



REPORT | FALL 2025

BOOSTING BLUEBIKES

ASSESSING THE EARLY IMPACT OF E-BIKES

ON BIKESHARE RIDERSHIP IN GREATER BOSTON







BOOSTING BLUEBIKES: ASSESSING THE EARLY IMPACT OF E-BIKES ON BIKESHARE RIDERSHIP IN GREATER BOSTON

TABLE OF CONTENTS

I	Executive Summary
I	Context
2	A Note on Methodology
3	Analysis Results
7	Conclusion
9	References
10	Appendix

CONTRIBUTORS

Written By:

- Amir Wilson, TMA Coordinator & Spatial Data Analyst

Advised By:

- Scott Mullen, Transportation Demand Management Director
- Kate Dineen, President & CEO

PHOTO CREDITS

All photos in this report by Annielly Camargo



EXECUTIVE SUMMARY

The goal of this report is to quantify the impact of the addition of e-bikes to the Bluebikes system, analyze the impressive growth of Bluebikes ridership in 2024, and extract from the analysis relevant insights to help regional and City stakeholders best facilitate the continued success of Greater Boston's world-class shared mobility network. The key findings are as follows:

FINDING #1:

Bluebikes ridership increased 29% on average from 2023 to 2024 in the month-to-month comparison.

FINDING #2:

The introduction of the new e-bike fleet was a major causal factor for the increase in monthly trips from 2023 to 2024.

FINDING #3:

The new e-bikes punch above their weight with a magnitude of monthly trips per bike that is on average two times higher than that of classic bike trips in both 2023 and 2024.

CONTEXT

Bluebikes is Greater Boston's docked bicycle-sharing system, which is composed of over 5,000 bikes and 534 docking stations jointly owned and operated by the cities and towns of Arlington, Boston, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Newton, Revere, Salem, Somerville, and Watertown. Currently, 71% of MBTA rapid transit stops (Red, Blue, Green, Orange, and Silver) co-locate with at least one Bluebikes station within 200-meters.¹ The system and its ridership have grown steadily every year since its founding in 2011, eclipsing 1 million total trips in a single operational season for the first time in 2014 (**Table A1**).² From 2023 to 2024, the system experienced one of its largest jumps in yearly ridership with a net increase of more than one million trips.

Table 1. Growth of Bluebikes ridership in 2024 over 2023. For all system growth data since 2011, see **Table A1** in the Appendix. Source: <https://bluebikes.com/system-data>.

Year	Total Bluebikes Trips	Total Bicycles (Beginning / End of Season)	Total E-Bikes (Beginning / End of Season)
2023	3,686,979	4,000 / 5,300	0 / *50
2024	4,734,042	5,300 / 5,500	50 / 750
Difference	+1,047,063		

A significant bicycle expansion supported ridership in 2023 and 2024. The system started with 4,000 bikes in 2023 and grew to *5300 by the end of the calendar year. The system gained 200 additional classic bikes in 2024.²

On December 20, 2023, Bluebikes launched its new electric pedal-assist bicycle fleet by adding 50 new “e-bikes” to the system.³ The following January 2024 was the first month with e-bikes available for all of 31 days, and the system phased up to a total of 750 e-bikes by summer of 2024.^{3,4,5,6} Each new e-bike has an electric motor that gives a small boost in power to the rider while pedaling at a speed below 20 mph. Electric pedal assist bikes reduce the amount of exertion required to ride and increase riding speed, thereby reducing physical barriers of entry to riding a bike and making it more comfortable for everyday mobility.⁷ This report seeks to quantify the impact of e-bikes in the Bluebikes system by comparing monthly ridership from 2023 to 2024.

A NOTE ON METHODOLOGY

All data in this analysis come directly from the Bluebikes website at: bluebikes.com/system-data. Bluebikes publishes a monthly ridership log as a CSV file containing the start and end station information for every trip, along with other useful information to better characterize ridership. In this report, the analysis excludes aberrant trip records where either the start or end station is missing from the data. It also discards the 2,935 e-bike trips taken in the last 11 days of December 2023, since it is an incomplete month of data with only 50 e-bikes available.

The method then aggregates all monthly trip data from 2023 through 2024 and uses the “dplyr” package in R to produce summary tables that serve as the basis for charts and statistics created in Microsoft Excel. The scope of this analysis focuses on visualizing the growth of monthly ridership between 2023 and 2024 and understanding the impact of e-bikes on these trends. Moving forward, the A Better City Transportation Demand Management team will continue to undertake original geospatial data analyses to further highlight Bluebikes co-location with transit, understand other external factors that affect ridership, and share mobility best-practices for transportation planners, employers, and institutions.

In each of the figures in the next section of this report, total trips in 2023 are blue and total trips in 2024 are orange. Trips in 2023 are always taken on “classic” bikes, which are regular bicycles with no electric boost. These bikes are easily recognizable on the street by the blue color that gives them their name.

* Bluebikes documents that the system ended with 5,300 bikes in 2023 and that the total number of bikes increases to 5,500 by the end of 2024. However, several sources^{3,4,5,7} document the addition of 750 e-bikes for the 2024 season. These 750 bikes are totaled in the 1,300-bike increase over 2023 in Table 1 even though only 50 e-bikes initially entered circulation in December 2023. The remaining e-bikes phased in through the early months of 2024. Source: <https://bluebikes.com/system-data>; <https://bluebikes.com/about/media-kit>.

Trips in 2024 are made up of both trips taken on “classic” bikes and trips taken on e-bikes, which feature electric pedal-assist. The e-bikes are recognizable on the street by their light grey color. To emphasize trends in the data, the figures in the next section will display “classic” trips in 2024 in dark grey and “electric” trips in 2024 in green whenever distinguishing between the two.



ANALYSIS RESULTS

FINDING #1: Bluebikes ridership increased 29% on average from 2023 to 2024 in the month-to-month comparison.

Comparing the total monthly ridership in 2023 to that in 2024, the ridership in each month in 2024 always eclipsed the total ridership of the respective month in 2023 (**Figure 1**). On average, any given month in 2024 saw a 29% increase from the ridership during the same month in 2023. Ridership in 2024 hit its peak in September with 581,671 trips, which is 32% greater than the total ridership during the peak month of 2023 (August, 439,438 total trips). Even in winter when monthly ridership is at its lowest, the 166,669 trips taken in January 2024 were 21% greater than the total number of trips during the same month in 2023.

FINDING #1 CHARTS

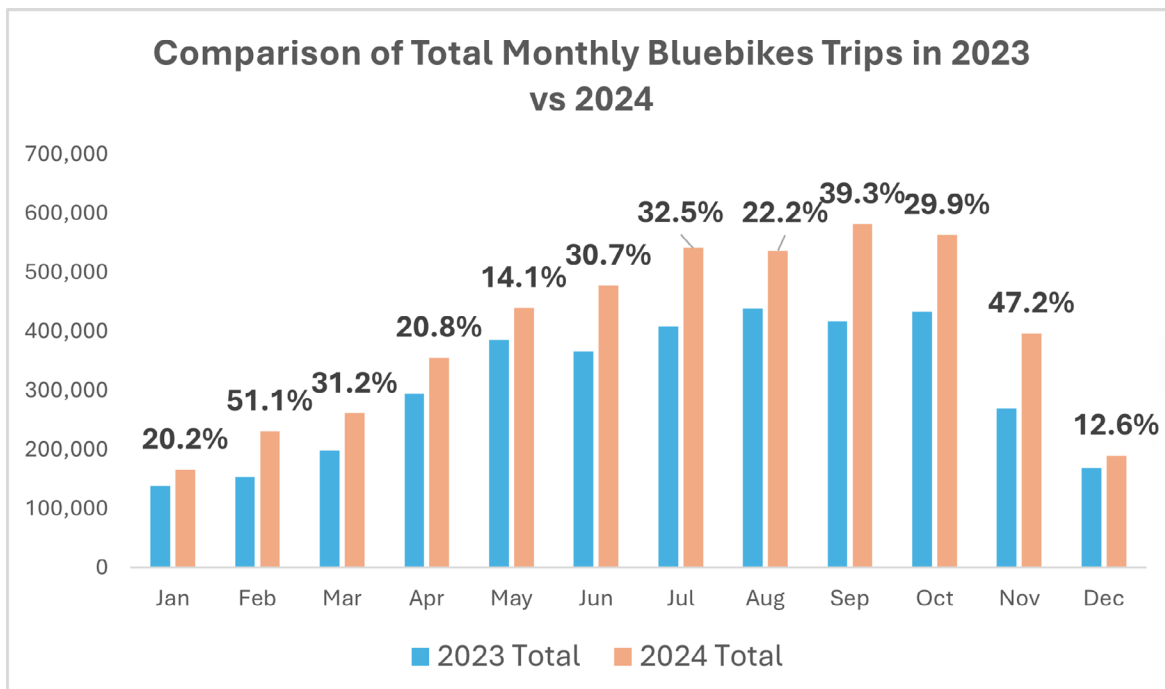


Figure 1. Percentage labels indicate the percent increase in total number of trips from 2023 to 2024.

FINDING #2: The introduction of the new e-bike fleet was a major causal factor for the increase in monthly trips from 2023 to 2024.

The Bluebikes system gained over one million trips from 2023 to 2024 (**Table 1**). **Figure 2** shows that total monthly trips taken only on classic bikes underwent a 5% decrease from 2023 to 2024, though not enough to indicate a significant trend of decline. Despite this consistency in classic bike ridership, the system still gained 1 million trips, meaning that e-bikes made up the difference. In fact, there were 1.2 million total e-bike trips in 2024, and these trips accounted for 25% of the total Bluebikes ridership in that year (**Figure 3**).

Furthermore, a simple linear regression (SLR) analysis using total monthly e-bike trips in 2024 as a predictor variable for the difference in total monthly trips between 2023 and 2024 yields a model that suggests e-bike trips in 2024 play a significant part in accounting for the year-over-year increase in total ridership (**Figure A1**; $R^2 = 0.76$; $p = 0.0002$ at 99% confidence).

FINDING #2 CHARTS

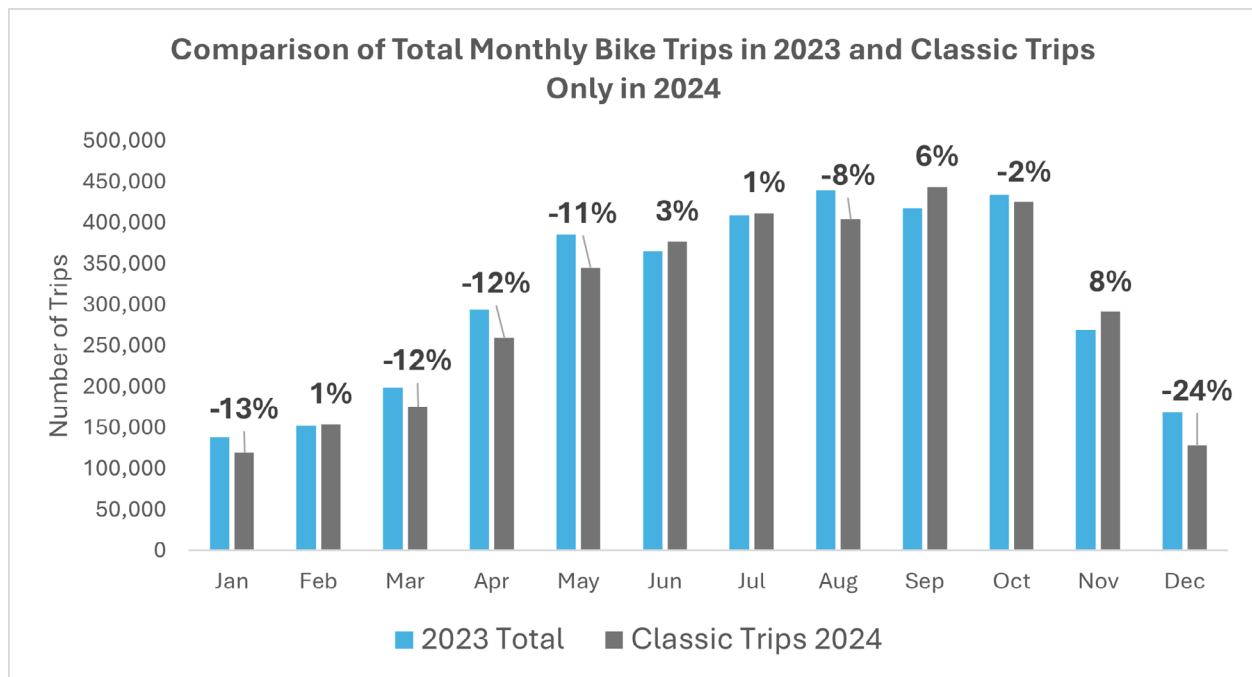


Figure 2. Percentage labels indicate the percent decrease in total number of trips from 2023 to 2024 when only considering classic bike trips in 2024.



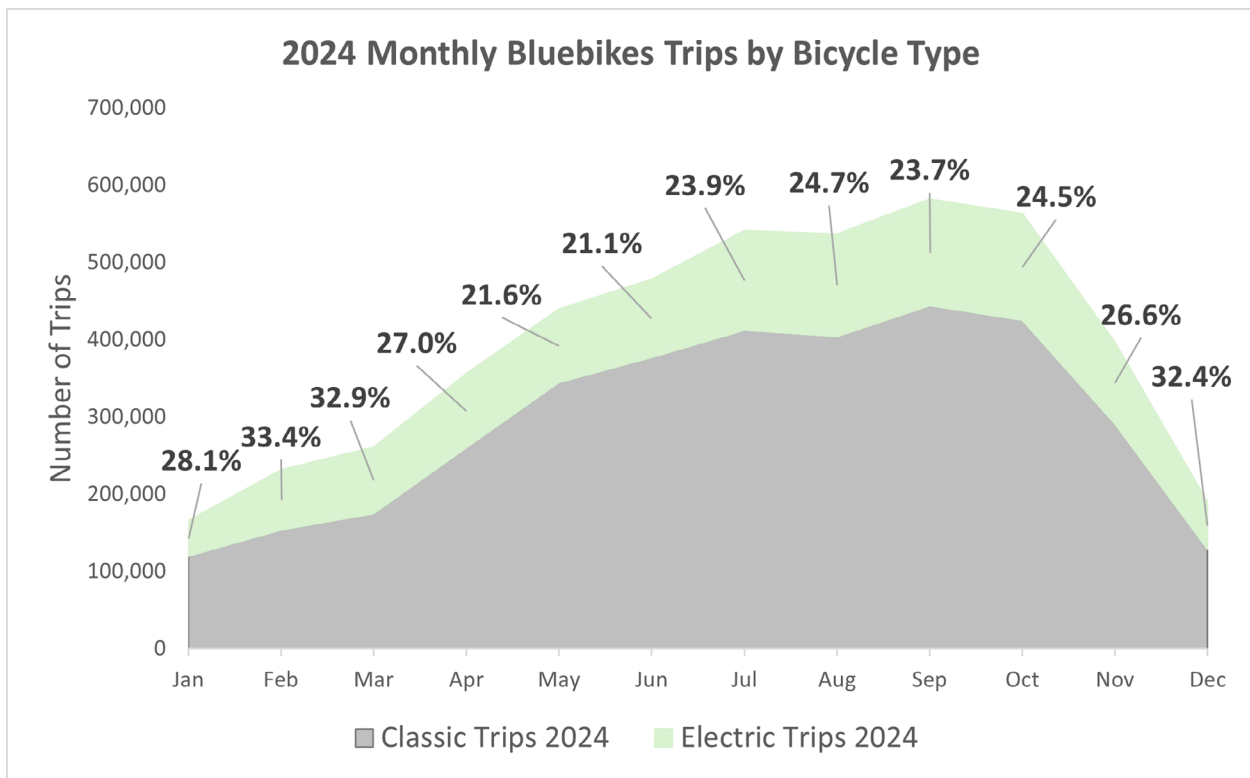


Figure 3. Percentage labels display the percent of all monthly trips that e-bikes accounted for in 2024.



FINDING #3: The new e-Bikes punch above their weight with a magnitude of trips per bike that is on average two times higher than that of classic bike trips in both 2023 and 2024.

The results of Finding #1 and Finding #2 demonstrate that the total monthly e-bike trips in 2024 are a significant reason for the massive growth in Bluebikes ridership between 2023 and 2024. However, the point that truly illustrates the impact of e-bikes on ridership growth is that they accounted for a relatively large number of total monthly trips in 2024, while proportionally being very few compared to the existing fleet of classic bikes.

Normalizing for size of fleet, all bikes in 2023 averaged 72 monthly trips per bike, classic bikes in 2024 averaged 63 monthly trips per bike, and e-bikes in 2024 averaged 135 monthly trips per bike (**Figure 5**). Comparing the magnitudes of these statistics, each e-bike in 2024, on average, accounted for twice as many trips per bike as did classic bikes in 2023 and 2024 (**Figure 6**).

FINDING #3 CHARTS

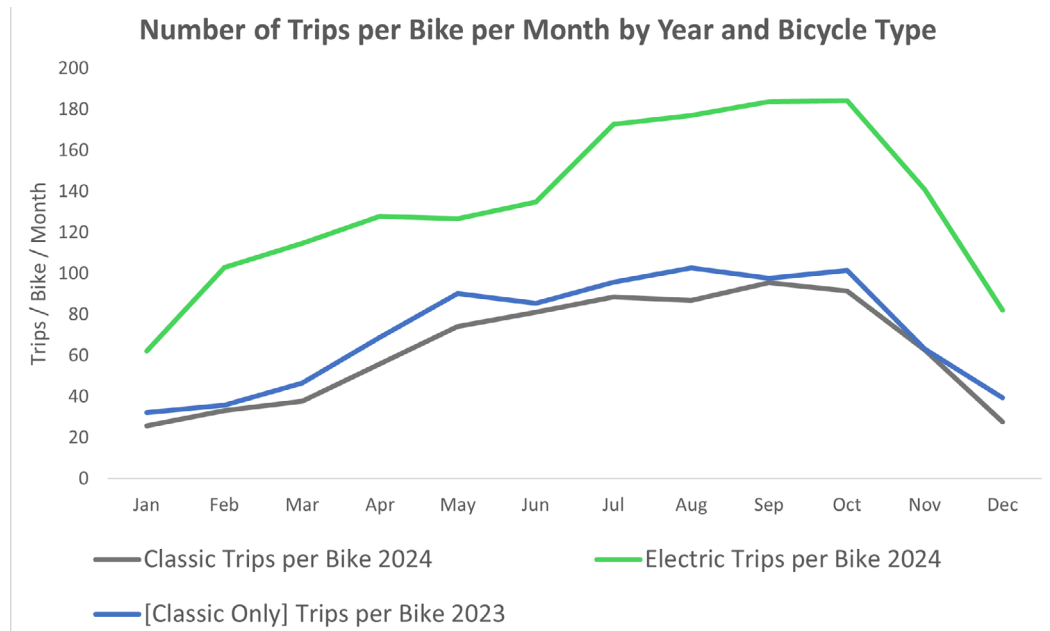


Figure 4. Total monthly trips divided by the average number of bikes in the fleet, per category.

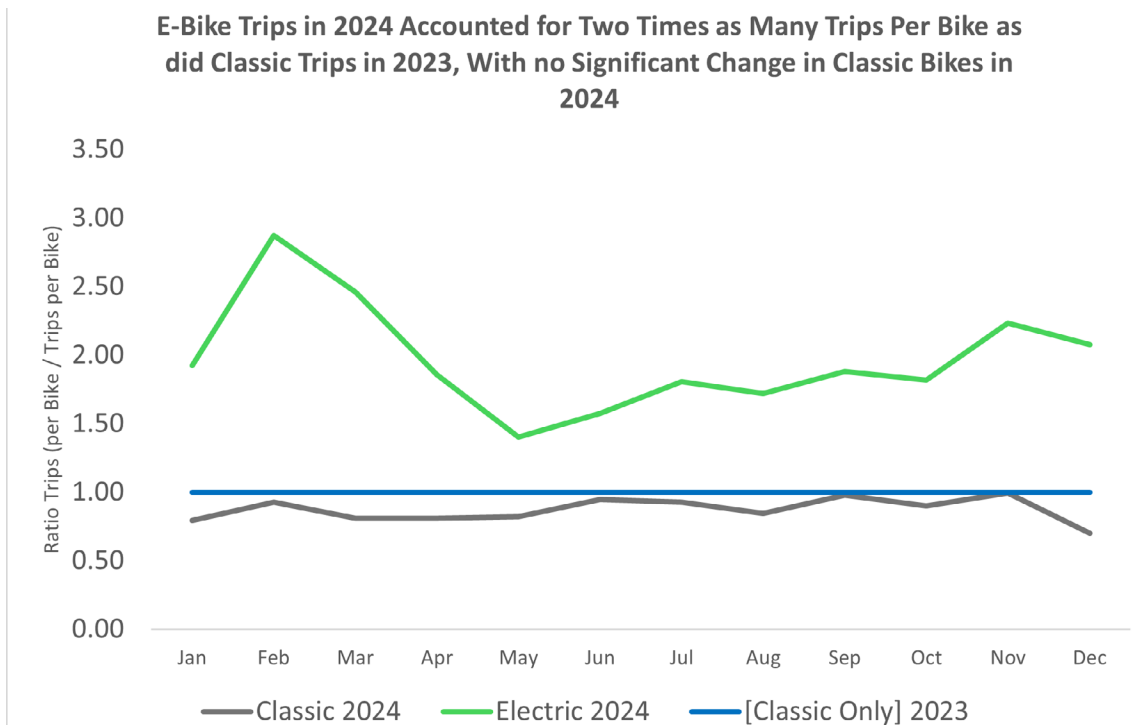


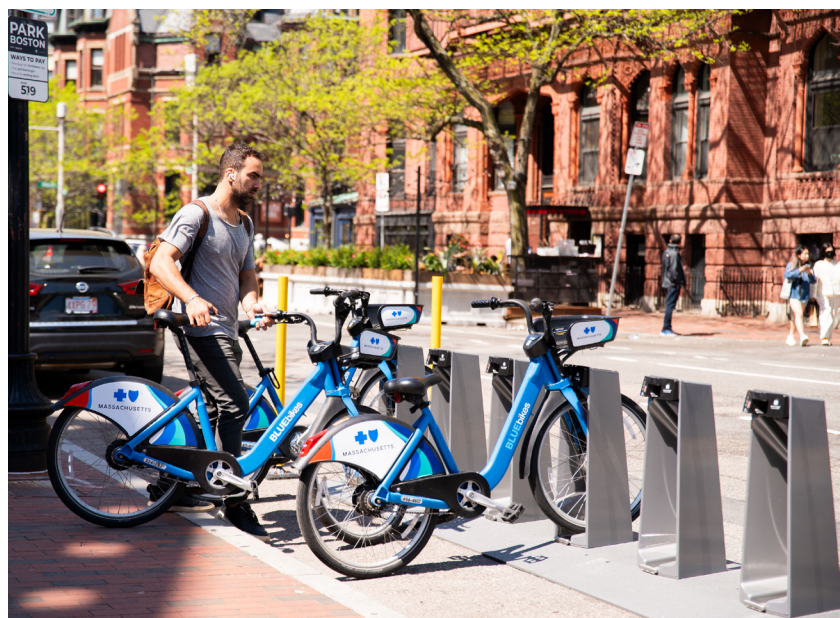
Figure 5. Figure 5 takes each record of total monthly trips per bike for each year and bicycle type and divides this number by the value of monthly trips per bike in 2023. Since the graph aims to compare the performance of classic and e-bikes relative to all classic trips in 2023, it creates a scale of magnitude: Classic trips in 2023 have a ratio of “1” because this data series is compared to itself. The lines corresponding to classic and electric trips in 2024 illustrate how many times more trips on average each bike accounted for over each month than classic bikes in 2023.

CONCLUSION

The introduction of e-bikes to the Bluebikes fleet in 2024 significantly impacted ridership. Trips taken on the new e-bikes accounted for the more than one million additional trips in 2024 versus 2023. Most impressive is that each e-bike accounted for on average two times more trips per bike than their classic counterparts, suggesting they are more popular among riders.

Looking ahead, e-bikes can play an impactful role in making bikeshare systems successful. Given the accessibility and inclusivity benefits of e-bikes,⁷ the collective thirteen municipalities and the Metropolitan Area Planning Council (MAPC), which oversees the interaction of Bluebikes equipment and use between municipalities, should make investments in e-bike fleet expansion and associated infrastructure a top priority.

One of the system's key needs is integrated charging infrastructure. Without built-in station charging, e-bike charging can be expensive and inefficient: technicians must travel out to bikes in the field to manually swap low batteries for freshly charged ones,⁸ which adds costs to overhead for staffing and transportation. Furthermore, built-in charging would make the system more efficient by allowing e-bikes to recharge batteries while not in-use and making bikes available when they would otherwise be waiting for the next battery swap.



There are initiatives underway to secure additional resources for infrastructure needs. In October 2024, MAPC won a \$21.6 million Congestion Relief Grant from the Federal Highway Administration to expand the Bluebikes network in addition to funding new shuttles in Boston.^{9,10} The grant would fund 32 new bicycle docks with built-in charging, 90 new e-bikes, and 290 classic bikes. The status of this grant award is unclear due to the current uncertainty in Washington D.C. In early May 2025, MAPC, on behalf of the collective thirteen municipalities, released a Request for Proposals (RFP) soliciting a new operator for the next five years for the Bluebikes system. Two of the five major goals listed in the RFP are to significantly expand the number of stations and to “advance technological innovation” as part of maintaining an “excellent state of repair.”¹⁰ The new contract aims to ensure that expansion and technological support for e-bikes will continue to drive their impact on Bluebikes ridership moving forward.

These technological and operational improvements are not the only changes that can make Bluebikes more successful. Station siting is an element of planning that will be integral to ensuring the system's growth. As the thirteen municipalities continue to add more stations, they should prioritize co-location with transit in addition to supporting locales with limited existing transit options to bolster the connectivity across Greater Boston. The Bluebikes system can both fill in the gaps of the transportation network and extend the range of bus, rapid transit, Commuter Rail, and ferry trips. In this way, Bluebikes organically support the region with new mobility options, and uplift our existing network by adding connections that weren't possible before. As Bluebikes facilities continue to solidify, there will be exciting new opportunities to expand the network to new communities, and for key stakeholders including the MBTA, the thirteen municipalities and the MAPC, the next operator,¹⁰ and the Department of Transportation to consider more seamlessly integrating Bluebikes access into the existing transit fare system.



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APPENDIX

Table A1. Bluebikes system growth since 2011. Source: <https://bluebikes.com/system-data>.

Year	Total Bluebikes Trips	Total Bicycles (Beginning / End of Season)	Total Operational Days
2011	140,974	610	126 (July 28 - Nov 30)
2012	531,388	610 / 1,050	240 (Apr 3 - Nov 28)
2013	908,165	1,050 / 1,200	240 (Apr 2 - Nov 27)
2014	1,184,558	1,200 / 1,300	239 (Apr 2 - Nov 26)
2015	1,122,544	1,300 / 1,500	223 (Apr 17 - Nov 25)
2016	1,236,236	1,500 / 1,800	307 (Feb 29 - Dec 31)
2017	1,313,837	1,800	308 (Feb 27 - Dec 31)
2018	1,767,806	1,800 / 2,500+	365
2019	2,520,418	2,500+ / 3,500+	365
2020	2,065,292	3,500+ / 3,750+	365
2021	2,954,624	3,750+ / 4,000+	365
2022	3,781,611	4,000+	365
2023	3,686,979	4,000+ / 5,300	365
2024	4,734,042	5,300 / 5,500	365



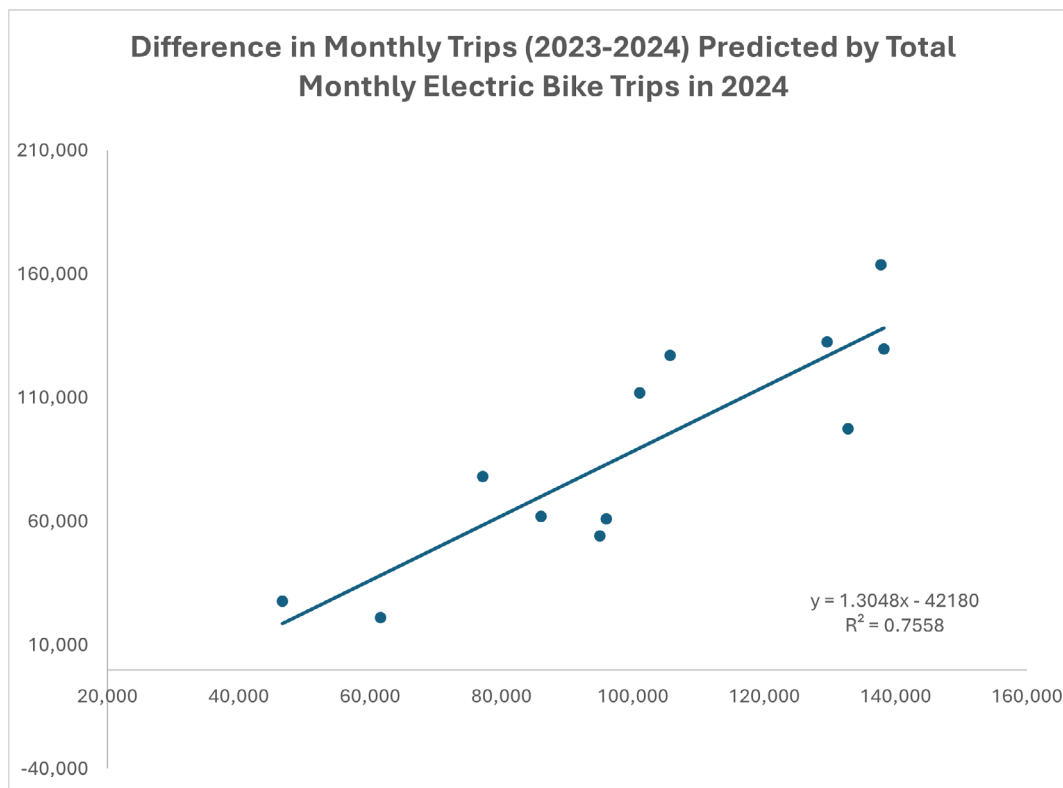


Figure A1. Simple Linear Regression (SLR) Model: R-Squared = 0.76; p-value = 0.0002.

INTERPRETATION OF THE SIMPLE LINEAR REGRESSION

A Simple Linear Regression (SLR) model asks: Hypothetically, if the total monthly e-bike trips in 2024 are the reason for the 29% increase in total ridership from 2023 to 2024, what would the observed difference in trips between 2023 and 2024 be in this case? To answer this question, the SLR method assumes that the total number of e-bike trips in 2024 have no impact on the difference in trips between 2023 and 2024, and finds the line-of-best-fit for the observed data (**Figure 4**). The assessment of the line-of-best-fit tells how well its predictions for the difference in trips between 2023 and 2024 match what occurred between 2023 and 2024.

The R²-value of 0.76 (adjusted: 0.73) means that the linear model based on total monthly e-bike trips in 2024 explains 76% of the variability observed in the real difference in total monthly trips between 2023 and 2024.

The p-value of 0.0002% tells that there is a 0.0002% probability that, if it were true that monthly e-bike trips in 2024 had no impact on the year-over-year increase in trips, the SLR method would yield a stronger linear relationship than Figure 4 depicts.

The result is that the model suggests with 99% confidence that the monthly e-bike trips taken in 2024 are a major reason for the increase in total trips from 2023 to 2024.

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14 Beacon Street, Suite 402
Boston, MA 02108
617.502.6240
www.abettercity.org