

## Improving Sustenance of Transportation: LIRR Edition

17 March 2025



*Figure 1:* Long Island Railroad near Jamaica Station, Queens; Land pollution and disruption of nature stemmed from the LIRR Train system.

Millions of New Yorkers rely on the Long Island Railroad (LIRR) to travel to work, school/college, or in general for daily commutes. In 2024, it was reported that an estimated 75.5 million people rode the LIRR within the entire year.<sup>1</sup> As one of the primary modes of transportation on Long Island, it is important to ensure that the LIRR system and its trains are sustainable and eco-friendly. Although efforts have been made to make the LIRR more sustainable and some argue that other modes of transportation are in greater need of improvements, the LIRR train system remains far from being fully sustainable.<sup>2</sup> While Governor Hochul plans to make some investments in clean energy and infrastructure, she must do more to make the LIRR fully sustainable by increasing electrification,<sup>3</sup> combating pollution,<sup>4-7</sup> and minimizing disruption from LIRR construction.<sup>8,9</sup>

In Governor Hochul's Clean Energy Plan<sup>2</sup>, she plans to "reduce air pollution and lower carbon emissions" which is one of the major sustainability issues the LIRR struggles with. There are several types of pollution caused by the LIRR which needs to be addressed including noise pollution<sup>3</sup>, air pollution<sup>5,6</sup>, water pollution<sup>7</sup>, and land pollution<sup>8</sup>. The trains are loud, and their noise causes disturbance to not only the people in the area but also to nature as well; it scares off the animals and other living creatures and negatively affects their behavior and lifestyle. These sounds can increase stress and cause anxiety, preventing them from retaining harmony near the tracks<sup>4</sup>. While trains are not constantly loud, they still make a lot of noise, especially in certain places. To counter noise pollution<sup>3</sup>, changes like adopting trains with improved or advanced designs along with increased track maintenance will decrease train noise. In addition, a noise barrier should be put into place to ensure that aside from the necessary sounds, the trains are not disturbing anyone or anything else.

Air pollution<sup>5</sup> is not as big of an issue since a majority of the trains have become electrified, however, there are still some diesel trains in use. These trains are part of the zones towards the far east of Long Island.<sup>5,6</sup> Despite limited diesel trains, the few that are in use are traveling such far distances that the time and distance traveled gives the train plenty of time and space to release toxic pollutants into the air and contaminate most of the island<sup>6</sup>. We need to urge Governor Hochul or advocate for a change so that all trains and tracks are electrified eliminating the air pollution caused by diesel-fueled trains. Similarly, water pollution is also less urgent as most of the trains are electric, however, the trains that rely on diesel are also causing water pollution as the diesel along with all its toxins contaminates nearby waters<sup>7</sup>. As the train moves, it releases oil, grease, and metal particles onto the tracks which can sometimes get flown into the drains and waterways when it rains, harming the area's ecosystem. A more eco-friendly or green infrastructure should be used along with increased monitoring and cleanup efforts of the tracks to ensure the water is not being affected by the LIRR system<sup>7</sup>. Lastly, land pollution<sup>7</sup> is one of the most visible environmental issues caused by the LIRR. With a high volume of passengers, inadequate recycling and waste disposal often lead to trash being thrown around on the tracks and platforms<sup>7</sup> as seen in Figure 1. Increased efforts need to be implemented to keep littering under control and for waste management<sup>8</sup>. These are just the major pollution issues resulting from the lack of sustainability of the LIRR, so many more issues need to be addressed through sustainability policies to make the LIRR fully eco-friendly.

LIRR construction, like that of other transportation systems, is ongoing, however, the methods and concerns involved are flawed. One source of some of the pollution caused by the LIRR is improper management of construction<sup>8</sup> including track replacement, maintenance, and more. When construction of the LIRR occurs, often these projects require large pieces of land

and as a result, the land is cleared, taking away the homes of animals, and new infrastructure is put in place<sup>9</sup>. In addition to the harm done to the animal's habitat, construction uses a variety of materials that can erode and release into the water or debris might catch the wind and get flown elsewhere<sup>5-7</sup>, contributing to the land pollution of the environment. In addition to the environmental impact, construction can also lead to delays or cancellations which leaves people stressed and results in harm to the social and environmental harmony. To fix this issue, Governor Hochul should be advised to implement policies which increase the use of sustainable<sup>1</sup> or eco-friendly materials and tools and implement more thought-out plans that allow the involvement of the people in the community to conduct construction in a way that aligns with everyone and implements the use of tools that are cleaner and quieter<sup>9</sup>. State representatives and nonprofit organizations need to engage with the community to advocate for increased green investment and infrastructure.

Electrification is a new method in which instead of using diesel fuel, trains use electricity via the third rail system. This third rail runs alongside the train tracks and uses 750-volt current to power the trains, the trains then draw the electricity and use it to power them and to function<sup>9,10</sup>. Currently, half the trains on Long Island are electric-run, however, the other half is split between some trains that are half electric and half diesel-run, depending on what area it is functioning in, and other trains that are fully diesel-run heavily contributing to pollution<sup>5-7</sup>. One challenge preventing the trains from becoming fully electrified is that electrification requires a lot of money and resources to enhance the system. In addition, most diesel-run trains are older and need to be taken down and either fixed or switched to run on electricity. Governor Hochul and state representatives should advocate for all LIRR trains to run electric or adopt an

environmentally friendly alternative to diesel. This will help trains function efficiently and be sustainable.

Some may argue that the LIRR is currently one of the most sustainable modes of transportation, and more money should be invested in other modes of transportation and systems that are weaker in sustainability.<sup>11,12</sup> They may claim that a lot of effort and policies<sup>10-12</sup> have already been put into place to make the LIRR sustainable. While this is true and a lot of time, money, and resources have been implemented in making the LIRR more sustainable, the LIRR system is far from obtaining true or complete sustainability. While investments have made the LIRR a little eco-friendlier, a lot of effort is needed for the LIRR system to retain full sustainability. Currently, the system causes several types of pollution and disrupts the harmony between people and nature. It is very expensive to ride, and the cost does not equal the quality of the ride<sup>13,14</sup>. There are many disruptions and things like construction can mess up the schedule of the LIRR and cause people to be stressed as they depend on the LIRR to run in a timely fashion. Despite the current changes or advancements to the system, there are many more changes that need to be enforced so that the LIRR can be fully sustainable and eco-friendly<sup>10</sup>

Significant efforts have been made to improve the LIRR<sup>11</sup>, however, the system remains far from achieving full sustainability. The continued use of diesel trains<sup>6</sup> and poorly managed LIRR construction projects<sup>9</sup> disrupt the environment and daily commutes, while noise, air, water, and land contamination harm both communities and the natural ecosystems, highlighting the need for more sustainable materials, energy sources, and more thought-out urban planning. While some argue that the LIRR is already one of the more sustainable transit options, the reality is that it still has a long way to go before it can be considered fully sustainable. Governor Hochul's initiatives address some environmental concerns, but stronger action is needed to electrify all

trains, reduce pollution, and ensure that construction efforts are carried out responsibly. By prioritizing these improvements, the LIRR can become a truly sustainable transportation system that benefits both the people and the environment.

<sup>1</sup>Governor Hochul Celebrates Long Island Rail Road's Strongest Year to Date. (2025). New York: Governor Kathy Hochul; Ny.gov

<sup>2</sup>Governor Hochul Announces FY 2023 Investments in Clean Energy Infrastructure, Climate Resiliency and Preservation | Governor Kathy Hochul. (2022, April 9).

<sup>3</sup>Noise in the Rail Industry. (2021). Larson Davis; PCB Division.

<sup>4</sup>Environmental Impact Statement for the Long Island Railroad Huntington/Port Jefferson Branch Yard | FTA. (2020). Dot.gov; Federal Transit Administration.

<sup>5</sup>LIRR to test feasibility of electric trains travelling on diesel branches. (2021, April 27). Global Railway Review.

<sup>6</sup>Long Island - Promoting Sustainable Transportation - NYSERDA. (2024). NYSERDA; New York State Energy Research and Development Authority.

<sup>7</sup>Miller, S. (2021). Alstom to share its industry-leading expertise in green mobility with New York's Long Island Railroad. Alstom; ALSTROM SA 2025.

<sup>8</sup>Thompson, L. (2005, May 6). Environmental Impact Statement for the Long Island Railroad Main Line Corridor Improvements, Long Island, NY. Federal Register.

<sup>9</sup>NY-CT Sustainable Communities Initiative-Archive. (2023). Nymtc.org; New York Metropolitan Transportation Council.

<sup>10</sup>Cleaner Greener Long Island Regional Sustainability Plan. (2013). Cleaner Greener Communities.

<sup>11</sup>Long Island Railroad Enhanced Station Initiative Project. (2024, April 23). Gannett Fleming; Transystems.

<sup>12</sup>White, M., & Cameron, J. (2010). Sustainable Strategies for Long Island 2035 Long Island Regional Planning Council. In Long Island Regional Planning Council. Long Island Regional Planning Council.

<sup>13</sup>Pricing - MTA Details Accessibility, Expansion, and Reliability Projects at Risk Due to Congestion Pricing Lawsuits. (2024). MTA.

<sup>14</sup>Quality - DiNapoli: LIRR Ridership Is Recovering but Service Improvement Must Remain a Priority. (2024). Office of the New York State Comptroller.

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