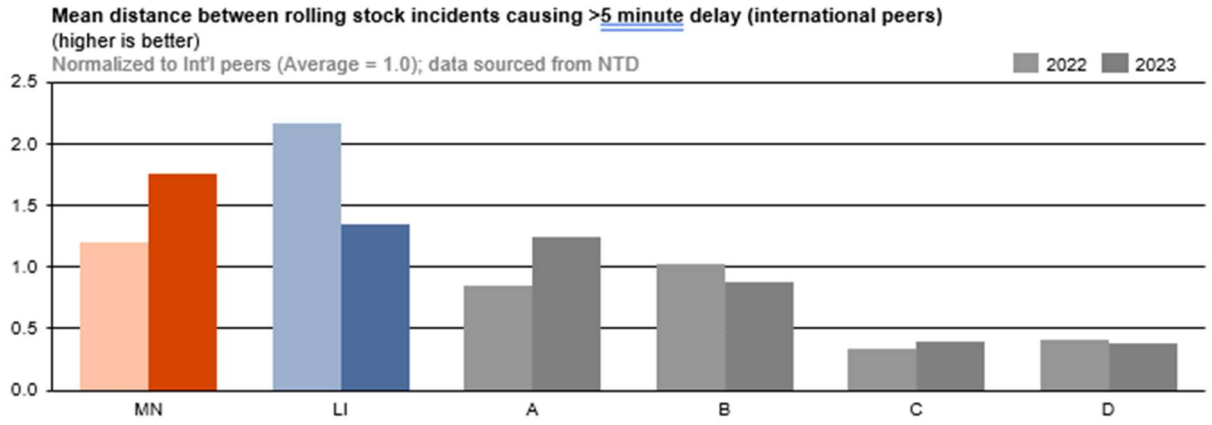



**Chart 36: Mean distance between rolling stock incidents causing >5 minute delay (international peers)**




## Safety

Safety of employees is a top priority for both Railroads. For the domestic metric of *reportable employee injuries per 200k staff hours*[8], LIRR had the highest injury rate of any domestic peer, though similar to Philadelphia. LIRR was 55% higher than average peers, but the gap was reduced from 2022. MNR's 2023 rate was 34% below average peers, continuing to improve

[8] Collected by the FRA, not NTD

over 2022. The reportable injury rate decreased for both MNR (-10%) and LIRR (-5%) in 2023, compared to an average decrease of 6% among peers (Chart 37).

Internationally, railroads are compared on staff hours lost to accidents. Comparisons on this metric are harder to interpret because the metric reflects varying injury rates, injury severities, and labor rules and practices (e.g., the extent to which staff who have had an accident can be reassigned to other tasks and still be productive). With those caveats about comparability, both Railroads trail their international peers on the metric as reported (Chart 38). LIRR is significantly higher than MNR, driven by unique collective bargaining rules for LIRR that typically increase absence duration for many given incidents.

Both Railroads are focused on improving the safety of employees, customers, and residents of the communities they serve. LIRR and MNR work to reduce reportable employee injury rates and hours lost through a focus on, but not limited to, increased MTA PD presence across the network and strategic safety and compliance engagements of frontline employees and labor partners. Labor and MTA management keep an open channel of communication to address safety concerns and issues. Ergonomic studies are also helping to identify soft tissue risks and potential solutions across the Railroads. The LIRR and MNR Offices of System Safety (OSS) and Operations collaboratively investigate each employee incident / injury to identify the root cause and implement corrective actions to prevent recurrence. Additionally, individual departments establish annual Departmental Safety Action Plans customized to their functions and safety trends, which are jointly monitored and audited by operations leadership and each railroad's OSS.

**Chart 37: Reportable employee injuries per 200k staff hours (domestic peers)**

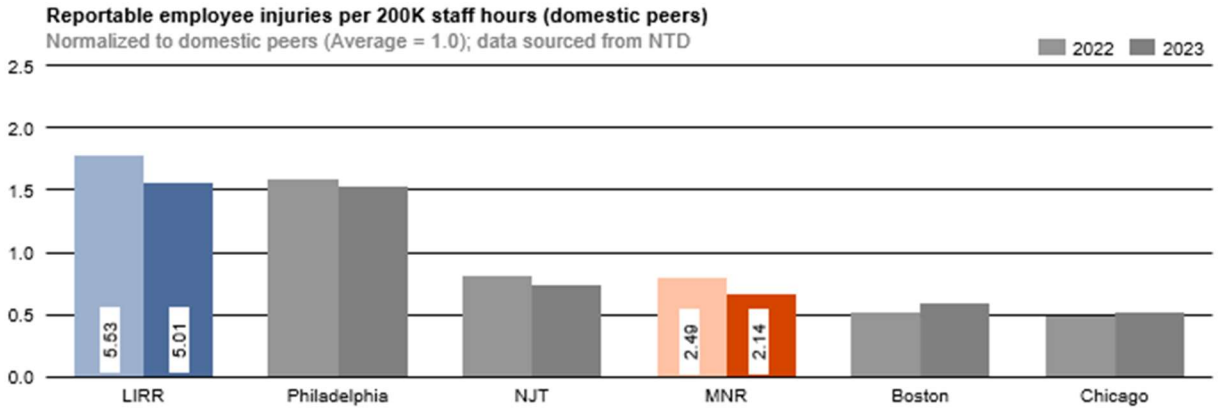
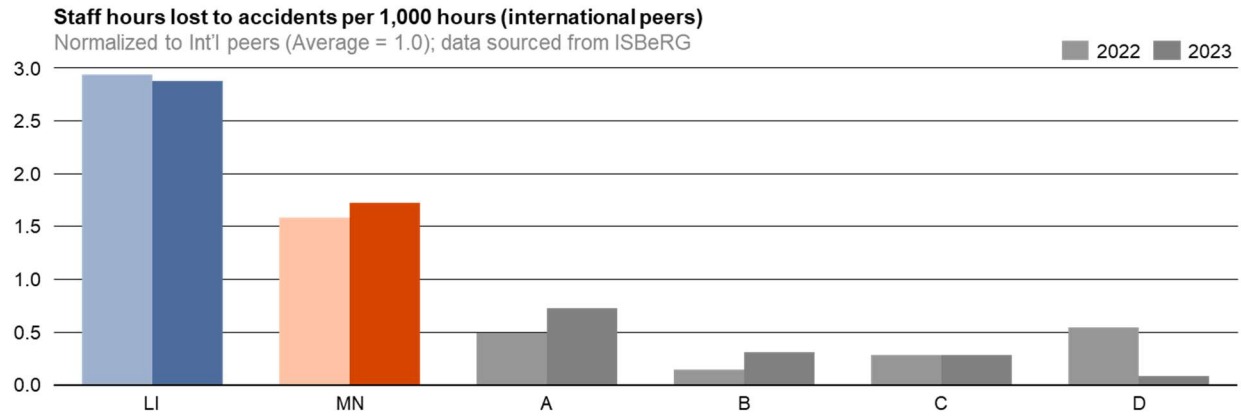


**Chart 38: Staff hours lost to accidents per 1,000 hours (international peers)**




## Subsidies and Farebox Recovery

Compared to national peers, MNR and LIRR have the highest *farebox operating ratio*, the portion of operating expenses covered by fare revenue (Chart 39). Internationally, MNR is slightly above average and LIRR is below average (Chart 40).

**Chart 39: Farebox operating ratio (domestic peers)**

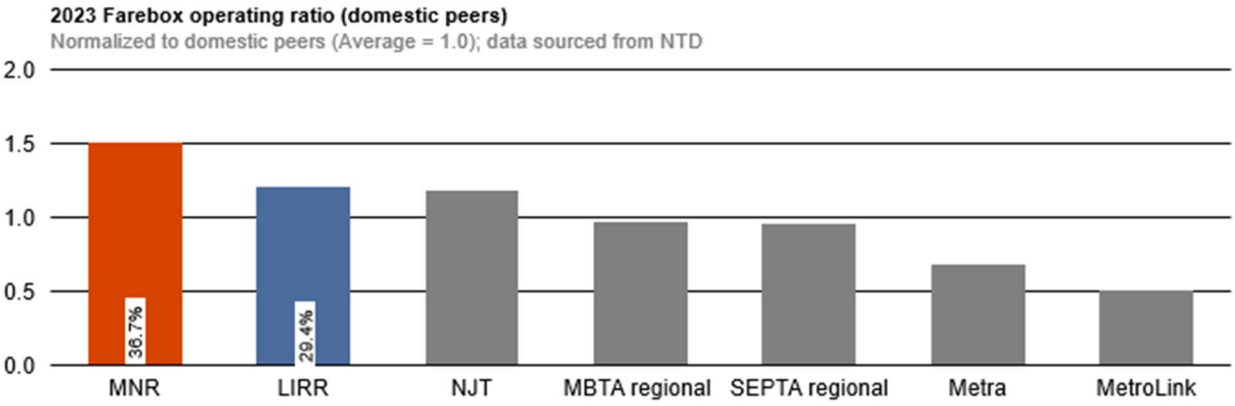
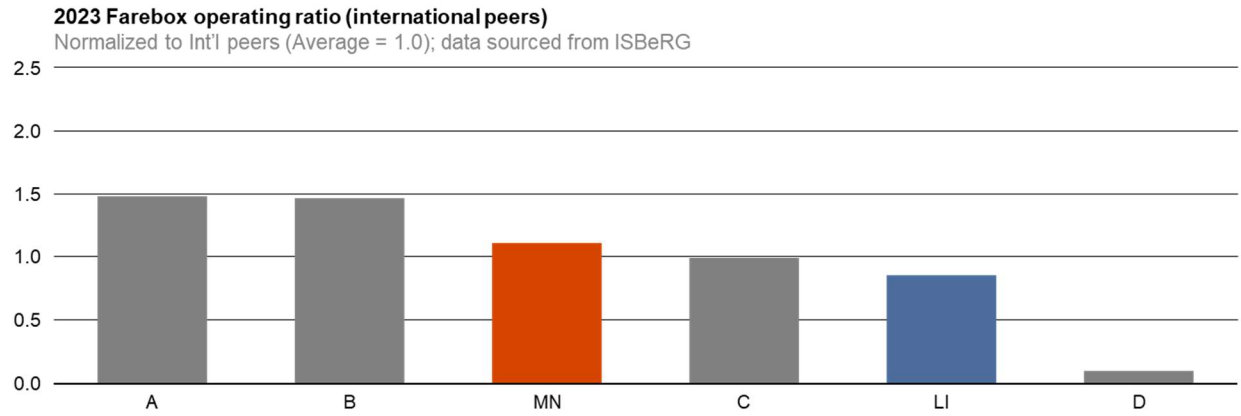



**Chart 40: Farebox operating ratio (international peers)**



Compared to national peers, MNR and LIRR both have lower than *average subsidy per rider* (Chart 41). Internationally, both are above average, driven by high operating expenses as discussed in previous sections (Chart 42).

**Chart 41: Subsidy per rider (domestic peers)**

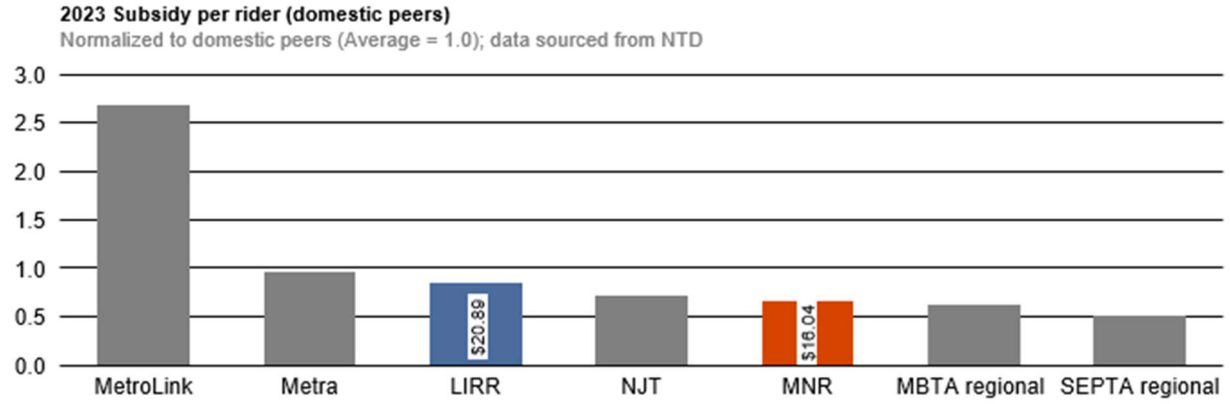



**Chart 42: Farebox operating ratio (international peers)**