

FY2024 Environmental Sustainability Annual Report





Environmental Sustainability, a strategic goal from Your Metro, the Way Forward



Environmental Sustainability Metrics trending in the right direction

	Metric	Target	FY22	FY23	FY24	Trending in the right direction?	Featured
Overall: Reduce travel-related carbon emissions in the DMV	Regional greenhouse gas emissions (GHG) avoidance	<i>under development</i>	5,880,000	7,347,000	9,305,000	✓	+
Improve environmental sustainability of Metro operations	Greenhouse gas (GHG) emissions intensity	0 by 2050 (decarbonization)	2.91	2.39	2.12	✓	
	Renewable (carbon-free) electricity	100% by 2033	12%	35%	33%	✓	+
	Facilities with green certifications	18 by 2028	11	11	13	✓	
	Bus fleet that is zero-emission	100% by 2042	<1%	<1%	<1%	--	+
	Non-revenue fleet that is zero-emission	100% by 2050	<1%	<1%	<1%	--	
	Paratransit fleet that is zero-emission	100% by 2050	<1%	<1%	<1%	--	
	Water intensity	1 or lower	0.89	0.81	0.70	✓	



The region has ambitious sustainability goals

Metro delivers the high-quality transit that helps our region and federal partners meet mobility, climate, resiliency, health, and equity goals





Transit is essential to meeting the region’s goals

\$9.4b

Additional business output from transit.

\$330b

Property value in Metro station areas.

\$2,800

Annual household savings from riding transit.

250k

Jobs accessible within an hour on transit.

8

Metric tons of fine particulate matter avoided.

30mins

Additional daily exercise from riding transit.

1.2m

Auto trips avoided each day by 2025.

20x safer

Nearly 30 deaths and over 2,500 injuries avoided annually.





Because of Metro more than 9.3 million metric tons of emissions were avoided in FY2024



Path to increased emission reductions

What Metro is doing:

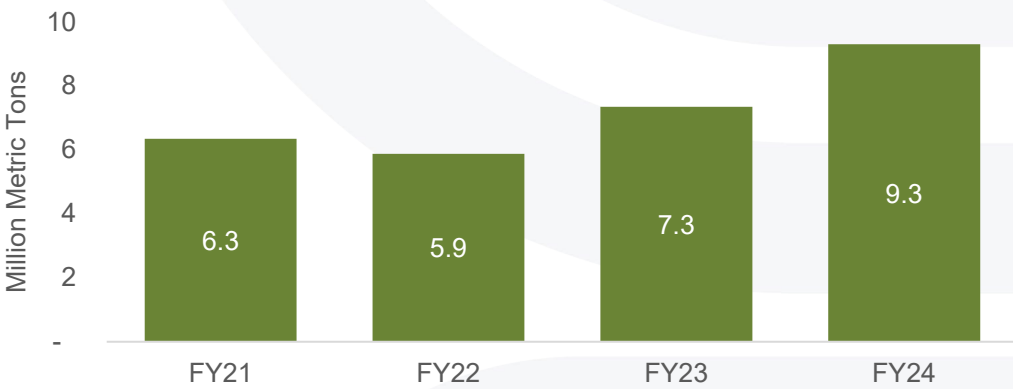
- Provide safe, frequent, and reliable service that makes transit a convenient and easy choice for customers ★
- Continue to reduce Metro’s operational emissions (0.3 million metric tons in FY2024):
 - Investment in energy efficiency
 - Procurement of carbon-free electricity
 - Transition to clean fleets

What the region can do:

- Pursue transit-oriented land use, policies, and investments ★
- Invest funding in high frequency, quality service ★
- Continue to support transition to clean fleets

Net Regional Emissions Avoidance

Direction of desired performance: up ↑



Annual avoided emissions is a net estimate derived from subtracting service delivery emissions from estimated gross annual avoided transportation emissions due to Metro service; methodology follows APTA’s [2018 Recommended Practice for Quantifying Greenhouse Gas Emissions from Transit](#)

Industry Benchmarking

Transit Agency	SEPTA	NY MTA	MARTA
Emissions Avoided (Million Metric Tons)	0.7 (FY23)	17.0 (FY22)	2.0 (FY22)

★ Most impactful

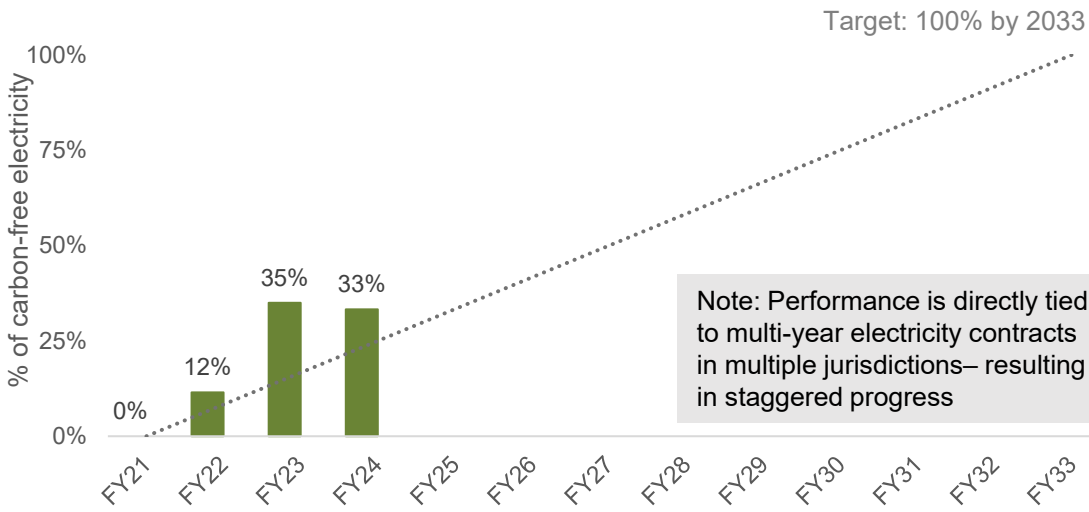




Transitioning to clean electricity through supply contracting

% of Metro's electricity from carbon-free sources

Direction of desired performance: **up** ↑



Path to 100% clean electricity

Factors influencing performance:

- Evolving clean energy market solutions
- Increasing electricity demand locally, regionally, and nationally
- Clean energy transmission infrastructure investments
- Short and long-term financial impact considerations

Actions we are taking:

- Continue working with the General Services Administration (GSA) to:
 - Secure favorable and stable supply pricing
 - Lower administrative costs
 - Meet carbon-free electricity requirements
- Monitoring clean energy contracting opportunities
- Participating in a carbon-free electricity solicitation for a new electricity supply contract in Maryland





Zero-emission fleets promote clean air, health, and livability



100% zero-emission fleets

Continuing challenges in market include:

- Limited manufacturers
- High demand
 - Vehicles
 - Charging
 - Transformers
 - Batteries

What the region can do:

- Flexibility and adaptability to emerging technologies
- Advance supportive policies and rate structures
- Invest funding in fleet and facility conversions



Passengers boarding battery-electric Metrobus

Ongoing Activities:

- Two 60' and two 40' battery-electric buses (BEBs) in service, remaining eight BEBs to be delivered CY2024-2025
- Three bus garages in design/construction
- 500 employees trained
- Initial planning for non-revenue and paratransit fleets



Opportunities to improve transit and drive regional sustainability



Service

Safe, frequent, and reliable service optimizes existing transit investments and reduces regional emissions

Examples: Bus Network Redesign, All-day All-week Frequent Service, Regional Bus Stop Guidelines, Automatic Train Operations



Regional Partnership

Prioritizing transit, walking, and biking reduces vehicle miles traveled and boosts regional benefits

Examples: Transit-Oriented Development, Data Sharing and Transparency, Bus Priority, Clear Lanes, Bus Lanes, DMVMoves



Modernization

Investing in new technologies and practices enhances energy and cost efficiency

Examples: Zero-Emission Bus, Rail Automation, 8000-Series Railcars, On-site Solar, Climate Resiliency, and Cooperative Procurement of New Technologies including vehicles

Appendix



Metro's carbon emissions per revenue mile are decreasing



Path to zero carbon by 2050

Reduced greenhouse gas (GHG) emissions per revenue mile from 2.4 kilograms (FY2023) to 2.1 kilograms (FY2024) – an 11% improvement

Factors influencing performance:

- Service levels
- Facilities, equipment, and infrastructure
- Vehicle propulsion systems
- Energy supply sources

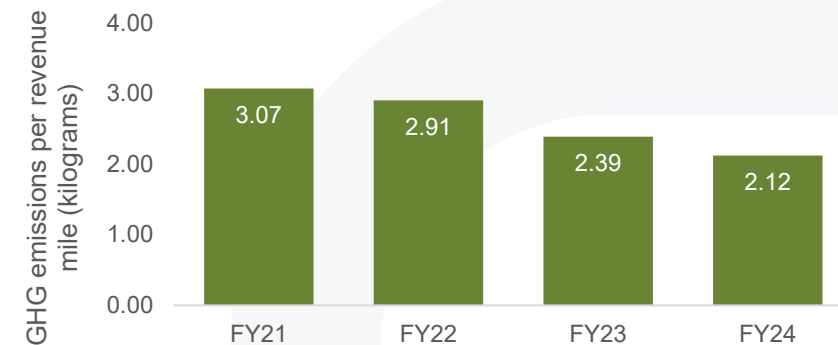
Actions we are taking:

- Developing decarbonization strategy
- Investing in energy efficiency
- Procuring carbon-free energy



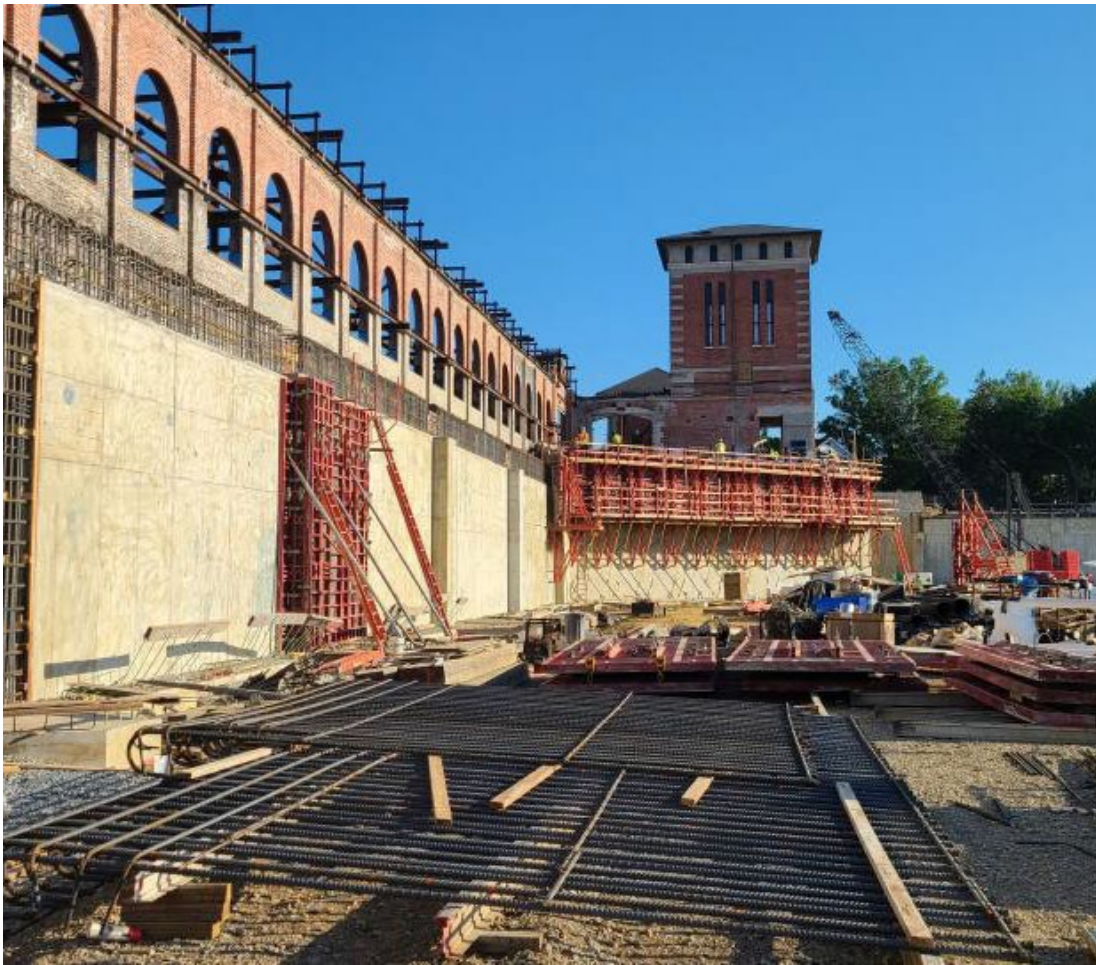
GHG Emissions Intensity

Direction of desired performance: **down** ↓





Driving facility modernization and efficiency



Construction underway at Northern Bus Garage – pursuing LEED®



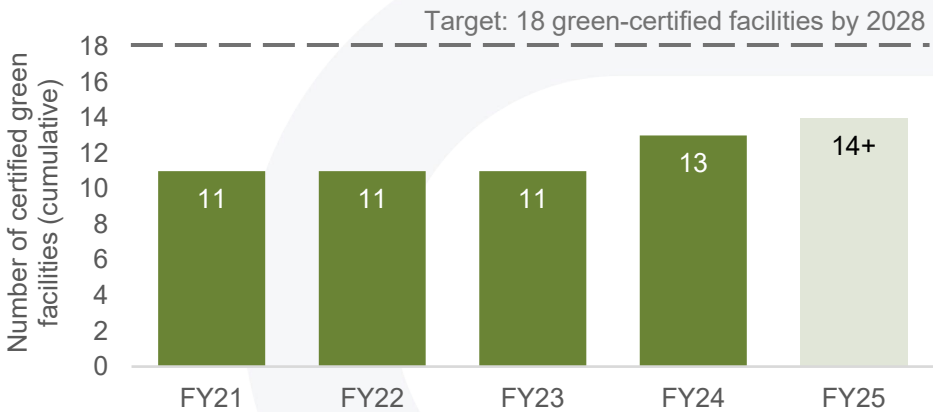
Delivering Green Facilities

Metro uses LEED® as a tool to design and build facilities that create safe and healthy workplaces, enhance building operations and efficiency, and make us a good neighbor.

Benefits of the LEED® framework include:

- Reduced energy and water usage
- Lower operating costs
- Less construction waste
- Enhanced energy monitoring

Green Certified Facilities




LEED® = U.S. Green Building Council’s Leadership in Energy and Environmental Design rating system



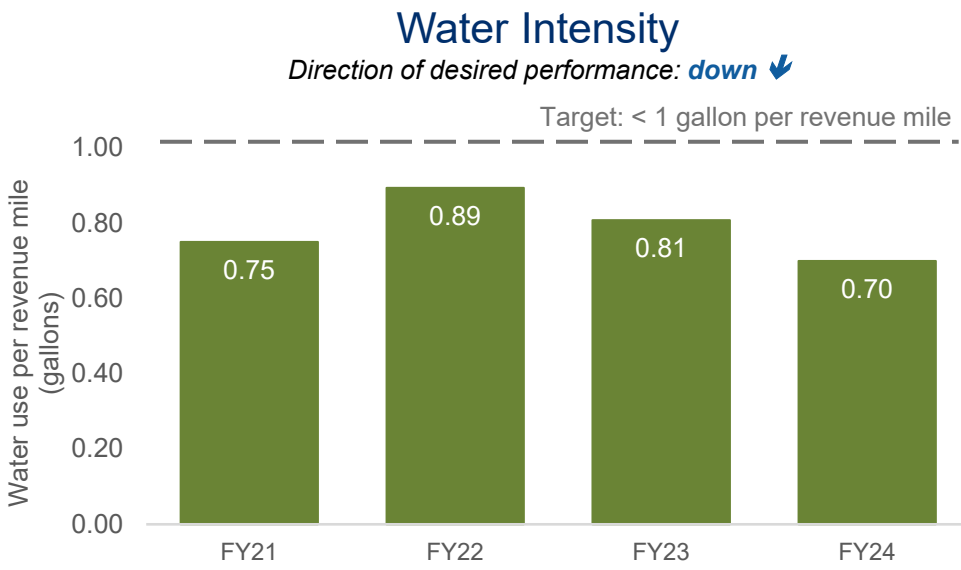


Metro’s water use per revenue mile is decreasing



Modernization supports efficient water use

Metro reduces water use through investments such as efficient plumbing fixtures, chillers, and bus washes, as well as use of drought resistant landscaping and rainwater harvesting.



Energy and water efficient boiler at Andrews Bus Garage





Embedding sustainability and resiliency into design and operations



Solar panels at the Naylor Road Station parking lot provide passengers shelter from sun, rain, and snow while waiting for Metrobus



At locations vulnerable to flooding, raised vent shafts can reduce service disruptions (Archives Station)



— Addressing today's challenges through continuous improvement

Incremental investment through capital program

Updated Metro's Manual of Design Criteria to consider updated climate projections

- Early identification of climate risks
- Small upfront investments can reduce future costs

Continue to build relationships and work with jurisdictional partners to resolve problems upstream

Continue to pursue funding opportunities



Increasing tree canopy as a nature-based solution



Tree Planting

Planting ~450 trees at nine Metro stations over the next two years

- Partnership with Casey Trees with funding from U.S. Department of Agriculture
- Located in equity emphasis areas*

Trees provide customer experience, environmental, and health benefits

- Provides shade and cooling
- Improves air quality
- Sequesters carbon
- Mitigates stormwater impacts
- Reduces stress and anxiety, lowers blood pressure, and improves mood



Tree planting in partnership with Anacostia Watershed Society (Anacostia Station, 2019)

*As defined by Metropolitan Washington Council of Governments



Sustainability Lab tests and evaluates new technology



Innovation & Best Practice Adoption

Metro's Sustainability Lab supports innovation by testing and evaluating new technology and practices to improve resource- and cost-efficiency and sustainability.

Prior projects:

- Efficient switch heaters
- Remote chiller water treatment
- Maintenance of way vehicle tracking
- Battery-electric leaf blowers
- Battery-powered track maintenance equipment

Current projects:

- Electric masonry equipment



Battery-powered rail surface grinder (K-Line shutdown, summer 2023)