



DRAFT STREAMLINED COMPREHENSIVE CLIMATE ACTION PLAN

Indianapolis-Carmel-Anderson Metropolitan Statistical Area

DECEMBER 2025



This project has been funded wholly or in part by the United States Environmental Protection Agency (EPA) under assistance agreement 00E03473 (Modification Number: 0 Program Code: 5D) to the Central Indiana Regional Development Authority. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

Acknowledgements

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CIRDA BOARD

City of Anderson, Town of Avon, Town of Bargersville, City of Beech Grove, Town of Brownsburg, City of Carmel, Town of Cumberland, Town of Danville, City of Elwood, City of Fishers, City of Franklin, City of Greenfield, City of Greenwood, Hamilton County, Hancock County, City of Indianapolis, City of Lawrence, City of Lebanon, City of Martinsville, City of McCordsville, Town of Mooresville, Town of New Palestine, City of Noblesville, Town of Pittsboro, Town of Plainfield, Town of Speedway, City of Tipton, City of Westfield, Town of Whiteland, Town of Whitestown, Town of Zionsville

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Acronyms and Abbreviations

Acronyms	Description
CCAP	Comprehensive Climate Action Plan
CEJST	Climate and Economic Justice Screening Tool
CFO	Confirmed feeding operation
CH ₄	Methane
CIRDA	Central Indiana Regional Development Authority
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPRG	Climate Pollution Reduction Grants
EIA	US Energy Information Administration
EJScreen	Environmental Justice Screening and Mapping Tool
EOY	End of year
EPA	US Environmental Protection Agency
ERM	Environmental Resources Management, Inc.
EV	Electric vehicle
FLIGHT	Facility Level Information on Greenhouse Gases Tool
GHG	Greenhouse gas
GHG Inventory	Greenhouse gas inventory
HFC	Hydrofluorocarbons
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
IMPO	Indianapolis Metropolitan Planning Organization

INDOT	Indiana Department of Transportation
IU	Indiana University
kW	Kilowatt
kWh	Kilowatt-hours
LIDAC	Low-income and disadvantaged communities
MMBtu	One million British thermal units
MSA	Metropolitan statistical areas
MT	Metric tons
MW	Megawatt
MWh	Megawatt-hours
N ₂ O	Nitrous oxide
OED	Office of Energy Development
PCAP	Priority Climate Action Plan
PFC	Perfluorochemicals
PM	Particulate matter
PUD	Planned unit development
PV	Photovoltaics
RNG	Renewable natural gas
SLOPE	National Renewable Energy Laboratory's State and Local Planning for Energy
USDA	US Department of Agriculture
VMT	Vehicle miles traveled
WWTP	Wastewater treatment plant



1. Introduction

CLIMATE POLLUTION REDUCTION GRANT OVERVIEW

Central Indiana Regional Development Authority (CIRDA) was awarded a \$1 million planning grant from the U.S. Environmental Protection Agency (EPA) to develop regional plans for Central Indiana focused on strategies to reduce greenhouse gas (GHG) emissions and other harmful air pollution. The grant is part of EPA’s Climate Pollution Reduction Grants (CPRG) program.¹

The CPRG program provides flexible support to states, local governments, tribes, and territories for climate planning. Planning grant recipients must design climate action plans that incorporate a variety of measures to reduce GHG emissions from across their economies in the following key sectors: electricity generation, industry, transportation, buildings, agriculture, natural and working lands, and waste management. All planning grantees must submit the following deliverables to EPA:

- Priority Climate Action Plan (PCAP) – A PCAP is a narrative report that includes a focused list of near-term, high-priority, and implementation-ready measures to reduce GHG pollution. The Central Indiana PCAP² was published in February 2024.
- Comprehensive Climate Action Plan (CCAP) – A CCAP is a narrative report that provides an overview of the grantees’ significant GHG sources/sinks and sectors, establishes near-term and long-term GHG emission reduction targets, and provides strategies and identifies measures that address the highest priority sectors to help the grantees meet those goals. CCAPs for states and MSAs are due to EPA in December 2025.

¹ U.S. Environmental Protection Agency (EPA). 2023. “Climate Pollution Reduction Grants.” Modified 5 February 2024. Retrieved from: <https://www.epa.gov/inflation-reduction-act/climate-pollution-reduction-grants>

² CIRDA. February 2024. “Central Indiana Priority Climate Action Plan.” Accessed September 10, 2025. Retrieved from: <https://www.epa.gov/system/files/documents/2024-03/indianapolis-cprg-cir-da-pcap-report.pdf>

- Status Report – A Status Report should include the implementation status of the quantified GHG reduction measures included in the CCAP. Status Reports are due to EPA at the end of the 4-year grant period (approximately end of year 2027) for state and MSA grantees.

CENTRAL INDIANA REGIONAL DEVELOPMENT AUTHORITY

Comprised of municipal executives, including mayors, town council presidents, or county commissioners, from 31 Central Indiana communities, CIRDA was established as an integrative regional entity to align the public sector on key initiatives and drive economic development and grant opportunities within Central Indiana. CIRDA works collaboratively with communities across the region to support efforts that enhance quality of life and sustainability, boost support for local businesses and innovation, and ensure Central Indiana is an attractive place where all residents benefit from growing economic opportunity and equitable development in the coming decades. Monthly CIRDA board member meetings are an opportunity to build consensus on key issues affecting the region's growth, including opportunities to address climate change. CIRDA relies on the professional staff of member communities, who are well-versed in administering federal grants; CIRDA administered \$21 million in federal funds during the last 2 years,³ while CIRDA's members have administered nine federal grants totaling more than \$770 million.⁴

With funding from EPA's CPRG Phase 1 planning grant, CIRDA is leading the development of the Central Indiana Environmental Action Plan, inclusive of both the short-term PCAP and the long-term CCAP, that reflects input from stakeholders across the region and positions Central Indiana as a leader in public health, innovation, and economic opportunities. This regional plan is focused on strategies to reduce GHG emissions across the Indianapolis-Carmel-Anderson MSA. CIRDA represents more than 80 percent of the population in the Central Indiana MSA and approximately a quarter of the state's population. While many municipalities in the region have engaged in climate action planning and comprehensive community planning within the past decade, including the City of Indianapolis' recent plan *Thrive Indianapolis*,⁵ this is the first time a plan has been developed representing the interests and priorities of the entire Central Indiana region.

COMPREHENSIVE CLIMATE ACTION PLAN OVERVIEW

The CCAP was developed to build on the work initiated in the PCAP with the intention to improve Central Indiana's understanding of current and future environmental impacts, develop a set of region-specific strategies to reduce emissions, set emissions reduction targets to drive tangible action, identify community co-benefits, and evaluate workforce planning and funding needs, while practicing

³ CIRDA administered a \$1 million EPA planning grant and \$20 million of American Rescue Plan Act (APRA) funds through the state's Regional Economic Acceleration and Development Initiative (READI) program.

⁴ CIRDA members' grants administered include Hamilton County (\$134,000,000); Greenwood (\$3,300,000); Bargersville (\$1,000,000); Indianapolis (\$610,471,575); Martinsville (\$7,013,791); Beech Grove (\$5,950,000); Speedway (\$2,230,000); Fishers (\$1,245,574); and Plainfield (\$5,700,000).

⁵ Indianapolis Office of Sustainability. 2018. "Thrive Indianapolis." Accessed January 2024. Retrieved from: <https://www.thriveindianapolis.com/>

meaningful engagement throughout the planning process to ensure this plan is reflective of the unique and varied needs of stakeholders across the Indianapolis-Carmel-Anderson MSA.

Central Indiana is a job center and an economic hub for the state. This regional plan seeks to reduce GHG emissions and improve public health while creating vibrant places that attract and retain high caliber talent to the region and to the state. By engaging a diverse set of public, private, and nonprofit stakeholders, this plan is reflective of regional priorities and leverages opportunities for GHG reductions across a range of sectors.

The Indianapolis-Carmel-Anderson MSA consists of 11 counties (Boone, Brown, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Putnam, and Shelby) with a population of over 2.1 million people (see Figure 1).⁶ Residents across the MSA identify as 76 percent White, 16.6 percent Black (alone), 7.6 percent Hispanic, 4.2 percent Asian (alone), 2.6 percent as two or more race groups.⁷ Per capita annual income averaged \$68,719 in 2022, with two-thirds of residents living in owner-occupied housing and one-third of residents living in rental housing in the region.⁸ The distribution of environmental and structural burdens varies greatly for different communities across the region. Categories of burdens include air quality, climate change, energy, environmental hazards, health, housing, legacy pollution, transportation, water and wastewater, and workforce development.⁹

Over one-third of the census tracts in the MSA are considered low-income and disadvantaged communities (LIDAC).¹⁰ This regional plan adapts EPA's definition, which identifies LIDAC communities as any community that meets at least one of the following characteristics: identified as disadvantaged by the Climate and Economic Justice Screening Tool (CEJST); any census block group that is at or above the 90th percentile for any of EPA's Environmental Justice Screening and Mapping Tool's (EJScreen) Supplemental Indexes when compared to the nation or state; and/or any geographic area within Tribal lands as included in EJScreen.¹¹

⁶U.S. Census Bureau. 2022. *American Community Survey 1-year estimates*. Accessed January 2024. Retrieved from: <https://censusreporter.org/profiles/31000US26900-indianapolis-carmel-anderson-in-metro-area/>

⁷ STATS Indiana. 2023. "Indianapolis-Carmel-Anderson, IN Metro Area". Accessed January 2024. Retrieved from: http://www.stats.indiana.edu/profiles/profiles.asp?scope_choice=b&county_changer2=Rmetro:26900

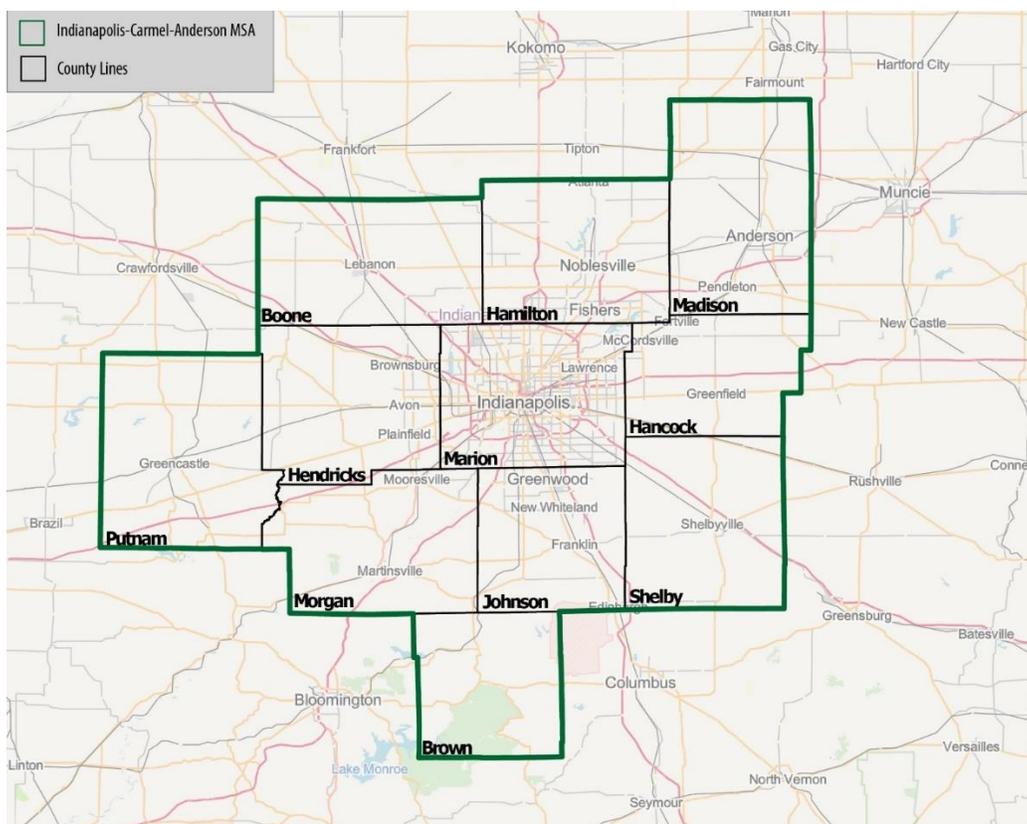
⁸ STATS Indiana. 2023. "Indianapolis-Carmel-Anderson, IN Metro Area". Accessed January 2024. Retrieved from: http://www.stats.indiana.edu/profiles/profiles.asp?scope_choice=b&county_changer2=Rmetro:26900

⁹ 560 out of 1446 Census tracts in the MSA qualify as LIDAC; U.S. EPA. 2024. "Socioeconomic Indicators." Modified 4 January 2024. Retrieved from: <https://www.epa.gov/ejscreen/ejscreen-map-descriptions#soci>

¹⁰ U.S. Environmental Protection Agency (EPA). 2024. "EJScreen: Environmental Justice Screening and Mapping Tool." Modified 24 January 2024. Retrieved from: <https://www.epa.gov/ejscreen>

¹¹ U.S. Environmental Protection Agency (EPA). 2023. "Climate Pollution Reduction Grants: Low Income/Disadvantaged Communities (LIDAC) Benefits Analysis." Accessed January 2023. Retrieved from: <https://www.epa.gov/system/files/documents/2023-08/Low%20Income%20Disadvantaged%20Communities%20Benefits%20Analysis.pdf>

Figure 1. Indianapolis-Carmel-Anderson Metropolitan Statistical Area



The emissions reduction strategies outlined in this CCAP target the highest emitting sectors to drive meaningful emissions reductions and community co-benefits, while enhancing opportunities for economic growth and improved quality of place within the region. The following sections in this report describe the approach CIRDA and its partners undertook to develop this regional plan, the results of the regional GHG inventory and business-as-usual GHG emissions projections, descriptions of the GHG reduction measures, an assessment of the potential benefits to LIDAC residents, and an overview of the next steps in the CPRG program and the regional planning process.

The finalized CCAP that will be published in December 2025 will include sections quantifying co-pollutant emissions reductions, analyzing workforce capacity and development, outlining funding opportunities, and describing implementation authority. These sections are currently in progress.



2. CCAP Planning & Meaningful Engagement Process

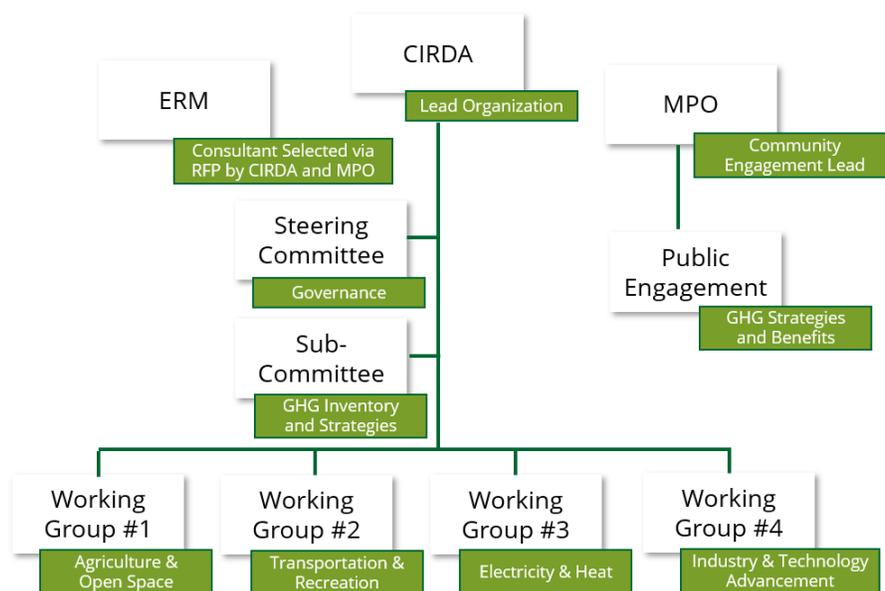
PLANNING PROCESS OVERVIEW

Comprised of the municipal executives from 31 Central Indiana communities, CIRDA is the lead grantee for the regional planning process. CIRDA is working in collaboration with the Indianapolis Metropolitan Planning Organization (IMPO), the lead partner spearheading community engagement. Representatives from CIRDA, including the City of Fishers and the City of Indianapolis, served on the Project Team alongside IMPO and the consultant.

The regional planning process included multiple overlapping efforts conducted over a span of two years from August 2023 to August 2025 to ensure the regional plan meets EPA's criteria and is reflective of the community priorities. The approach to developing this CCAP built on extensive effort and engagement from the development of the PCAP. CCAP planning included performing additional stakeholder outreach to the public, regional subject matter experts, and local governments, assessing benefits to low-income and disadvantaged communities, developing a regional GHG inventory and business-as-usual GHG emission projections through 2050, quantifying a set of GHG reduction measures unique to the Central Indiana region, developing a workforce planning analysis to support the emissions reduction measures outlined in the CCAP, and identifying implementation authority, as described in the following subsections.

CIRDA led the development of this regional plan by engaging a diverse set of public, private, and non-profit stakeholders throughout Central Indiana, building on the extensive stakeholder engagement work the project team led in developing the PCAP. Figure 2 provides an overview of the stakeholder engagement approach to developing the regional plan.

Figure 2. Stakeholder Engagement Approach



COMMUNITY ENGAGEMENT

Public engagement is critical to understanding the wants and needs of local communities and residents of Central Indiana in coupling economic growth with climate action and sustainability. Feedback from public engagement during the PCAP and CCAP planning processes were integrated into the final list of GHG reduction strategies and assessment of community co-benefits and disbenefits put forth in this plan.

The draft CCAP is currently available for public review and comment from September 20 – October 31, 2025. The draft plan and corresponding survey to collect comments was posted to www.indympo.gov/CPRG. The Indianapolis MPO identified LIDAC areas as well as locations around the region to conduct engagement. Events and locations were selected to lower barriers to participate in the planning process for LIDAC communities and members of the public around the region. IMPO utilized an assortment of advertisement methods to reach a variety of audiences including circulation advertisements, digital ads, flyers, and an ad at a local drive-in. IMPO also employed the use of virtual and in-person open houses to allow a multitude of opportunities for the public to participate in the planning process. IMPO also attended community events such as farmers markets or local festivals to engage residents.

During the PCAP planning process, IMPO led the development of two public surveys and attended 15 in-person events and four virtual meetings from September 2023 through February 2024. Engagement centered on both gathering input from communities and reporting updates for the planning process.

The Indianapolis MPO conducted two public surveys during the CCAP planning process. To identify survey responses in LIDAC areas, IMPO employed the same methodology as the PCAP. Zip codes with 50 percent or more of their land area in census tracts designated as LIDAC by EPA were considered LIDAC. Responses from these zip codes were considered responses from LIDAC areas.

The first public survey was available from April 20, 2024, through July 21, 2024. The survey included a display of potential greenhouse gas reduction measures with questions seeking to understand if any measures were missing from the provided list. There were 170 responses to the first survey, which asked respondents to review draft emissions reduction strategies and provide input on any missing strategies. Of the 170 responses, 33% were from zip codes in LIDAC areas. When asked about local government action, the public most desired adding or preserving green space, reducing reliance on automobiles, better land use decisions and increased education. LIDAC respondents desired the addition of green spaces, reduced reliance on automobiles, waste reduction, increased education and use of green infrastructure.

The second public survey was available from August 13, 2024, through November 27, 2024. The second survey asked respondents a series of tradeoff questions related to types of projects to reduce emissions, an open-ended question about measures to reduce emissions, and a ranking question asking participants to indicate the top three barriers to a green workforce. The second survey received 160 responses. Of the 160 responses, 31% were from LIDAC zip codes.

When asked about preferences, members of the public favored greenhouse gas reduction measures that were regional in nature (as opposed to municipal level) and took more time to establish but had greater impact on emissions overall (instead of projects requiring shorter set up time but with fewer impacts on emissions). Members of the public wanted emissions reductions targeted at both government-owned assets as well as privately owned with roughly equal responses for each. When asked about local government action, the most common responses included additional biking infrastructure, public transit, pedestrian infrastructure, reduced reliance on automobiles, and better land use decisions. Responders from LIDAC areas desired public transit, bike infrastructure, pedestrian infrastructure, and reduced reliance on automobiles in that order. Respondents ranked lack of awareness in the sustainability field, low wages, and lack of job availability as the top three barriers of the sustainability fields in Central Indiana. Other options included lack of awareness of existing green jobs, lack of skills taught in trade schools, high education requirements, lack of transportation to existing jobs, lack of child or elder care, and lack of apprenticeship opportunities.

Throughout the CCAP planning process, IMPO attended community events and festivals, hosted virtual open houses, conducted one-on-one stakeholder interviews, ran print and digital advertisements, and hosted in-person open houses around the region. Following the completion of the CCAP, IMPO will have conducted:

- 30 in-person community festival/event tabling sessions
- 20 one-on-one stakeholder interviews
- 7 virtual open houses (public meetings)
- 11 in-person open houses (public meetings)

(hold for summary of feedback on the draft plan)

(insert final image of public engagement events)

STEERING COMMITTEE AND SUBCOMMITTEE

The Steering Committee was developed to oversee the execution of the CPRG grant and drive intergovernmental and interagency coordination. Co-chaired by CIRDA and IMPO, Steering Committee

members included representatives from municipalities across the MSA. The Subcommittee was formed to work under the direction and guidance of the Steering Committee and Project Team to support the development of key planning deliverables. Members consisted of state agency and academic representatives.

Throughout the regional PCAP planning process, the Steering Committee was responsible for providing input on the development of plan deliverables, including the regional GHG inventory, GHG priority actions, and public surveys. Members attended four meetings from September 2023 to February 2024, including a formal kickoff meeting to introduce the CPRG opportunity and planning process, and give an opportunity for members to engage. All the meetings included virtual participation. The Project Team also engaged in one-on-one discussions with Steering Committee members during the planning process to delve deeper into specific ideas for implementation-ready GHG reduction measures that were submitted to the Project Team.

The role of the Subcommittee throughout the PCAP planning process was to support the development of the GHG inventory and GHG reduction measures by providing data and regional insights. Subcommittee members attended three meetings from September 2023 to November 2023, including the formal kickoff meeting with the Steering Committee and Project Team. Members were also invited to provide input on the GHG reduction measures, with some crossover in participation with the sector-specific Working Groups.

The Steering Committee and Subcommittee convened in November 2024 to discuss which GHG reduction measures are most applicable, feasible, and generally supported within Central Indiana to be included in the CCAP planning process. The feedback of the Steering Committee was integral to the final selection of the GHG reduction measures presented in this plan. Meeting attendees included the following:

- Indiana Department of Environmental Management
- Indiana Department of Transportation
- Indiana Office of Energy Development
- Indiana University
- Indiana University – Urban Land Institute
- Indiana University – Environmental Resilience Institute
- City of Carmel
- City of Noblesville
- City of Fishers
- Town of Plainfield

The Steering and Subcommittee spent time discussing existing efforts in solar energy and battery storage within the Central Indiana region, from small scale solar on public and private infrastructure to utility-scale clean energy projects. Additionally, meeting attendees discussed the expansion of wastewater treatment plant renewable gas capture, which currently exist and are supported in the region. Furthermore, there was widespread support for electric vehicle adoption and fleet electrification, distinguishing between light and heavy-duty vehicles, and considering electric school buses. Finally, members expressed an interest in residential energy saving measures, including energy efficiency and small-scale renewable energy, but noted that there is a lack in funding.

WORKING GROUPS

The Working Groups were formed to support the development of GHG reduction measures, evaluate existing initiatives within the region, identify potential barriers and challenges to implementation, and assess community benefits. The Project Team invited a diverse set of stakeholders to participate in the four Working Groups. Each Working Group consisted of 14 to 18 sector-specific subject matter experts from private companies, community organizations, academia, and government agencies.

Members in each Working Group participated in two meetings from November 2023 to December 2023 to support PCAP planning, with both in-person and virtual participation. The Project Team convened a total of eight meetings across all the Working Groups. Members were asked to consider the types of GHG reduction strategies they have had success deploying; promising GHG reduction strategies for the region to consider; and potential community and sector-specific benefits resulting from identified GHG reduction strategies. Members also provided input on the development of the regional GHG inventory and reviewed results from the first public survey.

For the CCAP planning process, the Project Team convened all individual Working Groups for a single meeting in December 2024 to discuss strategies that would offer significant emissions reductions, barriers to implementation, and community benefits that are applicable to the Central Indiana region. The insights gained from these meetings were utilized to develop the final set of GHG reduction measures and community benefits presented in this CCAP.

For electricity and heat, Working Group members discussed the potential for battery storage and renewable energy within the region, focusing on solar energy and different avenues of funding. Additionally, members discussed energy efficiency as a priority for residential buildings, and energy benchmarking requirements for buildings across the Central Indiana region. For transportation and recreation, members discussed challenges in public transit related to workforce availability despite support for expansion to outer counties, existing initiatives to increase micromobility access, pedestrian and bike safety, transportation mode shift incentives, fleet electrification and electric vehicle adoption, and public EV charging infrastructure. For industry and technology advancement, members discussed energy efficiency for industrial facilities and warehouses. For agriculture and open space, members discussed anaerobic digesters, waste stream reduction, and the potential for renewable fuel production from waste.

Additionally, IMPO conducted select one-on-one meetings from July through August 2025 to discuss the set of GHG reduction measures presented in this plan to gather any indication of logistical issues in workforce planning or implementation. Twenty organizations participated in interviews.

- City of Carmel
- City of Franklin
- City of Noblesville
- Duke Energy
- Energy Systems Network
- Friends of White River
- Hamilton County Tourism
- Indiana Department of Environmental Management
- Indiana Department of Transportation

- Indiana Office of Energy Development
- Indiana University – Paul H. O’Neill School for Public and Environmental Affairs
- Indiana University- Environmental Resilience Institute
- Indiana University Health
- Indianapolis Office of Sustainability
- Indianapolis Motor Speedway
- Indianapolis Zoo
- Solar United Neighbors
- Town of McCordsville
- Town of Plainfield
- Visit Indy

During one-on-one conversations, stakeholders focused on different aspects of the draft measures often aligned with their industry. Stakeholders received a short presentation on the plan as well as a description of all draft GHG reduction measures. IMPO asked a series of questions to solicit feedback from stakeholders including the alignment of the measures with organizational goals, needs and gaps for implementation, and workforce development.

A common theme among stakeholders was the desire for data and information in a digestible format. Many stakeholders represented organizations that had the desire to reduce emissions but lacked the knowledge and information to quantify costs and benefits. Many stakeholders had started to implement reduction measures that were within their jurisdiction such as promoting electric vehicle ownership, including universal curbside recycling in waste contracts, and advancing building efficiency work. Stakeholders identified funding as a barrier to implementation with the lack of return-on-investment data to encourage collaboration or higher upfront expense contributing. Stakeholders identified interest in sustainability from potential implementers like business owners, residents, and government offices, but noted the information and financial barriers to implementation.

Several stakeholders were concerned with the possibility of data center expansion in Central Indiana, which would increase net emissions. Some stakeholders identified coordination and communication with private sector utility providers to achieve a reduction in emissions from energy production and consumption. Some stakeholders provided specific feedback based on their industry such as the production of methane from wastewater treatment plants.

Stakeholders generally felt there was interest in sustainability at the administrative workforce level. Stakeholders did not feel well-positioned to respond to workforce challenges for field roles, but many noted the general decrease in trade school enrollment. Several stakeholders identified programs working to address sustainability fields at the collegiate level. Some stakeholders noted high schools are working to encourage a variety of career paths that are not exclusively pursuing a collegiate degree, but that progress was slow.



3. Greenhouse Gas Inventory

SCOPE

The Project Team used the EPA Local GHG Inventory Tool¹² to calculate Scope 1, Scope 2, and Scope 3 emissions. Scope 1 emissions included stationary combustion, mobile combustion, landfills, and wastewater emissions within the region. Scope 2 emissions included electricity consumption. Scope 3 emissions included imported water, agricultural and land management, urban forestry, and waste disposed outside the MSA. Additional emissions sources were also included in the GHG inventory and can fall into Scope 1, 2, or 3 depending on the source.

As mentioned in Section 1, CIRDA encompasses the entire Indianapolis-Carmel-Anderson MSA, which includes eleven counties in central Indiana. For this GHG inventory, emissions were calculated at a county- and MSA-level. Data was collected at a county level for the emission sources and then aggregated for the MSA, using a baseline year of 2022.

METHODOLOGY

DATA

Data sources for this GHG Inventory are summarized by emissions source category as defined in EPA's Local GHG Inventory Tool.¹³ The Project Team relied on a mix of data sources to develop the Indianapolis-Carmel-Anderson MSA GHG inventory. Additional data and information included county-level values from verified and reliable national online databases. Local community and climate plans were also reviewed to identify any current GHG reduction methodologies used within the MSA.

¹² U.S. Environmental Protection Agency (EPA). 2024. "Local Greenhouse Gas Inventory Tool." Modified 5 February 2024. Retrieved from: <https://www.epa.gov/statelocalenergy/local-greenhouse-gas-inventory-tool>

¹³ Ibid.

The Project Team conducted three Steering Committee and Subcommittee meetings with representatives from municipalities, along with state agencies and academic institutions across the MSA, to help inform the development of the GHG inventory. Members were tasked with providing county-level data by sector to assist the Project Team with developing the GHG inventory. Additionally, members of both the Steering Committee and Subcommittees reviewed the GHG inventory and provided feedback. The Project Team also conducted meetings with a set of four sector-specific Working Groups, comprised of subject matter experts representing different sectors in the GHG inventory, who provided additional information to inform the GHG inventory.

Table 1. GHG Inventory Data Sources

Category	Data Source
Stationary Combustion	NREL SLOPE – Natural gas consumption by county EPA FLIGHT – Industrial fuel consumption (excl. natural gas) by county US Census Bureau – Number of households by fuel use & county EIA – CE4.6.LP.ST Annual household site propane, CE4.6.FO.ST Annual household site fuel oil or kerosene Citizens Energy – Marion County natural gas consumption
Mobile Combustion	Indiana Department of Transportation Indiana Office of Energy Development
Solid Waste/Landfills	Indiana Department of Environmental Management EPA FLIGHT – Landfill operations
Electricity Use	NREL SLOPE – Electricity consumption by county AES Electricity – Marion County electricity consumption
Wastewater	Indiana Department of Environmental Management EPA FLIGHT – Wastewater treatment plant operations
Agriculture	US Geological Survey – Fertilizer consumption data
Urban Forestry	Tree Equity Score – Urban tree cover (%) by county US Census Bureau – Urban area by county
State Parks & Forests	Yellowwood State Forest & Brown County State Park – Websites Indiana Department of Natural Resources – Park histories
Additional GHG Sources	EPA FLIGHT – Industrial operations Indianapolis Airport Authority – Indianapolis airports & helipad

GHG INVENTORY METHODS AND PROTOCOLS

The inventory uses the Greenhouse Gas Protocol's Global Protocol for Community-Scale Greenhouse Gas Emission Inventories¹⁴

The Project Team used EPA's Local Greenhouse Gas community-wide inventory module to calculate a baseline GHG inventory across the MSA's eleven counties. This spreadsheet tool enables communities to evaluate GHG emissions from their largest emissions sources, including stationary combustion, mobile combustion, solid waste, wastewater, electricity consumption and generation, imported water, exported waste, agriculture and land management, urban forestry, and additional emission sources. The tool is programmed with default emission factors, global warming potentials, and system assumptions approved by the EPA.

This inventory also utilized COMET-Farm to evaluate the carbon sequestration potential of Yellowwood State Forest and Brown County State Park.¹⁵ COMET-Farm is a conservation planning tool built by the USDA Natural Resources Conservation Service and Colorado State University to evaluate GHG emissions from different agriculture and forestry land management practices. The analysis from this tool used location-specific spatial data on climate and soil conditions for Central Indiana. Additionally, this tool allows the user to detail historical land management practices and the age and type of the forest, which improves the accuracy of the estimated carbon sequestration potential for the inventory.

GHG EMISSIONS RESULTS

GHG emissions estimates were reported in metric tons (MT) of carbon dioxide equivalent (CO₂e) and include estimated values for the following GHGs: CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorochemicals (PFCs), and sulfur hexafluoride (SF₆). GHG emissions were estimated for the following sectors: industry, transportation, commercial and residential buildings, agriculture, natural and working lands, and waste and materials management. Further analysis has broken down emissions by residential, commercial, and industrial sectors.

Each sector included within this analysis is composed of the following emissions sources and sinks:

Industry: Stationary combustion, electricity use, and industrial emissions from FLIGHT not covered by stationary combustion or electricity.

Transportation: Mobile combustion, including vehicles and airplanes.

Commercial & Residential Buildings: Stationary combustion and electricity use.

¹⁴ Fong, W.K, M. Sotos, M. Doust, S. Schultz, A. Marques, and C. Deng-Beck. 2022. *Global Protocol for Community-Scale Greenhouse Gas Inventories, An Accounting and Reporting Standard for Cities, Version 1.1*. Online posting. GHG Protocol. Accessed January 2024. Retrieved from: https://ghgprotocol.org/sites/default/files/standards/GPC_Full_MASTER_RW_v7.pdf

¹⁵ U.S. Department of Agriculture (USDA). 2024. "COMET Farm, Whole Farm and Ranch Carbon and Greenhouse Gas Accounting System." Modified 30 January 2024. Retrieved from: <https://comet-farm.com/Home>

Agriculture: Fertilizer practices.

Natural & Working Lands: Urban forestry and large parks.

Waste & Materials Management: Solid waste, waste generated and treated outside the MSA, and wastewater treatment.

Table 2 summarizes GHG emission results by sector and gas, as well as total net GHG emissions across the Indianapolis-Carmel-Anderson MSA.

Table 2. GHG Emissions by Sector and Gas (MT CO₂e)

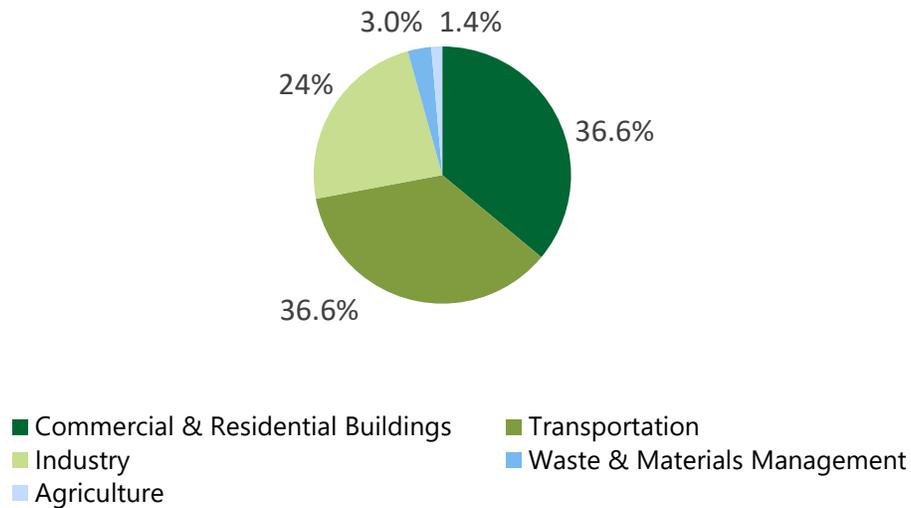
	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total
Industry	7,791,829	30,863	28,235	-	-	251,256	8,102,183
Transportation	11,978,553	120,119	280,151	-	-	-	12,378,822
Commercial and Residential Buildings	12,306,812	30,911	31,612	-	-	-	12,369,335
Agriculture	-	-	481,251	-	-	-	481,251
Natural and Working Lands	(580,821)	-	-	-	-	-	(580,821)
Waste and Materials Management	-	956,520	70,838	-	-	-	1,027,358
Total Emissions (Net)	31,496,373	1,138,414	892,087	-	-	251,256	33,778,130

EMISSIONS BY SECTOR

Total net GHG emissions in the Indianapolis-Carmel-Anderson MSA totaled 33,778,130 MT CO₂e, with most emissions from commercial and residential buildings (36.6%), transportation (36.6%), and industry (24%) sectors as shown in Figure 3.¹⁶ Total percentages sum to 102% due to rounding.

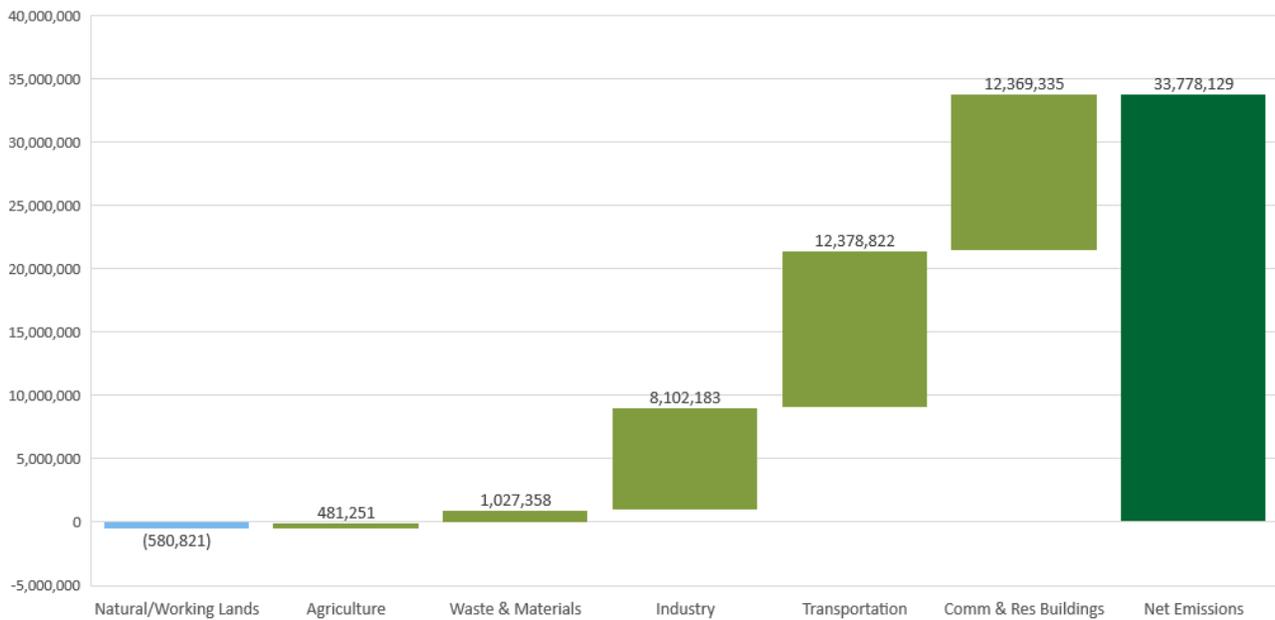
¹⁶ This inventory assumes all power generated within the region is consumed within the region. Emissions from power generation are accounted for within electricity use for commercial & residential buildings and industry. Per GHG Protocol guidelines for community-scale GHG inventories, this inventory reports both power generation and electricity use emissions separately to avoid double counting.

Figure 3. Relative GHG Emissions by Sector



As depicted in Figure 4, gross GHG emissions across all sectors totaled 34,358,951 MT CO₂e. GHG emissions sequestered from natural and working land carbon sinks totaled 580,821 MT CO₂e.

Figure 4. Total Net GHG Emissions (MT CO₂e)



Most residential emissions were from transportation, followed by electricity use in buildings. The main sources of emissions across the commercial and industrial sectors was electricity use, followed by stationary combustion. A detailed analysis of the composition of residential, commercial, and industrial sector emissions is summarized in Figure 5.

EMISSIONS BY GAS

Across the Indianapolis-Carmel-Anderson MSA, the sectors with the highest CO₂ emissions included industry, transportation, and commercial and residential buildings, due to electricity use and fossil fuel consumption. The sector with the highest methane emissions was waste and materials management due to landfills and wastewater treatment facilities. The sectors with the highest nitrous oxide emissions included agriculture, due to fertilizer application practices, and transportation, due to gasoline and diesel combustion. Refer to Table 3 for further analysis of sub-sector emissions.

Table 3. GHG Emissions by Sub-Sector (MT CO₂e)

	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total
Stationary Combustion	5,945,199	14,615	3,263	-	-	-	5,963,077
Mobile Combustion	11,668,129	119,802	279,903	-	-	-	12,067,834
Electricity (Location Based)	12,605,017	32,051	44,702	-	-	-	12,681,770
Solid Waste	-	299,190	-	-	-	-	299,190
Wastewater Treatment	-	325,010	70,838	-	-	-	395,848
Water	-	-	-	-	-	-	-
Ag. & Land Management	-	-	481,251	-	-	-	481,251
Urban Forestry & Large Parks	(580,821)	-	-	-	-	-	(580,821)
Exported Waste	-	332,320	-	-	-	-	332,320
Other	1,858,849	15,425	12,130	-	-	251,256	2,137,661
Total Emissions (Gross)	32,077,195	1,138,413	892,087	-	-	251,256	34,358,951
Total Emissions (Net)	31,496,373	1,138,413	892,087	-	-	251,256	33,778,130

ENERGY CONSUMPTION

Across all sectors, fuel consumption and electricity use (from power sources located within and outside the MSA) contributed to the largest amount of GHG emissions within the Indianapolis-Carmel-Anderson MSA. The residential sector consumed the most electricity and energy of all sectors. Total energy consumption was 277,709,372 MMBtu, and total electricity consumption was 26,563,861 megawatt-hours (MWh). A detailed analysis of energy and electricity consumption by sector is shown below.

Figure 5. Energy and Electricity Consumption

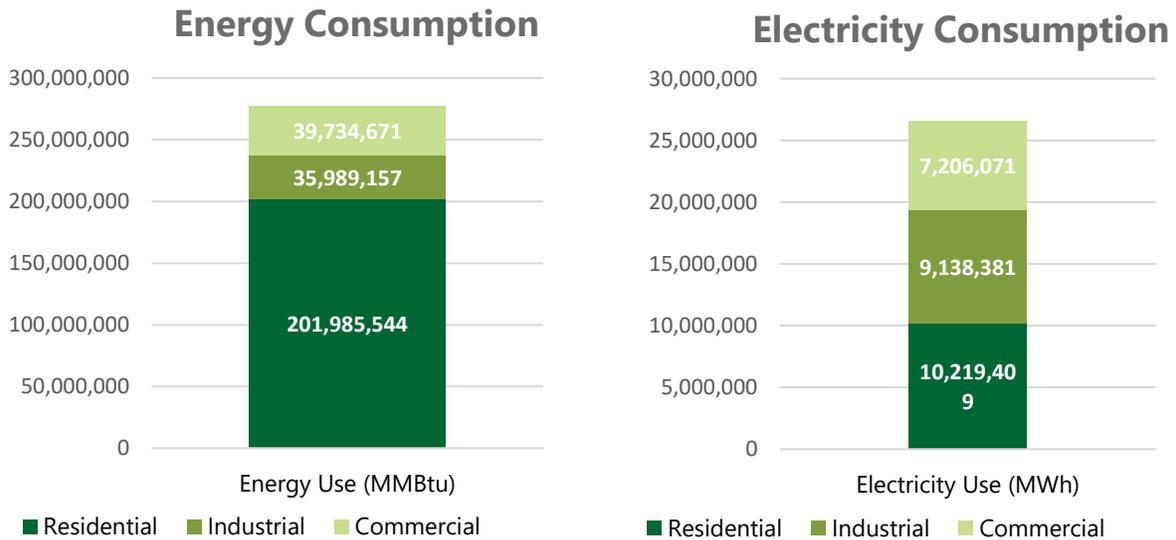


Table 4. Energy Usage and Generation GHG Emissions (MT CO₂e) provides details on total emissions from electricity use separated by those resulting from electricity generated within the Indianapolis-Carmel-Anderson MSA and electricity imported from outside the MSA. Total emissions resulting from electricity generation within the MSA were 3,365,556 MT CO₂e.

Table 4. Energy Usage and Generation GHG Emissions (MT CO₂e)

	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	Total
Imported Electricity Usage	9,242,882	30,490	42,842	-	-	-	9,316,214
Electricity Generation in MSA	3,362,135	1,561	1,860	-	-	-	3,365,556
Electricity Total Emissions	12,605,017	32,051	44,702	-	-	-	12,681,770



4. Business-as-Usual Greenhouse Gas Emissions Projections

OVERVIEW

This business-as-usual (BAU) greenhouse gas (GHG) emissions scenario represents a forecast of emissions through 2050 based on existing trends, assuming there are no major shifts in current policies, practices, or technological innovations aimed at reducing emissions. This scenario serves as a baseline for evaluating the effectiveness of different mitigation strategies and illustrating the advantages of implementing measures to lower GHG emissions.

The BAU GHG emissions scenario models emissions reductions from Central Indiana’s baseline 2022 GHG inventory through 2050. The following sectors are included in the scenario projections: agriculture, commercial and residential buildings, electricity generation, industry, natural and working lands, transportation, waste and materials management.

METHODOLOGY

The county-level GHG emissions inventories were used as the basis for calculating emissions projections for the CIRDA region for 2022-2050. Sector-specific emissions for all of Indiana were determined using EPA’s State Projection Tool (SPT)¹⁷, utilizing default data inputs. The emissions trajectories by sector were normalized to 2022 values, and applied to CIRDA’s 2022 baseline emissions, generated by combining the county-level GHG inventories, as described in the previous section. The exception is the Natural and Working Lands sector, which is not covered by the SPT, and whose emissions are assumed to be unchanged through 2050 in the BAU scenario.

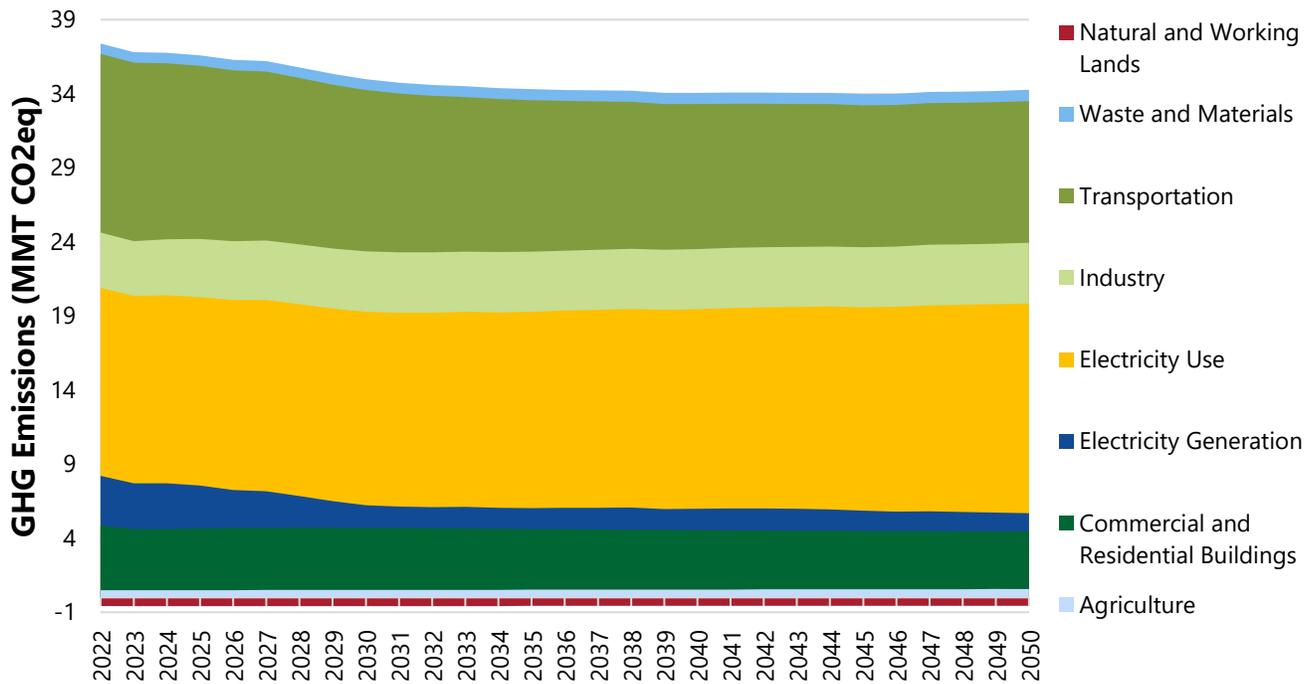
¹⁷U.S. Environmental Protection Agency (EPA) 2024. “State Inventory and Projection Tool.” Accessed November 2024. Retrieved from: [State Inventory and Projection Tool | US EPA](#)

RESULTS

As shown in Figure 6, CIRDA’s GHG emissions are projected to decrease slightly from 2022 to 2050, primarily because of relatively few reductions in electricity generation, transportation, and building emissions, as compared to increases in emissions from all other sectors. Reductions from electricity generation are likely to be due to coal plants within the region reaching the end of life and converting to a less carbon intensive fuel source. Transportation and building emissions reductions are likely due to a slightly cleaner grid supplying electricity to these sectors in addition to a reduction in fossil fuel consumption with electric vehicles and commercial and residential buildings. Electricity use remains the highest source of emissions. Electricity use emissions increase slightly, despite a high anticipated increase in electricity consumption, likely due to the integration of clean energy into the MISO-C grid.

The BAU scenario serves as a reference case, showing what emissions might look like without additional interventions, and it is the foundation for evaluating the emissions impact of proposed GHG emissions reduction measures as shown in Section 5. The draft GHG emission reduction measures were developed through extensive stakeholder engagement and designed to reflect projected trends from the BAU scenario.

Figure 6. BAU GHG Emissions projection by sector





5. Emission Reduction Strategies & Measures

This draft report includes a set of ten GHG reduction measures, comprising a comprehensive set of strategies most suited to Central Indiana to meaningfully reduce GHG emission reductions across the region. Each of the measures addresses the most important benefits identified by communities throughout the planning process, including improved air quality, public health, alternative transportation, green space, and waste management, to name a few. These measures also foster economic opportunities for all jurisdictions across the region, inclusive of both urban centers and rural communities, which are outlined in the tables below.

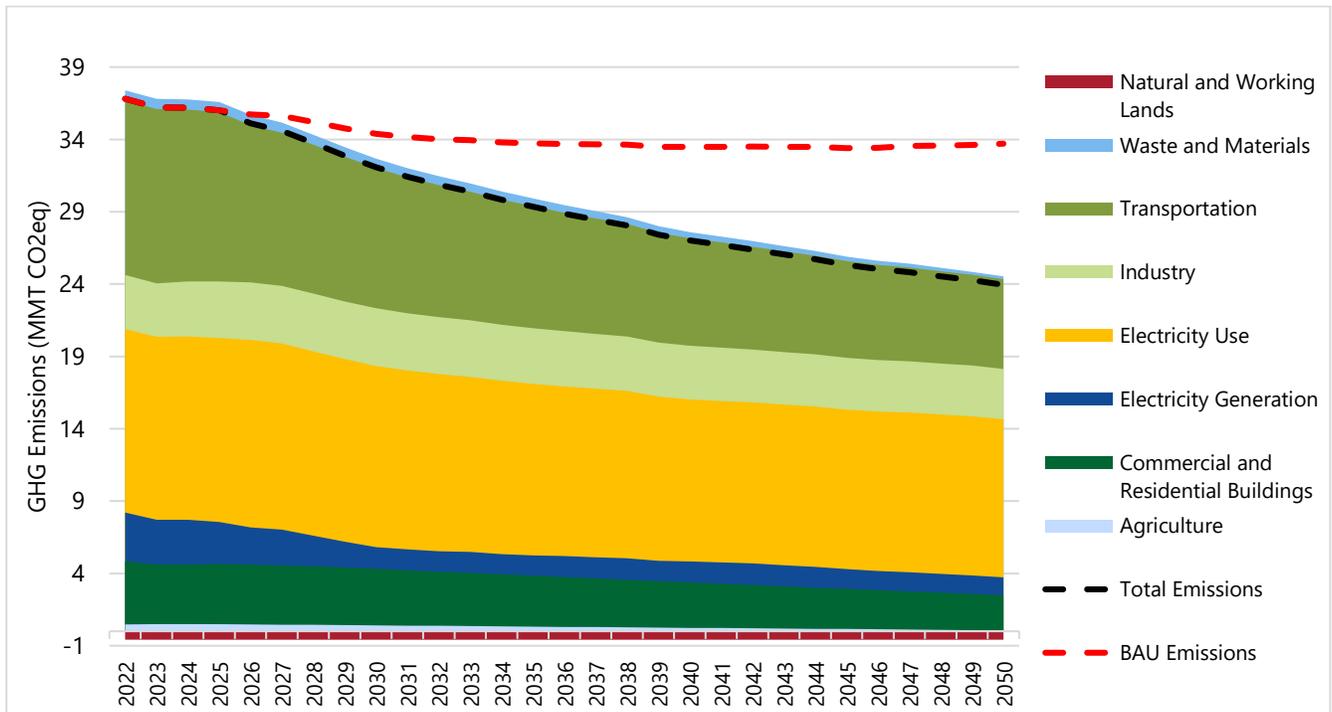
The strategies set forth in this report were selected through a rigorous decision-making process informed by an analysis of highest emitting sectors, potential community co-benefits, feasibility of implementation, an evaluation of regional support, and feedback from engagement with the public and regional subject-matter experts. The Project Team designed a process for identifying and prioritizing GHG reduction measures that integrated extensive research with stakeholder feedback and a thorough analysis to shape the final list of GHG reduction measures, which is described in Figure 7.

Figure 7. Process to Develop the Priority List of GHG Reduction Measures



Through the GHG reduction measures outlined in this plan, Central Indiana aims to reduce greenhouse gas emissions by 20% relative to a 2022 baseline by 2035, and 35% relative to a 2022 baseline by 2050. This planned implementation GHG emissions reduction scenario is outlined in Figure 8 below.

Figure 8. GHG Emissions Reduction Scenario



Most emissions reductions are projected to occur in the transportation sector, because of the expansion of charging infrastructure for light, medium, and heavy-duty vehicles in the public network and public fleet conversion to EVs. Additionally, the integration of additional clean energy into local power sources will reduce electricity generation emissions as the need for fossil fuel combustion power in the region decreases. However, GHG emission reductions are limited for electricity use, because the clean energy produced in the Central Indiana region is not enough to offset the coal and natural gas combustion power produced outside of the region that feeds the electric grid Central Indiana utilizes. Therefore, it is critical for the region to prioritize efforts to increase local clean energy production and collaboration with utilities to source clean energy, as electrification of transportation and buildings are key strategies to reduce emissions that rely on a clean grid.

Emissions reductions are also expected to occur in the agriculture and natural and working lands sectors due to soil conservation practices and expansion of green spaces. Additionally, landfill diversion initiatives for waste-to-energy facilities, recycling, and composting will reduce emissions in the waste and materials management and electricity generation sectors.

Efforts to reduce emissions in industry centers around energy efficiency and alternative fuels, including hydrogen, which will likely not be brought to market in the region until around 2040, resulting in limited GHG emissions reductions.

The following ten GHG reduction measures outlined in this section seek to build capacity for sustained action on climate change mitigation that is unique to the Central Indiana region and supports the emissions reduction projection outlined in the figure above.

REDUCE NUTRIENT RUNOFF FROM CROPLANDS

5.1



GHG Reduction Measure #1:

Reduce Nutrient Runoff from Croplands

Sector	Agriculture
Description	The agriculture sector plays a vital role in Central Indiana’s economy, environment, and community life. Central Indiana is a prominent producer of corn and soybeans, amongst other crops. Unfortunately, nutrients and chemicals from crop land can leach into water ecosystems in the central Indiana region. Certain methods of crop production can also emit harmful air pollutants and greenhouse gases into the atmosphere. To reduce impacts on central Indiana’s air, soil, and water resources, the strategy set forth in this report promotes methods of fertilizer conservation and soil conservation practices such as low/no till and cover cropping. These efforts will be achieved through educational programs, such as at Conner Prairie, and the expansion of existing economic incentive programs. This measure is intended to be implemented in predominantly rural communities with a significant amount of cropland.
Active Programs	National Water Quality Initiative (NRCS), Conservation Stewardship Program (NRCS), Environmental Quality Incentives Program (NRCS), Conservation Reserve Enhancement Program (ISDA), Clean Water Indiana (ISDA), Clean Water Act Section 319 and 205(j) (IDEM), Cover Cropping Systems Initiative, Clear Choices Clean Water Program (Indianapolis Dept of Public Works), Purdue Extension
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 99,173 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 495,866
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including Purdue Extension, Indianapolis Department of Public Works, and Connor Prairie. IDEM and ISDA can provide additional policy, grant, and education assistance.
Community Co-Benefits	Local benefits include improved water quality, enhanced soil health, and greater protection of aquatic ecosystems and water supply resources. It also promotes economic efficiency through optimized fertilizer use and increased resilience to extreme weather events. Furthermore, this strategy safeguards public health, which is important to LIDACs that face disproportionate burden under the BAU scenario, by lowering the risks of harmful algal blooms, nitrate contamination and reducing atmospheric particulate matter that can cause asthma and other health harms.
Potential Disbenefits	Challenges to producers can include increased upfront costs for equipment upgrades, new tools, or infrastructure. Transitioning to new nutrient management strategies may also require additional labor and training. In some cases, farmers might experience short-term yield reductions as they adjust to less intensive fertilizer use or shift cropping systems. Regulatory compliance and monitoring requirements could add administrative burdens. Additionally, without adequate financial or technical support for LIDACs, smaller or resource-limited farms may struggle to implement runoff reduction measures equitably, potentially widening gaps in profitability.

ENERGY EFFICIENCY AND ELECTRIFICATION OF RESIDENTIAL, COMMERCIAL, AND PUBLIC BUILDINGS

5.2



GHG Reduction Measure #2:

Energy Efficiency for Residential, Commercial and Public Buildings

Sector	Commercial and Residential Buildings
Description	Energy efficiency upgrades provide a wide range of economic and health benefits through lower building energy consumption. Additionally, efficiency improvements are a pathway to greater affordability and equity for LIDACs. To address these regional challenges, this measure incentivizes the installation of electric and hybrid heating systems and energy efficient retrofits for buildings by promoting the Thriving Buildings program energy benchmark for buildings 50,000 sq ft or larger, and encouraging benchmarks for buildings smaller than 50,000 sq ft. Additionally, this strategy proposes to utilize the Indiana Energy Independence Fund to develop localized revolving loan funds for energy efficiency and renewable upgrades, prioritizing low-income areas. This measure is intended to be implemented throughout the Indianapolis MSA.
Active Programs	Indiana Energy Saver Program (OED), Thriving Buildings (City of Indianapolis), Thriving Non-Profits (City of Indianapolis), Indiana Energy Independence Fund, and local government building upgrades
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 823,788 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 3,766,196
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including the City of Indianapolis Office of Sustainability and the Indiana Energy Independence Fund. Duke Energy and AES Indiana can provide support through their programs and Indiana Office of Energy Development can provide policy, grant, and education assistance.
Community Co-Benefits	Energy efficiency retrofits can provide economic benefits for building owners such as reduced utility costs, increased property value, and increased resilience to extreme weather events, addressing key affordability and energy equity challenges for LIDACs. Additionally, this strategy facilitates a market for HVAC, electric, and clean energy jobs. Electrification and energy efficiency upgrades can also reduce indoor air pollutants, which has a positive impact on public health. Finally, renewable energy and efficiency can reduce reliance on grid electricity, thereby enhancing regional grid stability.
Potential Disbenefits	There is a financial risk of potential high upfront costs to building owners, limited access to financing for low-income households, and potential inequities if incentives disproportionately benefit wealthier property owners. There is also a potential for strain on the grid if electrification outpaces infrastructure upgrades. Additionally, there is a risk of workforce displacement in fossil fuel-based heating and appliance sectors.

UTILITY-SCALE CLEAN ENERGY

5.3



GHG Reduction Measure #3:
Utility-Scale Clean Energy

Sector	Electricity Generation
Description	<p>Electricity consumption is anticipated to increase across Central Indiana due to population growth, industry, and data center prevalence. In Indiana, coal and natural gas are the primary fuels producing electricity, and the grid covering Central Indiana is not anticipated to reduce its carbon intensity, which contributes significant emissions in the business-as-usual scenario. Therefore, it is critical that Central Indiana explore clean energy solutions to facilitate meaningful emissions reductions through electrified building and transportation strategies. This strategy focuses on enhancing the construction of utility-scale solar, wind, battery storage infrastructure, and small modular reactors by supporting clean power development and working with the Office of Energy Development's (OED) Commercial Solar and Wind Energy Development Center to mitigate barriers to development. It is recommended that restored brownfield sites are prioritized for solar energy system installation to limit land use conflicts. In addition, it is recommended that localities partner with utilities to source renewable energy. This strategy will span throughout the Central Indiana region with solar and wind prioritized for northern counties, and solar for southern counties.</p>
Active Programs	N/A
GHG Emissions Reductions	<p>Cumulative emissions reduced 2025-2030 (MT CO₂e): 431,250</p> <p>Cumulative emissions reduced 2025-2050 (MT CO₂e): 1,431,421</p>
Implementing and Supporting Entities	<p>Local entities with active programs will implement this strategy, including the City of Indianapolis Office of Sustainability, IU Environmental Resilience Institute, and local governments and businesses. Duke Energy, AES Indiana, Wabash Valley Power Alliance, Hoosier Energy, and the Indiana Office of Utility Consumer Counselor can provide support through programs and OED can provide policy, grant, and education assistance.</p>
Community Co-Benefits	<p>Expansion of clean energy resources can have economic benefits on communities, including lower costs for residents and commercial businesses, land reuse and revitalization, and job creation in clean energy. This is particularly impactful for LIDACs to enhance energy affordability and equity. This measure can also improve energy independence, grid reliability, and grid strain. The reduction of coal and natural gas combustion can significantly improve local air quality, reducing key air pollutants such as coal ash and other leachates that contribute to respiratory illnesses, decrease water use, and environmental degradation. This is particularly important for LIDACs that are disproportionately impacted by air quality alerts.</p>
Potential Disbenefits	<p>There is a risk of noise and traffic due to construction and operations. Additionally, there is a risk of siting in LIDACs and natural habitats, which could disrupt local wildlife and migratory corridors. Furthermore, there is risk of community opposition to large energy infrastructure, strain on local land resources, and impact on property values.</p>

DISTRIBUTED AND COMMUNITY SOLAR

5.4



GHG Reduction Measure #4:

Distributed and Community Solar

Sector	Electricity Generation
Description	As described in measure #3, the Central Indiana region is anticipating an increase in energy consumption in the coming years. To ensure electricity consumed is low emission, this strategy incentivizes the construction of distributed solar energy and storage infrastructure by carving out funding opportunities through a revolving loan fund and providing resources to building owners to assist in navigating solar cooperatives and bulk purchasing contracts. OED can support communities to earn "commercial renewable energy ready" certifications as part of the Commercial Solar and Wind Energy Development Center. It is recommended that localities collaborate with utilities to provide net metering options or alternative compensation plans for customers, and coordinate with local planners to streamline permitting. Finally, localities can prioritize developing solar in land use saving practices, with agrivoltaics, solar canopies on parking lots and other commercial facilities, and brightfields.
Active Programs	Distributed solar pilot program (Office of Sustainability, Solar United Neighbors, Indianapolis Neighborhood Housing Partnership), Indiana Energy Independence Fund, Indiana Energy Property Tax Exemption
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 37,925 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 180,729
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including the Indianapolis Office of Sustainability, IU Environmental Resilience Institute, local governments, businesses, residents, and building owners. OED can provide additional policy, grant, and educational assistance. Duke Energy, AES, Wabash Valley Power Alliance, and Hoosier Energy can provide support as operating utilities.
Community Co-Benefits	The expansion of distributed energy can have a positive economic impact by lowering utility costs, providing an income stream through renewable energy sales, and facilitating a clean energy workforce, which can increase energy affordability and reduce energy burden for LIDACs. By increasing local energy generation, this measure can bolster a sense of community ownership over energy resources and reduce local dependence on fossil fuels. This measure will also diversify Central Indiana's energy portfolio, improving grid reliability, reducing transmission losses and enhancing resilience to extreme weather events. Finally, limiting coal and natural gas combustion will reduce air pollution, positively impacting public health and reducing environmental degradation, as described in measure #3.
Potential Disbenefits	There is financial risk of passing on initial costs to consumers. There is also a risk of community opposition from land conflict, siting in environmentally sensitive areas, benefit distribution, and uneven access among renters, multi-family units, and low-income households. In addition, there may be challenges with interconnection delays, utility coordination, and administrative complexity in managing shared ownership.

INDUSTRIAL ENERGY EFFICIENCY AND ALTERNATIVE FUELS

5.5



GHG Reduction Measure #5:

Industrial Energy Efficiency and Alternative Fuels

Sector	Industry
Description	<p>Central Indiana’s industrial sector is reliant on fossil fuels that leave industries vulnerable to price volatilities and emit harmful pollutants into surrounding communities and ecosystems. The region is positioned to be a leader in modernizing the industrial sector through local innovation of alternative fuel technologies and energy efficient operations. To cultivate a greener industrial sector, this measure will incentivize the adoption of energy efficiency retrofits at industrial facilities through the expansion of energy benchmarking programs, such as the Energy Insights Program, and incentivize the adoption of energy efficient machinery or industrial processes with revolving loan funds through the Indiana Energy Independence Fund's green bank. Additionally, this measure supports the production and use of green hydrogen from the Midwest Hydrogen Hub (MachH2) in industrial ethanol production and refining, and cement, glass, and steel production, as well as in aviation and long-haul trucking. Energy Systems Network launched the Hydrogen Industry Alliance in May 2024, which will play a role in commercialization, advocacy, and education to the widescale adoption of hydrogen across central Indiana. This is a longer-term strategy, which will likely not begin operation until around 2040.</p>
Active Programs	Purdue Industrial and Assessment Center, Indiana Energy Independence Fund, Midwest Hydrogen Hub (MachH2), and Energy Insights Program (currently paused)
GHG Emissions Reductions	<p>Cumulative emissions reduced 2025-2030 (MT CO₂e): 309,237</p> <p>Cumulative emissions reduced 2025-2050 (MT CO₂e): 2,091,932</p>
Implementing and Supporting Entities	Energy Systems Network, Purdue Industrial and Assessment Center, Indiana Energy Independence Fund
Community Co-Benefits	<p>Diversifying energy sources and limiting electricity consumption for industrial operations can enhance economic benefits such as improving process reliability and product quality, lower fuel costs by increasing flexibility in fuel sourcing, facilitating innovation in low-carbon technologies and industrial design, reducing production waste, developing a clean energy workforce, and reducing exposure to volatile energy markets. Reducing fossil fuel consumption provides environmental benefits by reducing harmful air pollutants and improving local health outcomes.</p>
Potential Disbenefits	<p>There may be financial risk with high upfront capital costs for retrofitting, potential disruption to production during equipment upgrades or fuel transitions, limited availability or scalability of alternative fuels for certain industrial processes, risk of workforce displacement due to automation or process changes, and potential compatibility issues with existing infrastructure. Additionally, there may be increased complexity in regulatory compliance and reporting and uncertainty around long-term fuel supply chains and market stability. There is also a potential risk of unintentionally passing the costs of new technology onto residential customers through raised rates.</p>

ENHANCE GREEN SPACES

5.6



GHG Reduction Measure #6:
Enhance Green Spaces

Sector	Natural and Working Lands
Description	In Central Indiana, rapid development can strain natural resources and minimize the prevalence of natural landscapes. Green spaces—including parks, urban forests, and wetlands—are vital to the health and resilience of communities. Preserving and expanding green spaces not only protects biodiversity and removes environmental pollutants, but can also strengthen the region’s resilience to severe weather events and enable communities to maintain a high quality of life. This strategy promotes the reclamation and revitalization of wetlands and forested lands across suburban and rural central Indiana through the expansion of incentive and educational programs. In urban areas, impactful urban tree planting to reduce urban heat island effect and green spaces to LIDAC communities should be prioritized. Additionally, green infrastructure should be incorporated into planning, such as with permeable pavements, rain gardens, tree boxes, and green roofs, for new infrastructure. This measure will span throughout the entire central Indiana region.
Active Programs	Urban Wildlife Habitat Cost Share Program (DNR), 30,000 Trees (Indy Dept of Public Works), Wetlands Mitigation Monitoring (IDEM), 1 Million Trees (Land Trust), Keep Beautiful Branches (Indianapolis, Hamilton County, etc.), Project Greenspace
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 341 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 1,911
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including the Central Indiana Land Trust, Indianapolis Department of Public Works, local governments, businesses, residents and building owners. IDEM, DNR and INDOT can provide additional policy, grant, and education assistance.
Community Co-Benefits	Access to green spaces can result in improved neighborhood aesthetics, social cohesion, native biodiversity, environmental literacy, community well-being, mental health, recreational access, and reduced urban and suburban sprawl. This strategy can also reduce urban heat island effects, which LIDACs pose a higher risk of experiencing. Green spaces can also reduce the prevalence of stormwater runoff through the reduction of impervious surface area, which increases community resilience to flooding and other weather events.
Potential Disbenefits	Temporary noise and disruption from landscaping, grading, and installation activities; risk of siting in areas with limited accessibility or conflicting land uses; potential disturbance to existing ecosystems or soil conditions; potential for community concerns over displacement of other amenities; and potential for uneven distribution of benefits across neighborhoods, reinforcing existing inequities. Additionally, wetlands pose a unique risk for increased methane emissions.

ADVANCED TRANSPORTATION TECHNOLOGY: ELECTRIC VEHICLES, CHARGING INFRASTRUCTURE, AND FREIGHT EFFICIENCIES

5.7



GHG Reduction Measure #7:

Advanced Transportation Technology: Electric Vehicles, Charging Infrastructure, and Freight Efficiencies

Sector	Transportation
Description	Emissions from gasoline and diesel vehicles contribute significantly to localized air pollution. Electric vehicles (EVs) offer a less impactful alternative to traditional fossil fuel powered vehicles, producing zero tailpipe emissions, which can improve local air quality and public health. Central Indiana is positioned to become a hub for EV innovation with manufacturing companies fueling job growth and technological advancement, coupled with its strong automotive legacy and skilled workforce. This measure incentivizes the adoption of EVs by installing charging infrastructure along high-traffic highways, roads, freeways, and exits. It is also recommended that public fleets convert to electric vehicles upon end of life. Recognizing that Central Indiana is a highly trafficked freight corridor, this strategy also incentivizes alternative fuel charging infrastructure for low emissions goods movement technologies. This measure will span throughout the entire central Indiana region.
Active Programs	NEVI Indiana EV Deployment Plan (INDOT), CIRCLE 2050 Metropolitan Transportation Plan (IMPO), Go EV IN (Drive Clean Indiana), Regional Freight Plan (IMPO), Transportation Technology Pilots (INDOT), AES Indiana’s Electric Vehicle (EV) plan
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 523,549 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 1,195,271
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, the Indianapolis Zoo, AES Indiana, local governments, vehicle businesses, residents, and building owners. INDOT and Indiana Economic Development can provide additional policy, grant, and education assistance.
Community Co-Benefits	Reducing the use of gasoline and diesel vehicles can improve local air quality, and reduce particulate matter and tailpipe emissions, which can have a positive impact on public health. This can increase access to clean mobility charging options, improving transportation reliability and urban livability. This can also provide economic benefits by contributing to workforce development, sparking innovation in transportation, and enhancing fuel efficiency and freight logistics. Additionally, this measure can reduce noise pollution from cars, and limit regional dependence on petroleum-based fuels.
Potential Disbenefits	There is a risk of temporary noise, increased traffic and localized emissions during the construction and installation of charging stations and freight upgrades. Additionally, there is risk of siting infrastructure in environmentally sensitive areas, potentially disturbing urban ecosystems or green corridors. There is also potential for community resistance to large-scale charging hubs, land use conflicts, and risk of inequitable access if infrastructure is not strategically placed in LIDACs or at diversified housing units. There is also a risk of grid reliability with an increase in electricity demand.

TRANSPORTATION ALTERNATIVES: BICYCLES, PEDESTRIAN WALKWAYS, AND MOBILITY DEVICES

5.8



GHG Reduction Measure #8:

Transportation Alternatives: Bicycles, Pedestrian Walkways, and Mobility Devices

Sector	Transportation
Description	Bikes, pedestrian walkways, and mobility devices are essential for building a more inclusive, sustainable, and connected transportation system in Central Indiana. As the region continues to grow, these modes of travel offer affordable and low-emission alternatives to driving, helping reduce traffic congestion and improve air quality. This strategy incentivizes the use of transportation alternatives by supporting the enhancement of biking infrastructure, expanding the regional bikeway network and the use of walking and biking trails through trail-oriented development (TrOD), and providing resources and support for regional micromobility programs, particularly in communities outside of the urban core and LIDACs. This measure will span throughout the central Indiana region.
Active Programs	CIRCLE 2050 Metropolitan Transportation Plan (IMPO), Regional Active Transportation Plan (IMPO), Central Indiana Transit Plan (IMPO), Nickel Plate Trail, Eagle Creek Trail, Monon Trail, B&O Trail
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 2,279 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 3,272
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including IMPO, CIRTA, the Indianapolis Zoo, local governments including Franklin, Plainfield, Indianapolis Parks and Recreation, and Carmel, businesses, residents, and building owners. INDOT can provide additional policy, grant, and education assistance.
Community Co-Benefits	This measure reduces community reliance on personal vehicle travel, reducing traffic congestion, sprawl, enhancing local air quality, and promoting active transportation, which results in an overall positive impact on residents' physical health. Additionally, this measure increases community well-being by enhancing community connectivity, walkability, public space utilization, urban aesthetics, and access to safe, low-cost transportation options. This measure also benefits LIDACs, promoting positive health outcomes, enhanced safety, better access for individuals using mobility devices such as and improved access for those who cannot drive, including children and seniors.
Potential Disbenefits	There is a risk of temporary noise, traffic congestion, and emissions from construction of bike lanes, sidewalks, and mobility infrastructure. Additionally, there is risk of siting in green spaces, potentially disturbing tree cover and local habitats during installation. There is also potential for community resistance due to parking loss or changes to traffic flow, and a risk of inequitable access if infrastructure bypasses LIDACs. Finally, there are potential safety concerns about if the infrastructure is poorly maintained or lacks adequate lighting and signage.

WASTE TO ENERGY

5.9



GHG Reduction Measure #9:
Waste to Energy

Sector	Waste and Materials Management
Description	Waste-to-energy (WTE) facilities at landfills and wastewater treatment plants are increasingly important for Central Indiana as the region seeks sustainable solutions to waste management and energy production. These facilities capture methane and other biogases from the breakdown of waste and wastewater, which is then converted into usable electricity or heat. To reduce air, soil, and water pollution, this strategy supports the development of waste-to-energy facilities across landfills and wastewater treatment plants in the Indianapolis MSA. This strategy also includes programs that collect leftover food waste from events, restaurants, and grocery stores, and transport to a local digester. The digesters should produce RNG and/or electricity, providing renewable energy to businesses and fleets in the central Indiana area. This measure is intended to span throughout the Central Indiana region
Active Programs	Indianapolis Area Renewable Energy and Waste Reduction Operation (IMS, ADA, Newtrient), Noblesville, Carmel, Speedway, Shelbyville
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 15,335 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 103,521
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including IMS, American Dairy Association, Newtrient, local governments such as Noblesville, Carmel, Shelbyville, Speedway, Indianapolis, and other cities with larger wastewater treatment plants and landfills. IDEM can provide additional policy, grant, and education assistance.
Community Co-Benefits	This strategy has economic benefits, including improving waste management efficiency, reducing landfill volume, energy recovery and sale, resource utilization and circular economy opportunities, and landfill diversion. Additionally, this strategy increases community resilience to energy costs and reliance on fossil fuels by increasing local energy generation. Furthermore, reducing landfilled waste can enhance local air quality and reduce local methane emissions and risk of groundwater contamination from leachate and toxic substances, which disproportionately impact LIDACs.
Potential Disbenefits	This strategy poses a risk of noise, traffic, and emissions from facility construction and operations. Additionally, there is risk of siting new facilities in LIDAC or environmentally sensitive areas that can disrupt nearby habitats, ecosystems, and communities. There may also be community opposition to incineration-based technologies due to health and environmental concerns from toxic byproducts such as dioxins or heavy metals. Finally, this measure may discourage upstream waste reduction and recycling efforts.

LANDFILL WASTE REDUCTION AND DIVERSION

5.10



GHG Reduction Measure #10:

Landfill Waste Reduction and Diversion

Sector	Waste and Materials Management
Description	Over the next 25 years, population, urban and industrial activity in Central Indiana will lead to an increase in municipal solid waste generation. This waste is likely to end up in landfills, which can contribute to soil and groundwater contamination if leachate systems are overwhelmed, especially during periods of heavy rainfall. Additionally, landfills are a source of criteria and hazardous air pollutant emissions. To safeguard local water sources, ecosystems and local communities, this strategy diverts waste from landfills, increasing composting, reuse and recycling. This can be achieved by promoting trash contracts to expand city-wide recycling services for residents across the Central Indiana region and partnering with composting service providers to expand subscription composting, as described in THRIVE Indianapolis. This measure will span throughout the Indianapolis MSA and greater Central Indiana region.
Active Programs	Recycling Program (Indy Dept of Public Works), Thrive Indiana Schools (Office of Sustainability), Castaway Compost, Earth Mama Compost, Green with Indy, Indy Go Green, City Leaf Composting, local governments implementing residential curbside recycling, Indianapolis Zoo, and RecycleForce
GHG Emissions Reductions	Cumulative emissions reduced 2025-2030 (MT CO ₂ e): 64,165 Cumulative emissions reduced 2025-2050 (MT CO ₂ e): 485,083
Implementing and Supporting Entities	Local entities with active programs will implement this strategy, including the City of Indianapolis Office of Sustainability, Indianapolis Department of Public Works, Earth Charter, local governments including cities with landfills, residents, and businesses. IDEM can provide additional policy, grant, and education assistance.
Community Co-Benefits	Landfill waste reduction and diversion can safeguard local ecosystems and communities, particularly LIDACs that are disproportionately impacted by environmental pollution, by improving water quality from reduced leachate, enhancing local air quality by limiting waste combustion, and reducing methane emissions. This strategy has economic benefits from improved waste management efficiency, waste and materials management sector job creation, optimizing resource utilization, and shrinking landfill volume. This measure can also significantly decrease landfill dependency and expand circular economy initiatives.
Potential Disbenefits	This strategy poses a risk of noise and emissions from construction and operation of diversion facilities and increased local traffic and fuel use from expanded waste transport routes. Additionally, there is risk of placing infrastructure in disadvantaged or ecologically sensitive areas that can disrupt nearby ecosystems and wildlife corridors. There may also be public resistance to new facilities due to concerns about odors, pests, or visual impacts, potential for contamination from improperly sorted or processed waste streams, and high resource demands for certain technologies, including water and electricity.



6. Next Steps

Indiana Metropolitan Planning Organization (IMPO) is actively engaging with the public through October 2025 to gather feedback on the ten emissions reduction strategies described in Section X of the draft report. The project team will review all stakeholder feedback and integrate into the final version of the CCAP report, which will be published to the EPA in December 2025.

The project team will also continue developing the remaining aspects of the CCAP, including analyzing the workforce in Central Indiana to ensure there is adequate support to deliver the strategies outlined in the CCAP, identifying viable funding opportunities that can be leveraged to implement the CCAP strategies, and evaluating the implementation authority required for each strategy.

In 2027, CIRDA will publish a Status Report that details implementation progress for measures included in the PCAP and CCAP, any relevant updates to PCAP and CCAP analyses, and next steps and future budget and staffing needs to continue implementation of CCAP measures.

If you have questions about this draft CCAP report or suggestions for the CCAP report or upcoming Status Report, contact CIRDA at info@centralindianarda.org.

