



CLIMATE ACTION PLAN 2024

Greater Lafayette Public Transportation Corporation

1250 Canal Rd
Lafayette, IN 47904



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Introduction

The Cities of Lafayette and West Lafayette, Tippecanoe County, as well as CityBus have all identified climate change as a critical issue facing the Greater Lafayette area. As stated in the area’s 2023 Climate Action Plan, climate change is “the greatest environmental challenge of the 21st century.” The effects of the warming of our climate will directly impact citizens, industries, and the environment throughout the world, and our community of Greater Lafayette is no exception. Purdue University’s Climate Change Research Center published a report in 2018 detailing the effects of climate change on Indiana, projecting more extremely hot days, higher maximum temperatures, warmer winters, and significantly wetter springs. If no climate action is taken, the Purdue report forecasts that the climate in Lafayette will resemble that of Arkansas by 2050 and southern Texas by 2080. These conditions, in addition to threatening biodiversity and the area’s wildlife, would present significant health risks to vulnerable members of our community.

Having recognized human-made greenhouse gas emissions (GHGs) as a threat to the region, mayors of Lafayette and West Lafayette have worked with a wide range of industry leaders across the Greater Lafayette area to develop plans to tackle climate change. CityBus is one of those contributors, being named as a “community stakeholder and focus area expert” in the Greater Lafayette Climate Action Plan, and the agency has developed several key initiatives to accelerate the transition to sustainable transportation and community-building in Lafayette. These involve both mitigation—combating the future effects of climate change by reducing greenhouse gas emissions—and adaptation—preparing for impacts already happening or soon-to-come and increasing community resilience. This document outlines the many initiatives the agency is pursuing to further these goals.



CityBus CEO

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About CityBus

CityBus is the operating name for the Greater Lafayette Public Transportation Corporation (GLPTC), a municipal corporation established in 1972. As a division of local government, CityBus is led by a Board of Directors, whose members are appointed by the mayors and city councils of Lafayette and West Lafayette. CityBus serves Lafayette, West Lafayette, and Purdue University with fixed-route and demand-response transportation and helped over 4.4 million passengers reach their destination in 2023.

CityBus's fleet consists of 69 total vehicles, including 7 paratransit buses, 2 diesel buses, 19 diesel-electric hybrid buses, and 41 compressed natural gas (CNG) buses. In addition to further orders for CNG buses, CityBus has also been awarded a \$7.6M Low/No Emissions grant from the Federal Transit Administration to purchase 4 zero-emission hydrogen fuel-cell buses, as well as maintenance and fueling infrastructure to service the buses.

CityBus operates several facilities in the Lafayette area. The CityBus Center is a centrally located transfer hub in downtown Lafayette, with covered waiting areas, an indoor lobby with restrooms and a customer service office, and pull-in parking spots with real-time arrival and departure information. The agency's administrative offices, dispatch center, and maintenance facilities are located north of downtown. As another example of community services and outreach, CityBus also owns two childcare centers in Lafayette operated by Right Steps.

CityBus works closely with institutions in the area to ensure as many residents of Greater Lafayette have access to transportation as possible. Partnerships with local universities and schools allow students, faculty, and staff greater mobility on campus and throughout the area. On fixed-route services, passengers certified for ACCESS, CityBus's ADA-accessible paratransit service, ride for free as well. CityBus also collaborates with local city governments on planning projects that improve cycling, walking, and transit infrastructure in Greater Lafayette, such as 2018's landmark \$120M State Street Redevelopment Project. In addition to improving the reach and utility of a transit system, bikeable and walkable cities promote healthy communities and reduce carbon emissions and harmful pollution in population centers.

Mission Statement & Vision

Mission Statement:

Our Mission: CityBus is a proactive community partner. The organization strives to improve the quality of life by (1) operating safe, reliable, and environmentally friendly transit services and (2) partnering in local economic development activities. With employees who take pride in their work, CityBus provides excellent customer service and offers efficient, convenient access to destinations throughout Lafayette and West Lafayette.

Our Vision:

CityBus has an important role in making the Lafayette/West Lafayette area a better place to live, work, go to school and visit.

With safe, reliable, and convenient transit services, the agency will offer a viable transportation choice for residents, employees, and visitors.

- CityBus will be recognized as a valuable resource for the community.
- The agency will provide high-frequency transit services in areas with greater densities.
- The agency will operate efficiently, giving taxpayers the best service possible for their investment.
- The agency will be a leader in transit-oriented development efforts.
- The agency will bring together developers, local governments, and planning agencies to address land use decisions that impact mobility.
- The agency will be a leader in bringing environmentally sound transit technologies to the Lafayette/West Lafayette area.

Lafayette Area Initiatives

Greater Lafayette has embarked on an ambitious Climate Action Plan, headed and signed by the Mayors of Lafayette and West Lafayette and Tippecanoe County officials. Using a comprehensive approach to all sectors of Greater Lafayette's economy, the Action Plan aims to reduce GHG emissions in Tippecanoe County by 58% by 2030 and 80% by 2050. To help achieve these goals, initiatives are divided into four main focus areas: Energy Use in the Built Environment; Transportation; Agriculture and Forestry; and Water, Wastewater, and Solid Waste. Below is a selection of significant actions the Climate Action Plan outlines in each of the four categories.

Energy Use in the Built Environment (70% of total emissions)

- Develop incentives for solar, electrified appliances, and net-zero buildings.
- Advance newly formed "Industrial Roundtable", include discussions on climate risks and how they will impact business/industry.
- Create a network of resilience hubs to support vulnerable community members during extreme weather events.

Transportation (27% of total emissions)

- Develop a plan for dense communities and transit-oriented development.
- Convert government and public fleet vehicles and lawn and landscaping equipment to electric.
- Identify low or no-cost transportation for movement between resilience hubs and residential areas.

Agriculture and Forestry (-2% of total emissions)

- Provide information/workshop on agri-solar to local farmers.
- Create a plan to eliminate invasive plants on public property and replace them with native species.
- Identify areas in Greater Lafayette that are underserved by parks and open spaces and develop a plan to improve access in those areas.

Water, Wastewater, and Solid Waste (2% of total emissions)

- Explore composting opportunities within business and residential communities.
- Create a flooding risk management program.
- Incorporate increased greywater use, water reuse, and heat recovery from wastewater.

CityBus Initiatives

In addition to working with local leaders to produce and implement the Greater Lafayette Climate Action Plan, CityBus has past, present, and future plans to reduce the environmental impact of transportation in Greater Lafayette. Sustainability is a key facet of CityBus's operations and a driving factor behind decision-making and long-term planning. This Climate Action Plan aims to outline the reasonable, achievable, yet ambitious initiatives that will reduce the agency's environmental impact and contribute to a healthier world for all.

Facilities

In 2009, CityBus secured funds from the American Recovery and Reinvestment Act's Transit Investments in Greenhouse Gas Energy Reduction program to purchase and install three wind turbines at our maintenance and administrative facility. Each turbine can produce 100kW of power, and together, they are estimated to offset over 70% of electricity used at the facility—540 MWh of energy per year, equal to the yearly electricity consumption of 51 homes.

The CityBus Center, our downtown transfer hub, contains several design features meant to reduce its environmental impact. Rain gardens filled with local plants and high-drainage soil filter runoff and add a natural setting to the waiting areas. The canopy of the covered waiting area and the roof of the lobby are painted white to reflect light and reduce heating requirements. Efficient LED lights, restroom hand dryers, and motion-sensing lighting in offices, restrooms, and lobbies further reduce electricity use.

All CityBus facilities participate in recycling efforts, and the administration works to minimize paper and energy use and reduce the amount of waste generated.



Vehicles

CityBus vehicles have front-mounted bicycle racks to encourage bicycle usage and multimodal transit options, and all are fully accessible. Displays indicating the next stop and stop requests increase ease of use for riders.

CityBus's ongoing fleet replacement program focuses on replacing older, less efficient diesel buses with ones powered by compressed natural gas (CNG) with much lower emissions. Out of a total fleet of 62 full-size transit buses, 19 are diesel-electric hybrids and 41 are CNG. Both hybrid and CNG buses have significantly lower emissions per mile than conventional diesel buses, lower interior and exterior noise levels, and less particulate pollution, especially when idling at stops.

CityBus has also been awarded a \$7.6 million grant from the FTA's Low/No Emissions Grant Program to purchase four zero-emission hydrogen fuel cell buses and three CNG buses, as well as maintenance and fueling infrastructure and workforce training programs to support hydrogen operations. Hydrogen FCEVs have zero tailpipe emissions without the long recharge times and shorter ranges of battery-electric buses and can be substituted 1-for-1 in normal operations without layovers to charge or refuel. CityBus's hydrogen buses will be the first of their kind in the state of Indiana, demonstrating the agency's leadership in these zero-emission technologies.

With the imminent replacement of CityBus's last two conventional diesel buses, CityBus's fleet will be 100% low-emissions. By 2025, CityBus will introduce its first zero-emission hydrogen buses and continue adding to its fleet of CNG buses.



Operations

CityBus is committed to reducing vehicle miles traveled and private vehicle usage in Greater Lafayette. Partnerships with apartment communities in West Lafayette provide fast, frequent, and free service between these higher-density housing developments, downtown West Lafayette, and the Purdue University campus, and reduce the need for residents to buy a car or use rideshares to commute between home, school, and work.

Purdue University and CityBus's partnership and cooperation increases mobility for students, faculty, and staff, ridership on CityBus routes, and decreases emissions from private car journeys. Campus loop routes run frequently and shuttle students, faculty, and staff between academic, residential, and athletic buildings.

CityBus continues to explore further potential uses for its fleet of accessible, high-capacity, low-emissions buses for local organizations and events. The agency actively pursues partnerships with universities, businesses, and industry partners to help them maximize the potential of transit.



Implementation

Past and Present Initiatives:

2007 - CityBus adds first two hybrid buses to fleet, with up to 30% lower emissions than conventional diesels.

2011 - Three new wind turbines installed at facility with funding from sustainability grant, offsetting 540 MWh/500 tons CO₂e each year.

2013 - New CityBus Center downtown hub built in Lafayette, with indoor waiting areas, rain gardens, and energy-efficient design and construction.

2015 - First CNG buses added to fleet and fueling station built at headquarters, saving an estimated \$5.3 million in fuel costs over 10 years and reducing emissions.

2018 - West Lafayette and Purdue University complete \$120 million State Street Redevelopment Project with CityBus as a consultant, transforming the street into a multimodal corridor with bike paths, pedestrian access, and green space.

2019 - CityBus receives Volkswagen air quality settlement funding to partially fund acquisition of four new CNG buses.

2020 - Greater Indiana Clean Cities Coalition recognizes CityBus with Clean Air Champion Award.

2020 - CityBus receives \$1.2 million in FTA funding to expand and upgrade fueling station for CNG buses, which now make up a majority of the fleet.

2023 - CityBus awarded \$7.6 million Low/No Emissions grant for the purchase of four new hydrogen buses, three new CNG buses, construction of maintenance and fueling facilities, and workforce development for hydrogen vehicles.

Ongoing - CityBus is progressively replacing older, less efficient vehicles with modern CNG and H₂ ones, with 95% of fleet low-emissions by 2023.

Future Initiatives:

2024 - CityBus is currently conducting a Comprehensive Operations Analysis (COA) that will use public input and ridership and service data to improve the effectiveness and reach of the agency.

2024 - The agency continues to work with local leaders to implement Transit-Oriented Development projects that bring housing and shops to walkable, transit-accessible neighborhoods.

2025 - CityBus will receive four hydrogen-powered zero-emission buses, as well as continuing to add to its CNG fleet.

2030 - CityBus and Greater Lafayette aim to reduce total greenhouse gas emissions in the area by 50%, including in the transportation sector.

